



ENVIRONMENTAL HEALTH & SAFETY (EHS) PROGRAM

*“Exceeding the
Standard for
Our Industry
Since 1988”*



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1.0 INTRODUCTION

This program contains the approved EHS Policies and Procedures for the following Biggs & Narciso Construction Services Inc. All sections within this program were designed to meet or exceed OH&S Canadian Provincial compliance. It is intended to be a useful tool for all directors, project managers, supervisors, employees and sub-contractors in the day-to-day administration of our EHS and related programs.

The documents contained in this program should assist in increasing the understanding and eliminate the need for personal decisions on matters related to the B&N Health and Safety policy and procedures program. It will also help ensure consistency throughout our organization in matters related to the administration of EHS program. This program is not a definitive guideline to government regulations or to practices and procedures applicable under every circumstance. The appropriate inter-provincial compliance or regulations and statutes should be consulted.

This program is distributed to each manager, supervisor and sub-contractor performing work for following B&N Directors, supervisors, project managers and sub-contractors have the responsibility for communicating these policies and procedures to their workers / visitors while implementing and administering these policies in a consistent manner.

Each employee is:

1. Required to abide by these policies and procedures
2. Expected to be familiar with the contents of the B&N EHS Policy and Procedure Program

Any employee may request to view and / or read our EHS Policy and Procedure Program at any time; this EHS Policy and Procedure Program will be posted on all B&N sites.

EHS Policies and Procedures are subject to revision or modification in light of changing conditions, practices or experience. In light of this, new Statements of Policy and Procedure will be issued to program holders and the revised or new policy will be communicated to those employees affected by the change.

Each worker's cooperation is requested in assuring that any changes to this program are promptly included in the program and that corresponding section will be removed in order to eliminate any confusion. Worker, manager, supervisor and sub-contractor are bound by the revised or new policies immediately upon their distribution and communication.

Though this EHS program is intended to be consistent with OHSA Standards, if an area is considered by the reader to be inconsistent, the OHSA standard should be followed.

An Environment Health & Safety Management System is a formal framework for integrating EHS into day to day operations from the planning stages to implementation of projects which includes the identification of hazards, evaluation of risks, elimination or controls of risks, description of internal responsibilities and authorities to ensure a consistent and sustained flow of the system.



HEALTH & SAFETY POLICY STATEMENT

Biggs & Narciso Construction Services Inc. is firmly committed to providing a safe, healthy & environmentally responsible workplace for all employees, sub-contractors, visitors and any person(s) who may be affected by the work of our company. We shall conduct our business in a manner that eliminates or minimizes hazards, provides accident and injury prevention programs and ensures each of our employees returns safely to their families every evening.


Biggs & Narciso Construction Services Inc. commits to providing training as required to our Management, Supervisors and Workers. We will cooperate and consult with relevant personnel as may be required to develop and implement the Health & Safety Program. We commit to conduct our business in compliance with all Occupational Health, Safety and Environmental Legislation.

Biggs & Narciso Construction Services Inc. acknowledges the rights of workers, to know the procedures and safety requirements as it pertains to our work, to participate in our Health & Safety Programs and training, the right to refuse work if they feel they feel it is unsafe but allowing us to address the issues and correct situations. Workers will not be reprimed against for bringing for any Health & Safety concerns to our Company.

Biggs & Narciso Construction Services Inc. does not accept or condone any Workplace Violence or Harassment in our workplaces. Safety is about the respect for our workers, and self-respect from our workers. Each worker & sub-contractor of B&N is held to the expectation that they will work in compliance with this program and all applicable regulations.

We encourage all employees to recognize the need to comply with the Occupational Health & Safety Act., to cooperate with Unions and fellow worker(s), to personally adopt this philosophy and give wholehearted support to our EHS Program.

We are all a team at Biggs & Narciso Construction Services Inc. and safety works best when we all work together and trust that you will join us by making a personal commitment to safety.

President 

Vice-President 

2.00 ENVIRONMENT HEALTH & SAFETY MANAGEMENT SYSTEM

EHS CORPORATE POLICY STATEMENT

2.1.1. OUR VISION WHERE WE ARE GOING...

“Our EHS vision is to foster a culture where our team members believe we are truly concerned with their individual wellbeing.”

Biggs & Narciso Construction Services Inc. (B&N) demonstrates this by ensuring each of us adhere to and demonstrate the commitment to the environment, health & safety as described in our Corporate EHS Policy Statement. Our Corporate Policy also requires every person in the organization to take ownership for the wellbeing of each individual in our employ and in our workplaces.

Our goal is to be a leader in EHS management and achieve “*EHS Excellence*” by; integrating each of these elements into all our core business activities.

- Developing a mindset where every team member is expected to be engaged in the EHS system and act as a “safety champion”
- Set annual achievable ***corporate goals and objectives*** to guide our program and ensure progress.

Our Values

In addition, we want to foster a culture where:

- Our people’s safety, health and general wellbeing is our first priority
- Demonstrate we truly care about the people around us, encourage a “**team**” philosophy throughout our organization
- Encourage active participation by all team members in our EHS program at all B&N locations

We will achieve this high level of performance by integrating these objectives into our business planning, decision-making, performance tracking and reviews processes to ensure we achieve our goals and continually improve upon them. We foster open dialogue with our stakeholders to share relevant information and contribute to the development of sound public policy and business initiatives.

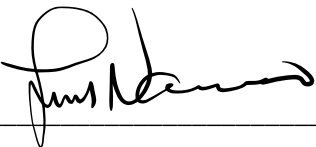
ENVIRONMENTAL CORPORATE POLICY STATEMENT

B&N Construction Services Inc. (B&N) is committed to protecting the environment through best practice environmental management, as well as promoting growth and development within defined environmental parameters to achieve our environmental objectives, B&N will:

- Operate within the principals of Ecologically Sustainable Practices.
- Develop environmental responsible policies, procedures and systems to ensure pollution prevention and minimal environmental impacts, in particular, instructing workers as the correct handling of asbestos materials.
- Minimum waste to land and greenhouse gas emissions by recycling wherever possible. We will continue to identify new areas for improved performance.
- Assess environmental risks and implement appropriate risk management programs to continually improve environmental performance across our business and projects. We will continually evaluate the procedures developed for suitability and compliance.
- Minimize the risk of environmental harm by specialist strategic planning in the areas where asbestos related materials are present.
- Implement a fully documented Environmental Management Plan (EMP) for all high-risk projects undertaken.
- Promote a culture of innovation and participation, encouraging employee contribution to improve the company's environmental performance.
- Promote environmental responsibility to all company personnel, sub-contractors and clients through induction, education and training of our policy.
- Encourage ethical environmental responsibility practice and behaviour including respect for cultural and community values.
- Periodically review our policy and the environmental management plans to ensure both remain relevant to our business.

B&N Construction Services Inc., recognizes that it has an environmental responsibility and accordingly places a high priority on the management of its affair.

The Environmental Policy sets out the Company's commitment to ensuring that sound environmental standards are integrated into all operations and those environmental standards are applied across the Company.

President 

Vice-President 

2.00 ENVIRONMENTAL, HEALTH & SAFETY MANAGEMENT SYSTEM

ENVIRONMENTAL, HEALTH & SAFETY MANAGEMENT SYSTEM (EHSMS)

2.2.1. PURPOSE

In order to ensure a consistent and pro-active approach, Biggs & Narciso Construction Services Inc. (B&N) has launched various initiatives which comprise our internal Environmental, Health & Safety Management System (EHSMS). These core strategic elements are the foundation of this system and are interrelated. It was thought that having these elements as independent programs as in traditional health and safety programs may not be sufficient to help us achieve the level of safety excellence that we desire. The descriptions herein are a basic overview of these processes and are only intended to provide the reader with a snapshot of our EHSMS Program.

2.2.2. SCOPE

The B&N EHSMS is based on a systematic, coordinated and continuous approach to hazard identification, which includes risk assessments, personnel education and loss prevention strategies.

Our EHSMS is part of our strategic planning and thinking, and is integrated in all of our activities which helps us to maintain a competitive edge.

2.2.3. RESPONSIBILITIES

Annual Review

EHSMS is reviewed on an annual basis within the fourth calendar quarter by the Senior Leadership Team in consultation with the EHS Department, to ensure the program reflects the organizations EHS commitment and that the program meets the requirements of all applicable legislative requirements by third party auditors and B&N clients.

Senior Management Responsibilities:

Senior management is responsible to ensure they support the EHSMS Program and that it is adequate for all B&N applications with implementation across the organization. They must also demonstrate leadership and resolve in order for the EHSMS Program to be successful.

Supervisors Responsibilities:

Supervisors are accountable for worker safety and their role is to manage and coach / mentor all workers to develop the required competencies to protect themselves and others. Supervisors must also recognize unwanted behaviours and take the appropriate remedial actions. This is directly tied into our EHS strategies within our EHSMS Program.

Health & Safety Department Responsibilities:

The health & safety department shall post the signed Corporate EHS Policy Statement at the beginning of each calendar year at each facility and include it within each job site HASP binder. The Corporate EHS Policy Statement shall be reviewed with each new worker at their company orientation.

2.2.4. PROCEDURE

Our Values

We want to foster a culture where:

- Our people's safety, health and general wellbeing is our first priority
- Demonstrate that we truly care about the people around us, by encouraging a **"team"** philosophy throughout the organization
- Encourage active participation by all team members in our EHS program
- Empower our people to make effective and responsible decisions to ensure their safety and that of all co-workers
- Demonstrate pro-active environmental stewardship and prevention measures
- All employees are working together toward our corporate goals

Our goal is to be a leader in EHS management by achieving **"EHS Excellence"** in each of these elements through all of our core business activities.

- Develop a mindset where every employee is expected to be engaged in the EHS program and act as a **"safety champion"**
- Set annual **corporate goals** to ensure continued improvement

STRATEGIES FOR EHS TEAM SUCCESS

At B&N we believe that one set strategy may not lead us to the level of safety excellence we strive to achieve and foster in our organization.

Therefore, the Corporate EHS team has established several strategies to help ensure we are successful in our efforts and provide the safest workplace possible for our team members, our clients and the public.

Therefore, after careful consideration, both of these strategies have been implemented.

These two (2) strategies are:

1. Due Diligence
2. Behaviour Based Safety

"PARTNERING TOGETHER TO CREATE A PRO-ACTIVE EHS CULTURE"

- Make a personal commitment to ensure the health, safety and general wellbeing of every worker in our employ
- Build internal and external relationships based on honesty, mutual trust, respect and hard work
- Make every effort to manage and mitigate risk to our team members, our clients, sub-contractors, third parties and our communities
- Continuously promote team integrity...doing what we say we will do and then going beyond people's expectations
- Set and achieve strategic goals and targets intended to reduce harm to people and the environment
- Strive to be recognized as the industry leader in EHS performance and known as providing our clients with superior quality service
- Develop our team strength by encouraging continued education, training and personal development to better serve our clients
- Increase service offerings to ensure we are perceived as a value adding service to the organization
- Work as a team
- Share in praise and share the blame for team failures
- Be resourceful and share your knowledge, ideas and tools with everyone
- Represent the team in a professional and ethical manner at all times
- Take pride in being a key member of a winning team and make work fun and interesting

How we get there....

STRATEGY #1 – DUE DILIGENCE

Due diligence is built on the Internal Responsibility System (IRS) and on the premise that B&N is in the best position to ensure a pro-active safety, and shall have a moral responsibility to ensure the protection of its workers. B&N also has a moral responsibility to ensure their greatest asset, the people in the organization, are properly protected from harm.

Meeting all legislated requirements is an important element of any EHS program and thus is considered to be B&N's first of two strategies to help us achieve our goal of a successful Environmental Safety and Risk Management System.

STRATEGY #2 – BEHAVIOUR BASED SAFETY (BBS)

Behaviour Based Safety is a process for positively reinforcing 'safe' behaviour and identifying, discussing and correcting 'at risk' behaviour.

Due to B&N's diversity, it should be noted that BBS may not be implemented on every project; rather it has been rolled out in special circumstances and client driven projects.

The Principles of BBS

- No blame processes
- Employee involvement
- Defined work behaviours
- Baseline established
- Data is used for continuous improvement

The BBS process seeks to fix a problem that has been identified. The BBS empowers workers to be in charge of their own safety and to 'look out for their co-workers' safety.

Observations are performed by trained supervisors, EHS personnel and worker's peers. The BBS program aims to achieve a positive and proactive safety culture.

Safety culture is about a group of workers that choosing safe behaviours over at risk behaviours, believe in safety standards in the workplace, have high safety values and communicates theses from one worker to the next and from one generation to the next.

Safe behaviour should receive immediate positive feedback. At risk behaviour must receive immediate negative feedback providing corrective behaviour expectations.

Safety Culture is an Organizational atmosphere where EHS is understood to be, and is accepted as, a high priority.

EHS is part of continuous improvement and if integrated into all aspects of the organization, it will then automatically improve processes.

This means that resources and time are set aside to ensure that the organization can identify the weaknesses and develop a strategy to resolve & strengthen the EHS performance.

IMPLEMENTATION STRUCTURE

How we do it....

For our EHSMS Program to be successful it must demonstrate leadership at the highest levels, a commitment to success and buy in throughout the organization. It must have defined roles and responsibilities, detailed safe work practices which meet or exceed legislated requirements and must be integrated in the planning and engineering stages of all projects and work activities.

Leadership Practices

At B&N; we understand that senior leadership must take an active and supportive role to ensure the success of our EHSMS Program. This leadership is demonstrated throughout the various stages of our program and in our management hierarchy.

B&N senior management will actively participate in our EHSMS Program by providing insight and guidance to the EHS team. This will be demonstrated by ensuring strategies, training and that short and long-term objectives are in line with the organizational direction and meets the needs of every division of B&N.

Roles and Responsibilities

Roles and responsibilities have been clearly outlined within the EHS Policies and Procedures Program Section 6.1.1.

The responsibility for ensuring safe work processes are implemented, these responsibilities remain with the person who manages the work. Therefore, it is essential that every person in the organization understands to what level they are responsible for their own safety, the safety of co-workers as well as the public.

Senior management is responsible to ensure they support the EHSMS Program and that it is adequate for all B&N applications with implementation across the organization. They must also demonstrate true commitment and resolve in order for the EHSMS Program to be successful over the long term.

Corporate Policies, Procedures and Best Practices

The intent of establishing our EHSMS Program is to emphasize a commitment of ensuring a safe workplace from the highest level of management within every division of B&N.

The EHSMS Program determines the policies and procedures that must be followed to operate in an environmentally and socially responsible manner within every division of B&N. These policies and procedures are meant to be used as guidelines to ensure we meet all provincial and federal legislation.

Engineering and Planning

A significant reduction in risk and human error can be made through proper engineering and planning in the preliminary stages of projects. The evaluation of critical hazards and related risks at this stage helps in the reduction or elimination of hazards.

IMPLEMENTATION CONTROLS

How we make it work....

Various controls are in place to ensure workplace hazards and the potential for harm or damage are mitigated or eliminated. Since workplaces are not static, controls such as hazard and risk assessments must be repeated at various stages of projects. As well, supervision is required to evaluate and assess the workplace daily, inform workers of new hazards, and take immediate action to control or eliminate identified hazards. Workers are empowered to identify hazards and take the necessary steps to report them.

Hazard & Risk Assessments

A pro-active approach to risk and hazard assessments are imperative and must be conducted during pre-planning stages and at various intervals of the project. We acknowledge that identifying, mitigating or controlling hazards decreases the potential for harm or damage.

EHS Auditing

Another measure to control hazards is through site assessments and audits. A formalized auditing process has been developed and implemented within B&N.

Incident Investigations and WSIB / WCB Claims Management

We believe that through our initiatives we can substantially reduce the number of unwanted occurrences as well as the severity of these incidents.

An in-depth incident investigation process has been developed and personnel shall be trained on its use and purpose. The goal of this investigation process is to determine what happened, remedial actions to avoid recurrences, follow up on recommendations and sharing the information in a 'lessons learned' format.

Critical incidents are immediately reported to the highest levels within the organization with an immediate investigation and follow-up required.

When an injury does occur, our first priority is for the wellbeing of our injured team member and ensuring proper claims management processes including reporting to the appropriate Provincial Compensation Board and appropriate provincial health & safety authority.

Maintaining effective lines of communication between all parties and managing our Return to Work (RTW) program are key factors in managing the effectiveness of our programs and contribute to knowledge about our best practices in health and safety and RTW.

IMPROVEMENT

How we measure success....

A progressive EHS system requires measurement and confirmation that the system is effective in all areas. This confirms that headway is being made in our attempts to achieve safety excellence and provide our team members a safe and healthy workplace.

Lagging Indicators

It is understood that lagging indicators are a measure of past events and re-active to something which cannot be changed, however, these measurements also help to provide valuable insight for our continuous improvement strategies. Identifying incident trends leads to permanent corrective measures being implemented and helps to track improvement.

Leading Indicators

Leading indicators help us to measure successes such as risk reduction, performance improvement, and help to predict future events and encourage safe behaviours. These indicators allow us to focus on the successes rather than on the failures.

Corrective and Preventive Observations

Preventive corrective measures of safety observations in the workplace will reduce the potential for more serious events. Identifying both safe and unsafe behaviours immediately when they are identified leads to behavioural and cultural change. Observations also provide us with statistical data to help identify trends and opportunities, as they arise.

External Audits

At B&N we view this as another opportunity to encourage and promote success of our EHSMS program. Outside resources provide an unbiased perspective or insight on findings. These are used as a learning tool and assist in the identification of substandard items thus providing us with improvement opportunities to our program.

Internal Health and Safety Program Audit

The Health & Safety Manager shall keep a master copy of the EHS Program with all original revisions made to improve the program. Throughout each calendar year, the Health & Safety Manager shall ensure all updates, changes, or revisions are communicated with all employees as they occur.

By December 31st of each calendar year, the Health & Safety Manager shall review the health and safety program to ensure all policies, practices and procedures continue to be applicable, current processes or changes in legislation have been addressed and updated. Program rewrites shall reflect all updates and changes completed within the calendar year and shall be made available in written or electronic formats to the employees.

MANAGEMENT OF CHANGE

Changes that require management are defined as “any change (except replacement-in-kind) to process chemicals, technology, equipment, and procedures; and, changes to facilities that affect a covered process”.

The four main types of changes are:

Change of Process Technology

When the facility was initially designed, safeguards were built in to keep the process from exceeding safe operating limits. If parts of the process were subsequently altered, a new review should be conducted to ensure it does not compromise the process safety.

Change of Equipment or Materials

The introduction of new equipment could also introduce additional hazards or increase the risk.

Organizational Changes

Changes occur through the transfer of employees to new assignments or through the addition/reduction of staff. It is very important that this be recognized as a change and the employees acquire the safety-related knowledge required to carry out their new responsibilities.

Variance Procedures

Variance occurs when Management within B&N wishes to deviate from standard procedures. A review of the deviation should be conducted and appropriate approval received before the variance should take place.

Management of Change (MOC) is a structured approach to tracking and administering changes during the development of a product or service and is a key part of project management. MOC is defined as policies and procedures which ensure that changes do not result in operations outside of established safety parameters. This is an essential component of B&N’s EHSMS Program as changes can occur daily at all B&N locations. MOC should be conducted on both permanent and temporary changes. The MOC process ensures that permanent changes are conducted without compromising, both the temporary or permanent changes. The focus of MOC is to prevent catastrophic incidents to evaluate the concerns of the Environment, Health & Safety. Since changes can be a common cause of incidents, by managing these changes, we are managing potential loss.

The purpose of the change management process is to ensure that:

- Standardized methods and procedures are used for efficient and prompt handling of all changes
- All changes to company assets and processes are recorded within the management system
- Business and personal risk is managed and minimized
- All authorized changes support business needs and goals

Changes should be managed to:

- Reduce risk exposure
- Minimize the severity of any impact or disruption

MOC is a continuous process as changes are forever occurring within a company. By successfully managing the change, B&N can reduce the number of incidents anytime while changes still occur.

Modifications require a management of change procedure. The MOC system must include;

- A proper safety review,
- Adequate approval at all stages of the change process meeting Canadian requirements, and
- Verification & Validation

Basically, any modification should be designed, constructed, tested, and maintained to the same standards as the original material or Canadian Standards Association (CSA).

The key elements of a Management of Change system are:

1. An identification system – used to recognize when changes occur and when it requires a MOC. This will include a risk ranking system process.
2. Change control mechanism - provides clear instructions on how to manage the change. This includes a description of the work flow procedure, steps that must be taken to control the change, responsibility list, and level of approval required.
3. Training – Anyone who could affect a change must be trained in the MOC procedure. There must be commitment from all levels of management and employees. The Program awareness is vital for all B&N employees.
4. Information management system – used to keep track of all changes and their status. Changes and updates are compiled in a central database. All documentation will be reviewed and revised when a change occurs, ie; operating procedures, maintenance and testing procedures.
5. Auditing – used to ensure the MOC system is working as effectively as possible. The audits will determine whether all changes are assessed for their impact on safety and whether the documentation of the change is accurate and complete. (See FORM 2.1 - Flowchart of a Management of Change Program)

Management of Change (MOC) to the EHS Program

Process:

The Health and Safety Manager will assist with the development or modification to existing policies and procedures, internal documents, etc, as required resulting from the changes to legislation, customer requirements, or the organization's requirement for change.

The Health & Safety Manager will initiate a Management of Change form for all policy manual changes and shall distribute the changes electronically and in writing to management to review with their employees.

A record of the Management of Change form shall be maintained within the EHS department. (See FORM 2.1 - Flowchart of a Management of Change Program)

Changes or Additions to Equipment Inventory Process

A Pre-Start Health and Safety Review (PSHSR) includes a written report on the construction, addition or installation of a new apparatus, structure, protective element or process, or modifications to an existing apparatus, structure, protective element or process. The report details the measures (steps, actions, or engineering controls) necessary to bring the construction, addition, installation or modification into compliance with the applicable legislation. The Pre-Start Health and Safety Review is undertaken before start-up and ideally at the design stage.

Under the Canadian Standards Association (CSA), it is specified under what circumstances a pre-start health and safety review must be completed. There may be other compliance requirements such as the Provincial Regulatory Requirements, that need to be met before any apparatus, protective elements, structures, and / or processes are used. An evaluation, review and written report must be completed by an appropriate person as required under the applicable legislation. Pre-Start Health and Safety Reviews should include all interested parties such as operations employees, engineering, IT, Directors, Project Managers, and the Health and Safety Department.

Even where a pre-start health and safety review is not required or an exemption from the requirements applies, the organization must ensure that workers will be protected when they use any apparatus, structure, protective element or process in the workplace. In either instance, the MOC process will be completed.

Joint Health and Safety Committee / Joint Occupational Health and Safety Committee (JHSC / JOHSC)

The (JHSC / JOHSC) must be provided with:

- A copy of the PSHSR before the apparatus, structure, or protective element is operated or the process is used
- Upon request, documents establishing an exemption to the requirement to conduct a PSHSR and,
- If some or all of the measures required by the PSHSR are not taken, written notice of the measures that will be taken to comply with the applicable legislation

2.2.4. RELATED FORMS

FORM 2.1. - Flowchart of a Management of Change Program

FORM 2.2. - Management of Change Form

2.00 ENVIRONMENT HEALTH & SAFETY MANAGEMENT SYSTEM

ENVIRONMENTAL SAFETY PROGRAM

2.3.1. PURPOSE

Before a change to facilities, equipment, or work process has been initiated, a review shall be completed to ensure that health, safety, environmental, and / or quality standards can be maintained. Before a change to facilities, equipment, or work process can be placed into service, a pre-startup review shall be completed to ensure that any other possible hazardous conditions are assessed, documented, eliminated or controlled.

2.3.2. SCOPE

Items for consideration which may have an impact on the environment including the product, equipment or process shall be identified and controlled. Preference should be given to products that will reduce the impact on the environment, made of recycled, renewable material, energy efficient, etc.

2.3.3. RESPONSIBILITIES

Health & Safety Department Responsibilities:

The Health & Safety Department shall post the signed Corporate Environmental Health and Safety Policy at the beginning of each calendar year at each facility and include it within each job site HASP binder. The Corporate Environmental Health and Safety Policy shall be reviewed with each new worker at their company orientation.

Senior Management Responsibilities:

This policy will be reviewed on an annual basis within the fourth calendar quarter by the Senior Leadership Team in consultation with the Health & Safety Manager, to ensure the policy statement reflects the organizations EHS commitment and that the policy meets the requirements of all applicable legislation requirements by third party auditors and B&N Construction Services Inc. (B&N) clients. The reviewed Policy Statement shall be signed and implemented at the beginning of each calendar year. The reviewed policy statement shall be included within each annual EHS Program and annually reviewed with all workers.

2.3.4. PROCEDURE

Our Values

In addition, we want to foster a culture where:

- Our people's safety, health and general wellbeing is our first priority
- Demonstrate we truly care about the people around us, encourage a *"team"* philosophy throughout the organization
- Encourage active participation by all team members in our EHS program
- Empower our people to make effective and responsible decisions to ensure their safety and that of all co-workers, sub-contractors & our clients
- Demonstrate pro-active environmental stewardship and preventative measures associated at all B&N locations

Energy Conservation

Energy conservation measures shall be used whenever possible. Equipment that is not required will be shut down. Heating and air conditioning in job site trailers and offices will be shut down or the temperatures adjusted in "off work" hours. Work lights will be shut down and only minimal security lighting will be running in "off hours". Energy efficient light bulbs will be used whenever possible.

Water Conservation

Water conservation measures should be used whenever possible. This can include repair on any equipment leaking water, use of a broom or vacuum instead of hose cleaning, where applicable. Water saving taps, toilets and use of a dishwasher shall be utilized when possible.

Waste Conservation

B&N will separate any clean recyclable materials from waste to minimize and divert all waste from going to landfill.

Ozone Depletion Conservation

B&N shall take reasonable measures to prevent any intentional damage to the climate. New equipment shall be reviewed for low-emission technologies, driving less or carpooling, and use of renewable energy. As part of the maintenance program, vehicles and equipment shall be kept in good condition with up-to-date preventative maintenance. Idling of company vehicles is discouraged. B&N will strive to purchase or lease fuel efficient and environmentally friendly vehicles such as hybrid vehicles.

Construction Activities

Environmental protection measures must be put into effect during the planning stages. Trees and shrubs will not be removed or disturbed without approval. Disposal areas will be prepared, utilized and cleaned up to maintain an environmentally clean area. Upon client request, sediment control fencing shall be installed, maintained and removed whose purpose is to retain suspended soil particles from sheet-flow run off passing through it. The Sediment Control Fencing will normally be a woven geotextile fabric on posts installed so as to handle the stress from sediment loading. Sediment Control fencing cannot handle concentrated channel flow of water. The Sediment Control Fencing will be maintained for the length of project or as outlined within the client's contract.

Dust Control Plan

A dust control plan shall be developed when a comprehensive job safety analysis (JSA) has been completed identifying dust as the site hazards. The following are examples of controls that may be implemented to manage or mitigate dust on a job site.

- With adequate hoarding / partitions B&N will work to ensure migrating dust will be kept to a minimum ensuring safety of workers and the public
- B&N will take into full consideration prevailing winds and their impact on potential nuisance dust during demolition
- Wet the demolition area such as the part of the structure being demolished in order to mitigate dust and reduce the risk of worker exposure as well as the possibility of impacting the neighbouring community
- Wet ground, roadways, etc. on a daily basis or more frequently if required
- Installation of mud mats if required
- Wash down pavement and sidewalk affected by the demolition program as required
- Provision of appropriate personal protective equipment for workers when and where necessary
- Designate truck loading points, such as paved areas, to avoid trucks tracking demolition debris off site and clean truck loading points as required
- Clean trucks leaving the site of any loose demolition debris or dust including sweeping of exteriors and tailgates by designated workers.
- Tarp trucks leaving the site carrying demolition debris or soil

Infection Prevention and Control

B&N will comply with all infection prevention and control requirements on the work site. Precautionary measures during construction–related activities reduce the risk of infection at Health Care Facilities. Consideration for the type of construction, renovation, or maintenance work being undertaken and the proximity of such work to the occupants needs to be considered.

Infection control measures include:

- Wetting of material to prevent airborne dust particles
- Covering of material when transporting it through a hospital or medical facility
- Dust mats if required
- Plastic barriers and enclosures
- Seal holes and gaps
- Designated entrances and exits away from patient areas
- Negative air machines
- Vacuuming areas and wet wiping
- Use materials that have inherent characteristics resistant to the growth of micro-organisms should be selected, especially in high-risk areas

Aspergillosis and related nosocomial (hospital acquired) fungal infections are caused through inhalation by immune compromised patients of aspergillus spores, or other related spores; which can be present in the construction environment.

3.00 STRUCTURE

JOINT HEALTH AND SAFETY COMMITTEE / JOINT OCCUPATIONAL HEALTH & SAFETY COMMITTEE (JHSC / JOHSC)

3.1.1. PURPOSE

The main purpose of the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) is to ensure that any identified health and safety concerns are discussed between management and worker levels within every division of Biggs & Narciso Construction Services Inc. (B&N). The committee composition shall be established dependent upon the number of workers in the workplace.

3.1.2. SCOPE

A Health and Safety Committee shall be established and maintained in accordance with the applicable provincial OH&S Act or as defined under the JHSC / JOHSC expectations within B&N.

3.1.3. RESPONSIBILITIES

Health and Safety Manager Responsibilities:

- Handles the demands and implementation of health and safety standards.
- On an annual basis, the B&N Health and Safety Manager will appoint management representatives to participate in the JHSC / JOHSC meeting. These management representatives may include: superintendents, supervisors and foremen.
- The Health and Safety Manager will facilitate an election process for worker representatives.
- The election of the worker health and safety representative shall be made by workers who do not exercise managerial functions and who will be represented by the health and safety representative in the workplace.
- Where there is a trade union representing such workers, the worker representative will be appointed by the trade union.
- Review any written recommendations and determine the appropriate action or provide a written response to the recommendations within 21 calendar days.
- Every year B&N will set goals & objectives for the year with reviews from the JHSC / JOHSC, Health & Safety Team.

Health and Safety Coordinator Responsibilities:

- The communication link between head office and site-specific health and safety coordination.
- Conduct the election process for worker representatives.
- Chair the JHSC / JOHSC meetings as follows:
 - Control the meetings;
 - Ensure the maintenance of an unbiased viewpoint;
 - Arrange the agendas;
 - Review previous minutes and materials prior to meetings;
 - Arrange the JHSC / JOHSC meeting place;
 - Record minutes from JHSC / JOHSC meeting using - **FORM 3.1.** – B&N Joint Health & Safety Committee Minutes;

KEYWORDS

Quorum - The minimum number of members of a committee or legislative body who must be present before business can officially or legally be conducted

- Notify JHSC / JOHSC members of meeting schedule and location;
- Circulate and post minutes to all applicable parties and locations; and
- Follow the established JHSC / JOHSC Terms of Reference.

Worker and Management Representatives Responsibilities:

- Follow the established powers, functions and duties of JHSC / JOHSC.

3.1.4. PROCEDURE

JHSC / JOHSC TERMS OF REFERENCE

When a B&N location will have a continuous presence of twenty (20) or more employees for more than 30 days, B&N shall ensure that a formal JHSC / JOHSC is established.

At least half the members of the JHSC / JOHSC shall be workers employed at the location who do not exercise managerial functions. These workers may be selected by the workers or by the trade union if applicable.

The membership must have managerial representation and be selected by the employer. The JHSC / JOHSC will have a management co-chair selected by the Health & Safety Manager and a worker co-chair selected by the worker members.

Members of the JHSC / JOHSC will hold office until a successor is designated. A term is defined as a minimum of 2 years.

A committee representative may call a special meeting with a certified management representative to discuss any urgent concerns, imminent dangers to health or safety or investigations of accidents or dangerous occurrences.

At least one management member and one worker member must have received appropriate certification training. Additional training may be provided to JHSC / JOHSC members as required to ensure they have adequate knowledge to carry out their responsibilities.

The powers, functions and duties of the JHSC / JOHSC include, but are not limited to the following:

- To identify hazardous situations and make recommendations to the employer on H&S issues and to meet monthly.
- To be provided with the results of reports and copies of written reports in respect to occupational health & safety, in the employer's possession.
- Obtain information from the employer, in respect to identification of potential or existing health & safety hazards.
- To maintain and keep minutes of its proceedings and make these available to an inspector for review. Inspect physical condition of workplace once a month according to a monthly schedule.
- Assist in the investigation of any critical injury or serious incidents.
- Be present during an employer's investigation of a work refusal.
- Assist in the maintenance and monitoring of programs, measures and procedures respecting the health and safety of all B&N workers.
- Conduct monthly inspections at the applicable B&N location using **FORM 5.5. – Monthly Workplace Inspection – Corrective Action Recording Form.**

NOTE: When the JHSC / JOHSC identifies hazardous conditions, and makes recommendations to the company, through the Chair of the Committee, the Regional Environment Health and Safety Manager shall review the recommendation and take immediate appropriate action or provide a written response to the recommendations within 21 calendar days.

Meeting Agenda

- An agenda will be prepared and distributed to each JHSC / JOHSC members prior to each meeting.
- Additions to the agenda shall be allowed for after calling the meeting to order.

Meetings

- The JHSC / JOHSC will meet Monthly as outlined under the JHSC / JOHSC expectations within B&N.
- The committee quorum shall consist of equal representation of Management and Worker (Management and labour must have equal numbers of representative's present, but management representation must not exceed labour representation.)
- Every representative will be given an opportunity to present his / her concerns at each meeting. Only one person should hold the floor at any time as coordinated by the chairperson. Unmanageable arguments will be cause for discontinuing the meeting or asking the party(s) to leave the meeting.
- Formal recommendations for improvement of workplace conditions should contain the following information and be presented on **FORM 3.1.** – B&N Joint Occupational Health & Safety Committee Minutes to be accepted by management:
 - reason for recommendations (identifying hazards)
 - outline for requirements (what procedures or equipment are being requested)
 - time requirements for implementation
 - review all incident reports and provide recommendations
 - review all Health & Safety Statistics (TRIF, NLTi, LTI, etc.)
- Minutes will be prepared as soon as possible after each meeting.
- Copies will be provided to each JHSC / JOHSC members and all applicable parties and locations.

Confidentiality

A committee member shall not disclose a worker's personal health information unless the disclosure is required or permitted by law. A committee member shall only discuss information received through the committee participation as required to complete their duties, as required by law or as requested by the employer.

ELECTED HEALTH AND SAFETY REPRESENTATIVE

Elected employee health & safety representatives have an important role to play at all B&N locations. These persons are to act as the 'voice' of the crew for health and safety related issues. Each Representative can also act as a mediator between management and workers to discuss any health and safety issues. They will also promote compliance with applicable safe work requirements, including those dictated by B&N, the client, HASP and the Appropriate Provincial Health & Safety Authority by setting a good example and encouraging co-workers to do the same.

Committee Members

Chris Abreu 416-939-5156
181 Bentley St #14
Markham, Ontario
L3R 3Y1

Jacqueline Narciso 519-520-9611
2100 Jetstream Road
London, Ontario
N5V 3P6

3.1.5. RELATED FORMS

FORM 3.1. – B&N Joint Occupational Health & Safety Committee Minutes

FORM 5.5. – Monthly Workplace Inspection – Corrective Action Recording Form

SECTION 3 – Joint Health and Safety Committee / Joint Occupational Health & Safety Committee (JHSC / JOHSC)	Created Date: 05/08/20	Revised Date: 05/20/20	Page 3 of 3
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3.00 STRUCTURE

SAFETY MEETINGS

3.2.1. PURPOSE

Safety meetings are to be used by the Supervisor as a means of providing basic health and safety awareness information to Workers and Trade Contractors. It is also a method of providing and obtaining information on current health and safety site specific issues. Topics to be used for Toolbox Talks may vary; however, the content of these Toolbox talks should be concise and specific to the identified topics and observations.

3.2.2. SCOPE

The topics or observations will be chosen by the Supervisor based on the daily hazard assessment on all Biggs & Narciso Construction Services Inc. (B&N) Sites. Once the hazard is identified, the hazards shall be reviewed with all workers and controls put in place during the Toolbox Talk.

3.2.3. RESPONSIBILITIES

Health & Safety Manager's Responsibilities:

1. Ensure B&N divisions hold and document Daily and Weekly Toolbox Talk Safety meetings, of which all site employees, trade contractors must attend
2. Ensure any issues raised by employees during these meetings are documented and followed up by the Supervisor
3. Respond to any recommendations from the H&S representative or JHSC will be discussed

Supervisors Responsibilities:

The Supervisors shall record and document the following:

- Proposed daily work tasks
- Hazards associated with tasks
- Controls to minimize or eliminate the hazards
- Signatures of all site personnel

The Daily and Weekly Toolbox Talk Safety meetings are a means of verbal and written communication to the workers informing them of the health and safety concerns on the job site.

3.2.4. PROCEDURE

The Toolbox Talk health and safety meeting shall consist of but not limited to:

- All incidents must be reported immediately to Supervisory Personnel
- Discussion of any recent incidents, the causes and actions to be taken to prevent recurrence.
- Pertinent safety rules
- Review of Behaviour Based Safety (BBS) cards submitted
- Any upcoming high-risk activity
- Reported substandard conditions or acts
- Recommendations from the Health and Safety Representative
- General site safety

Daily Toolbox Talks

Daily Toolbox Talks utilizing the **FORM 3.2.** - Daily Safe Work Permit is one of the most effective ways for Supervisory Personnel to exhibit a continuing corporate and personal commitment to health and safety. Daily Toolbox Talks are a key element of ongoing worker education and training. The Daily Toolbox Talks generally present an overview of proposed site activities for that day along with hazard mitigation and control measures using

the Daily Safe Work Permit. This often includes a review of applicable sections of the site-specific HASP. All workers on site must attend the Daily Toolbox Talks and Weekly Site Health and Safety Meeting.

Weekly Toolbox Talk

Once a week an expanded Toolbox Talk is conducted and is referred to as the Weekly Site Health and Safety Meeting. A Weekly Site Health and Safety Meeting must be conducted with a specific topic for discussion such as a safety rule, safe work procedure, a recent incident, health and safety committee meeting minutes, inspection results and applicable sections of the site-specific HASP. They will be used to discuss hazards and provide information on how we will minimize or remove the risk of injury.

Weekly Site Health and Safety Meetings are first, and foremost, a presentation of essential safety information for the purpose of on-going education of the workers. The following basic guidelines for Weekly Site Health and Safety Meetings are to be followed:

- Weekly Site Health and Safety Meetings are to be held a minimum of once per week
- Each supervisor must conduct a Weekly Site Health and Safety Meeting with crew
- All workers must attend

Preparation

Preparing for a Toolbox Talk involves:

- Having knowledge of the activities to be covered or described
- Deciding on a topic and limiting the presentation to one main idea

The following should be considered and will assist you in your preparation:

- Think of your own experiences and observations
- Think of your area of control, repeated problems, recent accomplishments, needs for improvement
- Think of your workers, their wants and needs, opinions, abilities and attitudes
- Keep notes of day-to-day occurrences that could form a basis for a pertinent Toolbox Talk
- Read health and safety-related material, and clip out articles for discussion
- Summarizing your talk in point form for reference by:
 - Knowing what you are going to say
 - Writing down the key points, facts and examples
 - Practicing your talk - run through your material before presenting it to your crew

Delivery

When you deliver your Toolbox Talk:

- Relate to your crew's attitudes, abilities and interests
- Make sure your crew hears and sees your talk. Where possible, use brief demonstrations, simple graphs or displays, posters, news articles, etc.
- Involve your crew by encouraging questions and discussion on the topic
- Keep your message clear and understandable

Record Keeping & Due Diligence

Use the Daily Toolbox Talk form to document the topic(s) discussed, crews attending, suggestions, unanswered questions for later comment or follow-up, and any corrective actions recommended or taken. Daily Toolbox Talks can be reviewed as site specific findings at the monthly JHSC meetings. The records should be kept for a period of at least one year after completion of the project for due diligence purposes. Keep a copy of the completed record in the site-specific health and safety plan (HASP) and forward a copy to B&N Head Office.

- Proposed daily work tasks
- Hazards associated with tasks
- Signatures of all site personnel

The Toolbox document is an important document which provides a record of ongoing activities that help to protect the health and safety of B&N employees and Trade Contractors.

Weekly Senior Management Meetings Overview

B&N believes that all management representatives (field active, office and support) must stay well informed and apprised of all field activities. To ensure that management representatives remain informed, weekly management meetings are held. These meetings allow management the opportunity to:

- Determine the status of proposed/bid work
- Determine the progress of ongoing jobs
- Shop / job preparation / equipment difficulties and needs
- Review all occupational health & safety activities, including:
 - All incidents reported
 - Inspection / investigation activities
 - Corporate Joint Health & Safety Committee objectives/plans/progress
 - Employee / supervisor training requirements

These management meetings, can ensure sufficient resources are allocated to satisfy the objectives of the safety program. Minutes of these meetings are maintained and kept at the Regional Locations.

Monthly Project Manager / Supervisors Meetings

On a monthly basis, supervisors (including one project superintendent that also attends the weekly senior management meeting) and project superintendents meet to discuss site difficulties that have arose in the preceding weeks. These concerns may include, but are not limited to:

- Job preparation / equipment requirements
- Occupational health & safety concerns
- Supervisory / worker training requirements, scheduling, manpower

This group works independently of the senior management meeting and is routinely able to develop and implement corrective action unassisted. Should corrective action require significant capital or logistics, one of the members of the group will present the concern during the weekly senior management meeting. Minutes of these meetings are maintained and kept at the main office.

Monthly Project Managers / Supervisors Meeting Overview

A meeting shall be scheduled each month to discuss:

- Any recent incidents, the causes and actions to be taken to prevent recurrence
- Pertinent safety rules
- Close call incidents
- Any upcoming high-risk activity
- Reported substandard conditions or acts
- Recommendations from the H&S Representative
- General site safety
- Legislative and policy changes
- All incidents reported
- Review all Behaviour Based Safety (BBS) cards

3.2.5. FORMS

FORM 3.2. - Daily Safe Work Permit

FORM 3.3. - Weekly Toolbox Talk

3.00 STRUCTURE

DAILY SAFE WORK PERMIT

3.3.1. PURPOSE

Daily Safe Work Permits are to be used by the Supervisor as a means of providing basic health and safety awareness information to Workers and Sub-contractors. It is also a method of providing and obtaining information on current health and safety site specific issues pertaining to that day. However, the content of these Daily Safe Work Permits must be concise and specific to the identified topics and observations.

3.3.2. SCOPE

The Supervisor must use The Daily Safe Work Permit as an ongoing means of verbal and written communication to the workers informing them of the health and safety concerns, controls at all Biggs & Narciso Construction Services Inc. (B&N) locations.

3.3.3. RESPONSIBILITIES

Health & Safety Managers Responsibilities:

- Ensure B&N divisions hold and document Daily Safe Work Permit meetings, of which all site employees must attend
- Ensure any issues raised by employees during these meetings are documented and followed up by the Supervisor
- Respond to any recommendations from the H&S representative or JHSC

Supervisors Responsibilities:

The Supervisors record and document the following:

- Proposed daily work tasks
- Hazards associated with tasks
- Controls to minimize or eliminate the hazards
- Signatures of all site personnel, including sub-contractors & visitors if applicable

The Daily Safe Work permit is a means of verbal and written communication to the workers informing them of the health and safety concerns, and controls at all B&N locations.

3.3.4. PROCEDURE

- It is essential that each Supervisor completes the Daily Safe Work Permit
- The Supervisor who is completing the Daily Safe Work Permit must assess all aspects of the scheduled daily work activities using the **FORM 3.2.** - Daily Safe Work Permit
- When the Daily Safe Work Permit is completed, hazards that need to be controlled can be identified or prevented through applying controls and awareness
- Specific controls and awareness can be obtained from the applicable sections of the site-specific HASP
- The Daily Safe Work Permit will identify hazards associated with the work tasks by assessing the risks within the scope of the permit by:
 - Ensuring controls are in place so that risks are kept to an acceptable level
 - Pre-job planning to increase the reliability of the work
 - Identifying tools and equipment required for the job at the start of the day
 - Document site level due diligence as well as potential areas of improvements
 - Providing daily training and awareness of all identified work activities

- When the JSA Report is completed, the Supervisor will review the final report with all affected workers on site. This process will be documented using the **FORM 3.2.** - Daily Safe Work Permit
Keep a copy of the completed Daily Safe Work Permit on the job, and in the site-specific Health and Safety Plan (HASP) and forward one copy to the B&N Regional Location

3.3.5. FORMS

FORM 3.2. - Daily Safe Work Permit

4.00 DUE DILIGENCE

DUE DILIGENCE

4.1.1. PURPOSE

Due diligence can be defined as the care, precaution and effort that a reasonable person exercises under the circumstances to avoid harm to other persons or property. Biggs & Narciso Construction Services Inc. (B&N) has defined the legal requirements of care which needs to be taken by employers and employees, to meet established due diligence standards.

4.1.2. SCOPE

Achieving our goal of due diligence is largely dependent upon supervisory personnel including Project Managers, Supervisors or any person having authority over a worker. B&N is committed to continually strive to better ourselves in every way.

4.1.3. RESPONSIBILITIES

B&N RESPONSIBILITY:

1. B&N is committed to taking all reasonable steps to ensure the health and safety of our workers and other persons
2. B&N will determine the minimum qualifications required to perform each role. Qualifications will include a combination of education and work experience
3. B&N shall establish an organizational chart outlining job titles and roles within the organization
4. Each employee will provide B&N with a job application (or equivalent) outlining their qualifications and provide education and training records to their manager representative

MANAGEMENT RESPONSIBILITY:

To assist supervisory personnel in meeting due diligence expectations, B&N management will:

1. Ensure supervisory personnel receive instruction in:
 - EHS responsibilities
 - Training, instructing and motivating workers to work safely and communicating such through worker orientations, daily safe work permit, weekly toolbox talks and one-on-one discussions
 - Supervising workers, monitoring worker safety performance, correcting unsafe behaviour and enforcing program requirements, including the application of progressive disciplinary action up to and including termination of employment.
 - Recognizing and controlling hazards and evaluating related risks
 - Performing safety inspections and audits
 - Performing incident investigations and ensuring recommendations are appropriate and applied
2. Provide competent supervisory personnel with achievable safety objectives and feedback on their safety performance
3. Provide materials to assist supervisors in developing and maintaining health and safety in the workplace.
4. Provide adequate record keeping formats
5. Ensure that no person under the age of 18 years is employed or permitted to work, the age stated within provincial legislation shall be adhered to, or as defined by our clients

SUPERVISORY RESPONSIBILITY:

Supervisors are accountable for workplace conditions, worker safety and training, and compliance with all other applicable B&N, Federal, Provincial, Municipal, and client health and safety requirements. Included below is an overview of duties that supervisors are expected to carry out on a regular or as-needed basis, however not fully comprehensive:

- Serve as a role model for the health and safety standards to be implemented and maintained
- Ensure safe working conditions exist in areas under their direct control and ensure employees perform duties without undue risk
- Ensure that there has been site-specific orientation provided for the employees under their supervision in regards to the Standard Work Procedures that must be followed
- Conduct Daily Safe Work Permit meetings to ensure personnel under their supervision understand task related risks and hazards
- Conduct Safe Work Procedures to establish controls to the job
- Review site-specific Health and Safety Plans with site personnel before commencing any work
- Ensure that written JSAs are available and used for tasks that require written procedures
- Take immediate action to correct any unsafe work conditions, methods, practices, procedures, or equipment faults or defects, as may come to their attention
- Provide a reasonable supply of potable drinking water that is kept readily accessible at a project for the use of workers
- Apply appropriate disciplinary action according to established policy as deemed appropriate
- Ensure that workers report all injuries and that treatment for injuries is received
- Ensure that a hand tool or a portable power tool is inspected before use to make certain it is in safe working condition and a defective hand or power tool is removed from service
- Have a procedure to perform a hazard assessment before a worker manually lifts, lowers, pushes, pulls, carries, handles or transports a load that could injure the worker.
- Not knowingly operate or permit a worker to operate mobile equipment which is, or could create, an undue hazard to the health or safety of any person, or is in violation of this Regulation
- Provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling or transporting heavy or awkward loads
- Provide direction and training on how to deal with awkward loads when equipment is not available
- Participate in and cooperate with all EHS initiatives
- Immediately report to the Health & Safety Manager, Project Manager and Supervisor all incidents that must be reported or investigated
- Participate in incident investigations when required; and
- Participate in a JHSC / JOHSC as assigned

4.1.4. PROCEDURE

RECORD KEEPING AND DUE DILIGENCE

Statistics

Statistics must be tracked each month to help determine how well B&N is achieving their EHS goals. Frequency, severity, trends, lost time, etc, can be used as indicators of the level of success of the B&N EHS program. The Health & Safety Manager will record these statistics for all divisions on a monthly basis and provide them to the Senior Management Team for review and corrective actions. Statistics such as the division Total Recordable Incident Frequency (TRIF) will be provided to our clients as requested.

Record Keeping

Supervisors and management need to work together to ensure records are maintained and can be made accessible to the Appropriate Provincial Health & Safety Authority upon request. These records will be copied and kept in the site binder within the HASP, where the original copies are sent to the Corporate Office.

Records include, but are not limited to:

- Orientation and Training Records
- Disciplinary Actions
- Inspection Reports / Audits
- First Aid Records
- Hazard Correction
- Incident Investigation Report
- Daily Safe Work Permit Reports
- Documented Discussions on Appropriate / Unwanted Behaviours Or Actions
- Training
- Weekly Toolbox Talks
- Behaviour Based Observation Cards

5.00 HAZARD IDENTIFICATION, RISK ASSESSMENT & CONTROL

HAZARD IDENTIFICATION & JOB SAFETY ANALYSIS (JSA)

5.1.1. PURPOSE

A Hazard assessment will be undertaken to determine potential hazards and the control strategies, which must be implemented to perform a job safely.

5.1.2. SCOPE

A Job Safety Analysis (JSA) must be completed on each Biggs & Narciso Construction Services Inc. (B&N) location before the commencement of work.

5.1.3. RESPONSIBILITIES

Health & Safety Manager Responsibilities:

1. Job Safety Analysis (JSA) is a documented process by which a team of qualified persons, experienced in the specific work activities, systematically identify and define the work activities within the scope of the JSA
2. Ensure a team of qualified persons is appointed to complete the Job Safety Analysis (JSA) on each B&N location before the commencement of work
3. Ensure a comprehensive job inventory is to be produced including a list of all general work assignments
4. Appoint a Supervisor to take immediate action to lessen the degree of exposure relating to the completed JSA. If the hazard can be immediately removed or corrected by the Supervisor it will be done

Project Manager Responsibilities:

1. Ensure a JSA is completed on each B&N location before the commencement of work. In the event the removal or correction of the hazard requires further action
2. Classify the hazard potential and report the hazard to the Health and Safety Representative for inclusion on the workplace inspection report

Supervisor Responsibilities:

1. Ensuring continued action is taken to lessen the degree of exposure and / or removing the hazard
2. Communicate the appropriate JSA to their workers during the completion of the Daily Safe Work Permit

Workers Responsibilities:

1. Report all hazards to the Supervisor Project Manager or on-site Supervisor
2. Prior to starting any tasks, all workers must review and sign-off on all site-specific paperwork

5.1.4. PROCEDURE

A hazard is defined as a source of danger, or the potential for any piece of machinery, equipment, material or the physical environment, or of any act, which may expose a person or property to the risk of harm or danger. Reporting of the hazard does not remove the supervisor's responsibility of taking immediate action to lessen the degree of exposure, nor of ensuring that remedial action is taken.

Work Environment Health and Safety Hazards

A hazard analysis outlining health and / or safety hazards has been completed for the various positions / occupations. Main job activities have been rated for major loss potential, controls identified and implemented.

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Control measures are implemented to minimize the potential for loss through injury or illness. Safe Operating Procedures have been developed for all major loss potentials or critical tasks within the Health and Safety Plan (HASP).

The hazard analysis for the various positions / occupations and Job Safety Analysis (JSA) are shared with the workers at the time of orientation as a component of the worker's orientation training.

CONTROLS OF HAZARDS

A workplace hazard can be controlled in many different ways, depending on the type of hazard and the work process that causes it. Each control measure must meet the following requirements:

1. It must adequately control the hazard
2. It must allow workers to do their jobs without undue discomfort or distress
3. It must protect every worker who might be exposed to the hazard
4. It must not create a hazard in the surrounding community

We can apply these requirements with best results by finding the most effective place to apply the controls.

Control at the Source

Change the chemical product or way we do a particular job, completely isolate the worker from the hazard and / or elimination of a hazardous step in the production process.

Examples:

- a. Using an aluminum oxide grinding wheel instead of sandstone grinding wheels which give off toxic silica dust
- b. Using zinc or titanium oxides to produce paint pigments instead of lead oxides

Control Along the Path

Better housekeeping (proper cleaning, disposal of wastes, use a vacuum instead of a broom), better ventilation, portable barriers, use wet methods for grinding or crushing

Control at the Worker

Wear personal protective equipment; gloves, mask, safety glasses, medical examinations, administrative controls (policies and procedures which control the worker), job rotations

The most effective control measure is the one applied at the source. Controls tend to be less effective the farther away they are from the source of the hazard.

Overhead Protection

An employer must ensure that adequate overhead protection is provided where any worker is required or permitted to work:

Examples:

- a. Beneath the affected part of a scaffold that is being installed, altered or dismantled, or
- b. Where there is a risk of material falling on the worker who is working on the scaffold platform or in the area of the scaffold

JOB SAFETY ANALYSIS (JSA)

Job Safety Analysis (JSA) is a documented process by which a team of qualified persons, experienced in the specific work activities, systematically examining a “higher risk” tasks for the purpose of identifying all associated loss exposures. The following guidelines have been developed to assist qualified persons in the development of JSAs.

The following represents an overview of the JSA process:

Inventory of General Work Assignments

1. The first step in developing a comprehensive job inventory is to produce a complete list of all general work assignments.
2. Inventory all specific jobs
3. Once all general work assignments have been inventoried, the more difficult effort remains, listing all the specific jobs within each general work assignment. This second inventory should at least reflect all hands-on work assignments (as opposed to administrative duties)
4. Once developed, the specific Job Safety Analysis can then be evaluated to determine if it is a critical task

The Project Manager or Supervisor must ensure a JSA is completed on each B&N location before the commencement of any work.

1. Determine the steps required to perform the job.
2. Record each step of the job, in the order in which it advances the work to completion.
3. Identify the risks and potential hazards associated with the job. The hazards are to be classified / prioritized based on the risk associated with the task based on the criteria of severity and probability.

Determine measures to eliminate or control the risk of identified hazards in the following order:

1. Eliminate the hazard
2. Contain the hazard
3. Revise work procedures / evaluate risk exposure
4. Reduce the exposure and risk to acceptable levels

Develop a safe work procedure for each identified major loss potentials or critical tasks for inclusion within the HASP. References will be made to applicable rules and regulations and to the personal protective equipment required. Employees and / or sub-contractors who regularly perform the work could be consulted, in developing the safe work procedure. Training will be provided to the employees and / or sub-contractor on the hazard identification process, as required through the HASP.

- When the JSA is completed, the breakdown of steps will be discussed with all workers. Training will be provided to all workers on an ongoing basis or when new processes, PPE or equipment is introduced as a result of controlling or mitigating any hazards
- A final review shall be completed to ensure that any corrective measures that have been implemented did not create any new hazards associated with the job
- When job processes may affect the local animal or plant population or habitat, a plan shall be in place to minimize any environmental impact to them. This may include relocating a bird habitat, waiting until nesting session is complete, adding silt fencing to ditches, etc.

Identify Critical Tasks

After identifying all specific jobs, those jobs with particularly high loss exposures needs to be specifically identified. Those jobs with a history of loss within B&N and should be classified according to their criticality. The criticality of a job is dependent on several factors, specifically:

1. Severity of the potential loss
2. Frequency of exposure to the potential loss
3. And the Probability of loss occurring each time the particular job is performed

Analyze Critical Tasks

After critical tasks have been identified, they must then be analyzed. Analyzing involves:

Step 1: Breaking the task / job into basic job steps, between 8 – 10 job steps is acceptable; above 10 should be considered to be broken down into 2 individual JSAs.

Step 2: Identify all the hazards associated with each job step. Include possible actions, conditions, and circumstances that could lead to an undesired result. A hazard is a potential danger and can be broken down into categories:

1. Contact – victim is struck by or strikes an object
2. Caught – victim is caught on, caught in or caught between objects
3. Fall – victim falls to ground or lower level (includes slips and trips)
4. Exertion – excessive strain or stress / ergonomics / lifting techniques
5. Exposure – inhalation / skin hazards
6. Energy Sources – electricity, pressure

Step 3: List every action necessary to eliminate or minimize the hazard by defining the proper controls.

JSA Review

After the completion of Step 3, appropriate written procedures or work practices have been developed. When reviewing each JSA, general considerations will include:

1. Work team considerations
2. Workplace factors– weather, equipment, personnel
3. Time frames and scheduling

NON-ROUTINE WORK

Non-routine Work is any task / job that has not ever been performed or not completed frequently. At B&N new task / jobs are taken very seriously and when the Supervisors / Management face these challenges they proceed according to the following steps:

1. Supervisor and a Health & Safety Representative (as applicable) walk the work area
2. Identify and highlight any identified Non-Routine Work on the Daily Safe Work Permit
3. Conduct Daily Safe Work Permit review meeting to:
 - a) Review the activities of the work for hazards.
 - b) Identify all potential hazards that can affect the health and safety of the workers relating to the identified Non-Routine Work. If hazards are identified then:
 - I. Implement controls that may include developing training and awareness
 - II. Perform a hazard assessment of the task / job to be performed
 - III. Complete a JSA for the task / job
 - IV. Develop written safe operating procedures for any identified major loss potentials or critical tasks covering:
 - (i) The safety issues identified
 - (ii) Describing the applicable control measures that will be put in place
 - (iii) Attaching and following -as needed- engineered procedures to ensure the safety of the workers and all personnel present on site
 - (iv) Inclusion into the HASP
 - V. Communicate the completed JSA relating to the identified Non-Routine to the workers. This will provide a detailed explanation on safety controls and measures and allow for workers to sign-off on the JSA acknowledging, understanding and willingness to follow
4. Execute the task / job as described in the JSA
5. Re-assess and adjust as work progresses if required

5.1.5. RELATED FORMS

FORM 5.1. - Job Safety Analysis (JSA) Hazard Identification Worksheet

FORM 5.6. - Field Level Hazard Assessment

5.00 HAZARD IDENTIFICATION, RISK ASSESSMENT & CONTROL

WORKPLACE INSPECTIONS AND AUDITS

5.2.1. PURPOSE

The purpose of workplace inspections is to help prevent injuries and illness, through a critical examination of the workplace that identifies and records hazards for corrective action. The workplace inspection will assist with identifying substandard conditions and substandard acts.

5.2.2. SCOPE

This policy is intended to ensure, at a minimum, compliance with the requirements of site inspections according to the provincial OHSA and applicable regulations, and applies at all Biggs & Narciso Construction Services Inc. (B&N) locations.

Definitions:

1. **Job Site:** any given location in which a B&N operation is taking place
2. **Office Locations:** main business office location
3. **Site Inspection:** an examination of a workplace that identifies hazards, risks, unsafe behaviours, situations and describes the corrective actions to be taken to control them

5.2.3. RESPONSIBILITIES

Senior Management (President, V.P.) Responsibilities:

1. Participate in monthly facility workplace inspections.
2. Ensure hazards are prioritized and effective corrective actions are taken to address hazards identified
3. Review at least annually with the Health & Safety Department the quality of the inspection reports
4. Conduct a monthly inspection using **FORM 5.3. – Management Job Site Inspection** & conduct 1 bi-weekly inspection which should be an informal visit (no forms, notes only, building rapport & communicating with employees) which should be forwarded via email to the Health & Safety Team
5. Review the Health & Safety Managers job site inspections

Director / Project Manager Responsibilities:

1. Conduct a bi-weekly inspection using **FORM 5.3. – Management Job Site Inspection**
2. Review B&N supervisor job site inspections.
3. Ensure hazards are prioritized and effective corrective actions are taken to address hazards identified.

Supervisors Responsibilities:

1. Conduct 1 formal inspection weekly or 1 per site if your location changes using **FORM 5.2. – Supervisor Job Site Inspection**
2. Ensure hazards are prioritized and effective corrective actions are taken to address hazards identified
3. Provide a copy of the inspection to the Health & Safety Department (via email / site mail) at the end of the week & maintain the copy in the Health and Safety Plan (HASP) binder for review at the job site
4. Conduct daily informal inspections of the workplace recorded in the supervisor site books and take action to correct all hazards

Workers Responsibilities:

1. Participate in the site inspection by providing information requested by the supervisor inspecting the job site
2. Report immediately to the supervisor any unsafe behaviour or situation
3. Assist with the implementation of the controls for the unsafe conditions found on site

Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) - Health and Safety Representatives Responsibilities:

1. Review and verify annually the Inspection Forms to be used and make recommendations for improvement
2. Conduct the monthly workplace inspection at the B&N facility location and B&N job sites, as required using - **FORM 5.5. – Monthly Workplace Inspection**
3. Provide recommendations relating to the hazards identified on the workplace inspections

Health and Safety Department Responsibilities:

1. Develop and keep up-to-date the Site Inspection Policy and Procedures and its Inspection Forms
2. Provide a copy of the inspections to the JHSC / JOHSC and Senior Management for review
3. Ensure hazards are identified and controls are in place to protect the health and safety of the workers
4. Maintain a record management system for all completed workplace inspection forms.
5. Assist with the workplace inspections as required
6. Conduct an internal audit of each project at least once during its progress

5.2.4. PROCEDURE

Daily Informal Inspections

All B&N personnel will operate in such a way as to be constantly aware of the need to correct hazards that may be present. Supervisors shall perform daily informal inspections as part of their regular daily activities. All workers shall help in the on-going process of hazard identification and control.

Daily Informal Inspection Guidelines

The following guidelines are provided to assist personnel in conducting daily informal inspections:

1. Know about items that require special attention. This can be done by reviewing the inspection form, previous inspection records, and through knowledge of the job.
2. Use your eyes, ears and other senses to identify actual or potential problems as you go about your other daily activities. Correct hazards as you find them whenever you can. Report hazards to your supervisor, both the ones that have been corrected, and the ones still requiring correction.
3. Ensure hazards that can be corrected immediately are. Refer any hazards that need further follow-up to the Supervisor, Project Manager, Operations Manager and / or Health and Safety Personnel, as may be appropriate ensuring the hazard is corrected.

Planned Weekly and Monthly Inspection Guidelines:

B&N Supervisors will conduct weekly documented workplace inspections for the purpose of identifying and correcting potential health and safety hazards, unsafe conditions and behaviour. The inspections will cover all aspects of a job site, including buildings, temporary structures, excavations, tools, equipment, machinery, work methods and practices. **FORM 5.2. – Supervisor Job Site Inspection** will be used to conduct these inspections. This inspection form is to be used as a guideline since specific sites and circumstances may have unique situations and potential hazards that may not be covered by this list. A minimum of 2 employee contacts or observation(s) of activities will be conducted during each workplace inspection.

B&N JHSC / JOHSC Representatives will conduct monthly documented workplace inspections for the purpose of identifying and correcting potential health and safety hazards, unsafe conditions and behaviour. The inspections will cover the entire premises, including maintenance shops, emergency lighting, offices areas, parking lots, facility yard, work methods and practices at least annually. A minimum of 2 employee contacts or observation(s) of activities will be conducted during each workplace inspection.

The following guidelines are provided to assist personnel in conducting planned Weekly and Monthly inspections.

Performing Workplace Inspection:

1. Take copies of previous inspection reports along and note whether the hazards listed were corrected as required.
2. Systematically cover the whole area. Pay particular attention to specific equipment, machinery, and jobs that have been associated with accident trends or severe loss potential.
3. When unsafe conditions requiring immediate attention are found, immediately report the findings to the local supervisor where corrective action must be undertaken without delay.
4. Defective tools, equipment and machinery found during inspection must be removed from service until the defect has been corrected. All unsafe conditions and defective items must be recorded describing the items and their locations clearly.
5. Classify items according to their potential for injury or damage. This will lead to a systematic approach toward corrective action and follow-up.
6. Look for root causes of substandard conditions, practices and procedures.
7. When immediate corrective action is not possible:
 - a. Temporary control measures should be implemented immediately.
 - b. Warning signs should be posted at the location of the hazard.
 - c. All affected employees should be informed of the location of the hazard and the required temporary controls.
 - d. Permanent control measures should be implemented as soon as possible.
8. When a worker is noted performing an unsafe act, advise as follows:
 - a. Immediately inform them of the unsafe situation
 - b. Discuss the unsafe condition with them
 - c. Advise on how to correct the unsafe condition
 - d. Re-visit the area to ensure the safe practice is being followed
 - e. Discuss with the supervisor as applicable.

Post-Inspection

1. Complete the applicable Inspection Form
2. Copy all items from previous reports that have not been remedied
3. Ensure all sections of the Inspection Report are completed and writing is legible
4. Forward the Inspection Report to the Health & Safety Department. Keep a copy of the report at the site for future reference as well as for Client / Appropriate Provincial Health & Safety Authority representative access

B&N SUPERVISOR WEEKLY JOB SITE INSPECTION HAZARD CLASSIFICATION

Corrective actions will be prioritized according to Hazard Classification Category and the Hazard Probability Category. Those hazards with the highest potential for injury or loss will be addressed on a priority basis.

Hazard Classification on weekly inspections is as follows:

1. **Catastrophic** – may cause death or loss of facility.
Example: a maintenance worker servicing a large sump pump in an unventilated deep pit, with a gasoline motor running.
2. **Critical** – may cause severe injury, severe occupational illness, or major property damage.
Example: ice on raised cement step with no hand rails present.
3. **Marginal** – may cause minor injury or minor occupational illness resulting in lost workday(s), or minor property damage.
Example: a worker handling rough wood without gloves.

4. **Negligible** – probably would not affect personnel safety or health and thus, less than a lost workday, but nevertheless is in violation of specific criteria.
Example: a worker running on the jobsite.

Hazard Probability Category

- A. **Likely** to occur immediately or within a short period of time when exposed to the hazard.
- B. **Probably** will occur in time.
- C. **Possible** to occur in time.
- D. **Unlikely** to occur.

B&N MONTHLY JOB SITE INSPECTION HAZARD CLASSIFICATION

Corrective actions will be prioritized according to Hazard Classification. Those hazards with the highest potential for injury or loss will be addressed on a priority basis.

Hazard Classification on monthly inspections is as follows:

Class A A condition or act which may result in loss of life or any part of the body, or permanent disability; and / or which may result in significant and disruptive damage to a structure, equipment, material or the environment. An example would be the slightest touch to an electric outlet in an office produces sparks.

Class B A condition or act, which may result in serious injury or illness resulting in a temporary disability; and or damage which is disruptive, but less severe than Class A. Examples would be unusually high noise levels in the photocopier area or a broken tread at the bottom of the office stairs.

Class C A condition or act, which may result in a minor, non-disabling injury or illness; and / or non-disruptive damage to property. Examples would be clutter in the corridors, a light burnt out in the reception area or a small tear in the carpet at a workstation.

B&N WORKSITE AUDITS

Effective worksite audits are a key component of an environment health and safety program. A properly completed and documented audit can assist in the reduction of workplace hazards, substandard work practices and improve safety in the workplace.

The Health & Safety Department will ensure an internal audit of each project is conducted at least once during its progress. The audit will consist of two levels of review;

- Random physical inspection
- Review of Project Safety Program and HASP implementation

The project audits when reviewed collectively will determine the overall level of adherence to the Health and Safety Program and HASP within the location.

Planned Audit Guidelines:

The following guidelines are provided to assist Health & Safety personnel in conducting planned audits.

Pre-Audit:

1. Review previous audits and inspection reports, if any, for the area to be inspected - **FORM 5.3.** – Management Job Site Audit Report
2. Refer to the checklist on the audit form.

3. Identify specific equipment, machinery, and jobs, associated with accident trends or severe loss potential and include in the audit. Pay special attention to any applicable Appropriate Provincial Health & Safety Authority notifications or objectives.

During Audit:

1. Take copies of previous inspection reports along and note whether the hazards listed were corrected as required.
2. Systematically cover the whole designated auditing location including, HASP binder (if applicable) and all site documentation.
3. When unsafe conditions requiring immediate attention are found, immediately report the findings to the local supervisor where corrective action must be undertaken without delay.
4. Defective tools, equipment and machinery must be removed from service until the defect has been corrected. All unsafe conditions and defective items must be recorded describing the items and their locations clearly.
5. Look for root causes of substandard conditions, practices and procedures.
6. Provide input to the workers and supervisor as reasonable throughout the audit.

Post Audit:

1. Complete an Management Job Site Audit Report using - **FORM 5.3. – Management Job Site Audit Report**
2. Copy all items from previous reports that have not been remedied.
3. Ensure all sections of the Audit Report are completed and writing is legible.
4. Forward the Audit Report to the Health & Safety Manager. Keep a copy of the report at the site for future reference as well as for Client / Appropriate Provincial Health & Safety Authority.

TRAINING

All parties who conduct formal workplace inspections / Audits (Senior Management, Project Managers, Supervisors and Health and Safety Personnel) will be trained on their responsibilities and on how to complete the Inspection and Audit Forms.

A comprehensive test will be applied to acknowledge that the most important information has been assimilated.

5.2.5. RELATED FORMS

FORM 5.2. – Supervisor Job Site Inspection

FORM 5.3. – Management Job Site Audit Report

FORM 5.4. – Corporate Office Monthly Workplace Inspection

FORM 5.5. – Monthly Workplace Inspection – Corrective Action Recording Form

FORM 5.6. – Field Level Hazard Assessment

5.00 HAZARD IDENTIFICATION, RISK ASSESSMENT & CONTROL

HEALTH AND SAFETY PLAN (HASP)

5.3.1. PURPOSE

Through the developed site-specific Health and Safety Plans (HASPs), a hazard control process will be put in place that will take into consideration the site-specific needs when working on that site. The HASP is designed as a reference guide that will prompt the user to consider various possible health and safety conditions that may exist on site.

5.3.2. SCOPE

At the time of bid / proposal, or during the first site inspection a Biggs & Narciso Construction Services Inc. (B&N) representative must determine the various health and safety risks presented by the project and complete a health and safety plan (HASP) for each B&N site before the commencement of work.

5.3.3. RESPONSIBILITIES

Health & Safety Manager Responsibilities:

- At the time of bid / proposal, a B&N representative must determine the various health and safety risks presented by the project
- The Health & Safety Manager will assist the B&N representative in the completion of this task, a health and safety plan (HASP) shall be developed to address site specific hazards

Project Manager Responsibilities:

- The Project Manager is responsible for ensuring a HASP is developed prior to the beginning of each project
- The Project Manager as well as the Health & Safety Department shall formally review all HASP's as needed
- HASP's will be forwarded to the client's project / safety representatives if so requested

Supervisor Responsibilities:

- A HASP binder will be kept at all job sites that contains site specific information such as site procedures, site emergency information, NOP, WSIB / WCB clearance, scope of work, DSS reports, toolbox talks, site inspections, etc.
- A review of this HASP with all B&N employees, sub-contractors & visitor's is required prior to providing access to the B&N location

5.3.4. PROCEDURE

Health and Safety Plan (HASP)

Some hazards are inherent in the type of processes that take place during our construction projects. While common construction hazards are well known to the industry, each site possess unique hazards that must be identified and assessed. As well, each client has developed specific hazard control procedures that may have to be taken into consideration when working on that site. For these reasons, site-specific health and safety plans (HASPs) must be developed. A HASP binder will be kept at all job sites that contains site specific information and documentation including - site procedures, daily safe work permits, site emergency information, NOP, WSIB / WCB clearance, scope of work, DSS reports, toolbox talks, site inspections, etc.

These binders remain at the site until the project is completed, then it is forwarded to the main office for filing.

The following guidelines have been developed to assist in the completion and administration of HASPs:

- HASP's will be developed for all projects
- The Project Manager is responsible for ensuring a HASP is developed prior to the beginning of work activities
- The Project Manager, as well as any project health and safety staff will formally review HASP's as needed
- HASP's will be forwarded to the client's project / safety representatives if so requested

HASPs will contain, as a minimum, the following:

- General Site / Project Information
- Client Name
- Client Address
- Project Description
- Anticipated Project Dates/Duration
- Name of client project representative (usually engineer) and contact information
- Name of client safety representative and contact information
- Name(s) of the project manager and contact information
- Name(s) of project supervisors and contact information
- Name of project health & safety officer and contact information
- Emergency response contact phone numbers

Site Indoctrination Information

- Applicable JSA.
- SDS and WHMIS 2015 information.
- Required personal protective equipment (PPE).
- First Aid Requirements.

Site / Project Emergency Information

- Identification of potential emergencies (injury, gas release, confined space rescue, high angle / at height rescue, evacuation)
- A map or plot plan of the work area that shows evacuation routes and head-count location, as well as the location of emergency equipment, first aid services, fire suppression equipment and the location of stations or signs for directing emergency service vehicles
- Method(s) for sounding alarms and reporting the emergency, as well as details on all-clear signal
- A list of personnel responsible in emergency situations and how to contact them
- Contractor's routine for shutdown of the worksite
- Contact phone numbers for emergency support services
- Designated access route(s) for emergency service vehicles
- Designated person(s) to meet and direct emergency service vehicles
- Evacuation, head-count and rescue procedure
- A routine for notification of workers' emergency contact
- Procedure for the investigation and correction of hazards

Specific Identified Project Hazard Details

- Site Access / Egress details, including client requirements/restrictions
- Chemical / biological hazards
- Confined space entry details, including;
 - Client developed vessel hazard assessments
 - B&N developed vessel hazard assessments
 - Hatch attendant protocols
 - Gas testing protocols
 - Confined space entry procedures

Lockout details, including

- Location / details of contractor lockout points
- Available locks and tags
- Client lockout lock assignment requirements (i.e. lockout lock assignment sheets)
- Client lockout lock identification labeling requirements / restrictions
- Client lockout lock

6.00 RESPONSIBILITIES

WORKPLACE RESPONSIBILITIES

6.1.1. PURPOSE

Due diligence can be defined as the care, precaution and effort that a reasonable person exercises under the circumstances to avoid harm to other persons or property. Workplace Responsibilities provide the legal requirements of care which needs to be taken by employers and employees, to meet the established due diligence standards.

6.1.2. SCOPE

Workplace responsibilities outline the roles of all persons charged with the care and maintenance of Biggs & Narciso Construction Services Inc. (B&N) Environment, Health and Safety Program.

6.1.3. RESPONSIBILITIES

Employer Responsibilities:

1. An employer shall ensure that,
 - a. The equipment, materials and protective devices as prescribed are provided;
 - b. The equipment, materials and protective devices provided by B&N are maintained in good condition;
 - c. The measures and procedures prescribed are carried out in the workplace;
 - d. The equipment, materials and protective devices provided by B&N are used as prescribed; and
 - e. A floor, roof, wall, pillar, support or other part of a workplace is capable of supporting all loads to which it may be subjected without causing the materials therein to be stressed beyond the allowable unit stresses established under the local Building Code.
2. Without limiting the strict duty imposed by subsection (1), B&N shall,
 - a. Provide information, instruction and supervision to a worker to protect the health or safety of the worker;
 - b. In a medical emergency for the purpose of diagnosis or treatment, provide, upon request, information in the possession of B&N, including confidential business information, to a legally qualified medical practitioner and to such other persons as may be prescribed;
 - c. When appointing a Director / Project Manager / Supervisor, appoint a competent person;
 - d. Acquaint a worker or a person in authority over a worker with any hazard in the work and in the handling, storage, use, disposal and transport of any article, device, equipment or a biological, chemical or physical agent;
 - e. Afford assistance and co-operation to a Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) and a health and safety representative in the carrying out by the JHSC / JOHSC and the health and safety representative of any of their functions;
 - f. Only employ in or about a workplace a person over such age as may be prescribed;
 - g. Not knowingly permit a person who is under such age as may be prescribed to be in or about a workplace;
 - h. Take every precaution reasonable in the circumstances for the protection of a worker;
 - i. post, in the workplace, a copy of the Appropriate Provincial Health & Safety Legislation and any explanatory material prepared by the Appropriate Provincial Health & Safety Authority, both in English and the majority language of the workplace, outlining the rights, responsibilities and duties of workers;
 - j. Prepare and review at least annually a written B&N occupational health and safety policy and develop and maintain a program to implement that policy;
 - k. Post at a conspicuous location in the workplace a copy of the B&N occupational health and safety policy;
 - l. Provide to the JHSC / JOHSC or to a health and safety representative the results of a report respecting B&N's occupational health and safety that is in B&N's possession and, if that report is in writing, a copy of the portions of the report that concern occupational health and safety; and

- m. Advise workers of the results of a report referred to in clause (l) and, if the report is in writing, make available to them on request copies of the portions of the report that concern B&N's occupational health and safety.
- 3. For the purposes of clause (2)(c), B&N may appoint their self as a supervisor where B&N is a competent person.
- 4. Clause (2) (j) does not apply with respect to a workplace at which five or fewer employees are regularly employed.

Additional Duties of Employers

- 1. B&N shall,
 - a. Establish an occupational health service for workers as prescribed;
 - b. Where an occupational health service is established as prescribed, maintain the same according to the standards prescribed;
 - c. Keep and maintain accurate records of the handling, storage, use and disposal of biological, chemical or physical agents as prescribed;
 - d. Accurately keep and maintain and make available to the worker affected such records of the exposure of a worker to biological, chemical or physical agents as may be prescribed;
 - e. Notify a Director of the use or introduction into a workplace of such biological, chemical or physical agents as may be prescribed;
 - f. Monitor at such time or times or at such interval or intervals the levels of biological, chemical or physical agents in a workplace and keep and post accurate records thereof as prescribed;
 - g. Comply with a standard limiting the exposure of a worker to biological, chemical or physical agents as prescribed;
 - h. Establish a medical surveillance program for the benefit of workers as prescribed;
 - i. Provide for safety-related medical examinations and tests for workers as prescribed;
 - j. Where so prescribed, only permit a worker to work or be in a workplace who has undergone such medical examinations, tests or x-rays as prescribed and who is found to be physically fit to do the work in the workplace;
 - k. Where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for the protection of a worker; and
 - l. Carry out such training programs for workers, supervisors and JHSC / JOHSC members as may be prescribed.
- 2. For the purposes of clause (1)(a), a group of employers, with the approval of the President / Vice President, may act as an employer.
- 3. If a worker participates in a prescribed medical surveillance program or undergoes prescribed medical examinations or tests, his or her employer shall pay,
 - a. The worker's costs for medical examinations or tests required by the medical surveillance program or required by the Appropriate Provincial Health & Safety Legislation;
 - b. The worker's reasonable travel costs respecting the examinations or tests; and
 - c. The time the worker spends to undergo the examinations or tests, including travel time, which shall be deemed to be work time for which the worker shall be paid at his or her regular or premium rate as may be proper.

Supervisor Responsibilities:

Any Supervisor shall ensure that a worker,

- a. Works in the manner and with the protective devices, measures and procedures required by the Appropriate Provincial Health & Safety Legislation; and
- b. Uses or wears the equipment, protective devices or clothing that B&N requires to be used or worn.
- c. Advise a worker of the existence of any potential or actual danger to the health or safety of the worker of which the Supervisor is aware;
- d. Where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for protection of the worker; and
- e. Take every precaution reasonable in the circumstances for the protection of a worker.

Workers Responsibilities:

A worker shall,

- a. Work in compliance with the provisions of the Appropriate Provincial Health & Safety Legislation;
- b. Use or wear the equipment, protective devices or clothing that B&N requires to be used or worn;
- c. Report to B&N, or his or her Director / Project Manager / Supervisor the absence of or defect in any equipment or protective device of which the worker is aware and which may endanger himself, herself or another worker; and
- d. Report to B&N or his or her Director / Project Manager / Supervisor any contravention of the Appropriate Provincial Health & Safety Legislation or the existence of any hazard of which he or she knows.

No worker shall,

- a. Remove or make ineffective any protective device required by the Appropriate Provincial Health & Safety Legislation or by B&N, without providing an adequate temporary protective device and when the need for removing or making ineffective the protective device has ceased, the protective device shall be replaced immediately;
- b. Use or operate any equipment, machine, device or thing or work in a manner that may endanger themselves or any other worker; or
- c. Engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct.

6.1.4. PROCEDURE

ADDITIONAL EMPLOYER RESPONSIBILITIES

The following points of responsibility are considered essential, but are not necessarily inclusive:

- Ensure the Health and Safety of B&N team members, client employees and all others at our jobsite locations, yards and offices
- Prevent damage to the Clients' property, equipment and environment;
- Develop, maintain, implement and monitor a comprehensive health and safety policy and program
- Adhere to all Appropriate Provincial Health & Safety Legislation, codes, regulations and related procedures
- Ensure that new employees receive all required training prior to starting work
- Implement emergency evacuation procedures at Corporate and field offices and site locations and ensure that these where required, are in accordance with the clients' emergency evacuation plan
- Arrange for monitoring of chemical, physical and biological agents in the workplace, as needed
- Provide information, Personal Protective Equipment and training necessary to protect the Health and Safety of workers and all other affected persons
- Provide adequate first aid measures, as required by all Appropriate Provincial Health & Safety Legislation
- Maintain applicable records, statistics and reports for the prescribed length of time
- Review and update the health and safety policy and program annually
- The employer shall ensure that all equipment is maintained at intervals that are sufficient to ensure the safe functioning of the equipment
- When a defect is found in equipment, the employer shall ensure that steps are taken immediately to protect the health and safety of any worker who may be at risk until the defect is corrected. The defect shall be corrected by a competent person as soon as is reasonably practicable
- Establish and maintain a JHSC / JOHSC or have a worker health and safety representative, in accordance with all Appropriate Provincial Health & Safety Legislation; and
- Provide instruction, training, information and guidance to all team members appropriate to the work being done

- While a worker is on a work platform mounted on a forklift and the forklift is in the raised position, the employer, sub-contractor or any Director / Project Manager / Supervisor shall ensure that the

operator; remains at the controls and does not move the forklift

HEALTH AND SAFETY DEPARTMENT RESPONSIBILITIES

- Serve as a role model for the Health and Safety standards to be implemented and maintained
- Coordinate and implement all aspects of the B&N EHS program as it applies to various site activities in accordance with the EHS program policies, procedures, and all Appropriate Provincial Health & Safety Authorities
- Communicates all required EHS related matters to Senior Management as defined by our Health and Safety Program
- Work collaboratively with all field and facility personnel who have the necessary knowledge to complete assigned tasks in a safe manner
- Ensure EHS compliance with all Appropriate Provincial Health & Safety Legislation
- Advise on compliance with all Appropriate Provincial Health & Safety Legislation and the B&N EHS policies and procedures
- Oversee the compilation, updating and distribution of health and safety related documentation
- Assisting in the developing and delivering of the required training programs as may be required
- Assist a Director / Project Manager / Supervisor in Health & Safety orientation of new employees; update and train existing employees as required
- Maintain Health & Safety company records
- Complete scheduled inspections and audits;
- Work to minimize or eliminate workplace injuries and accidents
- Assist in the completion of Incident Reports, Investigations and Close Call Reports
- Assist in investigation and the filing of WSIB / WCB reportable injuries
- WSIB / WCB Case Management;
- Manage the Return to Work Program
- Network with all internal and external stakeholders to promote the B&N health and safety culture
- Pro-actively share EHS information to enhance and maintain safety awareness
- Coordinate / participate in various health and safety meetings, Corporate EHS meetings, JHSC / JOHSC membership appointment, conferences and other activities;
- Maintain all medical testing and surveillance records; and
- Initiate and coordinate an annual Health and Safety Program review in accordance with all Appropriate Provincial Health & Safety Legislation;
- Assist with the completion of the site-specific Health and Safety Plan (HASP)

DIRECTOR / OPERATIONS MANAGER / VICE PRESIDENT

The general health and safety responsibilities of the Director / Operations Manager are, but not limited to the following:

- Serve as a role model for the health and safety standards to be implemented and maintained;
- Ensure that Health and Safety Program is integrated with the management process including planning and budgeting
- Ensure that sufficient resources are available to achieve the goals and objectives of the Health and Safety Program
- Ensure the implementation and effectiveness of the Health and Safety Program
- Take action, as may be necessary, to ensure compliance with all Appropriate Provincial Health & Safety Legislation, client and B&N policies and procedures and participate in meetings as required; and
- Review and assist with the completion of incident investigation reports, Close Call Reports and ensure that measures to prevent reoccurrence are practical and implemented.
- Complete scheduled inspections and audits;
- Assist with the completion of the site-specific Health and Safety Plan (HASP)
- Apply appropriate disciplinary action according to established policy as deemed appropriate

PROJECT MANAGER RESPONSIBILITY

Project Managers are primarily responsible for the management of projects within a specific region. In the context of the Health and Safety Program, the Project Managers responsibilities will be as follows:

- Serve as a role model for the health and safety standards to be implemented and maintained
- Incorporate Health and Safety requirements throughout all phases of the work, including planning and estimating
- Assist in the implementation and maintenance of B&N Health and Safety Program, policies and procedures
- Ensure that B&N, client and all Appropriate Provincial Health & Safety Legislation requirements are adhered to in day-to-day work activities
- Review and assist with the completion of incident investigation reports and ensure that measures to prevent reoccurrence are practical and implemented
- Complete scheduled inspections and audits;
- Completion of the site-specific Health and Safety Plan (HASP)
- Apply appropriate disciplinary action according to established policy as deemed appropriate
- Ensure that all Sub-contractors are made aware of B&N's Sub-Contractor Environmental Health & Safety Program and B&N's Environmental Health & Safety Program
- Participate in and cooperate with all EHS initiatives

SUPERVISOR RESPONSIBILITY

The Supervisor is responsible for the execution of the field program and management of the construction site. Labourers, subcontractors and visitors are under the direct control of the Supervisor. In the context of the Health and Safety Program, the Supervisor has the responsibilities as follows:

- Serve as a role model for the health and safety standards to be implemented and maintained
- Ensure safe working conditions exist in areas under their direct control and ensure employees perform duties without undue risk
- Ensure that there has been a site-specific orientation provided for the employees under their supervision in regards to the Standard Work Procedures that must be followed
- Conduct Daily Safe Work Permit meetings to ensure personnel under their supervision understand task related risks and hazards, and the Safe Work Procedures established to control them
- Review site-specific Health and Safety Plans (HASP) with site personnel before commencing any work
- Ensure that written JSAs are available and used for tasks that require written procedures;
- Take immediate action to correct any unsafe work conditions, methods, practices, procedures, or equipment faults or defects, as may come to their attention
- Provide a reasonable supply of potable drinking water that is kept readily accessible at a project for the use of workers
- Apply appropriate disciplinary action according to established policy as deemed appropriate;
- Ensure that workers report all injuries and that treatment for injuries is received
- Ensure that a hand tool or a portable power tool is inspected before use to make certain it is in safe working condition and a defective hand or power tool is removed from service
- Have a procedure to perform a hazard assessment before a worker manually lifts, lowers, pushes, pulls, carries, handles or transports a load that could injure the worker.
- Not knowingly operate or permit a worker to operate mobile equipment which is, or could create, an undue hazard to the health or safety of any person, or is in violation of any Appropriate Provincial Health & Safety Legislation.
- Provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling or transporting heavy or awkward loads.
- Provide direction and training on how to deal with awkward loads when equipment is not available
- Participate in and cooperate with all EHS initiatives

- Immediately report to Health & Safety Manager or President / Vice President all incidents that must be reported or investigated
- Conduct all incident investigations and Close Call Reports; and
- Participate in the work of JHSC / JOHSC as assigned
- Assist with the completion of the site-specific Health and Safety Plan (HASP)
- Complete scheduled inspections and audits
- Complete and document weekly Toolbox Safety Talks

WORKER RESPONSIBILITY

- Prevent injury or damage to all persons, property, equipment, or environment
- Adhere to all Appropriate Provincial Health & Safety Legislation, codes, regulations, and policies contained in the HASP
- Follow the requirements for applicable permits (i.e. Daily Safe Work Permit, Hot Work Permit, Confined Space Permit etc.)
- Use only tools and equipment provided by B&N, where applicable
- Use tools and equipment appropriate for the work task(s) they were designed or intended for per the manufacturer's instructions
- Inspect all tools and power equipment prior to use and remove from service if defective and report the requirement for repairs to the Project Manager / Supervisor
- Report all injuries to your Project Manager / Supervisor immediately
- Participate in incident investigations, as required and where possible
- Work in a safe manner so as not to endanger yourself or others
- Immediately report hazardous conditions or close calls to your Project Manager / Supervisor
- Use Personal Protective Equipment prescribed by the nature of the work and the HASP
- Actively participate in the training programs provided by B&N
- Follow all requirements of B&N's Health and Safety Program at all times
- Not to use an iPod, cell phone, MP3 player or other hand-held devices while engaged in working for B&N
- Report to the Project Manager / Supervisor any problems with equipment that may endanger the worker or other workers
- Report to the Project Manager / Supervisor any contravention of any Appropriate Provincial Health & Safety Legislation and any hazard on the project
- The worker must not engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct
- If necessary, the worker may exercise their "right to refuse" or to stop work in "dangerous circumstances"
 - a. Provisions of any Appropriate Provincial Health & Safety Legislation are being contravened
 - b. The contravention poses a danger or hazard to worker
 - c. The danger or hazard is such that any delay in controlling it may seriously endanger a worker

DRIVER AND EQUIPMENT OPERATOR RESPONSIBILITY

In addition to the responsibilities listed in the previous (Worker's Responsibilities) section, drivers and operators must be authorized to operate their equipment and adhere to the following responsibilities:

- Ensure the equipment is in operative condition & shall not endanger themselves or fellow workers
- Adhere to all Appropriate Provincial Health & Safety Legislation, codes, regulations, and policies contained in the HASP
- Conduct a documented inspection of the equipment on a daily basis to assess any need for repairs and maintenance
- Inspections must be conducted for the purpose of:
 - a. Detecting any defects or hazardous conditions
 - b. Determining if the equipment is capable of handling its rated capacity
 - c. Determining that the components critical to safe operations are in proper working condition

- Report in writing to the Supervisor any defects or hazardous conditions detected during the inspection
- Drivers and Operators will inspect the work area prior to the start of work
 - a. For any overhead power lines that are close to the work area
 - b. All underground services are located prior to any excavation, written confirmation required
- Drivers or Operators shall not remain on, or in a vehicle where he or she may be endangered during loading or unloading of the vehicle
- Drivers and Operators shall take necessary action and precautions to prevent a vehicle from

being started or being set in motion by any unauthorized person where the vehicle is left unattended

- Drivers and Operators shall ensure the assistance of a signaler is used in the case of any obstructed views or reversing on site
- Drivers and operators shall not use an iPod, cell phone, MP3 player or other hand-held devices while engaged in working for B&N

SUB-CONTRACTORS RESPONSIBILITY

Sub-Contractors that wish to conduct work for B&N will:

- Be registered in good standing with the provincial workers' compensation authority and provide proof of training for all persons to the work being performed
- Provide safety related performance details (details to provincial safety requirements non-compliance, injury frequency / severity rates, provincial workers' compensation authority merits / demerit details) as required by B&N contracts
- Plan, organize and develop a Health and Safety Program, policies and procedures that meet or exceed all Appropriate Provincial Health & Safety Legislation and B&N requirements
- Assign a qualified and competent person with responsibilities for ensuring project health and safety standards are met, and provide this information to B&N
- Provide their on-site supervisor(s) with written guidelines for the safe completion of the project
- Inform the B&N Project Manager / Supervisor immediately of any reportable health and safety incident
- Provide B&N with project specific information related to hours worked, injuries incurred, etc. for inclusion in B&N statistics
- Coordinate with B&N personnel to ensure there is an effective means for ensuring project Health and Safety before project commences, including the completion of a JSA and ongoing hazard analysis as conditions change on the job site
- Provide tools, equipment and supplies for completion of the project that are in good operating condition, do not pose undue risk, meet regulatory requirements, and have been maintained in accordance with manufacturer's specifications
- Conduct jobsite inspections on a regular basis to ensure that the project Health and Safety standards are being maintained
- Participate in Daily Safe Work Permit meetings, incident investigations and close calls to provide such information when requested
- Comply with the site-specific Health and Safety Plan (HASP)

6.00 RESPONSIBILITIES

SUB-CONTRACTORS AND VISITORS PROGRAM

6.2.1. PURPOSE

Biggs & Narciso Construction Services Inc. (B&N) must provide a consistent method of pre-qualifying Sub-contractors with the goal of ensuring Health, Safety and Environmental issues are covered off and visitors have established responsibilities. This program shall be used as a tool for B&N to assist in reviewing any Sub-contractor's safety programs, safety training documents, and their safety statistics in order to pre-qualify them for consideration in working on any B&N client and company workplaces.

6.2.2. SCOPE

These acceptable safety metrics must be used by all divisions within B&N in selecting Sub-contractors prior to working on any B&N client company workplaces and establishing visitor workplace responsibilities.

Sub-contractor safety requirements should be contained in the submitted bid documents. Completed questionnaires, documentation and statistics are to be provided to B&N for their review and records. Additionally, company representatives should be available to answer questions for the Sub-contractor about their safety program and any safety requirements contained in the bid documents or final contract.

6.2.3. RESPONSIBILITIES

B&N Responsibilities:

B&N has a responsibility to ensure, where reasonably possible, that every employer and every worker and visitor at the workplace complies with all Appropriate Provincial Health & Safety Legislation. Through the setting of workplace requirements under the Health and Safety Plan (HASP) and requesting Sub-contractor's documents, we can ensure all Sub-contractors and their sub-contractors can implement these workplace specific requirements.

Sub-contractors Responsibilities:

The Sub-contractors has responsibility to ensure, where reasonably practicable, complies with all Appropriate Provincial Health & Safety Legislation, workplace requirements under the Health and Safety Plan (HASP) and the health and safety of all its contracted employees. The Sub-contractor shall give notice in writing to every employer, worker or self-employed person at the place of employment:

1. Setting out the name of the person who is supervising the work on behalf of the Sub-contractors
2. Any emergency facilities provided by the sub-contractor for the use of the employer's workers or self-employed persons
3. Participate in the Daily Safe Work Permit meetings and incident investigations, close calls and provide such information when requested
4. Adhere to all Appropriate Provincial Health & Safety Legislation and policies contained in the HASP
5. Develop a complete set of a Job Safety Analysis (JSA) and ongoing hazard analysis as conditions change on the workplace
6. Identify a Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) or representative, at the place of employment and the means to contact the representative.

Visitor Responsibilities:

The following establishes B&N policy for hosting, escorting and allowing visitor access to our managed workplaces. This policy is designed to ensure the health, safety and security of any Sub-contractors or visitors to our workplaces.

1. All visitors are required to sign-in or advise the Superintendent/Supervisor/Foreman in charge of their presence
2. All visitors must wear all of the assigned PPE at all times
3. Visitors must be escorted by a B&N representative at all times while on a B&N managed workplace
4. Visitors must be made aware of and comply with fire / emergency evacuation plans, safety procedures and security measures
5. In the case of an emergency, visitors are required to follow all instructions from B&N personnel, exit the building or work area in an orderly manner and gather at the B&N evacuation assembly area for a headcount
6. Visitors must abide by relevant B&N policies and procedures, including areas where smoking is prohibited.
7. Visitors must report immediately all incidents, injuries and close calls to the Supervisor of the workplace they are visiting
8. Visitors shall not be under the influence of drugs or alcohol while on a B&N managed workplace.
9. All visitors must ensure their actions allow for their own health and safety and that of others at all times
10. All visitors must comply with reasonable standards of professional behaviour at all times

6.2.4. PROCEDURE

Reporting Requirements

The Sub-contractor shall take all necessary steps to protect all workers, employees and third parties from any injury or illness as a result of the work. All equipment provided by the Sub-contractor shall be maintained in good condition and shall meet all Appropriate Provincial Health & Safety Legislation and company standards.

All work procedures shall be in accordance with company, all Appropriate Provincial Health & Safety Legislation and only authorized personnel will be permitted to work on the workplace. The Sub-contractor shall;

1. Provide all necessary personal protective equipment to their workers and ensure compliance with B&N workplace requirements.
2. Shall cease all activities in the area of an identified health or safety problem until it is resolved.
3. Shall immediately remove from the workplace any employees of the Sub-contractor, visitors or its sub-contractors who do not comply with the B&N safety requirements as outlined under the HASP.

Sub-contractor Health and Safety Program

The Sub-contractor's health and safety program shall be included as part of the contract documents as well as any additional Sub-contractor hired by the Sub-contractor as outlined under - **FORM 6.2. – Sub-contractor Qualification Questionnaire**. All parties shall comply with all submitted health and safety requirements including those of B&N as outlined within the HASP. The Sub-contractor shall designate competent workplace personnel to be responsible for compliance with their submitted health and safety program and all Appropriate Provincial Health & Safety Legislation.

Sub-contractors

The Sub-contractor shall include all documentation relating to safety and health in any agreement with a Sub-contractor as outlined under - **FORM 6.2. – Sub-contractor Qualification Questionnaire**.

Workers Compensation Coverage – WCB / WSIB

The Sub-contractor shall provide documented evidence of an account in good standing with the WCB / WSIB of the applicable provincial jurisdiction prior to beginning the work, and shall maintain its account in good standing throughout the performance of the work. Additionally, the Sub-contractor shall ensure that its Sub-contractors comply with all Appropriate Provincial Health & Safety Legislation.

Company's Rights

The company may perform all workplace inspections and audits as necessary to satisfy itself that all health and safety requirements are being adhered to. At no additional cost to the company, the company may require the immediate removal or repair of any unsafe or defective equipment used in the performance of the work and may require the removal from the workplace of any personnel who does not comply with the B&N health and safety requirements.

Delays

If the Sub-contractor is responsible for a delay in the progress of the work due to an infraction of legislated or B&N health and safety requirements, the Sub-contractor shall, without additional cost to the B&N, work such overtime, acquire and use for the execution of the work. This may include additional labour and equipment, as may be necessary in the opinion of the company's representative, to avoid delay in the final completion of the work, or any operations thereof.

Reporting Requirements

The Sub-contractor shall immediately report to B&N's Environment Health and Safety Manager and where applicable the Appropriate Provincial Health & Safety Authority of any critical injury or serious incidents to any of its employees, sub-contractors, visitors or any other person, arising from the Sub-contractor's execution of the work. The Sub-contractor shall investigate such accidents or occurrences, prepare a written report and provide B&N with a copy within five calendar days. Furthermore, the Sub-contractor shall assist in any subsequent investigation of accidents or inquiries related to the initial investigation.

Designated Safety Representative

The Sub-contractor shall identify to the company the supervisory person who shall be responsible for health and safety programs at the workplace.

Pre-Job Meetings / Kick-off Meetings / Company Orientations

The Sub-contractor shall attend a pre-job meeting where the specific health and safety requirements as outlined under the HASP for the job shall be discussed. In addition, any Sub-contractors working with B&N or under a Sub-contractor must be included in kick-off meetings and attend the B&N Sub-contractor safety orientation.

Post Job Safety Performance Reviews

After the project has been completed, B&N will complete a post-job safety performance review on each Sub-contractor and their subcontractors to ensure they continue to meet the safety metrics identified in the pre-qualification process.

6.2.4. RELATED FORMS

FORM 6.1. – Sub-contractor Agreement Form

FORM 6.2. – Sub-contractor Qualification Questionnaire

7.00 COMMUNICATION

7.1.1. PURPOSE

Effective and frequent communication with company employees, trade contractors, suppliers and visitors, etc. is essential to establishing a safe and healthy workplace.

7.1.2. SCOPE

All communication methods adopted by Biggs & Narciso Construction Services Inc. (B&N) are to generate and maintain awareness among company employees, sub-contractors, suppliers and visitors, etc. shall be consistent with the processes outlined in this document.

7.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Is responsible for ensuring that appropriate communication methods are developed and implemented for establishing health and safety in the workplace
- Is responsible for ensuring that all communications related to safety are documented using the appropriate forms
- Is responsible for retaining records related to safety communications in a central location that is only accessible to authorized personnel
- Ensures all information that is required to be communicated to all B&N employees, sub-contractors, suppliers and visitors, etc. is delivered

7.1.4. PROCEDURE

INFORMAL COMMUNICATION

Informal communication is defined as a casual discussion, spontaneous verbal exchange and can also include a note or memorandum.

Through this feedback mechanism, informal communication can be more effective than formal channels, as participants in the conversations elaborate or modify what they have to say in order to deal with someone else's objections or misunderstandings.

Informal communication is:

- Unscheduled
- Random participants
- Participants out of role
- Unarranged agenda
- Interactive
- Rich content
- Informal Language

Examples:

- Verbal or written directions for task completion
- Training
- Safety talks
- Health & safety meetings
- Conversations

FORMAL COMMUNICATION

Formal communication is defined as a presentation or written piece that strictly adheres to rules, conventions and ceremony and is free of colloquial expressions. These are very fact based, black and white pieces of information meant to disseminate the same message to all recipients.

Formal communication is:

- Scheduled in advance
- Arranged participants
- Participants in role
- Pre-set agenda
- One-way communication
- Impoverished content
- Formal Language

Examples:

- Departmental meetings
- Special interviews
- Website
- Newsletter
- Eye on Safety (Safety Newsletter)
- Training Sessions (as required and annually)
- Monthly Foreman's Meetings
- Various Health and Safety Meetings

8.0 INCIDENT REPORTING AND INVESTIGATION

INCIDENT REPORTING

8.1.1. PURPOSE

All incidents must be reported to allow the company the opportunity to take corrective actions to prevent reoccurrence and to ensure that the proper documentation of these incidents is completed.

8.1.2. SCOPE

All workplace incidents, close calls and injuries involving Biggs & Narciso Construction Services Inc. (B&N) employees, clients, client employees, sub-contractors, visitors and third parties (the public) must be reported and investigated immediately.

8.1.3. RESPONSIBILITIES

B&N Project Personnel Responsibilities:

All workplace incidents, close calls and injuries involving B&N employees, clients, client employees, sub-contractors, visitors, and third parties (the public) must be reported and investigated immediately. An Incident includes all injuries from minor cuts to critical injuries, fatalities, property damages, fires, environmental releases, vehicle accidents including close calls.

Director / Project Manager /Supervisor Responsibilities:

Respond to and follow up on project personnel who are required to report all incidents to their immediate Project Manager / Supervisor. This includes all incidents that result in injury, illness, property damage, and all incidents that had the potential for serious injury or property damage including close call or near misses.

Health & Safety Manager Responsibilities:

Critical Injury or Serious Incidents must also be reported to the Appropriate Provincial Health & Safety Authority as described by our Site-Specific Health and Safety Plan (HASP).

8.1.4. PROCEDURE

INCIDENT REPORTING

All workplace incidents and injuries involving B&N employees, clients, client employees, sub-contractors, visitors and third parties (the public) must be reported and investigated immediately. An Incident includes all injuries from minor cuts to critical injuries, fatalities, property damages, fires, environmental releases, vehicle accidents, near misses & close calls.

1. All incidents are to be reported and documented immediately to the B&N Project Manager / Supervisor. Failure to do so will result in disciplinary action up to and including termination of employment
2. The B&N Project Manager / Supervisor shall immediately report the incident to the EHS Department & Project Manager, providing any necessary information: project name, location, phone number, name of worker(s) involved
3. The Health & Safety Department, Project Manager shall immediately notify, the Senior Leadership Team. (In the event of any critical injury or lost time incident, the President & Vice President shall be contacted personally to inform them of the incident)
4. The Health & Safety Manager will be responsible to notify any Appropriate Provincial Health & Safety Authority, when required and as defined by our Site-Specific Health and Safety Plan (HASP).

5. The Health & Safety Manager shall notify, via email the B&N President, Vice President regarding all Incidents.
6. If the incident warrants any onsite in-house investigation assistance it will be decided at this point by the Regional EHS Manager, Regional Manager for the appropriate division.
7. Should the incident involve a B&N issued, rented or third-party vehicle, please notify the Health & Safety Manager, Health & Safety Manager or designate.
8. In all cases, the Project Manager / Supervisor must complete and sign the Incident Report using **FORM 8.1.** – Incident Investigation Report and submit to the designated H&S representative and / or to the Health & Safety Manager within 24 hours of the occurrence including witness statements, copies of Health Care Practitioner's notes, Functional Abilities Forms (FAF) and Modified Work Agreements.

COMMUNICATION TRAINING AND FOLLOW-UP

1. The requirement to report each incident and injury is communicated to all employees through the Corporate B&N Orientation.
2. All B&N Supervisory Personnel will be trained in Incident Investigation.
3. The Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) members who are required to conduct investigations will receive formal investigation training. The training shall be completed when becoming a member of the JHSC / JOHSC.
4. The incident reports shall be reviewed with the JHSC / JOHSC during their monthly meeting for review of incident details, root cause analysis, and corrective actions. The JHSC / JOHSC members shall have the opportunity to provide further recommendations to B&N.

8.1.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

8.00 INCIDENT REPORTING AND INVESTIGATION

INCIDENT INVESTIGATION

8.2.1. PURPOSE

Biggs & Narciso Construction Services Inc. shall prepare a written report that includes a description of the incident, any graphics photographs or other evidence that may assist in determining the cause or causes of the incident. In addition, the report must provide an explanation of the cause or causes of the incident, the immediate corrective action taken, recommendations and any long-term action that will be taken to prevent the occurrence of a similar incident.

8.2.2. SCOPE

All incidents including close calls shall be investigated for root causes which include unsafe acts, unsafe conditions, immediate causes and underlying causes.

8.2.3. RESPONSIBILITIES

Supervisor Responsibilities:

1. Ensure First Aid is provided as soon as possible to the injured worker
2. Provide Letter to the Health Care Practitioner and Functional Abilities Form (FAF) to injured worker prior to seeking medical attention.
3. Arrange for transportation to the nearest medical facility, if required
4. If medical assistance is required, accompany the injured worker to the medical facility or assign a qualified designate
5. Immediately report injury to Health & Safety personnel & Project Manager
6. Manage the incident scene and identify any witnesses.
7. Investigate incident, complete incident report - **FORM 8.1.** – Incident Investigation Report
8. Interview witnesses and obtain written statement - **FORM 8.3.** – Incident Worker Statement
9. Complete the Incident Investigation Report and all other required documentation within 24hrs, and forward to the Health & Safety Manager
10. Keep the Health & Safety Manager informed of any changes in restrictions, absenteeism or of any related information
11. Ensure each recommendation on the Incident Report is completed within the established timelines

KEYWORDS

At Work - A person is deemed to be at work during the conduct of their duties in the workplace during normal or overtime working hours. Employees /contractors travelling in company / rental /contractor vehicles, airplanes, helicopters, etc., on company business are deemed to be at work. This includes persons who are travelling from home to a workplace for call out purposes and persons travelling for business purposes to a location other than the normal place of business.

Fatality: An incident where a person is killed in the workplace.

First Aid injury: A minor work-related injury, which after first aid treatment and subsequent observation allows the worker to return to normal duties the same day or at the next scheduled shift. This could include basic treatment by a qualified First Aid Attendant, Health Nurse, paramedic or doctor.

First Aid Attendant: A person trained and possessing a valid First Aid Certificate, who takes charge of an emergency situation and administers first aid.

Health Care: Services provided at hospitals, health facilities or services that require the professional skills of a health care practitioner (i.e. a doctor, chiropractor, physiotherapist, optometrist or dentist).

Lost Time Injury (Reportable injury under WSIB/ WCB): Any injury which requires medical treatment from a licensed medical doctor/practitioner who subsequently recommends the injured worker remain off work the next scheduled work shift following the day of injury. In cases where a lost time injury (LTI) results in absence from work and subsequently results in future modified work assignment, only the number of days absent from work is counted as LTI. The days assigned on temporary modified work are counted as Modified Work Injury (MWI).

Lost Time Days (LTD): Number of full days where workers are absent from work because of a Lost Time Injury (LTI). Count only full days the employee would have normally worked. These are injuries that require medical assistance (Health Care) and/or returning to work immediately beyond the day of injury. In some cases, these injuries may be relatively minor such as dirt in an eye, which could not be removed through first aid measures, or, more serious injuries as a laceration requiring sutures.

Modified Work Injury (MWI): Any occupational (work related) injury (serious in nature) requiring the worker to abstain from his / her regular duties as assigned by a medical practitioner or a registered nurse. In such cases the worker is deemed capable of performing “modified regular duties” or is assigned “temporary alternative work”. Counted are the days that the worker would have normally worked following the day of injury not including vacation, sick leave or statutory holidays.

Occupational Illness: Any situation where an employer is advised by a worker or on behalf of a worker that the worker has an occupational illness or that a claim in respect of an occupational illness has been filed with WSIB or provincial equivalent.

Performance Index (P.I.): Is the calculation of Lost Time Frequency multiplied by Lost Time Severity over the average number of hours worked in a normal work week.

Reportable Injury: An injury is “reportable” to the appropriate Provincial Worker’s Compensation Board.

Injured Worker Responsibilities:

1. Obtain First Aid assistance from qualified personnel, if required
2. Immediately inform the Project Manager / Supervisor of the injury
3. Obtain appropriate health care treatment if required, and return the completed FAF to the Supervisor on the same day
4. Participate in B&N's Return to Work (RTW) program
5. Keep the Project Manager / Supervisor, Health & Safety Manager informed of any changes in medical condition.
6. Communicate with Supervisor about progress

Health & Safety Manager Responsibilities:

1. Review all injury reports and follow up with Project Manager / Supervisor, Health & Safety representatives as required
2. Contact the Appropriate Provincial Health & Safety Authority; follow directives issued in the event of a Critical Injury or Serious Incidents
3. Advise appropriate internal personnel
4. Prepare and distribute Health and Safety communications for work related lost time incidents or loss causing events
5. Assist the Project Manager / Supervisor and the Health & Safety Department with the injured worker in their RTW process.
6. Immediately advise the Senior Leadership Team of any significant events
7. Arrange or assist in delivering the Incident Reporting and Investigation training program to all Supervisors, Supervisory personnel and other corporate staff members. This will provide the knowledge, skills and competencies to perform adequate reports and investigation of incidents happening at any B&N workplace. In cases in which a replacement trainer might be needed, any of the Health and Safety Coordinators, trained in the Incident Reporting and Investigation program will be appointed to deliver the training
8. Sub-contractor or visitors who gets injured while performing his / her duties must also follow the injury investigation process
9. Retain all incident reports for at least 7 years. All WSIB / WCB compensation claims will be kept for the life of the company
10. Should the incident involve a B&N issued, rented or third-party vehicle, please notify the Senior Leadership Team or designate.

Union Representative / JHSC Representative Responsibilities:

1. Participates in incident investigation and reporting procedures as required by all Appropriate Provincial Health & Safety Legislation and or the Collective Bargaining Agreement
2. Responsible to ensure follow up is completed and does not create a new hazard

8.2.4. PROCEDURE

INCIDENT INVESTIGATION PROCESS

Incidents shall be investigated by a competent supervisor and where requested be assisted by a Health & Safety Representative as follows:

1. Incident: is an unplanned, unwanted event that causes injury, damage to equipment, material structures or the environment.
2. Critical Injury or Serious Incidents must also be reported to the Appropriate Provincial Health & Safety Authority that:
 - a. Places life in jeopardy
 - b. Produces unconsciousness

- c. Results in substantial loss of blood
- d. Involves the fracture of a leg or arm but not a finger or toe
- e. Involves the amputation of a leg, arm, hand or foot but not a finger or toe
- f. Consists of burns to a major portion of the body
- g. Causes the loss of sight in an eye
- h. Results in a fatality
- i. A major structural failure or collapse of a structure, equipment, construction support system, or excavation
- j. The collapse or upset of a crane, derrick or hoist, or any component of a building or structure necessary for the structural integrity of the building or structure
- k. An uncontrolled fire or premature detonation or incident detonation of explosives
- l. An incidental contact with an energized electrical conductor
- m. An uncontrolled spill or escape of a toxic, corrosive or explosive substance
- n. The failure of an atmospheric-supplying respirator
- o. An injury or incident that results in a worker's being admitted to a hospital for more than 2 days

Once the incident scene has been stabilized and the injured worker tended to, the Supervisor must complete the incident investigation. The Supervisor and the worker representative can request assistance from other managers, supervisors, or any other source that may be available to them. All incident investigation details, findings and recommendations must be documented on the Incident Report - **FORM 8.1. – Incident Investigation Report**.

1. Incident Scene Management:

- a. Immediately following an incident, the Supervisor and where requested be assisted by a Health & Safety Representative must arrange for first aid or medical treatment to injured employee(s) and ensure that the area is safe for other workers. This is done by identifying the hazard that caused the incident (i.e.: activated piece of equipment) and establishing controls (i.e.: deactivate or shut down and lockout as necessary). First Aid is to be provided by a qualified First Aid Responder. For injuries of a serious nature, the Supervisor shall call 911 and have the worker transported by ambulance for medical attention.

NOTE: some clients have a protocol for 911 calls.

For injuries of a minor nature that still require medical attention, the Supervisor will provide transportation to a hospital, or doctor's office when necessary. The supervisor may appoint an approved worker to drive a company vehicle or call a taxi and transport the injured worker and the first aid responder or designate to a medical facility.

NOTE: the driver of the company vehicle cannot perform duties as a first aid responder if they are driving the company vehicle. For personal illness, the supervisor will provide transportation to the worker's home, when necessary.

Should the worker refuse the transportation, the supervisor will attempt to:

- Reiterate the importance of accepting the transportation to the hospital, doctor's office or workers home
- Call 911 and get the ambulance attendant to administer medical attention on site

- b. If the injury falls under the definition of a Critical Injury or Serious Incident, the scene must be secured by the Supervisor as per legislated requirements for investigation purposes. If the injury meets the "critical injury" definition then the scene must not be disturbed unless permission to do so is granted by an Appropriate Provincial Health & Safety Authority.

NOTE: No person may disturb, destroy, undertake activity, alter, or move any evidence, wreckage, article or item related to an incident which has resulted in a Critical Injury or Serious Incidents without prior documented permission from the Appropriate Provincial Health & Safety Authority, except, if necessary to attend to the injured person or to further prevent injuries or significant damage to equipment, material or structures.

2. Witness Interviews:

- a. Each individual who directly or indirectly were involved (saw or heard) the incident must be identified
- b. The Supervisor must explain the need for a witness statement and reassure the witness there are no repercussions for completing **FORM 8.3.** – Incident Worker Statement
- c. The Supervisor must keep witnesses apart and request that they complete the Incident Worker Statement Form or simply write a statement on a piece of paper of what they saw or heard, ensuring the witness's name, signature and date is on the paper

Good interview technique includes:

- Interview separately. Do not interview groups. Each interview must be private. Separate interviews will help discourage influencing others memories
- Interview in an appropriate place. Interview at the scene if there are no dangers. If not possible, conduct the interview in a relaxed environment. **DO NOT** conduct the interview in the supervisor's office. This may lead to a feeling of interrogation
- Put the person at ease. Explain that this is a fact-finding exercise, not a fault finding one. Be conscious of posturing. Do not stand over the witness
- Get the persons version of events. Let the person tell the whole story, start to finish. Do not interrupt unless the story is off subject
- Ask appropriate questions. Avoid asking questions that will make the person defensive or questions that can be answered with yes or no. Also, consider asking questions to which you already know the answers. This can help establish whether the person really saw what happened and on their power of accurate observation
- Give feedback. Repeat key points back to the witness in your own words. This will ensure you understood what was said, allows the witness to correct details, and it requires active listening on the part of the interviewer and witness
- Record critical information. Record notes, not every word. **DO NOT** use a tape recorder
- Use visual aids. If not interviewing at the scene, use photographs or sketches to get a clear and accurate description of events
- End on a positive note. Thank the person for their assistance. Give credit and feedback when ideas are used
- Keep future communication option. Tell the witness to call or contact you if they remember or think of anything that may be of assistance. Follow up with a further interview when/if there are conflicts among evidence and witnesses

3. Worker designate of the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC):

- a. The worker representative selected by the worker members of (JHSC / JOHSC), will be involved in the investigation of all injuries/incidents
- b. The worker representative must be involved in the investigation of a Critical Injury or Serious Incidents
- c. Following a Critical Injury or Serious Incidents within the workplace, the worker representative and the supervisor together conduct the investigation and assist in completing the completion of **FORM 8.1.** – Incident Investigation Report
- d. Both the supervisor and the worker representative sign the injury/incident investigation report, upon completion
- e. Where required by legislation covering Critical Injury or Serious Incidents, EHS Representative submits a copy of the injury/incident investigation to the Appropriate Provincial Health & Safety Authority within 48 hours of the incident

4. Incident Scene Investigation:

The Supervisor and where requested be assisted by an EHS Representative carries out duties as the key Investigator of the incident. The Investigator's responsibilities are:

a. Collect Information

- Interview workers involved
- Interview witnesses
- Interview outside experts, if applicable, ie; suppliers, engineer
- Ensure the interviews are conducted as soon as reasonably possible
- The interviews should be conducted in a quiet place, one on one
- The interview must be document, including witnesses and worker written statements

b. Scene Assessment

- Make observations, and use the incident report form to document the conditions at the scene (site, equipment, material)
- No person may disturb, destroy, undertake activity, alter, or move any evidence, wreckage, article or item related to an incident which has resulted in a Critical Injury or Serious Incidents without prior documented permission from the Appropriate Provincial Health & Safety Authority, except, if necessary to attend to the injured person or to further prevent injuries or significant damage to equipment, material or structures
- Use photographs, sketches, drawings, etc.
- Complete a written objective narrative explanation of what happened; include all information from witness and worker statements

c. Identify Contributing Factors

- Factors to consider are People, Equipment, Material, Environment and Process and describing how each factor contributed to the incident

d. Write the Report

- Complete **FORM 8.1.** – Incident Investigation Report to identify contributing factors through a review of items such as maintenance records, plant layout, training records, time of day, length of service, etc. Consideration is given to lack of safety equipment enforcement and / or the need for safety equipment
- Develop recommendations from the completion of the injury investigation report to be forwarded to the Health & Safety Manager
- The recommendations must be reviewed with the Health & Safety Manager. The Health & Safety Manager will then be responsible for accepting or rejecting the recommendations. If the recommendations are accepted, the Health & Safety Manager must assign responsibility for implementation along with an expected completion date
- Ensure **FORM 8.1.** – Incident Investigation Report has captured all the information ensuring a complete and comprehensive report has been completed

e. Prioritizing Recommendations

- Recommendations must be prioritized for action/implementation. The first priority is to provide recommendations that will prevent a similar incident from occurring. In other words, remove the events, or change the sequence of events, so that the cause(s) of the incident cannot occur again
- The second priority is to provide recommendations that will prevent injuries if a similar incident does occur. It is not always possible to be 100% certain that a similar incident will not occur. If it does, what steps can be taken to ensure there are no injuries
- The third set of recommendations should address how the injury severity can be reduced. If we are unable to prevent the incident from occurring, what needs to be in place to ensure that the severity of injuries is minimized?

POST INCIDENT STRESS PROCEDURE

Post incident stress is a psychological adverse reaction (stress, anxiety etc.) resulting from being involved in or exposed to a traumatic incident. (i.e. seeing someone be critically injured etc.)

If a B&N employee is involved with or exposed to circumstances that may result in post incident stress, the Supervisor must:

1. Ensure that each of the individuals exposed receives a contact number for a 24-hour Crisis Management telephone number, and instructions prior to leaving the workplace
2. Ensure that each of the individuals exposed are in good mental and physical condition to leave the worksite. If they are not, the Supervisor must ensure transportation either to a Medical Facility or to the individual's home, depending on the circumstances
3. While at work, monitor exposed individuals for a minimum of one week past the incident, looking for visible signs of distress, stress, etc. and if such symptoms are present, report it to the Health & Safety Manager

COMMUNICATION AND TRAINING

1. The requirement to report each incident and injury is communicated to all employees through the initial orientation using **FORM 8.7.** – Employee Acknowledgement of First Aid, Injury Reporting and RTW Program. Employees are reminded of the importance of injury reporting requirements at the beginning of each new job
2. The requirement and process to report and investigate each incident and injury and the administration details are communicated to each Supervisor through the review of the Incident Investigation Package, Meetings, training, etc.
3. (JHSC / JOHSC) members who are required to conduct investigations will receive formal investigation training. The training shall be completed within the first month of becoming a member of the (JHSC / JOHSC).
4. The incident reports shall be reviewed with the JHSC during their monthly meeting for review of incident details, root cause analysis, and corrective actions recorded on **FORM 8.6.** – Supervisor's Root Cause Reference Sheet. The (JHSC / JOHSC) members shall have the opportunity to provide further recommendations to the employer

INVESTIGATORS' QUALIFICATIONS

A (JHSC / JOHSC) worker and management representative will be assigned to investigate most incidents. There may also be occasions when safety personnel assigned to the project conduct investigations. Personnel assigned the responsibility for conducting investigations must be:

- Familiar with the work processes involved in the incident
- Trained in investigation techniques
- Knowledgeable about incident prevention principles

Investigation teams may be assigned to investigate incidents where no one person has all the required qualifications. In these instances, the team as a whole will have the required qualifications, for example, the supervisor and worker with excellent knowledge of work processes, and a trained safety professional with expertise in investigations and incident prevention.

8.2.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

FORM 8.2. – Incident Witness Statement

FORM 8.3. – Incident Worker Statement

FORM 8.4. – Treatment Memorandum for Attending Health Care Practitioners

FORM 8.5. – Functional Abilities Form

FORM 8.6. – Supervisor's Root Cause Reference Sheet

FORM 8.7. – Employee Acknowledgement of First Aid, Injury Reporting and RTW Program

9.00 RETURN TO WORK PROGRAM (RTW)

9.1.1. PURPOSE

Biggs & Narciso Construction Services Inc. (B&N) is committed to ensuring we conduct our business in a manner that protects the safety, health and wellbeing of our workers and our environment.

The Return to Work (RTW) program provides continued employment opportunities for an employee who is injured at work. If the injured worker is not physically capable of returning to full duties immediately following their injury, this program provides additional opportunities for the injured worker to perform their regular job with modifications that meets the injured worker's physical capabilities.

9.1.2. SCOPE

The RTW program applies to all B&N employees including unionized, non-unionized, management, temporary and full-time employees for work related injuries. B&N is dedicated to ensuring the RTW Program is administered fairly and consistently in all its operating Divisions. All B&N employees are required to participate in the Return to Work program, as applicable.

9.1.3. RESPONSIBILITIES

Injured Employee Responsibilities:

1. Participate in the RTW Program diligently
2. Obtain Functional Abilities Forms (FAF) at each Health Care Practitioner's visit related to the work-related injury
3. Provide the Supervisor with the completed FAF as soon as possible. Latest at the beginning of the next scheduled shift
4. Not to exceed Health Care Practitioner's restrictions at any time.
5. Advise the Supervisor if experiencing any difficulties with the assigned tasks, or if assigned tasks are beyond perceived limitations or medically not capable of performing tasks
6. Advise the Supervisor if taking prescribed medication for work related injury that may interfere with the safe performance of assigned work
7. As per legislated requirements keep communication lines open with the Supervisor, the Health & Safety Manager and WSIB / WCB representatives; advise them of any changes with the medical condition, including upcoming appointments with any medical professional that is related to the injury for which they received modified duties. Provide copies of Health Care Practitioner's notes, new FAF and pertinent documentation to the Supervisor the same day of the appointment or at the beginning of the next scheduled shift
8. If absence from work is required, notify your Supervisor prior to scheduled shift and provide reason for absence. If absence is due to the work-related injury, the Health & Safety Team is to be notified & a Health Care Practitioner's note is required

Supervisor Responsibilities:

1. Arrange for Modified Work for injured employee
2. Complete the RTW Agreement the day of injury
3. Explain the RTW Program to injured worker and present formal offer
4. Obtain the Employee's signature to participate or signature of refusal to participate.
5. Ensure the Modified Work offered is within restrictions outlined by the Health Care Practitioner
6. Provide injured worker and the Health & Safety Manager with copy of signed RTW agreement - **FORM 9.1. – Return to Work Agreement**

KEYWORDS

Physical Demands Information Form (PDIF): This form describes in objective and measurable terms the physical requirements of a particular job or task.

Physical Requirements: Minimum physical ability of a worker, i.e. lifting 50lbs, stair climbing.

Modified Work: Work or tasks that have been changed to accommodate the worker's physical restrictions.

Physical Restrictions: Restrictions to movements of certain body parts outlined by the injured worker's physician or WSIB.

7. Monitor injured worker's tasks and progress closely using Modified Work Activity Log using - **FORM 9.2.** – Modified Work Tracking Sheet
8. Submit the Modified Work Tracking Sheet to Health & Safety Manager at the end of each week
9. Communicate all changes about Modified Work to the Health & Safety Manager
10. Ensure injured worker is paid according to Health & Safety Manager

Health & Safety Manager Responsibilities:

1. Assist the Supervisor, Health & Safety Department in developing / offering Modified Work
2. Maintain all documentation related to the injury, modified work, recovery progress, etc.
3. Maintain contact with applicable provincial workers' compensation authority and Management
4. Maintain contact with the worker
5. Provide assistance / guidance to injured worker, as required

9.1.4. PROCEDURE

The objectives of the RTW program are to:

1. Assist the injured worker in the rehabilitation process by offering continued work, thereby lessening financial and emotional impact of the injury or illness on the employee.
2. Assist the company in:
 - a. Retaining talent, thereby reducing costs of rehiring, retraining
 - b. Reduce the number of days lost to injuries or illnesses
 - c. Comply with legislation including Provincial Board requirements as well as Canadian Human Rights Act

RTW PROCESS AND MEDICAL MONITORING

1. The injured worker must obtain a completed Functional Abilities Forms (FAF) from the attending Health Care Practitioner's relating to the work-related injury and present this form to your Supervisor
2. The Health & Safety Manager shall notify the provincial workers' compensation authority within three days after learning of an incident to a worker that necessitates health care or results in the worker not being able to earn full wages
3. Based on the completed FAF, the Supervisor must fill out - **FORM 9.1.** – Return to Work Agreement and offer it to the injured worker immediately
4. If appropriate Modified Work is not available within the B&N workplace, the Supervisor shall contact the Health & Safety Manager for assistance in finding suitable Modified Work
5. If additional training is required for the injured worker to perform their modified duties, training requirements and arrangements must be identified and addressed prior to commencement of work
6. The Supervisor must explain the modified work offered and the injured worker's new / additional responsibilities, and then request the worker to sign the agreement
7. If the injured worker deems the work offered suitable then he is required to sign the Agreement and participate in the program as stipulated. If the injured worker does not deem the program suitable, he must inform the Supervisor of his concerns so that they can be addressed immediately. A new RTW Agreement may be required
8. If the injured worker refuses to cooperate with the RTW Agreement, the Supervisor must document this refusal on the form (i.e. worker refusing to cooperate in modified work offered because; describe the reason) and ask the worker to initial the Agreement form. The Supervisor must then initial the details and send a copy of the signed RTW Agreement to Health & Safety Manager the same day along with a copy of the FAF as well as provide a copy to the injured worker
9. Upon receiving a copy of the RTW Agreement, the Health & Safety Manager will review the work offered ensuring it follows the injured worker's restrictions on the FAF. The Health & Safety Manager will submit all required documentation to the Applicable Provincial Workers' Compensation Authority

10. If the injured worker's next scheduled appointment is on the last day of the current RTW Agreement, the injured worker must obtain / provide an updated FAF list new medical information (if required). At this time another RTW Agreement will be completed and offered if the worker cannot return to his regular duties
11. Prior to returning to regular duties, the injured worker must receive clearance from a Health Care Practitioner. The clearance may be a Health Care Practitioner's note or another FAF that indicates restrictions are no longer required
12. The RTW Agreement expires once the worker is cleared to return to regular duties
13. From the day of injury to the day the injured worker returns to full duties, the Supervisor must maintain **FORM 9.2. – Modified Work Tracking Sheet**. This Tracking Sheet must contain daily work assigned to the worker, worker feedback, observations, Health Care Practitioner's appointment, notifications, etc. The Tracking Sheet must be submitted to the Health & Safety Manager at the end of each week

OPPORTUNITIES FOR EARLY RETURN TO WORK

B&N will endeavor to accommodate injured employee's RTW at the earliest possible opportunity. Injured workers that return to work as soon they can safely, will have the best chance of a quick recovery from their injury. Long delays in RTW can create complications such as reduced levels of work conditioning and proneness towards easy re-injury.

The recovered worker, the workers' supervisor and first aid attendant need to discuss the worker's current condition and any work restrictions.

There needs to be a match between the injured worker's physical abilities with either a shorter work day, less strenuous work, or both until the injured worker has recuperated sufficiently to resume normal duties. This allows for the gradual improvement of the worker's physical condition and return to their pre-injury position. Returning to work for a shorter work day or lighter duties means that the worker may RTW sooner. This preserves the behavioral pattern of getting up in the morning and going to work promoting one's self-esteem with the return to productivity.

Effective early return to work requires:

1. The worker's Health Care Practitioner to be involved and provide consent to the proposed RTW
2. The worker duties will not jeopardize risk of further injury
3. The modified duties proposed will not delay the worker's recovery
4. The work is meaningful and productive

PAYMENT / TIMESHEETS

Workers on the RTW Program will continue to be paid their pre-injury wages. Workers on the RTW Program who fail to report to work will not be paid for the time missed unless a Health Care Practitioner's note validates the absence due to their claim. Supervisors must advise Health & Safety Manager of all absenteeism by injured workers immediately and on the **FORM 9.2 – Modified Work Tracking Sheet**.

COMMUNICATION AND TRAINING

1. The success of the RTW Program depends on the cooperation of everyone involved in the process. The Health & Safety Manager shall contact the worker and / or supervisor a minimum of every 2 weeks to acquire input on the worker's recovery and the success of the RTW program
2. The RTW Program is communicated to employees through the initial orientation annual Health & Safety reviews
3. The RTW Program's administration details are communicated to each Project Manager / Supervisor through a mandatory Claims Management training session that is to be taken when a Project Manager / Supervisor are appointed into a Supervisory role
4. The RTW Program is communicated to each healthcare provider via a letter to the Health Care Practitioner - **FORM 8.4. – Letter to Physician** along with a copy of a Functional Abilities Form

Confidentiality

Communication of confidential information is on a “need to know” basis only. In general, supervisor staff will only be provided with functional ability information in respect of their direct reports. Supervisors and managers must safeguard any personal or sensitive medical information about an individual of a confidential nature. They are responsible for establishing and maintaining appropriate procedures and facilities to safeguard such information against unauthorized use or disclosure. Compliance with B&N’s privacy policy and with applicable privacy legislation is required.

PROGRAM MAINTENANCE

The effectiveness of the RTW program is monitored daily by the Health & Safety Manager and is reported on the monthly EHS Statistics distributed to the Senior Leadership Team.

9.1.5. RELATED FORMS

FORM 9.1. – Return to Work Agreement

FORM 9.2. – Modified Work Tracking Sheet

FORM 8.4. – Letter to Physician

9.00 RETURN TO WORK PROGRAM (RTW)

PHYSICAL DEMANDS INFORMATION

9.2.1. PURPOSE

The Physical Demands Information Form (PDIF) identifies the job and then further breaks down the physical job duties with the intent of identifying suitable modified jobs and/or potential risks in jobs for further accommodations (if necessary).

In order to identify suitable work for an injured worker, Biggs & Narciso Construction Services Inc. (B&N) maintains a Physical Demands Information Inventory Binder, which is located in the Health & Safety Manager's office, containing the related Physical Demands Information Forms.

9.2.2. SCOPE

The Physical Demands Information is an element of B&N's Return to Work (RTW) Program.

9.2.3. RESPONSIBILITIES

B&N Responsibilities:

1. Related RTW Program shall help accommodate injured workers
2. Ensure that PDIF's are developed and completed adequately
3. Make sure that training on PDIF is developed and delivered to all necessary B&N employees and staff

Health & Safety Manager Responsibilities:

1. Assist in the preparation and completion of PDIF for new and / or accommodated jobs as required
2. Submit completed Physical Demands Information Form to the WSIB/WCB, as required
3. Maintains Physical Demands Information Form inventory binder
4. Provide training to the supervisors on PDIF use

EHS Department Responsibilities:

1. Assist Operations in developing PDIF's, as required
2. Interview and observe workers participating in the RTW program to ensure the effectiveness of the PDIFs
3. Assist in training Supervisions on PDIF use, as required

Supervisor Responsibilities:

1. Assign tasks from the PDIF library that fall within the restrictions of the injured worker.
2. Provide work instructions following PDIF and provide a copy of PDIF to the injured worker
3. Assist in preparation and completion of PDIF with the Health & Safety Department for new or accommodated jobs as required
4. Update the Health & Safety Manager when jobs change (to ensure PDIF inventory is accurate)

KEYWORDS

Physical Demands Information Form (PDIF):

This form describes in objective and measurable terms the physical requirements of a particular job or task.

Physical Requirements:

Minimum physical ability of a worker, i.e. lifting 50 lbs., stair climbing.

Modified Work:

Work or tasks that have been changed to accommodate the worker's physical restrictions.

Physical Restrictions:

Restrictions to movements of certain body parts outlined by the injured worker's physician or WSIB.

Workers Responsibilities:

1. Assist in the preparation and completion of the PDIF as required, by providing feedback through knowledge and experience of tasks associated with job as well as physically completing tasks and explaining specific duties
2. The injured worker must assist the Supervisor in identifying all tasks that the injured worker is physically capable of performing following an injury

9.2.4. PROCEDURE

1. When a worker is injured and returns to work with a completed FAF, B&N will choose modified work from the PDIF inventory that meet the worker's restrictions, using the following table:

#	Modified Work – PDIF #	Arm	Leg	Back	Neck / Head	Other
1	Supervisor Assistant (MD 1.01)	✓	✓	✓	✓	✓
2	Fire Watch (MD 1.02)		✓			✓
3	Site Security (MD 1.03)	✓	✓	✓		✓
4	Site Walks (MD 1.04)	✓		✓		✓
5	Flagman / Signaler (MD 1.05)	✓				✓
6	Safety Watch (MD 1.06)	✓	✓	✓	✓	✓
7	Decontamination Attendant (MD 1.07)	✓	✓	✓	✓	✓
8	Boarding (MD 2.01)				✓	✓
9	Painting (MD 2.02)	✓			✓	✓
10	Air Filter Changing (MD 2.03)		✓		✓	✓
11	PPE Maintenance (MD 2.04)		✓	✓	✓	✓
12	PPE Sanitize (MD 2.05)		✓	✓	✓	✓
13	Office Administrative (MD 2.06)	✓	✓	✓	✓	✓
14	Office Clerical (MD 2.07)	✓	✓	✓	✓	✓
15	Packing Box Orders (MD 2.08)		✓		✓	✓
16	Stock Room Paperwork (MD 2.09)	✓	✓	✓	✓	✓
17	Driver Assistance (MD 2.10)	✓		✓	✓	✓
18	Yard Work (MD 2.11)	✓	✓	✓	✓	✓
19	Pressure Washing (MD 2.12)		✓	✓	✓	✓
20	Sanitary (MD 2.13)	✓	✓	✓	✓	✓

2. If a new PDIF is required, the Health & Safety Manager will initiate the creation of a new modified job, and will create a PDIF in collaboration with the Supervisor and a Worker who has knowledge of the job and specific tasks
3. Visual observations are conducted along with physical example / instruction by Worker or Supervisor to identify the physical demands (i.e.: weights and heights) as required. The involvement of the Worker and observations / instruction ensures that persons familiar with the job and specific duties assists in the development of the PDIF
4. Modified work is offered through the RTW letter with a copy of the applicable PDIF, as required

9.2.5. RELATED FORMS

Physical Demands Information Inventory Binder, refer to the Health & Safety Manager's office, which contains the Physical Demands Information Forms.

10.00 ORIENTATION AND TRAINING

TRAINING

10.1.1. PURPOSE

Biggs & Narciso Construction Services Inc. (B&N) recognizes that the training and education of employees is a vital part of our Environment, Health and Safety Program. Our employees must have the knowledge and skills to do their work in a safe manner. Training will be a combination of both formal and informal instruction.

10.1.2. SCOPE

This policy is intended to ensure compliance with the requirements of orientation for new employees, and applies at all B&N locations.

10.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that any in-house training required is done with the employee before being assigned any work duties
- Allocate necessary resources to complete the Orientation Process for all new employees involved in the process
- Establish open discussion with all new employees during orientation process by introducing themselves and discussing importance of health and safety of their employees
- Appropriate training based on complexity of the job and potential hazards shall be provided to all applicable employees
- Assessments shall be used to determine whether the personnel have the knowledge and have demonstrated skills to safely perform their work assignments. Retraining and testing shall be required for unsatisfactory / unsafe performance of job assignments
- Ensure all employees receive the applicable training: Basic Safety program (Behavioural Based Safety, Near-miss reporting), respiratory fit testing (if necessary) and any additional site-specific training previous to the employee entering any B&N / Client locations

Director / Project Manager / Supervisor Responsibilities:

- Ensure that the new employee receives any client / B&N Site Specific Safety training before being assigned job duties
- Ensure that they provide adequate time to deliver the B&N orientation training process to the new employee
- Ensure that the new employee has the appropriate basic training required by the division prior to the employee commencing work
- Incorporate into the orientation process a site tour and a review of the site-specific health and safety plan (HASP) with the new employee. At this time, the Director / Supervisor will discuss the work site activities and hazards with the employee and how to protect themselves against those hazards. Encourage the new employee to ask questions
- Equip the new employee with the appropriate personal protective equipment, information, instruction and training to perform their duties safely

KEYWORDS

Competency:
Competencies are observable and / or measurable abilities, skills, knowledge, motivations or traits needed for successful job performance.

New Worker:
someone who performs work that has not previously been performed in the past.

Orientation: *is the action or process of orientating or positioning someone in a new or unfamiliar environment.*

Skill: *Skills are the ability to do something well, usually gained through training or experience*

Supervisor: *a person who has charge of a workplace or authority over a worker.*

Training: *is the process of properly educating employees to tasks requiring a certain amount of skill, in some cases requiring certification.*

Worker: *someone who performs manual or industrial labour by hand or with particular tool / material.*

- Complete onsite Orientations using **FORM 10.2.** – B&N Orientation Form or **FORM 10.4.** – Visitor’s Site-Specific Orientation

Workers Responsibilities:

- Attend and participate in all required safety training and meetings
- Properly use, maintain and store all personal protective equipment according to the manufacturer’s instructions
- Participate in the B&N health and safety program (Incident Reporting, Safe Work Practices and Daily Safe Work Permit Meetings) and in keeping the work place safe for everyone.
- Report all injuries and incidents immediately to the Director / Project Manager / Supervisor
- Immediately report any unsafe conditions or acts to the Director / Project Manager / Supervisor

Joint Occupational Health and Safety Committees / Joint Health and Safety Representatives (JHSC / JOHSC) Responsibilities:

- On an annual basis, review and verify the orientation and other training programs are appropriate and effective
- Encourage the new employee to ask questions when uncertain about something related to any work at B&N locations
- Inform the Director / Project Manager / Supervisor of any safety concerns that the new employee may have

Health and Safety Department Responsibilities:

- Define training requirements for each job position within the organization and maintain a record of training on - **FORM 10.1.** - Employee Training Profile Form outlining the training courses, required certifications and timeframes for training completion
- Assist Superintendent / Supervisor / Foreman with the EHS orientation of new employees and provide in-house training (WHMIS, traffic control, fire prevention, fall prevention / arrest, Working from Heights, WSIB / WCB Return to Work (RTW) and Policies & Procedures) as required
- Arrange for any external training programs to be completed
- Maintain employee’s training records on - **FORM 10.1.** - Employee Training Profile Form at the B&N office
- Assist Operations to ensure all training is up to date and complete
- Review all training requirements on an annual basis to ensure changes to the Appropriate Provincial Health & Safety Legislation are met
- Assist Operations with site-specific Orientations using **FORM 10.2.** – B&N Orientation Form or **FORM 10.4.** – Visitor’s Site-Specific Orientation

10.1.4. PROCEDURE

GUIDING PRINCIPLES

Our employees must have the knowledge and skills to do their work in a safe manner. All employees regardless of the level in the organization must receive health and safety orientation, this applies to:

- Newly hired employees
- Employees returning from an extended absence
- Employees hired on a contract basis
- Student employees (including Co-op and summer students)
- Supplied labour employees

Basic orientation on health and safety will include, but is not limited to;

- Health and safety policy
- Employee responsibilities and rights according to the B&N EHS program and the Appropriate Provincial Health & Safety Legislation
- Emergency plan
- Personal Protective Equipment
- Reporting hazards, identification, assessment & controls
- Reporting / Preventing of injury and illnesses
- Return to Work Program
- Site specific responsibilities from the HASP
- Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) members
- WHMIS
- Working at Heights / Fall Protection / Prevention
- Manual Lifting
- Young Workers
- Public Relations
- General Rules
- Workplace Violence & Harassment Prevention
- B&N Health & Safety Team

Orientation on Health and Safety Must;

1. Verify with the new employee that the necessary workplace specific training has been completed. This may include, but is not limited to, Sub-contractor's program, union hall, e-learning and in-house, etc.
2. Have the new employee provide all previous training cards / certificates, copies will be taken and reviewed which will determine whether additional training may be required before the employee starts their assigned tasks
3. Provide the new employee with the applicable personal protective equipment (if required).
4. The Supervisor will take the employee for a tour of the workplace and review the site-specific HASP (if applicable)
5. Discuss the workplace's activities and the new employee's role, making the employee aware of the workplace hazards and the controls in place to protect the employee including their JHSC / JOHSC health and safety representative (if applicable)
6. During the workplace tour the Director / Project Manager / Supervisor will make the employee aware of the first aid facilities, fire extinguishers, emergency assembly areas, and any other emergency equipment.
7. Introduce the new employee to the rest of the employees in the workplace
8. Assign an experienced employee to work with the new employee who will mentor them in their work tasks, safe work practices and B&N's health and safety program
9. The Director / Project Manager / Supervisor will observe the new employee performing their job duties while reinforcing the safe working habits and correct any unsafe practices immediately.
10. Once the orientation training is complete, the employee will sign and date - **FORM 10.2.** – B&N Orientation Form or **FORM 10.4.** – Visitor's Site-Specific Orientation
11. Arrange with the Health & Safety Department to set-up any required e-learning training for the new employee
12. Create a training file for all required documents records on - **FORM 10.1.** - Employee Training Profile Form at the main B&N location

TRAINING AND ONGOING EDUCATION

An employees' basic orientation training shall be reviewed and assessed to determine whether additional training is required when any of the following conditions exist:

- The work to be conducted has not been done before, and new or modified work procedures are required;
- There is an obvious skill and / or knowledge gap that prevents the employee from completing tasks as required
- An employee requests training for work activities with which they are not familiar; or
- Training directed by the Appropriate Provincial Health & Safety Authority as required.
- Significant change in a policy or training program

B&N will ensure that the required training takes place. The training will be risk based competency in order for it to be effective and meet the test of due diligence. Competency based means that the essential skills and knowledge required to do the work correctly have been identified, included in the training, and passed onto the employee. Critical to this type of training, a post training validation exercise or testing maybe required to ensure that the employee comprehends the information and can perform his / her work tasks.

Good record keeping is also necessary for the due diligence process. Training records as recorded on **FORM 10.3**. – Training Sign-In Sheet, as a minimum, will include:

- Trainee 's name
- Date of training
- Description / name of training
- Instructor's name
- Competencies required and achieved, including evaluation results through written tests and / or observation of demonstrated skills

SITE SPECIFIC ORIENTATIONS

Employees on B&N Projects will receive a site-specific orientation. This orientation will review the project specific hazards as detailed in the site HASP. In addition to the hazards and work procedures detailed in the HASP, the B&N orientation will:

- Review site specific worker responsibilities
- Identify worksite hazards, and the safe procedures for dealing with these hazards
- Review how to report hazards, injuries, accidents and close calls
- Review information regarding current site-specific Job Safety Analysis (JSA) and their use
- Review the requirements for personal protective equipment to be used generally on site, and for specific tasks

Review the location of safety reference materials including:

- Written safe work procedures
- B&N National Health & Safety Program
- Safety Data Sheets (SDS)
- Appropriate Provincial Health & Safety Legislation
- Review the location of first aid facility(s), services and emergency equipment
- Review the means of summoning aid, including emergency signals
- Review evacuation signals and mustering stations
- Clearly name supervisory staff, including the site / project superintendent, Foreman and how to contact them
- Clearly name members of the JHSC and how to contact them
- Clearly name the site environmental, health & safety coordinator and contact information

- Conduct a question and answer period to provide employees with additional information, and
- Provide an opportunity for employees to complete required forms
- A record of this orientation shall be kept on site. A copy will also be placed on the employee's personnel file as a permanent record. **FORM 10.2.** – B&N Orientation Form will be used for this purpose.

In addition to the B&N site orientation, there may be an additional orientation provided by the Constructor / Principal Contractor or owner. This will normally occur on larger projects, or while working at a facility with regular contract construction / demolition activities.

10.1.5. RELATED FORMS

FORM 10.1. – Employee Training Profile Form

FORM 10.2. – B&N Orientation Form

FORM 10.3. – Training Sign-In Sheet

FORM 10.4. – Visitor's Site-Specific Orientation

11.00 PROFESSIONAL CONDUCT

WORKPLACE VIOLENCE

11.1.1. PURPOSE

The purpose of our Biggs & Narciso Construction Services Inc. (B&N) Workplace Violence Prevention Program is to ensure that:

- Individuals are aware of and understand that acts of workplace violence are considered a serious offence for which necessary action will be imposed
- Those subjected to acts of workplace violence are encouraged to access any assistance they may require in order to pursue a complaint; and
- Individuals are advised of available recourse if they are subjected to, or become aware of, situations involving workplace violence

11.1.2. SCOPE

The workplace violence program should be consulted whenever there are concerns about violence in the workplace.

11.1.3. RESPONSIBILITIES

Senior Management Responsibilities:

- Ensure that workplace violence prevention policy statement is prepared, and reviewed on an annual basis
- Ensure that a site-specific violence risk assessment is conducted and if necessary, a violence prevention plan is developed and implemented

Supervisory Personnel and Management Responsibilities:

For the purposes of this policy, as a supervisor or manager, you are responsible to:

- Ensure that workplace violence prevention policy statement is prepared, and posted in the workplace
- Act respectfully towards other individuals while at work and participating in any work-related activity
- Develop workplace arrangements that minimize the risk of workplace violence;
- Promote a non-violent workplace
- Ensure that this policy is explained to all employees that they supervise or manage
- Ensure a workplace violence risk assessment is conducted to identify areas of concern including isolated workers, night shift workers, workers handling money, and locations with potential for robbery
- Identify training needs for employees
- Ensure that employees understand who to contact regarding concerns about the policy or when reporting an incident
- Ensure their own immediate physical safety if an incident of workplace violence occurs, then report criminal behavior to the Appropriate Provincial Health & Safety Authority
- Ensure the security and safety of all parties involved during an investigation of an incident of workplace violence.
- Post the policy in a conspicuous place within the workplace

Worker Responsibilities:

For the purposes of this policy, as an employee, you are responsible:

- To act respectfully towards other individuals while at work and participating in any work-related activity

- To ensure your own immediate physical safety in the event of workplace violence, then to report the incident to your supervisor or manager or if required the police as the situation warrants; and
- Ensure to inform your supervisor when working in situations when alone or handling money
- To co-operate with any efforts to investigate and resolve matters arising under this policy
- Report to your supervisor any situations of persons or situations that are unusual or have placed people in danger
- Provide input into violence risk assessment

11.1.4. PROCEDURE

WORKPLACE VIOLENCE PREVENTION PROGRAM

Introduction

B&N believes in the prevention of violence and promotes a violence-free workplace in which all people respect one another and work together to achieve common goals. Any act of violence committed by or against any employee of our workplace or employee of the public, is unacceptable conduct that will not be tolerated. This policy applies to all activities that occur while on B&N premises or while engaging in B&N business, activities, or social events.

Acts of violence can take the form of physical contact. Acts of violence may occur as a single event or may involve a continuing series of incidents. Abuse in any form erodes the mutual trust and confidence that are essential to B&N's operational effectiveness. Acts of violence destroy individual dignity, lower morale and break down work unit cohesiveness.

Company Commitment

B&N is committed to:

- Investigating reported incidents of workplace violence in an objective and timely manner
- Taking necessary action to respond to those incidents; and
- Providing support for complainants
- Correcting and providing follow-up on all reported workplace violence complaints
- Identifying potential areas of concern including isolated workers, night shift workers, workers handling money, and locations with potential for robbery

Assessment

B&N will identify and assess the risk of violence in the workplace in consultation with:

- The Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) at the workplace
- The JHSC / JOHSC representative at the workplace
- Or when there is no JHSC / JOHSC representative, the workers at the workplace

The risk assessment shall include the consideration of:

- Previous experience in the workplace
- Occupational experience in similar workplaces
- The location and circumstances in which work may take place
- Workers working alone or in isolation
- Workers handling money or finances
- Any other prescribed elements

Observed Workplace Violence

If you observe potential situations of violence or are notified of persons attempting violence, forced entry into a building, committing robbery and / or appear to be acting in suspicious manner, the following steps should be followed:

- Do not confront or intervene with the identified individual(s)
- Remain in a safe location and direct other workers to a safe location away from the area
- Contact your Supervisor and provide details of the situation
- Secure the scene if possible and do not disturb any areas which may have been points of entry or may provide clues or evidence to the situation
- Call the Police if appropriate, discreetly from a remote and safe location, give a detailed description of your observations
- Inform arriving manager, supervisors or police officers of details known to this point, subsequently advise senior management and / or supervisor of details as well

Definition

For the purposes of this policy; B&N employees includes partners, associates, consultants, summer students, support staff, and contract employees and sub-contractors.

Workplace violence means any incident in which a worker is threatened, attempted, or actual conduct of a person that causes or is likely to cause physical injury, emotional, domestic, psychological harm or injury in, at or related to any B&N location.

Examples of workplace violence include, but are not limited to:

- Threatening behavior such as shaking fists, destroying property or throwing objects
- Verbal or written threats that express an intent to inflict harm
- Physical attacks
- A statement or behaviour that is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker
- Any other act that would arouse fear in a reasonable person in the circumstance

Training

Where there is a risk of violence in the workplace or at a work location, B&N will train workers in the violence prevention policy and program. B&N must post a copy of the violence prevention policy in a conspicuous place at the workplace.

These training components will be contained in the site-specific Health and Safety Plans (HASPs) and delivered during Orientation.

Prohibited Conduct

No employee or any other individual affiliated with B&N shall subject any other person to workplace violence or allow or create conditions that support workplace violence.

An employee of B&N that subjects another B&N employee including partners, associates, consultants, summer students, support staff, and contract employees and sub-contractors to workplace violence may be subject to disciplinary action commensurate to the incident, up to and including dismissal.

Complaint Procedure

- Prior to filing a formal report of the incident, a person subjected to workplace violence (the Complainant) should let their objections to the behaviour be known to the alleged offender (the Respondent), directly or with the assistance of a third party
- A Complainant may ask for support from a trained B&N person or manager to communicate their objections to the incident and / or to prepare and submit a formal complaint if they choose
- The Complainant should carefully record details of the incident including the date and time of the incident, the nature of the violence, and names of people who may have witnessed the incident.
- This document is the Complainant's personal record and property
- The Complainant may choose to file a formal complaint that documents their concerns to the Human Resources and Health & Safety Manager. These records will be taken using forms **FORM 8.1.** – Incident Investigation Report and **FORM 8.3.** – Incident Worker Statement

Confidentiality

Strict confidentiality is required to properly investigate an incident and to offer appropriate support to all parties involved. Any individual who becomes aware of an incident of violence should not disclose the details of the incident to any third party without prior consultation with the Complainant. Gossiping about an incident seriously undermines the privacy of all parties involved and will not be tolerated. Those with questions or concerns about an incident should speak to their supervisor or manager.

Non-Retaliation and False Accusations

All persons involved in the processing of a complaint will ensure that the Complainant is neither penalized nor subjected to any prejudicial treatment as a result of making the complaint.

Retaliation against persons who bring a complaint of actual or perceived violence is strictly prohibited and will be dealt with accordingly. A complaint of workplace violence that is intentionally fraudulent, frivolous or malicious may be subject to disciplinary action using **FORM 11.1.** - Employee Record of Discipline.

Such action is considered a violation of this policy, and the investigation results and any sanctions will be recorded in the Company's personnel records relating to the Complainant.

Investigation

1. Upon receipt of a formal complaint of workplace violence the Human Resources and Health & Safety Managers will determine whether an investigation will be pursued, and will:
 - a. Advise the Respondent in writing of the investigation and nature and specifics of the complaint
 - b. Advise the Complainant of the investigation; and
 - c. Assign the investigation to an internal or external person to investigate
2. The investigator will:
 - a. Advise all parties to the investigation that they may have representation
 - b. Conduct the investigation in accordance with the principles of natural justice using forms **FORM 8.1.** – Incident Investigation Report and **FORM 8.3.** – Incident Worker Statement
 - c. Explore all allegations by interviewing the Complainant, the Respondent, and
 - d. Others who may have knowledge of the incident(s) or circumstances that led to the complaint, or are responsible for the workplace
3. The investigator may make a finding of:
 - a. Sufficient evidence to support a finding of violation of this policy
 - b. Insufficient evidence to support a finding of violation of this policy, or
 - c. No violation of this policy

4. The investigator must prepare a written report of the investigation's finding, and forward that report to Human Resources within thirty (30) working days from the Respondent being advised of the complaint
5. Human Resources will make a decision whether to dismiss or act upon the report from the investigator within thirty (30) working days of receiving the report and advise the Complainant and Respondent in writing of the outcome

Corrective Action and Discipline

1. When the Human Resources and Health & Safety Manager decides to act on the report, the following conditions should be considered when determining corrective action:
 - a. The impact of the incident on the Complainant
 - b. The nature of the incident
 - c. The degree of aggressiveness and physical contact
 - d. The period of time and frequency of the incidents
 - e. The vulnerability of the Complainant, i.e. power imbalance between the parties or where the complainant has a disability
2. The following corrective actions may be considered depending on the particular incident and the factors in the previous paragraph:
 - a. Apology
 - b. Training
 - c. Referral to an assistance program
 - d. Reassignment or relocation
 - e. Report to a professional body
 - f. Suspension
 - g. Discharge; and / or
 - h. Legal action

Record Keeping

The documents corresponding to the investigation will be kept on file in a secured location, separate from the Complainant and Respondent's personal files, for two (2) years from the date of the incident to be readily available for inspection by anyone directly affected by the incident.

The investigation report should be kept in a secured location for longer than two (2) years when it is reasonable to do so in the circumstances. Examples of reasonable circumstances include: to wait for the expiration of a limitation period, for the program manager to evaluate the workplace violence policy, and to monitor persons of ongoing concern. Benchmark data will be compiled to monitor the success of the policy.

Complaint Resolution Alternatives

An individual affected by workplace violence has the right to pursue their concern through alternative forums such as mediation, or other forms of dispute resolution.

Nothing in this policy prevents an individual from pursuing other remedies to an incident of workplace violence such as a criminal or civil action, a complaint to the Provincial Human Rights and Citizenship Commission.

Assistance

B&N must ensure that a worker is advised to consult a health professional for treatment or referral if exposed to workplace violence.

B&N employees with questions, concerns or a complaint regarding workplace violence may contact B&N Human Resources for help and advice. This information will be kept confidential except in the case of an imminent physical threat in the workplace.

B&N employees with concerns within the workplace are advised to immediately report these situations to their supervisor. These situations may include bullying, working alone, handling money, observing suspicious workers or person, and individuals giving threats within the workplace.

Right to Refuse

A worker may refuse to work or do particular work where he or she has reason to believe that workplace violence is likely to endanger himself or herself.

Evaluation

This program and associated policy will be reviewed on an annual basis to ensure that it conforms with any changes to the Appropriate Provincial Health & Safety Legislation and that it continues to address the needs of B&N regarding workplace violence. The evaluation should therefore include a needs assessment, process evaluation, and outcome evaluation.

11.1.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

FORM 8.3. – Incident Worker Statement

FORM 11.1. – Employee Record of Discipline

FORM 11.2. – Workplace Violence Hazard Risk Assessment

FORM 11.3. – Guidelines for Implementation of Workplace Violence Legal Requirements

B&N CONSTRUCTION SERVICES INC. - VIOLENCE IN THE WORKPLACE POLICY

Workplace violence is the attempted, threatened or actual conduct of a person who endangers or is likely to endanger the health & safety of Staff, Sub-contractors or Visitors, any threatening statement, harassment, or behaviour that gives an individual reasonable cause to believe that their health & safety is at risk.

Violence, threats and harassment are always prohibited, especially whenever: 1) the act, behaviour, or communication is abusive and could cause another person physical, emotional or psychological harm; and / or, 2) the act, behaviour, or communication damages or threatens damage to an individual's property or disrupts the work, or activities of an individual or group of people.

Employees who engage in actions or threats of violent behaviour toward other employees, sub-contractors, visitors or the public will be disciplined, up to and including dismissal and / or arrest. The purpose of this policy is to deal with workplace violence proactively, through education, mediation, consultation before it escalates to the formal level of disciplinary action. Workplace violence incidents reaching the formal level will be dealt with by relevant rules, regulations and policies.

Examples of workplace violence include, but are not limited to the following:

- Threats of harm
- Brandishing a weapon or an object which appears to be a weapon
- Intimidating, threatening or directing abusive language toward another person
- Stalking another employee
- Slapping, punching or otherwise physically attacking a person
- Telling another person, you will "beat them up" to intimidate them
- Putting your closed fist close to another's face in an intimidating / threatening manner
- Using greater physical size / strength or greater positional power to intimidate another

Criminal complaints of Workplace Violence: Any individual who experiences or witness's violence, threats of violence or harassing behaviour, or who has reason to suspect that these acts or behaviours are occurring, and may be of a criminal nature, should immediately notify Management. If these acts or behaviours occur off site or out of the office, law enforcement jurisdiction should be contacted. If the incidents are likely to be work-related or could continue in the workplace, Management should be notified. Management will investigate any criminal allegation or coordinate with local law enforcement agency and provide a report on the result(s) to Human Resources. Alleged behaviours that may not be criminal may still be subject to policy and appropriate disciplinary action, up to and including termination according to applicable statutes and contractual agreements.

Non-Criminal Allegations of Workplace Violence: Alleged behaviours that may not be criminal may still be subject to this policy. An employee, sub-contractor or visitor may wish to request informal review and action. If this is the case, they should inform their supervisor and employee representative or Human Resources, either orally or in writing within 30 calendar days of the last occurrence. It is not necessary to inform a direct supervisor first if an employee would prefer to discuss this matter with any of the other individuals in the positions listed above. The supervisor, employee representative or Human Resources staff will talk with the person reporting the workplace violence to get details about the events with the primary goal being able to provide an opportunity to resolve the concerns through mediation, conflict resolution and conciliation. Informal procedures at this time include, but are not limited to, separate meeting with the parties involved, joint meetings with the parties involved, and meetings of only the parties involved. If resolution does not appear probable, referral of the complainant will be made to the appropriate Management Personnel to initiate the formal process for the complaint. Any employee can go directly to the appropriate formal process. The appropriate formal process will depend on the classification of the parties involved and the facts of the specific case.

Confidentiality: Confidentiality is important to encourage discussion. Confidentiality will be maintained insofar as it is legal and ethical. It is not guaranteed. Depending on the facts of a case it may be necessary for Management to take action, including consultation with others.

Retaliation: To better ensure a safe workplace and to encourage responsible reporting of violence in the workplace, retaliation or harassment against a person making a report in good faith, will not be tolerated.

President: Luis Narciso

Signature: 

Date: May 25, 2020

Vice President: Mike Rodriguez

Signature: M. Rodriguez

Date: May 25, 2020

11.00 PROFESSIONAL CONDUCT

WORKPLACE HARASSMENT

11.2.1. PURPOSE

The purpose of our Workplace Harassment Program is to ensure that every person has the right to work in a workplace that promotes equal opportunity and is free from discrimination and harassment. Biggs & Narciso Construction Services Inc. (B&N) is committed to providing a workplace which is free of harassment and discrimination.

11.2.2. SCOPE

The workplace harassment program should be consulted whenever there are concerns about harassment in the workplace. This policy extends not only to our internal employees but to our trade contractors, workers and, clients.

11.2.3. RESPONSIBILITIES

Supervisory Personnel and Management Responsibilities:

For the purposes of this policy, as Supervisory personnel or a Manager, you are responsible to:

- Act respectfully towards other individuals while at work and participating in any work-related activity
- Develop workplace arrangements that minimize the risk of workplace harassment;
- Providing a harassment- free work environment
- Ensure that this policy is explained to all employees that they supervise or manage
- Identify training needs for employees
- Ensure that employees understand who to contact regarding concerns about the policy or when reporting an incident
- Upon becoming aware that harassment or discrimination is occurring, taking prompt corrective action, in consultation with Human Resources, Health & Safety, even if no formal complaint is made
- Ensure the security and safety of all parties involved during an investigation of an incident of workplace harassment or discrimination
- Post the policy in a conspicuous place within the workplace
- Review and update this policy on an annual basis in consultation with the Joint Health & Safety Committee or the Joint Occupational Health & Safety Committee (JHSC / JOHSC)

Worker Responsibilities:

For the purposes of this policy, as an employee, you are responsible:

- To act respectfully towards other individuals while at work and participating in any work-related activity
- If you witness harassment or become aware that an individual is being harassed in any form you have a responsibility to immediately report the incident to your Supervisor or Senior Management without fear of reprisal
- To co-operate with any efforts to investigate and resolve matters arising under this policy

11.2.4. PROCEDURE

WORKPLACE HARASSMENT PROGRAM

Discrimination

Under the Human Rights Code, every person is protected from discrimination and harassment in the workplace under the following grounds:

Race, nation or ethnic origin, colour, place of origin, citizenship, creed, age, religion, sex, (including pregnancy and childbirth), marital status, family status, mental or physical disability (including previous or present drug or alcohol dependence), pardoned conviction, and sexual orientation.

B&N defines harassment as “engaging in a course of vexatious comment or conduct that is known or ought reasonably to be known to be unwelcome.”

Harassment

B&N will not tolerate any form of harassment (i.e. physical, psychological, verbal or written) in the workplace. Harassment is an unwelcome action that offends, humiliates, insults, degrades a person or creates a hostile or intimidating work environment. It includes, but is not limited to, any one of the following:

- Jokes, comments, derogatory, degrading or insulting remarks
- Taunting
- Practical jokes that cause embarrassment, endanger safety, or negatively affect work performance
- Picking a fight, shoving
- Displaying, downloading or distributing offensive material or posters, e-mails or other messages
- Verbal abuse or threats
- Treating people less favourably or subjecting them to ridicule on any of the discrimination grounds
- Demeaning and derogatory remarks, name calling
- Isolation, not co-operation or exclusion within the workplace
- Unwelcome comments on appearance
- Undermining the authority of a colleague in the workplace

Sexual Harassment

Sexual harassment includes, but is not limited to, unwelcome, sexually oriented conduct, comments, gestures or actions that create a work environment which is offensive, hostile, threatening or demeaning. It includes, but is not limited to, any one of the following:

- Derogatory or inappropriate jokes or teasing
- Insults, taunting or, slurs
- Inappropriate physical contact
- Suggestive looks (leering or staring)
- Sexually suggestive gestures or comments
- Visual display (pictures) or written material
- Derogatory remarks
- Questions or insults about one's private life
- Unwelcome sexual attention
- Groping, patting or unnecessary touching
- Suggestions that sexual favours may further someone's career or that refusal may damage it

Every person has the right to equal treatment with respect to employment free from discrimination, as mentioned above.

Racial Harassment

Racial Harassment is harassment on the grounds of race / ethnic origin and is defined as unwanted or unwelcome conduct based on a person's race that is offensive to the recipient and which might threaten a person's security or create a stressful, hostile or intimidating work environment. Harassment on the grounds of race may include:

- Verbal harassment: Offensive jokes or remarks about a person's race or ethnic origin, ridicule or assumptions based on racial stereotypes

- Physical harassment: Physical assault, threats of physical assault
- Visual harassment: Production, display or circulation of materials offensive to particular racial or ethnic groups, such as cartoons or racial propaganda

B&N Workplaces

B&N is not confined to the offices, buildings, worksites, it also includes our client's worksite, lunch areas, washrooms, locker rooms, on-road vehicles and, any other location where the company conducts business.

If an employee feels that he or she is experiencing behaviour which is inappropriate they are to immediately inform the harasser that the behaviour is unwelcome and speak with their Supervisor or Senior Management.

- Employees should always inform the harasser that the behaviour is offensive and unwelcome, unless they fear for their personal safety
- Should they fear for their personally safety, they should immediately inform their Supervisor.

Complaint Procedures

What do you do if you feel you are being harassed or bullied?

Informal Approach

As part of its commitment to an environment that is free of any form of harassment, B&N has a number of resources available to those who feel that they are the subject of harassment and has established procedures to deal with formal complaints.

If you feel you are being harassed or bullied you should, if at all possible, endeavour to make it clear to the person, or persons, causing offence that such behaviour towards you is offensive and unacceptable.

Keep a written record of date(s), time(s), unacceptable behaviour and, witnesses to the incident(s), if any. Should the behaviour continue a complaint of harassment should be made immediately to the Supervisor, Human Resources or Health & Safety Manager. The Supervisor receiving the complaint will notify Human Resources, Health & Safety who will participate in the investigation.

If such behaviour is having an adverse effect on your work, point this out to them and ask them to stop. Keep a record of incidents so that you can be specific about the behaviour or actions that are causing offence. If speaking to the person fails, or if it proves too difficult to do, there are other sources of help available to you.

Making a Formal Complaint

If you wish to make a formal complaint you must do so in writing. Written complaints should contain details of the person or persons against whom the complaint is being made and where possible, details of the alleged act or acts of harassment. Assistance in making a formal written complaint can be sought from:

- Health & Safety Manager
- Human Resources
- Direct Supervisor / Project Manager
- Director / Operations Manager

All complaints should be clearly marked "**COMPLAINTS CONFIDENTIAL**"

All formal complaints will be referred directly to an Investigator appointed by the Human Resources, Health & Safety Manager. All complaints will be investigated in a confidential manner and without undue delay. The complainant will be advised of the identity of the individual who will be performing the investigation.

The alleged harasser will be given a copy of the written formal complaint and afforded the opportunity to respond in writing. Each party will have the right to present his or her side of the case and / or be represented by one person of their choice. Both parties will be advised of the outcome of the investigation once the Investigator has made a report to B&N Human Resources or Health & Safety Manager.

Because there can be sensitive and confidential aspects to such cases, the procedures have been designed to safeguard the rights, both of the complainant and the alleged harasser. All complaints will be dealt with promptly and treated with the utmost discretion. The outcome will be advised to both parties. All reasonable steps will be taken to protect the individual who files a complaint, or assists in an investigation from intimidation, victimization or discrimination. Retaliating against someone who complains about harassment is a serious disciplinary offence.

Malicious complaints will also be regarded seriously by B&N and may result in disciplinary action.

Investigation

The investigation will depend on the facts surrounding the harassment complaint. The investigation will involve obtaining information from all involved parties including the person who filed the complaint, the alleged harasser and, possibly from other relevant individuals. If the harasser does not wish to participate in the process, the investigation will continue based on facts. All attempts will be made to keep the investigation confidential. The investigation will be conducted in a timely manner and the resolution will be implemented as soon as possible.

1. Upon receipt of a formal complaint of workplace harassment the Human Resources, Health & Safety Manager will determine whether an investigation will be pursued, and will:
 - a. Advise the Respondent in writing of the investigation and nature and specifics of the complaint
 - b. Advise the Complainant of the investigation; and
 - c. Assign the investigation to an internal or external person to investigate
2. The investigator will:
 - a. Advise all parties to the investigation that they may have representation
 - b. Conduct the investigation in accordance with the principles of natural justice using forms **FORM 8.1. – Incident Investigation Report** and **FORM 8.3. – Incident Worker Statement**
 - c. Explore all allegations by interviewing the Complainant, the Respondent, and
 - d. Others who may have knowledge of the incident(s) or circumstances that led to the complaint, or are responsible for the workplace
3. The investigator may make a finding of:
 - a. Sufficient evidence to support a finding of violation of this policy
 - b. Insufficient evidence to support a finding of violation of this policy, or
 - c. No violation of this policy
4. The investigator must prepare a written report of the investigation's finding, and forward that report to Human Resources within thirty (30) working days from the Respondent being advised of the complaint
5. Human Resources will make a decision whether to dismiss or act upon the report from the investigator within thirty (30) working days of receiving the report and advise the Complainant and Respondent in writing of the outcome

Completion of Investigation

Once the investigation has been completed the complainant and the alleged harasser will be advised of the decision. If it is determined that the evidence supports the allegation of harassment, disciplinary action will be taken and the appropriate corrective action will be taken to prevent further occurrences.

Corrective Action

Corrective Action may include any one of the following, but is not limited to:

- A formal apology
- Counseling (formal or informal) an employee about inappropriate behaviour
- Reinstruction on company policy
- Written warning placed in personnel file
- Transfer
- Change of reporting line
- Suspension or discharge of an employee

Non-Retaliation And False Accusations

All persons involved in the processing of a complaint will ensure that the Complainant is neither penalized nor subjected to any prejudicial treatment as a result of making the complaint.

Retaliation against persons who bring a complaint of actual or perceived harassment is strictly prohibited and will be dealt with accordingly. A complaint of workplace harassment that is intentionally fraudulent, frivolous or malicious may be subject to disciplinary action using **FORM 11.1. - Employee Record of Discipline**.

Such action is considered a violation of this policy, and the investigation results and any sanctions will be recorded in the Company's personnel records relating to the Complainant.

Time for Filing a Complaint

Any complaint must be filed within a reasonable time frame of when the incident occurred. The company reserves their discretion not to deal with any complaint which is based on facts that occurred more than six (6) months prior to the date of the complaint.

Confidentiality

B&N recognizes the difficulty of reporting acts of harassment, or abuse and understands that confidentiality is important to complainants. Confidentiality will be maintained throughout the complaint procedure, and information relating to the complaint, including the identity of the parties involved, will only be disclosed to the extent necessary to investigate the complaint.

11.2.5. RELATED FORMS

FORM 8.2. – Incident Investigation Report

FORM 8.3. – Incident Worker Statement

FORM 11.1. - Employee Record of Discipline

WORKPLACE HARASSMENT POLICY STATEMENT

B&N and its subsidiaries are committed to providing a work environment in which all individuals are treated with respect and dignity.

Workplace harassment will not be tolerated from any person in the workplace including by not limited to employees, sub-contractors and visitor's working for B&N. Everybody in the workplace must be dedicated to preventing workplace harassment. Managers, supervisors and workers are expected to uphold this policy, and will be held accountable by the employer.

Workplace harassment means engaging in a course of vexatious comment or conduct against a worker in a workplace – a comment that is known or ought reasonably to be known to be unwelcome.

Examples of harassment include, but are not limited to:

- Threatening behaviour such as shaking fists, destroying property or throwing objects;
- Verbal or written threats that express an intent to inflict harm;
- Physical attacks;
- Bullying, intimidation, or creation of poisonous work environment;
- Any other act that would arouse fear in a reasonable person in the circumstances.

Harassment may also relate to a form of discrimination as set out in the Human Rights Code.

This policy is not intended to limit or constrain the reasonable exercise of management functions in the workplace.

Workers are encouraged to report any incidents of workplace harassment as outlined in the program. There will be no negative consequences for reports made in good faith.

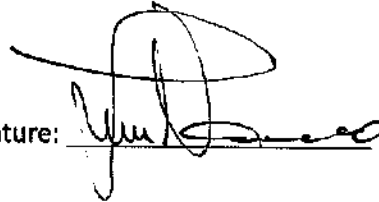
Management will investigate and deal with all concerns, complaints, or incidents of workplace harassment in a fair and timely manner while respecting workers' privacy as much as possible.

This policy does not prevent or discourage a worker from filing an application with the Human Rights Tribunal on a matter related to Human Rights, within one year of the last alleged incident. A worker also retains the right to exercise any other legal avenues that may be available.

B&N, as the employer, will ensure that this policy and the supporting program are implemented and maintained and that all workers, supervisors and managers have the appropriate information and instruction to protect them from harassment in the workplace.

President: Luis Narciso

Signature:



Date: May 25, 2020

Vice President: Mike Rodriguez

Signature:



Date: May 25, 2020

11.00 PROFESSIONAL CONDUCT

DISCIPLINARY ACTION

11.3.1. PURPOSE

The purpose of the Disciplinary Action Policy is to provide a framework for dealing with repeated, willful or inexcusable breaches of Biggs & Narciso Construction Services Inc. (B&N) health and safety policies and procedures or standard operating practices.

11.3.2. SCOPE

The Disciplinary Action Policy applies to all company personnel and violations of B&N health and safety standards.

11.3.3. RESPONSIBILITIES

Senior Management Responsibilities:

- Ensuring this policy is applied objectively, promptly and consistently to all employees

Supervisory Responsibilities:

- Defining and setting acceptable standards in the workplace for safe work practices and procedures
- Regularly communicate performance expectations with employees and to confirm expected consequences of non-compliance by the employee
- Ensure employees are treated fairly and for ensuring employees have been provided with appropriate mentoring and assistance throughout the discipline process
- Ensure that additional training / supervision is provided to the employee to ensure that the employee has an opportunity to alter their behaviour and / or performance to meet the company's acceptable standards
- Provide education and training to workers
- Take prompt and appropriate action whenever they have reasonable cause to believe that an individual is not capable of working in a safe and effective manner
- Documenting all incidents

Worker Responsibilities:

- Clearly demonstrate a willingness to change and correct the performance issues
- Displaying conduct and behaviour that is consistent with B&N EHS policies and procedures and relevant Appropriate Provincial Health & Safety Legislation

11.3.4. PROCEDURE

Repeated, willful or inexcusable breaches of health and safety policies and procedures or standard operating practices shall be dealt with in accordance with the provisions of this policy.

These training components will be contained in the site-specific Health and Safety Plan (HASP) and delivered during site level orientation.

Any discipline administered by B&N will be commensurate with the offence committed. The discipline will be progressive in nature so that employees can have an opportunity to correct their own actions or behaviours unless the offence is severe in nature and requires any step to be surpassed. If the discipline is being issued to a Union employee, a Union Steward must be present.

Depending on the severity of the occurrence or the number of past occurrences, disciplinary action may result in four corrective steps:

1. **Step # 1 – Verbal Warning (with written documentation)** – When a supervisor identifies an employee who is not complying with a safe work practice, HASP requirements, procedure or safety rule, the supervisor will initiate a meeting with the employee. It is necessary for the Supervisor to communicate effectively with the employee thereby ensuring the employee clearly understands the expected performance correction to be made. The written portion of the verbal warning using **FORM 11.1. - Employee Record of Discipline**, will explain the reason for discipline and will advise the employee to take immediate steps to correct his / her behaviour. The supervisor must ensure that he / she informs the employee that continued substandard performance would result in further disciplinary action up to and including termination. The original disciplinary form will be kept in the employee's personnel file and a copy given to the employee. The employee will be given opportunity to provide management with their comments.
2. **Step # 2 – Written Warning** – If the supervisor observes the employee's continued failure to comply, a second written warning will be issued. The written warning will explain the reason for further discipline and will advise the employee to take immediate steps to correct his / her behaviour. The written warning will also advise the employee to take immediate steps to correct his / her behaviour. The written warning will also advise the employee that continued failure to comply would result in a two-day suspension without pay or termination of employment. The original disciplinary form will be kept in the employee's personnel file and a copy given to the employee.
3. **Step # 3 – Suspension Without Pay** – If the supervisor observes the employee's continued failure to comply, once again, a third written warning will be issued and a two-day suspension without pay will be initiated. At this meeting, the supervisor and the Senior Mgmt. Rep. shall be present to discuss acceptable performance standards. The employee will clearly document how they will correct their substandard performance. The supervisor will ensure that the employee clearly understands that any further non-compliance will result in termination of employment. The original disciplinary form will be placed in the employees' file and a copy given to the employee.
4. **Step 4 - Termination of Employment** – A final non-compliance with a safe work practice, procedure or safety rule could result in termination of employment. The final written warning will be given to the employee at this meeting. The supervisor and the Senior Mgmt. Rep. will be present when meeting with the employee. The supervisor will ensure that the employee returns all property owing to B&N before leaving the premises. The employee's record of employment and all monies owing will be mailed out to the employee within 5 calendar days or per the collective agreement (if applicable).

These steps do not necessarily follow in this order; their actions rely on the severity of the situation.

11.3.5. RELATED FORMS

FORM 11.1. - Employee Record of Discipline

11.00 PROFESSIONAL CONDUCT

FITNESS FOR DUTY

11.4.1. PURPOSE

The purpose of the Fitness for Duty Program is to provide a framework for dealing with the difficult and often sensitive issues stemming from substance abuse and related stress and fatigue.

11.4.2. SCOPE

The Fitness for Duty Program applies to all Biggs & Narciso Construction Services Inc. (B&N) employees including partners, associates, consultants, summer students, support staff, and contract employees and trade contractors and situations related to substance abuse, stress or fatigue.

11.4.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure that there are resources available to assess and validate that workers are fit to perform work tasks
- The Fitness for Duty program is implemented across all areas of responsibility
- Inform all employees of their responsibilities to be fit for duty

Supervisor Responsibilities:

- Implementing the Fitness for Duty program in a fair and equitable manner within their work locations
- Brief all workers and contractors on the program
- Provide education and training to workers through orientation and the site specific health and safety plan (HASP) when required
- Assess the fitness of duty of individuals under their control at the start of, and throughout, each work period
- Take prompt and appropriate action whenever they have reasonable cause to believe that an individual is not capable of working in a safe and effective manner
- Documenting all incidents
- Assisting the worker to access support and assistance from local providers

Worker Responsibilities:

- Take reasonable care to not expose themselves or others to unnecessary health or safety risks
- Report for work in a fit condition; able to carry out their duties without risk to themselves or others
- Notify B&N of any actual or potential impairment of fitness for duty; including legitimate medical reasons for physical or mental impairment of an individual's fitness for duty
- Not accept a work assignment if the worker believes their ability to work safely and effectively may be impaired by reason of drugs, alcohol, fatigue, stress, etc.

11.4.4. PROCEDURE

GUIDING PRINCIPLES

The Fitness for Duty Program is intended to provide a framework for dealing with the difficult and often sensitive issues stemming from substance abuse and related stress and fatigue. B&N believes that early intervention in such problem areas can assist individuals to better deal with a situation which might otherwise place at risk their

own health and safety at risk as well as the health, safety and employment of others. All B&N employees who report to work must be competent, qualified and fit for duty.

B&N recognizes that substance dependency is considered to be a disability under the Human Rights Code and intends to comply with the requirements of the Code and any Appropriate Provincial Health & Safety Legislation in the implementation of this program.

Definition

Fitness for Duty means a state (physical, mental and emotional) which allows the individual to perform assigned tasks competently and in a constitutes “Fit for Duty” for any specific task will lie in the sole discretion of the principal employer, manager or supervisor using the guidelines provided by this program and where applicable and appropriate, other available assessment procedures.

Confidentiality

Communication of confidential information is on a “need to know” basis only. In general, supervisor staff will only be provided with functional ability information in respect of their direct reports. Supervisors and managers must safeguard any personal or sensitive medical information about an individual of a confidential nature. They are responsible for establishing and maintaining appropriate procedures and facilities to safeguard such information against unauthorized use or disclosure. Compliance with B&N’s privacy policy and with applicable privacy legislation is required.

Fit for Duty Breaches in the Program

All individuals must notify their supervisor, management and the EHS Manager of any situation in which this program may have been breached. This includes:

- Any situation in which other individuals appear to be unfit for work
- The unauthorized possession or consumption of drugs on company property or during the work period by another individual
- The manufacture, transportation, sale or purchase of drugs while on company business or company property
- Any other apparent breach of the program with a follow-up written disciplinary record using **FORM 11.1. - Employee Record Of Discipline**

Accommodation

A person who requires accommodation in order to perform the essential duties of a job has a responsibility to communicate the need for accommodation to B&N management in sufficient detail to indicate the type and duration of accommodation required and to cooperate in B&N’s efforts to respond to the request. B&N shall review all possibilities to assist the worker with accommodation including transferring a worker to another work location, providing alternate duties, providing a leave of absence arranging for professional assistance through an Employee Assistance Program.

Review

The Fit for Duty program shall be reviewed every 3 years to ensure the program and practices are current with company, client and Appropriate Provincial Health & Safety Legislation.

11.4.5. RELATED FORMS

FORM 11.1. - Employee Record of Discipline

12.00 DRUG AND ALCOHOL USE

FITNESS FOR DUTY

12.1.1. PURPOSE

The purpose of the Fitness for Duty Program is to provide a framework for dealing with the difficult and often sensitive issues stemming from substance abuse and related stress and fatigue. In developing this document Biggs & Narciso Construction Services Inc. (B&N) has kept in mind that they must create a climate of understanding and mutual respect for the dignity and worth of each person. Fitness for duty as it relates to Drug and Alcohol Use will focus on generating awareness of alcohol and drug abuse issues and providing support to workers when necessary. The approach taken by Senior Management regarding managing alcohol or drug related issues, is establishing an appropriate balance between health and safety (due diligence), and respect for individual's rights and privacy relating to Fitness for Duty.

12.1.2. SCOPE

The Fitness for Duty Program applies to all B&N employees including partners, associates, consultants, summer students, support staff, and contract employees and trade contractors and situations related to substance abuse, stress or fatigue.

The Drug and Alcohol Use Policy shall apply to all B&N personnel and situations related to substance abuse where required by the appropriate Provincial Health & Safety Legislation. The Fitness for Duty Program is governed by the Senior Management Team of B&N, and is administered by the Human Resources Department.

12.1.3. RESPONSIBILITIES

B&N Responsibilities:

1. Provide a safe workplace and safe systems of work
2. Provide information to workers of the hazards they are exposed to
3. Eliminate or place controls in place of any known hazards
4. Ensure that there are resources available to assess and validate that workers are fit to perform work tasks
5. The Fitness for Duty program is implemented across all areas of responsibility
6. The Drug and Alcohol Use Policy is implemented across all areas of responsibility
7. Inform all employees of their responsibilities to be fit for duty and under what circumstances drug and / or alcohol screens may be administered
8. Provide the Fitness for Duty Program to all approved Trade Contractors for their internal acknowledgement and sign off
9. Provide training to all supervisors to recognize possible signs of impairment, and the approved reporting / response procedure(s) within their region.

Supervisor Responsibilities:

1. Implementing the Fitness for Duty program in a fair and equitable manner within their work locations
2. Review the Fitness for Duty Policy and Program with all workers and contractors prior to commencement of their work
3. Provide education and training to workers through orientation and the site specific health and safety plan (HASP) when required
4. Assess the fitness of duty of individuals under their control at the start of, and throughout, each work period.

5. Take prompt and appropriate action whenever they have reasonable cause to believe that an individual is not capable of working in a safe and effective manner
6. Documenting all incidents
7. Assisting the worker to access support and assistance from local providers

Worker Responsibilities:

1. Take reasonable care to not expose themselves or others to unnecessary health or safety risks
2. Report for work in a fit condition; able to carry out their duties without risk to themselves or others
3. Notify B&N of any actual or potential impairment of fitness for duty; including legitimate medical reasons for physical or mental impairment of an individual's fitness for duty
4. Not accept a work assignment if the worker believes their ability to work safely and effectively may be impaired by reason of drugs, alcohol, fatigue, stress, etc.
5. Participate in the Fitness for Duty program and provide acknowledgement and sign off as required.

Sub-Contractor Responsibilities:

1. Take reasonable care to not expose themselves or others to unnecessary health or safety risks
2. Report for work in a fit condition; able to carry out their duties without risk to themselves or others
3. Notify B&N of any actual or potential impairment of fitness for duty; including legitimate medical reasons for physical or mental impairment of an individual's fitness for duty
4. Not accept a work assignment if the worker believes their ability to work safely and effectively may be impaired by reason of drugs, alcohol, fatigue, stress, etc.
5. Participate in the Fitness for Duty program and provide acknowledgement and sign off as required.
6. Where required by the Appropriate Provincial Health & Safety Legislation or B&N, implement a similar program for all your employees when they are traveling to or from and when they are on Company property
7. Ensure that all your employees are aware of and agree to submit to testing for Drugs as set out in this Program or a comparable program implemented by you.
8. Ensure that all your employees attend for any and all scheduled and unscheduled work Fit for Duty.
9. Report the use of any medication that could have a negative effect on employee performance to the Company's medical services provider
10. Observe the Fitness for Duty of others on Company property and take appropriate action if safety issues are a concern.

12.1.4. PROCEDURE

GUIDING PRINCIPLES

The Fitness for Duty Program is intended to provide a framework for dealing with the difficult and often sensitive issues stemming from substance abuse and related stress and fatigue. B&N believes that early intervention in such problem areas can assist individuals to better deal with a situation which might otherwise place at risk their own health and safety at risk as well as the health, safety and employment of others. All B&N employees who report to work must be competent, qualified and fit for duty.

B&N recognizes that substance dependency is considered to be a disability under the Human Rights Code and intends to comply with the requirements of the Code and any Appropriate Provincial Health & Safety Legislation in the implementation of this program.

Educating our workforce regarding this important Policy and Program, and the resources available to those whom wish the offered assistance, will occur during the New Hire Orientation process. Reviews may also transpire during monthly safety meetings or jobsite tailgate meetings.

Definition

Fitness for Duty means a state (physical, mental and emotional) which allows the individual to perform assigned tasks competently and in a constitutes “Fit for Duty” for any specific task will lie in the sole discretion of the principal employer, manager or supervisor using the guidelines provided by this program and where applicable and appropriate, other available assessment procedures.

Confidentiality

Communication of confidential information is on a “need to know” basis only. In general, supervisor staff will only be provided with functional ability information in respect of their direct reports. Supervisors and managers must safeguard any personal or sensitive medical information about an individual of a confidential nature. They are responsible for establishing and maintaining appropriate procedures and facilities to safeguard such information against unauthorized use or disclosure. Compliance with B&N’s privacy policy and with applicable privacy legislation is required.

Fit for Duty Breaches in the Program

All individuals must notify their supervisor, management and the Health & Safety Manager of any situation in which this program may have been breached. This includes:

1. Any situation in which other individuals appear to be unfit for work
2. The unauthorized possession or consumption of drugs / alcohol on company property or during the work period by another individual
3. The manufacture, transportation, sale or purchase of drugs / alcohol, drug paraphernalia or any product or device that could be used to tamper with any sample for a drug or alcohol screening while on company business or company property
4. Any other apparent breach of the program with a follow-up written disciplinary record using **FORM 11.1. - Employee Record of Discipline** (where applicable).

Accommodation

A person who requires accommodation in order to perform the essential duties of a job has a responsibility to communicate the need for accommodation to B&N management in sufficient detail to indicate the type and duration of accommodation required and to cooperate in B&N’s efforts to respond to the request. B&N shall review all possibilities to assist the worker with accommodation including transferring a worker to another work location, providing alternate duties, providing a leave of absence arranging for professional assistance through an Employee Assistance Program.

Review

The Fit for Duty program shall be reviewed annually to ensure the program and practices are current with company, client and Appropriate Provincial Health & Safety Legislation.

Any employee of B&N, if found by reasonable cause to be under the influence of alcohol or an illicit drug, while performing his or her duties including the operation of company vehicles, may be subject to disciplinary action and or termination.

The following is prohibited for all workers or Sub-Contractors doing work for B&N:

1. Use, possession, offering or sale of illicit drugs, illicit drug paraphernalia, un-prescribed drugs for which a prescription is legally required in Canada or any product or device that could be used to tamper with any sample for a drug or alcohol screening
2. Presence in the body of illicit drugs, un-prescribed drugs for which a prescription is legally required in Canada, or their metabolites

3. Use, possession, distribution, offering or sale of alcoholic beverages
4. Having a blood alcohol level concentration of .04% or higher
5. Intentional misuse of prescribed or over the counter medications or other substances
6. Being unfit for work due to the effects of the legitimate use of prescription or over the counter medications. Workers and Sub-Contractors have the responsibility to manage potential impairment during working hours due to the legitimate use of medications in consultation with their personal physician or pharmacist
7. Workers must notify their supervisor when taking over the counter prescription drugs that may have an impact on their ability to perform his or her work tasks and possibly injure or harm himself or herself or other employees or members of the public

If a supervisor or employee believes an individual is in violation of the Drug and Alcohol Use Policy the following steps will be taken:

1. A second opinion may be sought from someone on site
2. The employee will be advised of the concern
3. If the situation involves the use, possession, or trafficking of illicit drugs or unauthorized medication the police must be notified
4. The individual will be removed from the workplace and provided with transportation to their place of residence, the care of another person or to medical treatment if there is an immediate need
5. The situation & action taken will be documented as soon as possible in the Accident Investigation Report
6. Any violation of this policy by a contractor will result in penalties, suspension, or expulsion of the individual involved, or the termination of the contract.

Pre-Access (Client Site Specific) Drug and Alcohol Testing

Any B&N employee including partners, associates, consultants, summer students, support staff, and contract employees and sub-contractors will be subject to drug and alcohol screening as per customer pre-access site requirements.

Reasonable Cause Testing

B&N will conduct reasonable cause testing where the Appropriate Provincial Health & Safety Legislation requires or where our Clients mandate testing be conducted. B&N may require a worker or Sub-Contractors to be removed from B&N work where reasonable cause exists to suspect alcohol or drug use in violation of this policy.

Reasonable cause includes, but is not limited to, instances where:

1. Alcohol, drugs or drug paraphernalia have been detected on B&N property or controlled premises which can be reasonably associated with a particular worker or Sub-Contractors
2. There are observable physical signs of impairment of a worker or sub-contractor's ability to perform or
3. Reasonable grounds exist to suspect the involvement of alcohol or drugs in an incident

Reasonable cause testing, where required, must be conducted as soon as reasonably practicable once the determination has been made that reasonable cause exists. Where a test occurs more than four hours of the time a decision has been made to test, the sub-contractor must provide B&N with a valid reason for the delay.

Reasonable Causes

Reasonable cause includes but is not limited to, the following single events or observed patterns of behavior on a single occasion:

1. Direct visual observation of or credible information from one or more eyewitnesses about the apparent possession or consumption of alcohol, illicit drugs or medications by an identifiable individual(s), in circumstances that appear to violate the alcohol and drug policy.

2. Discovery of illicit drugs, alcohol, drug paraphernalia or prescribed drugs for which a prescription of the Appropriate Provincial Health & Safety Legislation.
3. Direct visual observation of or credible information from one or more eyewitnesses about any of the following physical or behavioral signs when an individual is performing work for B&N:
 - Difficulty maintaining normal balance or coordination
 - Slurred speech
 - Illogical or unrelated responses to question or instructions
 - Smell of alcohol on breath
 - Unexplained sleeping, extreme drowsiness or loss of consciousness; or
 - Erratic, disruptive or highly unusual behavior, including fighting, severe verbal altercations, or harassment
4. After serious work related motor vehicle incidents. Or where there is reasonable cause to suspect alcohol or drug use such as;
 - Where there is an obvious smell of alcohol on breath
 - Where there is observation of erratic or unusual behavior
 - Where there is possession of illegal drug paraphernalia.

A reasonable cause test should not be invoked merely on the basis of subtle physical signs such as eye or skin color, nasal congestion, etc.

1. An arrest conviction or the identification of an individual as the focus of a police investigation for an alcohol or drug related offence under the criminal code or provincial statutes, where the offence is alleged to have occurred on a B&N site.
2. Evidence that an individual has tampered with a previous test
3. An unexplainable failure to follow critical safety rules or operating procedures.

Post Incident Testing

B&N will conduct Post Incident Testing where the Appropriate Provincial Health & Safety Legislation allows or where our Clients mandate testing be conducted. Workers and Sub-Contractors performing work are subject to testing for alcohol and specified drugs after a significant incident as determined by B&N.

The primary purpose for this type of testing is to determine whether substance use was a possible contributing factor in an incident.

Testing must be conducted after all significant incidents unless there is clear evidence (for example, structural failure) that the acts or omissions of the worker or sub-contractor could not have been a contributing factor.

Testing may also be required, at the discretion of B&N, for near misses or other less serious incidents if they are considered to have had significant potential for more serious consequences. Because post incident testing is an investigative procedure, testing is required even in the absence of direct evidence or suspicion of alcohol or drug misuse.

Testing must be done as soon as reasonably practicable following an incident. Where a test is conducted more than four hours from the incident the Sub-Contractors shall provide a valid reason for the delay. It is recognized that it may not be possible to test an individual after an incident which renders the individual incapable of giving informed consent.

Significant Incident

A "significant incident" is defined as a work-related accident which caused any of the following:

1. A fatality or serious personal injury to a B&N employee or sub-contractor (classified as restricted work incident or worse)

2. A fatality or personal injury requiring medical treatment beyond first aid for a member of the public;
3. A spill or abnormality discharge of gaseous, liquid, or solid material which causes any of the following:
 1. A high probability of measurable long term health effects on workers or the members of the public
 2. A public evacuation
 3. Serious environmental damage where fauna or flora populations require long restoration periods (six months or longer), or there is a high probability of long term adverse impact to sensitive population or there is significant effect on community income or well being;
4. Significant loss or damage to property, equipment or vehicles (\$5,000+)
5. Significant loss of revenues to the company (\$500,000+).

DECISION TO TEST (YES REQUIRES A TEST)

1. First, ensure the employee receives appropriate medical attention.
2. Does incident or injury meet criteria for testing?
 1. Testing must be performed within 4 hours of the incident.
 2. Investigation results on incidents / injuries (i.e. where medical attention needed, not 1st aid cases).
 3. Potentially serious near misses / incidents. (i.e. falls, crane or equipment incidents, upset or near upset of operating plant, high voltage contact etc.)
 4. Where there is an obvious smell of alcohol on breath.
 5. Where there is observation of erratic or unusual behavior.
 6. Serious on site motor vehicle incidents (not minor fender benders).
 7. Possession of illegal drug paraphernalia.
8. Does employee meet criteria for testing?
 1. Individuals with a self-caused Recordable injury.
 2. Individual who causes a Recordable injury to another.
 3. All members of a crew performing the work (i.e. riggers, operators, watchmen, etc.) should be tested where their action or inaction may have contributed to the incident.

APPLICATION OF TESTING

1. The first priority is to ensure appropriate medical attention to any injuries.
2. Following the decision to test:
 1. Call the employee and his / her job steward into the office and explain the reasons for the test
 2. Formally request employee to submit to a test. If the employee refuses to submit to a test, inform them that they are within their rights but that they will be considered to be a positive test. This means their employment may be terminated immediately with no re-hire for at least 6 months. Escort employee to the gate. If employee appears impaired alternate travel arrangements need to be made. If employee insists on driving while impaired call the appropriate law enforcement agency
 3. As soon as possible, transport employee in Company vehicle to the nearest test center – Contact H&S Department for locations
 4. Following the test process and paperwork, transport employee back to the jobsite.
 5. The employee cannot work until the results are known. Have the employee wait in the site office (not lunchrooms) if necessary
 6. If initial result is negative, inform the job steward and employee's foreman. Employee returns to their assigned work without any loss of pay
 7. The initial result is positive the lab will want to perform a confirmatory test on the specimen which may take an additional day or two
 8. The employee is suspended pending the result of confirmatory testing and should remain at home
 9. If the confirmatory testing is negative, employee returns to work and is paid for all missed regular hours
 10. If the confirmatory testing is positive, the job steward is to be notified. Depending on the circumstances, the employment may be considered terminated, with no re-hire for a minimum 6-

month period at B&N management discretion. There will be no payment of wages or benefits for time under suspension

11. The employee is considered to have quit if they do not return to work or takes other employment during the period pending the result of confirmatory testing. Lay-off will not be given for this reason.

12.1.5. RELATED FORMS

FORM 11.1. - Employee Record of Discipline

FORM 12.1. - Certification of Employee Acknowledgement

FORM 12.2. - Certification of Sub-Contractor Acknowledgement

13.00 SMOKING / VAPING POLICY

13.1.1. PURPOSE

The purpose of the Smoking / Vaping Policy is to establish a standard related to smoking / vaping in the workplace.

13.1.2. SCOPE

The Smoking / Vaping Policy applies to all Biggs & Narciso Construction Services Inc. (B&N) personnel and situations that involve smoking / vaping in the workplace.

ENCLOSED WORKPLACES

For the purposes of this Policy “Enclosed Workplaces” means the inside of a building, structure, vehicle or machine that an employee works in or frequents during the course of their employment (whether or not they are acting in the course of their employment at the time), and includes common areas such as washrooms, lobbies and parking garages. Examples of enclosed workplaces include but not limited to: the inside of a trailer office on a construction site, the inside of a loading dock, or an excavator or skid steer cab, etc. The ban on smoking in an enclosed workplace is in effect at all times, even during off-hours when people are not working.

13.1.3. RESPONSIBILITIES

B&N Responsibilities:

Employer Commitment

1. Ensure that employees are aware that smoking / vaping is prohibited in enclosed workplaces including within company vehicles
2. Prohibits smoking / vaping in enclosed workplaces and enclosed public places in order to protect workers and the public from the hazards of second-hand smoke / vapours
3. Investigate any worker’s complaint in regards to a smoke / vaping free work area violation
4. Notify workers, trade contractors and visitors of the ban
5. Ensure that people who refuse to honor the smoking / vaping policy shall be subject to our disciplinary policy up to and including termination of employment or contract. A record of these actions will be documented using **FORM 11.1. - Employee Record of Discipline**
6. Post signs where smoking / vaping is permitted in a conspicuous manner and shall not be obstructed from view. Post “No Smoking / No Vaping” signs at all entrances, exits, and other appropriate locations in order to ensure that everyone knows that smoking / vaping is prohibited within 3 metres of these signs
7. Ensure that smoking / vaping is only permitted in designated areas in the workplace
8. Respect the right of a worker to ask a person not to smoke / vaping in their presence while they are performing his / her job. If anyone refuses the request, the worker shall address his / her request to Supervisory personnel who will deal with the situation

13.1.4. PROCEDURE

B&N is committed to the protection the health of all employees and the environment by prohibiting smoking / vaping in all enclosed workplaces and enclosed public places. B&N considers violations of this policy as a serious offence and reserves the rights to impose discipline up to and including termination for any such offence. The following must be considered at any time while working at B&N:

1. Smoking / Vaping is prohibited in all interior areas of the workplace, including company vehicles and any other vehicles designated for work purposes
2. Smoking / Vaping is prohibited at all times, with the exception of during specified breaks, at which time the employees must smoke in designated outdoor areas

3. No Smoking / No Vaping signs must be posted at all entrances and exits, and workplace vehicles
4. If an employee does not comply with this policy, the disciplinary policy will be initiated
5. Investigate any worker's complaint in regards smoke / vaping free work area violation

*This Policy Reflects the Legislation Covered Currently in both Ontario & British Columbia

REPRISALS

B&N is committed to ensuring that employees seeking enforcement of this Smoking / Vaping Policy will not be subject to discipline or suffer any other adverse consequences such as dismissal, threaten to dismiss, discipline, suspend, penalize, intimidate or coerce for obeying or reporting improper smoking/vaping.

13.1.5. RELATED FORMS

FORM 11.1 - Employee Record of Discipline

<https://www.ontario.ca/page/smoke-free-ontario>

14.00 HEALTH ASSESSMENTS

14.1.1. PURPOSE

The purpose of the Health Assessments Program is to establish a medical surveillance process for employees or applicants involved in known risk situations and / or governed by Appropriate Provincial Health & Safety Legislation and in accordance with our Hazard Identification, Risk Assessment and Control procedures.

14.2.2. SCOPE

The Health Assessments Program applies to all Biggs & Narciso Construction Services Inc. (B&N) personnel, employees or applicants who have accepted an offer of employment for a vacancy including Trade Contractors whose duties are in certain known risk situations and/or governed by Appropriate Provincial Health & Safety Legislation and in accordance with our Hazard Identification, Risk Assessment and Control procedures.

14.3.3. RESPONSIBILITIES

Senior Management, Directors and Project Managers Responsibilities:

- Will identify the major health issues or restrictions that would impact successful performance of the job. Baseline health assessments and medical surveillance assessments will be performed as prescribed at least annually or as prescribed by Appropriate Provincial Health & Safety Legislation
- Shall only permit employees to work or be in a workplace who have undergone such medical examinations or tests as prescribed and who are found to be physically fit to do the work in the workplace

14.4.4. PROCEDURE

GUIDING PRINCIPLES

1. The medical assessment is performed by a health professional of the company's choice
2. The medical assessment is made at the company's expense
3. The employee's medical condition or history is kept separate from other employee information
4. Confidentiality is maintained
5. Access to this information is limited to those who have a legitimate need to know
6. The pre-placement health assessment will be performed prior to the employee's commencement of work or new employment position
7. Testing requirements for certain jobs will be identified through our site specific health and safety plan (HASP) and through completions of Daily Job Safety Assessments (JSA) prior to the commencement of work

BASELINE HEALTH AND MEDICAL SURVEILLANCE ASSESSMENTS

Health and medical surveillance assessments will be performed in accordance with WSIB and all Appropriate Provincial Health & Safety Legislation.

If the employee participates in a prescribed medical surveillance program and undergoes prescribed medical examinations or tests, the employer is responsible to pay for;

1. The costs for the medical examinations or tests required by the medical surveillance program or required by regulation
2. The employee's reasonable travel costs respecting the examinations or tests; and
3. The time the employee spends to undergo the examinations or tests, including travel time, which shall be deemed to be work time for which the employee shall be paid at his or her regular or premium rate in accordance to a Collective Bargaining Agreement (CBA), where applicable

15.00 WORK REFUSAL

15.1.1. PURPOSE

The purpose of our Work Refusal process shall be established for all Biggs & Narciso Construction Services Inc. (B&N) personnel & Sub-contractors that comply with the Appropriate Provincial Health & Safety Legislation.

15.1.2. SCOPE

The Work Refusal Program applies to all B&N personnel in potentially unsafe work situations.

15.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that a Work Refusal process is established that complies with Applicable Provincial Health & Safety Legislation
- B&N shall educate workers on their right to refuse unsafe work, and the procedures for refusing unsafe work. Training may be performed during; orientations, safety meetings or annual training. The Training shall be documented.

Supervisor Responsibilities:

- Investigate all work refusals
- Immediately notify Senior Management, Health & Safety Manager, Joint Health & Safety Committee / Joint Occupational Health & Safety Committee (JHSC / JOHSC) members, H&S Representative (where applicable) and union representative (where applicable) of the work refusal situation.

Worker Responsibilities:

- Report any unsafe conditions immediately to your supervisor.
- Abide by the work refusal process outlined in section 15.1.4 of this program.

15.1.4. PROCEDURE

GUIDING PRINCIPLES

All employees have the responsibility & right to stop or refuse unsafe work. Unsafe work may also be considered as an “unusual danger”, that does not normally exist within the scope of work or under which a person engaged would not normally carry those duties. This right is a required code of conduct at B&N and is viewed as a positive effort to bring serious safety threats to the B&N's attention.

Any employee has the responsibility & right to stop work whenever they believe an injury, property damage or environmental damage could occur. Workers who exercise their right to refuse work must immediately report the unsafe condition to Supervisory personnel with the reasons why they feel the work is unsafe. The Supervisory personnel shall attempt to resolve the issue that prompted the work stoppage. If the issue is not resolved to the satisfaction of the employee, the employee may initiate a work refusal.

Any employee may refuse to work or do particular work where he or she has reason to believe that:

1. Any equipment, machine, device or thing the employee is to use or operate is likely to endanger himself, herself or other employees
2. The physical condition of the workplace or a part thereof in which he or she works or is to work is likely to endanger himself or herself
3. Workplace violence is likely to endanger himself or herself; or
4. Any equipment, machine, device or thing he or she is to use or operate or the physical condition of the workplace or the part thereof in which he or she works or is to work is in contravention of the Appropriate Provincial Health & Safety Legislation and such contravention is likely to endanger himself, herself or another employee.

PROCEDURES FOR WORK REFUSAL

First Stage Refusal

- Work must STOP, and may not resume, until the unsafe work concern has been addressed
- When an employee refuses unsafe work he / she must immediately inform Supervisory personnel that the work is being refused and explain the reasons why
- The Supervisory personnel must immediately investigate and report, in the presence of the employee, a JHSC / JOHSC representative and the Project Manager (if available)
- The worker JHSC / JOHSC representative must be made available and must attend the investigation without delay and may include the employee's union representative, if applicable. Time spent by this representative is deemed to be work time, for which the person shall be paid at his / her regular or premium rate in accordance to the collective agreement if applicable
- If the JHSC / JOHSC representatives are not available, an employee selected because of his / her knowledge, experience and training should be asked to participate in the investigation without delay
- The refusing employee must remain in a safe place near the work station until the investigation is complete. This interval is known as the first stage of a work refusal
- If the situation is resolved at this point, the employee will return to work
- The employee can continue to refuse work if he / she has reasonable grounds for believing that the work continues to be unsafe; this prompts the proceeds to a Second Stage Refusal.

Second Stage Refusal

- Upon the continuance of the employee's refusal to work, the Supervisory personnel should notify the Health & Safety Manager, who will immediately notify the Appropriate Provincial Health & Safety Authority
- While waiting for the Appropriate Provincial Health & Safety Authority, the employee must remain in a safe place near the workstation unless the employee is assigned other reasonable work
- Another employee may be assigned to do the work that was refused, however the employee must be advised that the work was refused and given the same right to refuse as the first employee. The work assignment must be made in the presence of the worker's JHSC / JOHSC representative
- The Appropriate Provincial Health & Safety Authority, after reviewing the work and consulting with the parties will determine whether the work is unsafe and present his decision in writing
- The refusing employee is expected to return to work if the Appropriate Provincial Health & Safety Authority determines that it is appropriate to do so. The Supervisory personnel is responsible to correct any issues identified by the Appropriate Provincial Health & Safety Authority report prior to work commencing
- No disciplinary action or other actions will be taken against any employee who has exercised his rights under the applicable Provincial Health & Safety Legislation and has acted in good faith. This provision does not apply if the

work refusal was made in bad faith or if the employee continues to refuse after the Appropriate Provincial Health & Safety Authority determines the work to be safe

- All work refusal occurrences shall be documented for lessons learned and corrective measures to be put in place.

EMPLOYER REPRISALS PROHIBITED

If an employee has acted in compliance with the Applicable Provincial Health & Safety Legislation or an order made under them, B&N (or any person acting on its behalf) may not apply a reprisal:

1. Dismiss or threaten to dismiss the worker
2. Discipline or threaten to discipline the worker
3. Impose any penalty on the worker
4. Intimidate or coerce a worker for exercising their right to refuse unsafe work

If an employee complains, B&N (or a person acting on its behalf) has improperly taken any of these actions, the employee may file a grievance.

Work refusals can be avoided with a workplace commitment to health and safety. Advising employees of hazards through the site orientations using our site-specific Health And Safety Plan (HASP), conducting our daily Job Safety Assessments (JSA), providing appropriate safety training, and keeping the lines of communication open will manages these potential situations with employees knowing management will treat them seriously.

16.00 FIRE SAFETY

13.1.1. PURPOSE

The purpose of the Fire Safety Program is to establish a system that will address:

- precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury or property damage
- alerting those in a structure to the presence of a fire in the event one occurs
- enabling those threatened by a fire to survive, or to reduce the damage caused by a fire

Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing and those that are developed for the occupants of the building.

13.1.2. SCOPE

The Fire Safety Program applies to all Biggs & Narciso Construction Services Inc. (B&N) personnel and fire safety in the workplace.

13.1.3. RESPONSIBILITIES

B&N, Sub-Contractors or Owner Responsibilities:

- Take all reasonably practicable steps to prevent outbreak of fire at a place of employment and to provide effective means to protect employees from any fire that may occur
- Provide covered receptacles for the garbage that are suitable to the nature of the hazard when garbage may constitute a fire hazard in the workplace
- Ensure all equipment is maintained in accordance with the instructions of the manufacturer or the instructions of the Appropriate Provincial Health & Safety Authority
- Develop and implement a written fire safety plan that provides for the safety of all employees in the event of a fire.
- B&N shall train a suitable number of employees at each B&N location in emergency response procedures and with the equipment as may be required

Supervisory Responsibilities:

- Implementing the Fire Safety program within their work locations
- Brief all employees and sub-contractors on the program
- Provide education and training to employees
- Take prompt and appropriate action whenever they have reasonable cause to believe a fire may exist

Worker Responsibilities:

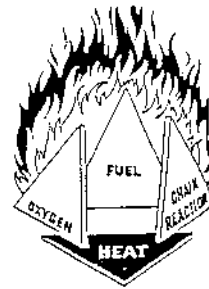
- Take reasonable care to not expose themselves or others due to unnecessary health or safety risks
- Notify B&N of any actual or potential fire related dangers immediately to Supervisory personnel.
- Not accept a work assignment if the employee believes their ability to work safely and effectively may be impaired by the risk of fire
- No employee will be required to perform fire fighting measures if they are not trained as per National Fire Protection Association (NFPA) 10. NFPA 10 provides requirements to ensure that portable fire extinguishers will work as intended to provide a first line of defense against fires of limited size.

13.1.4. PROCEDURE

GUIDING PRINCIPLES

Fire seems like a simple thing, but it's actually a complex chemical reaction requiring four elements before it can happen. Knowing these four elements is essential to being able to fight a fire; if you can manage to get rid of any one of those four elements, the fire goes out.

1. **Oxygen**
2. **Fuel**
3. **Heat**
4. **Chemical Chain Reaction**



These 4 elements are known as, the **fire tetrahedron**

Fire Safety Plan

A plan developed must include:

- a. The emergency procedures to be used in case of fire, including:
 - i. Sounding the fire alarm
 - ii. Notifying the fire department; and
 - iii. Evacuating endangered workers, with special provisions for workers with disabilities;
- b. The quantities, locations and storage methods of all flammable substances present at the place of employment
- c. The designation of persons to carry out the fire safety plan and the duties of the designated persons;
- d. The training of designated persons and workers in their responsibilities for fire safety
- e. The holding of fire drills; and
- f. The control of fire hazards

FIRE EXTINGUISHERS

Fire extinguisher requirements for the workplace or job sites must comply with the Building Fire Code and any other Applicable Provincial Health and Safety Legislation. B&N will provide all required fire extinguishers to the workplace or job site that are type and size suitable for use on a fire where a fire hazard exists and where an electrical installation or equipment may present a fire hazard. These expectations will be outlined under the site specific health and safety plan (HASP) and communicated during site orientation.

Fire extinguishers at a job site shall be a type whose contents are discharged under pressure and shall have an Underwriter's Laboratories of Canada 4A40BC rating. Additional fire extinguishers may also be at the job site in addition to the above required extinguishers, i.e.; Pressurized Water (APW).

Types of Fire Extinguishers

Fires are classed A, B, C, or D, according to the type of fuel (e.g., paper; oil) that is involved in the fire. Some extinguishers are suitable for one class of fire only, others can fight two or even three classes of fire depending on the extinguishing agent they contain (e.g., water; chemicals.) However, no extinguisher will fight all four classes of fire. Using the wrong extinguisher to fight a fire can have serious results. A fire may flare up and spread, for example, if a water-based extinguisher is used on a flammable liquid fire (Class B fire).

1. **Pressurized Water (APW)** - For use on Class A fires. **Characteristics:** Silver metal canister – 2' tall. Water is located inside the canister and will spray a stream about 15-30 feet. This stream lasts for about 30-60 seconds. Water freezes at 0 C, so these extinguishers must not be stored at temperatures below 4 C (40 F). Using this type of fire extinguisher on another fire class intensifies the fire. Also, if you use this type of extinguisher on electrical, or Class C, fires you run the risk of electric shock.
2. **Carbon Dioxide** - Used on Class B and Class C fires (liquids and electrical). **Characteristics:** No gauge, hard horn and red canister. They spray about 3-8 feet, but the gas disperses quickly. Inside the canister

the carbon dioxide is stored as a compressed liquid. When the gas is sprayed out it cools the surrounding area and can sometimes form ice around the nozzle of the extinguisher. This fire extinguisher is very tricky though because even if it looks like the fire has been put out, you should continue to use the extinguisher until it is finished. Make sure that you watch the fire area after it has stopped in case it re-ignites. NEVER use on a Class D fire because it is dangerously reactive on with metal fires.

3. **Dry Chemical:** Used on Class A, B, and C fires. **Characteristics:** Has gauge and small diameter hose. Fire extinguishers require that you be careful using them indoors because they cause a dense cloud. This cloud limits your vision and could cause you to choke. There are class B and C dry chemical fire extinguishers (flammable liquids and electrical / energized fires), as well as ones that will work on class A, B, and C fires (flammable materials, flammable liquids, and electrical / energized fires). They range in size from 2 - 30 pounds, spray about 5-20 feet. A rule of thumb is 1lb per second of application.

Fuel Sources	Class of Fire	Type of Extinguisher (Extinguishing Agent)
Ordinary combustibles (e.g., trash, wood, paper, cloth)	A	Water; chemical foam; dry chemical
Flammable liquids (e.g., oils, grease, tar, gasoline, paints, thinners.)	B	Carbon dioxide; dry chemical; aqueous film forming foam
Electricity (e.g., live electrical equipment.)	C	Carbon dioxide; dry chemical
Combustible metals (e.g., magnesium, titanium.)	D	Dry powder (suitable for specific combustible metal involved)

Identification:

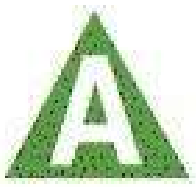


Manufacturers place markings on extinguishers to indicate the class or classes of fire for which they are suitable. To make identification easier in an emergency, consider applying class ratings to wall panels near extinguishers. These markings should be easy to see from a distance of 4.6m (15 ft.).








One marking system uses letters, symbols and colours (see diagram below).

Another marking system uses pictures which show both the uses and non-uses of the extinguisher. This marking system is illustrated in the diagram below. Pictures give more information, but employees will need training to be able to recognize and understand them.

Note that with both marking systems, the use of colour is optional.

Symbol and Colour Marking on Extinguishers

Letter Symbol	Description	Picture Symbol
Ordinary Combustibles 	<p>Class "A" fires can involve any material that has a burning ember or leaves an ash such as wood, paper, cloth, rubber, many plastics, etc.</p> <p>Extinguishers for Class "A" fires are identified by a triangle containing the letter "A". If coloured, the triangle is green.</p>	
Flammable Liquids	<p>Class "B" fires involve flammable liquids and gases such as motor oil, paint thinner, dry cleaning agents, gasoline, propane, natural gas, etc. Flammable liquids do not ignite in the liquid state but rather it is the vapours being generated by these liquids that ignite.</p>	

	<p>Extinguishers for Class “B” fires are identified by a square containing the letter "B". If coloured, the square is red.</p>	
<p>Electrical Equipment</p> 	<p>Class “C” fires involve live electrical equipment and require the use of an extinguishing agent and / or extinguisher that will not conduct electricity.</p> <p>Extinguishers for Class C fires are identified by a circle containing the letter "C". If coloured, the circle is blue.</p>	
<p>Combustible Metals</p> 	<p>Class “D” fires involve exotic metals such as sodium, magnesium, and titanium. These fires require special agents and special application techniques different from agents and techniques used on Class “A”, “B”, or “C” fires.</p> <p>Extinguishers for Class D fires are identified by a star containing the letter "D". If coloured, the star is yellow</p>	
<p>Combustible Cooking</p> 	<p>Class “K” fires involve combustible cooking media such as vegetable or animal oils and fats. These fires require wet chemical extinguishers that have superior cooling capabilities to lower the temperature of the cooking medium below its auto ignition point.</p>	

Tips for Safe Extinguisher Use:

- Test that the extinguisher works before you approach fire
- Protect yourself at all times
- Take care. Speed is essential but it is more important to be cautious
- Keep your back to the exit at all times and stand 2 to 2.4m (6-8 feet) away from the fire
- Follow the 4-Step **P-A-S-S** procedure:
 - a. **P**ull the pin (release the lock latch or press the punch lever)
 - b. **A**im the nozzle at the base of the fire
 - c. **S**queeze or press the trigger
 - d. **S**weep the extinguisher from side to side

If the fire does not go out immediately or the extinguisher appears to be getting empty, leave the area at once. Back out with the lever squeezed and the nozzle pointed at your feet. The following tips will help protect you until you are out of the area:

- Fire extinguishers are designed to put out or control small fires. A small fire, if not checked immediately, can soon spread out of control
- Appropriate fire extinguishers have been located throughout the sites, yards and buildings and are located where they can be easily accessed
- All fire extinguishers will be inspected on a monthly basis by a competent person during workplace inspections, ensuring the fire extinguishers are well supported, accessible, the ring pin is in place, and the seal is intact and in good working order (charged.)

- Also, an outside agency shall inspect all fire extinguishers on an annual basis, for testing and servicing and whenever a workplace inspection indicates a further inspection is required. All paperwork will be kept on file at each B&N location

COMMON CAUSES OF ELECTRICAL FIRES

The majority of electrical fires start in wiring and motors. Care should be taken to maintain electrical equipment:

- Avoid using temporary or makeshift wiring.
- Use only approved electrical equipment.
- Never join extension cords.
- Never tamper with equipment or try to override safety switches.
- Turn off equipment when not in use.

B&N or sub-contractors shall ensure that a fire extinguisher approved for Class C fires is readily available to workers that are working on or near energized high voltage electrical equipment.

HOT SURFACES

Flammable materials must not be stored in close proximity to any heat source, sparks or flame.

CUTTING AND WELDING

Sparks, arcs, and molten metal can ignite combustible materials:

- Clear the work area of all combustible materials before doing hot work.
- Ensure the daily safe work permit outlines the scope of work and where the risk of fires may exist.
- Use a hot-work permit where applicable
- Provide an appropriate portable fire extinguisher for the work area.
- Appoint a fire watch for the work area. The fire watch shall be maintained for a minimum of 30 minutes after all equipment has been shut down

HOUSEKEEPING

- Deposit oily and paint soaked rags in appropriate non-combustible waste containers with self-closing metal lids, labeled as “flammable” and place the containers at least one metre away from other flammable liquids
- Place an appropriate portable fire extinguisher near waste disposal area
- Keep work areas clean and free of dust
- Do not store combustible or flammable materials near switchgears, heaters, sources of ignition, electrical panels or battery charging systems. These products shall be kept apart or insulated from any source of ignition or from temperature likely to cause combustion

FLAMMABLE LIQUIDS

- When pouring flammable liquids from one container to another, bond the containers first
- Do not pour a flammable liquid from a metal container into a plastic one
- Plastic cannot be grounded or bonded
- Portable containers for flammable liquids should have a spring-loaded cap and a flame arrester.
- B&N shall ensure that combustible and flammable liquids are kept in receptacles that meet the requirements of the provincial fire codes respecting the storage of flammable and combustible liquids. Each receptacle shall be labeled identifying the material or substance and warning of the hazards associated with the product
- Where reasonably practicable, a worker who operates a vehicle that contains a flammable liquid or gas or an explosive substance shall ensure that the engine of the vehicle is shut off during the connection or disconnection of the lines for the loading or unloading of the flammable liquid, gas or explosive substance

- Where a flammable or explosive substance is present in the atmosphere of a worksite at a level that is more than 20% of the lower explosive limit of that substance, B&N or sub-contractors shall not require or permit an employee to enter or work at the worksite
- An employee shall not use gasoline to start a fire or use gasoline as a cleaning agent.
- The Supervisory personnel shall ensure that no tank on a heating device shall be filled with a flammable or combustible liquid while the device is in operation or is hot enough to ignite the liquid.
- Employees are not permitted to fill the tank on a heating device with a flammable or combustible liquid while the device is in operation or is hot enough to ignite the liquid
- B&N shall ensure that no employee undertakes any servicing or maintenance of a vehicle while a flammable liquid or gas or an explosive substance is loaded into or unloaded from the vehicle, or is present in the vehicle in any place other than the fuel tank
- Ensure a spill kits or suitable flammable liquid absorbent is available

SMOKING

- Ensure compliance to B&N Smoking Policy at all times
- Discard cigarettes in ashtrays or suitable receptacles only
- Immediately report any employee or sub-contractor who has violated the B&N Smoking Policy to your Supervisory personnel

FIRE DETECTION

- Fire detection systems (smoke or heat detectors) give an early warning to building residents and others, to allow for early evacuation
- Smoke and heat detectors must be CSA, ULC, or UL approved.
 - Ionization detectors respond to products of combustion and react to a fire at the earliest possible stage. A workplace with a lot of dust may cause the ionization detector to give an accidental alarm
 - Infrared detectors react to heat given off by flames. They work well in areas where flammable liquids are store
- Fire alarm systems convey the occurrence of a fire to the occupants of a building and contact the fire department

AUTOMATIC SPRINKLERS

Automatic sprinkler systems are a fixed method of fire suppression and are typically highly effective in extinguishing a fire.

FIRE HOSES

Fire hoses may be available for use. They must be inspected and maintained in good condition. Do not remove fire hoses from their cases, unless they are needed to put out a fire. They should not be used for anything other than the intended design purpose.

EMERGENCY PROCEDURES

When You Hear the Fire Alarm:

- STOP what you are doing and turn off all equipment quickly.
- LEAVE your area and close the door.
- FOLLOW the instructions given by the emergency personnel
- EVACUATE the building through the nearest exits & go to the designated meeting area.

In Case of Fire:

If you discover fire, see smoke, or smell gas:

- WARN others nearby (Yell “fire, fire, fire”)

- SOUND the fire alarm or horn if available
- NOTIFY CALL 9-1-1, the local emergency number and / or the site emergency number
- EVACUATE the building through the nearest exits & go to the designated meeting area

Remember to:

- STAY CALM
- TURN OFF all working equipment
- FEEL door before opening. If warm, DO NOT open. Use an alternate exit if possible or stay in your area
- EXIT area, if halls are smoke-free
- CLOSE all doors against the fire
- DO NOT use elevators if available
- If stairwell is free of smoke, exit to designated meeting area
- If smoke in stairwell, use an alternate stairwell if possible or return to work area
- Always identify your emergency exits prior to commencing work during the review of your site specific Health and Safety Plan (HASP) & Daily Safe Work Permit

If Trapped in Work Area:

- KEEP door closed
- STUFF wet clothes or towels, if possible, under the door and in air vents
- TURN OFF the air conditioner
- OPEN a window, if possible
- FILL sink with water, if possible
- BREATHE through a wet cloth, if possible
- WAVE a bright colored object out of the window to attract attention

If Clothing Catches on Fire:

- STAY CALM
- COVER face with hands
- STOP, DROP TO THE FLOOR, and ROLL to smother the flames

EMERGENCY DRILLS

On an annual basis, emergency drills will be held at all B&N locations to ensure awareness and effectiveness of emergency routes and procedures, and a record of the drills must be maintained by the Health & Safety Department. Emergency drills will be held on job sites when the job site is 12 months or longer in duration and / or per client requirements. All emergency drill records will be maintained by the Supervisory personnel or Health & Safety Department at the B&N locations, and maintained by B&N for a minimum of 3 years to a maximum of 7 years.

FIRE SAFETY TRAINING

All employees will be given adequate instruction and training in fire prevention, fire extinguishers and emergency evacuation procedures applicable to the work place. Employees assigned the duties of fire watch, and anyone who may have an opportunity to use a fire extinguisher in the workplace will be provided training by a competent trainer on;

- Fire suppression methods
- Fire prevention
- Emergency procedures
- Emergency response
- Communication process
- This training shall be required as a minimum of every 3 years for all affected employees.

- No employee will be required to perform firefighting measures if they are not trained as per National Fire Protection Association (NFPA) 10. NFPA 10 provides requirements to ensure that portable fire extinguishers will work as intended to provide a first line of defense against fires of limited size

CLOTHING

If an employee's clothing and / or skin becomes contaminated with a flammable or combustible liquid the worker will:

- Avoid any activity where a spark or open flame may be created or exists
- Remove the clothing
- Ensure clothing is decontaminated before it is used again
- Wash the affected skin area as soon as possible

INTERNAL COMBUSTION ENGINES

B&N shall ensure that an internal combustion engine has a fire extinguisher in close proximity to operation and in a hazardous location a combustion air intake and exhaust discharge that are equipped with a flame arresting device, or located outside the hazardous location. Whenever possible, internal combustion engines should be located outside the hazardous location.

FLAMMABLE SUBSTANCE

When a flammable substance is or is intended to be handled, used, stored, produced or disposed of at a place of employment, B&N, sub-contractor or owner shall develop Job Safety Analysis (JSA) and communicated prior to the commencement of work using our Daily Safety Work Permit to ensure the health and safety of workers who:

- a. Handle, use, store, produce or dispose of a flammable substance that may spontaneously ignite or ignite when in combination with any other substance; or
- b. Perform hot work where there is a risk of fire.

B&N, sub-contractor or the owner of the project, shall ensure that appropriate JSA's are developed and communicated prior to the commencement of work using our Daily Safety Work Permit to all employees who are required or permitted to perform work associated with flammable substances.

17.00 PERSONAL PROTECTIVE EQUIPMENT

17.1.1. PURPOSE

The purpose of the Personal Protective Equipment (PPE) Program is to provide a framework for identifying the need for PPE and its selection, maintenance, monitoring as well as applicable training.

17.1.2. SCOPE

The Personal Protective Equipment Program applies to all Biggs & Narciso Construction Services Inc. (B&N) operations where the need for personal protective equipment has been identified.

17.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees of the hazards they are exposed to
- Eliminate or place controls to address any known hazards
- Ensure the Personal Protective Equipment program is implemented at all B&N locations

Supervisor Responsibilities:

- Identify situations or work areas where personal protective equipment (PPE) is required
- Ensure PPE is used as directed by the site-specific health and safety plan (HASP) and communicated during the daily safe work permit meetings
- Provide employees with appropriate PPE where engineering or administrative controls are not practical
- Ensure that employees are informed in the proper use, care and maintenance of PPE
- In hazardous areas, ensure employees wear appropriate PPE at all times in accordance with the Appropriate Provincial Health & Safety Legislation
- Ensure that warning signs are posted in areas where PPE is required

Worker Responsibilities:

- Use the provided PPE as directed by the site-specific health and safety plan (HASP) and communicated during the daily safe work permit meetings
- Participate in any training related to PPE
- Wear the required PPE as per B&N PPE policy and the manufacturer's instructions at all times
- Maintain PPE in good condition
- Do not modify or remove any components of the PPE

17.1.4. PROCEDURE

GUIDING PRINCIPLES

Personal Protective Equipment (PPE) is only one method of controlling exposure to hazards in the workplace and it is the least desired method of controlling workplace hazards, therefore, the use of PPE will only be considered after other control methods have been explored. PPE may be used when other control methods / instances where it would be impracticable and / or produce additional hazards to use an alternative control strategy.

Potentially harmful hazards may exist within B&N locations and we will implement control measures to eliminate and / or control the harmful effects of any identified hazards. Engineering and Administrative Controls will be used for the most part; however, there are some circumstances and job functions which require the use of PPE to control the exposure to the hazard.

The following program will identify the need for PPE and the implementation of a program designed to protect our employees. This program will encompass the following areas:

- Selection / Use
- Maintenance
- Monitoring
- Employee training

All PPE provided to B&N employees will:

- Be within or above the requirements of Appropriate Provincial Health & Safety Legislation and meet the requirements of the applicable CSA standards.
- Be used by B&N employees will be maintained in accordance with the manufacturer's instructions and requirements.
- Be inspected prior to issue and before each use by the employee.
- Wear or use the required PPE, clothing and devices as are necessary to protect the employee from the particular hazard to which the employee may be exposed.

GENERAL PROGRAM

Once hazardous conditions have been identified and warranting the use of specific PPE, the appropriate selection of such equipment will be made. A JSA (Job Safety Analysis) shall be completed for each work site, outlining the hazards that an employee will be exposed to and the necessary controls to eliminate or minimize the hazards.

The selection of PPE must meet the following criteria:

- a. Provides the required protection to an employee
- b. Is compliant with B&N policies and procedures, client requirements and / or the Appropriate Provincial Health & Safety Legislation
- c. Be compatible, so that one item of PPE does not make another item ineffective, and
- d. Not in itself create a hazard to the employee

The PPE program must be reviewed annually by the EHS Department in consultation with the Joint Health and Safety Committee (JHSC).

Employees are not permitted to use compressed air for the use of cleaning clothing, PPE or any other article of clothing or equipment. These actions may cause dispersion of contaminants into the air that may be harmful to other employees.

Where it is not reasonably practicable to protect the health and safety of employees by the design of the facility or by work processes, suitable work practices or administrative controls will be implemented including identification within the site-specific health and safety plan (HASP) and communicated during the daily safe work permit meetings. B&N or the sub-contractor shall ensure that every employee wear or uses suitable and adequate PPE prior to their commencement of work.

B&N or the sub-contractor shall:

- Supply the approved PPE to the employees at no cost to the employee
- Ensure that the PPE is used by the employees
- Ensure that the PPE is at the worksite before work begins, except where specified in the union collective agreement or company policy as applicable

Where PPE is provided to an employee and becomes defective or otherwise fails to provide the protection it was initially intended for, the employee shall return the PPE to their Supervisory Personnel or sub-contractor. At this point, the employee will inform the Supervisory Personnel or sub-contractor of the defect or any other reason why the PPE does not provide the protection that it was initially intended to provide.

All PPE of questionable reliability, damaged, or in need of service or repair must;

- Be removed from service immediately
- Removed from service will be tagged “OUT OF SERVICE” and will not be returned to service until it has been repaired and inspected by a qualified person
- Not be changed or modified contrary to the manufacturer’s instructions and/or the Appropriate Provincial Health & Safety Legislation

B&N or the sub-contractor shall immediately repair or replace any PPE returned, unless otherwise specified in the union collective agreement or company policy, as applicable.

The employer shall ensure that the use of any prescribed PPE by the company does not in itself endanger the employee by using it. The employer shall review the requirement for any changes to PPE or combination of PPE and alternatives that may be chosen.

Training

B&N will ensure that training is provided to the employees on all PPE provided to them. The employee shall be provided training on:

- The CSA regulations that the equipment is governed by
- Manufacturer’s recommendations
- How to properly fit and wear the equipment
- Matching worksite hazards to protective equipment to safeguard the employee
- Safety features of the equipment
- Hygiene practices
- Cleaning and disinfecting processes
- Storage, handling and care of the equipment
- Life expectancy of specific equipment

B&N will ensure that a site-specific PPE review is provided to the employees during the review of the daily job safety analysis (JSA).

Maintenance of PPE

All employees will be trained on the limitations, proper care and maintenance of their PPE by either their supervisor or a representative of the EHS Department. The instructions will be communicated according to the manufacturer’s specifications and during the review of the daily JSA.

Monitoring

Monitoring for use of the required PPE will be conducted by all supervisors, the Joint Health and Safety Committee (JHSC) representative and the EHS Team during the review of the daily JSA. Supervisors will provide ongoing visual checks to ensure that employees are wearing or using the equipment when required and they are using it according to the manufacturer’s specifications and the job requirements.

PROTECTIVE FOOTWEAR, STANDARDS AND RESPONSIBILITIES

CSA certified Grade 1 green patch approved footwear, with toe impact resistance and a sole puncture resistant plate, must be worn by all persons, at all times, when entering a B&N yard or job site. Approved safety footwear must comply with CSA standard Z195-02 and an external green triangle with CSA logo must be visible. Minimum 6” boot style is required to be worn by all employees when working on a B&N site.

Workers in defined warehouse and Client specific operations shall wear CSA approved green patch metatarsal guard boots.

HEARING PROTECTION, STANDARDS AND RESPONSIBILITIES

Approved hearing protection will be worn by all persons exposed to noise of 85 decibels or greater as measured on the A-scale, slow response. Warning signs will be posted at all approaches to areas where the wearing of hearing protection is required. B&N will take all measures, where practicable, to reduce noise levels below 85 decibels or Appropriate Provincial Health & Safety Legislation.

Hearing protection will either be ear plugs, ear muffs or a combination of both. The type of hearing protection to be used may vary according to the noise level, therefore, specific types of hearing protection will be provided for employees exposed to excessive noises at all B&N locations. Hearing protection shall be compliant with CSA standard Z94.2-02 Hearing Protection Devices - Performance, Selection, Care and Use. The hearing protection will reduce the employee's noise exposure to 85 dBA or less

Supervisors

- CSA approved hearing protection shall be made available having a minimum Noise Reduction Rating (NRR) rating factor of 25dB
- Each protective device used (roll, push style, ear muff, etc.) shall be at the discretion of the employee, supervisory personnel and made available within the all B&N locations

PROTECTIVE FACE & EYE WEAR, STANDARDS AND RESPONSIBILITIES

Approved safety eye wear shall be worn by all employees as required at B&N locations. Protective eye and face wear provides safeguards to the employee against injury.

- CSA approved safety glasses, non-prescription or prescription (for those who need corrective lenses) with permanently attached side shields must be worn at all times on a B&N job site
- Safety glasses, face shields and safety goggles must comply with CSA standard Z94.3-02 and CSA Standard Z94.3.1-02
- Welders, or industrial vehicle drivers working in welding areas, will be supplied with appropriate tinted face shields dependent upon the level of hazard. Welders shall wear face protection with an Auto Focus 25 (AF-25) self-adjusting or permanent tinted window
- Safety glasses shall be made available in various models, styles and tints on B&N job sites dependent upon the employee's face and eye shape that provides the most comfort and protection
- Face shields should be worn with safety glasses or goggles since face shields do not sufficiently protect the eyes

Full face shields are required to provide additional protection where a hazard exists that could cause facial injury from potential projectiles.

Contact Lenses

Contact lenses can be worn in the workplace, however must not be used when there is possibility of exposure to chemicals, vapors, splashes, radiant or extreme heat, electric arcs, molten metal's or particulate matter. Contact lenses are not protective equipment.

Arc Welding

The employer or sub-contractor shall take all reasonable steps to ensure that an employee does not perform electric arc welding if another employee may be exposed to radiation from the arc unless the other employee is using the appropriate eye protection or is protected from the radiation by a suitable screen.

PROTECTIVE HEAD GEAR, STANDARDS AND RESPONSIBILITIES

Head gear approved by B&N must comply with CSA standard Z94.1-05 and CSA Z94. 1-92. The B&N standard is a Class E, Type II hard hat. Approved protective head gear shall be worn by all persons, at all times when on B&N locations or when a possibility of impact to the head exists.

The exception to this rule is if an employee is inside a vehicle, operating equipment that is equipped with overhead protection or in a work location that has been designated as non-construction and having no danger of head injury from falling, flying, or thrown objects or other harmful contacts. Head injuries must be prevented by using approved protective head gear which provides a comfortable and secure fit.

PROTECTIVE HAND WEAR, STANDARDS AND RESPONSIBILITIES

B&N will provide appropriate hand protection if an employee is exposed to a substance or condition which is likely to puncture, abrade, or otherwise adversely affect the skin, or be absorbed through it.

Approved hand wear must be worn by all persons, at all times, when working under conditions where there is a potential for hand injury. The specific glove material required to protect the worker will depend on the use and material it is coming into contact with. The specific glove requirement will be outlined within the daily JSA as completed by the Supervisor or the EHS Team.

Gloves that are commonly used at B&N include:

- Fitter's Glove – basic hand protection for tasks including fueling equipment, material handling, operating equipment
- Welder's Glove – leather glove, fully lined, heat resistant, 8 – 12" in length
- Rubber Gloves including nitrile and coated rubber palmed
- Neoprene Glove – used during the handling of propane or other compressed gases.
- Cut Resistant Gloves – Kevlar base within the design of the glove
- Latex or Non-latex Disposable Glove

PROTECTIVE CLOTHING, STANDARDS AND RESPONSIBILITIES

Protective clothing shall be worn to protect B&N employees from the elements of at all B&N locations.

Torch Men

- B&N provides Fire Retardant (FR) coveralls to all employees who are working on client specific sites when it's a requirement. These coveralls are to be used to provide body protection during all hot work
- During cold weather, FR / cotton parkas and bib overalls will be used as body protection for hot work
- Clothing must be kept free of oil and grease, to keep from making the fabrics more combustible. Therefore, frequent cleaning of clothing is a must, especially for those employees who may perform hot work

To reduce to the risk of skin damage, B&N employees are recommended to wear protective clothing made of natural fabrics such as cotton, wool or leather. Synthetics such as polypropylene, polyester or nylon shall not be worn as they can smolder, melt or even burn rapidly when exposed to flame or heat such as in welding or torch cutting operations.

Where an employee is exposed to the risk of injury to the skin from sparks, flash fires, molten metal, welding, burning, radiation or similar hot work hazards, B&N or the sub-contractor shall provide and require the employee to use, approved protective clothing including, chaps, covers, or any other safeguard that provides equivalent protection for the employee.

RESPIRATORY PROTECTION, STANDARDS AND RESPONSIBILITIES

Approved respiratory protection equipment must be worn by all B&N employees when working under conditions where ventilation is not practical or to reduce hazards from dust, fibres, fumes, gases and vapors. Respiratory protection shall consist of, but not limited to, CSA approved single use dust mask, half face mask, full face mask, Powered Air Purifying Respirator (PAPR) etc. and meet NIOSH and ANSI standards.

The respirator shall be chosen depending on the hazard requiring a respirator, employee's preference and proper seal to pass a fit test. All respiratory protective equipment shall be in compliance with the CSA standard Z94.4.2011.

To ensure proper use of full and half-face masks, each employee must apply both the Positive Pressure Test and the Negative Pressure Test each time the respirator is donned. All employees required to wear a respirator must be clean-shaven (trimmed moustache is okay) to provide the proper seal.

B&N will ensure that respiratory protective equipment that is not used routinely or is kept for emergency use is inspected at least once every calendar month by a competent employee to ensure it is in satisfactory working condition.

NOTE: The Respiratory Program is defined further in policy section 24.

LIMB PROTECTION, STANDARDS AND RESPONSIBILITIES

Additional specialty garments or PPE shall be provided to the employee, as required. For example, an employee operating a chainsaw is required to wear cut resistant chaps, FR coveralls, etc. All PPE will comply with CSA standards as applicable.

Long pants and long sleeve shirts shall be worn on all B&N locations to assist in protecting the employee's legs and arms from injury when the following conditions are met.

- All B&N work sites where interior demolition is being performed
- Any B&N location where an employee is exposed to or has the potential to come into contact with a hot object or hot liquid
- Any B&N location where an employee is exposed to or has the potential to come into contact with flames or sparks
- Any B&N location where an employee is exposed to or has the potential to come into contact with an object that may puncture, cut or abrade the skin
- Any B&N location where an employee is exposed to or has the potential to come into contact with a gas, liquid, vapour, fume, mist or dust that can get on the skin, enter the skin, reach the employee's bloodstream and enter different parts of the body which is likely to endanger or negatively affect the health of an employee

CHEMICAL CONTACT PROTECTION, STANDARDS AND RESPONSIBILITIES

Where there is a risk of injury to a B&N employee due to a harmful substance coming into contact with the skin or may cause adverse effects due to the absorption of the harmful substance through the skin, B&N management will ensure that the employee's skin is protected in accordance with the properties and characteristics of the substance as defined on the Safety Data Sheet (SDS) including an assessment of the requirements for an emergency shower.

LEVELS OF PERSONAL PROTECTIVE EQUIPMENT

Due to the type of contaminated materials handled by B&N, the level of personal protection will vary from site to site. The level of personal protective equipment and decontamination procedures will be determined by a Hazard Assessment. The levels of protection, once determined by the Hazard Assessment will be classified as either:

1. Class A – highest level of protection
2. Class B – a high level of protection
3. Class C – additional protective equipment is required; and
4. Class D – some protective equipment is needed

In keeping with B&N policy, these levels of personal protective equipment will only be utilized where substitution, administrative or engineering controls do not adequately address the hazards.

CLASS A PERSONAL PROTECTIVE EQUIPMENT

Class A personal protective equipment offers the highest level of respiratory, skin and eye protection. Class A PPE includes:

- pressure demand, full face piece self-contained breathing apparatus (SCBA) or pressure demand supplied airline respirator with an escape SCBA
- fully encapsulating, chemical resistant suit
- inner chemical resistant gloves
- chemical resistant safety footwear
- two way radio communication; and
- may include a hard hat, disposable booties, or coveralls

Class A protection will be utilized where a chemical substance has been identified as having the potential for high concentrations of atmospheric vapours, gases or particulates, or where site operations involve a high potential for splash, immersion or exposure to unknown vapours, gases or particulates that are harmful to the skin or have the ability of being absorbed through the skin. Class A protection will be utilized in all Immediately Dangerous to Life and Health (IDLH) atmospheres where the airborne hazard cannot be effectively controlled by administrative, substitution or engineering controls.

CLASS B PERSONAL PROTECTIVE EQUIPMENT

Class B personal protective equipment offers the same level of respiratory protection but less skin and eye protection than Class A PPE. Class B PPE includes:

- pressure demand, full face piece self-contained breathing apparatus (SCBA) or pressure demand supplied airline respirator with an escape SCBA
- chemical resistant clothing
- inner and outer chemical resistant gloves
- chemical resistant footwear
- hard hat; and
- two way communication

Class B protection will be utilized where the atmospheric concentrations of substances has been identified as having atmospheric vapours, gases or particulates which requires a high level of respiratory protection but less skin protection. Class B protection will be utilized in all Immediately Dangerous to Life and Health (IDLH) atmospheres that do not represent a severe skin absorbent hazard and where the airborne hazard cannot be effectively controlled by administrative, substitution or engineering controls.

CLASS C PERSONAL PROTECTIVE EQUIPMENT

Class C personal protective equipment offers the same level of skin and eye protection but a lower level of respiratory protection than Class B PPE. Class C PPE includes:

- full face piece air purifying respirator with applicable cartridges or canisters or a powered air purifying respirator with applicable cartridges or canisters
- chemical resistant clothing
- inner and outer chemical resistant gloves
- hard hat; and
- a method of two way communication

Class C protection will be utilized where the atmospheric contaminants, liquid splashes or other direct contact will not adversely affect the skin or where the atmospheric contaminants have been identified at levels that will not exceed the limitations of the respiratory equipment. Class C protection will never be utilized in an IDLH atmosphere.

CLASS D PERSONAL PROTECTIVE EQUIPMENT

Class D personal protective equipment offers the least amount of protection against exposure to contaminants. Class D PPE includes;

- coveralls
- safety footwear
- safety glasses or goggles
- hard hats
- gloves; and
- may include a half face piece respirator with applicable cartridges or canisters

Class D protection will be utilized where the atmospheric contaminants, liquid splashes or other direct contact will not adversely affect the skin or where the atmospheric contaminants have been identified at levels that will not exceed the exposure levels. Class D protection will never be utilized in an IDLH atmosphere.

B&N will provide training for all of its employees in the different levels of protection prior to their implementation. Training will also include the use, maintenance, storage and limitations of these types protective equipment.

DECONTAMINATION PROCEDURES

Wearing protective equipment is only effective if it can be decontaminated of all hazardous substances before it is removed. To maintain the health and safety of their employees, B&N will employ a three-zone system when the hazards dictate it. The three zones are identified as:

1. Exclusion or hot zone
2. Contamination Reduction or warm zone
3. Support or cold zone

Each employee will be instructed in the designation of these zones and the activities which will occur within them.

No employee will enter the Exclusion Zone without being properly trained.

EXCLUSION OR HOT ZONE

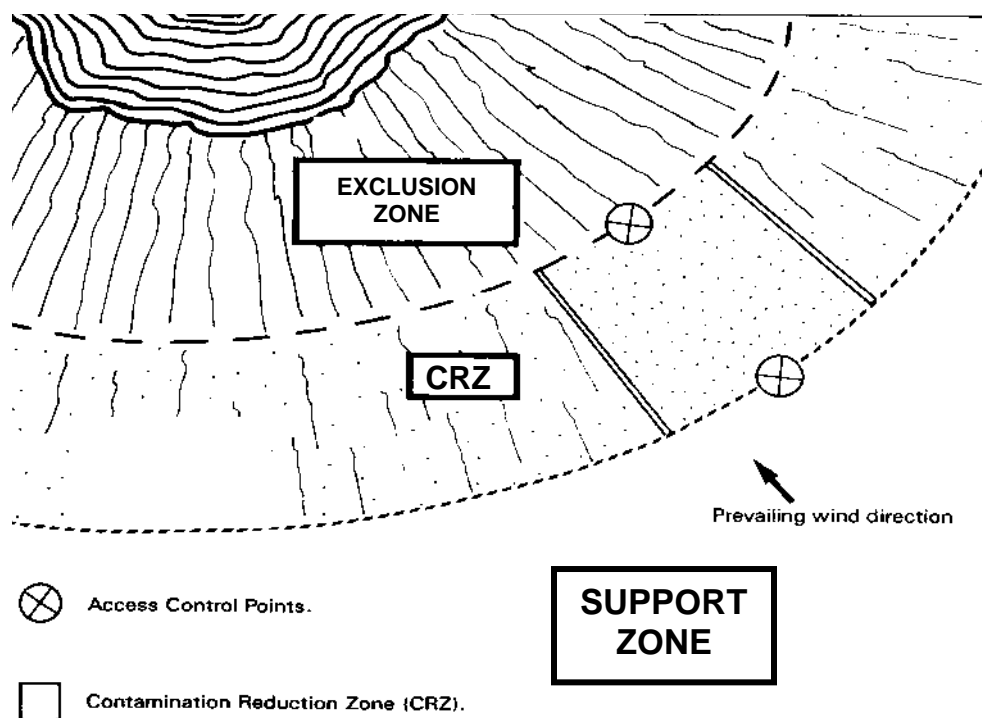
The Exclusion Zone is the area where contamination has or will occur. It is the primary area of contamination and the area where clean-up will occur. Any employee who enters this area must be properly equipped to deal with the hazards that are present. Personal protective equipment may be required to enter this zone depending on the hazards present which have been identified by prior sampling protocols. The level of protection may range from Class A to Class D.

CONTAMINATION REDUCTION OR WARM ZONE

The Contamination Reduction Zone (CRZ) is the area where decontamination of personnel or equipment occurs. The decontamination procedures may be as complex as a three stage decontamination procedure to a simple wash up station. The CRZ may still require a level of PPE as in the Exclusion Zone but is usually established to provide a buffer zone between the clean areas and the contaminated area.

SUPPORT OR COLD ZONE

The Support Zone is the uncontaminated area where workers should not be exposed to hazardous conditions. Care must be used when establishing the Support Zone so that the prevailing wind will not introduce the hazardous contaminate into the area.



DECONTAMINATION STATIONS

B&N will utilize decontamination stations when working on contaminated sites where the potential for contamination exists. Each employee has the responsibility to decontaminate themselves and their equipment when the site conditions so warrant. The decontamination stations will vary in complexity ranging from a simple wash up station to a full three stage decontamination station. The HASP will specify which type of decontamination station will be utilized on each site.

Typically a three stage decontamination station will consist of:

- **First stage** will consist of a rinsing station to remove any gross debris and contaminants. It will be at this station where the outer protective garments, including outer footwear, will be removed along with the outer gloves. The respiratory system will remain in use through this station
- **Second stage** will consist of a second rinsing station where the worker will completely decontaminate themselves without removing their inner gloves or respiratory protection. Once this worker has completely decontaminated themselves, they will remove their respiratory protection and proceed to the final decontamination station
- **The Third stage** will consist of clean water to finish decontaminating the worker. The worker will remove their inner gloves at this station and do a final wash up before leaving the decontamination corridor

Equipment will be decontaminated by workers who are equipped to work with the hazards that are present. No worker will be in the decontamination corridor without the appropriate protective equipment.

18.00 WORKING TEMPERATURE GUIDELINES

18.1.1. PURPOSE

The purpose of the Working Temperature Guidelines is to provide a framework for dealing with working situations involving extreme temperatures.

18.1.2. SCOPE

The Working Temperature Guidelines applies to all Biggs & Narciso Construction Services Inc. (B&N) personnel and situations involving extreme temperatures.

18.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to relating to heat and cold stresses
- Eliminate or place controls in place of any known hazards
- Ensure that the Working Temperature Guidelines are implemented across all B&N locations

Supervisory Personnel Responsibilities:

- Implementing the Working Temperature Guidelines in a fair and equitable manner within all B&N locations
- Ensure Working Temperature Guidelines are defined by the site-specific health and safety plan (HASP) and communicated during the daily safe work permit meetings
- Brief all workers and sub-contractors on the Guidelines
- Provide education and training to employees through daily safe work permit meetings
- Take prompt and appropriate action whenever they have reasonable cause to believe that an individual is not capable of working in a safe and effective manner
- Documenting all incidents relating to heat and cold stresses

Worker Responsibilities:

- Take reasonable care to not expose themselves or others to unnecessary health or safety risks.
- Be aware of the signs of cold or heat stress
- Notify the supervisory personnel if you experience any symptoms related to the effects of cold or heat stress.
- Adhere to these guidelines and considerations while working on any B&N location

18.1.4. PROCEDURE

HEAT AND COLD STRESS GENERAL GUIDELINES

When a workplace or work process within any B&N location exposes a worker to conditions that may create a risk to the worker's safety or health because of heat or cold stresses, B&N will provide suitable and appropriate monitoring equipment, information, instruction and training in the symptoms of thermal stresses and the precautions to be taken to avoid injury from thermal stress as defined by the site-specific HASP.

Once hazardous conditions relating to heat and cold stress have been identified and warranting the use of specific actions, B&N supervisory personnel will at the beginning of each work shift or when the hazards change, conduct a Job Safety Analysis. This JSA shall be completed for each work site, outlining the hazards that an employee will be exposed to and the necessary controls to eliminate or minimize the hazards. The specific controls relating to either heat or cold stress as defined within the JSA and under the Appropriate Provincial

Health & Safety Legislation will be communicated prior to the commencement of work during the daily safe work permit meetings.

NOTE: Employees and supervisors should work together in developing a cold stress program for the particular job conditions or job site location. Supervisors and employees should consider additional or more frequent shorter tweaks to allow for opportunities to come into a warm enclosed environment.

SIGNS AND SYMPTOMS OF COLD STRESS

Injury due to cold can be classified as either localized, as in frostbite, or generalized as in hypothermia.

Under unusually cold working conditions, an employer shall make further provision for the health and safety and reasonable thermal comfort of a worker, which may include:

- Regular monitoring
- Installation of warning devices
- Additional first aid measures
- Provision of special equipment and clothing
- Provision of screens or shelters
- Medical supervision
- Hot drinks
- Acclimatization procedures
- Limited work schedules with rest periods
- Other appropriate controls and measures

Wind Chill Factor

The wind chill factor is the cooling effect of any estimation of temperature and wind velocity or air movement. It is important to note that wind-chill index has no significance other than, “effect on the body”. It does not take into account:

1. Body parts exposed
2. The level of activity
3. The amount and type of clothing worn

Frostbite

This is a localized cooling of the body. There are two types superficial and deep frostbite.

Superficial frostbite usually affects ears, face, fingers and toes. May be recognized by the following:

1. White, waxy skin.
2. Skin that is firm to the touch, but the tissue underneath is soft

Deep frostbite usually involves an entire hand or foot and affects the tissue beneath the outer layer of the skin. May be recognized by the following:

1. White, waxy skin that turns grayish blue as frostbite progresses.
2. Skin that feels cold and hard.
3. Employee may complain of lack of feeling in the affected area.

HYPOTHERMIA

Hypothermia is the generalized cooling of the body, with the body temperature falling, developing from exposure to abnormally low temperatures over a prolonged period of time. However, it can also develop in temperatures well above freezing. Hypothermia stages are listed below.

- **Mild:** normal pulse, normal breathing, shivering, slurred speech, conscious but withdrawn mental state
- **Moderate:** slow and weak pulse, slow and shallow breathing, shivering is violent or stopped, movement is clumsy and person stumbles, confused, sleepy and irrational mental state
- **Severe:** weak, irregular or absent pulse, slow or absent breathing, shivering has stopped and person is unconscious

PREVENTING FROSTBITE AND HYPOTHERMIA

1. Recognize that by venturing out into the cold, you are risking frostbite
2. Wind and wetness will drain your body of heat, especially your extremities
3. Bring along warm clothing when working outdoors: an inner wicking layer, a middle insulating layer and an outer wind and water-resistant layer for both your upper and lower body
4. Gloves or mittens, a hat and thick fleece socks are recommended
5. Make sure you have clothing that will not lose its insulating properties when wet
6. Stay hydrated. Dehydration is a predisposing condition for frostbite and hypothermia
7. Set a reasonable pace when engaging in vigorous activities. Exhaustion can make treatment and even recognition of frostbite more difficult
8. Stop and warm your feet or hands if they start to feel numb; this is an early warning of frostbite
9. As much as 40% of body heat can be lost when the head is exposed, therefore, it is important to wear a head covering whenever possible

NOTE: Employees and supervisory personnel should work together in developing a cold stress program within the JSA and daily safe work permits for the particular job conditions or job site locations. Supervisory personnel should consider additional or more frequent breaks to allow for opportunities to come into a warm enclosed environment.

SIGNS AND SYMPTOMS OF HEAT STRESS

The possibility of heat stress can be a result from a variety of factors encountered during a normal workday. These factors need to be considered for the implementation of a heat stress program. They include; ambient temperature, humidity, type of work performed, personal protective equipment worn and the type of clothing required for the task.

B&N will ensure the health and safety and reasonable thermal comfort of a worker which may include:

- Regular monitoring
- Installation of warning devices
- Additional first aid measures
- Provision of special equipment or clothing
- Provisions of screens or shelters
- Medical supervision
- Cold drinks
- Acclimatization procedures
- Limited work schedules with rest periods
- Other appropriate controls and measures

All B&N employees must remember that when first aid measures are required, an employee possessing a valid first aid certificate may perform first aid and life saving measures until the Emergency Medical Services arrives.

Heat cramps, heat exhaustion and heatstroke are factors caused by:

- The body's inability to maintain its normal temperature
- Long exposure to hot conditions
- Overexposure to the sun
- Lack of fluids to replace lost body fluids
- Vigorous exercise or hard labour in a hot environment

Heat Cramps

Heat cramps are painful muscle spasms caused by an excessive loss of salt and water during sweating. It may be recognized by excessive sweating.

Heat Exhaustion

Heat exhaustion is more serious than heat cramps. It occurs when excessive sweating causes a loss of body fluids and when a hot environment and high humidity do not allow the body to cool by sweating. It may be recognized by the following:

- Excessive sweating
- Cold, clammy, pale skin
- Weak and rapid pulse
- Rapid, shallow breathing
- Vomiting
- Unconsciousness

The employee may complain of:

- Blurred vision
- Dizziness
- Headache
- Nausea
- Painful cramps in the legs and abdomen

Heat Stroke

Heat stroke is life threatening. There are two kinds of heatstroke:

- Classic heatstroke occurs when the body's temperature control fails
- Exertion heatstroke occurs as a result of heavy physical exertion in high temperature

It may be recognized by the following:

- Body temperature rising rapidly to 40 degrees Celsius or 104 degrees Fahrenheit and above
- Rapid and full pulse, becoming weaker in later stages
- Flushed, bright red skin, dry skin in classic heatstroke
- Flushed, bright red, hot sweaty skin in exertion heatstroke
- Noisy breathing
- Vomiting
- Restlessness
- Convulsions
- Unconsciousness

PREVENTING HEAT STRESS

- Expose the body gradually to a hot environment; acclimatization
- Protect the head from direct sunshine
- Drink plenty of water often to replace body fluids lost through sweating
- Avoid alcohol and caffeinated drinks
- Avoid long periods of work and manual lifting in a hot environment
- Employees should wear lightweight, light-colored, loose-fitting clothes
- Use sunscreen with a sun protection factor (SPF) of 15 or more

FIRST AID MEASURES

First Aid for Superficial Frostbite:

1. Prevent further heat loss
2. Warm up the frost-bitten part gradually with the heat of your body by:
 - a. Firm steady pressure of a warm hand
 - b. Breathing on the frost-bitten part
 - c. Placing the frost-bitten area in close contact with your own body
3. Do not apply direct heat
4. Do not rub, or put snow on a frost-bitten area
5. Obtain medical assistance if required

First Aid for Deep Frostbite:

1. Treat the frozen part gently to prevent further tissue damage.
2. Prevent further heat loss.
3. Do not rub the limbs. Do not allow the casualty to move unnecessarily.
4. Do not thaw the frozen part.
5. Obtain medical assistance if required.
6. Transport by stretcher if lower limbs are affected.

First Aid for Hypothermia:

1. Prevent further loss of body heat
2. Obtain medical assistance as quickly as possible
3. Handle worker gently with the least possible movement
4. Remove worker from the cold environment, e.g.; water, snow, poorly heated room
5. Remove wet clothing and place the casualty under warm covers, such as a warm sleeping bag
6. Protect worker from the wind by huddling with the worker
7. Give the conscious employee a warm sweet drink. Do not give alcohol or coffee or other caffeine-containing drinks
8. Monitor breathing and pulse
9. If breathing is ineffective, provide assisted breathing

First aid for Heat Cramps:

1. Place employee in a cool place to rest
2. Give him / her water to drink as much as he / she will take
3. Obtain medical assistance if muscle pain continues

First aid for Heat Exhaustion, if the Employee is Conscious:

1. Place the employee at rest in a cool place, with feet and legs elevated
2. Remove excessive clothing
3. Loosen tight clothing at neck and waist
4. Provide fluids to the employee
5. If the employee is vomiting, give nothing by mouth, ensure an open airway and get medical help immediately

First aid for Heat Exhaustion, if the Employee is Unconscious:

1. Obtain medical assistance if required
2. Place the employee into the recovery position
3. Monitor vital signs and give life saving first aid as needed
4. Give ongoing care to employee until medical help takes over

First aid for Heatstroke:

1. Send for medical assistance immediately
2. To prevent permanent brain damage or death, you must reduce the body temperature quickly
3. The first aider should:
 - Move the person to a cool, shaded area
 - Ensure a clear airway and adequate breathing
 - Remove clothing if necessary
 - Immerse the employee in a cool bath (if possible) and watch him / her closely
 - Sponge the employee with cool water, or place cold packs or cold compresses in the armpit, neck and groin areas, or
 - Cover the employee with wet sheets and fan cool air over the employee with a dry sheet
 - Monitor the employee's temperature and if it rises, repeat the cooling procedure
 - Place the unconscious employee into the recovery position

Environment Canada Wind Chill Chart

Actual Air Temperature T_{air} (°C)

Wind Speed $V_{10\text{ m}}$ (km/h)	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
5	4	-2	-7	-13	-19	-24	-30	-36	-41	-47	-53	-58
10	3	-3	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63
15	2	-4	-11	-17	-23	-29	-35	-41	-48	-54	-60	-66
20	1	-5	-12	-18	-24	-30	-37	-43	-49	-56	-62	-68
25	1	-6	-12	-19	-25	-32	-38	-44	-51	-57	-64	-70
30	0	-6	-13	-20	-26	-33	-39	-46	-52	-59	-65	-72
35	0	-7	-14	-20	-27	-33	-40	-47	-53	-60	-66	-73
40	-1	-7	-14	-21	-27	-34	-41	-48	-54	-61	-68	-74
45	-1	-8	-15	-21	-28	-35	-42	-48	-55	-62	-69	-75
50	-1	-8	-15	-22	-29	-35	-42	-49	-56	-63	-69	-76
55	-2	-8	-15	-22	-29	-36	-43	-50	-57	-63	-70	-77
60	-2	-9	-16	-23	-30	-36	-43	-50	-57	-64	-71	-78
65	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79
70	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-80
75	-3	-10	-17	-24	-31	-38	-45	-52	-59	-66	-73	-80
80	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81

where

T_{air} = Actual Air Temperature in °C

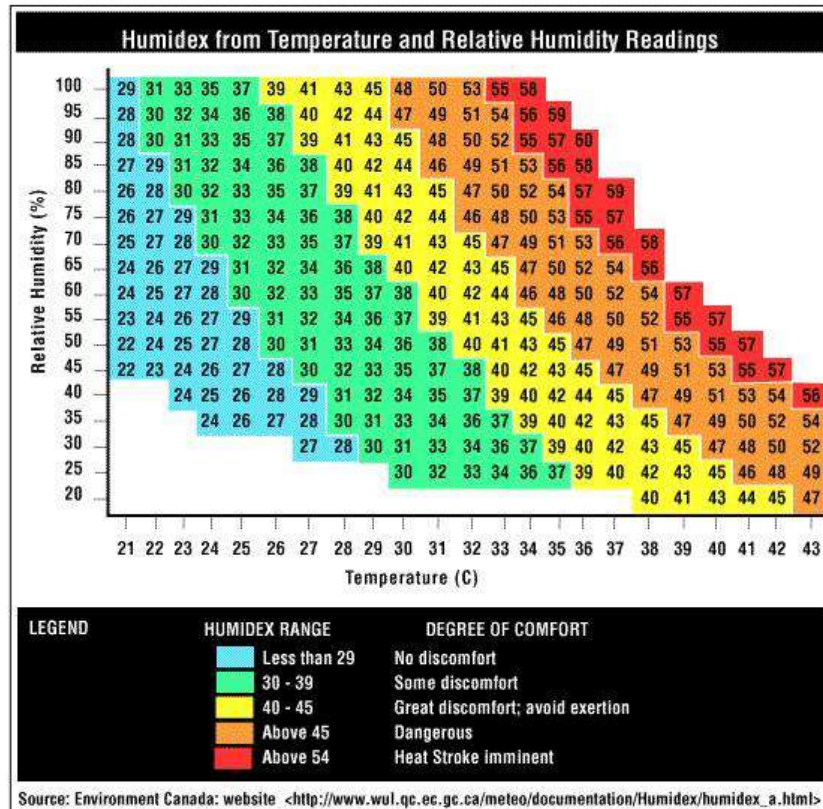
$V_{10\text{ m}}$ = Wind Speed at 10 metres in km/h (as reported in weather observations)

Notes:

1. For a given combination of temperature and wind speed, the wind chill index corresponds roughly to the temperature that one would feel in a very light wind. For example, a temperature of -25°C and a wind speed of 20 km/h give a wind chill index of -37. This means that, with a wind of 20 km/h and a temperature of -25°C, one would feel as if it were -37°C in a very light wind.
2. Wind chill does *not* affect objects and does *not* lower the actual temperature. It only describe how a human being would feel in the wind at the ambient temperature.
3. The wind chill index does *not* take into account the effect of sunshine. Bright sunshine may reduce the effect of wind chill (make it feel warmer) by 6 to 10 units.

Frostbite Guide
Low risk of frostbite for most people
Increasing risk of frostbite for most people within 30 minutes of exposure
High risk for most people in 5 to 10 minutes of exposure
High risk for most people in 2 to 5 minutes of exposure
High risk for most people in 2 minutes of exposure or less

HUMIDEX REFERENCE CHART



PLEASE NOTE: Studies have shown that Tyvek suits increase the temperature relative to the worker by approximately 11 degrees Celsius.

For example, should the ambient temperature be 28 degrees Celsius and the relative humidity is 30% or less, a worker wearing a Tyvek suit would be working in temperatures of approximately 39 degrees Celsius. This means that they can work under normal conditions and should the need arise for hydration breaks the worker is free to choose this.

In another example, should the ambient temperature be 32 degrees Celsius and the relative humidity is 45%, a worker wearing a Tyvek suit would be working in temperatures of approximately 49 degrees Celsius. **At this point, before any work begins, the site foreman must receive written confirmation from the Health & Safety Manager, B&N President, and B&N Vice President before proceeding.** As work proceeds, workers will only be permitted to work for 15 minutes before requiring a mandatory 30-minute cool-down break, which does include decontaminating.

Working Temperature Guidelines for Asbestos Abatement Personnel

1. Temperature **equal to or less than 29 degrees Celsius:** No modification to work.
2. Temperature **between 30 and 39 degrees Celsius:** Workers are to be offered additional breaks as required to allow them to rehydrate, including time allotted to decontaminate.
3. Temperature **between 40 and 45 degrees Celsius:** workers are permitted to work for a maximum of 30 minutes before taking a mandatory 30-minute cool-down break (including time required to decontaminate).
4. Temperature **between 46 and 49 degrees Celsius:** workers are permitted to work for a maximum of 15 minutes before taking a mandatory 30-minute cool-down break (including time required to decontaminate). **Permission must be received from the B&N Health & Safety Manager, B&N President and the B&N Vice President before this work begins.**
5. Temperatures **50 degrees or greater:** work is not permitted.

19.00 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM WHMIS-2015 INCLUDING GHS

19.1.1. PURPOSE

The purpose of the Workplace Hazardous Materials Information System (WHMIS-2015) Program is to establish processes that will ensure that all hazardous chemicals, hazardous products and waste materials used, stored, transported or disposed of by company personnel, are identified and labeled in accordance with Appropriate Provincial Health & Safety Legislation.

19.1.2. SCOPE

The WHMIS-2015 Including GHS Program applies to all Biggs & Narciso Construction Services Inc. (B&N) employees.

19.1.3. RESPONSIBILITIES

Biggs & Narciso Construction Services Inc. Responsibilities:

- Ensure that all hazardous chemicals, hazardous products and waste materials stored, transported or disposed of by company personnel, are identified and labeled in accordance with applicable legislation. This includes WHMIS-2015 (Including the Global Harmonizing System) and the Transportation of Dangerous Goods (TDG)
- Make readily available to employees exposed information regarding hazardous materials by providing a Safety Data Sheets (SDS) file for all work locations where chemicals, hazardous products and / or hazardous waste materials are handled, stored or transported
- Ensure all employees using chemical, hazardous products or handling hazardous waste materials have been trained in hazard recognition, safe handling, storage, transportation, and / or disposal procedures as may be required
- Review on a regular basis or at least annually, the information and training regarding chemicals, hazardous and hazardous materials, instruction and training provided to the employees
- Establish methods to ensure the responsibilities in the purchase, storage, handling and dispose of WHMIS-2015 (Including GHS) hazardous products
- Ensure that training courses are of a duration that permits all training objectives / topics to be adequately covered
- Ensure that training needs are reviewed in consultation with the Joint Health and Safety Committee (JHSC) on an annual basis
- Making updated SDSs for WHMIS-2015 chemical materials and hazardous products available and accessible to all employees whom may potentially be exposed to these products
- Providing copies of all SDSs to the JHSC Representative (this includes SDS for all existing products, new products and revised SDS)
- When updated, providing copies of SDSs to all Project Manager's, Supervisors and appropriate company staff members
- Ensure all WHMIS-2015 chemical materials and hazardous products entering the workplace have appropriate supplier labels and SDSs, including samples provided by external sales agents

KEYWORDS

Hazardous Product: a substance meeting the criteria of one or more of the hazard classes or categories (i.e. compressed gas, flammable and combustible material, oxidizing material) set out in the Hazardous Products Regulation under the Hazardous Products Act.

SDS: an information bulletin summarizing relevant technical information (as required by the Hazardous Products Regulation or other legislation) on a substance, including a list of hazardous ingredients, potential hazards, safe handling procedures and first aid measures.

Supplier: anyone who manufactures, imports, distributes, repackages or sells chemical materials or hazardous products as defined by the Hazardous Products Act and Hazardous Products Regulations.

Supplier Label: a WHMIS-2015 label attached to the hazardous product prior to shipment by the manufacturer or distributor and meeting the requirements of the Hazardous Products Regulation, under the Hazardous Products Act.

Workplace Label: a label produced in the workplace and attached to a hazardous product when it is dispensed into containers other than the original supplier container or when a supplier label becomes illegible. A workplace label contains a product identifier, information on the safe handling of the material and a reference to the SDS.

Supervisory Personnel Responsibilities:

- Advise employees of the location of SDSs for WHMIS-2015 chemical materials and hazardous products
- Advise employees (who may be exposed to WHMIS-2015 chemical materials and / or hazardous products) of the hazards associated with the products used in their workplace
- Provide site specific education and training to employees through daily toolbox talks
- Co-ordinate the provision of generic and product-specific WHMIS-2015 training for employees prior to assigning them to work with chemical materials and / or hazardous products
- Communicate and enforce safe work procedures and personal protective equipment requirements
- Intervene if WHMIS chemical materials and / or hazardous products are being used by sub-contractors in a manner that places the health and safety of any person on a B&N location at risk
- Consider whether the use of any WHMIS-2015-hazardous product is likely to generate health and safety concerns and if so, consider all measures (e.g.: not using the product, using a substitute product, scheduling work after hours or on weekends or increasing ventilation, etc.) to eliminate or minimize exposure
- Ensure that the SDS binder is available to the employees and all its SDSs are current within the preceding 3 years from the last revision date. SDSs are prepared by the manufacturer of the hazardous product

Workers Responsibilities:

- Attend and participate in education and WHMIS-2015 training programs on chemical materials and / or hazardous products as required by B&N
- Use WHMIS-2015-related information and training to protect health and safety on the job, by taking all necessary steps to protect themselves and their co-workers.
- Bring to the attention of their supervisory personnel any concerns about hazardous products (e.g. damaged labels, outdated SDSs, defective personal protective equipment (PPE), health and safety concerns associated with product use).
- Place WHMIS-2015 workplace labels on small containers decanted from bulk containers.
- Participate in identifying and eliminating risks related to handle, removal and dispose of chemicals and hazardous products.

Joint Health and Safety Committee (JHSC) Representatives Responsibilities:

- As part of their monthly physical inspections, randomly check to verify if WHMIS-2015 chemical materials and / or hazardous products are appropriately labeled and that SDSs are available and current
- Once a year, in consultation with a management representative(s), review the WHMIS-2015 training program and determine the employees' familiarity with the information. If deficiencies are identified, the JHSC Representative should recommend retraining employees and / or amending the training program

B&N Manager's and / or Applicable Staff Responsibilities:

- Before requesting a contracted service, obtain copies of any SDSs from the sub-contractor for the product(s) to be used, and make them available to B&N employees as requested
- Review the SDS to determine whether the use of the product(s) will generate any occupational health and safety concerns. If so, consider all measures (e.g. using an alternate product, scheduling work after hours or on weekends, increasing or shutting off ventilation) to eliminate or minimize employee's exposure
- Require sub-contractors have current and legible SDSs on site for WHMIS-2015 chemical materials and / or hazardous products to be used or ensure that WHMIS-2015-related information is requested in the contracted service agreement and is made available by sub-contractors to divisions as a hard copy document, and where requested or applicable in an electronic format (.pdf) document
- Advise B&N employees in advance, of any sub-contracted work involving the use of chemicals, so that sensitive individuals may be accommodated
- Require sub-contractors ensure that all WHMIS-2015 chemical materials and / or hazardous products are adequately labeled

- Require that the contract service agreement makes provisions for all measures (e.g. scheduling work after hours, increasing or shutting off ventilation) to eliminate or minimize staff exposure

19.1.4. PROCEDURE

LABELS

B&N is responsible for ensuring that all hazardous material containers have labels. Labels are the first means of notifying the employee that there is danger. No container holding hazardous materials should be without a label. Employees are to inform their immediate supervisor of any missing, damaged or illegible labels and B&N shall promptly replace the damaged label with a workplace label. Employees are to review the labels for safe handling procedures prior to working with the product.

Workplace Labels

Conditions under which workplace labels are required:

- When a hazardous product is produced in the employer's workplace
- When a hazardous product is transferred from an original supplier container into a workplace container that will be used by more than one employee or that will be left unattended
- When a supplier label has become illegible or has been accidentally removed
- When a hazardous product arrives in bulk without a supplier label

Workplace labels must contain 3 pieces of information:

- Product identifier
- Safe handling procedures
- Reference to safety data sheet

Supplier Labels

Supplier labels are affixed to hazardous products by the manufacturer. The label must be in both English and French and contain the following information:

- Product identifier
- Initial supplier identifier
- Hazard symbol(s)
- Signal word
- Hazard statement(s)
- Precautionary statement(s)
- Supplemental label information

Laboratory Labels can be found in client laboratories.

Piping systems used to transfer hazardous material must use colour-coded tags, placards or other suitable ways to let employees know what hazardous material is contained in the pipes. Also, hazardous materials stored in bulk and not in a container, such as powder or granules, must be clearly marked for the safety of employees.

SAFETY DATA SHEET (SDS)

The SDS is a comprehensive and detailed information bulletin prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures, and all measures. B&N shall acquire

an SDS from the supplier for a hazardous product that is used by B&N employees for that hazardous product if the supplier is required to prepare an SDS.

Information on an SDS aids in the selection of safe products and helps prepare employers and employees to respond effectively to daily exposure situations as well as to emergency situations. SDSs must be made available to all B&N employees.

Procedure for Handling a Chemical

The following information should be obtained from the SDS before handling a chemical:

1. Identify the chemical
2. Understand the hazards as described on the SDS
3. Know the safe handling and storage procedures
4. Know what to do in an emergency
5. Identify and use the Personal Protective Equipment required
6. B&N does not transport bulk chemicals

TRAINING AND EDUCATION

WHMIS-2015 requires employers to ensure that employees who work with or in proximity to a hazardous product are informed about all hazard information received from the supplier and all other hazard information of which the employer is or ought to be aware concerning the use, storage and handling of the hazardous product. The regulation also requires employers to ensure that every employee who works with or in proximity to a hazardous product is instructed in:

1. The contents required on a supplier label and workplace label, and the purpose and significance of the information contained on an SDS
2. Procedures for the safe use, storage, handling and disposal of a chemical or hazardous product.
3. Procedures for the safe use, storage, handling and disposal of a chemical or hazardous product when it is contained or transferred
4. If applicable: methods of identification product in a piping system or vessel and procedures to be followed if there are fugitive emissions
5. Procedures to be followed in the event of an emergency involving the hazardous product

Hazardous Products

WHMIS-2015 ensures that all hazardous materials in the workplace are identified and employees know the hazards and proper procedures to protect themselves. Hazardous products are identified with specific symbols or “pictograms” that serve as identification to highlighting each specific hazard class and one of the two main corresponding hazard groups (Physical Hazards and Health Hazards). In addition to these “Hazard Groups”, Hazard Classes group products together that have similar properties. There are often multiple classes for any one type of hazardous materials or products.



Compressed Gas

1. Any material that is normally a gas which is placed under pressure or chilled and contained by a cylinder is considered to be a compressed gas. These materials are dangerous because they are under pressure.
2. The pictogram is a picture of a cylinder or container of compressed gas.
3. Additional dangers may be present if the gas has other hazardous properties. For example: propane is both a compressed gas and it will burn easily.
4. Safe Handling Procedures:
 - a. Handle with care.
 - b. Do not heat or drop the cylinder.
 - c. Keep the cylinder tightly closed.
 - d. Keep cylinder away from possible sources of ignition.
 - e. Store the cylinders in a designated area.







Flammable



1. Flammable means that the material will burn or catch on fire easily at normal temperatures (below 37.8 degrees C or 100 degrees F).
2. Combustible materials must usually be heated before they will catch on fire at temperatures above normal (between 37.8 and 93.3 degrees C or 100 and 200 degrees F).
3. Common examples include: propane, butane, acetylene, ethanol, acetone, turpentine, toluene, kerosene, Stoddard solvent, spray paints and varnish.
4. The symbol for this class is a flame with a line under it.
5. Flammable and combustible material can ignite easily, and are a potential fire hazard:
 - a. Flammable materials can set on fire at normal temperatures.
 - b. Combustible materials will ignite when heated.
6. Safe Handling Procedures:
 - a. Keep away from heat or other sources of ignition.
 - b. Do not smoke when working with or around the material.
 - c. Keep container tightly closed when not in use.
 - d. Store in a cool, designated, fire-proof area.



Oxidizing

1. Oxygen is necessary for a fire to occur. Some chemicals can cause other materials to burn by supplying oxygen.
2. Oxidizers do not usually burn themselves but they will either help the fire by providing more oxygen or they may cause materials that normally do not burn to suddenly catch on fire (spontaneous combustion).
3. In some cases, a spark or flame (source of ignition) is not necessary for the material to catch on fire but only the presence of an oxidizer.
4. Oxidizers can also be in the form of:
 - a. Gases (oxygen, ozone).
 - b. Liquids (nitric acid, perchloric acid solutions).
 - c. Solids (potassium permanganate, sodium chlorite).
5. Some oxidizers such as the organic peroxide family are extremely hazardous because they will burn (they are combustible) as well as they have the ability to provide oxygen for the fire. They can have strong reactions which can result in an explosion.
6. Oxidizing materials, like oxygen and chlorine bleach may release oxygen, which encourages the burning of flammable and combustible materials.
7. The symbol for oxidizing materials is an "O" with flames on top of it.
8. Safe Handling Procedures
 - a. Keep away from flammable materials.

	<ul style="list-style-type: none"> b. Store in a cool area, away from heat. c. Keep away from sources of ignition. d. Open in a well-ventilated area away from your face.
	<p><u>Toxic</u></p> <ol style="list-style-type: none"> 1. These are materials that are very poisonous and immediately dangerous to life and health, usually after an acute exposure. 2. Serious health effects such as burns, loss of consciousness, coma or death within just minutes or hours after exposure are grouped in this category. 3. Examples of some Toxic materials include carbon monoxide, sodium cyanide, <u>sulphuric acid</u>, toluene-2,4-diisocyanate (TDI), and acrylonitrile. 4. The symbol for Toxic is a skull and crossed bones. 5. Safe Handling Procedures: <ul style="list-style-type: none"> a. Handle the material with extreme caution. b. Do not inhale. c. Avoid skin contact. d. Wear the appropriate Personal Protective Equipment.
	<p><u>Irritant/Harmful</u></p> <ol style="list-style-type: none"> 1. These materials can cause soreness or redness to the skin and eyes, 2. These materials can also cause acute toxicity if ingested or inhaled 3. Safe Handling Procedures: <ul style="list-style-type: none"> a. Do not inhale and avoid skin contact. b. Wear appropriate Personal Protective Equipment. Particularly gloves and eye protection. Consult the SDS sheet for specific requirements. c. Wash hands with soap after use.
	<p><u>Health Hazard</u></p> <ol style="list-style-type: none"> 1. These materials can physically damage or potentially kill an animal or human being or pose a serious health hazard to those involved. This may include; <ul style="list-style-type: none"> a. Dangerous bacteria entering a person's body b. Radioactivity c. Carcinogenic materials d. Problems with breathing or respiration e. Toxicity 2. Safe Handling Procedures: <ul style="list-style-type: none"> a. Do not inhale and avoid skin contact. b. Wear appropriate Personal Protective Equipment - particularly gloves and eye protection. Consult the SDS sheet for specific requirements. c. Wash hands with soap after use.
	<p><u>Corrosive</u></p> <ol style="list-style-type: none"> 1. Corrosive is the name given to materials that can cause severe burns to skin and other human tissues such as the eye or lung (which result in irreversible tissue damage), and can attack clothes and other materials including metal (many cleaners and disinfectants). 2. Common corrosives include acids such as sulphuric and nitric acids, bases such as ammonium hydroxide and caustic soda and other materials such as ammonia gas, chlorine, and nitrogen dioxide. 3. The symbol for a corrosive is a picture of two test tubes pouring liquid on a bar (piece of metal) and a hand with lines coming off of them. 4. Safe Handling Procedures: <ul style="list-style-type: none"> a. Do not inhale and avoid skin contact. b. Wear appropriate Personal Protective Equipment.

	<p><u>Explosive Material</u></p> <ol style="list-style-type: none"> 1. A material is considered to be dangerously reactive if it shows three different properties or abilities: <ol style="list-style-type: none"> a. If it can react very strongly and quickly (called "vigorously") with water to make a toxic gas. b. If it will react with itself when it gets shocked (bumped / dropped), if the temp. or pressure increases. c. If it can vigorously join to itself (polymerization), break down (decomposition) or lose extra water such that it is a more dense material (condensation). If a material is dangerously reactive, it will most likely be described as "unstable". 2. These materials are very unstable. They can react with water to release a toxic or flammable gas and can explode if exposed to shock, friction or an increase in temperature. 3. Examples of these products are ethyl acrylate, vinyl chloride, ethylene oxide, picric acid and anhydrous aluminum chloride. 4. Most of these materials can be extremely hazardous if they are not handled properly because they can react in such a quick manner very easily. 5. Safe Handling Procedures: <ol style="list-style-type: none"> a. Keep away from heat. b. Open container carefully, and avoid contact with water, shock and friction. c. Wear appropriate Personal Protective Equipment. d. Store in a cool, flame-proof area.
	<p><u>Dangerous to The Environment</u></p> <ol style="list-style-type: none"> 1. Any Substance with this label, can kill or harm any living thing within an ecosystem or environment. 2. Special consideration must be given when disposing of these products. 3. Safe Handling Procedures: <ol style="list-style-type: none"> a. Open container carefully and avoid contact with water. b. Wear appropriate Personal Protective Equipment.

There are nine basic categories of materials that are not covered by WHMIS-2015. When WHMIS-2015 was created it was recognized that a lot of safety information was already being transmitted to employees for many of these products under other laws. To prevent delay in starting WHMIS-2015, exclusions were made.

They are:

1. Consumer restricted products (those products sold to people in regular stores that are already labeled following the rules of the Hazardous Products Act)
2. Explosives (as defined by the Explosives Act)
3. Cosmetics, drugs, food or devices (as defined by the Food and Drug Act)
4. Pest control products: pesticides, herbicides, insecticides, etc. (as defined by the Pest Control Products Act)
5. Radioactive materials (as defined by the Nuclear Safety and Control Act)
6. Wood and products made of wood
7. A manufactured article
8. Tobacco or products made of tobacco
9. Hazardous wastes

NOTE: Materials which fall under WHMIS-2015 follow the Transportation of Dangerous Goods Act and Regulations while they are in transport (shipment).

HAZARDOUS WASTE MANAGEMENT

Hazardous Waste, because of its quantity, concentration or physical, chemical or infectious characteristics may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored or disposed of, or otherwise mismanaged. A waste that contains certain substances determined to be harmful at or in excess of the maximum concentration as defined by the Appropriate Provincial Health and Safety Regulations relating to all designated substances and / or hazardous products. These Hazardous Waste chemicals will be defined by the site-specific Job Safety Analysis (JSA) and communicated and trained during the completion of the daily toolbox talk.

B&N shall ensure that hazardous waste is handled and stored safely by means of a training and information program and by labels or signs that identify the waste. These labels and signs indicate the precautions to be taken when handling or in cases of exposure. This procedure is defined by the hazardous chemical storage and the handling of hazardous chemicals procedure listed under within the Site-Specific controls listed below.

Five common designated substances and / or hazardous products B&N may encounter in site work include:

1. **Asbestos** used in building such as insulation
2. **Lead** used in paint applications and in solder used in joints of copper pipe
3. **Mercury** used in thermometers, pressure gauges, electrical switches and relays
4. **Silica** used in concrete, masonry, stone and boiler refractory
5. **Arsenic** used in insecticides, weed killers and various alloys

NOTE: B&N requires that a list of all designated substances and / or hazardous products at a job site be provided to the sub-contractor by the owner. These common designated substances will be defined by the site-specific Job Safety Analysis (JSA) and communicated and trained during the completion of the daily toolbox talk.

B&N will ensure that an employee who may be exposed to any common designated substances:

- (a) Are informed of the health hazards associated with exposure to that substance,
- (b) Are informed of measurements made of airborne concentrations of harmful substances at the work site, and
- (c) Are trained in procedures developed by the employer to minimize the employee's exposure. Training may be performed in-house or by a 3rd Party.

B&N will ensure a health assessment is completed where required. The person with custody of the health assessment record must ensure that no person, other than the employee or health professional who conducts the health assessment, has access to the exposed employee's health assessment unless:

- (a) the record is in a form that does not identify the employee, or
- (b) the employee gives written permission for access by another person.

B&N will ensure that an employee undergoes a health assessment:

- (a) not more than 30 calendar days after the employee becomes an exposed employee, and
- (b) every two years after the first health assessment.

Exposed employees may refuse to undergo part or all of a health assessment by giving the employer a written statement refusing it. B&N will pay the cost of the health assessment and ensure that, if it is reasonably practicable, a health assessment is performed during normal work hours.

DESIGNATED SUBSTANCE SURVEY (DSS)

A DSS identifies the designated substances and / or hazardous products present, their locations and concentrations. This information allows sub-contractors involved in B&N activities to take appropriate steps to reduce the exposure of employees and the general public to the designated substances and / or hazardous

products that may be present.

When a designated substance and / or hazardous product is determined to be present in the workplace, B&N is required to review the work methods and assess the likelihood of employee exposure as listed under the Chemical storage and the handling of chemicals procedure as defined within the B&N Program. B&N will review the provincial limits per the Appropriate Provincial Health and Safety Regulations on all designated substances and / or hazardous products.

When there is likelihood of employee exposure, our hazardous chemical storage and the handling of hazardous chemical procedure listed under Site-Specific controls listed below must be instituted that includes engineering controls, work practices, hygiene practices, record keeping and medical surveillance, training, and emergency preparedness. Proper disposal sites and / or methods of disposal must also be established when handling a designated substance and / or hazardous products.

SITE CONTROL

Of primary importance at B&N is the control of contamination. This control is accomplished by the delineation and maintenance of defined, secured working limits. Operations will therefore be confined to designated areas and access and egress to these areas will be hazardous.

To facilitate site-specific control, the extensive use of physical barriers will be used to prevent contamination of personnel and the spreading of contamination throughout the site. The barriers will be placed in such a manner so as to limit access to a specified route and employees leaving the site will be either examined for contamination or will decontaminate fully.

In addition, haul vehicles will undergo decontamination as necessary and suitable hygiene facilities will be located outside of the work area and will be directly accessible from the de-suiting area.

For some projects, it may also be necessary to maintain site security during nonworking hours. If this is the case, B&N and / or the client may plan to make the arrangements for this site coverage, depending upon the confines of the contract.

Hazardous Chemical Storage and the Handling of Hazardous Chemical

When hazardous chemical storage and the handling of hazardous chemicals by B&N employees within any B&N location, supervisory personnel will provide suitable and appropriate monitoring equipment, and information to be taken to avoid injury from storage and handling of chemicals as defined by the site-specific HASP.

Once hazardous conditions relating to chemical storage and the handling of chemicals have been identified and warranting the use of additional actions as defined by the SDS, B&N supervisory personnel will at the beginning of each work shift conduct a Job Safety Analysis ensuring any defined contamination limits are not exceeded in any area where an employee is usually present.

The JSA must be job site specific which will identify;

1. The substances to which an employee may be exposed
2. Ensure adequate engineering controls are in place to prevent, to the extent that is reasonably practicable, the release of the substance into the place of employment
3. Define compliant personal protective equipment to the extent that is practicable, any significant risk to employees from the substance
4. The conditions under which an employee will be required or permitted to work, including the frequency, quantity and exposure
5. No employees personal exposure exceeds the equivalent of the contamination limit set out under the Appropriate Provincial Health & Safety Legislation as applicable

6. Emergency procedures to be implemented in the event of an accumulation, employee contact, spill or leak. This JSA shall be completed for each work site, outlining the hazards that an employee may be exposed to and the necessary controls to eliminate or minimize the hazards. The specific controls relating to either chemical storage or the handling of chemicals as defined within the JSA and under the Appropriate Provincial Health & Safety Legislation will be communicated and trained prior to the commencement of work during the daily toolbox talks.

NOTE: While employees are using hazardous chemicals or are in proximity of hazardous chemicals storage areas, smoking, drinking or eating will not be permitted. Only in assigned or designated areas will these activities be permitted.

All tools, equipment and devices used during the work shall be properly decontaminated following completion of the work. All rags, liquids and materials exposed to the hazardous waste shall be considered as hazardous material and disposed of or decontaminated appropriately.

WHMIS-2015 POLICY STATEMENT

This policy is intended to ensure, at a minimum, compliance with the requirements of the Workplace Hazardous Materials Information System (WHMIS-2015). It applies at all B&N locations where WHMIS-2015-hazardous products are used and / or stored.

WHMIS-2015 was developed by labour, industry, and the federal, provincial and territorial governments. It is a comprehensive, legislated program that ensures your "Right to Know" about the hazardous materials you are working with. These WHMIS-2015 requirements were established to give employers, employees and the public information about hazardous materials used in the workplace.

WHMIS-2015 is incorporated into provincial legislation that can be summarized as, if you work with, or in proximity to, chemical materials and / or hazardous products your employer must take several steps to ensure that the information you need to work safely with those hazardous materials is available to you and understood. These WHMIS-2015 requirements have specific stipulations for suppliers, employers and employees.

The 3 main elements of WHMIS-2015 include:

1. **Labels** which must be placed on all chemical and hazardous materials to identify the risks and precautions that should be taken for safe handling.
2. A **Safety Data Sheet** (SDS) provides information about the chemical product and is provided by the supplier of the product. The SDS are to be read before handling any chemical and / or hazardous material.
3. **Training and Education** needed to interpret and understand the information on the labels and the SDS.

NOTE: Some hazardous substances may be exempt from certain WHMIS-2015 requirements such as labels and SDSs. These substances are generally regulated by other legislation. Regardless of these exemptions, employees required to use these substances shall receive training on their hazards and in the safe handling, storage and transport procedures. SDSs shall also be kept at the workplace and provided to the Joint Health and Safety Committee (JHSC) representatives.

Exemptions include:

1. An explosive within the meaning of the Explosives Act (Canada).
2. A cosmetic, device, drug or food within the meaning of the Food and Drug Act (Canada).
3. A hazardous product within the meaning of the Pest Control Products Act (Canada).
4. A prescribed substance within the meaning of the Atomic Energy Control Act (Canada).
5. A product, material or substance packaged as a consumer product and in quantities normally used by the consuming public.

Chemicals can be solids, liquids and / or gases, and are found in a variety of work areas, places and job sites, including offices, rooms, basements, walls, ceilings, roofs, paints, corridors, drums, bags, tanks, pressure vessels and process systems. Chemicals include, but are not limited to:

- Portable fire extinguishers
- Gas cylinders
- Most aerosol cans
- Propane
- Cleaning chemicals
- Diesel fuel
- Oxygen
- Gasoline fuel

Under the EHS Policy and Procedures, B&N insists on compliance with all Applicable Provincial Health and Safety Legislative requirements and regulations, and endeavours to apply the legislation equally to all B&N employees.

20.00 HOUSEKEEPING AND MATERIAL STORAGE

20.1.1. PURPOSE

The purpose of the Housekeeping and Material Storage Program is to establish processes that will ensure that all work areas are free of debris and clutter.

20.1.2. SCOPE

The Housekeeping and Material Storage Program applies to all Biggs & Narciso Construction Services Inc. (B&N) personnel and operations. Housekeeping is the conscious action of maintaining a clean and organized work environment at all B&N locations.

20.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Housekeeping and Material Storage program is implemented at all B&N locations.

Director / Operations Manager / Project Manager / Supervisor Responsibilities:

- Implementing the Housekeeping and Material Storage Program in a fair and equitable manner within their work locations
- Ensure Housekeeping and Material Storage Program are defined by the site-specific health and safety plan (HASP) and communicated during the daily safe work permit meetings
- Provide education and training to employees through daily safe work permit meetings
- Brief all workers and contractors on the Housekeeping and Material Storage Program
- Provide education and training to workers
- Take prompt and appropriate action whenever the workplace becomes too cluttered or disorganized.

Worker Responsibilities:

- Take reasonable care to not expose themselves or others to unnecessary health or safety risks.
- Clean up after work activities or as required to ensure a clean workplace
- Notify the Director / Operations Manager / Project Manager / Supervisor immediately if workplace is too cluttered or filled with debris
- Adhere to these guidelines and considerations while working on any B&N location

Sub-Contractors Responsibilities:

- Recognize the importance of good housekeeping and material storage practices
- Ensure that their work and lay-down areas are maintained in an orderly fashion and free of debris at all times
- Follow the requirements under the site-specific HASP and attend the daily safe work permit meetings

20.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N considers cluttered work areas unacceptable and a major cause of workplace injuries. B&N believes it is a function of each employee to maintain a clean and orderly work area thereby minimizing hazards to surrounding employees.

GENERAL REQUIREMENTS

The following are examples of B&N general requirements;

- Garbage, material, or tools will not be permitted to be thrown from elevations. Lower these in containers or special chutes designed for that purpose
- Nails shall not be left protruding from materials; they must be bent over or removed completely
- Materials must be well secured, especially at elevations, to avoid movement during windy conditions
- Emergency equipment (fire extinguishers / hoses / exits / emergency PPE, etc.) shall be kept clear of clutter at all times
- Hoses, cables and cords will be kept orderly to prevent tripping hazards
- Electrical and welding cables must not lie in pools of water
- Unused hoses and cables will be rolled up and stored
- Floors shall be reasonably level and maintained free from splinters, holes, loose boards or tiles and kept reasonably dry
- All employees will keep their work location clean and free from materials or equipment that could cause workers to slip or trip
- Materials, of any kind, must not be stored near switchgears, heaters or battery charging systems.
- Spills must be cleaned up immediately and reported to your Director / Operations Manager / Project Manager / Supervisor
- Hazardous areas not intended to be accessible to workers must be secured by locked doors or equivalent means of security, not used as general storage areas and must not be entered unless safe work procedures are developed and followed
- Floors, platforms, ramps, stairs and walkways available for use by employees must be maintained in a state of good repair and kept free of slipping and tripping hazards
- If such areas are taken out of service, B&N must take reasonable means for preventing entry or use, by use of signs, physical barriers and warning tape.

ACCESS / EGRESS

- A safe means of access and egress must be maintained for all working areas at B&N locations
- Stairs are to be kept in good condition, clean and free of loose materials at all times
- Where doors do not open onto a landing; doors shall be clearly marked with a sign stating “**Danger! Stairway - No Landing**” or equivalent wording
- Emergency exit doors shall be maintained free of any obstructions or clutter.

WASTE

- Deposit oily and paint soaked rags in approved non-combustible waste containers with self-closing lids
- Remove waste progressively from the work area, or more often if necessary
- Flammable waste must not accumulate in areas around buildings or in flammable storage areas.
- Hazardous waste must be disposed of according to the specific Material Safety Data Sheet (MSDS)
- Place a portable fire extinguisher near (15-20 feet) the waste disposal area or any flammable container.
- Properly dispose of scrap materials and store separately where required
- Waste material must not be allowed to accumulate around machinery, access / egress points, equipment or on floors or ground area immediately outside of a building
- When demolishing a structure, the supervisory personnel must provide a chute for use in removing debris and dust if the dropping debris or dust creates a risk to the safety or health of a worker or any other person.

WORK AREA

- Keep work area clean and free of dust, dirt, waste and scrap material when possible
- During maintenance, all used parts must be disposed of or stored in the appropriate areas; tools and equipment must be gathered and stored
- Work area must be arranged and progressively maintained to allow the safe movement of workers, equipment and materials.

MATERIAL STORAGE

When storing materials:

- Material must be stored so as not to create a hazard to workers
- Stacked materials or containers must be stabilized by interlocking, strapping or restraining by other means
Pile size must not interfere with the proper operation of machines or other equipment
- Leave adequate space under automatic sprinkler systems (18 inches or as directed by Appropriate Provincial Health & Safety Legislation)
- Pile size must not interfere with the distribution of natural or artificial light, not obstruct aisles or traffic lanes and not interfere with ventilation
- Materials must not be stored in front of sprinkler system controls, electrical panel boxes, fire hoses, emergency exits, fire extinguishers, first aid kits or eye wash stations
- Materials must not be stored in aisles or in front of exits, entrances or loading areas
- Materials must not be stacked in aisles or in overcrowded in storage areas
- Materials will be stored in bins, pallets, and skids or racking. Racking must be engineered, secured, and inspected for damage or defects. All racking should have capacities posted on the vertical or horizontal supports
- Combustible materials must not be allowed to accumulate in service rooms, boiler rooms, garbage rooms, janitors' closets, compressor rooms or electrical service rooms
- Broken packages or containers must be removed, repackaged and relabeled as soon as possible
- Material must be stored and secured on surfaces that are capable of supporting the weight of the material
- Material must not be stacked to such a height that would render it unstable
- Follow manufacturer storage / handling and safe use instructions of all materials stored at B&N.

LARGE CONTAINERS AND BARRELS

- Stack large containers on a solid, level surface. Sizes of containers that are stacked must not be intermixed
- As a general rule of thumb, the height of a stack of barrels can be three times the minimum base diameter of the container
- If barrels are stored on end they must have planks between the rows and block the ends
- If barrels are stored on their sides, chock the first row to prevent the barrels from rolling and pile in a pyramid shape for stability or store on special racks.

LUMBER

- Stabilize with transversal supports or wedges if the piles are more than 1.2 m high. If the lumber is piled mechanically, the piles can be up to 6 meters (20 feet) high, if the lumber is piled manually, the piles must not exceed 1.8 meters (6 feet).
- Check piles regularly for signs of shifting. Store lumber in a well-ventilated area in separate piles according to size and shape
- Arrange in horizontal layers, crisscrossed and slightly inclined, separated by tie pieces
- The ends of the lumber must not protrude out into walkways.

PIPES AND BARS

- Pile pipes and bars on a solid, level floor in layers with strips of wood or iron between the layers ensuring chocking of the ends of the piles
- Racks or solid shelves can be used for larger pipes and bars. Incline the rack toward the back so the bars do not roll forward. Secure pipes and bars to prevent falling.

RACKS

- Must be engineered, designed, constructed and maintained to support the load placed on them and be constructed on a firm foundation.

NOTE: Cylindrical Objects must be piled symmetrically with each unit in the bottom row chocked or wedged to prevent motion if stored on their sides.

TOOLS

- Tools must not be left on floors, passageways, stairways or elevated areas.
- Store tools in a proper place when not in use and place crowbars or pinch bars on a flat, safe place on the floor when not in use. Collect tools and gear must be stored in their proper place at the end of each work shift.

21.00 CHEMICAL STORAGE

21.1.1. PURPOSE

The purpose of the Chemical Storage Program is to establish processes that will ensure that all work areas are free of hazards relating to chemical storage and handling.

A chemical is any substance made up of chemical elements, and considering its properties can react to other substances. The storage of chemicals means an allocated safe area that keeps the chemical substance from reacting to other substances, and keeps people from coming into accidental contact with it.

21.1.2. SCOPE

The Chemical Storage Program applies to chemical storage and the handling of chemicals by Biggs & Narciso Construction Services Inc. (B&N) employees.

21.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Chemical Storage Program is implemented across all B&N locations

Supervisory Personnel Responsibilities:

- Implementing the Chemical Storage Program in a fair and equitable manner within all B&N locations as defined on the appropriate Safety Data Sheet (SDS)
- Brief all workers and trade contractors on the Chemical Storage Program
- Provide education and training to employees through daily safe work permit meetings
- Take prompt and appropriate action when contraventions of the Chemical Storage Program have been reported
- Ensure a 4A40BC fire extinguisher is located near (15-20 feet) or in the immediate vicinity of chemical or fuel storage

Worker Responsibilities:

- Take reasonable care to not expose themselves or others to unnecessary health or safety risks.
- Clean up after work activities or as required to ensure a clean workplace
- Notify supervisory personnel immediately if chemical hazards exist in the workplace
- Adhere to these guidelines and considerations while working at any B&N location

21.1.4. PROCEDURE

GUIDING PRINCIPLES

Chemical storage and the handling of chemicals by B&N employees, is to be done following the manufacturer's handling procedures found on the SDS. Supervisory personnel must ensure a 4A40BC fire extinguisher is located near (15-20 feet) or in the immediate vicinity of chemical or fuel storage.

When Chemical storage and the handling of chemicals by B&N employees within any B&N location, supervisory personnel will provide suitable and appropriate monitoring equipment, and information to be taken to avoid injury from storage and handling of chemicals as defined by the site-specific HASP.

Once hazardous conditions relating to chemical storage and the handling of chemicals have been identified and warranting the use of additional actions as defined by the SDS, B&N supervisory personnel will, at the beginning of each work shift, conduct a Job Safety Analysis ensuring any defined contamination limits are not exceeded in any area where an employee is usually present.

The JSA must be job site specific which will identify;

1. The substances to which a worker may be exposed
2. Ensure adequate engineering controls are in place to prevent, to the extent that is reasonably practicable, the release of the substance into the place of employment
3. Define compliant personal protective equipment to the extent that is practicable, any significant risk to workers from the substance
4. The conditions under which an employee will be required or permitted to work, including the frequency, quantity and exposure
5. No workers personal exposure exceeds the equivalent of the contamination limit set out under the Appropriate Provincial Health & Safety Legislation, as applicable
6. Emergency procedures to be implemented in the event of an accumulation, employee contact, spill or leak

This JSA shall be completed for each work site, outlining the hazards that an employee may be exposed to and the necessary controls to eliminate or minimize the hazards. The specific controls relating to either chemical storage or the handling of chemicals as defined within the JSA and under the Appropriate Provincial Health & Safety Legislation will be communicated prior to the commencement of work during the daily safe work permit meetings.

HAZARDOUS CHEMICAL

1. Refer to SDS for specific information on each product.
2. Follow manufacturer's recommendations for storage
3. Observe all restrictions concerning heat, moisture, vibration, impact, sparks and safe working distance.
4. Post warning signs where required
5. Have appropriate quantities of spill clean up material available and in close proximity.
6. For decanting, dispensing and handling, store empty containers in secure area away from full containers being used
7. An area in which material may be dropped, dumped or spilled must be guarded to prevent inadvertent entry by employees, or protected by adequate covers and guarding

FLAMMABLES

Flammable materials (aerosols, gases, liquids, hydrocarbons, solids, and reactive materials) ignite easily, and are a potential fire hazard.

Flammable liquids are very dangerous in the workplace especially if there is insufficient ventilation. Vapours can travel great distances to an ignition point. The flame can then travel back along the vapour trail to the flammable liquid where an explosion may occur.

Hydrocarbons or chemicals must never be intentionally spilled onto the ground or into the sewer system. Spills must be reported and cleaned up immediately to avoid environmental contamination and production of a vapour trail.

Always follow the SDS storage recommendations. The following are general recommendations only:

1. Large quantities of flammables must be stored away from main buildings
2. Ensure a 4A40BC fire extinguisher is located near (15-20 feet) or in the immediate vicinity of chemical or fuel storage
3. Flammable materials must be protected from excessive temperature, shock or vibration

4. Only small quantities of flammables must be stored in fireproof safety cabinets. Safety cabinets must be vented, metal and lockable
5. Flammables shall be stored away from ignition sources such as flames, heat, sunlight or sparks
6. Flammables must be stored away from oxidizing substances, susceptible spontaneous heating materials, explosives and materials that react with air or moisture to produce heat
7. Only quantities of flammables required for immediate use must be stored in the work area
8. Temperatures in the storage area must not exceed the flammable materials flash point
9. Flammable solids must not be stored near oxidizing materials, corrosives or explosives
10. Containers of flammables must be kept tightly closed and be electrically grounded or bonded while contents are transferred from one container to another
11. Containers of flammables must not be stacked
12. Chemical storage areas must be well ventilated and stored in approved containers
13. Empty flammable containers must be kept in a separate storage area and closed
14. There must be a no-smoking sign posted outside any chemical or fuel storage area

COMPRESSED GAS CYLINDERS

1. Store and move cylinders in the upright position. Secure cylinders upright with chains or rope
2. Lock up cylinders to prevent vandalism and theft
3. Wherever possible, store cylinders in a secure area outdoors or in a well-ventilated area
4. Keep full cylinders apart from empty cylinders
5. Store cylinders of different gases separately
6. Keep cylinders away from ignition sources such as flames, heat, sunlight or sparks
7. When heating with propane, keep cylinders at least 4.5 meters away
8. Protective valve caps must be in place when the cylinders are not in use or when being moved
9. Cylinders must not be placed where they may become part of any electric circuit or inadvertently struck by welding rods
10. Use proper equipment for transporting and hoisting cylinders in order to keep them secure
11. Close valves on cylinders when empty, not in use or while being moved

22.00 OCCUPATIONAL HEALTH

22.1.1. PURPOSE

The purpose of the Occupational Health Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of health hazards in the workplace. Health hazards are identified as chemical, physical or biological agents that may cause occupational disease.

22.1.2. SCOPE

The Occupational Health Program applies to all Biggs & Narciso Construction Services Inc. (B&N) operations where potential physical, chemical or biological hazards may exist.

22.1.3. RESPONSIBILITIES

Employer Responsibilities:

- Take all measures reasonably necessary in the circumstances to protect employees from exposure to a hazardous physical, biological or chemical agent because of the storage, handling, processing, or use of such agent in all B&N locations
- Ensure known site level Occupational Health hazards and objectives are defined by the site-specific health and safety plan (HASP)
- Ensure a daily walkthrough survey is conducted through our daily safe work permit to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact
- Conduct a reassessment when there is a change in work conditions which may increase the exposure, such as a change in production rate, process, or equipment
- Provide education and training to employees through daily safe work permit meetings
- Monitor the use or presence of, or an employee's exposure to, any physical, chemical substance or any biological substance that may be hazardous or harmful to the health or safety of an employee
- Where reasonably practicable, substitute a less hazardous or harmful chemical substance or biological substance for a hazardous or harmful chemical substance or biological substance
- Implement engineering controls to prevent exposure to hazardous physical, biological or chemical agents where practicable
- Where engineering controls are not in existence, not obtainable, not reasonable or not practical to adopt, B&N will install or provide administrative controls for the duration or frequency of the exposures. The nature of the process, operation or work may render these administrative controls ineffective because of a temporary breakdown of such controls or the limitations, B&N shall provide and require all employees to wear and use, personal protective equipment (PPE) appropriate in the circumstances to protect all B&N employees
- Where reasonably practicable, reduce any contamination of the place of employment by a physical, chemical substance or biological substance
- Inform the employees of the nature and degree of the effects to their health or safety of any physical, chemical substance or biological substance to which the employees are exposed in the course of their work through our daily safe work permit meetings
- Work with the project owners and our Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) to develop and maintain a list of all physical, chemical and biological substances within the workplace
- Work with the JHSC / JOHSC to identify controlled products in the workplace
- Ensure that any employee who may be exposed to a biological, chemical or physical agent that may endanger the employee's safety or health shall be trained,
 - a. To use the precautions and procedures to be followed in the handling, use and storage of the agent
 - b. In the proper use and care of required personal protective equipment; and

- c. In the proper use of emergency measures and procedures
- The employee is informed of measurements made of airborne concentrations of harmful substances in the workplace

The employer shall take all practicable steps to prevent exposure of an employee, to an extent that is likely to be harmful to the employee to:

1. A physical, chemical substance or biological substance that may be hazardous, or
2. A chemical substance or biological substance in combination or association with any other substance present that may be hazardous

Workers Responsibilities:

- Follow the procedures outlined by B&N under the site-specific HASP
- Apply all knowledge gained through the training program and the daily safe work permit meetings

Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) Responsibilities:

- Work with B&N to identify controlled products in the workplace
- B&N shall make available to the committee or representative if there is no committee, the results of any measurements of workplace exposure to, and contamination of a place of employment by a chemical substance or biological substance to the employees

22.1.4. PROCEDURE

GUIDING PRINCIPLES

Safe work practices and good personal hygiene habits are essential in limiting exposure to various health hazards. B&N strongly believes occupational health awareness is important for all its employees, and through education will encourage safe work practices and good personal hygiene.

B&N regularly contracts work with asbestos, lead and mould. B&N employees may, through different contracts, work with other chemical and biological substances at the client's workplace. In those circumstances, B&N will ensure specific Job Safety Analysis (JSA) are completed defining the required controls to eliminate or minimize the risk of exposure are implemented and training will be provided to the employees.

These JSA's shall be completed for each work site, outlining the hazards that an employee may be exposed to and the necessary controls to eliminate or minimize the hazards. The specific controls relating to either occupational health as defined within the JSA and under the Appropriate Provincial Health & Safety Legislation will be communicated prior to the commencement of work during the daily safe work permit meetings.

No B&N employees will be exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by the American Conference of Industrial Hygienists (ACGIH) or the Appropriate Provincial Health & Safety Legislation.

ROUTES OF ENTRY

Chemical, physical or biological agents enter the body through 4 routes of entry:

1. **Ingestion** - Entry through the mouth by eating, drinking or smoking with contaminated hands (i.e. lead or organophosphate insecticides). Always wash hands or any affected part of the body immediately after use of a hazardous product
2. **Skin** – When the chemical gets on your skin, it enters your skin, it can reach your bloodstream and enter different parts of your body. The skin protects the internal organs of the body from the outside environment. The skin also has a protective layer of oils and proteins, which help to prevent injury or penetration by harmful

substances. An industrial skin disease such as dermatitis is a result of skin contact with workplace substances such as solvents, epoxy resins, acids and cleaning products

3. **Inhalation** - Breathing it through your nose and mouth into your lungs is one of the common routes of entry into the body. Gases, dusts and smoke can enter your body and cause damage to your respiratory system or they can pass through the lungs to other parts of the body
4. **Injection** - Many hazardous agents can be injected into the body inadvertently or otherwise (i.e. stepping on a nail or a hypodermic needle puncturing the skin.)

Hazardous materials in the workplace may cause disease in the body at four main sites:

1. Where they enter the body – entry routes such as the lungs, skin and intestines
2. In the blood that carries them throughout the body
3. In the central nervous system
4. In the organs, which have the ability to concentrate toxic agents and remove them from the body: i.e. the liver, kidneys and bladder

B&N employees who handle or use corrosive, poisonous or other designated substances and / or controlled products likely to endanger their health shall be provided with washing facilities with clean water, soap and individual towels. B&N will provide emergency washing facilities within a work area where an employee's eyes or skin may be exposed to harmful or corrosive materials or other materials that may burn or irritate. This area shall be kept accessible to B&N employees at all times. B&N may provide a personal eyewash unit to an employee where required. If an employee has used a personal eyewash unit to flush and prevent a potential eye injury or the fluid has become contaminated, this unit shall be replaced immediately.

B&N employees shall NOT consume, take food, drink or bring any tobacco products in a room, area or place where any potential designated substances and / or controlled products may be exposed to a B&N employee.

If the Hazard Assessment reveals that an employee may be at risk of overexposure to an airborne contaminant, B&N will ensure that air sampling is conducted to assess the potential for overexposure. Control measures for dusts and airborne contaminants include vacuuming, ventilation, forced air, wet sweeping, wet shoveling or other suitable means will be implemented by B&N.

TOXIC EFFECTS

Once the hazardous agent has entered the body, it may have a toxic effect:

1. **Acute health effects** - An immediate or very soon after the employee's exposure will result in an adverse health effect resulting from (usually) one exposure. For example, an allergic reaction or carbon monoxide poisoning
2. **Chronic health effects** - An adverse health effect resulting from one or repeated exposures to a material over a long period of time. They are normally permanent conditions. For example, asbestosis from long-term exposure to asbestos

CHEMICAL AGENTS

Chemical hazards occur when excessive airborne concentrations in the form of a gas, liquid, vapour, fume, mist or dust which can be inhaled or absorbed through the skin.

1. **Fume** - Small solid particles suspended in air formed by molten metals or plastics (i.e. welding fumes)
2. **Mist** - Small liquid droplets suspended in air (i.e. oil or paint spray.)
3. **Gas** - Gases occupy the entire space in which they are contained. They can be changed to a liquid or solid state by increased pressure or decreased temperature. Gases that do not exist as a solid or liquid at room temperature and pressure
4. **Vapor** - Gaseous form of substances normally in a liquid or solid state.
5. **Dust** - Solid particles suspended in air generated by mechanical action on a solid such as grinding or crushing

6. **Smoke** – Formed when a material containing carbon is burned. Smoke generally contains droplets as well as dry particles

PHYSICAL AGENTS

Physical hazards in the workplace may have immediate or long term adverse health effects including, but not limited to noise, vibration, temperature extremes, ionizing radiation and non-ionizing radiation.

Noise

Noise is unwanted sound that can be conducted through solids, liquids or gases and can have both physiological and psychological effects. Physiological effects can include both permanent and temporary hearing loss.

Vibration

The vibration from percussion tools and chainsaws at specific frequencies can produce vibration-induced diseases.

B&N shall ensure,

- To the extent practicable, that employees are not exposed to vibration in excess of the limits specified for hand-arm or whole-body vibration
- The purchase and or rental of tools with anti-vibration devices where practicable
- If the manufacturer of equipment that produces levels of vibration are in excess of the vibration exposure limits and does not label the equipment to identify the hazard, B&N is responsible for providing this awareness to the employee
- The proper PPE will be provided to employees where vibrations may be in excess of the vibration exposure limits
- Where required, develop and implement an exposure control plan as defined under the site-specific HASP

A control plan will be developed using an evaluation of hand-arm vibration and whole-body vibration and defined the required controls under the site-specific HASP.

Ionizing Radiation

Ionizing radiation can penetrate the skin and cause damage to tissue in the body (i.e. X-rays). Special permits and procedures are required for use or exposure of ionizing radiation in the workplace. B&N does not possess any equipment with an X-ray source.

It is not B&N's intent to have any employees exposed to ionizing radiation. In the event that the employees will be working within this environment, training will be provided to the employees prior to the start of the project and specific JSA and Emergency Response Plans will be developed along with personal dosimetry devices provided if there is a risk of the employee receiving an equivalent dose of greater than 2mSv will be developed within the site specific HASP as required.

In the event that an employee is exposed to ionizing radiation, the following procedures will be followed as outlined in the Nuclear Safety and Control Act:

An employee's exposure to ionizing radiation must not exceed any of the following:

- (a) an annual effective dose of 20 mSv (Millisievert)
- (b) an annual equivalent dose of (i) 150 mSv to the lens of the eye, (ii) 500 mSv to the skin, averaged over any 1 cm² area at a nominal depth of 7 mg/cm², regardless of the area exposed, or (iii) 500 mSv to the hands and feet

If for any reason that there is a risk to any worker of an effective dose rates greater 2 mSv all work must be stopped and B&N EH&S must be notified.

B&N must ensure that the exposure of employees to ionizing radiation is kept as low as reasonably achievable below the exposure limits. B&N must ensure that an employee's exposure to non-ionizing radiation does not exceed the exposure limits specified under the Appropriate Provincial Health & Safety Legislation.

If an employee may exceed an action level for ionizing radiation greater than 2mSv or action level for non-ionizing radiation, B&N must develop and implement an exposure control plan. The instructions to employees developed must be posted or otherwise available in the work area or near the applicable equipment controls.

Unless exempted by the WSIB, if an employee exceeds or may exceed the action level of 2mSv of ionizing radiation, the employer must ensure that the employee is provided with and trained in the proper use of personal dosimeter acceptable to the WSIB and the International Commission of Radiation Protection.

Except as otherwise determined by the WSIB, B&N must conduct a radiation survey for ionizing radiation in accordance with the standard practice specified under the applicable Safety Code or the regulations under the Nuclear Safety and Control Act (Canada) when,

- (a) at the times required by the Safety Code or regulations, as the case requires
- (b) if equipment has been damaged or modified, or
- (c) if there is an indication of an unusually high exposure of an employee to ionizing radiation

B&N must

- (a) maintain and make available to the WSIB, (i) for at least 10 years, records of radiation surveys, and (ii) for the period that the employee is employed plus 10 years, records of exposure monitoring and personal dosimetry data, and
- (b) make the records available to employees
- (c) Prior to the disposal of any ionizing radiation exposure records, B&N will notify and get approval from the Nuclear Energy Commission 90 days prior to the actual disposal of these records

Non-Ionizing Radiation

Non-ionizing radiation is less penetrating than ionizing radiation. The ultra-violet light from electrical arcs (welding) can cause severe burns as can exposure to sunlight. Caution must always be used whenever non-ionizing radiation is present.

Radiation Detection Equipment

B&N will be responsible to ensure the calibration of all radiation detection equipment (survey meter) is completed within a 12-month period. B&N shall ensure that the records of calibration are maintained for a minimum of 7 years. All employees shall be trained by a competent worker on the proper use of the survey equipment and protective measures to be taken when surveying suspected radioactive material.

BIOLOGICAL AGENTS

With all biological agents, precaution must be taken when cleaning up blood or other body fluids:

1. Wear latex gloves or their equivalent if there is a hypersensitivity to latex
2. Wear goggles or face shields if there is a possibility of blood or body fluids splashing into the eyes, mouth or onto broken skin
3. Place materials soiled with blood or body fluids into leak-proof waste containers marked 'Biohazardous'
4. Clean all contaminated surfaces such as floors, walls or equipment with a 1:10 solution of household bleach
5. All incidents of exposure to a possible blood borne pathogen must be reported to your supervisor immediately

SKIN DISORDERS

Skin disorders are a common occupational disease. The causes can include:

1. **Mechanical Agents** - These include damage to the skin caused by friction, pressure, trauma or vibration
2. **Physical Factors** - Exposure to heat, cold, sunlight, wind, humidity, electricity, and radiation can damage the skin
3. **Plants and Toxic Wood** - Inflammation of the skin can occur when working with some plants and wood
4. **Biological Agents** - Many biological agents such as scabies and fungus can affect the skin
5. **Chemical Agents** - Many chemicals including soaps and cleaning products can irritate the skin

NOTE:

- Wearing appropriate PPE, a clean work area and good personal hygiene are essential in preventing occupational skin disease
- Never use turpentine to clean hands since it is a skin irritant
- Wear the appropriate PPE for the work environment and the work being performed
- Barrier creams can be used when the use of gloves interfere with the work being performed. Apply barrier creams to a clean skin surface, and wash off at the end of the shift
- Clean the PPE regularly and if required, request new equipment from your supervisor

Hazardous Chemical Exposure

Training

B&N is responsible to identify the health hazards associated with hazardous chemical exposure within the workplace and assess any potential exposures where required.

Infectious Disease Control

Employees involved in the execution of infectious disease control shall be aware of the characteristics of, and the safety precautions related to, the safe and efficient control of infectious diseases as outlined in the CSA standard Z317.13-12 Infection Control during Construction or Renovation of Health Care Facilities.

Radiation Hazards

All employees involved in potential exposure to radiation when handling, removing, demolition, remediation or transportation of radioactive materials or sources, shall comply with all Appropriate Provincial Health & Safety Legislation including Canadian Nuclear Safety Commission (CNSC), Transportation of Dangerous Goods (TDG) and all Appropriate Provincial Health & Safety Authority requirements. The Supervisor, in consultation with the Health & Safety Manager, will take all reasonable precautions to minimize an employee's exposure to radiation.

General

- Equipment capable of producing ionizing or non-ionizing radiation shall be provided with appropriate engineering controls including guards and shields
- Suitable protective clothing and PPE shall be provided and used to ensure that no one receives exposures in excess of recognized safe quantities
- JSA and appropriate safe operating procedures for the protection of employees in radiation environments shall be developed in accordance with national safety codes released by the Appropriate Provincial Health & Safety Authority requirements

Types of Radiation

Beta Radiation

Beta radiation is a very small sub-atomic particle that is emitted from radioactive material. Beta particles have limited penetrating ability. Slow moving beta particles cannot penetrate the outer layer of skin whereas faster moving beta particles are capable of radiation exposure to the skin, eyes, and extremities.

Gamma Radiation

Gamma Radiation is a very penetrating wave of energy similar to X-rays. It comes from radioactive materials produced during reactor operations. Gamma radiation is capable of penetrating to all parts of the body and can actually pass right through the body.

Neutron Radiation

Neutron radiation is a sub-atomic particle that is emitted during reactor operations. Neutron radiation is capable of penetrating to all parts of the body.

Routes of Entry

- Inhalation of airborne radioactive material
- Absorption through the skin (eg: tritium)
- Ingestion
- Absorption through broken skin (open wounds)

Protection from External Radiation Exposure

- Minimize the exposure time
- Distance
- Shielding (lead shielded vests)
- Radioactive decay. Some radioactive material is short lived (length of half-life)
- Decontamination. Remove loose radioactive material

Protection from Internal Radiation Exposure

- Minimize exposure time
- Personal Protective Equipment
- Smoking must be restricted to designated areas.
- Diligent personal hygiene when working in or around radioactive materials.
- Consumption of food and beverages must be controlled in radioactive areas or around radioactive equipment

General Radiation Exposure

Radiation can be sub-divided into two broad categories: ionizing and non-ionizing.

Ionizing Radiation

When radiation strikes matter, it interacts with the atoms of the matter. If the radiation has sufficient energy it can produce electrically charged atoms called ions. This form of radiation is called ionizing radiation.

Types of Ionizing Radiation

- Radiation from radioisotopes
- Cosmic radiation
- Radiation from x-ray machines

Biological Effects of Ionizing Radiation

As ionizing radiation penetrates living tissue, it produces cellular changes.

Acute Effects

Acute effects of radiation depend on the exposure. Some human organs or tissues such as the blood forming system, the male reproductive system and the lens of the eye are sensitive to acute exposure to radiation.

Chronic Effects

Exposure to low doses of radiation over months and years is chronic exposure. This is where the main concern is in regards to workplace exposure.

Genetic Effects

Radiation exposure can also cause damage to genetically sensitive material, DNA, in reproductive cells. This damage can result in gene mutations or changes in the number or structure of chromosomes.

Types of Non-ionizing Radiation

- Visible light
- Radio waves
- Microwaves
- Infrared light

Non-ionizing radiation is not mutagenic. Strong non-ionizing radiation has a heating effect. Ultraviolet light can cause burns to skin and cataracts to the eyes. Ultraviolet is classified into near, medium and far UV according to energy, where near ultraviolet is non-ionizing. Ultraviolet light produces free radicals that induce cellular damage, which can be carcinogenic. Ultraviolet light also induces melanin production to cause sun tanning of skin.

Transportation of Radioisotopes

Requirements will include:

- Proper shielding of carrying containers
- Vehicles shall be marked according to the Transportation of Dangerous Goods Regulations
- No radioisotopes can be left unattended except in transportation vehicles or designated storage areas; vehicle must be locked, keys removed and radiation signs prominently displayed

Sun Exposure

All employees exposed to the sun's rays must be made aware of the harmful effects it could cause without proper protection. Skin tanning and burning are caused by ultraviolet rays from the sun.

To prevent skin damage caused by the sun, workers should:

- Avoid overexposure to ultraviolet light by taking breaks out of the sunlight or not working in the direct sunlight.
- Clothing provides protection from the sun and does not allow the UV rays to penetrate as easily
- Sun screens contain one or more protective chemicals that absorb and scatter ultraviolet rays. These have a numerical rating system to indicate the specific amount of protection. The numbers, known as Sun Protection Factors (SPF) are listed on the product label. The higher the SPF number, the greater the protection
- Sun screens should be applied 20 – 30 minutes before going out into the sun to allow time for the sun screen to start working. Apply liberally and reapply every 2 hours to provide maximum effectiveness
- Do not use sunscreens to increase the time spent in intense sunlight or in place of protective clothing

Animal and Insect Bites

All employees who are exposed to possible animal bites, insect bites, and insect stings need to be aware of the necessary precautions to be taken.

Animal bites can be scary and in most cases will require medical attention. Most common bites are from household pets; however, given the fact that wild animals may be in the general surrounding environment of B&N locations.

Bites from non-immunized animals and wild animals carry the risk of rabies. Rabies is more common in raccoons, skunks, bats, and foxes than in cats and dogs. In some cases, the bite will not break the skin but may cause damage to underlying tissue and joints. If you are bitten by a wild animal or snake, B&N requires all employees to report any incident with wild or domestic animals to their supervisory personnel immediately.

First Aid

- Don't put the bitten area into your mouth. You will just be adding the bacteria onto the area.
- If the bite breaks the skin, treat it as a minor wound.
- Use soap and water or an antiseptic such as hydrogen peroxide, or alcohol and cover it with a clean bandage.
- Get tetanus shot as soon as possible as recommended by the treating medical practitioner.
- If the incident creates a deep puncture or the skin is badly torn and bleeding, apply pressure to control the bleeding and seek medical attention right away.

Signs of Infection Include:

- Warmth around the wound
- Swelling
- Pain
- A pus discharge
- Redness around the puncture wound
- An inability to bend or straighten the finger
- A loss of sensation over the tip of the finger

West Nile Virus

West Nile virus is a mosquito-borne virus contracted by mosquitoes that feed on the blood of infected birds. The mosquito then passes the virus to a human host.

Avoiding Mosquito Bites

- Use insect repellent on exposed skin when you go outdoors. Use an insect repellent such as those with Deet, or oil of lemon eucalyptus
- Get double protection by wearing long sleeves during peak mosquito biting hours, and spray repellent directly onto your clothes
- Report any standing water that may be present around B&N locations

Insect Stings

Insect stings can cause temporary pain that most employees have experienced at one point in time or another. B&N requires all employees to report any incident of insect stings to their supervisory personnel immediately.

Bee Stings

When the sting is caused by a honey bee, the stinger remains in the skin when the insect leaves because the stinger is barbed.

- Remove the stinger as quickly as possible because venom continues to enter the skin for about 45 to 60 seconds
- If the stinger can be removed within 15 seconds of the sting, the severity of the sting is reduced
- After the stinger is removed, wash the wound
- If any further symptoms or allergic reactions occur, seek medical attention as soon as possible

Note: Wasps and hornets do not leave their stingers in the skin, so they can sting repeatedly.

A small percentage of the population is allergic to wasp or bee stings. If you suspect that you might be allergic, go to a physician for testing.

Signs and Symptoms Allergic to Wasp or Bee Stings:

- Itchiness and hives over the whole body
- Nausea, vomiting, diarrhea
- Lightheadedness
- Swelling of the eyelids, lips, or tongue
- Difficulty breathing
- Rapid heart beat
- Loss of consciousness or seizures

Employees who are sensitive to stings should wear a medic alert bracelet and carry an EpiPen containing preloaded adrenaline. Employees should inform their supervisory personnel of any allergy and the location of their EpiPen to assist in the event of allergic reaction.

23.00 RESPIRATORY PROTECTION PROGRAM

23.1.1. PURPOSE

The purpose of the respiratory protection program is to establish a process that will review hazard identification, training guidelines, types and selection of appropriate respirators, fitting and maintenance of respirators, as well as the keeping of proper records.

23.1.2. SCOPE

The Respiratory Protection Program applies to all Biggs & Narciso Construction Services Inc. (B&N) operations and personnel where respiratory protection is required.

23.1.3. RESPONSIBILITIES

Employer Responsibilities:

- Take all measures precautions reasonable in the circumstances for the protection of B&N employees from exposure to any hazardous, physical, biological or chemical substance
- Ensure known site level hazards and objectives are defined by the site-specific health and safety plan (HASP)
- Ensure a daily walkthrough survey is conducted through our daily safe work permit to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact
- Conduct a reassessment when there is a change in work conditions which may increase the exposure, such as a change in production rate, process, or equipment
- Monitor the use or presence of, or an employee's exposure to, any hazardous, physical, biological or chemical substance that may be hazardous or harmful to the health or safety of an employee
- Where reasonably practicable, substitute a less hazardous or harmful chemical substance or biological substance for a hazardous or harmful chemical substance or biological substance
- Implement engineering controls to prevent exposure to hazardous physical, biological or chemical substances without required Personal Protective Equipment (PPE)
- Where engineering controls are not in existence, not obtainable, not reasonable or not practical to adopt, B&N will install or provide administrative controls for the duration or frequency of the exposures. The nature of the process, operation or work may render these administrative controls ineffective because of a temporary breakdown of such controls or the limitations, B&N shall provide and require all employees to wear and use, PPE appropriate in the circumstances to protect all B&N employees
- Inform the employees of the nature and degree of the effects to their health or safety of any physical, chemical substance or biological substance to which the employees are exposed in the course of their work
- Provide the employees with training on work procedures and processes using our daily safe work permit meetings
- Provide training on the proper use of PPE
- Ensure that any employee who may be exposed to a biological, chemical or physical substance that may endanger the employee's safety or health shall be trained on;
 - a. Take all precautions and procedures when handling, use and care of the substance
 - b. Use the proper use and care of required PPE; and
 - c. Observe the proper use of emergency measures and procedures
- The employee is informed of measurements made of airborne concentrations of harmful substances in the workplace.

Workers Responsibilities:

- Follow the procedures outlined by B&N under the site-specific HASP
- Apply all knowledge gained through the training program and the daily safe work permit meetings.

Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) Responsibilities:

- Work with B&N to identify harmful substances in the workplace
- B&N shall make available to the committee or representative if there is no committee, the results of any measurements of workplace exposure to, and contamination of a place of employment by harmful substances to the employees.

23.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N is committed to ensuring appropriate respiratory protective equipment is provided to employees as well as Job Safety Analysis (JSA) and where applicable safe work procedures when an exposure to a respiratory hazard exists or as protection against any airborne contaminants to which they may be exposed. B&N will ensure that to the extent that is reasonably practicable, the workplace or work location has appropriate air quality and is adequately ventilated and contaminants and impurities are prevented from accumulating in the air at a workplace or work location. B&N shall ensure that air used in a self-contained breathing apparatus or an air-line respirator; is of a quality that meets the requirements of Table 1 of CSA Standard Z180.1-00 (R-2010), does not contain a substance in a concentration that exceeds 10 percent of its occupational exposure limits.

When an employee is required to enter or work in potentially hazardous atmosphere, B&N will:

1. Monitor the use, the presence of, or an employee's exposure to, any hazardous, physical, biological or chemical substance that may be hazardous or harmful to the health or safety of an employee
2. Ensuring appropriate respiratory protective equipment is provided to employees as defined under the site-specific HASP as well as Job Safety Analysis (JSA) and where applicable safe work procedures when an exposure to a respiratory hazard exists or as protection against any airborne contaminants to which they may be exposed
3. Provide and ensure the use of all required appropriate protective equipment to permit the employee to work and / or escape unassisted from the contaminated area if conditions change
4. Be attended by at least 1 other employee or as the Appropriate Provincial Health & Safety Legislation dictates, who is trained, equipped and capable of effecting rescue.

HAZARD IDENTIFICATION

Respiratory hazards will be assessed in the workplace where there is a health or safety hazard to an employee due to dust, gases, fumes, vapours or mists. The sampling strategy for any of these contaminants shall be carried out in accordance with common practices in industrial hygiene as outline under the site-specific HASP.

Respiratory hazards in the workplace must be identified and assessed for the purpose of selecting appropriate respiratory protective devices. Respiratory hazards are categorized as follows:

- Particulates (dusts, fibres, mists, fumes, smoke)
- Gases (gases and vapours)
- Oxygen deficiency (less than 19.5% oxygen in air)

- Multiple hazards (combination of respiratory hazards)

Access points shall display signs warning that respiratory protection equipment is required and naming the contaminant or hazard involved. Where B&N cannot identify the exposure, B&N shall take immediate precautions to protect an employee from immediate danger.

PARTICULATE HAZARDS RESPIRATORY PROTECTION

Where an employee is likely to be exposed to dust, fumes, gas, mist, aerosol or vapour or any airborne contaminant that may be present in any amounts that are harmful or offensive to the employee, B&N or sub-contractor shall provide an approved respiratory protection device for use by the employee as outline under the site-specific HASP.

B&N or sub-contractor are working within a confined space, a second employee, suitably equipped and trained, is present and in communication with the employee at all times and suitably equipped personnel who are trained in rescue procedures and are fully informed of the hazards are readily available to rescue the endangered employee immediately if the employee's atmosphere supplying respirator fails or the employee becomes incapacitated for any other reason. Refer to section 44 – Confined Space for further definitions, entry and work practice details.

1. **Fume** - Small solid particles suspended in air formed by molten metals or heated plastics (i.e. welding fumes)
2. **Mist** - Small liquid droplets suspended in air (i.e. oil or paint spray.)
3. **Gas** - Gases occupy the entire space in which they are contained. They can be changed to a liquid or solid state by increased pressure or decreased temperature. Gases that do not exist as a solid or liquid at room temperature and pressure
4. **Vapour** - Gaseous form of substances normally in a liquid or solid state.
5. **Dust / Fibres** - Solid particles suspended in air generated by mechanical action on a solid such as grinding or crushing
6. **Smoke** – Formed when a material containing carbon is burned. Smoke generally contains droplets as well as dry particles.

Particulate Filters

Particulate filters screen out particles and do not filter vapors or gases. They are designed to remove dusts and mists, or dusts, mists and fumes. Breathing becomes more difficult as more and more particles build up on the filter. Ensure filters are replaced as described by the manufacturers recommendations or as work process dictate as outline under the site-specific HASP.

Disposable Respirators

Disposable masks protect against lower levels of particulate contaminants. A disposable mask should never be used to protect against levels of contaminants that exceed the respirator's approved maximum use concentrations. Always refer to the manufacturer's recommendation for appropriate use and storage.

Half / Full-Face Respirators

These respirators protect against higher levels of contaminants than disposable respirators. One or more filters or cartridges snap or screw onto the face piece.

When inhaling, one-way valves (located behind the cartridge) open and allow air to be drawn through the filter or cartridge where contaminants are filtered and removed. When exhaling, another one-way valve (located close to the chin) opens, letting the air out. After exhaling, this valve closes to prevent contaminated air from entering the respirator when the next breath is taken.

A half-face respirator covers only the nose, mouth and chin whereas a full-face respirator covers the entire face. The full-face respirator protects the eyes against irritating contaminants or when a half face mask cannot seal properly on the employee.

Only the same manufacturer of the mask and cartridges can be used together or replaced. This will ensure that the parts are compatible and fit correctly.

GASEOUS HAZARDS RESPIRATORY PROTECTION

Consist of many substances, like carbon monoxide or chlorine. Solvents like gasoline, acetone, or turpentine will produce vapours when they evaporate and mix with the surrounding air. Expect vapour to be produced whenever liquids are present. Some gas and vapour molecules can irritate the lungs, while others can be easily absorbed through the lungs into the bloodstream. Once in the bloodstream, some of these chemicals can damage the nervous system and internal organs.

Guidelines for Chemical Cartridges

- Monitor the use, the presence of, or an employee's exposure to, any hazardous, physical, biological or chemical substance that may be hazardous or harmful to the health or safety of an employee
- Ensure the appropriate chemical cartridge and mask type are used depending on the specific substance or workplace conditions
- Never use chemical cartridges in an oxygen-deficient atmosphere (less than 19.5% oxygen) or to protect against dusts, mists, smoke and fumes unless they are fitted with a pre-filter
- Never use chemical cartridges to protect against very toxic or high concentrations gases or vapors
- Never use chemical cartridges when concentrations of contaminants are above the maximum use concentration for the cartridge (refer to manufacturer's instructions)
- Never use chemical cartridges when the gases or vapours have poor warning properties
- Mark an expiry date on your cartridges (if not already indicated), and allow six months maximum replacement.

Gas / Vapour Removing (Chemical) Cartridges

Gas and vapour removing cartridges contain activated charcoal or other compounds that trap or react with specific contaminants and remove them from the air. These cartridges act like sponges, however, like sponges; they can only hold a certain amount. When a cartridge is full, it will stop working, and the gases and vapors will leak through. This is called “breakthrough”.

When using respirators fitted with gas / vapour removing cartridges, the contaminant must have adequate warning properties to let you know when the cartridge is full and needs changing. B&N will monitor the use, the presence of, or an employee’s exposure to, any hazardous, physical, biological or chemical substance that may be hazardous or harmful to the health or safety of an employee.

If warning signs are detected, the following steps should be followed:

1. Leave the area immediately
2. Inform the Supervisory personnel
3. Check the following to determine the cause of warning signs:
 - Perform fit checks to ensure face piece is sealing correctly
 - Ensure cartridges are the correct ones for the hazard
 - Ensure cartridges are not overloaded or “used up”
 - Ensure the concentration of the contaminant does not exceed the maximum use concentration for that particular cartridge
4. Do not return to work until the problem has been corrected.

NOTE: Different contaminants have different warning signs. Make sure you know what to expect from the contaminant you are exposed to through the manufacturer’s recommendations. Some of the following additional warning signs that may require immediate replacement of the cartridge(s) include: smell / taste contaminant through respirator; lungs or throat feel irritated. When working with contaminants that do not have adequate warning signs, use an atmosphere-supplying type of respirator.

Service-Life

When used for gases or vapours having defined occupational exposure limits, you must follow a change-out schedule that will result in the cartridges being changed before the end of their useful life. See your Supervisory personnel about when to change the gas or vapour cartridges. If the cartridges have service-life indicators, the cartridges must be changed when the colour of either the indicators match the colour standard indicated on the cartridge.

OXYGEN DEFICIENCY RESPIRATORY PROTECTION

Normal air contains approximately 21% oxygen. Air-purifying respirators are not approved for use for oxygen levels below 19.5%. When the oxygen level is less than 19.5%, either a Self-Contained Breathing Apparatus (SCBA) or a supplied air respirator with a 5-minute escape bottle must be used and special procedures must be followed by all employees entering the area as outlined under the specific JSA and detailed under the site-specific HASP.

WARNING: Oxygen deficiency can develop in confined or enclosed spaces like tanks, sewers and areas where inert gases such as nitrogen are used. Lack of oxygen affects the brain very quickly. If you enter an area with low oxygen, you could faint and die after a few minutes. Treat all confined spaces as Immediately Dangerous to Life and Health (IDLH) until proven otherwise by testing with special monitoring equipment. Refer to section 28 – Confined Space for further definitions, entry and work practice details.

WARNING: Oxygen deficiency can develop in confined or enclosed spaces like tanks, sewers and areas where inert gases such as nitrogen are used. Lack of oxygen affects the brain very quickly. If you enter an area with low oxygen, you could faint and die after a few minutes. Treat all confined spaces as immediately dangerous to life and health (IDLH) until proven otherwise by testing with special monitoring equipment.

Oxygen deficiency can occur in two ways:

- Oxygen can be used up when it reacts with other material i.e. rusting iron, burning substances, or rotting organic material like leaves, wood, or sewage all use up oxygen
- Normal air can be displaced by other gases i.e. welders use argon gas as a shielding gas to displace normal air around the weld during some welding processes. Shielding gas used in a confined or enclosed workspace can build up and displace the air the employee needs for breathing. Leaking gas lines also let gas into areas where it is not normally present.

Atmosphere Supplying Respirators

Atmosphere-supplying respirators do not filter or clean the air, they supply clean air. The two classes of atmosphere supplying respirators are:

1. Supplied-air (airline) Respirators
2. Self-Contained Breathing Apparatus (SCBA).

Atmosphere-supplying respirators are used to protect employees from:

- High levels of contaminants
- Highly toxic air contaminants
- Immediately dangerous to life and health (IDLH) situations such as oxygen deficient atmospheres.

Supplied-Air (Airline) Respirators

Supplied-air respirators provide the user with clean air through an airline that is attached to either an air tank or an air compressor that supplies air.

Supplied-air respirators are categorized as follows:

Pressure Demand Type, Supplied air

The regulator and an exhalation valve control the air supply so that a positive pressure is maintained inside the face piece. Keeping the face piece pressurized means there is a tendency for clean air to leak out of the face piece, rather than contaminated air leaking in.

Continuous Flow Type

A constant supply of air is delivered to the face piece, hood, helmet, or suit. The face piece, hood, helmet or suit is under positive pressure.

Self-Contained Breathing Apparatus (SCBA)

Self-contained breathing apparatus provides air from a cylinder containing compressed air or a chemical containing canister that is carried by the user. B&N or sub-contractor shall ensure that all required employees are provided with and uses an approved atmosphere supplying respirator.

The respirator must also contain an open circuit SCBA that operates in a pressure demand or other positive pressure mode that:

- Has a minimum rated capacity of 30 minutes
- Is sufficiently charged to enable the employee to perform the work safely, and
- Is equipped with a low-pressure warning device that sounds when the supply has diminished to 20% of the capacity of the unit or to a 5-minute reserve, whichever is greater.

Open-Circuit SCBA (Pressure Demand Type)

In this type of SCBA, exhaled air is released to the surrounding environment after exhalation. The pressure-demand type normally maintains a positive pressure in the face piece by using special regulators and exhalations valves. Air flows into the face piece when pressure inside the face piece is reduced by leakage or inhalation.

Combination Supplied-Air (Airline) Respirator with Auxiliary SCBA

These devices combine a supplied-air respirator with an SCBA. These devices are used in situations where long work periods are required and the use of an SCBA alone would not provide sufficient time. An auxiliary air cylinder or “escape bottle” is worn. The escape bottle is plumbed into the employee’s airline system and is used in case the supplied air fails. The escape bottle will supply enough air to permit the employee to escape from the hazardous area.

MULTIPLE HAZARDS RESPIRATORY PROTECTION

Always be aware that more than one type of breathing hazard can be present at a time. For example, paint spraying may produce mists and vapours. Welding may produce gases and fumes. Oxygen deficient situations can occur with dusts, mists, vapors and fumes.

Combination Cartridges / Filters

Some manufacturers allow filters and cartridges to be “piggy-backed” to provide protection against more than one type of contaminant. For example, particulate filters can be used in combination with gas / vapour cartridges.

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH)

An IDLH situation is where a hazardous atmosphere exists to such an extent that a person without respiratory protection could be fatally injured, such as:

1. A known contaminant at a known toxic concentration
2. A known contaminant at an unknown, but potentially toxic, concentration
3. An unknown contaminant
4. An oxygen deficiency
5. A confined space

6. Contaminants at or above the lower explosive limit.

When an employee is required to enter or work in an IDLH or oxygen deficient atmosphere, B&N will:

1. Monitor the use, the presence of, or an employee's exposure to, any hazardous, physical, biological or chemical substance that may be hazardous or harmful to the health or safety of an employee
2. Ensuring appropriate respiratory protective equipment is provided to employees as defined under the site-specific HASP as well as Job Safety Analysis (JSA) and where applicable safe work procedures when an exposure to a respiratory hazard exists or as protection against any airborne contaminants to which they may be exposed
3. Wear a full-face piece positive pressure respirator which is either an SCBA, or an airline respirator, with an auxiliary self-contained air cylinder of sufficient capacity to permit the employee to escape unassisted from the contaminated area if the air supply fails
4. Be attended by at least 1 other employee or as the Appropriate Provincial Health & Safety Legislation dictate, and be stationed at or near the entrance to the contaminated area, who is equipped and capable of effecting rescue.

RESPIRATOR SELECTION PROCESS

To select appropriate respiratory protection for a particular hazard or process / activity, information must be collected and assessed. This is essentially called a risk assessment and will be documented on our JSA and within the site-specific HASP. The Health & Safety, Project Manager, Supervisor are responsible for collecting this data and recommending a respirator suitable for the hazard being assessed.

A Material Safety Data Sheet (MSDS) is very useful when selecting which respiratory protective equipment is appropriate for the work assignment. The MSDS provides detailed technical information on controlled products such as measures to protect employees at risk of overexposure.

Eye Protection and Corrective Eyewear

When an employee who wears prescription, eyeglasses is required to wear a full-face piece respirator, B&N must assess ensure corrective eyewear is fitted within the full-face respirator that does not negatively affect the seal.

Employees should be asked their opinion regularly about:

- Comfort
- Fatigue
- Trouble with communication
- Ability to do their job
- Resistance to breathing
- Blocking of vision
- Trouble with movement
- Confidence

ACCEPTABLE RESPIRATORS

- Refer to Appropriate Provincial Health & Safety Legislation, MSDS or HASP for additional requirements.
- Appropriate respiratory protective equipment should be selected in accordance the site-specific HASP
- National Institute for Occupational Health & Safety (NIOSH) approved.

When selecting a fully assembled respirator, a NIOSH label should be visible.

The following information will be included with the respirator, on the filter, cartridge, or package:

- Type of substance(s) the filter / cartridge protects against
- Limitations of the respirator, and cartridges or filters
- Parts (filters, cartridges, airlines, etc.) that make up complete NIOSH-approved assembly
- Proper cleaning and maintenance procedures.

FIT CHECK

Before each use, an employee must perform a positive and negative pressure fit check on the respirator and have completed the annual fit check assessment. Single use disposable respirators must fit properly and not allow any particulate to enter around the seal of the mask. Employees must be clean shaven; facial hair and hair on the scalp must not interfere with a proper seal of the respirator.

Negative Pressure Fit Check

This check is conducted by creating a slightly negative pressure inside the respirator face piece by inhaling.

1. Put the respirator on and tighten straps until it feels tight and comfortable
2. Close off the inlet opening of the cartridges by covering them gently with the palm of the hands. If this is done with an air-supplied respirator, close off or disconnect the hose to stop the airflow
3. Breathe in slightly to create a vacuum
4. Hold for 5 seconds
5. If the face piece collapses slightly against the face and stays collapsed, a good seal has been obtained. No air should leak into the face piece past the sides, top or bottom

If the face piece doesn't collapse and stay collapsed, there is an air leak. Check the exhalation valves, reposition the respirator on the face and adjust the head straps. Try the check again. If a good seal is not obtained after a few attempts, seek the assistance of a qualified fit tester to perform an additional qualitative fit test.

Positive Pressure Fit Check

This creates a positive pressure in the face piece by breathing out slightly while covering the exhaust valve with your palm. If a good seal is obtained, the face piece will bulge outward slightly from the face. No air should leak past sides, top or bottom of the respirator.

1. Put the respirator on and tighten straps until it feels tight and comfortable
2. Close off the exhaust valve by covering with the palm of the hand
3. Breathe out slightly to force air into the face piece
4. Hold for 5 seconds
5. If the face piece bulges out and remains out, a good seal has been obtained

If air leaks out of the face piece, check the inhalation valves, readjust the respirator and try the check again. Remember, the negative and positive pressure fit checks must be done every time you enter a contaminated atmosphere. Before these checks, make sure the respirator has all inlet and exhaust valves and has been properly inspected.

Fit Checks



Figure 1

Negative Pressure Check

(Block ends of the cartridges with hands.

Inhale, if the mask caves in, you have a tight fit)



Figure 2

Positive Pressure Check

(Place palm over the exhalation valve. Exhale gently, if the mask balloons, you have a tight fit)

FIT TESTING

Fit testing is conducted by a qualified person. After passing the positive and negative pressure fit checks, another seal test is required – a qualitative fit test and the results must be recorded on Fit Test Record Form - **FORM 23.1** – Respiratory Fit Testing Form.

Fit testing must be done:

- When the employee is first fitted with a respirator
- Annually
- If the respirator user has had major weight loss or gain, has been fitted with dentures, undergone facial surgery or had broken facial bones; and
- If a different brand or model of respirator has been issued.

Qualitative Fit-Testing

Irritant smoke is used for the qualitative fit testing. Employees with poorly sealing respirators will detect an odour and experience uncontrolled coughing as a result of a poor seal.

B&N Irritant Smoke Fit Test Procedures CAN / CSA-Z94.4-93/02

The worker should put on the respirator and all other personal protective equipment, such as eye protection or a hard hat. A successful seal check must be done before the fit test.

Procedures:

1. The respirator wearer will don the respirator and wear it for 10 minutes prior to the test.
2. The wearer will perform the Negative and Positive Fit checks.

Negative Pressure Fit Check:

This check is completed each time a respirator is worn prior to exposing the wearer to a hazardous atmosphere. The wearer places the respirator on and tightens the straps. The wearer places their hands over the inhalation source, breathes in and holds their breath for 5 seconds (see Figure 1). The respirator face piece should collapse slightly and remain collapsed until the wearer exhales. No air should leak into the face piece.

If the face piece does not remain collapsed, re-adjust the respirator and straps and try again. If the wearer still fails to achieve a fit, try another type of respirator or a different size.



Figure 1

- Cover the inhalation source and breathe in
- Hold breath for 5 seconds
- Respirator should collapse slightly and remain that way.

Positive Pressure Fit Check:

The Positive Pressure Fit Check is done each time a respirator is worn and prior to exposing the wearer to a hazardous atmosphere. To do a positive pressure fit check, the wearer will block off the exhalation valve and breathe out. Hold for 5 seconds. The respirator face piece should bulge out slightly and remain that way until released (see Figure 2). If there is air leakage from the face piece, re-adjust the straps and try again.



Figure 2

- Cover the exhalation source and breathe out
 - Hold for 5 seconds
 - The face piece should bulge out slightly and remain that way
3. While the worker performs the first fit test exercise, pass the smoke stream around the perimeter of the facepiece. You should direct the smoke at the facepiece seal, starting with the smoke stream about 30 cm (12 in.) away from the respirator. Go around the seal a total of three times, gradually bringing the smoke to within 15 cm (6 in.) of the respirator. Instruct the wearer to **breath normally** for one minute.

If the worker does not detect the stream of smoke by coughing, continue with the next fit test exercise. Repeat this step for each of the **six** exercises.

4. Same as above only instruct the wearer to **breath deep and regular** for one minute. If the worker does not detect the stream of smoke by coughing, continue with the next fit test exercise.
5. Next exercise Instruct the wearer to **turn their head side to side** for one minute (take care not to bump the respirator on the wearers shoulders). If the worker does not detect the stream of smoke by coughing, continue with the next fit test exercise.
6. **Nodding the head up and down** for one minute (take care not to bump the respirator on the chest). If the worker does not detect the stream of smoke by coughing, continue with the next fit test exercise.
7. **Talking out loud** – have the wearer read aloud the “Rainbow Passage” while the test supervisor directs puffs of smoke around the respirator seal at a distance of 15cm (6 in) away from unprotected skin.
8. Have the wearer **breath normally** – (regular) for one minute, while the test supervisor directs puffs of smoke around the respirator seal at a distance of 15cm (6 in) away from unprotected skin.

This completes the six exercises which must be performed for a prescribed amount of time following the CSA Standard CAN / CSA-Z94.4-93/02, *Selection, Use, and Care of Respirators* standards.

If the worker does not cough, no smoke has leaked into the facepiece and the respirator has passed the B&N **irritant smoke fit test**.

Finally record the test results in the appropriate log and have the wearer sign the Annual Respirator Fit Test Form and Employee Acknowledgment Form.

Caution: Testers must be careful with the sharp, broken end of the smoke tube. Unless you are using VeriFit Irritant Smoke Generators (recommended standard of B&N).

Coughing workers may unexpectedly jab themselves if they make sudden movements. If the tester is using a glass tube they may wish to cover the broken end of the tube with a short length of tubing. Always discard used glass tubes in sharps containers at the end of the test.

CARE AND MAINTENANCE OF RESPIRATORS

Disassembly and Cleaning

1. Remove cartridges and / or filters from the connectors and discard them. Remove the backpack adapter if used
2. Remove the headband assembly, inhalation connectors, inhalation valves, exhalation-value guard, valve and valve seal from the face piece
3. Prepare a solution of cleaner / sanitizer. Wash the face piece and components in the cleaning solution.
4. Rinse all components completely in clean warm water, then air dry in a clean area. Visually inspect all components for damage, replace if necessary
For light cleanings, a refresher wipe pad may be used to clean the portion that comes in contact with your face.

Respirator inspections should include a check for:

1. Expiry date on cartridges – allow six months maximum replacement
2. Tightness of connections
3. Condition of component parts, i.e. face piece, helmet, hood, suit, head harness, valves, connecting tubes harness assemblies, filters, cartridges, canisters and cylinders
4. End of service life indicators (if applicable) and shelf life dates
5. Proper functioning of regulators, alarms, and other warning systems
6. SCBA cylinders filled to specified working pressure
7. Pliability and deterioration of rubber or other electrometric parts.

SCBA Cylinder Inspection (steel, aluminum, fibre reinforced cylinders)

Cylinders shall be inspected externally according to the requirements of CSA Standard CAN / CSA-B339 and affixed with a workplace WHMIS label. After each use and before refilling, the exterior of cylinders shall be inspected by qualified person for obvious signs of external damage. Cylinders showing signs of obvious external damage shall be removed by service and should be inspected by a person who is registered according to the requirements of CSA standard CAN / CSA-B339. The interior of a cylinder shall be inspected at least annually when cylinders are not in current use or are in long-term storage.

Storage

Respirators should be stored in a manner that will protect them against dust, ozone, sunlight, heat, extreme cold, excessive moisture, vermin, damaging chemicals, oils, greases or any other potential hazard that may have a detrimental effect on the respirator.

After inspection, cleaning and necessary repairs, respirators must be:

- Stored in sealable plastic bags in storage cabinets / lockers
- Readily available for use
- Respirators shall be stored in a manner that will prevent deformation of rubber or other electrometric parts
- Protected from contamination, deformation, and damage
- Stored in a clean air environment when not in use.

Maintenance and Repair

Where inspections indicate that repairs of a respirator / cylinder are required, such repairs and subsequent tests and checks must be carried out in accordance with the manufacturer's instructions. Defective or nonfunctioning respirators shall be appropriately tagged (i.e. OUT OF SERVICE) and shall be removed from service until repaired.

Refer to Section 47 – Lockout / Tagout for further definitions, process and work practice details.

MEDICAL ASSESSMENTS

Where there is a concern on the part of either the employee or the employer about the ability of the employee to wear a respirator, the employee must be examined by a physician. An examining physician must be provided with sufficient information to allow him / her to advise the employer of the ability of the employee to wear a respirator.

TRAINING

Every person required to use a respirator shall be trained initially, annually and more frequently as required. All employees using respirators shall be given adequate training by a competent and qualified person to ensure the proper use.

1. Learn how to inspect it before each use
2. Have it properly fitted
3. Test its face piece-to-face seal before each use
4. Wear it in normal air for a long familiarity period
5. How to clean and care for the respirator and cartridges
6. Wear it in a test atmosphere
7. The training program should be based on CSA Z94.4-02 (selection, use and care of respirators) and other Appropriate Provincial Health & Safety Legislation or applicable MSDS.

STANDARD COLOUR CODING FOR RESPIRATOR CARTRIDGES / CANISTERS

NIOSH approved respirators use a standard colour coding for the same type of cartridge or gas mask canister (international manufacturers use different colour coding):

Dusts, mists, fumes	Grey	Acid gases	White
HEPA (dusts / mists / fumes / asbestos)	Purple	Ammonia, methyl amine	Green
Organic vapours	Black	Acid gases and organic vapours	Yellow
HEPA (dusts / mists / fumes / asbestos)	Pink	Multi Gases	Olive

NOTE: Air-purifying respirators should not be used when the air contaminant concentration exceeds the maximum use limit that is stated on the NIOSH approval label. The same manufacturer should be used for both the cartridge and respirator; this will ensure that the parts are compatible and fit correctly.

RECORDS

Fit Testing Records

Written records of annual fit testing must be maintained. A Respirator Fit Testing Record form must be completed for every person fit-tested.

23.1.5. RELATED FORMS

FORM 23.1. – Respiratory Fit Testing Form

24.00 MOULD ABATEMENT

24.1.1. PURPOSE

The purpose of the Mould Abatement Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of mould in the workplace.

24.1.2. SCOPE

The Mould Abatement Program applies to all Biggs & Narciso Construction Services Inc. (B&N) operations relating to mould abatement.

24.1.3. RESPONSIBILITIES

Employer Responsibilities:

- Take all measures reasonably necessary in the circumstances to protect employees from exposure to mould at B&N locations
- Ensure known site level mould hazards and exposures are defined by the site-specific health and safety plan (HASP)
- Ensure a daily walkthrough survey is conducted through our daily safe work permit to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact
- Conduct a reassessment when there is a change in work conditions which may increase the exposure, such as a change in production rate, process, or equipment
- Implement engineering controls to prevent exposure to mould where practicable
- Where engineering controls are not in existence, not obtainable, not reasonable or not practical to adopt, B&N will install or provide administrative controls for the duration or frequency of the exposures. The nature of the process, operation or work may render these administrative controls ineffective because of a temporary breakdown of such controls or the limitations, B&N shall provide and require all employees to wear and use, PPE appropriate in the circumstances to protect all B&N employees from exposure to mould
- Inform the employees of the nature and degree of the effects to their health or safety of mould to which the employees are exposed in the course of their work
- Provide the employees with training on work procedures and processes through our daily safe work permit meetings
- Provide training on the proper use of PPE
- Ensure that any employee who may be expected to handle mould shall be trained,
 - a. To use the precautions and procedures to be followed in the handling, and disposal of mould as defined under our HASP

KEYWORDS

Air Movers - These are mechanical enhancement of water evaporation in a material drying process.

Air Sampling - The collection and analysis to identify airborne contaminants and bioaerosols.

Bioaerosol - Airborne fungi or bacteria, including associated compounds.

Biocide - A biocide is a chemical that can kill living organisms.

Bulk Sampling - Bulk sampling is the collection of a representative amount of material with subsequent analysis to determine the presence or quantity of mould or bacteria.

Dehumidification - Dehumidification is the process of reducing the moisture (water) content of air.

Engineering Controls - Methods of controlling exposures by modifying the source or reducing the quantity released into the work area.

Evaporation - The process whereby liquid is changed to a vapor or gas

HEPA Filter – High Efficiency Particulate Arrestor - This is a high efficiency particulate air filter that is at least 99.97% efficient in collecting aerosol particles 0.3 micrometers in size. These filters are required in negative air pressure equipment as well as vacuums used by abatement contractors.

Humidity - Humidity is the weight of water vapor per unit weight of dry air.

Indoor Air Quality (IAQ) - Indoor air quality is the physical, chemical and biological characteristics of indoor air in non-residential workplaces, with no internal industrial processes or operations that can affect the comfort or health of the occupant.

Intrusion - Intrusion is the entry of material or substance into an area in which the substance or material was not previously present.

Microbial Growth - This is visible mould proliferation.

Moisture Meter - Instrument used to provide direct reading of moisture levels in building materials.

Negative Air Pressure Differential - Negative air pressure differential is when the air pressure in an area, that is less than that of an adjacent area, resulting in air being drawn from a high to a low-pressure area.

Organic Matter - Compounds or materials that contain carbon and support the growth of mould (paper, dust, soil, wood, cellulose, etc.)

Remediation - Correct or repair so that a safe and healthy environment is present.

Respirator - This is a device to prevent the inhalation of harmful contaminants.

Sealed bag - An airtight and water proof bag typically sealed with duct tape.

Spores - A spore is a small reproductive body highly resistant to adverse environmental conditions. Spores upon contact with favorable nutrient bases and environmental conditions are capable of growing into a new organism.

- b. In the proper use and care of required PPE; and
- c. In the proper use of emergency measures and procedures
- The employee is informed of measurements made of airborne concentrations of mould in the workplace
- B&N shall take all reasonable precautions to prevent exposure of an employee to mould

Workers Responsibilities:

- Follow the procedures outlined by B&N under the site-specific HASP
- Apply all knowledge gained through the training program and the daily safe work permit meetings

Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) Responsibilities:

- Work with B&N to identify potential mould in the workplace
- B&N shall make available to the committee or representative if there is no committee, the results of any measurements of workplace exposure to, and contamination of a place of employment by mould to the employees

24.1.4. PROCEDURE

GUIDING PRINCIPLES

Fungi or mould occur naturally in our environment and are an essential part of our ecosystem. Conditions for fungi growth indoors develop when moisture from sources, such as pipe leaks, roof leaks or condensation encounter potential nutrients. Moulds are a group of organisms that belong to the Fungi kingdom. The terms fungi and mould can be used interchangeably in the context of this policy.

Inhalation of fungal spores, fragments or metabolites from a wide variety of fungi may lead to or exacerbate allergic reactions, cause toxic effects, or cause infections.

Employees with a history of significant allergic symptoms (asthma, hay fever, hives, etc.) or with a potential immune-compromised status should consult with a physician to determine whether mould removal activities, and the associated potential for exposure to pathogenic materials, would present an unacceptable health risk.

WARNING

It is B&N's policy that every employee, working with mould of any type, must be trained in order to have the awareness needed to keep themselves and others safe from the effects of exposure.

Workers must be medically fit to work with potential mould exposure. Workers with a history of significant allergic disease (asthma, hay fever, hives, etc.) or other medical concerns should consult with an occupational physician to determine the health risks associated with mould removal and restoration activities. Mould abatement workers who risk infections disease from unsanitary water sources (sewage, river floods, etc.) should consult with an occupational physician regarding appropriate immunization.

B&N employees must handle and remove mould under controlled conditions according to documented procedures as outlined under our site-specific HASP and Job Safety Analysis (JSA) procedures. This includes but not limited to wearing proper protective clothing and PPE. B&N recognizes the dangers of mould and will strive to keep its employees and others safe. B&N has and will continue its ongoing training and practice of mould abatement as requested by the Appropriate Provincial Health & Safety Legislation.

REMEDIATION LEVELS

Remediation depends primarily on the scale of the mould growth. Mould growths classified as small are called a Level 1, medium Level 2, and large-scale operations will be considered as Level 3.

- Level 1 (small scale): Areas less than 1 square meter (10 square feet) *
- Level 2 (medium scale): Areas between 1-10 square meters (10-100 square feet) *
- Level 3 (large scale): Areas greater than 10 square meters (>100 square feet) *

*These are arbitrary thresholds and are offered as guidelines only. It is recommended that a qualified remediation specialist be consulted to determine the specific requirements of each individual project.

LEVEL 1: PROCEDURES FOR SMALL-SCALE MOULD GROWTH

Less than 1m² (10 ft²)

1. Remediation persons shall receive training on proper cleanup methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the Appropriate Provincial Health & Safety Legislation or equivalent and outlined under the site-specific HASP
2. The work area shall be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons recovering from recent surgery, immune suppressed individuals, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies.) Consultation with the facility operator is recommended. Eating, drinking or smoking is prohibited in the work area.
3. Respiratory protection shall include a half-face piece air-purifying respirator fitted with replaceable filters (N95 minimum) or a filtering face piece respirator (N95 minimum) and suitable eye protection. The selection, fitting, maintenance, and monitoring of the respirator shall meet the requirement of CSA Standard Z94.4, as amended. Workers shall be fit tested with the assigned respirator prior to the initial use and yearly thereafter, the seal of the respirator to the wearers face shall not be compromised by any facial hair. Filters shall be disposed of daily due to the potential growth of mould spores on damp filter media.
4. Workers shall wear disposable coveralls and dust-impermeable gloves appropriate to the work being performed, and water-impermeable gloves when applying detergent or disinfectant. Workers can wear disposable boot covers or they should clean their boots before leaving the remediation area. Refer to the Material Safety Data Sheet (MSDS) for the selection of appropriate detergents, disinfectants, and gloves.
5. Turn off HVAC systems and seal over all system openings (e.g., diffusers and return air openings) within or immediately adjacent to the work area.
6. Movable non-porous items within the work area shall be cleaned with a HEPA vacuum, followed by a suitable cleaning solution, and then removed from the work site. Fixed non-porous items within the work area shall be first cleaned by vacuuming and wet wiping, and then sealed under polyethylene sheeting, taped in place during remediation work.
7. Wherever possible, place a drop sheet below the moldy materials to be removed.
8. Do not use compressed air mechanical devices to clean up or remove contamination.
9. Dust suppression methods should be used where possible, prior to disturbing moldy materials. Tape a section of plastic sheeting or duct tape over the moldy material, or, lightly mist the moldy material with water. Do not dry sweep or dry whisk. Power tools fitted with dust collection bags will reduce airborne particulates.
10. Remove any porous substrate materials (ceiling tiles, drywall, etc.) well beyond the immediate areas of visible contamination; the minimum recommended distance is 30 cm in all directions.
11. After bulk removal, clean all exposed surfaces within the work area. Begin by cleaning with a HEPA vacuum and appropriate tools. Do not use any other type of vacuum. If a HEPA vacuum is not available, wet wiping is adequate for Level I work.
12. Remove all waste created by the remediation work, including, but not limited to, building debris, disposable coveralls, respirator cartridges, and plastic sheeting. Seal all waste into 6 mil nominal disposal bags. Wet wipe or clean the bags with a HEPA vacuum and finally double-bag in a second clean 6 mil nominal bag or suitable sealed container.

13. Clean all equipment used in the remediation work (e.g., vacuum cleaner, knives, saws) using a HEPA vacuum and by wet wiping. Equipment that cannot be readily cleaned (e.g. vacuum hose or wire brushes) shall be HEPA vacuumed and sealed in 6 mil polyethylene bags or suitable sealed container before removal from the work area.
14. Dispose of the waste material in compliance with local, provincial, and federal regulations.
15. Wash face and hands, and clean and maintain respirator after completion of mould abatement.
16. Leave all areas dry and visibly free from contamination and debris, and ensure that surfaces are adequately dry prior to installation of new materials.

LEVEL 2: PROCEDURES FOR MEDIUM-SCALE MOULD GROWTH

1 - 10 m² (11 - 100 ft²)

Level 2 includes all items in Level 1 together with the following requirements:

1. A health and safety professional experienced in performing microbial investigations should be consulted prior to starting remediation to provide oversight and inspection of remediation activities.
2. A competent supervisor must be present during all decontamination work.
3. Workers shall wear full-body dust-impervious coveralls, with attached hoods, secured with tape at the ankles and wrists.
4. Isolate the work area with an enclosure constructed of fiber-reinforced polyethylene sheeting or 6-mil polyethylene sheeting, taped and supported as required. Provide a temporary roof where an existing ceiling does not complete the temporary enclosure. Use fiber-reinforced polyethylene sheeting for covering floors.
5. Provide a negative pressure within the enclosure by drawing air from the work area and exhausting it out of the enclosure, by using an exhaust fan (to outdoors), a HEPA vacuum or a HEPA air filtration device (negative air machine). Provide a minimum negative pressure of 5 Pascals (0.02 inches of water column). Where possible, discharge the filtered air outside the building and away from people.
6. Consider providing a change space at the entrance to the containment area, for workers to don / remove coveralls and for storage of clean supplies. Provide double overlapping or slit and covering flaps at both ends of the change room, and ensure that the space is under negative pressure with respect to the occupied areas of the building, and under positive pressure with respect to the mould removal area. Appoint a competent person to inspect the work area for defects in the enclosure, barriers, and change room.
7. The project authority should document the abatement work in writing and maintain records in the project file, supported by inspection reports or other relevant documents.

NOTE: If abatement procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of the fungi is heavy (blanket coverage as opposed to patchy), then it is recommended that the remediation procedures for Level III are followed.

LEVEL 3: PROCEDURES FOR LARGE-SCALE MOULD GROWTH

Areas greater than 10m² (100 ft²)

Level 3 mould abatement includes all Level 2 & 1 measures, as well as the following:

1. A health and safety professional (HSP) experienced in performing microbial investigations must be consulted prior to commencing remediation. The HSP must determine whether the following procedures are applicable to the specific remediation project, and identify any required changes. In addition, the HSP will provide periodic hands-on monitoring of all associated mold removal activities.

2. Workers shall wear a full-face piece air purifying respirator fitted with P100 filters, or preferably, a tight-fitting positive-pressure full-face piece Powered Air Purifying Respirator with high-efficiency particulate filters.
3. Workers shall wear impermeable gloves and full-body dust-impervious coveralls, with attached hoods, tightly secured with tape at the ankles and wrists.
4. Workers shall wear disposable boot covers or separate work boots that can be effectively cleaned with a HEPA vacuum or wiped clean prior to removal from the work area.
5. Isolate the work area from adjacent spaces using temporary hoarding, tape, and polyethylene sheeting, etc. Cover all walls that form part of the enclosure perimeter with one layer of polyethylene sheeting, taped in place. Where temporary walls form part of the enclosure perimeter, provide two separately sealed layers of polyethylene sheeting, one on each side of the temporary wall.
6. Provide a negative pressure within the enclosure, by using portable, HEPA-filtered exhaust fans (negative air machines). Provide a minimum negative pressure of 5 Pascals (0.02 inches of water column) and a minimum of four air changes per hour. Where possible, discharge the filtered air outside the building and away from people.
7. A competent person must regularly inspect the work area and record, in writing, any defects in the enclosure, barriers, and change room, at the beginning of every shift, at the end of every shift where no shift immediately follows, and at least once daily on days where there are no shifts. These inspections should be documented in writing.
8. Provide a Worker Decontamination Facility, to include a Clean Change Room and a Dirty Change Room. Install flap doors at each opening into and within the Decontamination Facility. Provide a wash station consisting of, at a minimum, a basin, fresh water, soap, and toweling in the Clean Change Room. Consider providing a shower for worker comfort. Construct and arrange the worker decontamination rooms in such a way that everyone entering or leaving the work area must pass through each room of the decontamination unit.
9. Before entering the contaminated work area, workers must first put on clean coveralls and a respirator in the Clean Change Room. When exiting, workers must use a HEPA vacuum in the work area to remove gross contamination from coveralls and boot covers (or separate work boots). Workers must then enter the Dirty Change Room and remove dirty coveralls and boot covers. Work boots used without boot covers must be removed and stored in the dirty change room. On leaving the work area, workers must then clean their face and hands in the wash station.
10. A separate Waste Decontamination Facility, consisting of a Double Bagging Room and a Waste Transfer Room, should be provided where large volumes of waste will be removed. Seal the waste into bags in the contaminated work area, and wipe the exterior of the bags or other suitable sealed containers. Transfer the bags to the Double Bagging Room and place in a second bag or sealed container. Transfer the double-bagged waste or container into the Waste Transfer Room for removal by workers entering from outside the decontamination facilities.
11. Upon completion of removal and cleaning, the Health and Safety Professional shall inspect the Level 3 work area for acceptable completion, through a combination of careful visual inspection, and possibly, testing. A site will be considered acceptable and clean when a thorough visual inspection shows that all the removal work has been completed and that all surfaces in the work area are free of any dust or debris. In addition, mould measurements (air samples, swabs, tape-lifts, or vacuumed dust samples) can be taken to demonstrate that the work area is no longer impacted by the mould contamination and removal process. Generally, air samples are collected from the work area and compared to samples taken in reference areas (areas adjacent to where the work area make-up air is being drawn, or outdoor locations). An acceptable condition is indicated when concentrations of airborne fungal particles in the work area are not significantly elevated when compared to concentrations in the reference samples, and the types of fungal particulate present in the work area do not differ significantly from those present in the reference samples. The samples may so be compared to any similar measurements taken in the work area prior to the remediation work. Again, the sample results should be interpreted by a qualified professional.

25.00 ASBESTOS ABATEMENT

25.1.1. PURPOSE

The purpose of the Asbestos Abatement Program is to establish a process to that will effectively manage recognize, assess and control hazards related to Asbestos exposure at all Biggs & Narciso Construction Services Inc. (B&N) locations.

25.1.2. SCOPE

The Asbestos Abatement Program applies to all asbestos abatement operations conducted by B&N.

25.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure a written assessment is completed when there is an intended exposure or likelihood of exposure of a worker to the inhalation or ingestion of asbestos
- Consider and account for:
 - a. The methods and procedures used or to be used in the processing, use, handling or storage of asbestos
 - b. Provide the worker with appropriate respiratory protection, fit testing and training on the care, use and limitations of the equipment
 - c. The extent and potential extent of the exposure of a worker to the inhalation or ingestion of asbestos; and
 - d. The measures and procedures necessary to control such exposure by means of engineering controls, work practices and hygiene practices and facilities. Engineered controls include local exhaust ventilation with discharged air passing through an effective filter or other effective means
- Consult with the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) will be provided the opportunity to make recommendations with respect to the assessment
- Provide a copy of the assessment to each member of JHSC / JOHSC.
- Written requirements for a Medical Surveillance Program
- Ensure that crocidolite is not used in any B&N workplace. Should the removal of crocidolite be required, a risk assessment & procedures will be developed to ensure the safety of all B&N employees or sub-contractors
- Ensure that no B&N employee or sub-contractor applies insulation materials containing asbestos

Supervisor Responsibilities:

- Ensure potential Asbestos hazards related the work are defined along with the appropriate Asbestos Abatement procedures and required Personal Protective Equipment (PPE) within the site-specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site-specific Asbestos Abatement or work areas where work is required.

KEYWORDS

Abatement - Abatement can be defined as a diminution in amount, degree, or intensity; moderation. The amount lowered; a reduction.

Asbestos-Containing Material (ACM) - Any manufactured articles or other materials that contain asbestos as determined by an approved laboratory method.

Designated Substance - A designated substance is a biological, chemical, or physical agent, or any combination of these, to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled. There are 12 designated substance regulations covering 11 designated substances under the Occupational Health and Safety Act (Always refer to your local provincial standards).

Encapsulation - This is a process in which a material containing asbestos is treated with a product that penetrates the material and prevents the fibers from being released. Encapsulation can also be achieved by wrapping or sealing asbestos-containing materials.

Friable Asbestos - Asbestos Containing Materials that can be crumbled, pulverized or reduced to a powder by hand pressure when dry. Friable asbestos containing material can sometimes be found in thermal insulation, acoustic texture coatings, and sprayed fibrous fireproofing. It is also found in some plaster (typically in an underlying, course layer a finer plaster finish coat) finish coat and in drywall taping compound.

HEPA Filter - This is a high efficiency particulate air filter that is at least 99.97% efficient in collecting aerosol particles 0.3 micrometers in size. These filters are required in HEPA exhaust fans as well as vacuums used by abatement contractors.

- Advise all B&N employees and sub-contractors on the risks associated with the assigned work
- Develop procedures for workers related to Asbestos Abatement.
- Ensure any machine or tool in the workplace is capable of safely performing the functions for which it is used
- Ensure the worker operates the tool or machine in accordance with the manufacturer's specifications, and the safe work procedures for the workplace
- Ensure that crocidolite is not used in any B&N workplace. Should the removal of crocidolite be required, a risk assessment & procedures will be developed to ensure the safety of all B&N employees or sub-contractors
- Ensure that no B&N employee or sub-contractor applies insulation materials containing asbestos
- Ensure all Asbestos Abatement programs are being followed where required
- Ensure a site specific written HASP with rescue procedures are developed and available on site

Worker Responsibilities:

- Operate all tools or machines in accordance with the manufacturer's recommendations, and the JSA procedures for all B&N workplaces
- Apply all required Asbestos Abatement procedures within the workplace or where workers may be affected
- Follow all procedures and processes developed and implemented related to Asbestos Abatement
- Use and wear all required PPE as per manufactures instructions and as defined by the site-specific HASP.
- Report all Asbestos Abatement or Asbestos hazards immediately to the supervisor

Health & Safety Department Responsibilities:

- Notify management, workers, or supervisors regarding any nonconformance or deficiencies found.
- Ensure inspection records for Asbestos Abatement equipment and devices are kept and maintained
- Ensure that competent trainers are delivering the training to all required B&N employees according to site specific Policies and Procedures, and Applicable Provincial Health and Safety Legislation
- Assist Supervision with the site specific written HASP with rescue procedures are developed and available on site
- Purchase and replace all Asbestos Abatement equipment if required
- Schedule fit testing and other PPE compliant training as required by the Applicable Provincial Health and Safety Legislation
- Investigate and report to the Appropriate Provincial Health and Safety Authorities any situation where there has been an employee suspected of being exposed to asbestos
- Ensure that crocidolite is not used in any B&N workplace. Should the removal of crocidolite be required, a risk assessment & procedures will be developed to ensure the safety of all B&N employees or sub-contractors
- Ensure that no B&N employee or sub-contractor applies insulation materials containing asbestos
- Ensure workers assigned to Asbestos Abatement projects have completed either Asbestos Abatement Supervisor training, or Asbestos Abatement Worker training, as required by their role

25.1.4. PROCEDURE

GUIDING PRINCIPLES

If any B&N employee may be exposed to potentially harmful levels of asbestos, B&N will develop and implement an exposure control plan. To ensure adequate coordination of the overall plan, B&N shall ensure that all site level plans and procedures are administered by a competent person and documented in the site-specific HASP. Where any B&N employee may have access to asbestos-containing materials, B&N and / or the sub-contractor or owner shall ensure that all asbestos containing materials are clearly and conspicuously labeled as asbestos with a placard. A map or plan will be developed that is readily available to all B&N employees and sub-contractor showing location of any asbestos-containing material.

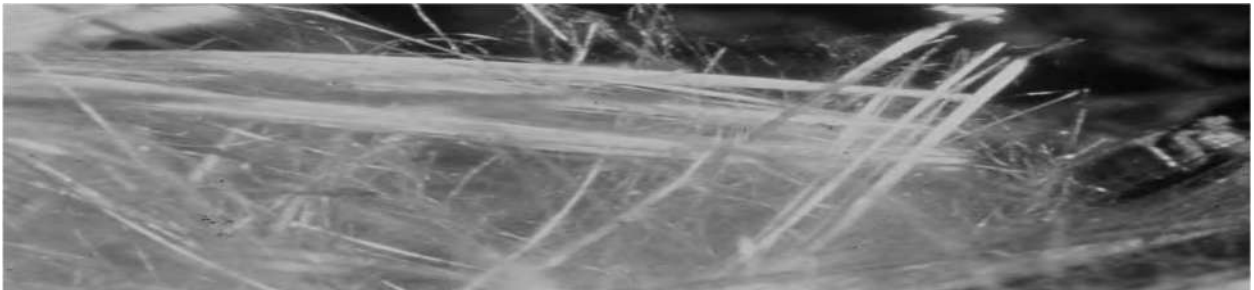
HEALTH EFFECTS OF ASBESTOS EXPOSURE

ASBESTOS MUST BE INHALED TO CAUSE DISEASE

Intact and undisturbed asbestos presents no **direct** health hazard but does present a **potential exposure** hazard should fibres be released and inhaled or ingested. As a result, there is **some risk** associated with **all** asbestos projects.

HEALTH EFFECTS OF ASBESTOS

Asbestos fibres don't break in half across their diameter (width), but rather split into thinner and thinner needle-like fibres along their length. An asbestos fibre can remain airborne for a long time and can easily become airborne again after it has settled if there is any air movement.



A person exposed to asbestos may feel no ill effects at the time of exposure. The time period between exposure to asbestos fibres and the development of disease can range from 15 to 55 years. This is known as the **latency period**. The asbestos-related diseases workers get today are the result of exposures during the 1960s, 1970s, and 1980s.

Primary Diseases - Although the harm caused by asbestos is not apparent at first, asbestos exposure can lead to serious, debilitating, and often fatal diseases.

There are **three (3) main diseases** caused by exposure to and the inhalation of **asbestos** fibres:

1. Asbestosis;
2. Lung cancer; and
3. Mesothelioma

ASBESTOSIS

Asbestosis is a condition associated with exposure to high concentrations of airborne asbestos. It is an irreversible, fatal disease. The lungs build up scar tissue around the fibres in an attempt to remove them.

This causes lung tissues to stiffen and leads to symptoms of coughing, difficulty in breathing, weight loss and eventually death. The disease is similar to silicosis and “black lung”, diseases associated with work in mines.

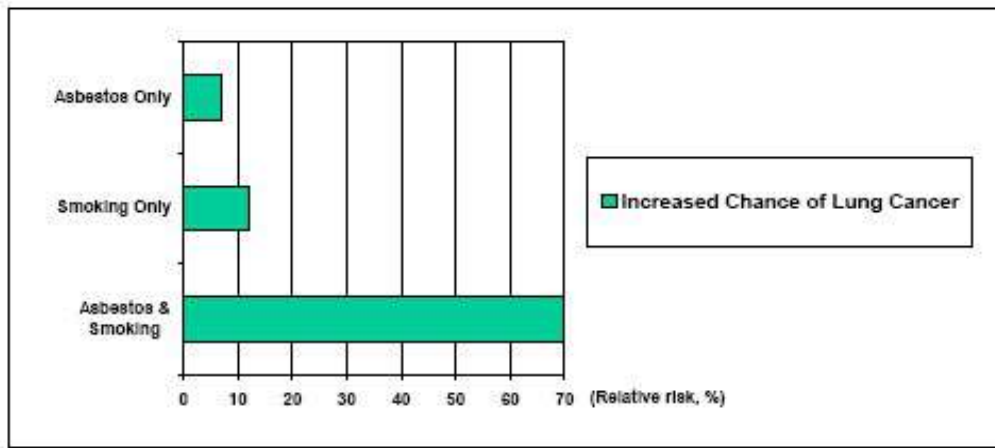
Early symptoms of the disease — shortness of breath, often accompanied by a dry cough — usually develop 10 to 20 years after initial exposure.

LUNG CANCER

Cancer is a growth of a group of cells dividing out of control, producing a tumor in the affected tissue which prevents its normal function. Asbestos fibres trapped in the lungs can trigger cancerous growth in the lungs.



Asbestos exposure and smoking increases the risk of lung cancer by as much as **70** times.



MESOTHELIOMA

Cancer of the lining of the lung (pleura) or chest / abdominal wall. It is extremely rare and always fatal (within months of the diagnosis). 85% of individuals with Mesothelioma have been exposed to asbestos.

RISK EXPOSURE

A risk assessment must be conducted by a competent individual, using the **Exposure Assessment Algorithm (EAA)**.

The Exposure Assessment Algorithm lists **8** major factors which assist in evaluating the condition of existing Asbestos Containing Material.

EAA #1 CONDITION OF MATERIAL

The condition of the asbestos-containing materials may indicate how easily fibres can cause contamination by being released into the area. An assessment of the condition considers the quality of the installation, adhesion of the material to the underlying substrate, deterioration, vandalism and / or damage.

EAA #2 WATER DAMAGE

Water can dislodge, delaminate and disturb friable asbestos-containing materials that are otherwise in good condition. Water can carry fibres as slurry to other areas where evaporation leaves a collection of fibres that can be released into the air.

EAA #3 EXPOSED SURFACE AREA

Any friable material which is visible is considered to be exposed.

An exposed surface increases the potential for fibre fallout and the possibility of contact or damage.

Maintenance personnel frequently access the space above suspended ceilings to service or maintain electrical or communications equipment, or adjust the ventilation system. In most cases, this space is considered an exposed surface. Areas with louvers, grids or other open ceiling systems should be considered exposed.

EAA #4 ACCESSIBILITY

Accessibility is one of the most important indicators of exposure potential. If the asbestos-containing material can be reached, it is accessible and subject to accidental or intentional contact and damage. Friable material is considered accessible if it is close to heating, ventilation, lighting and plumbing systems requiring maintenance or repair.

In schools, the behaviours of the student population should be considered in evaluating accessibility. Damage is the most obvious factor. For example, students involved in sport activities may accidentally damage material on the walls and ceiling of a gymnasium. Material that is easily accessible is also subject to damage by vandalism.

EAA #5 ACTIVITY AND MOVEMENT

This factor combines the effects of general causes that may result in contact with, or damage to, friable material. These causes include air movement, maintenance activities, vibration (from machinery or other sources) and activity levels of students or building workers. This factor is also an indication of the potential for future exposure.

EAA #6 AIR DISTRIBUTION SYSTEM

Asbestos materials may not be located in supply or return air plenums in a form in which or location where asbestos fibres could enter the air supply or return air systems. Action is required by building owners if asbestos-containing materials are found in these areas.

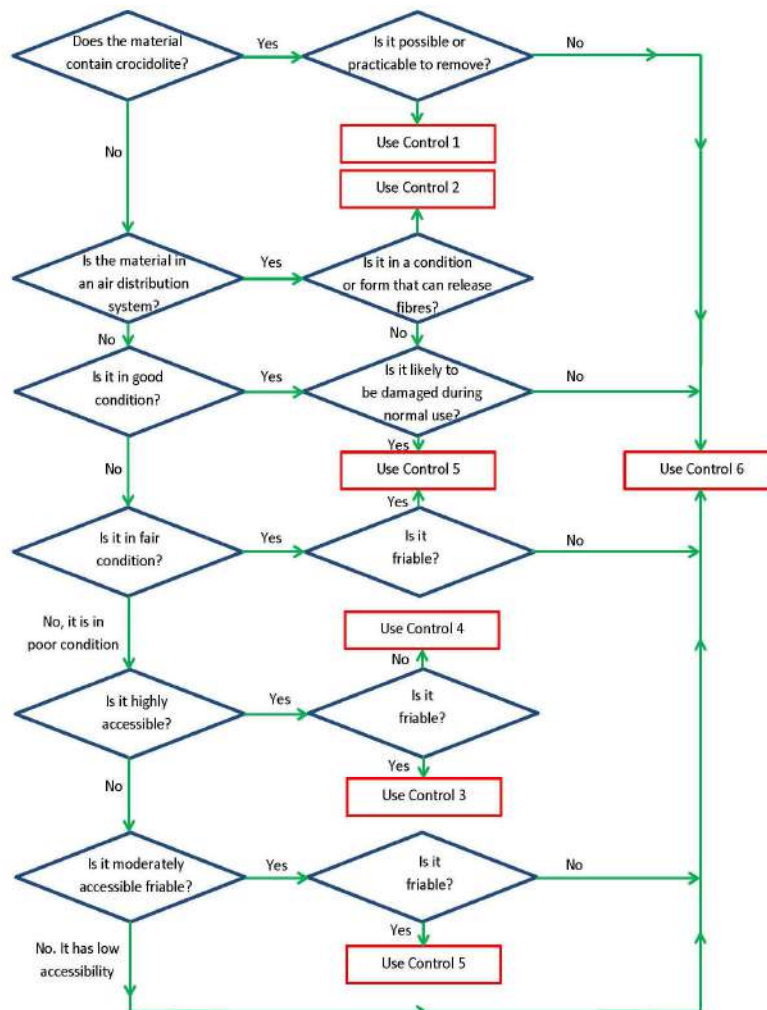
EAA # 7 FRIABILITY

The easier the material can be crumbled, the more friable the material and the greater the potential for asbestos fibre release and contamination. Sprayed asbestos material is generally more friable than most troweled materials or mechanically installed insulation. **Non-friable** materials have asbestos fibres bound tightly by other materials such as vinyl, cement and other mastics.

EAA # 8 ASBESTOS CONTENT

To calculate total asbestos content, the percentage content for each type of asbestos present in a given sample should be summed. While all asbestos-containing materials present an exposure potential, those with a high percentage of asbestos content can release more fibres.

Asbestos Risk Decision Tree



ASBESTOS CONTROL OPTIONS

Control 1 - Immediate removal of material.

Control 2 - Immediately prevent the asbestos fibres from entering the air distribution system through changes to the system, removal, clean up and / or repair or implement an Asbestos Management Plan (Control 6).

Control 3 - Immediately restrict access to the area and prevent air movement. Remove or clean up and / or repair. If not ultimately removed, implement an Asbestos Management Plan (Control 6).

Control 4 - Immediately restrict access to the area. Remove or clean up and / or repair. If not ultimately removed, implement an Asbestos Management Plan (Control 6).

Control 5 - Schedule removal or clean up and / or repair in a reasonable time frame and if not ultimately removed, implement an Asbestos Management Plan (Control 6).

Control 6 - Implement an Asbestos Management Plan. The Plan should be in writing.

It may take several years for symptoms of asbestos related diseases to appear. Adequate PPE and site-specific work procedures have been devised to assure that the worker is protected by providing:

1. **Respirators:** The respirator and filters will be supplied by B&N and will be approved for protection against asbestos-containing dusts and mists. Refer to procedures issued with the respirator for proper use and care in the site-specific HASP.
2. **Coveralls:** The disposable suits and hood reduces the amount of fiber on your person, thus making it easier to de-contaminate. The suits must be removed and left in the dirty work area prior to entering the shower.
3. **Shower Facilities:** A complete showering, including the washing of hair is necessary to remove the asbestos fiber from a worker's body (de-contaminate). This protects the worker from inhaling fiber once the respirator is removed and avoids fiber exposure by others.

GENERAL PROCEDURES

1. No person shall enter, or cause others to enter, a work area which may have excessive airborne fiber asbestos (contaminated) without properly fitted and B&N approved PPE as defined in the site-specific HASP. When work or a work process are likely to cause workers to be exposed to asbestos, or dusts containing asbestos, means shall be provided to control asbestos dust from exceeding the threshold limit value established by the ACGIH – 0.1 fibers per cubic centimeter over an 8-hour time period
2. All B&N employees must observe posted signs and / or labels identifying Asbestos Containing Material (ACM) and / or presumed asbestos containing material (PACM). ACM and PACM must not be disturbed unless approved abatement procedures are in place
3. No person shall leave, or cause others to leave, unless during an emergency, the contaminated area without the removal of their respirator, suit and complete showering
4. No modification or removal of PPE will be tolerated inside the contaminated area
5. No tobacco, food, drinks, matches, or lighters are to be taken into the contaminated area
6. Facial hair must be clean shaven for proper fit of respirator equipment as per manufacturer's instructions and as defined in the site-specific HASP
7. Good work practices are to be followed to eliminate risk or excessive dust levels within the work area and avoid contamination of all "Clean Areas" by isolation
8. Before beginning a project, the owner of the project shall determine whether any designated substances are present at the project site and shall prepare a list of all designated substances that are present at the site. This report shall be prepared by a qualified professional with experience in the practice of occupational hygiene as it relates to asbestos management. A copy of this list shall be available at the time of tendering and shall be available at the job site

9. B&N will maintain ACM records including professional assessment reports, risk assessments, inspections and air monitoring results for the site for a minimum of 10 years
10. B&N will maintain records of job site procedures including corrective actions to control fiber release and the Appropriate Provincial Health and Safety Authorities abatement notification
11. Records for all asbestos abatement training, and all ACM possible exposure hours will be kept for the duration of the company existence
12. Where a change is made in a process involving asbestos, or in the methods and procedures in while within a mining project, the use, handling or storage of asbestos and the change could result in a significant difference in the exposure of a worker to the inhalation or ingestion of asbestos, B&N shall cause a further assessment to be made

Additional Appropriate Provincial Health and Safety Legislation or guidelines as they apply to a specific project will be issued and posted. All B&N employees are to acquaint themselves with such postings and work accordingly. All B&N employees will be made aware of the site-specific hazards including potential ACM during the completion and review of the daily safe work permit. Failure to adhere to the above procedures, and / or disregarding directions by the supervisor will be subject to disciplinary actions up to and including termination.

TYPE 1, 2, AND 3 OPERATIONS

Definition of Type 1 Operations (Low Risk):

1. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square meters and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated
2. Installing or removing non-friable asbestos-containing material, other than ceiling tiles, if the material is installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated
3. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if;
 - a. The material is wetted to control the spread of dust or fibers, and
 - b. The work is done only by means of non-powered hand-held tools
 - c. Cutting, grinding or abrading an asbestos product with a power tool equipped with a dust collection device and HEPA filter;
4. Removing less than one square metre of drywall in which joint-filling compounds that are asbestos-containing material have been used

Definition of Type 2 Operations (Moderate Risk):

1. Removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling
2. The removal or disturbance of one square metre or less of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship
3. Enclosing friable asbestos-containing material
4. Applying tape or a sealant or other covering to pipe or boiler insulation that is asbestos-containing material.
5. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area of 7.5 square metres or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated
6. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if;
 - a. The material is not wetted to control the spread of dust or fibers, and
 - b. The work is done only by means of non-powered hand-held tools
 - c. Cutting, grinding or abrading an asbestos product with a power tool equipped with a dust collection device and HEPA filter;

7. Removing one square metre or more of drywall in which joint filling compounds that are asbestos-containing material have been used
8. Removing insulation that is asbestos-containing material from a pipe, duct or similar structure using a glove bag
9. Cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material
10. An operation that;
 - a. Is not mentioned in any of paragraphs 1 to 10
 - b. May expose a worker to asbestos, and
 - c. Is not classified as a Type 1 or Type 3 operation

Definition of Type 3 Operations (High Risk):

The removal or disturbance of more than one square metre of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of a building, aircraft, ship, locomotive, railway car or vehicle or any machinery or equipment.

1. The spray application of a sealant to friable asbestos-containing material
2. Cleaning or removing air handling equipment, including rigid ducting but not including filters, in a building that has sprayed fireproofing that is asbestos-containing material
3. Repairing, altering or demolishing all or part of a kiln, metallurgical furnace or similar structure that is made in part of refractory materials that are asbestos-containing materials
4. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters
5. Repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986
6. Friable asbestos-containing material is classified according to the total area on which work is done consecutively in a room or enclosed area, even if the work is divided into smaller jobs

Introduction to Asbestos Abatement Methods

The first step to properly managing asbestos is to conduct a building survey to confirm the location of asbestos-containing materials, the types of asbestos present and the condition of the materials. In situations where a building was constructed prior to 1980, the building survey is an important step prior to the start of any renovation or demolition work. In rare instances, asbestos has been found in buildings constructed after 1980.

If asbestos-containing materials are identified and exposure is occurring or is likely to occur, corrective action must be taken. In deciding which actions provide the most efficient long-term solution, consideration should be given to the present condition of the asbestos-containing materials, the location of these materials, their function and the cost of the proposed method for controlling asbestos exposure.

There are four basic approaches to controlling exposure:

- (1) **Removal** — asbestos-containing materials are completely removed and properly disposed of.
- (2) **Encapsulation** — asbestos-containing materials are coated with a bonding agent called a sealant.
- (3) **Enclosure** — asbestos-containing materials are separated from the building environment by barriers.
- (4) **Management Plan** — the area is inspected periodically for changes in exposure potential and maintenance staff are correctly notified and trained to deal with the asbestos-containing materials. A management plan can be used to deal with asbestos-containing materials that do not pose a risk or for materials remaining after remedial actions have reduced the potential for exposure.

1. Removal



During removal material is collected from the underlying surface and packaged for burial:

- Removal is mandatory prior to demolition or major renovation, and
- Can only be done by qualified individuals

Advantages of removal

- Eliminates the source of the asbestos
- Eliminates the need for an ongoing surveillance program

Disadvantages of removal

- Usually the most costly and complicated method of controlling exposure.
- Usually the most time-consuming method.
- Replacement with substitute material may be necessary.
- Highest potential for worker exposure during removal.

Comments

- Removal is mandatory prior to demolition or major renovations.
- Removal is significantly cheaper if combined with renovation or demolition activities.

2. Encapsulation

- The asbestos material is coated with a bonding agent called a sealant to prevent fibre release.
- Encapsulation helps to reduce or control the friability of asbestos containing materials.
- There are 2 types of sealants:
 - **Penetrating**, which penetrate and harden the asbestos material and
 - **Bridging**, which cover the surface of the material with a protective coating.



Conditions for Encapsulation

- Encapsulation is a temporary measure.
- Must be done in areas where no further contact with the asbestos will occur.
- The asbestos containing material must be capable of supporting the extra weight of the encapsulated.
- Fire rating of encapsulated material must be considered.

Bridging Sealants

- Must have a tough skin that can withstand moderate impact.

- Must be flexible
- Must be flame retardant
- Must resist deterioration over time
- Must be non-toxic

Advantages of Encapsulation

- Usually more rapid and economical than removal
- Reduces the potential for fibre release



Disadvantages of Encapsulation

- The asbestos source remains
- The Encapsulated material is difficult to remove
- There is an additional weight of sealant, which may pull the asbestos from the underlying surface
- Must be completed using high risk procedures
- A management system and continued inspection is required

3. Enclosure

- A barrier or enclosure is erected to prevent access to the asbestos containing material
- Enclosure is temporary control method
- Acceptable enclosure materials include drywall, plywood, bricks, sheet metal, etc.
- A suspended ceiling is too easily entered and would not be an acceptable enclosure.

Advantages of enclosure

- May be a rapid, economical, uncomplicated method of controlling exposure.

Disadvantages of enclosure

- The asbestos source remains.
- Fibre fallout may continue behind the enclosure.
- May be costly if the enclosure disturbs the function of other systems e.g. enclosure may require lighting changes.
- A management system is required. Precautions are necessary for entry into the enclosure when performing maintenance or renovation activities.
- Continuing inspection is required to check for damage to the enclosure system.

4. Management Plan

When asbestos-containing materials remain in place, a management plan must be implemented. The plan should be in writing and address the following:

- (a) Inventory of asbestos-containing materials in the building
- (b) Inspection frequency and procedures
- (c) Training requirements for maintenance staff and others who may come into contact with the materials or work in proximity to the materials
- (d) Procedures to follow in the event of damage or other emergency situations
- (e) Procedures to follow should the condition of the materials change or work routines be altered
- (f) Notification procedures for occupants and others in the building; and

(g) Labelling of asbestos-containing materials

Advantages of a management plan

- Initial cost lowest and minimum disruption to building operation.

Disadvantages of a management plan

- The asbestos source remains
- The potential for exposure may increase over time
- Precautions are necessary to prevent damage during maintenance or renovation activities
- Continuing inspection and re-evaluation are necessary

Comments

- A management plan may be very difficult and costly to implement and enforce
- This is a temporary measure as removal of the material will eventually be required

REMOVAL PROCEDURES

General Measures and Procedures for Type 1, 2 & 3 Operations;

1. A wetting agent shall be added to water that is to be used to control the spread of asbestos dust and fibers
2. Eating, drinking, chewing or smoking shall not be permitted in the work area
3. Containers for dust and waste containing asbestos shall be,
 - a. Dust tight
 - b. Suitable for the type of waste
 - c. Impervious to asbestos
 - d. Identified as containing asbestos waste
 - e. Cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before being removed from the work area, and
 - f. Removed from the workplace frequently and at regular intervals
4. The employer shall provide every worker who will enter the work area with respiratory protective equipment and the worker shall wear and use the equipment
5. Protective clothing shall be provided by an employer and worn by every worker who enters the work area and the protective clothing
 - a. Shall be made of a material which does not readily retain nor permit penetration of asbestos fibers
 - b. Shall consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck
 - c. Shall include suitable footwear, and
 - d. Shall be repaired or replaced if torn
6. Compressed air shall not be used to clean up and remove asbestos dust from any surface
7. Only persons wearing protective clothing and equipment shall enter a work area where there is an asbestos dust hazard and the worker shall wear and use the protective clothing

The Following Measures and Procedures Apply to Type 1, 2 & 3 Operations;

1. Before beginning work, visible dust shall be removed with a damp cloth or a vacuum equipped with a HEPA filter from any surface in the work area, including the thing to be worked on, if the dust on that surface is likely to be disturbed
2. The spread of asbestos dust from the work area shall be controlled by measures appropriate to the work to be done including the use of drop sheets of polyethylene or other suitable material
3. The product shall be wetted unless wetting creates a hazard or causes damage
4. Frequently and at regular intervals during the doing of the work and immediately upon completion of the work,
 1. Dust and waste containing asbestos shall be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping and placed in a container

2. Drop sheets that are to be disposed of shall be wetted and folded to contain the dust and placed in a container suitable for the type of waste, dust tight, impervious to asbestos and identified as asbestos waste
5. Drop sheets shall not be reused
6. After work is completed, polyethylene sheeting and similar materials used for barriers and enclosure shall not be reused, but shall be wetted and placed in a container as described above in 4b as soon as practicable
7. After work is completed, barriers and portable enclosures that will be reused shall be cleaned, by using a vacuum equipped with a HEPA filter or by damp wiping, as soon as practicable
8. Barriers and portable enclosures shall not be reused unless they are rigid and can be cleaned thoroughly.
9. Compressed air shall not be used to clean up and remove dust from any surface
10. Eating, drinking, chewing or smoking shall not be permitted in the work area
11. Where a worker requests that the employer provide a respirator to be used by the worker, MDPL shall provide the worker with a NIOSH approved respirator and the worker shall wear and use the respirator
12. Before leaving the work area protective clothing shall be placed in a container as described above in 4b as soon as practicable
13. Facilities for the washing of hands and face shall be made available to a worker and shall be used by every worker when leaving the work area
14. All asbestos waste will be stored, transported and disposed of in sealed containers. The asbestos product must be clearly labeled to identify it as asbestos waste

Checklist for Asbestos Work Procedures:

Type 1 Operations:

1. Visible dust removed from work area.
 2. Dust removed by damp wiping or vacuuming with HEPA filter-equipped vacuum.
 3. No eating, drinking, chewing, or smoking in a work area.
 4. Drop sheets (or other measure) to control spread of dust.
 5. Asbestos-containing products wetted, where practicable.
- Note: Items 6 to 11 only apply where a worker requests a respirator.*
6. Non-powered reusable or replaceable air purifying dust respirator suitable for asbestos provided by employer.
 7. Respirators cleaned, disinfected and inspected after use on each shift.
 8. Respirators in good state of repair.
 9. Respirators fitted with an effective seal, where applicable.
 10. Written procedures for respirator use, care and selection.
 11. Clean, convenient and sanitary location for respirator storage.
 12. Instruction provided on the use and care of respirators.
 13. Compressed air not used to clean up or remove dust from any surface.
 14. Asbestos dust waste cleaned up at regular intervals.
 15. Waste in dust-tight containers.
 16. Waste containers identified as containing asbestos.
 17. Drop sheets that will be reused to be cleaned by damp wiping or vacuuming with HEPA filter-equipped vacuum.
 18. Drop sheets that will not be reused to be wetted and disposed of as asbestos waste.
 19. Washing facilities for hands and face provided.
 20. Washing facilities used by workers.
 21. Instruction and training provided.

Type 2 Operations:

Preparation of Work Area:

1. Friable asbestos-containing material removed from surfaces in work area.
2. Friable material removed by damp wiping or vacuuming with HEPA filter-equipped vacuum.
3. Drop sheets (or other measure) to control spread of dust.

Note: Items 4 to 8 apply to the preparation of the work area for type 2 operation mentioned in sub clause 9(1)(b)(i) or (ii) of the regulation, i.e. The removal of a false ceiling or the minor removal or disturbance of friable asbestos-containing material.

4. Signs warning of asbestos dust hazard.
5. Mechanical ventilation system service work area disabled. (where practicable)
6. Ventilation ducts to and from work area sealed. (where practicable)
7. Work area enclosed by walls or other enclosure.
8. Friable material removed from surface of false ceiling when access obtained.

Work Practices:

1. No eating, drinking, chewing or smoking in work area.
2. Compressed air not used to clean or remove dust from any surface.
3. Wetting agent added to water for dust control.
4. All friable material that may be disturbed, wetted, unless wetting would create hazard or cause damage.
5. Asbestos dust and waste cleaned up at regular intervals.
6. Waste in dust-tight containers.
7. Waste containers identified as containing asbestos.
8. Drop sheets and barriers that will be reused to be cleaned by damp wiping or vacuuming with HEPA filter equipped vacuum.
9. Drop sheets and barriers that will not be reused to be wetted and disposed of as asbestos waste.
10. Protective clothing and equipment worn by all persons in work area.
11. Protective clothing provided by the employer.
12. Protective clothing made of material that does not readily retain or permit penetration of asbestos fibers.
13. Footwear and head covering included as protective clothing.
14. Protective clothing repaired or replaced if torn.
15. Protective clothing decontaminated by damp wiping or with vacuum equipped with a HEPA filter before leaving work area.
16. Protective clothing that will not be reused decontaminated and disposed of as asbestos waste.
17. Non-powered reusable or replaceable air purifying dust respirators suitable for asbestos provided by employer.
18. Respirator cleaned, disinfected and inspected after use on each shift.
19. Respirators in good state of repair.
20. Respirators fitted with an effective seal, where applicable.
21. Written procedures for respirator use, care and selection.
22. Instruction provided on the use and care of respirators.
23. Clean, convenient and sanitary location for respirator storage.
24. Washing facilities for hands and face provided.
25. Washing facilities used by workers.
26. Instruction and training provided.
27. Asbestos work records maintained.

Type 3 Operations

Type 3 Operations – A:

Type 3 operations mentioned in Subclause 9(1)(c)(v) of regulation (work with power tool not equipped with a dust collection device and HEPA filter).

1. Construction Health and Safety Branch notified.

Preparation of Work Area:

1. Work area separated from rest of workplace by walls, barricades, fencing or other suitable means.
2. Work area identified by signs warning of asbestos dust hazard.
3. Warning signs state that access is restricted to persons wearing protective clothing and equipment.
4. Spread of asbestos dust from work area controlled by walls or an enclosure of polyethylene or other suitable material.
5. Entrances to and exits from work area fitted with curtains of polyethylene sheeting or other suitable material.

Protective Clothing and Equipment:

1. All workers in work area wear protective clothing and equipment.
2. Powered air purifying positive pressure dust respirator suitable for protection against asbestos provided by employer.
3. Respirators cleaned, disinfected, and inspected after use on each shift.
4. Respirators in good state of repair.
5. Written procedures for respirator use, care and selection.
6. Clean, convenient and sanitary location for respirator storage.
7. Instruction provided on the use and care of respirators.
8. Protective clothing provided by employer.
9. Protective clothing made of material that does not readily retain or permit penetration of asbestos fibers.
10. Footwear and head covering included as protective clothing.
11. Protective clothing repaired or replaced if torn.
12. Protective clothing to be reused decontaminated by damp wiping or with vacuum equipped with a HEPA filter before leaving work area.
13. Protective clothing that will not be reused to be decontaminated and disposed of as asbestos waste.

Work Practices:

1. Eating, drinking, chewing or smoking prohibited in work area.
2. Wetting agent added to water used to control spread of dust.
3. Compressed air not used to clean up and remove dust from any surface.
4. Dust and waste containing asbestos cleaned up and removed frequently and at regular intervals during the doing of the work and immediately on completion of the work.
5. Asbestos waste placed in dust-tight containers that are impervious to asbestos and identified as containing asbestos waste.
6. Polyethylene sheeting or other material used for barriers and enclosures not reused.
7. Drop sheets and barriers wetted and disposed of as asbestos waste.

Other Measures:

1. Washing facilities for hands face provided.
2. Washing facilities used by workers.
3. Instruction and training provided.
4. Asbestos work records maintained.

Type 3 Operations – B:

Outdoor Asbestos Removal:

1. Construction Health and Safety Branch notified

Preparation of the Work Area:




1. Work area separated from the rest workplace by walls, barricades, fencing or other suitable means.
2. Work area identified by signs warning of asbestos dust hazard.
3. Warning signs state access is restricted to persons wearing protective clothing and equipment.
4. Temporary electrical systems for wet removal operations equipped with ground fault circuit interrupters.
5. Three-room decontamination facility located as close as practical to the work area.

Work Practices:

6. Eating, drinking, chewing or smoking prohibited in work area.
7. Wetting agent added to water to control the spread of asbestos dust.
8. Friable material that may be distributed, wetted, unless wetting would create a hazard or cause damage. (where practicable)
9. Dust and waste containing asbestos not permitted to fall freely from one work level to another.
10. Compressed air not used to clean up and remove dust from any surface.
11. Asbestos dust and waste cleaned up at regular intervals.
12. Waste in dust-tight containers.
13. Waste containers identified as containing asbestos.
14. All persons in work area must wear protective clothing and equipment.

Protective Clothing and Equipment:

1. Appropriate respirator provided by employer:

A) Work with wet friable Material that contains Only chrysotile asbestos		Powered air purifying dust respirator suitable for asbestos
B) Work with wet friable material that contains asbestos of a type other than chrysotile		Supplied air, positive pressure dust respirator suitable for asbestos
C) Work with friable material that cannot be wetted		Supplied air, positive pressure full face piece respirator

2. Respirators cleaned, disinfected and inspected after use on each shift.
3. Respirators in good state of repair.
4. Respirators fitted with an effective seal, where applicable.
5. Written procedures for respirator use, care and selection.
6. Instruction provided in the use and care of respirators.
7. Clean, convenient and sanitary location for respirator storage.
8. Protective clothing provided by employer.
9. Protective clothing made of material that does not readily retain or permit penetration of asbestos fibers.
10. Footwear and head covering included as protective clothing.
11. Protective clothing repaired if torn.
12. Protective clothing removed in decontamination facility.
13. Protective clothing that will be reused decontaminated by damp wiping or with vacuum equipped with HEPA filter.
14. Protective clothing that will not be reused decontaminated and disposed of as waste.

Washing Facilities:

1. Shower room provided in decontamination facility
2. Shower provided with hot and cold water at a temperature between 40c and 50c.
3. Controls available to regulate water flow and temperature (where applicable) of shower.
4. Hot water supply adequate to maintain minimum temperature of 40c.
5. Shower room provided with towels.
6. Shower used by every worker when leaving the work area.

Other Measures:

1. Work area washed down with water after completion of the clean-up and removal, where practicable.
2. Instruction and training provided.
3. Asbestos work records.

Type 3 Operations – C:

Type 3 Operations other than Outdoor Asbestos Removal and Work with Power Tools not Equipped with dust Collection Devices and HEPA Filter.

1. Construction Health and Safety Branch notified.

Preparation of Work Area:




7. Work area separated from the rest of workplace by walls, barricades, fencing or other suitable means.
8. Work area identified by signs warning of asbestos dust hazard.
9. Warning signs state that access is restricted to persons wearing protective clothing and equipment.
10. Asbestos-containing dust removes from work area by damp wiping or vacuuming with a HEPA filter-equipped vacuum.
11. Articles in work are removed or covered with polyethylene or other suitable material.
12. Non-watertight electrical systems locked out for wet removal, where practicable.
13. Temporary electrical systems for wet removal operations equipped with ground fault circuit interrupters.
14. Mechanical ventilation systems serving the work area disabled.
15. Ventilation ducts and other openings to and from the work area sealed.
16. Spread of asbestos dust controlled by an enclosure of polyethylene or other suitable material.
17. Entrances to and exits from work area fitted with curtains of polyethylene sheeting or other suitable material.
18. Three-room decontamination facility incorporated into enclosure.

Work Practices:

19. Work area inspected at least daily for defects in enclosure, barriers or decontamination facility.
20. Work discontinued until all defects repaired.
21. Eating, drinking, chewing or smoking prohibited in work area.
22. Wetting agent added to water to control the spread of asbestos dust.
23. Friable material that may be disturbed, wetted, unless wetting would create a hazard or cause damage.
24. Dust and waste containing asbestos kept wet, where practicable.
25. Compressed air not used to clean up and remove dust from any surface.
26. Dust and waste containing asbestos cleaned up and removed frequently and at regular intervals.
27. Asbestos waste placed in dust-tight containers that are impervious to asbestos and identified as containing asbestos waste.

Protective Clothing and Equipment:

1. All persons in work area must wear protective clothing and equipment.
2. Appropriate respirator provided by employer:

A) Work with wet friable Material that contains Only chrysotile asbestos		Powered air purifying dust respirator suitable for asbestos
B) Work with wet friable material that contains asbestos of a type other than chrysotile		Supplied air, positive pressure dust respirator suitable for asbestos
C) Work with friable material that cannot be wetted		Supplied air, positive pressure full face piece respirator
3. Respirators cleaned, disinfected and inspected after use on each shift.
4. Respirators in good state of repair.
5. Respirators fitted with an effective seal, where applicable.
6. Written procedures for respirator use, care and selection.
7. Instruction provided in the use and care of respirators.
8. Clean, convenient sanitary location for respirator storage.
9. Protective clothing provided by employer.

10. Protective clothing made of material that does not readily retain or permit penetration of asbestos.
11. Footwear and head covering included as protective clothing.
12. Protective clothing repaired or replaced if torn.
13. Protective clothing removed in decontamination facility.
14. Protective clothing that will be reused decontaminated by damp wiping or with vacuum equipped with a HEPA filter.
15. Protective clothing that will be reused decontaminated and disposed of as asbestos waste.

Clean-up Procedures:

16. Dust and waste cleaned up and removed immediately on completion of work.
17. Work area cleaned by thorough washing and vacuuming with HEPA filter-equipped vacuum before dismantling enclosure.
18. Equipment and tools cleaned by damp wiping and vacuuming with HEPA filter-equipped vacuum or disposal of as asbestos waste.

Washing Facilities:

19. Shower room provided in decontamination facility.
20. Shower provided with hot and cold water or water at a temperature between 40C and 50C.
21. Controls provided to regulate water flow and temperature (where applicable) of shower.
22. Hot water supply adequate to maintain minimum temperature of 40C.
23. Shower room provided with towels.
24. Shower used by every worker leaving the work area.

Other Measures:

25. Instruction and training provided.
26. Asbestos work records maintained.

GLOVE BAG PROCEDURE:

Glove bag (also known as containment bags) may be used for the removal of asbestos containing pipe insulation. Under section 9 of the regulation, such work would be classified as either a Type 2 or Type 3 operation, depending on how extensive it is. However, no mention of glove bags is made in the procedure for carrying out a Type 2 or Type 3 operation. Therefore, an employer wishing to use a glove bag procedure must apply to the director of the Construction Health and safety Branch for a variance under section 18 of the regulation. To facilitate this process, the following procedure is provided. The removal of asbestos-containing pipe insulation in accordance with this procedure will be accepted as equivalent to the measures and procedures specified in section 12, 13 and 14 of the regulation.

1. The procedure specified by the glove bag supplier/manufacturer shall be followed and the employer shall ensure that a worker is trained in the use of the glove bag prior to the doing of the work.
2. Glove bag shall not be used where pipe temperature exceeds 65C.
3. Glove bag shall not be used to remove pipe insulation that has a jacketing made of aluminum of thickness exceeding 0.51 mm (24 gauge) or a jacketing made of steel.
4. Glove bag may be used to remove pipe insulation that has a jacketing of aluminum less than 0.51 mm (24 gauge) so long as the following conditions are satisfied:
 - a. the length of each section of the jacketing shall not exceed the length of the glove bag;
 - b. the jacketing shall be removed only after the glove bag has been attached to the pipe and sealed; and
 - c. any jagged or sharp edges have been produced during the removal of the jacketing shall be handled in such a way as to minimize the possibility of ripping or puncturing the glove bag.
5. A wetting agent shall be added to water that is to be used to control the spread of asbestos dust.
6. Compressed air shall not be used to clean up and remove dust from any surface
7. Eating, drinking, chewing or smoking shall not be permitted in the work area.
8. The work area shall be identified by clearly visible signs warning of the asbestos dust hazard.
9. If the work area is being carried on indoors, the work area shall be separated from the rest of the workplace

by walls or by the placing of barricades or fencing or by some other suitable means.

10. The employer shall provide every worker who will enter the work area with respiratory protective equipment, and the worker shall wear and use the equipment. The respirator shall be a non-powered reusable air purifying dust respirator suitable for protection against asbestos.

Note: Respirators certified by the U.S. National Institute for Occupational Safety and Health (NIOSH) or the British Standards Institution meet this requirement.

11. Dust that has fallen from the pipe insulation material shall be cleaned up and removed prior to the attaching of the glove bag, by using vacuuming with a HEPA filter or by damp wiping.
12. Friable material containing asbestos that will be disturbed or removed during the work thoroughly wetted before the glove bag is attached and frequently and at regular intervals during the doing of the work.
13. The glove bag shall be inspected for defects before commencing in work. A defective glove bag shall not be used.
14. Tools inside a glove bag shall be also designed that the likelihood of puncturing the glove bag is minimized; a knife used inside a glove bag shall have a retractable blade; a saw used inside a glove bag shall be the flexible wire type; a brush used inside a glove bag shall not have metal bristles.
15. If the glove bag is ripped, cut or opened in any way, work that may disturb the friable material shall cease immediately. If the rip, cut or opening is small and easy to repair, then the glove bag shall be repaired forthwith tape. Work may continue once the repairs are completed. If the rip, cut or opening is not small, and not easy to repair, then every worker in the work area shall immediately don protective clothing, and the protective clothing:
 - a. shall be made of material that does not readily retain or permit the penetration of asbestos fibers;
 - b. shall consists of full body covering, including head covering with snug fitting cuffs at the wrists, ankles and neck;
 - c. shall include suitable footwear; and
 - d. shall be repaired or replaced if torn.

The glove bag shall be disposed of forthwith in accordance with the requirements of paragraph 20 below. Any asbestos-containing material released shall be cleaned up and removed by using a vacuum equipped with HEPA filter or by damp wiping.

16. Before leaving the work area, a worker wearing protective clothing shall decontaminate his/her protective clothing by using a vacuum with a HEPA filter or by damp wiping.
17. If protective clothing will not be reused, the worker, after decontaminating his/her protective clothing, shall dispose of it in a container that meets the requirements of paragraph 20 below.
18. Facilities for washing the hands and arms shall be made available to the worker and shall be used by every worker when leaving the work area.
19. Frequently, and at regular intervals during the doing of the work and immediately upon completion of the work, glove bag containing asbestos-contaminated dust and waste shall be placed in a container with paragraph 20 below and shall be removed from the workplace.
20. Containers for dust and waste containing asbestos shall be:
 - a. dust-tight;
 - b. suitable for the type of waste;
 - c. impervious to asbestos;
 - d. identified as containing asbestos waste;
 - e. cleaned with a damp cloth or vacuum equipped with a HEPA filter immediately before removed from the work area; and
 - f. removed from the workplace frequently and at regular intervals

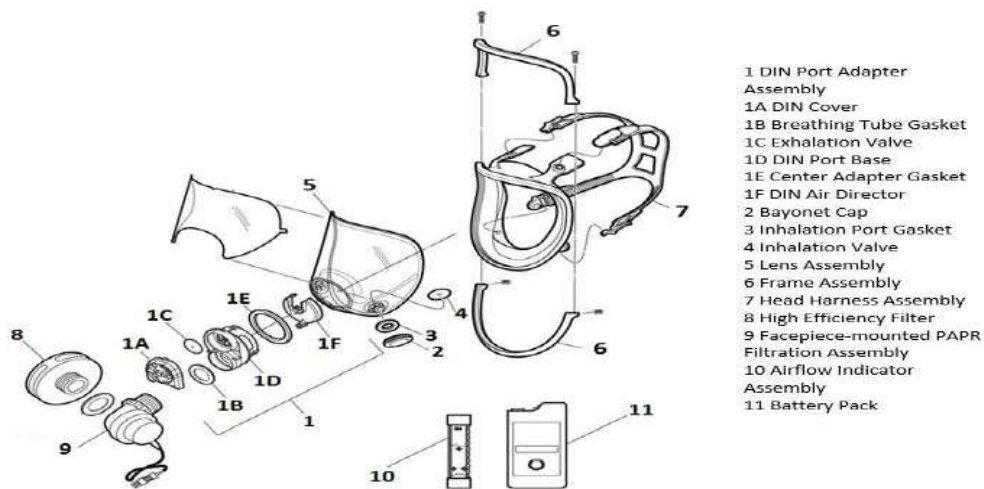
INSTRUCTIONS FOR USE AND MAINTENANCE OF RESPIRATORS

The respirator and filters B&N supplies have been approved for protection against asbestos-containing dusts and mists through the CSA standards. The following procedure must be followed to offer maximum protection:

1. Shall be fitted so that there is an effective seal between the respirator and the worker's face, unless equipped with a hood or helmet

2. Shall be maintained in accordance with procedures established and consistent with the manufacturer's instructions
3. Check operation of valves and replace if necessary:
 - a. **Outlet:** bottom of center of face piece, visual check by removing cover
 - b. **Inlet:** both sides of face piece, visual check from inside
4. Install filters, one in each site, and replace both retainers; TYPE 'H' do not have retainers
5. Place respirator on face; do up straps; and adjust for snug fit (before putting on hood). Place plastic bag over both inlet retainers and breathe in to check for leakage around face. Adjust as required
6. Report any problems with the above to the supervisor
7. The respirator is the last item removed. This is done in the shower in the following sequence:
 - a. Wet respirator including filters
 - b. Remove from face and place filters in disposable container, or if "P100" leave in place for next usage
 - c. Clean, disinfect and inspect after each use or as often as necessary
 - d. Damaged or deteriorated parts replaced prior to next use
 - e. Stored in a clean and sanitary location ready for next use

POWERED AIR PURIFYING RESPIRATOR



INSTRUCTION AND TRAINING

1. B&N will ensure instruction and training in the following subjects are provided by a competent person to every employee working in a Type 1 (low risk), Type 2 (medium risk) or Type 3 (high risk) operation when a worker will be coming into contact with asbestos containing material or presumed to come in contact with asbestos containing material:
 - a. The hazards of asbestos exposure, i.e.; lung cancer, mesothelioma
 - b. The means of identifying asbestos-containing material at the workplace
 - c. Personal hygiene, dangers of smoking, disposal and transportation requirements and safe work practices
 - d. The purposes and significance of any health monitoring that the worker may be required to participate in
 - e. The use of all PPE including cleaning and disposal of respirators and protective clothing
 - f. Demonstrated competency by each worker in asbestos management
2. The JHSC / JOHSC and safety representative, if any, for the workplace shall be advised of the time and place where the instruction and training
3. The instruction and training related to respirators shall include instruction and training related to,
 - a. The limitations of the equipment
 - b. Inspection and maintenance of the equipment

- c. Proper fitting of a respirator; and
 - d. Respirator cleaning and disinfection
4. All B&N employees will be provided instructions and made aware of all site-specific working conditions and hazards including potential ACM during the completion and review of the daily safe work permit

EMERGENCY DECONTAMINATION PROCEDURES

These procedures are to minimize possible public exposure to asbestos fibers when the regular decontamination processes within a Type 2 & 3 enclosure is not practicable as defined in the site-specific HASP.

The first priority will be to address the victim's needs, and secondly the decontamination of the victim and rescuers.

Procedure:

1. Notify the Supervisor immediately of the incident verbally or good means of communication
2. First priority; assess the victims needs and contact the appropriate authorities where required
3. Do not disturb the accident scene; secure the site and area for investigation
4. While victim is being assessed, depending on the severity, one or two workers will proceed through the shower (decontaminating themselves) then move to the bag chute area ready to receive a stretcher or similar through the bagging area. If there are personnel already outside the contaminated area, no workers shall exit enclosure until the victim is outside
5. Personnel outside the enclosure shall ready a sheet or blanket to cover the victim
6. If the incident is assessed as a non-life-threatening injury, co-workers will assist victim to the shower for decontamination
7. If the incident is assessed a life-threatening injury, a stretcher or similar will be made readily available either within the bagging area or as close as practicable
8. The stretcher or similar will be made of wood, plastic, or fiberglass, so it can be washed along with the victim for decontamination upon exiting the contaminated area to minimize airborne exposure and possible contamination of clean areas
9. Once victim has been assessed by qualified first aid person all coverings (Tyvek suits, work boots, socks, hard hat, gloves, etc.) shall be removed if possible and victim placed on a stretcher or similar and secured. If respirator is on, leave on
10. Upon reaching bagging area victim & stretcher or similar will be washed either by hose or pressurized water fire extinguisher assigned and tagged for this purpose to prevent contamination of clean areas and emergency personnel. Respirator will also be removed at this point
11. Victim will then be brought through bagging area received by co-workers who previously showered out.
12. Victim will be covered by a clean sheet or blanket reserved for this purpose
13. If victim has severe burns washing method cannot be applied. Victim will therefore be covered with a dampened sheet or blanket upon exit with respirator still on
14. Exit route will be immediately cordoned off and entire area will be cleaned, either by wet wiping, HEPA vacuuming or both whenever practicable
15. All emergency personnel arriving on scene shall be notified of possible asbestos contamination. Half face respirators shall be readily if requested along with Tyvek suits

Man Down-Not Breathing:

1. As this is an extremely severe situation, the time to remove a victim is critical
2. Victim has to be removed immediately to an outside area
3. Water fire extinguishers tagged for this purpose shall be used to wet victim before, during or at the quickest possible time removal of victim is taking place
4. Once victim is removed outside he shall be wet down again while CPR is taking place and contaminated PPE is being removed if possible
5. Contaminated rescuers shall immediately remove themselves from scene and proceed to shower facility to

decontaminate

6. All areas used to remove victim shall be cordoned off and decontaminated at earliest possible time by HEPA vacuuming & wet wiping
7. All outside emergency personnel arriving on scene shall be made aware of possible asbestos contamination and Tyvek suits & half masks respirators shall be made available
8. Any other possible contaminated areas – e.g. Ambulance, medical devices shall be addressed after victim is treated

If any of the above procedures are used, a competent person will notify personnel in the area that the victim, rescue personnel and the route of exit may be contaminated with asbestos fibers and are to stay clear of the area. The area will be secured and decontaminated as soon as practicable. All responding emergency personnel will also be notified of possible asbestos contamination and that they may require respiratory protection.

The above alternate decontamination procedures must be considered prior to exiting the enclosure under emergency situations if normal decontamination procedures are not possible. All emergency rescue procedures will be defined in the site-specific HASP.

EMERGENCY PREPAREDNESS

B&N must conduct a risk assessment at all workplaces in which a need to rescue or evacuate workers may arise. If the risk assessment shows a need for evacuation or rescue, appropriate written procedures must be developed and implemented, and a worker assigned to coordinate their implementation. All emergency evacuation procedures will be defined in the site-specific HASP.

All B&N workplace must have a written emergency plan, appropriate to the hazards of the workplace. The plan must;

- Address emergency conditions which may arise from within the workplace and from adjacent workplaces
- Be developed, implemented and reviewed as required by the Appropriate Provincial Health and Safety Legislation in consultation with the JHSC / JOHSC and safety representative, as applicable
- Be developed in consultation with the client, emergency response agencies and site-specific needs

Written evacuation procedures appropriate to the risk will be developed, contained in the site-specific HASP and implemented to:

- a. Notify workers, including the first aid attendant, of the nature and location of the emergency
- b. Evacuate workers safely
- c. Check and confirm the safe evacuation of all workers,
- d. Notify the fire department or other emergency responders, and
- e. Notify adjacent workplaces or residences which may be affected if the risk of exposure to a substance extends beyond the workplace

Notification of the public must be in conformity with the requirements of other jurisdictions, including Appropriate Provincial Agencies.

B&N will ensure that an assessment is conducted of the risks posed by hazardous substances from accidental release, fire or other such emergencies.

B&N will ensure the emergency plan:

- Conducts emergency drills to determine whether the procedures work in practice and to thoroughly familiarize workers with their roles in an actual emergency.
- Keeps records of the emergency drills to monitor efficiency
- Provides each worker with enough training to ensure that workers clearly understand the procedures
- Posts a copy of the written plan on the worksite.

- Posts other relevant emergency information including phone numbers, on the work site.

Medical Emergencies

If a medical emergency occurs in an asbestos work area as a result of an incident or collapse, standard protective measures may be temporarily ignored if they would otherwise cause an immediate threat to the worker's life or recovery. If protective equipment and clothing can be left in place without interfering with the emergency care of the injured worker in a contaminated area, they should not be removed until the worker has been brought to an uncontaminated area. On-site decontamination procedures should be carried out only if they do not interfere with medical emergency procedures.

When first aid, ambulance, or other emergency personnel have to enter a contaminated area, they must be warned of the hazard and be provided with, and told how to use, respirators, coveralls, and head protection before entering the area. Note: some responders may refuse to enter the contaminated area, in which case, the workers will need to assist with the removal of the injured worker to a clean area.



Medical Awareness Training and Education

B&N shall ensure that workers who are likely to be employed in an asbestos process or are likely to be exposed to asbestos dust are warned that the inhalation of asbestos may cause pneumoconiosis, lung cancer or mesothelioma and the risk of injury to health cause by the inhalation of asbestos is asbestosis.

Medical Examination Process

The program shall address that asbestos workers who is regularly employed by B&N in an asbestos process, B&N shall, not less than once every two years and with consent of the worker, offer to arrange for a medical examination of the worker during the worker's normal working hours; and reimburse the worker for any part of the cost of the medical examination that the worker cannot recover.

26.00 LEAD ABATEMENT

26.1.1. PURPOSE

The purpose of the Lead Abatement Program is to establish a process to that will effectively manage recognize, assess and control hazards related to lead exposure at all Biggs & Narciso Construction Services Inc. (B&N) locations.

26.1.2. SCOPE

The Lead Abatement Program applies to all Lead abatement operations conducted by B&N.

26.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure written Job Safety Analysis (JSA) specific to the work are completed when there is an intended exposure or likelihood of exposure of a worker to the inhalation or ingestion of lead
- Consider and account for:
 - a. The methods and procedures used or to be used in the processing, use, handling or storage of lead;
 - b. Provide the worker with appropriate Personal Protective Equipment (PPE)
 - c. The extent and potential extent of the exposure of a worker to the inhalation or ingestion of lead; and
 - d. The measures and procedures necessary to control such exposure by means of engineering controls, work practices and hygiene practices and facilities
- Consult with the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) who will be provided an opportunity to make recommendations with respect to the assessment
- Provide a copy of the assessment to each member of the JHSC / JOHSC
- Ensure all B&N personnel participate in any Lead Abatement instruction and training programs specific to the work task

Supervisor Responsibility:

- Ensure potential hazards related the work are defined along with the appropriate Lead Abatement procedures and required PPE within the site specific HASP
- Ensure the daily safe work permit meeting identifies the current site specific Lead Abatement or work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work.
- Develop procedures for workers related to Lead Abatement
- Ensure any machine or tool in the workplace is capable of safely performing the functions for which it is used
- Ensure the worker operates the tool or machine in accordance with the manufacturer's recommendations, and JSA's for the workplace
- Ensure all Lead Abatement procedures are being followed where required

Worker Responsibility:

- Operate all tools or machines in accordance with the manufacturer's recommendations, and the JSA procedures for all B&N workplaces
- Apply all required Lead Abatement procedures within the workplace or where workers may be affected
- Follow all procedures and processes developed and implemented related to workplace Safety
- Report all Lead Abatement or Lead hazards immediately to the supervisor
- Participate in any Lead instruction and training programs specific to the work task

26.1.4. PROCEDURE

GUIDING PRINCIPLES

Lead is a heavy metal that has been in industrial use for thousands of years. It is pale silvery grey when freshly cut but it darkens on exposure to air. It is heavy, malleable, and a poor conductor of electricity. Lead may be used in its pure elemental form or combined chemically with other elements to form lead compounds. Inorganic lead compounds are used in pigments, paints, glasses, plastics and rubber compounds. Lead dust particles can be very small, so it is quite easy to breathe in or swallow these particles when they are on anything that you put in your mouth such as food, cigarettes or fingers. Lead is like calcium to the human body, 95% of the lead can be stored in human bones and teeth. Lead then replaces calcium in the body's bones impeding the bones ability to produce new blood cells and it can take 30 years to get rid of this lead.

Lead can be present on construction projects in two distinct ways:

- It can be found in construction materials, such as paints, coatings, mortar, concrete, solder, and sheet metal.
- It can be present at a construction site in existing structures, building components, and where lead was previously used in a manufacturing process.

Construction activities of particular concern include:

- Abrasive blasting of structures coated with lead-based paints
- Application or removal of lead-containing paints
- Welding, burning, or high temperature cutting of lead-containing coatings or materials
- Removal of lead-containing dust using an air mist extraction system
- Removal of lead-containing mortars using an electric or pneumatic cutting device.

HEALTH EFFECTS AND SYMPTOMS

Shortly after lead is inhaled or ingested, it can enter the bloodstream and travel to soft tissues (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into your bones and teeth and can be stored there for a long time. Therefore, exposure to small amounts of lead can build up over time, and the more lead you have in your body, the more likely it is that you will experience health problems.

Early signs of lead poisoning include:

- Tiredness
- Irritability
- Muscle and joint pain
- Headaches
- Stomach aches and cramps.

Harmful effects can follow a high exposure over a short period of time (acute poisoning), or long-term exposure to lower doses (chronic poisoning). Symptoms of acute lead poisoning include a metallic taste in the mouth and gastrointestinal symptoms such as vomiting, abdominal cramps, constipation, and diarrhea. Symptoms of chronic lead poisoning are more difficult to recognize because they are similar to many common complaints. However, severe chronic poisoning can lead to more characteristic symptoms, such as a blue line on the gums, wrist drop (the inability to hold the hand extended), severe abdominal pain and pallor.

Lead can also cause serious damage to a number of systems in the body. Overexposure to lead can affect:

Blood: Lead can interfere with the body's ability to manufacture hemoglobin, the molecule in red blood cells responsible for carrying oxygen to the tissues. This may lead to anemia.

Kidneys: Kidneys purify blood before it is distributed for use by the rest of

the body. However, kidneys are not effective in filtering lead from the bloodstream. In addition, lead can damage the kidneys and reduce its ability to filter waste from the bloodstream.

Gastrointestinal System: Lead poisoning may result in abdominal pain, loss of appetite, vomiting, nausea, constipation or diarrhea.

Nervous System: Lead poisoning can cause peripheral nerve damage that results in muscle weakness. It may also lead to behavioural changes and to impairment of vision and hearing. At very high levels, lead can affect the brain, causing convulsions, coma and even death.

Reproductive System: Lead may harm the developing fetus because of the shared blood supply between a mother and her fetus. Exposure of pregnant women to excessive lead may result in miscarriages and stillbirths. Overexposure to lead in men can impair sperm production.

Bones and Teeth: Absorbed lead can be deposited and stored in mineralizing tissues (bones and teeth) for a long period of time. Under certain circumstances, the release of stored lead increases and can re-enter the blood and target other systems in the body. The release of stored lead increases during periods of pregnancy, lactation, menopause, physiologic stress, chronic disease, hyperthyroidism, kidney disease, broken bones, and advanced age, and is exacerbated by calcium deficiency.

Although there are many possible symptoms, they should not be relied upon to warn of a lead-exposure problem because some changes take a long time to develop and workers may not notice a change in their health. If workers carry lead-containing dust home on their clothes, footwear, skin or hair, their family can be exposed to lead too. Children in particular are more susceptible to the harmful effects of lead. Even low-level exposures may harm the intellectual development, behavior, size and hearing of infants. The best approach in preventing lead poisoning is to ensure that proper lead-exposure controls are in place before any health problems are noted.

TRAINING

B&N shall provide training and instruction to all employees who may be exposed to lead. These training programs may include WHMIS, Lead Abatement, Lead Assessment and Control, and Workplace Hygiene Principles.

Instruction and training should be provided by a competent person. This could be the employer or someone hired by the employer. A competent person is defined under the OHSA as a person who:

- is qualified because of his/her knowledge, training and experience to organize and carry out the work safely;
- is familiar with the provisions of the act and the regulations that apply to the work; and
- has knowledge of any potential health and safety hazards in the workplace.

The health and safety representative or the representative of a joint health and safety committee should be advised about when and where the training and instruction is to be carried out.

EXPOSURE LIMITS

B&N employees may not be exposed to lead at a concentration exceeding its ceiling limit, short term exposure limit or 8-hour Time Weighted Average (TWA) limit prescribed by American Conference of Industrial Hygienists (ACGIH) and defined in the site-specific HASP.

CONTROLLING THE LEAD HAZARD

Lead may affect the health of workers if it is in a form that may be inhaled (i.e. airborne particles) or ingested. In order for lead to be a hazard by inhalation, lead particles that are small enough to be inhaled must get into the air. There are three types of particles: dust, fume and mist. Lead dust consists of solid particles created through processes such as blasting, sanding, grinding, and electric or pneumatic cutting. Lead fumes are produced when lead or lead-contaminated materials are heated to temperatures above 500°C, such as welding, high temperature cutting, and burning operations. The heating causes a vapor to be given off and the

vapor condenses into solid fume particles. Mists are made up of liquid droplets suspended in air. The spray application of lead-based paint can generate a high concentration of lead-containing mist.

The strategy for controlling airborne lead hazard can therefore be broken down into three basic approaches:

- prevent lead from getting into the air
- remove lead present in the air
- if present in the air, prevent workers from inhaling it.

To prevent the ingestion of lead, workers should exercise good work and hygiene practices.

To avoid the ingestion, inhalation and unintentional transfer of lead from contaminated areas, it is essential to have the following control methods in place:

- engineering controls
- work practices and hygiene practices
- protective clothing and equipment
- training.

Even with appropriate measures to control lead, some workers may still be affected. For this reason, periodic medical examinations are important for determining if the control measures in place are effective and if workers are suffering from the effects of lead exposure. This is known as medical surveillance (see Appendix 1) and can be considered to be a method for early detection and prevention of lead poisoning.

ENGINEERING CONTROLS

Workplace parties, which include owners, constructors, contractors, supervisors and workers, involved in construction projects that may expose workers to lead should:

- Substitute lead-containing coatings and materials with lead-free coatings and materials (e.g. substitute lead-containing paints with non-lead-based paints). This may also apply to those who develop specifications.
- Select methods and equipment for the removal or installation of lead-containing coatings and materials that will reduce dust generation (e.g. wet methods, such as wet sweeping and shoveling, reduce dust generation and should be used whenever practicable). This may also apply to those who develop the specifications.
- General mechanical ventilation should be provided to remove contaminated air from the workplace, and filtered air should be provided to replace the exhausted air.
- Local mechanical ventilation should be provided to remove contaminants at the source. This is the most effective method. Power tools that can generate lead-containing dust should be equipped with effective dust collection systems.

WORK PRACTICES AND HYGIENE PRACTICES

Work practices and hygiene practices are on-the-job activities that reduce the exposure potential. Lead-containing material can accumulate on the hands, clothing and hair. From there it can be disturbed, re-suspended in air and inhaled or ingested. Workers should therefore be able to wash and shower at the end of each shift. For all work involving lead exposure, there should be no smoking, eating, drinking or chewing in contaminated areas. Food and beverages should be stored in an uncontaminated area.

An effective housekeeping program requires the regular cleanup and removal of lead-containing dust and debris. Surfaces should be kept clean by washing down with water or vacuuming with a vacuum equipped with a high efficiency particulate air (HEPA) filter. Containers of lead-containing waste should be kept tightly covered to prevent dust from becoming airborne. Cleaning with compressed air or dry sweeping should be avoided.

TESTING

If there is a potential for any B&N employee to be exposed to lead in harmful quantities at any location, B&N shall ensure that air monitoring and surface testing for lead is regularly conducted to confirm that adequate controls are maintained and effective. All test results will be available on site and maintained at the Corporate B&N location.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective clothing and equipment should be provided where workers may be exposed to lead. Appropriate personal protective clothing and equipment to prevent skin contamination, include but are not limited to coveralls or full-body work clothing; gloves, hats, and footwear or disposable coverlets; and safety glasses, face shields or goggles. Respirators should be provided to prevent the inhalation of lead where engineering controls and work practices do not control the concentration of lead to below the OEL.

Protective Clothing

The purpose of protective clothing is to prevent skin exposure and the contamination of regular clothing. All clothing and equipment that has been worn in a lead-contaminated area must be removed at the end of each shift and be decontaminated. Under no circumstances should these be taken home. When handling lead-contaminated clothing avoid shaking, as this can be a significant source of exposure to lead dust. Lead-contaminated clothing and equipment should be placed in sealed impermeable plastic bags with proper labels indicating lead contamination. Washing facilities and procedures must be suitable for handling lead contaminated laundry.

Respirators

Where engineering controls and work practices do not control the concentration of lead to below the OEL, workers should wear respirators. If respirators are used, Section 23 - Respiratory Protection Program of this EHS Manual should be implemented.

CLASSIFICATION OF WORK

It is the classification of the work that determines the appropriate respirators, measures and procedures that should be followed to protect the worker from lead exposure. In this guideline, lead-containing construction operations are classified into three groups, Type 1, Type 2, and Type 3 operations, and can be thought of as being of low, medium and high risk. Some groups, Type 2 and Type 3, are further subdivided. From Type 1 to Type 3 operations, the corresponding respirator requirements, and measures and procedures become increasingly stringent.

The classification of typical lead-containing construction tasks is based on presumed airborne concentrations obtained from the U.S. Occupational Safety and Health Administration (OSHA), the Ontario Ministry of Labour, and published research studies. The classification of Type 1, Type 2, or Type 3 operations are grouped based on the following concentrations of airborne lead:

Type 1 Operations	Type 2 Operations		Type 3 Operations	
	Type 2a	Type 2b	Type 3a	Type 3b
> 0.05 mg/m ³	< 0.05 to 0.50 mg/m ³	< 0.50 to 1.25 mg/m ³	<1.25 to 2.50 mg/m ³	<2.50 mg/m ³

Type 1 Lead Operations

All airborne exposures should be under exposure limit.

Tasks performed under Type 1 Lead Operations

1. Applying lead-based paint (LBP) with brush or roller
2. Removal of LBP with chemical gel or paste
3. Removal of LBP using power tool with effective* HEPA filtered dust collection
4. Installation or removal of lead-containing sheet metal, packing, anchors, babbitt metal or similar material.
5. Removal of LBP using non-powered hand tools, other than manual scraping or sanding
6. Soldering

* Effective implies that the dust collection system should be capable of controlling airborne lead concentration levels to below 0.05 mg/m³. Employers should follow manufacturer's recommendations and maintenance specifications for optimal function.

Tasks performed under Type 2a Lead Operations

1. Welding or hot cutting of LBP coated materials outdoors. (Only a type 2a operation if short term, not repeated and if LBP has been stripped prior to hot operation. Otherwise, consider a type 3a operation)
2. Removal of LBP by scraping or sanding using non-powered hand tools
3. Manual demolition of lead-painted plaster walls or building components by striking a wall with sledgehammer or similar tool

Tasks performed under Type 2b Lead Operations

1. Spray application of lead-containing coatings.

Tasks performed under Type 3a Lead Operations

1. Welding or high temperature cutting of LBP on materials indoors or in a confined space.
2. Burning of a surface containing lead.
3. Dry removal of lead-containing mortar using electric or pneumatic cutting device.
4. Removal of LBP using power tools without effective HEPA dust control.
5. Removal or repair of ventilation system used to control lead exposures.
6. Demolition or cleanup of a facility where lead-containing materials were manufactured.
7. An operation that may expose a worker to lead, but is not classified as Type 1, 2, or 3b.

Tasks performed under Type 3b Operations

1. Abrasive blasting of lead-containing coatings or materials.
2. Removal of lead-containing dust using an air mist extraction system.

Employers, supervisors, and workers should be able to recognize and classify lead-containing operations in order to provide appropriate respirators, measures and procedures. Respirator requirements are listed in Table 1 for Type 1, Type 2, and Type 3 operations.

Table 1: Respirator Requirements

Operations	Required Respirator
<p>Type 1 (0 to 0.05 mg/m³)</p> <ul style="list-style-type: none"> • Application of lead-containing coatings with a brush or roller. • Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap. • Removal of lead-containing coatings or materials using a power tool that has an effective dust collection system equipped with a HEPA filter. • Installation or removal of lead-containing sheet metal. • Installation or removal of lead-containing packing, babbitt or similar material. • Removal of lead-containing coatings or materials with a non-powered hand tool, other than manual scraping and sanding. • Soldering. 	<p>Respirators should not be necessary if the general procedures listed in Section 6.1 are followed and if the level of lead in the air is less than 0.05 mg/m³. However, if the worker wishes to use a respirator, a half-mask particulate respirator with N-, R- or P-series filter, and 95, 99 or 100% efficiency should be provided.</p>
<p>Type 2a (0.05 to 0.50 mg/m³)</p> <ul style="list-style-type: none"> • Welding or high temperature cutting of lead-containing coatings or materials outdoors. This operation is considered a Type 2a operation only if it is short-term, not repeated, and if the material has been stripped prior to welding or high temperature cutting. Otherwise, it will be considered a Type 3a operation. • Removal of lead-containing coatings or materials by scraping or sanding using non-powered hand tools. • Manual demolition of lead-painted plaster walls or building components by striking a wall with a sledge hammer or similar tool. 	<p>NIOSH APF = 10 Half-mask particulate respirator with N-, R- or P-series filter, and 95, 99 or 100% efficiency.</p>
<p>Type 2b (0.50 mg/m³ to 1.25 mg/m³)</p> <ul style="list-style-type: none"> • Spray application of lead-containing coatings. 	<p>NIOSH APF = 25 Powered air purifying respirator equipped with a hood or helmet, and any type of high efficiency filter. Supplied air respirator equipped with a hood or helmet and operated in a continuous flow mode.</p>

Operations	Required Respirator
<p>Type 3a (1.25 to 2.50 mg/m³)</p> <ul style="list-style-type: none"> • Welding or high temperature cutting of lead-containing coatings or materials indoors or in a confined space. • Burning of a surface containing lead. • Dry removal of lead-containing mortar using an electric or pneumatic cutting device. • Removal of lead-containing coatings or materials using power tools without an effective dust collection system equipped with a HEPA filter. • Removal or repair of a ventilation system used for controlling lead exposure. • Demolition or cleanup of a facility where lead-containing products were manufactured. • An operation that may expose a worker to lead dust, fume, or mist that is not a Type 1, Type 2, or Type 3b operation. 	<p style="text-align: center;">NIOSH APF = 50</p> <p>Full-facepiece air-purifying respirator with N-, R- or P-series filter, and 100% efficiency.</p> <p>Tight-fitting powered air-purifying respirator with a high efficiency filter. Full-facepiece supplied-air respirator operated in demand mode.</p> <p>Half-mask or full-facepiece supplied air respirator operated in continuous-flow mode.</p>
<p>Type 3b (more than 2.50 mg/m³)</p> <ul style="list-style-type: none"> • Abrasive blasting of lead- containing coatings or materials. 	<p style="text-align: center;">NIOSH APF = 1000</p> <p>Type CE abrasive-blast supplied respirator operated in a positive pressure mode with a tight-fitting half-mask facepiece.</p>
<p>Type 3b (more than 2.50 mg/m³)</p> <ul style="list-style-type: none"> • Removal of lead-containing dust using an air mist extraction system. 	<p style="text-align: center;">NIOSH APF = 1000</p> <p>Full-facepiece supplied-air respirator operated in pressure-demand or other positive-pressure mode.</p>

LEAD ABATEMENT PROCEDURES

General Precautions Applicable to Type 1, 2 and 3 Lead Work

1. Washing facilities consisting of a wash basin, water, soap and towels should be provided and workers should use these washing facilities before eating, drinking, smoking or leaving the project;
2. Workers should not eat, drink, and chew gum or smoke in area
3. Place drop sheets below operations that might produce dust, chips or debris
4. Clean dust and waste with HEPA filtered vacuum
5. Clean up after each operation
6. Place dust and waste into dust tight container labeled as lead waste, removed regularly and placed in a container that is:
 - Dust tight
 - Identified as containing lead waste
 - Cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before being removed from the work area
 - Removed from the workplace frequently and at regular intervals;
7. Inspect work area at least daily to ensure it is kept clean
8. Do not use compressed air or dry sweeping for cleaning work areas or clothes

Type 1 Lead Precautions

- Follow general precautions listed above and defined in the site-specific HASP
- Respirators are not required, but if an employee requests, B&N shall provide an N, R, or P dust respirator with 95%, 99% or 100% efficiency rating

Type 2 Lead Precautions

- Follow general precautions listed above and defined in the site-specific HASP
- Post signs at all entrances to the work area. The signs should display the following information in large, clearly visible letters:
 - There is a lead dust, fume or mist hazard.
 - Access to the work area is restricted to authorized persons.
 - Respirators must be worn in the work area.
- Close off area with sheeting to prevent the spread of dust outside the work area where lead is to be removed, as required
- Wear appropriate disposable coveralls and required PPE. Dispose of these items as lead waste
- Half-face piece respirator, N, R or P, and 95% 99% or 100% efficiency for all operations, except for spray painting of LBP
- Spray painting of LBP required the employee to wear a hood or helmet or full-face piece with Powered Air Purifying Respirator (PAPR) with high efficiency filters or any supplied air respirator

Type 3 Lead Precautions

- Follow general precautions listed above and defined in the site-specific HASP
- Post signs at all entrances to the work area. The signs should display the following information in large, clearly visible letters:
 - There is a lead dust, fume or mist hazard.
 - Access to the work area is restricted to authorized persons.
 - Respirators must be worn in the work area.

Barriers, Partial Enclosures and Full Enclosures

Barriers, partial enclosures, and full enclosures are used to separate the work area from the rest of the project, and in some cases, to prevent lead exposure to other workers not directly involved in the operation. Partial and full enclosures can also prevent or reduce the dispersion of lead into the surrounding work area and environment. Barriers should only be used where full and partial enclosures are not practicable.

Barriers

Ropes or barriers do not prevent the release of contaminated dust or other contaminants into the environment. However, they can be used to restrict access of workers who are not adequately protected with proper PPE, and also prevent the entry of workers not directly involved in the operation. Ropes or barriers should be placed at a distance far enough from the operation that allows the lead-containing dust to settle. If this is not achievable, warning signs should be posted at the distance where the lead-containing dust settles to warn that access is restricted to persons wearing PPE. For example, the removal of mortar and cutting operations, ropes or barriers should be located at least 10 meters away. All workers within the barrier or warning sign zone must be adequately protected.

Partial Enclosures

Partial enclosures allow some emissions to the atmosphere outside of the enclosure. Partial enclosures may consist of vertical tarps and floor tarps so long as the tarps are overlapped and securely fixed together at the seams. A partial enclosure is not a recommended containment system if significant dust is being generated.

Full Enclosures

Full enclosures are tight enclosures (with tarps that are generally impermeable and fully sealed joints and entryways). Full enclosures allow minimal or no fugitive emissions to reach the outside environment. For full enclosures, the following requirements should be met:

- the enclosure should be made of windproof materials that are impermeable to dust
- the enclosure should be supported by a secure structure
- all joints in the enclosure should be fully sealed
- entrances to the enclosure should be equipped with overlapping tarps or air locks
- the escape of abrasive and debris from the enclosure should be controlled, at air supply points, by the use of baffles, louvers, flap seals and filters
- general mechanical ventilation should be provided to remove contaminated air from the enclosure and filtered air should be provided to replace the exhausted air
- equipment venting such air should be equipped with filters adequate to control vented air to provincial environmental standards
- the air velocity within the enclosure should provide an average minimum cross-draft or down-draft past each worker during abrasive blasting operations as follows:
 - cross-draft velocity of 0.5 m/sec (100 ft/min)
 - down-draft velocity of 0.25 m/sec (50 ft/min)

Indoor Operations

- For Type 3a operations conducted indoors, barriers, partial enclosures, or full enclosures should be provided.
- For Type 3b operations (abrasive blasting, removal of lead-containing dust using an air mist extraction system) conducted indoors, full enclosures should be provided.
- Outdoor Operations

- For Type 3a and 3b operations conducted outdoors, barriers, partial enclosures, or full enclosures should be provided.
- For dry abrasive blasting conducted outdoors, full enclosures should be provided.

Decontamination Facility

A decontamination facility should be made available for workers carrying out for the following Type 3 operations:

Type 3a Operations

- removal of lead-containing coatings and materials using power tools without an effective dust collection system equipped with a HEPA filter
- demolition or clean-up of a facility where lead-containing products were manufactured

Type 3b Operations

- abrasive blasting of lead-containing coatings or materials
- removal of lead-containing dust using an air mist extraction system

The decontamination facility should be located as close as practicable to the work area and should consist of:

- a room suitable for changing into protective clothing and for storing contaminated protective clothing and equipment
- a shower room as described below
- room suitable for changing into street clothes and for storing clean clothing and equipment

The rooms in the decontamination facility should be arranged in sequence and constructed so as to prevent the spread of lead dust.

The shower room in the decontamination facility should be provided with the following:

- hot and cold water or water of a constant temperature that is not less than 40° Celsius or more than 50° Celsius
- individual controls inside the room to regulate water flow and, if there is hot and cold water, temperature
- clean towels

Prior to each shift in which a decontamination facility is being used, a competent person should inspect the facility to ensure that there are no defects that would allow lead-containing dust to escape. Defects should be repaired before the facility is used. The decontamination facility should be maintained in a clean and sanitary condition.

Workers using the decontamination facility should do the following in the order shown:

- decontaminate protective clothing that will be reused on site by vacuuming with a HEPA-filter-vacuum or by damp wiping
- remove the decontaminated protective clothing
- place protective clothing that will not be reused on site in a container suitable for lead-containing dust and waste
- shower without removing the respirator
- remove and clean the respirator

Dust Control Measures

General and Local Mechanical Ventilation

Where the work area is enclosed, general mechanical ventilation should be provided. The air exhausted from an enclosed work area should pass through a dust collector effective for capturing the size of particulate matter being generated and for the volume and velocity of air moving through the enclosure.

Where a dust generating operation is carried out, local mechanical ventilation should be provided to remove dust at the source. Local mechanical ventilation is highly recommended for welding, burning, and high temperature cutting of lead-containing coatings and materials, and for the removal of lead-containing coatings and materials using power tools. Where local mechanical ventilation is used, the following should be met:

- Air velocity at any point in front of or at the opening of the ventilation hood should be sufficient to overcome opposing air currents and capture the contaminated air by causing it to flow into the hood.
- Air velocity at the source should be at least 0.5 m/sec (100 ft/min)
- Air discharged from the local mechanical ventilation system should pass through a HEPA filter and be routed out of the workplace in a way that will prevent the return of contaminants to the workplace.

If local ventilation is not practicable, an appropriate respirator should be provided. However, the decision that local ventilation is not practicable should not be made without first consulting the joint health and safety committee or health and safety representative, if any, and without considering the following:

- any undue economic hardship to the employer that providing a local ventilation system would cause
- the frequency and duration of the operation
- any potential risks to the workers by not providing a local ventilation system.

Wet Methods

Wet methods should be incorporated in the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet scraping, and wet shoveling.

Wetting should not be used if it would create a hazard or could cause damage to equipment or to the project. Power tools should be equipped with a shroud, and the shroud should be kept flush with the surface.

Personal Protective Equipment

Protective Clothing

Every worker who enters a Type 3 operation work area should wear protective clothing.

Respirators

For most Type 3 operations, workers should wear a respirator with a NIOSH approved assigned protection factor of 50 (see Respirator Requirements in Table 1). Where the operation is abrasive blasting, the operator should wear a Type CE abrasive blast supplied air respirator operated in a pressure demand or positive pressure mode with a tight-fitting half-mask or tight-fitting full-facepiece.

It is recommended that compressed air used to supply supplied air respirators meet the breathing air purity requirements of CSA Standard Z180.1-00. Where an oil-lubricated compressor is used to supply breathing air, a continuous carbon monoxide monitor/alarm should be provided.

Clean-Up

Dust and waste should be cleaned up and removed by vacuuming with a HEPA filter equipped vacuum, wet sweeping and/or wet shoveling. Clean-up after each operation should be encouraged to prevent lead contamination and exposure to lead.

When abrasive blasting is finished, cleanup and removal of lead-containing dust and waste should take place.

Medical Surveillance Program (Lead)

Working with any designated substance carries a risk. Workers are encouraged to at a minimum of once a year, go to his/her doctor and inform them of the nature of your work and your desire to establish a medical surveillance program.

Biggs and Narciso would like to work with you in regards to your medical surveillance program. We can provide you with reports on your exposure hours to designated substances, to help establish a well-rounded program. If you would like to share your information with the company, we would welcome it. This will help to ensure that our controls measures that have been put into place are functioning adequately.

Workers who wish to participate in medical surveillance program are asked to speak with their Health and Safety Representative who will in turn establish a file at our head office.

27.00 PCB ABATEMENT

27.1.1. PURPOSE

The purpose of the Polychlorinated Biphenyls (PCB) Abatement Program is to establish a process to that will effectively manage recognize, assess and control hazards related to PCB exposure at all Biggs & Narciso Construction Services Inc. (B&N) locations.

27.1.2. SCOPE

The PCB Abatement Program applies to all PCB abatement operations conducted by B&N.

27.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure written Job Safety Analysis (JSA) specific to the work are completed when there is an intended exposure or likelihood of exposure of a worker to the inhalation or ingestion of PCB
- Consider and account for:
 - a. The methods and procedures used or to be used in the processing, use, handling or storage of PCB
 - b. Provide the worker with appropriate Personal Protective Equipment (PPE)
 - c. The extent and potential extent of the exposure of a worker to the inhalation or ingestion of PCB; and
 - d. The measures and procedures necessary to control such exposure by means of engineering controls, work practices and hygiene practices and facilities
- Consult with the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) who will be provided an opportunity to make recommendations with respect to the assessment
- Provide a copy of any assessment to each member of the JHSC / JOHSC
- Ensure all B&N personnel participate in any PCBs instruction and training programs specific to the work task

Supervisor Responsibility:

- Ensure potential hazards related the work are defined along with the appropriate PCB Abatement procedures and required PPE within the site specific HASP
- Ensure the daily safe work permit meeting identifies the current site specific PCB Abatement or work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work.
- Develop procedures for workers related to PCB Abatement
- Ensure any machine or tool in the workplace is capable of safely performing the functions for which it is used
- Ensure the worker operates the tool or machine in accordance with the manufacturer's specifications, and the safe work procedures for the workplace
- Inspect that all PCB Abatement programs are being followed where required

Worker Responsibility:

- Operate all tools or machines in accordance with the manufacturer's recommendations, and the JSA procedures for all B&N workplaces
- Apply all required PCB Abatement procedures within the workplace or where workers may be affected.
- Follow all procedures and processes developed and implemented related to workplace Safety
- Report all PCB Abatement or PCB hazards immediately to the supervisor
- Report all PCB containing materials / equipment and PCB exposure immediately to the supervisor
- Participate in any PCBs instruction and training programs specific to the work task

27.1.4. PROCEDURE

GUIDING PRINCIPLES

PCB is a term for Polychlorinated Biphenyls (PCBs), which are defined by Schedule 1 (toxic substances) in the Canadian Environmental Protection Act, 1999; as any chlorobiphenyls. This program has been developed to provide a system for the responsible management of PCBs which will protect individuals, the environment, and personnel working at any B&N location.

DISPOSAL PROCEDURES FOR BALLASTS AND CAPACITORS

Procedures:

1. Ensure all site personnel participate in the daily safe work permit meeting to identify where the PCB containing ballasts are located and where the work is to be conducted
2. Identify any potential PCB containing ballasts as defined in the site specific HASP or site assessment
3. Ensure all B&N employees wear and properly use the required PPE when handling or potentially working with PCB containing ballasts. PPE may include gloves and apron made of chemical resistant neoprene coated butyl rubber, CSA safety glasses with side shields, a CSA full face shield, and CSA green triangle patch footwear
4. Removed the PCB containing ballasts from the fixture
5. PCB ballasts must be placed on wooden pallets and covered with a polyethylene surface
6. Handle ballasts carefully and stack them in an orderly fashion on the defined pallets
7. Separate PCB from Non PCB ballasts
8. Leaking PCB ballasts must be double bagged and immediately reported to the supervisor
9. Report any skin contact with the PCB containing ballasts immediately to your supervisor
10. Storage of the pallets containing PCB's must be placed in an area cordoned off, free of possible damage and appropriately identified with signage
11. Non PCB ballasts shall be disposed of as general construction waste
12. Ballasts containing PCB's must be placed in an approved new or reused containment drum and labeled as PCB containing. The drums should be stored inside the building. Outside storage is permitted if they are on an impervious surface, the drum lids are secured and they are protected against weather and vandalism
13. All workplace protective equipment and PPE that comes into contact with any material leaking from a PCB containing ballasts will be placed in approved containers for disposal
14. The B&N employee shall wash their hands with soap and water when beginning a work shift, before a break and upon completion of the work shift
15. No tobacco materials, food, or beverages will be permitted while working with any potential PCB containing ballasts

NOTE: Fluorescent light ballasts that were manufactured before January 1, 1978 and do not have the words "no PCBs" printed on their label shall be managed as a PCB waste.

Since transformers and other high-voltage equipment contain high levels of PCB's, B&N will use approved subcontractors for testing, removing and handling them.

Reference Chart Below:

PCB SORTING AND STORING FOR DISPOSAL

COMPANY	PCB IDENTIFIER CODE
Aerovox (CANADA)	1. PCB are present up to and including June 1978 (7806) - the first 2 numbers are the year and last 2 are the month 2. Look at the 6-digit code stamped on the capacitor. If the fifth digit is "F" PCB are present
Advanced Ballasts (PHILLIPS)	3 or 4-digit number code. The first 2 digits are the month and the last 2 digits are the year. PCBs are present up to and including 1978.
Allanson Division of Jannock LTD.	2 letter codes on the cover. First letter is the month, starting with "A" for January, and the second letter is the year, starting with "A" for 1969 (ex, February 1972 = BD) "N" = NON-PCB PCB are present up to and including December 1980 (LL)
Canadian General Electric	1. 7-digit code on the cover. PCB are NOT present if one of the two final letters is "E" PCB are likely present if one of the two final letters is "T" 2. Four number code on the housing. The first two numbers, when reversed, are the year (ex. 1976 = 67) and the last two numbers are the month. PCB are present up to and including March 1978 (8703)
Westinghouse Magnetex Polygon	Same as Canadian General Electric (see above) The last 4 numbers of the code represent the year and the month. PCB may be present up to and including June 1980 (June 1980 = 8006)
Magnetex Universal (USA)	Refer to digit code. The first letter is the month (A = January) and the last two numbers are the year. PCBs are present up to and including December 1978 (L78). PCB are absent if "N" follows the code.
Philips Electronics	Coding system changed in 1980. Ballasts made after 1979 are marked as being PCB FREE
Sola Canada	Three digit letter and number code on label. The first letter is the month (A=January) and the last two numbers are the year. PCB are present up to and including December 1979 (L79)

Others:

Assume PCB are present if the unit is not marked "PCB FREE" or clearly dated 1980 or later.

28.00 SILICA PROGRAM

28.1.1. PURPOSE

The purpose of the Silica Program is to establish a process that will effectively recognize, assess, manage, and control hazards related to Silica exposure at all Biggs & Narciso Construction Services Inc. (B&N) locations.

28.1.2. SCOPE

The Silica Program applies at all B&N operations where silica disturbance or removal is performed or is being conducted.

28.1.3. RESPONSIBILITIES

B&N Responsibilities:

- B&N Project Managers, in consultation with the EHS Department, will ensure that a written risk assessment is completed when there is a deliberate disturbance of Silica-containing materials or where there is a potential of exposure or likelihood of exposure of a worker to the inhalation of Respirable Crystalline Silica.
- B&N will consider and account for;
 - a. The methods and procedures used or to be used in the handling, disturbance, removal, storage, use, and disposal of Silica-containing materials.
 - b. Provide workers with appropriate respiratory protection, including fit testing and training on the care, maintenance, use and limitations of the equipment
 - c. The extent and potential extent of the exposure of a worker to Respirable Crystalline Silica; and
 - d. The measures and procedures necessary to control all exposures by means of engineering controls, administrative controls, work practices and hygiene practices and facilities. Engineered controls include use of water and local exhaust ventilation with discharged air passing through a High Efficiency Particulate Air (HEPA) filter or other effective means.
- B&N Project Managers may consult with the Joint Health and Safety Committee (JHSC), who may be provided the opportunity to make recommendations with respect to the risk assessment
- Provide a copy of the assessment to each member of JHSC, if they have been consulted.
- Written requirements for a Medical Surveillance Program

Supervisor Responsibilities:

- To ensure that potential Silica hazards related to the work, are defined along with the appropriate Silica safe work procedures and required Personal Protective Equipment (PPE) within the site-specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site-specific Silica disturbance(s) or work areas where Silica is a potential hazard

KEYWORDS

Silica – is the second most common mineral on earth and makes up nearly all of what we call “sand” and “rock”. Silica exists in many forms, one of these, “crystalline” silica (including quartz), is the most abundant and poses the greatest concern for human health.

Designated Substance - A designated substance is a biological, chemical, or physical agent, or any combination of these, to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled. These substances are outlined in the WorkSafeBC Occupational Health and Safety Regulation Section 5: Chemical Agents and Biological Agents and in the Ontario Occupational Health and Safety Act (Always refer to your local provincial standards): Silica is a designated substance.

HEPA Filter - This is a high efficiency particulate air filter that is at least 99.97% efficient in collecting aerosol particles 0.3 micrometers in size and greater. These filters are required in HEPA exhaust fans as well as vacuums used during silica disturbance projects.

Silica-containing material – Some common materials that contain Silica include; Rock and sand; Topsoil and fill; Concrete; Cement; Mortar; Masonry; Brick; Tile; Granite; Sandstone; Slate; Asphalt (containing rocks and stones); and Fibrous cement board.

- Advise all B&N employees and Sub-contractors on the risks and potential health hazards associated with exposure to Respirable Crystalline Silica
- Ensure any machine or tool designed for use in tasks involving Silica disturbance and removal in the workplace are capable of safely performing the functions for which they are intended
- Ensure that workers operate the tools or machines in accordance with the manufacturer's specifications, and the established safe work procedures for the workplace
- Develop procedures for workers related to Silica disturbance and removal.

Worker Responsibilities:

- Operate all tools or machines in accordance with the manufacturer's recommendations, and the JSA procedures for all B&N workplaces.
- Apply all required Silica safe work procedures within the workplace or where workers may be affected.
- Follow all procedures and processes developed and implemented related to Silica disturbance and removal.
- Use and wear all required PPE as per manufactures instructions and as defined by the site specific HASP.
- Report all Silica hazards immediately to the Supervisor.

Health & Safety Department Responsibilities:

- Notify Management, workers, or Supervisors regarding any nonconformance or deficiencies found.
- Ensure inspection records for any equipment, tools, machinery used in the handling, disturbance or removal of Silica, are kept and maintained.
- Ensure that competent trainers are delivering the appropriate Silica related training to all required B&N employees according to site specific Policies and Procedures, and all applicable Client requirements, Federal and Provincial Health and Safety Legislation.
- Assist Project Managers and Supervisors with the site specific written HASP to ensure that emergency procedures are developed and available on site.
- Purchase and replace all Silica monitoring equipment, if required
- Schedule fit testing and other PPE compliant training as required by the applicable Client requirements and all Federal and Provincial Health and Safety Legislation, as required.
- Investigate and report to the appropriate Provincial Health and Safety Authorities, if required, any situation where there has been an employee suspected of being exposed to Silica.
- Ensure competency through the use of **FORM 28.1.** – Competency Profile for Site Supervisors at Silica disturbance Projects

28.1.4. PROCEDURE

GUIDING PRINCIPLES

If any B&N employee may be exposed to potentially harmful levels of Silica dust, B&N will develop and implement a Silica Exposure Control Plan (ECP). To ensure adequate coordination of the overall plan, B&N shall ensure that all site level plans and procedures are administered by a competent person and documented in the site-specific HASP. A map or plan will be developed, if practicable, that is readily available to all B&N employees and Sub-contractor showing locations of any areas involving Silica disturbance or removal.

POTENTIAL HEALTH EFFECTS ASSOCIATED WITH EXPOSURE TO SILICA

SILICA MUST BE INHALED TO CAUSE DISEASE

Intact and undisturbed Silica-containing materials present no **direct** health hazard but do present a **potential exposure** hazard should these materials release Silica dust which is then inhaled.

Silica is a primary component of many common construction materials, and silica-containing dust can be generated during many construction activities, including

- Abrasive blasting (e.g., of concrete structures)
- Jackhammering, chipping, or drilling rock or concrete
- Cutting or drilling brick or tiles
- Sawing or grinding concrete
- Tuck point grinding
- Road construction
- Loading, hauling, and dumping gravel
- Demolition of structures containing concrete
- Sweeping concrete dust

Unprotected workers performing these activities, or working in the vicinity, can be exposed to harmful levels of airborne silica. Workers in other industries can also be exposed to silica, for example in the manufacture of toothpaste or pottery, or when loading coal (which can contain quartz) into the hold of a ship.

Crystalline silica dust can cause a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent, but symptoms of the disease may not appear for many years.

A worker may develop any of three types of silicosis, depending on the concentrations of silica dust and the duration of exposure:

- Chronic silicosis—develops after 10 or more years of exposure to crystalline silica at relatively low concentrations.
- Accelerated silicosis—develops 5 to 10 years after initial exposure to crystalline silica at high concentrations.
- Acute silicosis—develops within a few weeks, or 4 to 5 years, after exposure to very high concentrations of crystalline silica.

Initially, workers with silicosis may have no symptoms; however, as the disease progresses, a worker may experience:

- Shortness of breath
- Severe cough
- Weakness

These symptoms can worsen over time and lead to death. Exposure to silica has also been linked to other diseases, including bronchitis, tuberculosis, and lung cancer.

RISK OF EXPOSURE

A Risk Assessment must be conducted by a competent individual, prior to any work involving the disturbance or removal of Silica containing materials.

1. **Respirators:** The respirator and filters will be supplied by B&N and will be approved for protection against silica-containing dusts and mists. Refer to procedures issued with the respirator for proper use and care in the site-specific HASP. In addition, refer to the B&N Respirator Program.
2. **Coveralls:** The disposable suits c / w hoods reduce the amount of dust on a workers' person, thus making it easier to decontaminate. The suits must be removed and left in the dirty work area prior to entering the wash-up area.
3. **Shower Facilities:** A complete showering, including the washing of hair may be necessary to remove the silica dust from a worker's body (decontaminate). In many cases, the only decontamination required may be a pail

of warm water and soap and towels. This decontamination procedure protects the worker from inhaling dust once the respirator is removed and avoids causing exposure to silica of others.

General Procedures

1. No person shall enter, or cause others to enter, a contaminated work area which may have excessive levels of silica dust present without properly fitted and B&N approved PPE as defined in the site-specific HASP. When work tasks or a work process are likely to cause workers to be exposed to silica dusts, the means shall be provided to control silica dust from exceeding 50% of the exposure limit (EL) established by the regulatory agency in the region where the work is being performed. The EL is the limit to which a worker can be exposed over an 8-hour work period without the onset of adverse health effects.
2. All B&N employees must be able to identify those materials which, when disturbed, are likely to release silica dust. In addition, all B&N employees must observe all posted signs, warnings and labels identifying Silica Containing Material. Silica containing materials must not be disturbed unless approved safe work procedures are in place.
3. No person shall leave, or cause others to leave, unless during an emergency, a silica contaminated area without first removing their disposable coveralls, decontaminating in the prescribed manner, and then removing their respirator.
4. No modification or removal of PPE will be tolerated inside the contaminated work area
5. No tobacco, food, drinks, matches, or lighters are to be taken into the contaminated area
6. All workers must be clean shaven to ensure the proper fit of respiratory equipment as per manufacturer's instructions; as defined in the site-specific HASP; and as outlined in the B&N Respirator Program.
7. Good work practices must be followed to eliminate or mitigate the risk of excessive dust levels within the work area and to avoid the contamination of "Clean Areas"
8. B&N employees shall submit to medical examinations and tests (pulmonary function & x-ray), as required to indicate that they are physically able to perform their tasks while using a respirator. This may involve the production of a signed letter from their physician attesting to their unhindered ability to work while wearing a respirator. Unless the employee refuses to submit said signed letter from their physician, and provides a written and signed statement.
9. Before beginning a project, the Owner of the project, and B&N shall determine whether any silica containing substances are present at the project site and whether these substances are likely to be disturbed by the proposed work. Any reports generated shall be reviewed by a qualified professional with experience in the practice of occupational hygiene as it relates to silica management. If a report is produced, a copy of this report shall be available at the job site
10. B&N will maintain Silica records including professional assessment reports, risk assessments, inspections and air monitoring results for the site for a minimum of 10 years.
11. B&N will maintain records of job site procedures including corrective actions to control the release of silica dust and any required notification documentation required by the appropriate regulatory agency having jurisdiction.
12. Records for all silica related training, and all potential silica exposure hours will be kept for the duration of the company's existence.
13. Where a change is made in a process involving silica, or in the methods and procedures within a project, regarding the use, handling, disturbance or storage of silica and where that change may result in a significant difference in the exposure of a worker to the inhalation of silica, B&N shall cause a further assessment to be made

Additional requirements of Client specific, Federal or Provincial Health and Safety Legislation or guidelines as they apply to a specific project will be issued and posted. All B&N employees are to acquaint themselves with such postings and work accordingly. All B&N employees will be made aware of the site-specific hazards including potential silica containing materials during the completion and review of the daily safe work permit. Failure to

adhere to the above procedures, and / or the disregarding of directions provided by the Supervisor will be subject to disciplinary actions up to and including termination.

Introduction to Silica dust mitigation Methods

The first step in properly managing the production of Silica dust is to identify the presence of silica-containing materials and the types of tasks or work procedures that may potentially create the release of silica dust. If silica-containing materials are identified and there is a potential for exposure to silica dust, corrective action must be taken. In deciding which actions provide the most efficient long-term solution, consideration should be given to the procedures that may disturb the silica-containing materials, the location of these materials, the likely levels of exposure, and the cost of the proposed method for controlling the generation of silica dust.

There are several basic approaches to controlling exposure to silica dust:

- Ensuring that all potential sources of silica dust are identified.
- Providing a job-specific ECP for each project, which outlines in detail the work methods and practices that will be followed on each site. Considerations will include:
 - Availability and delivery of all required tools / equipment
 - Scope and nature of grinding / drilling / chipping / sawing / cutting (or otherwise abrading) of silica containing material work to be conducted
 - Control methods to be used
 - Level of respiratory protection required
- Coordination plan
- Ensuring that the materials (e.g., tools, equipment, personal protective equipment) and other resources (i.e., worker training materials), required to fully implement and maintain the Silica exposure control plan (ECP) are readily available where and when they are required.
- Conducting a periodic review of the effectiveness of the ECP. This would include a review of the available dust-control technologies to ensure these are selected and used when practical.
- Initiating sampling of worker exposure to concrete dust when there are non-standard work practices for which the control methods to be used have not been proven to be adequately protective.
- Ensuring that all required tools, equipment, and personal protective equipment are readily available and used as required by the ECP.
- Ensuring Supervisors and workers are educated and trained to an acceptable level of competency.
- Maintaining records of training, fit-test results, crew talks, and inspections (equipment, PPE, work methods / practices).
- Coordinating the work with other Contractors, subcontractors, and other employers to ensure a safe work environment.

SILICA DISTURBANCE PROCEDURES

General Measures and Procedures for Silica Disturbance Operations;

We will reduce or eliminate worker exposure to silica dust by selecting a combination of the following controls listed in order of preference:

1. Elimination and substitution
2. Engineering
3. Administrative
4. Personal protective equipment

Elimination and Substitution

We recognize the importance of planning the work in order to minimize the amount of silica dust generated.

- During the project planning phase, we will advocate for the use of methods that reduce the need for cutting, grinding, or drilling of concrete surfaces (e.g., formwork planning).
- Whenever possible, we will schedule work when concrete is still wet, because we know that much less dust is released at that time.

Engineering Control of Dust

Selecting an appropriate control measure depends on the specifics of the operation. In some cases, local exhaust ventilation (LEV) is more effective at controlling exposure (e.g., during grinding operations), than wetting methods. In a different application, wetting may be more effective (e.g., during cutting operations) than LEV. However, using LEV may reduce the amount of final cleaning required, as the silica dust is captured.

Our dust control systems may employ three well-established techniques:

- Local exhaust ventilation (LEV)
- Wet dust suppression (WDS)
- Restricting or isolating the work activity with barriers or full enclosures (this may be the only option where LEV or WDS is not practical or effective)

Local exhaust ventilation (LEV)—safe work practices.

LEV Systems

These systems include a shroud (a suction casing that surrounds the wheel/stone), a hose attachment, and a vacuum system. The dust-laden air is collected within the shroud, is drawn into the hose attachment, and is conveyed the length of the corrugated hose to the vacuum, where it is filtered and discharged.

Many grinders can be purchased with LEV dust control attachments, which are uniquely designed for the equipment and the work activity (e.g., there are specific grinders with LEV manufactured for tuck point grinding). Where a shroud cannot be purchased for a grinder, shrouds can be custom fabricated for grinders of all different sizes. For example, shrouds for corner and 90-degree areas can be fabricated or purchased.

Silica dust is very abrasive to LEV equipment, which must be regularly inspected for damage and properly maintained.

When LEV is used in our work, we will employ the following systems and safe work practices:

- Vacuum attachment systems to capture and control the dust at its source whenever possible.
- Dust control systems (used regularly and well maintained).
- Grinding wheels operated at the manufacturers' recommended rpm (operating in excess of this can generate significantly higher airborne dust levels).
- Retrofit shrouds or exhaust cowlings for corner grinding; use manufacturer-specified rpm speeds and a well-maintained HEPA vacuum.
- Diamond stone grinders, which allow for the use of a more efficient suction casing on the grinder, whenever practicable.
- HEPA or good quality, multi-stage vacuum units approved for use with silica dust. The vacuum units should be capable of creating a target airflow of at least 70 cfm. This should achieve a face velocity at the shroud of about 1.3 m/s (260 fpm)—the higher the face velocity, the more dust captured at source.

- Work planning, so that concrete grinding can be completed when wet (dust release can be significantly reduced).
- Good housekeeping work practices (for example, use vacuums with high-efficiency particulate air (HEPA) filters, or use wet sweeping).
- Train workers and supervisors on how to properly use and maintain the equipment.

Wet methods for dust control—safe work practices

Water Spray Systems

These systems are designed to apply water to the cutting or grinding surface to wet the surface and prevent the resulting dust from becoming airborne. Many construction tools / equipment types can be purchased with wet spray attachments. Water can also be manually applied to the concrete surface before and during the work (grinding, drilling, cutting, etc.). Wetting is very effective at reducing dust release at the source and, in fact, may be more effective than local exhaust ventilation for slab and masonry cutting. A drawback to this method of dust control is that the dust is not collected—the wet slurry must be cleaned up so that the dust does not dry and become airborne.

Many of the tools used in concrete finishing can be fitted with wetting attachments. These grinders generally have smaller grinding surfaces that can be used in unique work locations such as window casements.

Water spray systems are available for both stationary and portable masonry and other concrete- or block-cutting tools (e.g., saws). Work surfaces can also be wetted manually or using a water “mister” (e.g., during concrete chipping and jackhammering). A separate water supply system would have to be available on site from a plumbed facility or a portable pressurized tank.

Note: Water spray can effectively reduce exposure levels but is not feasible in many applications (e.g., tuck point grinding and cutting fibrous cement board) because water can result in material discoloration and expansion, building damage, and waste water disposal problems.

Use of water spray controls presents potential safety hazards, which include electrocution, slipping, and potentially hypothermia

When water spray systems are used in our work, we will follow these safe work practices:

- Pneumatic grinders will be used instead of electric-powered grinders if water is the method of control.
- Pressure and flow rate of water will be controlled in accordance with tool manufacturers’ specifications (for cutting saws, a minimum of 0.5 litres of water per minute [0.13 gallons / minute] should be used).
- When sawing concrete or masonry, we will use only saws that provide water to the blade.
- Wet slurry will be cleaned from work surfaces when the work is completed, using a wet vacuum or wet sweeping.

BARRIERS AND ENCLOSURES - SAFE WORK PRACTICES

Barriers

Barriers are used to isolate the work area from the rest of the project and to prevent entry by unauthorized workers. They do not prevent dust drift and should only be used where natural ventilation is sufficient and dust release is controlled. For example, barriers will be constructed to notify other workers that concrete grinding work is underway and access to the immediate work zone is restricted to authorized personnel.

Enclosures

Enclosures can contain a dusty atmosphere. They can consist of a partial structure (poly draping or partial plywood hoarding), or a full enclosure equipped with some capacity for maintaining a lower than ambient pressure inside (negative pressure). For partial enclosures, airflow in the enclosure could be created by setting up a ventilating (blower) fan where the dusty air would be discharged to an unoccupied outdoor location. This option should only be used when dust levels are low or to supplement LEV or wet methods such as in stairwells.

Full enclosures can be fitted with a negative air unit that pumps air from inside the structure. Negative air units draw dusty air through a large HEPA filter panel before the air is discharged outside the enclosure. Another option to create airflow in the enclosure is to set up ventilating (blower) fans where the dusty air can be discharged to an unoccupied outdoor location.

Commercially available, collapsible (pop-up) enclosure structures are readily available in various sizes.

When barriers or enclosures are used in our work, we will follow these safe work practices:

- The site foreman will determine the type and design of barrier or enclosure (based on the work activity and the work area) and ensure it is constructed in accordance with the work plan. Barriers may be simple hazard-flagging ribbon or more restrictive hoarding
- We will use commercially available negative air units when constructing a full enclosure

Administrative Controls

Administrative controls involve activities that are not directly related to the actual physical work, but are important strategies to support the exposure control plan and ensure that all workers are protected from exposure to silica dust. Examples of administrative controls include:

- Posting warning signs
- Rescheduling grinding at different times than other work
- Relocating unprotected workers away from dusty work

We will follow these safe work practices:

- Exposure control plans and the site risk assessment / work plan will be produced prior to the start of work
- We will establish procedures for housekeeping, restricting work areas, personal hygiene, worker training, and supervision
- As part of our project planning, we will assess when silica dust may be generated and plan ahead to eliminate or control the dust at the source. We recognize that awareness and planning are key factors in the prevention of silicosis
- Warning signs will be posted to warn workers about the hazards of silica and to specify any protective equipment required (for example, respirators)
- Work schedules will be posted at the boundaries of work areas contaminated with silica dust
- Work that generates silica dust will be conducted after hours, if access to other unprotected workers cannot be restricted

EMERGENCY DECONTAMINATION PROCEDURES

These procedures are to minimize possible exposure to silica dust when the regular decontamination processes within a silica enclosure is not practicable as defined in the site specific HASP.

The first priority will be to address the victim's needs, and secondly the decontamination of the victim and rescuers.

Procedure:

1. Notify Supervisor and First Aid attendant immediately of the incident verbally or via a good means of communication
2. First priority; assess the victims needs and contact the appropriate authorities where required
3. Do not disturb the accident scene; secure the site and area for investigation
4. While the victim is being assessed, depending on the severity, one or two workers will proceed through the shower or decontamination facility (decontaminating themselves), then move to the entrance / exit area ready to receive a stretcher or similar through entrance / exit. If there are personnel already outside the contaminated area, no workers shall exit enclosure until the victim is outside
5. Personnel outside the enclosure shall ready a sheet or blanket to cover the victim
6. If the incident is assessed as a non-life threatening injury, co-workers will assist victim to the shower or decontamination facility for decontamination
7. If the incident is assessed as a life threatening injury, a stretcher or similar will be made readily available as close as practicable to the victim
8. The stretcher or similar will be made of wood, plastic, or fiberglass, so it can be washed along with the victim for decontamination upon exiting the contaminated area to minimize exposure to silica dust and the possible contamination of clean areas
9. Once the victim has been assessed by a qualified first aid person all coverings (Tyvek suits, work boots, socks, hard hat, gloves, etc.) shall be removed if possible and victim placed on a stretcher or similar and secured. If respirator is on, leave it on unless breathing is labored or otherwise restricted by respirator
10. Upon reaching the entrance / exit, victim & stretcher or similar, will be washed either by hose or pressurized water fire extinguisher assigned and tagged for this purpose to prevent contamination of clean areas and emergency personnel. Respirator will also be removed at this point
11. Victim will then be brought through bagging area received by co-workers who previously showered out.
12. Victim will be covered by a clean sheet or blanket reserved for this purpose
13. If victim has severe burns washing method cannot be applied. Victim will therefore be covered with a dampened sheet or blanket upon exit with respirator still on
14. Exit route will be immediately cordoned off and entire area will be cleaned, either by wet wiping or HEPA vacuuming, or both whenever practicable
15. All emergency personnel arriving on scene shall be notified of possible silica dust contamination. Half face respirators shall be readily available, if requested, along with Tyvek suits and fit testing may be performed in non-life threatening situations

Man Down-Not Breathing:

1. As this is an extremely severe situation, the time to remove a victim is critical
2. Injured worker has to be removed immediately to an outside area
3. Water fire extinguishers tagged for this purpose shall be used to wet victim before, during, or at the earliest possible time when removal of the injured worker is taking place
4. Once the injured worker is removed outside the containment he / she shall be wet down again while CPR is taking place and any contaminated PPE is being removed if possible
5. Contaminated rescuers shall immediately remove themselves from the scene and proceed to decontaminate facility to decontaminate themselves
6. All areas used during the removal of the injured worker shall be cordoned off and decontaminated at earliest possible time by HEPA vacuuming & wet wiping
7. All outside emergency personnel arriving on scene shall be made aware of possible silica contamination and Tyvek suits & P100 half face respirators shall be made available
8. Any other possible contaminated areas – e.g. Ambulance, medical devices, etc., shall be addressed after the injured worker is treated

If any of the above procedures are used, a competent person will notify personnel in the area that the victim, rescue personnel, and the route of exit may be contaminated with silica dust and are to stay clear of the area. The area will be secured and decontaminated as soon as practicable. All responding emergency personnel will also be notified of possible silica dust contamination and that they may require respiratory protection.

The above alternate decontamination procedures must be considered prior to exiting the enclosure under emergency situations if normal decontamination procedures are not possible. All emergency rescue procedures will be defined in the site specific HASP.

EMERGENCY PREPAREDNESS

B&N must conduct a risk assessment at all workplaces in which a need to rescue or evacuate workers may arise. If the risk assessment shows a need for evacuation or rescue, appropriate written procedures must be developed and implemented, and a worker assigned to coordinate their implementation. All emergency evacuation procedures will be defined in the site specific HASP.

All B&N workplace must have a written emergency plan, appropriate to the hazards of the workplace. The plan must;

- Address emergency conditions which may arise from within the workplace and from adjacent workplaces
- Be developed, implemented and reviewed as required by the Appropriate Provincial Health and Safety Legislation in consultation with the JHSC / JOHSC and safety representative, as applicable
- Be developed in consultation with the Client, emergency response agencies, and site specific needs

Written evacuation procedures appropriate to the risk will be developed, contained in the site specific HASP and implemented to:

- a. Notify workers, including the first aid attendant, of the nature and location of the emergency
- b. Evacuate workers safely
- c. Check and confirm the safe evacuation of all workers,
- d. Notify the fire department or other emergency responders, and
- e. Notify adjacent workplaces or residences which may be affected if the risk of exposure to a substance extends beyond the workplace

Notification of the public must be in conformity with the requirements of other jurisdictions, including appropriate Agencies having jurisdiction.

B&N will ensure that an assessment is conducted of the risks posed by hazardous substances from accidental release, fire, or other such emergencies.

B&N will ensure the emergency plan:

- Conducts emergency drills to determine whether the procedures work in practice and to thoroughly familiarize workers with their roles in an actual emergency
- Keeps records of the emergency drills to monitor efficiency
- Provides each worker with enough training to ensure that workers clearly understand the procedures
- Posts a copy of the written plan on the worksite
- Posts other relevant emergency information including phone numbers, on the work site

Medical Emergencies

If a medical emergency occurs in a silica work area as a result of an incident or collapse, standard protective measures may be temporarily ignored if they would otherwise cause an immediate threat to the worker's life or recovery. If protective equipment and clothing can be left in place without interfering with the emergency care of

the injured worker in a contaminated area, they should not be removed until the worker has been brought to an uncontaminated area. On-site decontamination procedures should be carried out only if they do not interfere with medical emergency procedures.

When first aid, ambulance, or other emergency personnel have to enter a contaminated area, they must be warned of the hazard and be provided with, and told how to use, respirators, coveralls, and head protection before entering the area. Note: some responders may refuse to enter the contaminated area, in which case, the workers will need to assist with the removal of the injured worker to a clean area.



Medical Awareness Training and Education

B&N shall ensure that workers who are likely to be employed in a silica disturbance process or are likely to be exposed to silica dust are warned that the inhalation of silica dust may cause silicosis or lung cancer.

Medical Examination Process

The program shall address that workers who are regularly employed by B&N in a silica disturbance process, B&N shall, not less than once every two years and with the consent of the worker, offer to arrange for a medical examination of the worker during the worker's normal working hours; and reimburse the worker for any part of the cost of the medical examination that the worker cannot recover.

28.1.5 RELATED FORMS

FORM 28.1. – Competency Profile for Site Supervisors at Silica Projects

29.00 **CONFINED SPACE – CODE OF PRACTICE (COP)**

29.1.1. **PURPOSE**

The purpose of the Confined Space Program is to establish a process that will effectively manage, recognize, assess and control Confined Spaces at all Biggs & Narciso Construction Services Inc. (B&N) locations.

29.1.2. **SCOPE**

The Confined Space Program applies to all Confined Space Entry Work conducted by B&N.

It is the policy of B&N that any individual entering into a confined space must be adequately trained, equipped with the appropriate personal protective equipment and monitoring devices.

29.1.3. **RESPONSIBILITIES**

B&N Responsibilities:

- Ensure all B&N employees or Sub-contractors that must work within a confined space are protected against the release of hazardous substances or energy that could harm them.
- Ensure all B&N employees or Sub-contractors do not enter a confined space unless appropriate precautions are in place to provide adequate protection from all potential hazards contained in the Confined Space.

Entry Supervisor Responsibilities:

- Ensure all potential Confined Spaces related to the work are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site-specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site-specific Confined Space strategies, potential atmospheric hazards and the area where work is to be completed
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work.
- Determining if acceptable entry conditions are present at a confined space where entry is planned
- Ensure ongoing development of site-specific confined space entry, control plan and emergency response plan
- Conduct and document a site-specific hazard assessment during the completion of the Confined Space Entry Permit - **FORM 29.1.** – Confined Space Entry Permit
- Ensure all participants are adequately trained, made aware of the site-specific hazards and equipped for their job functions relating to hazards that they may face during entry
- Verify by checking that the appropriate entries have been made on the entry permit, that all tests specified by the permit have been conducted
- Ensure all procedures and equipment specified by the permit are in place before signing the permit and allowing entry
- Ensure that acceptable entry conditions are maintained throughout the duration of the permit, including periodic updates of atmospheric testing, if necessary
- Post the completed and signed confined space entry form in a conspicuous place, close to the entrance of the confined space
- Terminate the entry and cancel the permit when either the entry conditions have been completed or a condition that is not allowed under the permit arises in or near the confined space
- Verify that the written rescue plan, procedures, equipment and required rescue services are available and that the means of summoning them are operable
- Ensure that all participants are adequately trained and properly equipped for their respective roles in the confined space entry
- Assign a confined space attendant who is stationed outside and near the entrance to the confined space, or if there are two or more entrances, the one that will best allow the attendant to perform his or her duties

- Provide the attendant with a means of communication as described in the confined space plan to allow the attendant to be in constant communication with the workers inside the confined space
- Obtain any information available regarding the confined space and entry procedures
- Coordinate entry operations including precautions or procedures implemented for the protection of personnel in or near the confined space
- Before entry, all energy sources must be Locked Out and Tagged to identify which are potentially hazardous to workers in the space. (i.e.: relieved, disconnected or restrained, etc.)
- Perform an assessment of hazards to which entrants may be exposed and record in writing the hazards that may exist due to the design, location or use of the confined space and the hazards that may develop during work activity inside the confined space. The hazards to be considered shall include: oxygen enrichment or deficiency; flammable gas, vapour or mist; combustible dust; other hazardous atmospheres harmful substances; hazardous energy and engulfment, entrapment and other hazardous conditions
- Ensure rescue equipment is adequate to the plan, is inspected prior to the entry and attendants are knowledgeable in its use
- Ensure all entrants and attendants have adequate training to perform a confined space entry as well as any site-specific training that may be required
- Ensure that all Confined Space protective and monitoring equipment and devices are kept and maintained
- Ensure a site-specific written HASP with rescue procedures are developed and available on site

Attendant Responsibilities:

- The attendant must be the person who is stationed outside the confined space who monitors the authorized entrants and performs their duties as defined by the site-specific HASP and JSA
- Have knowledge of the hazards that may be present during the scope of work in a Confined Space
- Maintain an accurate count of authorized entrants who are in the Confined Space and their specific work duties
- Ensure the chosen means of communication is used and allows for the emergency procedures and signals, knowledge in the use and operation of rescue equipment to be distributed during all Confined Space activities
- Have current first aid and CPR training
- Communicate with all authorized entrants as necessary to monitor entrant status and order entrants out of the confined space at the first indication of a condition whose hazard potential exceeds the limits authorized by the entry permit such as:
 - a. An unexpected hazard
 - b. A toxic reaction which might be recognized by observing entrant behaviour
 - c. A situation outside the confined space which might pose a hazard to the entrants
- If the attendant cannot effectively and safely perform all the required duties
 - a. Remain outside the confined space until relieved by another attendant; summon rescue and / or other emergency services as soon as the attendant determines that entrants may need assistance
 - b. Keep unauthorized persons away from the entry space
 - c. Perform no other duties other than those prescribed by the entry control plan

Entrant Responsibilities:

- The entrant is authorized to enter the confined space and whose duties are communicated during the completion of the daily safe work permit meeting to identify the hazards that may be faced during entry
- Know the proper use and limitations of all required personal protective equipment and operational equipment and use this equipment while entering and working in the space as defined in the site-specific HASP
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and enable the attendant to alert entrants of the need to evacuate the confined space

- Alert the attendant whenever the entrant recognizes any warning sign or symptom of over exposure or detects a condition prohibited by the entry permit
- Know and understand the chosen means of communication, including emergency signals
- Exit confined space as quickly as possible whenever order to evacuate is given by the attendant or entry supervisor; any warning sign or symptom of over exposure is recognized; a prohibited condition is detected; and / or an evacuation alarm is activated
- Ensure the entire scope of work is covered in the Confined Space Entry permit and will not present any uncontrolled hazards

Health & Safety Department Responsibilities:

- Notify management, workers, or supervisors regarding any nonconformance or deficiencies found
- Assist to ensure that all Confined Space protective and monitoring equipment and devices are kept and maintained
- Ensure that competent trainers are delivering the training to all required B&N employees according to site specific Policies and Procedures, and Applicable Provincial Health and Safety Legislation
- Assist Supervision with the site-specific written HASP with rescue procedures that are developed and available onsite
- Assist in the purchase and replacement of all Confined Space equipment as required
- Conduct a formal review of the Confined Space Policy and related forms whenever there are changes in Legislation or working practices, as well as annually, to ensure content is current, relevant, effective and removes any system deficiencies that may emerge.

29.1.4. PROCEDURE

GUIDING PRINCIPLES

The B&N Supervisor or Sub-contractor, whichever has been deemed competent, shall complete a Confined Space Entry Permit - **FORM 29.1.** – Confined Space Entry Permit, to ensure that the potential hazards of a particular confined space have been identified and assessed, that necessary preventative measures are in place, and that workers are aware of and / or reminded of the correct procedures. The permit is dated and valid only for a specified time period but not longer than one work shift and should be posted outside the space while the work is being performed.

B&N will review local legislation to determine whether a work space would be considered a confined space and following all regulatory requirements as required.

Note: where reasonably practicable, B&N shall use an alternative means to perform work that will not require a worker to enter a hazardous confined space. All reasonably practicable steps to prevent any unauthorized entry into the confined space including.

- Project Manager / Supervisor to assign confined space entry work to employees who are capable of performing the work safely, because of knowledge, training and experience or to contract-out work involving confined space entry to a competent sub-contractor who are adequately trained and equipped to perform the work
- The Entry Supervisor and / or Project Manager shall identify and properly sign-off on all confined spaces on all B&N locations
- A qualified Sub-contractor or Supervisor shall certify that his employees are adequately trained and competent within the meaning of the Applicable Provincial Health and Safety Legislative. The Sub-contractor shall provide training records, equipment listings and a copy of his confined space entry procedure to the Entry Supervisor and / or Project Manager

CONFINED SPACE ENTRY AND CONTROL PLAN

The Entry Supervisor will develop a written confined space entry and control plan for each confined space entry before a worker enters a confined space. The plan will include methods, procedures and practices for controlling all hazards identified in the hazard assessment and contained in the site-specific HASP. An on-site rescue procedure shall also be written applying to the particular confined space and communicated during the daily safe work permit meeting.

Confined Space Entry Plan

The Confined Space Entry plan shall take into consideration as many of the following as are applicable but not limited to:

1. The duties of the workers including required training and awareness
2. Coordination of multiple parties performing work in the same Confined Space
3. Isolation of energy, lockout and tagging of hazards
4. Control of sources of ignition
5. Control of movement of materials within the Confined Space
6. Ventilation, lighting, and purging
7. Electrical equipment designed for use in a confined space
8. Procedures for working in the presence of explosive and flammable substances
9. Alarms and other means / methods of communication
10. Means and methods of access and egress
11. PPE, clothing and monitoring devices
12. Atmospheric testing and ongoing monitoring during the duration of the work
13. Emergency response procedures, including rescue equipment, emergency contact numbers and emergency equipment
14. Warning signs and barricades
15. Tending workers, including the frequency of checks of entrants
16. Any additional safe procedure(s) that may be required

Entry Permit

A competent person shall complete the Confined Space Entry Permit - **FORM 29.1**. – Confined Space Entry Permit in writing setting out the results of the assessment, tests and determinations prior to entering the Confined Space. The permit will provide recommended special precautions and procedures to reduce the risk to a worker that are to be followed by a worker when entering into, exiting from or occupying the confined space. Additional recommended PPE to be used by a worker when entering the confined space will be listed on the permit as required.

The entry permit shall take into consideration as many of the following as are applicable but not limited to:

1. Each Confined Space entry must be preceded by the completion of a Hazard Assessment included in the permit process as well as written emergency rescue procedures contained in the site-specific HASP
2. A Confined Space Entry Permit must be issued prior to entry into any confined space
3. The Confined Space Entry Permit will be signed during the completion of the daily safe work permit meeting by all parties involved only after the requirements of the permit have been met and all applicable blanks have been checked off, filled in or indicated as Not Applicable
4. The permit shall outline the location of the confined space
5. The permit will contain the names and signatures of the attendant(s) and all authorized entrant(s) who enter the confined space. These signatures acknowledge that all personnel have reviewed the permit requirements, test results and rescue planning and set up prior to starting the job. The signatures also

certify that all preparations, atmospheric testing and related calibrations have been completed and all specified protective equipment is on site and will be used

6. Confined Space Entry Permits are issued to a single, specific job site and are valid for only one work shift; with the permit start time and end time notarized, at the end of which a new permit must be issued if work is to be continued in the confined space
7. A record shall be maintained on the permit outlining each worker's entry and exit from the confined space at the job site
8. Results from atmospheric testing shall be documented on the permit
9. A list of equipment required for entry and rescue, and verification that the equipment is in good order shall be noted on the permit
10. Additional permits, such as Hot Work or Lockout / Tag Out shall be attached to the Confined Space Entry Permit as necessary. Also, any Safety Data Sheets relating to the contents of the space or other chemicals in the work area should be included with the permit
11. All permits will be posted in a conspicuous place, close to the entrance of the confined space and must remain at the work site until the job is complete and all personnel are out of the confined space

Non-hazardous Confined Space

When a potential confined space is identified but has been determined to be non-hazardous as verified through atmospheric testing and known hazards, B&N shall notify all workers who are required to enter into the potential confined space that the verification has been completed and that the confined space is not hazardous to work in.

All vessels, excavations and enclosures that potentially fall within the definition of Confined Spaces shall be considered a Confined Spaces until pre-entry procedures demonstrate that they do not fall within B&N's definition of a Confined Space.

Through continuous monitoring it is determined that the space does not contain a hazardous atmosphere, that could cause death or serious acute health effects, hamper self-rescue or contain materials or processes that could change the atmosphere above the Acceptable Atmospheric Levels

Arrangements similar to those used for entry into a known Confined Space shall be used for the duration of work within these areas. Additional procedures within the site-specific HASP for the removal of a worker who has become injured or incapacitated while in the confined space shall be reviewed and available. B&N shall ensure that the ventilation in the confined space is adequate to maintain safe atmospheric conditions.

Ventilation and Purging

When a concentration of a toxic, flammable or explosive substance is present or an oxygen enrichment or deficiency exists in a hazardous confined space, B&N shall develop a **written procedure** to ensure that the hazardous confined space is;

- a. Purged and ventilated before a worker is allowed to enter the space so that any hazard associated with a toxic, flammable or explosive substance is reduced to the extent that is possible or eliminated; and an oxygen content of not less than 19.5% and not more than 23% is ensured; and
- b. Continuously ventilated at all times during which the worker occupies the hazardous confined space, to maintain a safe atmosphere

Where ventilation is used to reduce or eliminate a toxic, flammable or explosive substance, B&N will ensure that a competent person tests the atmosphere to determine that the confined space is safe for entry by a worker:

- a. Before a worker enters the confined space
- b. Where all workers have vacated the confined space, before any worker re-enters the confined space
- c. On the request of a worker who is required or permitted to enter the confined space; and

- d. Continuously as specific intervals or where any condition in the confined space may change and put the worker's health or safety at risk

When a hazardous confined space cannot be purged and ventilated to provide a safe atmosphere or a safe atmosphere cannot be maintained, B&N shall ensure that no work is carried-on in the confined space. Use of supplied air respiratory protective devices may be required if the oxygen levels between 19.5% and 23% concentration cannot be maintained.

Isolation of Services

Before a worker enters a confined space, adjacent piping which contains or has contained a harmful substance must be controlled by means of disconnection, blanking, or equivalent engineered and approved system. If the adjacent piping contains a harmful substance, protective measures must be taken to ensure the safety of the worker. Protective measures may include de-energizing and locking out the pressure source. Any electrical energy inside the confined space that could endanger the worker shall be disconnected, de-energized, locked and tagged out. Any contact with moving parts of equipment inside the confined space that could endanger the worker shall be disconnected from its power source, de-energized and locked and tagged out. All isolation of services, additional permits used and other control measures put in place shall be listed on the Confined Space Entry Permit.

Entrapment

Before a worker enters a confined space, a hazard assessment shall be completed to ensure that a worker will not be exposed to the risk of drowning or becoming engulfed or entrapped in any liquid or free-flowing solid that may be present in the confined space.

Respiratory Program

If atmospheric hazards exist or are likely to exist in a confined space, the confined space shall be purged, ventilated or both, before any worker enters it, to ensure that acceptable atmospheric levels are maintained in the confined space while any worker is inside. If compliance is not practical in the circumstances for technical reasons, a worker entering the confined space shall use adequate respiratory protective equipment.

B&N shall provide appropriate respiratory protective equipment and appropriate training whenever a worker may be exposed to concentrations of an air contaminant in excess of an applicable exposure or excursion limit, or to an oxygen deficient atmosphere.

If a worker is required to enter or work in a location that is Immediately Dangerous to Life or Health (IDLH) or oxygen deficient atmosphere the worker must be attended by at least one other worker stationed at or near the entrance to the contaminated area that is similarly equipped and capable of effecting rescue.

A copy of the signed entry permit will be filed with all company records for a minimum 3 years unless otherwise specified by B&N policy.

ATMOSPHERIC TESTING

Before entry, it is necessary to evaluate the atmosphere in the confined space for oxygen level, flammability, temperature extremes and / or any contaminants that may be present or are potentially present in the confined space. B&N will appoint a qualified person who has adequate knowledge, training, and experience to perform atmospheric testing as often as necessary before and while a worker is in a confined space in accordance with the confined space entry plan contained in the site-specific HASP.

This evaluation must be done by a qualified person using equipment which has been approved for use in such areas. All atmospheric testing equipment must be calibrated regularly per manufacturer's instructions and field calibrated in a clean, ventilated environment prior to each use. The equipment shall be maintained in good

working order throughout the testing time period. Sample test results shall be recorded on the Confined Space Entry Permit. When continuous air monitoring is performed, the test results shall be recorded for predetermined time intervals. All air monitoring testing shall be performed in a manner that does not endanger the health or safety of the worker who is performing the testing.

If the confined space has been both unoccupied and unattended, tests shall be performed before a worker enters or re-enters the confined space area. Testing of the confined space should be done throughout the entire portion of the space that workers will occupy during the entry. Ventilation of the confined space may be temporarily discontinued during atmospheric testing to provide "worst case" data on the atmosphere in the space.

Atmospheric test samples shall be taken at different levels if stratification of gases or vapours is possible. Atmospheric tests are to be taken in the following order: Oxygen Level, Lower Explosive Limit (LEL), then known or suspected toxins or other physical and / or health hazards.

If test results show that the atmosphere of the confined space does not meet the definition of "safe atmosphere" with recorded atmospheric testing levels within the acceptable ranges listed on the Confined Space Entry Permit criteria, entry is prohibited, until conditions are brought to acceptable levels. This will be completed by purging, cleaning, ventilating the space, rendering the atmosphere inert, or other adequate means, in accordance with the relevant confined space plan. The frequency of periodic retesting of the atmosphere shall be determined by a qualified person. Where gas or vapour is or is likely to be explosive or flammable, a worker may enter the confined space only if, the concentration does not exceed 5% of the LEL, if only cleaning or inspection work is being performed the concentration shall not exceed 10% of the LEL, and the work does not create a source of ignition. No worker shall enter a confined space that contains or is likely to contain an airborne combustible dust or mist whose atmospheric concentration may create a hazard of explosion.

Cold work may be performed only if the concentration of gas or vapour does not exceed 10% of the LEL of the gas or vapour.

Hot work may be performed only if;

1. The atmospheric concentration is less than 5% of its LEL, as determined by an atmospheric combustible gas monitoring instrument
2. The atmosphere in the confined space does not contain, and is not likely to contain while a worker is inside, an oxygen content greater than 23 per cent by volume
3. The atmosphere in the confined space is monitored continuously
4. The entry permit includes adequate provisions for hot work and corresponding control measures
5. An adequate warning system and exit procedure are provided to ensure that workers have adequate warning and are able to exit the confined space safely if either or both of the following occur:
 - a. In the case of an explosive or flammable gas or vapour, the atmospheric concentration exceeds 5 per cent of its LEL
 - b. The oxygen content of the atmosphere exceeds 23% by volume

PROTECTIVE EQUIPMENT

There are two categories of protective equipment used for confined space entry; Operational and Personal.

Operational Protective Equipment is used to secure the worksite and to address general hazards in the confined space or adjacent work areas. Examples include:

- a. Warning signs, barricade tape or cones
- b. Ventilation equipment
- c. Fire protection equipment
- d. Ground fault circuit interrupters
- e. Lighting rated for hazardous locations

- f. Grounding or bonding equipment
- g. Ladders, scaffolding or work platforms
- h. Required operational equipment shall be noted on the Entry Permit. All confined space jobs shall be barricaded to provide a clear work area and to keep unauthorized personnel out. All portable electrical equipment must be equipped with a ground fault circuit interrupter. All interior or entryway lighting must be rated for use in hazardous locations if flammable or explosive atmospheres are possible. Any equipment which could generate a static charge must be adequately grounded and bonded. Ladders, scaffolding and work platforms must be properly erected and secured for use

Personal Protective Equipment (PPE) which may be required for confined space entry must be CSA approved or equivalent and includes, but is not limited to:

- a. Airline Respirator (Supplied Air) with 5-minute egress bottle
- b. Self-contained breathing apparatus
- c. Other specific respirators
- d. Gloves
- e. Rain gear
- f. Boots
- g. Hearing protection
- h. Safety glasses
- i. Fall protection / arresting protection (High hazard atmosphere, risk of entrapment or engulfment or with any other recognized serious health or safety hazard, the worker must wear a harness of a type which will keep the worker in a position to permit rescue with a suitable lanyard. A lifeline must be attached to the harness and be tended at all times by a standby person stationed outside the entrance to the space. The standby person must be equipped with suitable lifting equipment if necessary, to permit rescue.)
- j. Chemical splash goggles
- k. Tripod(s), harness(es), suitable retrieval rope(s) and any other equipment required for entry

If a rescue line is required, it shall be used in a manner that does not create an additional hazard.

Required PPE shall be determined by a qualified person and specified on the Confined Space Entry Permit for all authorized entrants, attendants and potential rescue personnel.

All B&N employees entering a confined space shall be trained in the use of and equipped with the proper PPE. Under no circumstances will entry into a confined space take place until all protective equipment is in place, properly functioning and trained one the limitations and maintenance.

COMMUNICATION AND EMERGENCY ACTION

1. The entry supervisor shall ensure the site-specific HASP contains an appropriate emergency response procedure to be followed in the event of an accident or other emergency in or near a confined space. This may include additional procedure for the immediate evacuation of the confined space if an alarm is activated (i.e. air horn), there is a significant change in the oxygen content of the confined space, or there is a hazardous atmosphere detected in the confined space.
2. The use of 911 shall not be used as a sole emergency action plan. 911 shall only be used during or after the rescue as per emergency response procedure has being attempted
3. All emergency procedures, including procedures relating to emergencies outside of the confined space, shall be reviewed with all entrants, attendants, rescue personnel and other related personnel prior to entry. No person shall enter or remain in a confined space unless an effective rescue can be carried out
4. Appropriate methods of communication shall be established that are readily available for entrants to communicate with attendants and that are appropriate for the hazards identified in the hazard assessment. Communication between the attendant and the workers within the confined space shall be continual and uninterrupted. The attendant shall have an appropriate means of communication to summon the rescue

- personnel that are on standby located near the confined space location. Effective communication shall remain in place with all workers and rescue personnel during the evacuation or rescue procedure.
5. An adequate number of workers trained in first aid and CPR, the use of the emergency equipment appropriate to the entry, and the emergency response procedure shall be assigned to the confined space entry
 6. Emergency rescue equipment shall be appropriate for the confined space entry, work location and exit point, available on site to perform a rescue in the confined space. This equipment shall be inspected on a regular basis to ensure it is maintained as per manufacturer's instructions and in good working order
 7. Inspection of the rescue equipment shall be performed by a competent person appointed by the B&N Entry Supervisor
 8. Rescue personnel will not enter a confined space unless there is at least one additional worker located outside to render assistance. A self-contained breathing apparatus, or air supplied respirator with escape bottle, must be used during rescue operations in an unknown or IDLH atmosphere.
 9. The attendant shall notify the Entry Supervisor of the required evacuation or rescue required for additional direction and support
 10. An attendant shall be assigned to every confined space entry. If a safe atmosphere can be maintained in the confined space the attendant shall periodically check on the entrant in accordance with the entry plan. If a safe atmosphere cannot be maintained the attendant shall be in attendance outside the entrance, be in constant communication with the entrant and be equipped with an adequate alarm for summoning assistance.

TRAINING

Every worker involved with entry into a confined space or who performs related work shall be adequately trained by a qualified person to recognize hazards associated with the confined space and safely perform such duties related to the confined space work.

Additional awareness and knowledge of site-specific safe work procedures and associated duties as specified in the confined space entry plan must be delivered on site as described in the site-specific HASP reviewed during the daily safe work permit meeting to ensure adequate awareness of the hazards are acknowledged.

The attending worker(s) shall also have a current certification in First Aid and CPR. The attending workers shall also be trained in the use of rescue equipment required in accordance with the relevant plan.

29.1.5 RELATED FORMS

FORM 29.1. – Confined Space Entry Permit

30.00 WORKING ALONE

30.1.1. PURPOSE

The purpose of the Working Alone Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with Working Alone within all Biggs & Narciso Construction Services Inc. (B&N) workplace.

A person is deemed to be alone at work when they are on their own; when they cannot see or be seen or heard by another person, and when they cannot expect a visit from another worker or member of the public for some time.

30.1.2. SCOPE

The Working Alone Program applies to all employees who may have the possibility of working alone, after hours, weekends or travelling alone to B&N locations.

30.1.3. RESPONSIBILITIES

B&N Responsibility:

- Provide regular contact to employees or Sub-contractor
- Limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of emergency supplies

Supervisory Personnel Responsibility:

- Assess the risks associated with all tasks assigned to workers
- Develop appropriate Job Safety Analysis for workers to follow when working alone
- Ensure all hazards or areas of potential for working alone are documented on the daily safe work permit and communicated to all applicable employees
- Provide training and testing to ensure thorough understanding of the appropriate procedures.
- Develop emergency plans for absent or missing workers
- Report all incidents, situations or near misses to the Health & Safety Department immediately

Worker Responsibility:

- Provide all information to supervisory personnel for developing procedures when working alone.
- Follow all procedures and processes developed and implemented when working alone.
- Report all situations and incidents or near misses immediately to Supervisory personnel.

30.1.4. PROCEDURE

GUIDING PRINCIPLES

Injuries or emergencies that can be readily addressed in a normal workplace environment could become difficult to manage and communicate in a remote setting, during periods of low occupancy, or during adverse weather conditions. This is why B&N employees must follow guidelines as applicable to their location when exposed to these potential risks.

Before a worker is assigned to work alone or in isolation, B&N must identify any hazards to that worker. Before a worker starts a work assignment, B&N must take measures to eliminate any hazards, and if it is not practicable

to eliminate the hazard, to minimize the risk from the hazard. This will be completed through the completion of the daily safety work permit and findings communicated to all applicable employees.

GUIDELINES

Before a worker is assigned to work alone or in isolation, B&N must identify any hazards to that worker during the completion of the daily safe work permit. Before a worker starts a work assignment, B&N must communicate the findings from the daily safe work permit and take measures to eliminate any hazards, and if it is not practicable to eliminate the hazard, to minimize the risk from the hazard.

B&N shall develop and implement a written procedure for checking the well-being of a worker assigned to work alone or in isolation under conditions which present a risk of disabling injury, if the worker might not be able to secure assistance in the event of injury or other misfortune. The procedure for checking a worker's well-being must include the time interval between checks and the procedure to follow in case the worker cannot be contacted, including provisions for emergency rescue.

In addition to checks at regular intervals, a check at the end of the work shift must be done. The procedure for checking a worker's well-being, including time intervals between the checks, must be developed in consultation with the Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC), as applicable and with the worker assigned to work alone or in isolation. Site and or job specific procedures shall be developed for each division. B&N will review the working alone procedures at least on an annual basis, when there is a change to the work arrangements that could adversely affect the worker's safety or if it is reported that the site and job specific procedures are not effective.

Office Staff

If any office staff will be working at any B&N facility alone, outside of regular business hours, they are to contact their Supervisory personnel when they arrive to notify them that they will be working alone at the main office building and the expected duration of their stay. Checks shall be made every 4 hours as agreed to by both parties. The office staff shall contact the Supervisory personnel when they leave the office to go home.

In the event that the office staff does not contact the Supervisory personnel by telephone to notify them they have left the office, the Supervisory personnel will attempt to contact the office staff by phone and if this fails, the Supervisory personnel shall continue to attempt to contact the worker to ensure the worker has safely left the premises.

Facility Staff (maintenance, dispatch, warehouse, etc.)

Only when absolutely necessary, B&N staff may be permitted to work alone.

If any B&N facility staff will be working at the facility alone, outside of regular business hours, they are to contact their Supervisory Personnel when they arrive to notify them that they will be working alone at the yard / facility and the expected duration of their stay. Checks shall be made every 4 hours as agreed to by both parties. The staff shall contact the Supervisory Personnel when they leave the yard / facility to go home.

In the event that the staff does not contact their Supervisory personnel by telephone to notify them they have left the yard / facility, the Supervisory personnel will attempt to contact the staff by phone and if this fails, the Supervisory personnel shall continue to attempt to contact the worker to ensure the worker has safely left the premises.

SITE SPECIFIC PROCEDURE(S)

Set out the procedure that all B&N employees are expected to follow for the situations identified in the application section above. Post names and telephone numbers of the contact persons and where to obtain any required communication equipment. Post the Working Alone Procedure in a conspicuous location for the

affected workers to reference. B&N will consult with the JHSC for review and recommendations of the working alone procedure as follows:

1. Evaluate the requested work during the completion of the daily safe work permit
2. Where required, create a Safety Plan for workers working alone and conduct a Job Safety Analysis of the work area(s) and activities
3. Eliminate, where possible, identified risks associated with the work area. If this is not possible, minimize and control these hazards through the development of Job Safety Analysis or the provision of PPE and equipment
4. Ensure all Appropriate Provincial Health & Safety Legislation requirements, where applicable, for a Work Alone Program are incorporated into local program requirements
5. Provide First Aid training and First Aid kits and equipment in vehicles as required by Appropriate Provincial Health & Safety Legislation and ensure that employees understand how to react to an injury or illness in a remote or isolated location
6. Ensure an “effective means of communication” for the worker in the event help is needed. Examples include but are not limited to:
 - a. Visit the worker or arrange for a visit by a co-worker
 - b. Ensure contact with the worker at regular intervals appropriate to the nature of the risk associated with the work
 - c. Provide communication equipment suitable for the location and environment. (i.e. cellular phone, radio etc.)
7. Ensure workers receive written instructions & training on how to do their work safely and control identified risks / dangers they may face through the completion of the daily safe work permit
8. Document local Working Alone Procedures including all findings of the Job Safety Analysis and effectively communicate this to all affected workers

31.00 HEARING CONSERVATION PROGRAM

31.1.1. PURPOSE

The purpose of the Hearing Conservation Program is to establish a process to that will effectively manage recognize, assess and control the hazards associated with noise at all Biggs & Narciso Construction Services Inc. (B&N) locations.

31.1.2. SCOPE

The Hearing Conservation Program applies to all B&N locations.

31.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Hearing Conservation Program is implemented across all areas of responsibility

Supervisors Responsibilities:

- Ensure potential noise hazards related the work are defined along with the appropriate Personal Protective Equipment (PPE) within the site specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site specific noise hazardous situations or work areas where hearing protection is required
- Provide employees with appropriate hearing PPE depending on the potential work to be conducted and client requirement
- Ensure that workers are informed in the proper use, care and maintenance of hearing protection
- In noise hazard areas, ensure workers wear appropriate PPE at all times in accordance with Appropriate Provincial Health & Safety Legislation and the site specific HASP

Worker Responsibilities:

- Wear appropriate hearing protection at all times in noise hazard areas or when performing tasks which generate potentially hazardous noise levels in excess of 85 dBA or as directed by the site specific HASP
- Maintain hearing protection in good condition
- Use hearing protection as per manufacturer's recommendations
- Immediately report to the Supervisor any defective equipment of excessive noise on site

31.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N will conduct a noise exposure assessment where workers are or may be exposed to noise levels in excess of the occupational exposure limits in accordance to the CSA Standard Z107.56-06 (R2011), Measurement of Occupational Exposure to Noise, and prepare and post in a conspicuous place in the workplace a written report of the assessment, if:

- a. A worker is or is likely to be exposed to noise at a workplace in excess of 85 dBA
- b. There is an alteration, renovation, or repair of the workplace, new equipment introduced in the workplace, or a modification done to a work process that may result in a significant change in a worker's exposure to noise

c. A worker provides B&N with evidence of an occupational induced hearing loss

If a noise exposure assessment confirms that workers are exposed to excess noise at a work site, B&N shall develop and implement a noise management program.

GENERAL GUIDELINES

B&N, Sub-contractors or owner shall ensure that all new places of employment are designed and constructed so as to achieve the lowest reasonably practicable noise level. Any alteration, renovation or repair to an existing place of employment is made so as to achieve the lowest reasonably practicable noise level. All new equipment to be used at a place of employment shall be designed and constructed so as to achieve the lowest reasonably practicable noise level.

In every area where workers are required or permitted to work and the noise level may frequently exceed 85 dBA, B&N or the Sub-contractor shall ensure that the noise level is measured in accordance with an approved method. A competent person must evaluate the sources of the noise and recommend corrective actions or controls including PPE. The measurements, evaluation and recommendations are to be reviewed and discussed with all site personnel during the daily safe work permit meeting.

B&N or the Sub-contractor shall keep a record of the results of any noise level measurements conducted at the place of employment.

Where a workers' occupational noise exposure is or is believed to be greater than 85 dBA, B&N or the Sub-contractor shall;

- Inform the worker of the hazards of occupational noise exposure,
- On the request of the worker, make available hearing protectors that meet the Appropriate Provincial Health & Safety Legislation

When a worker's occupational noise exposure is or is believed to be greater than 85 dBA, B&N or the Sub-contractor shall train the worker in the selection, use and maintenance of the hearing protectors.

When a worker's occupational noise exposure equals or exceeds 85 dBA over an 8-hour time period, B&N or the Sub-contractor shall inform the worker of the hazards of occupational noise exposure during the review of the daily safe work permit. B&N or the Sub-contractor will take all reasonably practicable steps to reduce noise levels in all areas where the worker may be required or permitted to work, minimize the workers' occupational noise exposure to the extent that is reasonably practicable and document the steps taken.

B&N or the Sub-contractor shall develop and implement a hearing conservation plan and appoint a supervisor to oversee the plan.

If workers are exposed to excess noise in excess of 85dBA and greater than the safety factor of the hearing PPE, B&N will develop and implement a noise management program that includes additional hearing protection devices, company and site-specific policies and procedures as defined in the site-specific HASP.

The noise management program will be defined in the site specific HASP and include the following components:

- a. A plan to provide awareness to workers in the hazards of exposure to excess noise and to train workers in the correct use of control measures and hearing protection
- b. The methods and procedures to be used when measuring or monitoring worker exposure to noise
- c. The posting of suitable warning signs in any work area where the noise level exceeds 85 dBA
- d. The methods of noise control to be used
- e. The selection, use and maintenance of hearing protection devices to be worn by workers
- f. The requirements for audiometric testing and the maintenance of test records as required by the Appropriate Provincial Health & Safety Legislation; and
- g. An annual review of the policies and procedures to address

MEASURING WORKPLACE NOISE

- Identifies significant sources of noise in the workplace and helps prioritize them for noise control prior to the commencement of work using our daily safe work permit
- Determines workplace areas that should be posted as hazardous noise areas
- Determines noise exposures of workers and identifies workers who require protection, hearing testing, education and training

Area noise measurements (measurements of general noise levels in a work area) or spot measurements (measurements taken near a piece of noisy equipment or during a specific work process) may be used as a first step to determine if there is a need for further measurement as required by the Appropriate Provincial Health & Safety Legislation.

Area or spot measurements are not a substitute for personal exposure measurements (noise measurements taken to determine a particular worker's exposure) because area and spot readings do not incorporate information about length of exposure. Area measurements may either over estimate or under estimate a worker's noise exposure, leading to inappropriate selection of hearing protection and inaccurate identification of workers who require annual tests as required by the Appropriate Provincial Health & Safety Legislation.

NOISE MEASURING EQUIPMENT

Measuring noise exposure is done with noise dosimeters or integrating sound level meters. Both instruments average noise levels over time to provide L_{eq} .

L_{eq} is the average noise measured by an integrated sound level meter.

L_{ex} is the L_{eq} which has been corrected for shift lengths other than eight hours.

L_{ex} is the noise level, average over eight hours, which gives the same noise exposure as would the varying noise over a typical full shift. L_{ex} , therefore includes both loudness and length of exposure.

The integrated sound meter is a hand – held instrument, while the noise dosimeter is a small device worn by the worker whose exposure is being measured. The dosimeter has a cable – mounted microphone that is usually placed on the worker's shoulder or collar.

NOISE-MEASURING PROCEDURES

Each time noise measurements are taken; the equipment should be checked or calibrated. Calibrating the meter ensures that it is functioning properly and reading noise levels accurately. Calibrating the equipment for a survey is known as a field calibration. A complete calibration of the equipment should be done in a properly equipped laboratory at least every two years or as required by the manufactures recommendations. A laboratory calibration will check all of the instrument's functions to ensure correct position.

Measurements are made with the sound level meter and with the microphone located in the hearing zone of the worker, close enough to the worker's ear to obtain a reliable indication of the noise to which the worker is exposed. If measurements are done with a dosimeter, the micro-phone should be clipped to the worker's collar or shoulder. The microphone should be placed on the side of the worker subject to the most noise.

It may not be necessary to measure the noise for an entire shift. A worker's noise dose (or L_{ex}) can be calculated from measurements over shorter periods, provided the measurements are representative of the exposure throughout the day. To ensure that the measurements are representative, managers, supervisors, and workers should be asked by the noise surveyor about:

- Major noise sources, noisiest areas, and previous complaints
- How the work pattern compares to a typical work day. Do the noise levels change? What are the number and duration of breaks? Is there downtime, delays, product changes, or job rotation?

- If noise measurements are not taken on a typical day, what is the probable impact on the measurements, and will measurements need to be re-done
- If noisy equipment was added, removed or modified since the last noise measurements were taken
- If any noise control measures were instituted. Noise measurements must be carried out in accordance with acceptable standards. Canadian Standards Association (CSA) Standard Z107.56-06 (R2011), Procedures for the Measurement of Occupational Noise Exposure, provides guidance on the type of equipment to use, which workers to test, and how to test

Noise evaluation needs to be done by knowledgeable, trained personnel such as in-house safety or hygiene staff, or by an acoustical consulting firm.

NOISE SURVEY RECORDS

A written report on the results of the noise survey can follow any format, but should contain the following information:

- A list of jobs that are overexposed according to the noise standards in the Appropriate Provincial Health & Safety Legislation, and that require hearing protection and annual hearing tests for workers in those jobs
- A list of workers to be provided education about effects of noise on hearing, and on hearing conservation techniques
- Locations that need to be posted with signs warning about high noise levels and the requirement to wear hearing protection
- A statement noting that the measurements were taken under typical noise levels conditions (or otherwise) at the survey times. The dates of the measurements and the noise measuring equipment used should be recorded
- Explanations to account for the calculation method used, if total daily noise exposures were calculated from partial noise exposures

In addition to a written report, it may be useful to summarize the noise survey information in a table or write the noise levels on a general layout of the site.

B&N will ensure that the current noise measurement results are readily available for reference by Appropriate Provincial Health & Safety Authorities, B&N Joint Health and Safety Committee (JHSC) as required by the Appropriate Provincial Health & Safety Legislation.

Measurements must be redone whenever workers noise exposures could have changed due to:

- Machinery being installed or removed
- Workload or equipment operating conditions changing, causing significant changes in noise levels
- A buildings structure changing (e.g., wall removed or added)
- Length of time employees spend in noisy areas changes or levels are reported to have changed

EDUCATION, TRAINING AND AUDIOMETRIC TESTING

Workers need to understand the nature of the noise hazard they are exposed to, and how to protect their hearing. B&N must provide workers with certain information depending on the noise exposure received by the workers.

Where noise surveys show that worker exposures are less than 85 dBA L_{ex} , B&N must inform workers of the results of noise measurements and the possible risk of hearing loss. Annual hearing tests are not required for workers exposed to these noise levels, nor are the use of hearing protection, because the risk of developing hearing loss is very low. Optional hearing protection will always be provided and made readily available at all B&N locations for workers to lower individual noise levels.

When noise exposures are above the exposure limits (above 85dBA L_{ex} or 135 dBA peak), workers must be informed about the:

- Results of the noise survey
- Effects of noise on hearing
- Purpose of annual hearing testing
- Proper use and maintenance of hearing protection

As part of B&N's hearing conservation program, the type of training each worker will receive must be specified. This education and training can be incorporated into weekly toolbox talks, review of the daily safe work permit and should be part of the health and safety training provided to new employees.

Another opportunity for worker education is during the annual hearing test as required in B&N locations by the Appropriate Provincial Health & Safety Legislation. Workers must receive individual counseling from the audiometric technician regarding their hearing test results. This is a good time to also review the use and care of workers hearing protection, and reinforce information on the effects of noise on hearing and the purpose of hearing testing.

In house audiometric technicians must have adequate training and attend periodic refresher courses to be authorized to conduct hearing tests. These courses include training in the selection, fitting and use of hearing protection in accordance to the manufacturer's specifications.

Supervisors will receive sufficient education about company hearing conservation policies so that they can monitor the use and condition of hearing protection, and ensure workers are made aware of site level noise hazards during the review of the daily safe work permit. B&N will ensure all test results and personal information will be kept confidential and not released to anyone without written permission of the worker, or as otherwise required by the Appropriate Provincial Health & Safety Legislation.

NOISE CONTROL

If noise in the workplace exceeds either of the noise exposure limits, B&N must develop and implement an effective noise control and hearing conservation program with the following elements:

- (a) noise measurement
- (b) education and awareness
- (c) engineered noise control
- (d) hearing protection
- (e) posting of noise hazard areas
- (f) hearing tests as required by Appropriate Provincial Health & Safety Legislation
- (g) annual program review

If it is not practicable to reduce noise levels to or below noise exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH) Noise Threshold Limit Values (TLV's), B&N must provide to affected workers hearing protection that meets the requirements of CSA Standard Z94.2-02 (R2014), Hearing Protection Devices – Performance, Selection, Care, and Use, and maintain the hearing protection so that it continues to meet the CSA standards.

The best method of dealing with noise in the workplace is reducing the noise at the source with engineering controls. At best, engineering controls can eliminate the need to provide hearing protection, hearing testing, and other elements of a hearing conservation program altogether.

Even if noise cannot be reduced to safe levels, reducing noise at the source makes it more likely that hearing protection will be effective in reducing noise exposures below 85 dBA. At a minimum, noise control can improve speech communication and reduce annoyance due to noise.

B&N must investigate options for engineered noise control when workers are exposed to noise above the exposure limits of 85 dBA. Investigating noise control options requires a knowledgeable professional such as an acoustical engineer. Experienced employees who understand the operational requirements in the workplace may be requested to provide input to the acoustical engineer.

Many potential noise problems can be solved by choosing quieter equipment. When new equipment is purchased, specifications should give consideration to either a limit on the noise, or a requirement for the vendor to provide noise performance data. If noise is not reduced due to engineering controls at purchase, retrofitting existing equipment with noise control devices such as mufflers, silencers, special nozzles, or isolators can sometimes be effective.

Substituting quieter equipment for noisy equipment is another method of noise reduction at source. For example, substituting a large slow speed fan for a smaller high speed fan often reduces noise. When purchasing mobile equipment, specify that sound levels in the cab should be below 85 dBA. The higher initial cost of soundproofed mobile equipment could be lower than the cost of retrofitting the cab with special materials and devices.

Some pneumatic and power hand tools are very noisy. Tools with reduced noise emissions may be available, whenever possible, B&N will attempt to purchase these types of equipment.

ENCLOSURE OF THE NOISE SOURCE

Enclosing the noise source is especially useful when the enclosure doubles as a safety guard or as an environmental control device. Enclosures reduce workers noise exposure by acting as a barrier and as a sound absorber.

Machines that have solid safety panels can often be modified to convert the guarding into effective local noise enclosures. For example, the engine compartments of trucks and buses can be lined with noise absorbents on the bulkhead and hood.

When possible, installation of acoustical treatment of the room lining the walls and ceiling with sound-absorbing panels or hanging baffles may reduce reflected noise effectively. This method does not interfere with workers' access to machinery or require special building structures. However, close to the noise source, where workers are usually stationed, direct noise will remain a problem. The benefit of acoustical treatment is that all workers in the room will experience these noise reductions.

Separating the Worker from the Noise Source

Noise levels fall as the distance increases from the noise source. The rate at which noise is reduced with distance is increased with acoustical treatment of the room. Using this concept to plan workstation locations may be practical when designing new facilities.

Sometimes, a combination of noise control methods is required to reduce noise, for example, room treatment and a partial machine enclosure.

If engineering controls are put in place, the noise reduction achieved should be measured and the results documented. This will demonstrate compliance with noise control provisions of the Appropriate Provincial Health & Safety Legislation, and may be useful in solving other noise control problems.

POSTING THE NOISE HAZARD

Where noise levels cannot be reduced to or below the exposure limits by engineering noise controls – 85 dBA, warning signs must be posted stating that:

- A noise hazard exists

- Hearing protection must be worn by all workers working in the area
- Provisions of adequate PPE available to all employees

It is not necessary to post the actual measured noise levels. It is appropriate to specify on these signs that a certain class of hearing protection must be worn, based on the noise measured in the area.

B&N will ensure that employees working in areas where noise exceeds 85 dBA L_{ex} are provided with and use hearing protection. Hearing protection will be available to the Supervisor and workers which consist of ear plugs and ear muffs. In some circumstances, both ear plugs and ear muffs may need to be worn at the same time.

When engineering controls cannot eliminate the noise hazard, hearing protection provides a secondary means of reducing workers' noise exposure.

Hearing protection must be provided for workers exposed to greater than 85 dBA L_{ex} , or its equivalent — a noise dose of 1 Pascal squared-hour (Pa²h). The employer is responsible for knowing which workers are overexposed to noise and which must wear hearing protection.

Hearing protection must be provided and selected in accordance with CSA Standard Z94.2

The CSA standard includes information on selection criteria such as:

- Daily noise exposure of the worker
- Worker hearing ability
- Communication demands on workers
- Use of other personal protective equipment
- Temperature and climate
- Physical constraints of workers or work activity

HEARING PROTECTION DEVICES

Hearing protection devices (HPDs) reduce the level of noise reaching the ear. The two main types of protection are **earplugs** and **earmuffs**. Earplugs may be inserted into the ear canal or placed over the ear canal (the latter plugs are called canal caps). Earmuffs consist of two dome-shaped cups that cover the entire ear and are held in place by a headband.

Earplugs and earmuffs reduce noise, but this involves reducing all sounds, not just unwanted noise but also sounds that workers need to hear such as voices and warning bells.

EARPLUGS

Earplugs work by blocking the ear canal. Canal caps are a variation of earplugs. Unlike earplugs, which block the ear canal by being inserted into it, canal caps seal the opening of the ear canal by being placed over it.

Properly inserted earplugs are not painful. The most common problem with earplugs is that they are not seated deeply enough in the ear canals. Partial insertion results in poor noise reduction, poor retention, and discomfort. When plugs are properly inserted, there will be a slight sensation of pressure, and the wearer's voice will sound louder and more resonant. There will also be some resistance when the user pulls gently on the earplug.

Workers should be individually instructed in how to insert earplugs. Instruction is best done at the time of the annual hearing test. Supervisors should also be taught to recognize the appearance of an improperly seated plug and how to counsel the worker on the correct way to insert it. **Straighten the ear canal before inserting the plug.**

SEVERAL TYPES OF EARPLUGS ARE AVAILABLE INCLUDING:

Compressible - These earplugs are usually made of compressible foam. The plugs are rolled between the fingers to compress them, then inserted into the ear canal where the foam expands to fill the canal. For proper insertion, the ear canal must be first straightened by pulling on the outer ear with your other hand; if this is not done, the

plug will stick out too much and will not be effective. One size fits most workers; however, if ear canals are too small for a comfortable fit, the plug won't stay in place. Some compressible plugs come in several sizes. Alternatively, reusable or custom-molded plugs could be selected.

Reusable - These are generally made of plastic with single, double, or triple ridges that help seal the ear canal. Many brands come in different sizes. These plugs are suitable for workers whose hands may become soiled at work since the ear canal portion of the plug is not touched. (Compressible plugs rolled between the fingers can become dirty.) For proper plug insertion, the ear canal must be straightened and the plug inserted with a slight twisting motion. When properly inserted, the plug should not fall out.

Some resistance should be felt when the plug is gently tugged — the wearer should not be able to pull it out easily. *Roll compressible plugs between fingers before insertion.*

Custom-molded - These plugs are custom made by taking an impression of a worker's ear, making a mold of it, and casting the plug. It is vital that a proper impression of the ear be taken or the finished plugs won't fit well. The plugs must fit the contours of the ear snugly to provide proper noise reduction. Since these plugs can be difficult to insert due to their unusual shape, workers must be shown how to insert them properly. New earplugs will need to be made if the external ear and ear canal change shape with age or extreme weight gain or loss.

Canal caps - These caps are held in place by a headband worn either over the head, behind the head, or under the chin, depending on the manufacturer. The cap, or pod, does not insert into the ear, but fits over the opening of the ear canal. The size of the ear canal is not as important in fitting these devices. Canal caps are widely used by workers with intermittent or interrupted exposure to noise.

Earmuffs - Consist of four parts:

1. **Domes (ear cups)** Domes deflect noise. The deeper and heavier the dome, the greater the noise reduction. Domes are usually made of plastic
2. **Dome liners** are made of foam and/or ear "down". Liners reduce noise reverberation inside the dome.
3. **Cuffs (ear cushions)** Cuffs may be filled with foam, liquid, or a combination of foam and liquid. The liquid-filled cuffs may make wearing safety glasses more comfortable. Foam cuffs are lighter weight
4. **Headband assembly** These may be made of plastic, metal, or a combination of both

Depending on their design, earmuff headbands may be worn over the head, behind the head, under the chin, or the muffs may be mounted on a hard hat. Hard hat-mounted earmuffs have less pressure exerted against the side of the head, and are more comfortable than muffs with headbands. The attachment for a hard hat may be fitted into slots on the hard hat, or clipped onto the brim with an adaptor. The proper size adaptor must be selected, and may vary according to the brand of hard hat.

The effectiveness of an earmuff is determined by the headband tension and fit of the domes over the ears. If headband tension decreases either by routine usage or by deliberate modification by the wearer, noise reduction decreases.

The domes must fit over the entire external ear to provide a proper seal. Modification to domes, such as drilling holes, is not permitted. Wearing safety glasses, caps, or facial hair may interfere with the seal of the dome. Hair should be pushed behind the ears or pinned up out of the way. Thin frames for glasses are preferred to thick ones. Temple pads are available to improve the seal and decrease discomfort caused by the pressure of the dome against glasses. Wearing thick cloth caps should not be permitted if the headband of the earmuffs must fit over the cap. Using earmuffs with a swiveling band will help with this problem.

Jaw size and head shape might also pose a fitting problem— some muffs may not fit properly against the side of the head. Workers should try earplugs in such cases.

Some earmuffs are made to be worn a certain way to obtain a proper fit. The top and bottom may be designated, either by the shape of the muffs, or by the manufacturer's instructions.

As with earplugs, fitting muffs individually at the time of the annual hearing test will help ensure the worker is properly instructed in earmuff use. Workers should bring their hearing protection to their annual hearing re-test so that the fit can be assessed yearly.

Selection of hearing protection

Selecting appropriate hearing protection is not difficult. Factors that must be considered are as follows:

Daily noise exposure of the worker - One criterion for selecting hearing protection is the noise exposure of the worker. CSA Standard Z94.2 has a selection guide. The 1994 standard (Z94.2-94) makes recommendations for the class of hearing protector and uses Leq and Care should be taken to select a protector that will reduce a wearer's exposure to below 85 dBA but not below 70 dBA. If the exposure is reduced to below 70 dBA, then the wearer's HPD has too much attenuation. This is called "overprotection" and leads to the wearer feeling isolated. Additionally, sounds such as speech, machinery noises, or warning signals may be significantly altered, affecting productivity or safety.

The class, or grade, of hearing protection is based on the sound reduction provided by the protector at certain pitches or frequencies. Earplugs and earmuffs alike may be Class A, B, or C, or Grade 0, 1, 2, 3, or 4. Grade 0 protection is not recommended for occupational use.

TABLE 2 - SELECTION OF HEARING PROTECTION DEVICES

Maximum equivalent noise level (dBA L_{ex})	CSA Class of Hearing Protection	CSA Grade of Hearing Protection
≤ 85	C, B or A	1, 2, 3, or 4
≤ 95	B or A	2, 3, or 4
≤ 100	A	3 or 4
≤ 105	A	4
≤ 110	A ear plug + A or B earmuff	3 or 4 earplug + 2, 3, or 4 earmuff
>110	A plug + A or B earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L_{ex}	3 or 4 ear plug + 2,3, or 4 earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L_{ex}

"dBA L_{ex} " means the level of a workers total exposure to noise in dBA, averaged over the entire workday and adjusted to an equivalent 8-hr. exposure.

Worker hearing ability - Workers with normal or near normal hearing can wear any class of protector. Hearing impaired workers may find hearing protection that greatly reduces noise levels unacceptable. Reduced ability to hear warning sounds, equipment sounds, or verbal instructions may make it difficult for these workers to perform their jobs efficiently or safely.

Communication demands on workers - Where verbal communication is frequently required, hearing protection that greatly reduces noise levels is undesirable, because it will make speech hard to understand.

Use of other personal protective equipment - Many workers who must wear hearing protection also wear other personal protective devices. The resulting combination of protective equipment must be comfortable for the worker. For example, workers wearing respirators, hard hats, and safety glasses may prefer earplugs to earmuffs.

Temperature and climate - Earmuffs are often worn in low temperatures. Earplugs may be preferred in high temperatures or high humidity.

Physical constraints of workers or work activity - Some workers may have ear canals that are too small for earplugs or ears that are too large for earmuffs. Workers with chronic external ear infections should wear earmuffs, those with skin problems such as dermatitis or eczema surrounding the ear should wear earplugs.

For workers who must do a lot of bending over and straightening, or maneuvering in small places, earplugs may be better than earmuffs.

If employers are concerned about monitoring the use of hearing protection by workers, earmuffs are more easily visible.

The choice of an all-plastic earmuff or earplug may be necessary where possible contact with an electrical hazard is present.

Many workers have strong preferences for the type of hearing protection they use. If forced to wear a type they don't like or feel comfortable with, workers probably won't wear it. Workers should be allowed to help choose the hearing protection that fits them well and is comfortable. Fit and comfort of hearing protectors is key for worker acceptance.

<p>Note: Employers should offer a variety of hearing protectors to workers, because there is no universal hearing protector appropriate or acceptable to all workers.</p>
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USING AND MAINTAINING HEARING PROTECTION

Once hearing protection has been selected, it should be individually fitted to each worker. This ensures that the proper size and shape are chosen and that the worker understands how to use it correctly. If the protector is worn incorrectly, it will be ineffective, uncomfortable, and likely removed. The protector's effectiveness depends on a good seal between the surface of the skin and the surface of the protector. Leaks can destroy the effectiveness.

Hearing protection is not usually designed to be repaired. Damaged earplugs must be replaced. New parts are available for earmuffs if domes, cuffs or liners are damaged. Employers must supply enough hearing protection or replacement parts to ensure only well maintained hearing protection is worn.

Proper cleaning of hearing protection will maximize its life span. Advice on caring for hearing protection is provided as follows:

Earplugs - Compressible earplugs can be washed and reused when dry, although usually they are discarded at the end of the day. Reusable, custom-molded plugs and canal caps should be washed at least once a week to remove wax build-up, which may reduce attenuation. Washing should be done at the end of the workday to allow complete drying. Use hand soap and warm water for washing. Do not use harsh solvents or alcohol — they

will damage the plug. Most ear plugs come with a carrying case for storage between each use. Reusable plugs should last six months to one year and custom-molded plugs should last two to five years.

Earmuffs - The hard plastic domes generally need no more than wiping with a damp cloth. The domes should last approximately two years.

Skin oil, perspiration, and some hair preparations have adverse effects on the cuffs. After continual use, the soft and compliant cuffs become hard and can even shrink.

Ozone emissions from generators and some welding operations can cause the foam material in the domes to disintegrate and can also harden the seals. Most earmuffs have replaceable cuffs available. Cuff replacement is recommended every six months. Liquid-filled cuffs should be checked often to see if the liquid is still present. Cuffs that have leaked should be replaced.

The liner material inside the dome should be kept clean. If the liner is discolored, hardened, or extremely soiled or mildewed, it should be replaced.

Earmuffs must be sufficiently tight to form a good seal. Headbands should be adjusted or replaced as required to maintain adequate pressure.

When stored, earmuffs should be hung up by the headband on a hook in a well-ventilated area. They should not be thrown into a tool box or truck bed where the domes can crack, cuffs can rip, and headbands can bend.

Earmuffs should not be left outdoors. Bees, wasps, and spiders may make homes inside earmuff domes.

Earmuffs mounted on a hard hat should not be stored with the cuffs pressing against the hat. This constant pressure on the cuffs leads to rapid flattening of the cuffs. Instead, the earmuffs should be kept raised off the hat, or snapped out when not in use.

ANNUAL REVIEW

B&N will perform an annual review of the noise management program which will address:

- a. The effectiveness of the education and awareness plan
- b. The need for further noise measurement, and
- c. The adequacy of noise control measures

32.00 EMERGENCY RESPONSE

EMERGENCY RESPONSE

32.1.1. PURPOSE

The purpose of the Emergency Response Program is to establish processes that will effectively manage emergency situations that potentially could arise within B&N Construction Services Inc. (B&N) locations.

32.1.2. SCOPE

The Emergency Response Program applies to all emergency situations that may arise within B&N locations. An emergency is a serious, unexpected, and potentially dangerous situation requiring immediate action. Emergency preparedness and response is an emergency management plan, put in place to deal with emergencies.

32.1.3. RESPONSIBILITIES

B&N Responsibilities:

1. Ensure that Emergency Response procedures are developed and implemented for the workplace
2. Arrange training for workers regarding Emergency Response and Spill Prevention
3. Site specific Emergency Response procedures shall be referenced within the Site-Specific Health and Safety Plan (HASP)
4. Ensure there is an effective means of communication between emergency response personnel, the workers and a means to summon outside assistance
5. Ensure the proper storage of chemicals to minimize the potential for a spill
6. Ensure chemical substances are stored in the proper containers to minimize the potential for a spill. Whenever possible, chemicals should be kept in closed containers and stored so they are not exposed to storm water
7. Ensure that the spill response kits are periodically assessed to ensure the availability of adequate spill response supplies, assessing their availability and adjust the inventory as necessary

Supervisor Responsibilities:

1. Stabilize the scene; eliminate any hazards to avoid further injuries
2. Make sure first aid is given immediately. First aid includes but is not limited to: cleaning, minor cuts, scrapes or scratches; treating a minor burn, applying bandages and / or dressings, cold compress, cold pack, ice bag, splint, changing a bandage or a dressing after a follow-up observation visit and any follow-up for observations purposes
3. Emergency services such as an ambulance shall be called for all serious injuries to a worker.
4. Initiate the specific Emergency Response procedures as referenced within the Site-Specific HASP or posted within the workplace
5. Work locations that are isolated and do not have access to emergency services such as an ambulance shall have alternate travel arrangement and / or medical services on site to accommodate minor and serious injuries to a worker. Appropriate Provincial Health & Safety Legislation shall be complied with for remote or isolated work areas
6. Investigate the incident as soon as possible. Complete the Incident Report **FORM 8.1. – Incident Investigation Report** and acquire witness and worker statements **FORM 8.2. – Incident Witness Statement, FORM 8.3. – Incident Worker Statement**

Worker Responsibilities:

1. Get first aid right away from a trained first aid responder. Workers are not to self-administered first aid unless they themselves are a trained first aider. First aid includes but is not limited to: cleaning minor cuts, scrapes or scratches; treating a minor burn, applying bandages and / or dressings, cold compress, cold pack, ice bag, splint, changing a bandage or a dressing after a follow-up observation visit and any follow-up for observation purposes only
2. Immediately tell the supervisor of any injury or the possible onset of a work-related disease / condition.
3. Participate as directed by the supervisor in the specific Emergency Response procedures as referenced within the Site-Specific HASP or posted within the workplace
4. Wait at the designated muster point for further instruction from the emergency response personnel or your Supervisor

32.1.4. PROCEDURE

GUIDING PRINCIPLES

Formalized site-specific emergency procedures and a response plan will be prepared for all B&N locations for routine and non-routine emergencies as well as changes in operation, and products or services which warrant new emergency situations.

These procedures, which could also be supplied by the client, will include emergency response, care of injured workers, reporting requirements and corrective measures for all injuries and serious incidents. These procedures shall be referenced within the Site-Specific HASP or posted within all B&N locations to ensure compliance. These specific procedures will be developed bearing in mind that no job is immune to the possibility of an emergency at any time. The procedures will be thoroughly outlined, made known to all workers and enforced.

If emergency action is required to correct a condition which constitutes an immediate threat to workers, only those qualified and properly instructed as designated by B&N will attempt to correct the unsafe condition, and every possible effort must be made to control the hazard while this is being done.

The employers shall appoint member of Senior Management to speak to any media and develop a media response plan in the event that the emergency impacts the general public and TV or news crews arrive on site. The President & Vice President shall be contacted immediately when a statement is requested by the media. No B&N employee shall be permitted to speak to the media without the consent of the President & Vice President.

The Health & Safety Manager will complete an annual review of emergency response to evaluate if critical components were handled appropriately. The Joint Health and Safety Committee or Joint Occupational Health & Safety Committee (JHSC / JOHSC) will also be provided with the details and recommendations from the JHSC / JOHSC will be requested. The evaluation shall include the location and use of emergency facilities such as medical clinics, hospitals, police, fire department, hazmat response companies, etc.

The plan shall be developed using a risk assessment of the conditions in the workplace and hazardous conditions. The rescue and evacuation procedures shall be developed and written in conjunction with the JHSC / JOHSC, if applicable. The response plan will include any means of alarms including the use of a portable air horn and signals to warn the workers of the hazard. The Plan will outline a schedule for inspecting all Emergency Response Equipment including Spill Response supplies. Appropriate B&N employee responses to the emergency warning signals shall be developed, written and communicated to all workers during orientation at the site or start of employment at all B&N locations. B&N will ensure that there is a means of communication in the workplace to access internal or external assistance. Rescue procedures shall also be developed by B&N. Each B&N employee must be trained in regards to their individual roles and expectations of them during an emergency. Rescue and evacuation drills shall be held at least once a year.

Written evacuation procedures appropriate to the risk must be developed and implemented to:

1. Notify workers, including the first aid attendant, of the nature and location of the emergency
2. Evacuate workers safely
3. Check and confirm the safe evacuation of all workers,
4. Notify the fire department or other emergency responders, and
5. Notify adjacent workplaces or residences which may be affected if the risk of exposure to a substance extends beyond the workplace

Notification of the public must be in conformity with the requirements of other jurisdictions, including Appropriate Provincial Health & Safety Agencies. Each B&N location may have additional emergency response procedures to detail the specific environmental and regional response needs.

An example of B&N evacuation and rescue procedures are:

In case of Spill or Hazardous Substance Release

1. Supervisor must get a spill kit for their job site if there are hazardous materials to be handled
2. ISOLATE the area
3. SELECT the appropriate equipment and personal protective equipment to clean up the spill / leak
4. Spill must be contained promptly or as soon as reasonably possible
5. Remove contaminated material and seal in drums, where possible
6. Notify B&N Regional EHS Manager and / or B&N EHS Coordinator
7. B&N site management will notify Client Representatives and the local **Spill Response Action Centre**. The location and details of the emergency shall be communicated to the **Spills Response Action Centre**

In Case of Fire

In the event of a fire:

1. Notify the surrounding employees of the situation and initiate the emergency response protocol
2. Utilizes 4A40BC fire extinguishers at all B&N locations
3. The location of the emergency equipment is posted on each of the locations site map
4. Control the source of combustible material
5. Extinguish fire with fire extinguishers or blankets, only if it is safe to do so
6. Extinguish the fire if possible and report the incident to the supervisor for investigation
7. If fire cannot be safely extinguished, initiate the emergency response procedures
8. Emergency Air Horns are to be located at all B&N locations to alert employees of the situation
9. Initial the Air Horn signal
10. Supervisor is to direct employees, Trade Contractors and all other personnel to the designated muster point on site
11. All personnel are to stand by and await further instructions
12. B&N site management will notify Client Representatives, if necessary
13. Workers are not to go back to work without conformation from their immediate Supervisor or Health & Safety Coordinator

If you cannot evacuate the area;

1. Call by use of land line or cell phone and notify the **Emergency Response Team** at **911** or the Supervisor, where your exact location is
2. Stuff wet rags or paper towels at the bottom of entrance doors to keep smoke out
3. Do not open a window unless absolutely necessary
4. Stay low and wait for assistance

In case of Hazardous Vapors Release

1. Contain the source of the vapour, if possible
2. Use Emergency Air Horn
3. The location of the emergency equipment is posted on each of the locations site map
4. Remove all ignition sources and shut down any equipment or machines prior to evacuation
5. Evacuate the area to the muster point until the gas or fumes have dispersed or as directed by your Supervisor
6. Supervisor will be responsible to contact the **Emergency Service Response Team** at **911** and / or local **Spills Action Centre**
7. The Supervisor is to conduct a head count to ensure all B&N employee or other personnel on site have evacuated safely
8. No B&N employee or other personnel will go back to incident area without immediate Supervisors' or Health & Safety Manager / Coordinators' consent

Emergency Evacuation and Routes

1. All B&N employees or other personnel are to immediately report to the designated muster point
2. All workers are to wait at the designated muster point for more details as provided by the B&N Supervisor, Health & Safety Manager / Coordinator
3. The Supervisor is to conduct a head count to ensure all B&N employee or other personnel on site have evacuated safely

Personnel Injury

1. All Supervisory Personnel including Supervisors and Foreman shall be trained and qualified first aiders
2. Notify Supervisor and tell them the exact location of the injured person
3. Ensure first aid treatment is provided by qualified first aider
4. Notify Supervisor and Health & Safety Manager / Coordinator immediately
5. Seek medical attention including 911, as required. Inform them of the exact location of the injured person if attending at the workplace
6. Supervisor to complete the Incident Report - **FORM 8.1.** – Incident Investigation Report and acquire witness and worker statements **FORM 8.2.** – Incident Witness Statement, **FORM 8.3.** – Incident Worker Statement when required
7. Supervisor to arrange for transportation for medical attention, as required
8. Supervisor and workers to follow-up with Health & Safety Manager / Coordinator for further instructions

Bomb Threat

Although the majority of bomb threats are hoaxes, they can never be ignored. A bomb threat can be received in the form of a package, letter or telephone call.

If you receive a suspicious package in the mail:

1. STAY CALM
2. NOTIFY supervisor for further direction
3. DO NOT touch, move, or disturb the suspicious object

If you receive a bomb threat over the telephone:

1. STAY CALM
2. INFORM supervisor who will notify the Appropriate Provincial Authorities.
3. DO NOT transfer the call or put the caller on hold. ENGAGE the caller
4. DO NOT argue with or tease the caller
5. RECORD the conversation, if possible or write down any specific details from the caller

Flood

1. STAY CALM
2. TURN OFF electricity in flooded area
3. INFORM supervisor who will notify the Appropriate Provincial Authorities if required.
4. MOVE materials to a higher level
5. PREPARE pumps and hoses

Crime

Various forms of criminal activity such as vandalism, violence, harassment and robbery can occur at the workplace. If you are a victim of or a witness to a crime:

1. STAY CALM
2. INFORM supervisor who will notify the Appropriate Provincial Authorities if required.
3. DO NOT argue or fight with the criminal
4. GET AWAY from the scene as soon as possible
5. NOTIFY B&N emergency personnel or supervisory personnel
6. Complete an Incident Report - **FORM 8.1** – Incident Investigation Report

Power Failure

Resulting in Insufficient or no lighting (including possible failure of back-up power supply-generator). Adverse weather conditions could cause utility damage.

1. STAY CALM
2. REMAIN in work area until advised of actions to be taken by supervisor (if safe to do so)
3. If directed, all B&N employees or other personnel are to immediately report to the designated muster point
4. All workers are to wait at the designated muster point for more details as provided by the B&N Supervisor and Health & Safety Manager / Coordinator

Ruptured Gas Line

1. STAY CALM
2. CLOSE off gas line if safe to do so
3. DO NOT strike a match or activate a flame, or cause a spark to ignite
4. IMMEDIATELY warn workers nearby
5. ACTIVATE alarm system
6. NOTIFY supervisor and emergency personnel
7. If directed, all B&N employees or other personnel are to immediately report to the designated muster point
8. All workers are to wait at the designated muster point for more details as provided by the B&N Supervisor and Health & Safety Manager / Coordinator

Ruptured Water Main

1. STAY CALM
2. CLOSE water valve, if possible
3. IMMEDIATELY inform supervisor and emergency personnel
4. SHUTDOWN appropriate electrical breakers and equipment
5. If directed, all B&N employees or other personnel are to immediately report to the designated muster point.
6. All workers are to wait at the designated muster point for more details as provided by the B&N Supervisor and Health & Safety Manager / Coordinator.

Severe Weather

1. STAY CALM
2. Find suitable shelter in the work area
3. Take coats, blankets, food, etc., as required
4. Wait for instructions from the B&N Supervisor and Health & Safety Manager / Coordinator

Workplace Violence and Harassment

Workplace Violence covered under Section 11.1 within our Health and Safety Program means:

1. The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker
2. An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to a worker
3. A statement or behaviour that is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker

Workplace Harassment covered under Section 11.2 within our Health and Safety Program means: Engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome.

If you feel Harassed, take action.

1. Inform to the instigator that you are feeling harassed and that he or she should refrain from such action. If the incident escalates or continues, report the incident immediately to a B&N Supervisor and Health & Safety Manager / Coordinator

If you feel at risk of violence or harassment, the following steps should be followed:

1. Take action
2. Alert other workplace parties using the office phones or your voice if when you feel at risk
3. Call police discreetly and from a remote and safe location, give a detailed description of the incident if appropriate
4. Ensure that the incident is reported to a B&N Supervisor and Health & Safety Manager / Coordinator

Retaliation against persons who bring a complaint of actual or perceived violence OR complaint of harassment that is intentionally fraudulent or malicious is strictly prohibited and will be dealt with through our progressive discipline program.

Emergency Telephone Numbers

Luis Narciso 416-984-2521
Mike Rodrigues 416-559-2358
Office 905-470-8788
Emergency 911
Andre Freitas 416-984-2523

Emergency numbers are posted in a conspicuous place within all B&N locations and available in the job site binder, HASP or posted at the job location. The main Client of the project may have site specific emergency response numbers, if so, it will be added to the B&N emergency response program for each work site.

32.1.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

FORM 8.2. – Incident Witness Statement

FORM 8.3. – Incident Worker Statement

32.00 EMERGENCY RESPONSE

FIRST AID

32.2.1. PURPOSE

The purpose of the First Aid Program is to establish processes to effectively manage situations that require employees to administer First Aid within all Biggs & Narciso Construction Services Inc. (B&N) locations.

32.2.2. SCOPE

The First Aid Program applies to all situations within all B&N locations where First Aid is required. First aid is emergency medical help given to a sick or injured person before full treatment is available. The objectives of first aid are the same, regardless of the situation, they are to;

- Preserve life
- Prevent the injury or illness from becoming worse
- Promote recovery

32.2.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide and maintain a first aid station in the workplace according to Appropriate Provincial Health & Safety Legislation
- Arrange training for workers that is approved by approved Provincial providers
- Ensure all Supervisory personnel (Foreman, Supervisors and Project Managers) are appointed as First aid attendants and are trained and qualified in First Aid and CPR
- Ensure that anything in the workplace that has been contaminated by blood or bodily fluids is disposed of or cleaned by a competent person in a manner that prevents a worker from being exposed to the blood or bodily fluids
- Perform an assessment of the first aid requirements for the work places at least annually or as changes occur in the employer's operations
- Ensure there is an effective means of communication between first aid attendants, the workers and a means to summon outside assistance
- Not assign the first aid attendant to undertake activities that would interfere with the attendant's ability to receive and respond to a request for first aid
- Ensure that competent first aid responders are readily available during working hours for the number of workers within the workplace
- Post in the workplace where the nearest medical facility and equipment is located

Supervisor Responsibilities:

- Ensure current First Aid Record of Training is available and posted at all B&N locations
- Promptly provide injured workers with a level of care within the scope of the attendant's training
- Make sure there is a record of the first aid treatment / advice given to the worker
- For injuries of a minor nature that still require medical attention, the Supervisor will provide transportation to a hospital, or doctor's office when necessary. The supervisor may appoint an approved worker to drive a company vehicle or call a taxi and transport the injured worker and the first aid responder or designate to a medical facility. **NOTE:** the driver of the company vehicle cannot perform duties as a first aid responder if they are driving the company vehicle. **NOTE:** some clients may have a protocol for 911 calls
- Provide the injured worker with a Functional Abilities Form (FAF) which is included in the envelope entitled "Injured Employee" or equivalent
- The injured worker or the company employee must return the FAF to the Supervisor on the same day of the injury or at the latest, the beginning of the next scheduled shift

- Fax the FAF and the incident report to the Health & Safety Manager immediately
- Investigate the incident as soon as possible. Complete the Incident Report **FORM 8.1.** – Incident Investigation Report and acquire witness and worker statements **FORM 8.3.** – Incident Witness / Worker Statement
- Refer the injured worker for further medical treatment when the injury is serious or beyond the scope of training.
- Ensure that first aid kit is inspected & documented monthly.

Worker Responsibilities:

- Notify immediate Supervisor onsite of the need for first aid
- Get first aid right away from a trained first aid responder
- Workers are not to self-administer first aid unless they themselves are a trained first aider
- Co-operate in all health care treatment

32.2.4. PROCEDURE

GUIDING PRINCIPLES

The First Aid Requirements are individualized per Appropriate Provincial Health & Safety Legislation; provincial regulations shall be referenced within the Site Specific Health and Safety Plan (HASP) or posted within the workplace to ensure compliance. The provincial regulations will detail the obligations of B&N regarding first aid equipment, facilities, trained personnel, and first aid procedures in all workplaces.

First aid stations and kits, which contain supplies for the number of people being served by the station, are located as near as possible to the workplace and are inspected monthly to ensure that they are properly stocked and the supplies and equipment are kept sanitary.

The requirements for first aid kits and stations may be based on number of workers, Appropriate Provincial Health & Safety Legislation and site location requirements. First aid attendants should always check or be aware of employees with a medical alert bracelet or card.

If an injury or illness occurs at any B&N locations, contact the closest first aid attendant to administer first aid. The first aid attendant will complete the Incident Report **FORM 8.1.** – Incident Investigation Report and acquire witness and worker statements **FORM 8.2.** – Incident Witness Statement, **FORM 8.3.** – Incident Worker Statement if applicable.

In Cases of Personal Injury or First Aid

1. All Supervisory Personnel including Supervisors and Foreman shall trained and qualified as first aiders
2. Notify Supervisor and tell them the exact location of the injured person
3. Ensure first aid treatment is provided by qualified first aider
4. Notify Supervisor or the Health & Safety Manager / Coordinator immediately
5. If further medical treatment is required or when the injury is serious or beyond the scope of training seek further medical attention including 911, as required. Inform them of the exact location of the injured person if attending at the workplace
6. Supervisor to complete the Incident Report - **FORM 8.1.** – Incident Investigation Report and acquire witness and worker statements **FORM 8.2.** – Incident Witness Statement, **FORM 8.3.** – Incident Worker Statement when required
7. Supervisor to arrange for transportation for medical attention, as required
8. Supervisor and worker to follow-up with Health & Safety Manager / Coordinator for further instructions

Cleaning surfaces contaminated with bodily fluids

B&N will complete a Job Safety Analysis (JSA) taking into account the potential for exposure to the workers. Exposure control plans, engineering and work practice controls, and PPE requirements will be communicated to the worker. A JSA shall be completed by the supervisor prior to the start of the clean-up process.

Guidelines:

- Prior to implementing a clean-up program, where the incident may be defined as a Critical Injury or Serious Incident the supervisor shall seek all necessary approval by the Appropriate Provincial Health & Safety Authorities to proceed with the clean-up
- All equipment, environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials as soon as feasible

General procedure:

- Thoroughly wash off the contaminated area with soap and warm water
- Use a solution of 25% bleach and 75% water solution or other approved disinfecting solution to disinfect the surface (Do not put bleach or any other caustic solution on the skin as this could cause a chemical burn to the skin and increase the risk of infection)
- Seal any contaminated rags in a plastic bag and dispose of in an approved waste container

Signage

All required posters and related First Aid information will be displayed in an acceptable quantity at the workplace regarding responsibilities regarding workplace injuries, access to first aid and medical treatment. This information shall be referenced within the Site-Specific Health and Safety Plan (HASP) or posted within the workplace to ensure compliance.

At each B&N location, first aid station signs shall be posted where possible, to identify location of services. If temporary office space is not available on a work site, the workers will be informed of the first aid supplies available within the company vehicle.

Training

B&N will ensure that all training is provided by a qualified trainer or training company according to approved Provincial providers. B&N shall ensure that the required number of workers are trained for the workplace and the trained workers have the required level of CPR and First Aid training. Since procedures may change from time to time, it is important that training and recertification be kept up to date.

Records

B&N will maintain first aid records at the workplace. These files will be kept for the duration of the company existence or a minimum of 7 years. First aid records are to be kept confidential and only disclosed according to the provincial regulations.

32.2.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

FORM 8.2. – Incident Witness Statement

FORM 8.3. – Incident Worker Statement

33.00 **ERGONOMICS AND MUSCULOSKELETAL INJURIES**

ERGONOMICS AND MUSCULOSKELETAL INJURIES

33.1.1. PURPOSE

The purpose of the Ergonomics and Musculoskeletal Injuries Program is to eliminate or minimize risks leading to musculoskeletal injuries (MSI's) and ergonomic hazards at all Biggs & Narciso Construction Services Inc. (B&N) locations.

33.1.2. SCOPE

The Ergonomics and Musculoskeletal Injuries Program promotes the safety of the worker while decreasing the number of work-related injuries due to MSI's. The following program is in place to bring awareness and ergonomic solutions to all B&N employees and Sub-contractors.

33.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Define limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of reporting requirements

Supervisor Responsibilities:

- Provide employees with awareness of MSI's using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Assess the risks associated with all tasks assigned to workers
- Develop procedures for workers related to MSI prevention
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all MSI injuries to the EHS department

Worker Responsibilities:

- Provide all information to supervisors for developing procedures related to MSI prevention
- Follow all procedures and processes developed and implemented related to MSI prevention
- Report all Ergonomic hazards and MSI injuries immediately to the supervisor

33.1.4. PROCEDURE

GUIDING PRINCIPLES

Ergonomics is the study of the interaction between humans and their work environment while developing a synergetic relationship between the environment and the worker. An ergonomically designed workplace takes into consideration the relationship between the physical and psychological characteristics of the employees present within the workplace.

Ergonomic hazards which may include in any of the following;

- Layout of the work area
- Workers performing the work
- Work being performed (repetitive or forceful movements)

- Equipment or machinery being used
- Product weight
- Vibration
- Temperature
- Air quality and
- Noise levels

Ergonomics - a multi-disciplinary science that studies the interaction of humans with their environment, particularly the workplace. Ergonomics is used to match jobs, systems, products, and environments with the physical and mental attributes of the people involved.

Ergonomic hazards - refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker.

Musculoskeletal injury (MSI) - an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue including a sprain, strain and inflammation.

MUSCULOSKELETAL INJURY (MSI) PREVENTION

The factors that contribute to the development of MSI are called risk factors. A risk factor is something that may cause or contribute to an injury. Two or more risk factors can be present at one time, increasing the risk of injury. The risk factors for MSI are the demands of a task, including;

- Force
- Repetition
- Work posture
- Local contact stress

B&N will consult with the Joint Health and Safety Committee (JHSC) when completing a risk assessment and developing a prevention plan. B&N will also consult with the employees who carry out the tasks being assessed and with workers who have experienced signs or symptoms of MSI.

B&N will identify any particular jobs that pose a higher risk of MSI to worker and identify the MSI factors that contribute to the risk of each of those jobs through the completion of the daily safe work permit and review meetings using the applicable JSA's. The risk assessment will consider the following:

- What is the combined effect of all the identified risk factors? For example, lifting heavy objects from the floor to a height above the shoulders several times a minute poses a greater risk than lifting the same objects between the knee and waist level infrequently.
- What body part is most likely to be affected? For example, when a person is working overhead, the shoulders and neck may be affected

B&N must eliminate the risk of MSI, or, if this is not practicable, must minimize the risk through communication and awareness. If risk controls are required, they need to be implemented without undue delay.

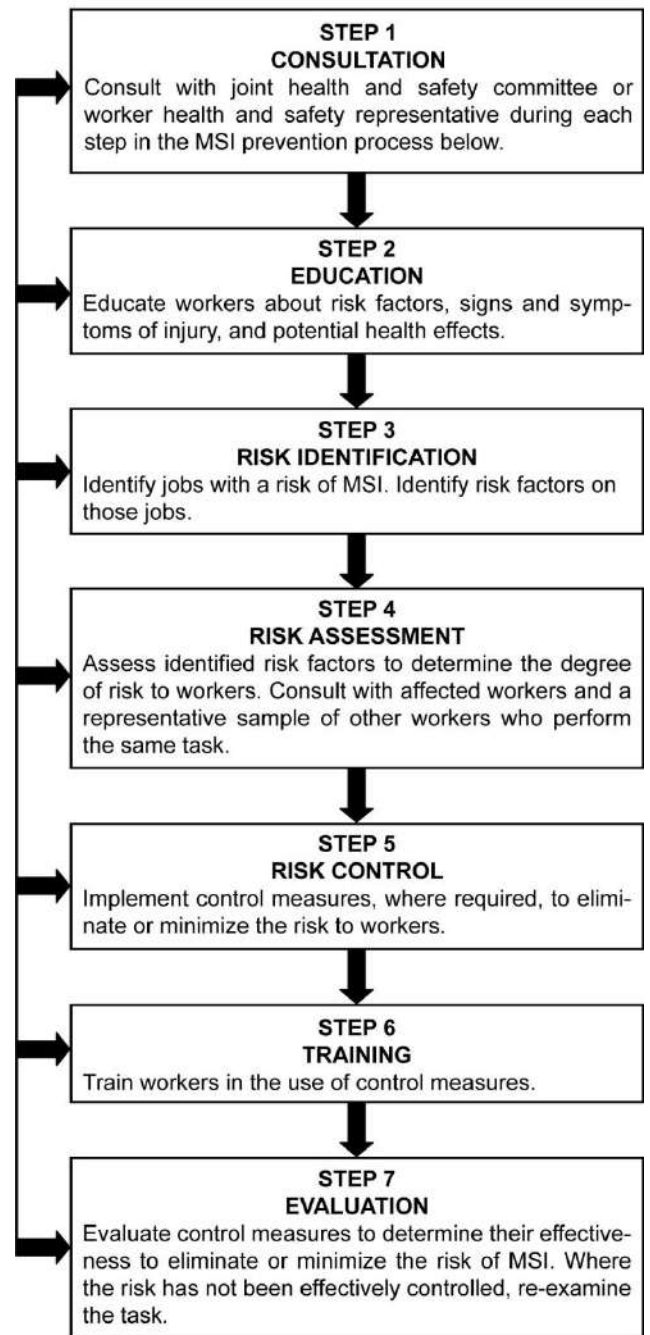
Engineering or administrative controls that eliminate the risk to the employees are first considered. If this is not practicable, then PPE and other potential controls will be introduced.

- Engineering controls are the arrangement, design, or alteration of the physical work environment, equipment or materials, i.e.; mechanical lift
- Administrative controls include the use and scheduling of resources and staffing to improve how the work is organized and performed, i.e.; time limits, breaks and reduction of repetitive work
- PPE may include gloves, limb supports and other clothing items may be used as a control if other controls are not practicable, or in addition to other controls

Controls should result in at least one of the following:

1. Reduced magnitude of exposure.
 - Use improved-designed tools to reduce the effort
 - Modify the work practice
 - Redesign workstation to avoid excessive reaching or bending
2. Reduce duration of exposure
 - Use some mechanization to reduce exposure to the physical tasks
 - Rotate jobs to reduce the time to reduce exposure to the physical tasks
3. Reduced frequency of exposure
 - Use partial mechanization to reduce repetition or stability
 - Combine other tasks with the job to reduce repetition
4. Improved pattern of exposure
 - Organize work so that highly physically demanding tasks are interspersed with less physically demanding tasks (smaller blocks of time).

Steps in MSI prevention Process



ERGONOMIC ASSESSMENT

B&N must ensure that every worker who may be exposed to a risk of MSI's are informed of the risk, signs and common symptoms of any MSI associated with the worker's work.

Every worker who may be exposed to a risk of MSI will receives instruction and training respecting any control measure through the completion of the daily safe work permit and review meetings using the applicable JSA.

B&N will conduct a risk assessment prior to starting the job to identify specific tasks that may require the creation of a JSA relating to specific task. These assessments will identify the signs or symptoms of MSI within B&N locations and provide awareness while performing the task.

The Health & Safety Department will complete an annual review of the Ergonomics (MSI) program and ensure the completion of JSA's as required. Some assessment basics are:

- Occurrence of physical discomfort while working at the computer / workstation or work task being performed
- Poor general lighting or glare
- Frequent noise levels that interfere with normal speech
- An increasing or high level of incidents and absenteeism
- Working with a flexed wrist
- Working with a bent neck
- Working with vibrating power tools
- Repetitive movements of the hand, arm, wrist, and shoulder
- Standing or sitting for long periods of time – static positions
- Working in extreme cold
- Extreme twisting, stretching or reaching
- Extreme pushing, pulling, lifting
- Non-adjustable work stations and chairs
- Working with hand tools that are difficult to hold

An ergonomic assessment identifies:

- The existing or possible hazards and the factors contributing to it (i.e. low back pain due to lifting)
- Design and set up corrective actions to alleviate the problem (i.e. redesign the lifting technique)
- Monitor the effectiveness of the corrective action that was taken. When the monitoring identifies that a risk of MSI is not being or has not been eliminated or reduced, implement further control measures, where it is reasonable practicable to do so

Control measures may include one or more of the following:

- Providing, positioning, and maintaining equipment that is designed and constructed to reduce or eliminate the risk of musculoskeletal injury
- Developing and implementing JSA to eliminate or reduce the risk of MSI's
- Implementing work schedules that incorporate rest and recovery periods, changes to workload or other arrangements for alternating work
- Conduct daily safe work permit and review meetings using the applicable JSA's
- Providing appropriate PPE where required

REQUESTING AN ERGONOMIC ASSESSMENT

Any B&N employees who feel they would benefit from an ergonomic assessment should speak to their supervisor, who would request an ergonomic assessment by contacting the Health & Safety Department. All employees are required to report all Ergonomic hazards and MSI injuries immediately to their supervisor.

33.00 **ERGONOMICS AND MUSCULOSKELETAL INJURIES**

VIBRATION

33.2.1. PURPOSE

The purpose of the Vibration Program is to eliminate or minimize risks associated to Vibration at all Biggs & Narciso Construction Services Inc. (B&N) locations.

33.2.2. SCOPE

The Vibration Program promotes the safety of the worker while decreasing the number of work-related injuries associated to Vibration at all B&N locations. The following policy is in place to bring awareness and ergonomic solutions to all B&N employees and Sub-contractors.

33.2.3. RESPONSIBILITIES

B&N Responsibilities:

- Define limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of reporting requirements

Supervisor Responsibilities:

- Provide employees with awareness of Vibrations using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Assess the risks associated with all tasks assigned to workers
- Develop JSA for workers related to Vibration related injuries
- Report all Vibration injuries to the Health & Safety Department

Employee Responsibilities:

- Provide all information to supervisors for developing procedures related to Vibration related injury prevention
- Follow all procedures and processes developed and implemented related to Vibration related injury prevention
- Report all Vibration hazards and Vibration related injuries to the supervisor

33.3.4. PROCEDURE

GUIDING PRINCIPLES

The risk of vibration induced injury depends on the average daily exposure. Vibration induced health conditions progress slowly where in the beginning, symptoms may start as a common pain. As the vibration exposure continues, the pain may develop into an injury or disease. Pain is the first health condition that is noticed and should be addressed in order to stop the injury.

Vibration is a concern at B&N when working with or around tools or machinery where there is high intensity and continuous vibration. There are two types of vibration, hand-arm (segmental) and whole body. The use of vibrating tools and other types of machinery can cause injury to the soft tissues of the hands, wrists, arms and the entire body.

Several strategies are used to minimize occupational vibration. These include;

- Limiting exposure time
- Use of anti-vibration tools and anti-vibration gloves (constructed from urethane or foam that absorb vibration energy)
- Avoiding constant vibration exposure
- Use of warm clothing and light grip to minimize vibration coupling, and
- Regular health surveillance

Other exposure control strategies focus on avoidance, setting equipment specifications and purchasing equipment that minimize vibrations, and isolating and / or properly maintaining the source of the vibration.

Hand-Arm Vibration

Hand-held tools, stationary tools as well as operating controls in heavy equipment can transmit vibration through a work piece which can cause vibration "white fingers" or hand-arm vibration syndrome (HAVS). Depending on the level and frequency of the vibration and how long the vibrating tool is used, the vibration can contribute to nerve and blood vessel damage and circulation problems in hands and fingers.

Signs and Symptoms

Vibration can cause changes in tendons, muscles, bones and joints, and can affect the nervous system and symptoms become aggravated when the hands are exposed to cold.

Typical symptoms usually include:

- Tingling and slight loss of feeling or numbness in the fingers
- Finger spasms
- Blanching or whitening of the fingers, usually without affecting the thumb
- Blue skin that feels cold and numb
- Numb, prickly feeling or stinging pain, sometimes with redness, upon warming or relief of stress
- Sequence of colour changes in the skin may progress from white to blue to red
- Reduced grip strength

Early signs of Hand-Arm Vibration Syndrome (HAVS) are infrequent feelings of numbness and/or tingling in the fingers, hands, or arms, or numbness and whiteness in the tip of the finger when exposed to cold. As the disease progresses, a worker experiences more frequent attacks of numbness, tingling, and pain and finds it difficult to use his or her hands. A worker with advanced HAVS may be disabled for a long amount of time.

Workers affected by HAVS commonly report:

- Attacks of whitening (blanching) of one or more fingers when exposed to cold
- Tingling and loss of sensation in the fingers
- Loss of light touch
- Pain and cold sensations between periodic white finger attacks
- Loss of grip strength
- Bone cysts in fingers and wrists

The development of HAVS is gradual and increases in severity over time. It may take a few months to several years for the symptoms of HAVS to become clinically noticeable. If exposure is not removed, the condition can become permanent and disabling. This occurs after chronic exposure to vibration and may eventually cause a loss of the use of the hands.

The Stockholm Workshop classification scale for cold-induced vascular (blood flow) symptoms in fingers with hand-arm vibration syndrome		
Stage	Grade	Description
0	None	No attacks
1	Mild	Occasional attacks affecting only the tips of one or more fingers
2	Moderate	Occasional attacks affecting the finger tips and middle of the finger, and rarely also the finger parts close to the palms
3	Severe	Frequent attacks affecting most fingers
4	Very Severe	Same symptoms as in stage 3 with degenerate skin changes in the finger tips

Control Measures / Work Practices

The following is a list of controls and practices that can be used when dealing with hand-arm vibration.

- Employees will be made aware of the hazards of working with vibrating tools using the daily safe work permit meetings and review of related JSA's
- Alternate work methods- arrange work tasks so that vibrating and non-vibrating tools can be used alternately
- Use of remote-control systems where applicable
- Keep hands warm, dry, and do not grip a vibrating tool too tightly
- Properly maintain a work and rest regimes through the work day
- Use proper PPE as well as vibration absorbing materials (tool handles, anti-vibration gloves) where applicable
- Proper preventative maintenance of vibration producing equipment- maintain machines in proper working order- unbalanced rotating parts or unsharpened cutting tools can give off excessive vibration
- Source various suppliers who can supply tools with lower levels of vibration
- Use cutting or power-head vibration dampening devices
- Use equipment that includes vibration-dampening rubber grommets on controls and control box
- Ensure all equipment used is maintained according to the manufacturer's recommendations

Whole Body Vibration

Whole body vibration (WBV) energy enters the body through a seat or the floor, and it affects the entire body or a number of organs in the body. Heavy equipment operators are exposed to vibration from bulldozers, backhoes, loaders, skid steer vehicles, excavators, and other construction machines.

The three main sources of WBV from heavy equipment are:

- Low-frequency vibration caused by tires and terrain
- High-frequency vibration from engine and transmission
- Shock from running into / over potholes or other obstacles

The combined effects of body posture, postural fatigue, dietary habits and whole-body vibration are the possible causes for these disorders.

Signs and Symptoms

WBV can cause fatigue, insomnia, stomach problems, headache and "shakiness" shortly after or during exposure. After daily exposure over a number of years, whole-body vibration can affect the entire body and result in a number of health disorders. WBV can increase heart rate, oxygen uptake and respiratory rate, and can produce changes in blood and urine. Exposure to whole-body vibration can produce an overall ill feeling called "vibration sickness."

Long-term exposure to WBV can cause serious health problems, particularly with the spine:

- Degenerative spinal changes
- Lumbar scoliosis
- Disc disease
- Degenerative disorders of the spine
- Herniated discs
- Disorders of the gastrointestinal system

Control Measures / Work Practices

The following is a list of controls and practices that can be used when dealing with WBV

- Isolation of the worker using vibration absorbing materials such as vibration reducing mats while standing or “air ride” seats for driving
- Proper work / rest regimes when applicable
- Improved worker physical fitness
- Provide work variation when applicable
- Training on Musculoskeletal Disorders, hazards and controls
- Proper preventative maintenance of vibration producing equipment
- Maintain equipment in sound working order. A good suspension system and correct tire pressure will help to reduce vibration
- Retrofit with seats incorporating hydraulic dampers and shock absorbers specifically built to reduce WBV
- Reduce travel speed over rough terrain such as shale or rock
- Try to get out of your vehicle every one to two hours for a few minutes to stand, stretch, and give your body a break from vibration
- Maintain machinery and roadways:
 - Make sure that paved surfaces or site roadways are well maintained (e.g. potholes filled in, ridges leveled, rubble removed)
 - Maintain vehicle suspension systems correctly (e.g. cab, tire pressures, seat suspension)
 - Replace solid tires on machines such as forklift trucks, sweepers and floor scrubbers before they reach their wear limits
- Avoid high levels of vibration and / or prolonged exposure for older employees, people with back problems, young people and pregnant women

33.00 **ERGONOMICS AND MUSCULOSKELETAL INJURIES**

OFFICE ERGONOMICS

33.3.1. PURPOSE

The purpose of the Office Ergonomic Program is to eliminate or minimize risks leading to Ergonomic hazards at all Biggs & Narciso Construction Services Inc. (B&N) locations.

33.3.2. SCOPE

The Office Ergonomic Program promotes the safety of the worker while decreasing the number of work related injuries. The following policy is in place to not only bring awareness, but ergonomic solutions to all B&N workers.

33.3.3. RESPONSIBILITIES

B&N Responsibilities:

- Define limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of reporting requirements

Supervisor Responsibilities:

- Assess the risks associated with all tasks assigned to workers
- Develop procedures for workers related to Office Ergonomic prevention
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all Office Ergonomic injuries to the Health & Safety Department

Worker Responsibilities:

- Provide all information to supervisors for developing procedures related to Office Ergonomic prevention
- Follow all procedures and processes developed and implemented related to Office Ergonomic prevention
- Report all Office Ergonomic injuries to the supervisor

33.3.4. PROCEDURE

GUIDING PRINCIPLES

The design / adjustments of a workstation should be based on the physical traits of the worker and how the latter interacts with the workstation. Ergonomics is applied to the design of work stations, work processes, equipment, and tools to fit the worker in order to minimize risk factors that may lead to musculoskeletal injury.

Preventing MSI's in the office

- B&N employees are encouraged to stand up and get away from the desk and / or computer regularly throughout the day
- Muscles work best when the body and joints are in "neutral" positions. Employees should not remain in any one position (seated or otherwise) for long periods of time
- Getting up and walking around, even short distances, throughout the day helps to reduce body and joint stress by improving circulation in the muscles
- Completing regular daily tasks, such as filing and delivering paperwork can also function as a break and allow for work to be completed

Control measures may include one or more of the following:

Keyboard

- Keep hands and wrists straight (neutral posture)
- Keep keyboard directly in front of the monitor and in line with the body
- Arrange distance from the table edge to the keyboard to allow support for wrists and hands
- Use keyboard with adjustable height and support tray

Mouse

- Keep mouse at the same level as the keyboard
- Ensure wrist is not flexed when using mouse or keying

Chair

- Ensure chair is adjustable in height and have five arm or caster base, swivels, and has user-friendly controls
- Keep feet flat on the floor or on a footrest and maintain a 90 degree angle between upper and lower legs, allowing for space behind the knees
- Provide a backrest and lumbar support if required
- Adjustable, contoured, and padded seat covered with permeable, slip-resistant material with adequate depth and width are recommended
- Arm rests are recommended, however, individual preference is permitted
- Avoid crossing your legs
- Never lean or tilt the chair off the ground

Desk

- Keep articles you need within reach and allow ample working space
- Provide appropriate desk height
- Allow appropriate height for leg room
- Keep desk organized and free from clutter and obstacles
- Arrange desk to minimize light glare on computer monitors

Monitor

- Place screen at arm's length and at eye height in front of you, not to the side
- Keep documents at eye level and beside the monitor
- Keep monitor free of dust, shadows, and glare
- Take visual breaks as needed
- Have your eyes examined as required
- Arrange desk to minimize light glare on computer monitors

33.00 **ERGONOMICS AND MUSCULOSKELETAL INJURIES**

CARPAL TUNNEL SYNDROME

33.4.1. PURPOSE

The purpose of the Carpal Tunnel Syndrome Program is to eliminate or minimize risks leading to Carpal Tunnel Syndrome at all Biggs & Narciso Construction Services Inc. (B&N) locations.

33.4.2. SCOPE

The Carpal Tunnel Syndrome Program promotes the safety of the worker while decreasing the number of work related injuries. The following policy is in place to not only bring awareness, but ergonomic solutions to all B&N workers.

33.4.3. RESPONSIBILITIES

B&N Responsibilities:

- Define limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of reporting requirements

Supervisor Responsibilities:

- Provide employees with awareness of Carpal Tunnel Syndrome using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Assess the risks associated with all tasks assigned to workers
- Develop procedures for workers related to Carpal Tunnel Syndrome prevention
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all Carpal Tunnel Syndrome injuries to the Health & Safety Department

Employee Responsibilities:

- Provide all information to supervisors for developing procedures related to Carpal Tunnel Syndrome prevention
- Follow all procedures and processes developed and implemented related to Carpal Tunnel Syndrome prevention
- Report all Carpal Tunnel Syndrome hazards and Carpal Tunnel Syndrome injuries to your supervisor, Health & Safety Coordinator or Manager

33.4.4. PROCEDURE

GUIDING PRINCIPLES

Carpal Tunnel Syndrome is characterized as a nerve entrapment of the median nerve in the wrist as it passes through the carpal tunnel. Repetitive wrist movements, excessive force, and awkward hand positions can result in pain and numbness.

Prevention of Carpal Tunnel Syndrome may involve redesigning work stations, tools, and educating workers. Proper work station design reduces awkward wrist positions and minimizes the stressful effects of repetitive motions.

Carpal Tunnel Syndromes can be associated with certain tasks which involve:

- Repetitive hand motions
- Awkward hand positions
- Strong gripping
- Mechanical stress on the palm
- Vibration

Carpal Tunnel Symptoms:

Typical signs and symptoms of carpal tunnel syndrome include:

- Tingling of the thumb, and of the index, middle, and ring fingers
- Night pain that may awaken the individual but may be temporarily relieved by shaking, hanging, or massaging the hand
- Pain not only the hand, but also the arm and the shoulder.
- Numbness and loss of manual dexterity occur in more advanced cases
- Weakness of the hand associated with difficulty with pinch, grasp, dropping objects or be unable to use keys with the affected hand
- The skin may dry because of reduced sweating

Control Measures and Work Practices

Awkward positions can be controlled through the elimination of work stations that are not designed to take into consideration of the size and proportions of the human body. Work stations should be adjustable and should accommodate a vast majority of people who work at B&N locations. All employees at B&N who may be experiencing or have experienced symptoms of carpal tunnel syndrome must report these situations immediately to their supervisor, who shall inform the Health & Safety Department.

Typical controls of carpal tunnel syndrome include:

- Avoid prolonged static muscle contraction
- Avoid awkward body and muscle postures
- Report defective tools or workstations to your supervisor
- Ensure the proper tool for the job is used. Tools with sharp edges may compress tissue where tools with smooth edges decrease the contact pressure
- Avoid concentrated effort on one body part without frequent breaks. e.g. A drill with a small trigger for the index finger only will place more stress on the index finger than if the trigger was large enough to be activated by two fingers
- Reduce grip force requirement where applicable
- Replace manual tools with powered tools where applicable
- Consider whether the tool user will be wearing gloves, since gloves reduce grip strength

Engineering controls can alleviate the stress associated with poor hand tool design by:

- Using a hand grip rather than a finger grip
- Reducing time spent in one position or task
- Insulating the tool to decrease the vibrations
- Proper adjustment of tools, keyboards etc. to reduce stress on the wrists, arms, shoulders etc.

33.00 **ERGONOMICS AND MUSCULOSKELETAL INJURIES**

BACK CARE AND MANUAL MATERIAL HANDLING

33.5.1. PURPOSE

The purpose of the Back Care and Manual Material Handling Program is to eliminate or minimize risks leading to Back Care and Manual Material Handling at all Biggs & Narciso Construction Services Inc. (B&N) locations.

33.5.2. SCOPE

The Back Care and Manual Material Handling Program promotes the safety of the worker while decreasing the number of work related injuries. The following policy is in place to bring awareness and ergonomic solutions to all B&N employees.

B&N will take all practicable means to adapt the heavy or awkward loads to facilitate lifting, holding or transporting by workers or to otherwise minimize the manual handling required.

All B&N employees will be provided training on safe lifting and handling of loads. If an employee is required to manually to lift or carry loads weighing in excess of 10 kg, B&N shall instruct and train the employee on the safe lifting and handling of all loads.

33.5.3. RESPONSIBILITIES

B&N Responsibilities:

- Define limitations on, or prohibitions of specified activities
- Minimum training or experience
- Provisions of Personal Protective Equipment (PPE), and communication tools
- The establishment of safe work practices or procedures, and
- The provision of reporting requirements

Supervisor Responsibilities:

- Provide employees with awareness of Back Care using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Assess the risks associated with all tasks assigned to workers
- Develop JSA for workers related to Back Care and Manual Material Handling related injuries where applicable
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all Back Care and Manual Material Handling related injuries to the Health & Safety Department

Employee Responsibilities:

- Provide all information to supervisors for developing procedures related to Back Care and Manual Material Handling
- Follow all procedures and processes developed and implemented related to Back Care and Manual Material Handling
- Report all Back Care and Manual Material Handling hazards and Back or Manual Material Handling injuries to the supervisor

33.5.4. PROCEDURE

GUIDING PRINCIPLES

Many of B&N workplaces contain tasks that involve elements of manual materials handling including lifting, lowering, carrying, pushing, pulling, holding or restraining. When the work exceeds a worker's physical capabilities, serious injuries may result. However, people can reduce the number and the severity of manual handling-related injuries substantially by increasing awareness through the using the daily safe work permit meetings and on the Job Safety Analysis (JSA).

Manual Material Handling tasks may expose employees to physical risk factors. If these tasks are performed repeatedly or over long periods of time, they can lead to fatigue and injury. The main risk factors or conditions associated with the development of injuries in Manual Material Handling tasks include:

- Awkward postures (e.g., bending, twisting)
- Repetitive motions (e.g., frequent reaching, lifting, carrying)
- Forceful exertions (e.g., carrying or lifting heavy loads)
- Pressure points (e.g., grasping [or contact from] loads, leaning against parts or surfaces that are hard or have sharp edges)
- Static postures (e.g., maintaining fixed positions for a long time)

B&N shall take all practicable means to alleviate heavy or awkward loads by facilitating lifting, holding or transporting by mechanical or other methods to otherwise minimize the manual handling hazards to B&N employees.

Hazard Assessment

To assess the hazards of Manual Material Handling operations the daily safe work permit meetings will be used to consider the **load**, the **task**, the **environment** in which the task is performed, and the **operator**. When these factors interact with each other, they can create hazards that result in injuries.

A **load** may be hazardous because of:

- Weight
- Size
- Shape (making it awkward to handle)
- Coupling (type of grip on the load)
- Slippery or damages surfaces
- Absent or inappropriate handles, and
- Imbalance (i.e. changing centre of gravity)

The **task** or method of handling may be hazardous when it involves:

- Lifting or lowering
 - Repetitively
 - Quickly
 - For extended periods of time
 - While seated or kneeling
 - Shortly after a period of rest
- An inability to get close to the load
- Moving the load over large distances
- Accuracy and precision required
- Fragile loads
- Specific unloading locations
- Materials positioned too low or too high

- Hazardous movements or postures (e.g. twisting, extended bending and reaching)
- Multiple handling requirements

Environmental factors may include:

- Temperature
- Relative humidity
- Lighting
- Noise
- Time constraints (e.g. Machine- paced work or deadline pressures)
- Physical conditions
- Obstacles
- Floor surfaces (e.g. slippery, uneven or damaged)

Operator characteristics that may affect the handling of loads include:

- General health
- Physical factors
- Height
- Reach
- Flexibility
- Strength
- Weight
- Aerobic capacity
- Pre-existing musculoskeletal problems
- Psychological factors
- Motivation
- Stress

Control Measures

The best control measure is to eliminate the need for employees to perform manual handling tasks. Since this is not always possible, design manual handling tasks so that they are within the workers' capabilities. Considerations include providing awareness through the daily safe work permit meetings, review of the load itself, and the design of the workstation and work practices. Providing mechanical handling devices or aids can often eliminate the task itself or ease the demands on the worker.

Safe Lifting Techniques

It is important to stay healthy and prevent injury to the lower back when at work. Proper ergonomic design in the workplace is important as are the rules for safe lifting and carrying.

The following is a list of Safe Lifting Techniques;

- Plan your lift and test the weight/stability of the load
- Establish a firm footing with your feet placed slightly apart to maintain good balance
- Keep the load as close to the body as possible and get a firm grip on the object you are attempting to lift
- Keep your back as straight as possible and maintain the lumbar curve of the lower back
- Bend at the knees and do not use your upper body or back to lift the load
- Hold the object as close to the body as possible
- Lift smoothly and slowly and avoid jerking movements
- Pivot using both feet, don't twist the back
- Push rather than pull a load
- Share the load with a partner

- Get mechanical assistance for heavy loads

All B&N employees should know their own limitations and strengths. Use proper lifting, bending and sitting techniques on the job will help avoid low back injuries at all B&N locations.

34.00 TRAFFIC CONTROL PLAN

34.1.1. PURPOSE

The purpose of the Traffic Control Plan is to establish a process to that will effectively manage recognize, assess and control the hazards associated with vehicular traffic at all Biggs & Narciso Construction Services Inc. (B&N) locations.

34.1.2. SCOPE

The Traffic Control Program applies to all vehicular traffic situations that may arise at all B&N locations.

34.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Take all measures reasonably necessary in the circumstances to protect employees from exposure to Traffic related hazards at all B&N locations
- Review Appropriate Provincial Health & Safety Legislation to ensure compliance within the Traffic Control Plan
- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Traffic Control Program is implemented across all areas of responsibility.

Supervisor Responsibilities:

- Ensure known Traffic Control related hazards are defined with a site specific plan and contained in the site specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site specific Traffic Control Plan
- Brief all workers and Sub-contractors on the Traffic Control Plan
- Provide education and training to workers who are responsible for traffic control
- Take prompt and appropriate action when contraventions with the Traffic Control Plan have been identified
- Appoint competent traffic controllers to coordinate and direct traffic flow on site.

Worker Responsibilities:

- When performing traffic control duties do not undertake any other responsibilities
- If required, participate in Traffic Control training
- Report any traffic control violations immediately to your supervisor
- Adhere to the requirements outlined in the Traffic Control Plan developed and implemented for the project at all times and contained in the site-specific HASP.

Sub-Contractors Responsibilities:

- Abide by the Traffic Control measures implemented for the project at all times while conducting work activities on all B&N locations as defined in the site-specific HASP.

34.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N must develop and implement a written Traffic Control Plan if the workers face hazards from vehicular traffic. The traffic control plan is intended to;

1. Protect all B&N employees and Sub-contractors by regulating the traffic flow
2. Stop traffic when required by the progress of work – otherwise keep traffic moving at reduced speeds to avoid tie-ups and delays
3. Allow all B&N employees and Sub-contractors to proceed safely and efficiently
4. Ensure that public traffic has priority over construction equipment.

WRITING THE TRAFFIC CONTROL PLAN

The Project Manager / Supervisor with the assistance of the Health & Safety Department is responsible to ensure a traffic control plan is written and posted at the job site. The traffic control plan will ensure that the following items are outlined; however this is not an all-inclusive list:

1. Map of the area requiring a traffic control plan and flow of traffic
2. Traffic control persons duties
3. Personal Protective Equipment (PPE) required as per Appropriate Provincial Health & Safety Legislation
4. Special considerations for the site
5. Equipment required
6. Placement of equipment
7. When the traffic control plan will be utilized
8. Identify staging areas
9. Signage and barricades needed for worker protection
10. Communication methods used for single and multiple traffic control persons

The Traffic Control Plan must be kept at the project and be made available within the site-specific HASP at all times.

TRAINING

All traffic control persons (TCP) must:

1. Be competent and knowledgeable on the requirements of performing traffic control duties during daylight and nighttime assignments
2. Have traffic control competency training records available on site
3. Be given written and oral instructions on the site specific traffic plan in a language that the worker understands prior to performing any work
4. Remain in full view of the operator at all times
5. Provide agreed upon signals to the operator as required under the traffic control plan
6. Wear all required PPE including a reflective traffic vest as defined by the Appropriate Provincial Health & Safety Legislation
7. Be able to provide simple directions to motorists or operators.

PERSONAL PROTECTIVE EQUIPMENT

In addition to the B&N required PPE as defined in the site-specific HASP, when performing traffic control duties after dark, the traffic control person must wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes as required by the Appropriate Provincial Health & Safety Legislation.

EQUIPMENT

It is the Supervisor's responsibility to ensure that all traffic control devices required by the Appropriate Provincial Health & Safety Legislation are used by all TCP on the job site or on any public roads as required. The devices include but are not limited to:

1. Diagonal STOP / SLOW hand-held sign mounted on a pole that is retro-reflective on both sides
2. Flashlight with a red cone attachment
3. "TCP Ahead" sign
4. Pylons or lane delineators.

35.00 SELF-RETRACTING UTILITY KNIFE

35.1.1. PURPOSE

The purpose of this program is to establish a process to that will effectively manage, recognize, access and control the hazards associated with the use of a self-retracting utility knife at all Biggs & Narciso Construction Services Inc. (B&N) / Client locations.

35.1.2. SCOPE

The Self-Retracting Utility Knife Program applies to all workers required to use a self-retracting utility knife at all B&N / Client locations.

35.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Take all measures reasonably necessary in the circumstances to protect employees from exposure to self-retracting utility knife hazards at all B&N locations
- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Self-Retracting Utility Knife Program is implemented across all areas of responsibility

Supervisor Responsibilities:

- Ensure self-retracting utility knife hazards are defined and contained in the site-specific health and safety plan (HASP). Ensure the daily safe work permit meeting identifies the use of Self-Retracting Utility Knife and potential hazards
- Brief all workers and contractors on the Self-Retracting Utility Knife Program
- Provide education and awareness to workers who are responsible for using self-retracting utility knives
- Take prompt and appropriate action when contraventions with the Self-Retracting Utility Knife Program have been identified

Worker Responsibilities:

- If required, participate in Self-Retracting Utility Knife awareness during the review of the daily safe work permit
- Report any Self-Retracting Utility Knife violations immediately to your supervisor
- Adhere to the requirements outlined in the Self-Retracting Utility Knife Program developed and implemented for the project at all times

35.1.4. PROCEDURE

GUIDING PRINCIPLES

Knife injuries normally happen when the knife slips during cutting or trimming. In most cases, the blade comes into contact with the worker's other hand causing a laceration to the hand or fingers. Injuries from a knife may occur to other parts of the body.

It is important to eliminate hazards whenever possible that may result in potential injury or damage. If a hazard cannot be eliminated then controls must be implemented to minimize the hazard including Personal Protective Equipment (PPE). At times throughout a specific task, a worker is required to use small hand tools including a

utility knife. B&N has implemented a standard whereby only self-retracting utility knives shall be used for all tasks that require the use of a utility knife.

If another type or style of knife is required, the Supervisor / Foreman will contact the Project Manager & Health and Safety Department to review the process & revise all JSA's / Procedures to reflect any changes in the site-specific health & safety plan (HASP).

SELECTION CRITERIA

B&N will ensure that the most effective and appropriate utility knives are available and provided to the worker to perform their work task. Supervisors shall ensure that an appropriate supply of knife blades are available on site. B&N shall ensure that the self-retracting knives are suitable for left and right-handed workers and the handle allows a firm and comfortable grip.

TRAINING

B&N Supervisors shall provide site specific awareness and instruction to the workers on:

- The importance of the safety features of the knife
- What PPE is required to use the knife for the task being performed
- How to safely hold and use a self-retracting knife including cutting away from the body and the dangers of using a blunt knife
- How to change and dispose of the blades properly
- How to properly store the knife to prevent damage
- Storage of knives must be kept in a clean, dry area away from heat
- Always store blades in their protective carrying case

PPE

All workers shall wear:

- Gloves appropriate for the task being completed
- Leg and arm protection will be provided, if required by the risk assessment
- CSA approved safety glasses
- CSA approved work boots

SAFE WORK PRACTICES

A worker shall:

- Keep a firm grip on the knife at all times
- Cut with a sharp blade: this will minimize any excessive force to cut
- Replace any worn or damaged blades with blades from the same manufacturer suitable to the make and model
- Use alternate hand tools such as snips or cutting scissors, if required and outlined in the HASP, job safety analysis (JSA) whenever possible
- Use good housekeeping practices to prevent slips and falls with a knife in the worker's hand
- Let go of the blade extender button when the knife is not in use or the knife slips from the cutting surface
- Keep the knife clean
- Acquire first aid in the event of an injury
- Follow the manufacturer's instructions
- Keep mind and eyes on the task being performed

A worker will NOT:

- Tamper with the self-retracting mechanism to prevent it from retracting
- Tamper with the design of the knife to extend the blade
- Conduct any horseplay or foul play while holding a knife with the blade extended
- Leave blades around openly on surfaces for other workers to be cut or blades to be stepped on

36.00 POWER AND HAND TOOLS

36.1.1. PURPOSE

The purpose of the Power and Hand Tools Program is to establish a process to that will effectively manage recognize, assess and control hazards related to Power and Hand Tools at all Biggs & Narciso Construction Services Inc. (B&N) locations.

36.1.2. SCOPE

The Power and Hand Tools Program applies to all operations conducted at all B&N locations.

36.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that resources are available to accomplish the task safely and that the work is performed according to the established site-specific procedures
- Ensure all B&N personnel and Sub-contractors who must work with Power and Hand Tools, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures
- Only procure competent Sub-contractors to work on B&N locations

Sub-Contractor Responsibilities:

- Ensure that all equipment including Power and Hand Tools brought on site are used under the supervision of a competent worker and in accordance with the manufacturer's recommendations and instructions
- Ensure participation of the daily safe work permit meeting and review of Job Safety Analysis (JSA)

Supervisor Responsibilities:

- Ensure use of Power and Hand Tools are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site-specific HASP
- Ensure the daily safe work permit meeting identifies the current site-specific Power and Hand Tools strategies, potential site hazards, appropriate training and work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work
- Develop procedures for workers related to Power and Hand Tools
- Provide site specific awareness to ensure thorough understanding of the appropriate procedures
- Report all injuries resulting from use of Power and Hand Tools to the Health & Safety Department

Worker Responsibilities:

- Participate in the daily safe work permit meetings to identify the current site-specific Power and Hand Tools strategies and work areas where work is required
- Provide all information to supervisors for developing procedures related to Power and Hand Tools
- Follow all procedures and processes developed and implemented related to Power and Hand Tools
- Report all injuries and accidents resulting from the use of Power and Hand Tools immediately to the supervisor

36.1.4. PROCEDURE

GUIDING PRINCIPLES

Injuries with hand tools are not often serious, but they can be severe enough to send you to the hospital and make you lose time from work. Common causes include using the wrong tool, using the right tool improperly, rushing, and lack of training or experience.

General Guidelines

B&N will ensure all employees and Sub-contractors will:

- Use the proper tool for the job
- Inspect the condition of tools for defects or damage before each use
- Have defective or damaged tools removed from service, tagged to identify them as defective and replaced as needed
- Ensure that electrical tools are effectively grounded
- If the power cord to the tool is cut or frayed, or if the motor casing is damaged or defective, tag the tool to identify it as defective and have the cord or tool repaired or replaced before use
- Do not leave power tools unattended
- Always store them in a safe location when not in use
- Always wear the appropriate PPE as defined in the site-specific HASP when using power or hand-held tools
- Workers that are required to use or handle radioactive devices must be trained in the safe use, storage and handling of the devices
- Only competent workers who are familiar with the tool are permitted to use and operate that tool on site.
- All maintenance records will be kept on file relating to the specific piece of equipment or tool

Hand Tools

People may use hand tools for chipping, cutting, chiseling, scraping, prying, digging, gouging, making holes, stirring paint, propping doors open, and taking the lids off cans.

General Hand Tool Guidelines

- Keep tools, equipment and materials orderly. There should be a place for everything and everything should be kept in its place
- Hand held tools must be inspected prior to each use
- Never use tools or equipment with defective or worn parts. All damaged tools must be reported to your supervisor
- Keep hand held tools free of grease and oil to ensure that they can be handled properly
- Tools with “mushroomed” heads or any deformations are dangerous and must be replaced or repaired
- Do not carry sharp-edge or pointed tools in your pockets
- Use tools that are of the proper size; never extend handles with pipe, etc.
- Use tools only for the purpose for which they are intended: for example, do not use a wrench as a hammer or a screwdriver as a chisel
- Never place any tool or other loose object on stairways, catwalk tops of stepladders or any other position where they can fall and injure someone below, or cause someone to trip
- Do not drop or throw tools or other materials from a ladder or other heights

Power Tools

General Power Tool Guidelines

- All equipment / tools must be inspected for defects prior to each use. Tools must be effectively guarded and used in a safe manner
- Workers must ensure that all required guarding is fully functional as per manufactures recommendations
- Ensure electrical tools are grounded. If the cord is cut or frayed, or the motor casing is defective, tag the tool to identify it as defective and have the tool repaired or replaced before use
- Do not operate electrical power tools or run electrical cords in damp or wet areas
- Ground Fault Circuit Interrupters (GFCI) must be used for all electrical tools used outdoors or in wet locations. GFCIs detect any current leaking to ground from a tool or cord and quickly cut off power before damage or injury can occur
- Do not leave power tools running when unattended
- All tools and equipment must be stored so they do not create a hazard for other workers on the project

Grounding

- Grounded can be defined as an approved three-wire cord with a three-prong plug
- Make sure the tool is grounded and the cord polarized or double-insulated
- You can identify two-pronged polarized tools because one prong is larger than the other
- Never cut off or bend back the ground pin on a three-prong plug—or use a two-prong cheater or adapter—to make the plug fit in a two-pole outlet
- Double-insulated tools are labelled as CSA approved

Cords

- Inspect tool cords and extension cords daily for damage
- Keep cords clear of the tool during use
- Inspect tool cords and extension cords for kinks, cuts, cracked or broken insulation, and makeshift repairs
- Do not use the cord to lift, lower, or carry an electric tool
- Do not disconnect the tool by yanking or jerking on the cord
- Protect cords from traffic. Run them through conduit or between planks along either side. If necessary, run cords overhead above work or travel areas
- If any cord feels more than warm to the touch, check the circuit for overloading
- Report any shocks from tools or cords to your supervisor
- Outdoors or in damp or wet locations indoors, use a Type A GFCI

Powder-Actuated Tools

B&N employees who are required to use a powder-actuated tool (HILTI and Ram-Set gun) must be competent and adequately trained by the manufacturer of the tool or other certified training facility for each specific model of tool being used. Each B&N employee must provide a valid training certificate at orientation if they are required to use any powder-actuated tool.

Tools must be cleaned and maintained according to the manufacturer's instructions by trained competent personnel. When using powder-actuated tools, CSA approved hard hat, hearing and eye protection must be worn as a minimum standard as defined in the site-specific HASP. All cartridges and shots must be secured in a locked container on site allowing for authorized use only. Never leave spent or unspent shot on the floor. All spent and unspent cartridges must be disposed in a container of water as Appropriate Provincial Health and Safety Regulation.

GENERAL ERGONOMICS PRACTICES

Power and Hand Tool Ergonomic Principles

- Where possible, reduce repetitive motions by using power tools instead of hand tools (E.g. use drill with screwdriver attachment instead of manual screwdriver.)
- Stop and stretch occasionally and vary the activities to be completed; perform repetitive motions over shorter periods
- Wear gloves that fit properly with power tools to reduce vibration or purchase power tools with vibration minimizing handles. Gloves that are too large can get caught in machinery, and those that are too small can restrict blood flow
- Use tools properly and maintain them as per manufacturer's recommendations (e.g. poorly maintained tools require more force to use)
- If possible, B&N will purchase tools that are more ergonomic (e.g. softer grips, requires less grip strength to handle)

Other Factors (e.g. Awkward and Static Positions, temperature)

- Reduce the amount of time spent either in an awkward or static position
- If possible, review and revise work procedures to reduce or omit awkward positioning
- Ask for assistance with difficult or time-consuming tasks
- Keep everything within easy reach and at a comfortable height

Hand and / Or Power Tools – Best Practices

Defective Tools

- Any defective tool must be removed from service and identified in a manner which will ensure it is not inadvertently returned to service until it has been made safe for use. Use out of service tags and notify your supervisor as soon as possible

Operation by Competent Worker

- Every employee shall be instructed and trained by a qualified person appointed by his employer in the safe and proper inspection, maintenance, and use of all tools and machinery that he / she is required to use
- A person must not be authorized to operate a power tool until the person has been adequately instructed and trained, and has demonstrated an ability to safely operate it
- Every employee shall be instructed and trained by a qualified person appointed by his employer in the safe and proper inspection, maintenance, and use of all tools and machinery that he is required to use

Tool Use

- At B&N all hand and / or power tools shall be appropriate for the job for which they are intended and be used solely for the purposes for which they were designed

PPE

- All B&N employees using hand and / or power tools and are exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard(s)

Ergonomics While Using Hand / Power Tools

- B&N workers shall select tools that are ergonomically correct for the appropriate task based on the nature of the job, the workplace layout, and the job design.
- Other factors to consider include (but are not limited to): Low-vibrating tools, lightweight tools, tools with vibration-absorbing handles, tools that are easier to manipulate and handle, etc.

Maintenance Work

- Where it is necessary to remove a machine guard from a machine in order to perform repair or maintenance work on the machine, no person shall perform the repair or maintenance work unless the machine has been locked out in accordance with a written lock out procedure provided by the B&N Supervisory Personnel.

37.00 MACHINE GUARDING

37.1.1. PURPOSE

The purpose of the Machine Guarding Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with Machine Guarding within all Biggs & Narciso Construction Services Inc. (B&N) locations.

37.1.2. SCOPE

All machines, parts of machines, or component parts of machines which may create an entanglement, pinch point hazard or may cause injury from moving parts must be guarded appropriately to avoid contact with moving parts. The Machine Guarding Program applies to all employees who are responsible for using machines with guards.

37.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards by placing warning signs on a machine that starts automatically
- B&N must ensure that the design & installation, operation and maintenance of safeguards must meet the requirements of the applicable CSA Standards, for Safeguarding of Machinery

Supervisory Personnel Responsibilities:

- Ensure machines are equipped with appropriate safeguards
- Provide Personal Protective Equipment (PPE) to operators when necessary
- Ensure machines have had a pre-start inspection if required
- Ensure that any machine or apparatus was manufactured in accordance with and meets CSA and current applicable standards or it has been modified to meet all other Appropriate Provincial Health & Safety Legislation
- The protective elements are installed in accordance with the manufacturer's instructions
- Provide machine operators with specific training
- Ensure operators do not tamper with machine guarding systems or the integrity of the apparatus or machine
- The apparatus or machine has been installed in accordance with manufacturer's instructions to meet all Appropriate Provincial Health & Safety Legislation.
- The protective element was manufactured in accordance with and meets current CSA standards
- Ensure all workers hair, including facial hair, jewelry, neckwear, rings, or other items are confined or removed to prevent coming in contact with a moving part of a machine
- Ensure all guards that are fixed in place require authorization to be removed

Worker Responsibilities:

- Operate the machines with all the safeguards in place
- Not tamper, remove or modify any machine guarding system or the integrity of the apparatus or machine
- Wear all PPE as prescribed
- Report any defective parts or machine guarding safeguards immediately to Supervisory personnel
- Confine any facial and head hair and remove any jewelry, neckwear, rings, or other items that have the potential to come in contact with a moving part of a machine

- Before starting any machinery, an operator must ensure that starting the machine will not endanger the operator or any other worker, and while operating machinery, an operator must ensure that its operation will not endanger the operator or any other worker

37.1.4. PROCEDURE

GUIDING PRINCIPLES

It is the policy of B&N that any apparatus, machine or equipment that has an exposed moving part, function, or process that may cause injury or endanger the safety of any worker, the apparatus, machine or equipment must be equipped with an appropriate guard or other device that prevents access to that moving part. When possible, B&N will attempt to eliminate the hazard, however, if the hazard cannot be eliminated, then it must be controlled. An in-running nip hazard or any part of the apparatus, machine or equipment that may endanger the safety of any worker shall be equipped with a guard or other device that prevents access to the pinch point.

Control must include the safety of the operator and any other employees or Sub-contractors in the vicinity when the apparatus, machine or equipment is operating or the potential of accidental contact. All employees and others must abide to the following guidelines relating to machine guards and take all necessary precautions to prevent any and all injuries. All machine guarding must meet Canadian Standards – CSA and American National Standards Institute - ANSI. The guard must be designed, constructed, installed and maintained so it is capable of effectively performing the functions for which it is intended.

MINIMUM GENERAL REQUIREMENTS

1. **Prevent contact:** The guard must prevent hands, arms, and any other body part of the operator's body from making contact with dangerous moving parts
2. **Secure:** Operators should not be able to easily remove or tamper with the guard. Guards should be made of durable material that will withstand the conditions of use and be firmly secured to the machine
3. **Protect from falling objects:** The guard should ensure that no object can fall into moving parts
4. **Create no new hazards:** A guard defeats its own purpose if it creates a hazard of its own such as a sheer point, a jagged edge, or an unfinished surface which can cause a laceration
5. **Create no interference:** The guard should not impede an operator's ability to perform the job efficiently and comfortably or it may be overridden or disregarded
6. **Allow safe lubrication:** Oil reservoirs should be located outside the guard with a line leading to the lubrication point

MECHANICAL HAZARDS

Guards should be made of durable material that will withstand the conditions of use and be firmly secured to the apparatus, machine or equipment.

Supervisors and the Health & Safety Personnel are to utilize the Job Safety Analysis process to assist with identifying hazardous mechanical motions and actions requiring guarding.

Protective elements in connection with an apparatus, machine or equipment may include but not limited to; safeguarding devices that signal the apparatus, machine or equipment to stop such as two hand control systems, two hand tripping systems, safety light curtains, barrier guards that use interlocking mechanical or electrical safeguarding devices.

A fixed guard must not be modified to be readily removable without the use of tools.

Conveyors shall be stopped and de-energized, locked, and tagged out when the conveyor is undergoing repairs, adjustments or maintenance unless;

- a. It is necessary to run conveyor during such work; and

- b. Special precautions are taken to prevent injury to a worker from moving parts

An unsafe tool, apparatus, machine or equipment must be removed from service and identified in a manner which will ensure it is not inadvertently returned to service until it has been made safe for use.

Rotating parts, such as friction drives, shafts, couplings and collars, set screws and bolts, keys and keyways, and projecting shaft ends, exposed to contact by workers must be guarded.

Mechanical Hazards Occur in Three (3) Basic Areas:

1. **Point of Operation:** That point where work is performed on the material, such as cutting, shaping, boring, or forming stock
2. **Power of Transmission:** All components of the mechanical system which generate energy to the part of the machine performing the work. Including flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks and gears
3. **Other Moving Parts:** All parts of the machine that moves while the machine is working. These can include the reciprocating, rotating and transverse moving parts, as well as feed mechanisms and auxiliary parts of the machine

The basic types of hazardous mechanical motions and actions are:

- a. **Motions:** Rotating, Reciprocating, Transverse
- b. **Actions:** Cutting, Punching, Shearing, Bending

Other hazards to be considered are:

1. Surfaces with temperatures that may cause skin to freeze, burn or blister;
2. Debris, material, or objects thrown from a machine
3. Any other hazard that may pose a risk to the safety or health of the worker

Safe Operation Procedures

1. The machine operator shall ensure that all clothing worn is close-fitting. All long hair on the face or head is kept short or is confined to prevent it from being entangled in any component of the apparatus, machine or equipment
2. The operator shall not wear dangling neckwear or jewelry, rings or other items that would become entangled in any component of the apparatus, machine or equipment, except for medical alert bracelets which may be worn with transparent bands that hold the bracelets snugly to the skin
3. Before starting any apparatus, machine or equipment, an operator shall ensure that neither he nor any other worker will be endangered by starting the apparatus, machine or equipment
4. Stopping Devices or Emergency Stop Switches shall be in good working order, well identified and accessible to the operator. This will be verified during the inspection process

INSPECTION AND MAINTENANCE RECORDS

1. Each apparatus, machine or equipment will have an inspection log maintained, as required by the Appropriate Provincial Health & Safety Legislation
2. Each piece of equipment / machinery will have maintenance record maintained, as required by the Appropriate Provincial Health & Safety Legislation
3. All inspection and maintenance records shall be kept at the principle place of business for the duration of the service life of the apparatus, machine or equipment
4. The records must be available to persons within the workplace who are involved in the operation, inspection, testing or maintenance of the apparatus, machine or equipment

WARNING SIGNS

B&N shall place adequate, appropriate and clearly visible warning signs at each point of access to apparatus, machine or equipment that starts automatically.

REMOVAL OF SAFEGUARD

B&N or the Sub-contractor shall ensure that a safeguard is only removed from an apparatus, machine or equipment or made ineffective to permit maintenance, testing, repair or adjustment of the apparatus, machine or equipment.

When a safeguard is removed or made ineffective, B&N will ensure that:

1. The work is evaluated, documented and communicated to all appropriate employees and Sub-contractors during the completion of the daily safe work permit
2. Alternative protective measures are in place
3. The safeguard functions properly once replaced
4. The safeguard is replaced immediately after the task is completed

When a safeguard is removed or made ineffective by a worker who does not directly control the machine, B&N will ensure that the worker who removes the safeguard or makes it ineffective locks out the machine from all potential energy sources.

GRINDERS

A grinder shall be assembled and adjusted in accordance with the manufacturer's specifications and the Appropriate Provincial Health & Safety Legislation. The maximum speed at which a grinding wheel may be operated shall be indicated on the grinding wheel or in a manner by which the speed may be readily ascertained.

A grinding wheel shall be:

1. Enclosed by a protective hood except for the area at the workrest
2. Stored where it will not be damaged by impact, extreme heat and cold
3. Stopped when the grinder or workrest is being adjusted, and
4. Not operated in excess of the manufacturer's recommended maximum speed

The operator of a grinder shall wear all required Personal Protective Equipment as directed by the Supervisory Personnel including eye protection. The workrest of a grinder shall be mounted above the centre line of a grinding wheel not more than (3mm) three millimeters from the wheel or as directed by the Appropriate Provincial Health & Safety Legislation.

38.00 POWER ELEVATED WORK PLATFORMS (PEWP)

38.1.1. PURPOSE

The purpose of the Power Elevated Work Platforms (PEWP) Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the use of PEWP at all Biggs & Narciso Construction Services Inc. (B&N) locations. Powered elevated work platforms are equipment with an integrated mobile power source and extendible supports connected to an aerial platform, such as scissor lifts and articulating boom lifts.

38.1.2. SCOPE

The PEWP Program applies to all B&N employees and Sub-contractors when dealing with PEWP on any B&N location.

38.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the PEWP program is implemented at all B&N locations

Supervisory Personnel Responsibility:

- Provide employees and Sub-contractors with awareness on the safe use of PEWP using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Ensure employees and Sub-contractors perform a daily inspection of the PEWP prior to use using **FORM 38.1. – EWP - Scissor Lift Inspection Checklist**
- Ensure the use of any PEWP are conducted as required under the Appropriate Provincial Health & Safety Legislation and defined under the site-specific health and safety plan (HASP)

Operator Responsibility:

In addition to all other responsibilities and safety guidelines, operators must adhere to the following:

- Ensure equipment is in operative condition and shall not endanger the operator, fellow employees or others
- Conduct a visual inspection of equipment on a daily basis prior to the start of each work shift to assess any need for repairs and maintenance. **FORM 38.1. – EWP - Scissor Lift Inspection Checklist** is to be completed daily and are to be documented. Inspection for damage and an operational check shall be performed immediately after PEWP is transported for operational use
- Ensure the daily safe work permit meetings and the Job Safety Analysis (JSA) cover the scope and function of all PEWP on B&N sites as defined by the site-specific health and safety plan (HASP)
- Report in writing to the supervisor any defects or hazardous conditions detected during the inspection or through the work shift. An out of service tag shall be affixed to the equipment until it is repaired. Any defects or hazardous conditions that would create a safety concern must be repaired or replaced before being put back into service
- Operators will inspect work area prior to the commencing of work, for any overhead power lines that are close to the work area, and the location of all underground services prior to any excavation, written confirmation of which is required
- Wear a personal fall arrest system secured to the power elevated work platforms **ONLY** at the manufacturer's approved anchor points on the platforms and at all times while inside the basket

- Operators will take necessary action and precautions to prevent equipment from being started or being set in motion by any unauthorized persons when the equipment is left unattended. Precautions may include removal of the ignition key when equipment is not in use
- Operators to ensure there is assistance of a competent signaler in the case of obstructed view of the intended path of travel when reversing on site or near power lines where contact could occur or when a person could be endangered by the PEWP
- The trained operator shall carry written proof of his training certificate at all times
- Before starting any PEWP, the operator shall ensure that neither the operator nor any other employee will be endangered by starting the machine
- Operators shall ensure that an unattended PEWP shall have its brakes applied and its wheels blocked to prevent movement when the PEWP is on sloping ground
- Maintain the PEWP to ensure working surface is free of material, tools or other objects which could create a tripping hazard, interfere with the operation of controls, or be a hazard to the operator or other occupants in the event of an accident
- Elevated parts must be lowered to the ground when parked
- Operators must ensure that all site required Personal Protective Equipment (PPE) is being used in accordance with the site specific HASP
- The use of all running, headlights, warning beacons are mandatory at all times

38.1.4. PROCEDURE

GUIDING PRINCIPLES

Powered Elevated Work Platforms (PEWP) are very useful for many operations at B&N. We believe that any individual involved with work associated with these platforms must be given oral and written instructions before using the platform for the first time. Part of the instruction must include items to be checked daily before use as listed on **FORM 38.1.** – EWP - Scissor Lift Inspection Checklist.

When an employee is required to work at heights requiring elevating devices, B&N shall provide the employee with a PEWP that meets the site-specific requirements mentioned in the HASP.

No employee shall be raised or lowered or be permitted to be raised or lowered by any hoist, derrick, crane or similar device unless:

- a. Such device is examined and tested by a competent person before being used to raise or lower the person before being used to raise or lower the employee
- b. A safe procedure for raising or lowering the employee is established, trained and is followed
- c. There is a device by which the hoist operator and the employee being raised or lowered can exchange movement signals except where the employee being transported is visible at all times to the hoist operator

WARNING

There are four major causes of incidents related to powered elevated work platforms:

- a. Lack of operator training
- b. Using the wrong machine for the job
- c. Lifting materials improperly
- d. Poor maintenance of the equipment

MAINTENANCE AND INSPECTION

Powered Elevated Work Platforms (PEWP)

Equipment of this type includes scissor lifts and boom devices, also referred to as “man lifts”. Powered elevating work platforms are used in the course of B&N operations to gain safe access to high and hazardous areas.

1. Employees must be given oral and written training in the safe operation of the particular class of the PEWP before using it for the first time, and retraining as required. The training includes the understanding:
 - a. Of the Manufacturer’s Manual and instructions within
 - b. Of how to safely operate the equipment
 - c. Of load limitations of the machine
 - d. Of the location and use of all controls through a hands-on demonstration
 - e. Of the limitations on the kinds of surfaces on which it is designed to be used
 - f. Of procedures for inspection, inspection reports and maintenance
2. A PEWP shall be operated and inspected by a competent worker before its first use and daily prior to the use of the PEWP. A checklist shall be utilized for the inspection using on **FORM 38.1.** – EWP - Scissor Lift Inspection Checklist
3. The competent worker must be authorized by B&N to operate the equipment.
4. A PEWP must not be loaded in excess of its rated working load
5. Guardrails must not be used for lifting / lowering or transporting objects
6. A PEWP must not be loaded in ways that affect stability or endanger a worker. Keep platform load below maximum rated working load
7. Materials should be placed on stable supports solidly fixed in place and equipped with stops. Such supports will be used to raise / lower such materials not to transport them. Materials must be stabilized to prevent them from falling
8. A PEWP must not be moved unless a safety harness and lanyard, attached to an appropriate anchorage point on the platform protects each employee aboard. The length and type of lanyard shall prevent the employee from falling from the PEWP
9. A PEWP must be used on a firm level surface. The ground surface should be inspected prior to using such equipment. Any debris or obstructions must be removed. Where plates have been used to temporarily cover a hole or excavation in the floor, an assessment of their ability to properly support the operation of an elevated work platform without shifting or slipping must be made, and work in such circumstances should be avoided whenever possible. Before leaving the machine unattended, steps must be taken to prevent it from being started or set in motion by an unauthorized person
10. Keep guardrails in good conditions and make sure that the chain or gate at the opening is secure before moving the machine or platform. Never remove guardrails when a platform is raised
11. Maintain the minimum allowable distance from any overhead power line (refer to site specific HASP for Appropriate Provincial Health & Safety Legislation):

<u>Voltage Rating</u>	<u>Minimum Distance</u>
750 to 150,000 volts	3 meters (10 feet)
More than 150,000 to 250,000 volts	4.5 meters (15 feet)
More than 250, 000 volts	6 meters (20 feet)

12. Deploy stabilizers or outriggers according to manufacturer’s instructions, if applicable
13. Keep ground personnel away from machine and out from under platform or bucket
14. Position boom in line with direction of travel wherever possible. Never allow employees to walk the boom to get on or off the platform or bucket
15. Never try to move, push, lift, or free the machine by telescoping the boom
16. Make sure that extension cords are long enough to reach the expected platform height

MAINTENANCE PROGRAM

B&N, Sub-contractor, owner or supplier shall ensure that a maintenance and inspection record or tag is provided for an aerial device, elevating work platform, or personnel lifting unit and is attached to the device.

The maintenance inspection record or record tag must have the following recorded on it;

1. The date of the last maintenance
2. The name and signature of the person who performed the maintenance, and
3. An indication that the maintenance has been carried out in accordance with manufacturers recommendations

Services from a certified repair company will be acquired for all tire repairs on a PEWP. A competent person will be required to inspect, disassemble and reassemble a tire or tire and wheel assembly of PEWP in accordance with the specifications of both the tire manufacturer and the manufacturer of the PEWP.

Each PEWP shall have regular inspections completed and / or re-certifications must be conducted to ensure the PEWP is in safe operating condition.

Records

All records of inspection, maintenance and repair or modification for each PEWP will be maintained in the principle place of business. The records shall be available for review as required. Records for any rented equipment will be kept according to inspections and repairs completed in the workplace.

WORKING AT HEIGHTS

Employees must wear a personal fall arrest system secured to the PEWP ONLY at the manufacturer's approved anchor points at all time while inside the basket.

The fall protection equipment must ensure that it restricts the employee from falling from the working surface and in the event of a fall from the PEWP.

38.1.5. RELATED FORMS

FORM 38.1. – EWP - Scissor Lift Inspection Checklist

39.00 HEAVY EQUIPMENT (INCLUDING FORKLIFTS)

HEAVY EQUIPMENT (INCLUDING FORKLIFTS)

39.1.1. PURPOSE

The purpose of the Heavy Equipment Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the use of Heavy Equipment in the workplace.

39.1.2. SCOPE

The Heavy Equipment Program applies to all Biggs & Narciso Construction Services Inc. (B&N) employees and Sub-contractors when dealing with Heavy Equipment on any B&N location.

39.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Heavy Equipment program is implemented at all B&N locations
- Ensure that prior to the start of each work shift to assess any need for repairs and maintenance. **FORM 39.1.** – Excavator Pre-Use Inspection Checklist or **FORM 39.2.** – Skid Steer / Loader Pre-Use Inspection Checklist is completed daily and that all findings are documented. Inspection for damage and an operational check shall be performed immediately after heavy machinery is transported for operational use

Operator Responsibility:

In addition to all other responsibilities and safety guidelines, operators must adhere to the following:

- Ensure equipment is in operative condition and shall not endanger the operator, fellow employees or others
- Conduct a visual inspection of equipment on a daily basis prior to the start of each work shift to assess any need for repairs and maintenance. **FORM 39.1.** – Excavator Pre-Use Inspection Checklist or **FORM 39.2.** – Skid Steer / Loader Pre-Use Inspection Checklist is to be completed daily and findings are to be documented. Inspection for damage and an operational check shall be performed immediately after heavy machinery is transported for operational use
- Ensure the daily safe work permit meetings and the Job Safety Analysis (JSA) cover the scope and function of all Heavy Equipment on B&N sites as defined by the site-specific health and safety plan (HASP)
- Report in writing to the supervisor any defects or hazardous conditions detected during the inspection or through the work shift. An out of service tag shall be affixed to the equipment until it is repaired. Any defects or hazardous conditions that would create a safety concern must be repaired or replaced before being put back into service
- Operators will inspect work area prior to the commencing of work, for any overhead power lines that are close to the work area, and the location of all underground services prior to any excavation, written confirmation of which is required
- Operators will take necessary action and precautions to prevent equipment from being started or being set in motion by any unauthorized persons when the equipment is left unattended. Precautions may include removal of the ignition key when equipment is not in use
- Operators to ensure there is assistance of a competent signaler in the case of obstructed view of the intended path of travel when reversing on site or near power lines where contact could occur or when a person could be endangered by the equipment or its load
- Operators will ensure that equipment contains an operator's manual and be outfitted with an appropriate fire extinguisher
- The trained operator shall carry written proof of their training certificate at all times

- Before starting any equipment, the operator shall ensure that neither the operator nor any other employee will be endangered by starting the machine
- Operators shall ensure that an unattended vehicle, machine or equipment shall have its brakes applied and its wheels blocked to prevent movement when the vehicle, machine or equipment is on sloping ground or is adjacent to an excavation
- Maintain the cab, floor and deck of mobile equipment free of material, tools or other objects which could create a tripping hazard, interfere with the operation of controls, or be a hazard to the operator or other occupants in the event of an emergency
- Elevated parts must be lowered to the ground when parked
- Operators must ensure that all site required Personal Protective Equipment (PPE) is being used in accordance with the site specific HASP
- Wear a seatbelt at all times while the equipment is operating
- The use of all running, headlights, warning beacons are mandatory at all times
- All loads must be lowered before leaving a lifting device unattended
 - (a) The bucket of a front-end loader, backhoe, or other excavating machine;
 - (b) the blade of a bulldozer; or
 - (c) the load of a fork-lift truck, mobile crane or other hoisting machine, shall be in the lowered position or adequately supported

39.1.4. PROCEDURE

GUIDING PRINCIPLES

It is in the strictest sense that B&N will enforce the safe operation, maintenance and training of all its operators. All employees operating a piece of heavy equipment must be fully trained by a competent and qualified individual on the equipment to be used. Training includes written and verbal instructions, testing in the theory and physical operation of each specific piece of heavy equipment. The employee must also demonstrated competency in the operation of the heavy equipment that the employee is being provided a certificate to operate.

B&N will maintain a current inventory of all heavy equipment that is owned or leased by the company. The Operations Manager or designate shall add any new equipment to the inventory or delete equipment from the inventory as required. The operation of heavy equipment is prohibited by any unauthorized person. Violation of this policy, in full or part could result in disciplinary action up to and including termination.

All mechanically-powered vehicles, machines, tools, and equipment rated at greater than 10 horsepower shall be inspected by a competent worker to determine whether they can handle their rated capacity and to identify any defects or hazardous conditions. The inspections shall be performed before the vehicles or equipment are first used at the project and thereafter at least once a year or more frequently as recommended by the manufacturer. Every replacement part for vehicle equipment shall have at least the same safety factor as the part it is replacing. No modification to, extension to, repair to, or replacement of a part of a vehicle or equipment shall result in a reduction of the safety factor of the vehicle or equipment.

RULES OF OPERATION

1. Operators must always use the three point contact principle whenever climbing on or off of any equipment
2. All equipment attachments must be lowered to the ground when equipment is parked
3. No person shall ride on or be transported within the equipment other than in the approved manufacturers location
4. Equipment will be operated in accordance with manufacturer's recommendations and the Appropriate Provincial Health & Safety Legislation. Fines resulting from illegal operation are the sole responsibility of the operator

5. A crane or other hoisting machine shall be operated in such a way that no part of its load will pass over a person, other than an employee receiving the load and an employee receiving a load shall, so far as is practicable, position himself or herself so that the load does not pass over him or her
6. Operators of lifting devices are protected from falling objects by an overhead cab or guard.
7. Operators must not use any electronic device including iPod, cellular phone, MP3 player while on any B&N location or when performing any duties for the employer or client
8. Operators must take adequate precaution when carrying loads, working on inclines, near excavations or around people, property or other equipment in accordance with the site specific HASP
9. Whenever possible, face equipment tracks towards the work being done and not at a horizontal to the work
10. All lifting devices shall display the maximum load the device may carry based on its design criteria, as defined by the manufacturer's instructions. A notice showing the maximum load established shall be posted in a location visible to the operator of the device
11. B&N does not permit the operation of all-terrain vehicles or snowmobiles on the job sites unless isolated work area and ground conditions require an alternate means of site access or mobility
12. B&N or the trade contractor shall ensure employees will not leave any piece of equipment unattended or in a suspended position unless the machine or part has been immobilized and secured against accidental movement or enclosed by a safeguard to prevent access by any other employee to the machine or part
13. All mobile equipment shall have restraining devices to hold the employee into the seat of the equipment, ie; seatbelt. No operator shall operate the equipment unless the restraining device is in proper working order and the operator is wearing the restraining device. If the restraining device is not operating as required, the mobile equipment shall be taken out of service until it is repaired
14. All Roll-Over Protection (ROPs) must be in good working order. If the ROPs are found to have a defect, the mobile equipment is to be taken out of service until it is repaired. The following types of mobile equipment weighing 700 kilograms or more shall have rollover protection structures (ROPs): crawler tractors, dozers, loaders, skidders, motor graders, compactors, lift trucks, skid steers, roll-offs and rock trucks
15. A B&N employee other than the operator may only ride on mobile equipment with a ROPS for the purpose of training or maintenance when additional seating is available in the approved manufacturer's locations
16. All equipment must have an automatic audible warning device which activates whenever the equipment controls are positioned to move the equipment in reverse, and if practicable, the audible warning device can be heard above the ambient noise level
17. Operators who are required to successfully complete a course on air brake systems by the Appropriate Provincial Health & Safety Authority must do so prior to operating an air brake system vehicle.
18. When material is dumped from a vehicle that is occupied by a person, the dump point shall include leveling alarm features designed to prevent the vehicle from going over a bank, over a bench, or into a raised or open hole
19. The use of all running, headlights, warning beacons are mandatory at all times

CHANGING ATTACHMENTS

1. Only competent and experienced employees are to change attachments on equipment
2. Attachments are to be changed on a level surface or ground
3. Equipment such as grapples, shears or pulverizers must in the their fully closed position prior to removing any pins
4. Attachments should not be in a position where they can tip over, if necessary use a chock or block
5. Always have a spill kit available

POWERLINE SAFETY GUIDELINES

The operation of heavy equipment equipped with a variety of attachments, are an integral part of the decommissioning process. Operators must be especially diligent to prevent an electrical mishap. The following are general rules to be followed on all B&N locations:

1. B&N will train the operator on the Appropriate Provincial Health & Safety Legislation when performing work or operating equipment or machinery near overhead electrical lines as defined in the site-specific HASP. This

shall be documented and reviewed through the completion of the daily safe work permit and meeting for work near overhead electrical lines

2. The operator is to walk the area of operation prior to the commencement of work. Although the orientations to the project will always discuss issues such as live power; there is no substitute for first-hand observations of the area
3. If the equipment that is being operated or the equipment's load will pass closer than one (1) boom length to an electrical line, a spotter must be used
4. When the situation calls for a spotter, the operator must have full view of the spotter at all times. The spotter must stand where they have a full view of the operator, power lines, boom, load line and load. The spotter and operator must wear all required PPE as defined under the site specific HASP, clearly understand any hand signals between them and use two-way radios if available or use an air horn to get the attention of the operator
5. Ensure that the designated areas for loading, unloading and storage are well clear of overhead lines.
6. Where overhead lines pose an unavoidable problem, have the lines de-energized, disconnected, relocated or moved to avoid contact by the Local Electrical Power Authority
7. Ensure that those lines that must stay within the general work area are marked in a highly visible manner. Any potential for equipment to work within 3 meters of the electrical lines or where equipment has the potential to reach within the 3 meters radius of the electrical line during operation will cause B&N to notify the Local Electrical Power Authority
8. Ensure that before any underground work is started, all underground utilities are located and clearly marked. Visually inspect these before excavation. If any utility poses a hazard, then the services must be disconnected by the utility company and follow the utility locate procedures as outlined under the site specific HASP
9. Maintain the minimum allowable distance from any overhead power line (refer to site specific HASP for Appropriate Provincial Health & Safety Legislation):

<u>Voltage Rating</u>	<u>Minimum Distance</u>
750 to 150,000 volts	3 metres (10 feet)
More than 150,000 to 250,000 volts	4.5 metres (15 feet)
More than 250, 000 volts	6 metres (20 feet)

PREVENTATIVE MEASURES

B&N shall establish a preventative maintenance schedule for each piece of equipment or heavy machinery based on manufacturer requirements and industry standards. All preventative maintenance performed on the equipment or heavy machinery must be documented and retained for the life of the machinery or equipment by the Operations Manager or designate.

All inspections and maintenance records must be available for review by the operator of the equipment. Each component that may affect the safe operation of a lifting device shall be examined and tested by a competent person before initial use and thereafter at intervals not exceeding one year. The dates, findings and names of the competent persons performing the examinations shall be documented.

RESCUE PROCEDURE

B&N and Sub-contractors shall develop adequate emergency rescue procedures and communicate these in writing to all employees involved with the hoisting operation as outlined under the site-specific HASP.

SAFETY FEATURES

Roll over protection shall have a legible label indicating,

- The name and address of the manufacturer of the roll-over protective structure or, if it is custom built, the name and address of the professional engineer

- The make, model and maximum mass of the machine that the roll-over protective structure is designed to fit
- Shall be securely fastened to the frame of the machine
- Shall be capable of withstanding all forces to which it is likely to be subjected to

Any repairs to the roll over protection shall be completed by an authorized repair company and shall be approved by the Operations Manager or designate as outlined by the manufacturer instructions and meet the requirements set out in the Appropriate Provincial Health & Safety Legislation.

All powered mobile equipment will have engineered safeguards, ROPs or additional safeguards installed on the machine to protect the employee. The safeguards will include window steel bars to deflect any projectile from breaking the glass and entering the cab of the equipment. ROPs, overhead steel guards, glass doors and windows must all be in good working order for the protection of the employee and safe operation of the equipment. Powered mobile equipment shall be equipped with a roof, protective screen, or cab to protect the operator when there is a risk of objects falling from above and/or if an object being handled by the equipment could shift and impact the operator.

The brake system of a rubber-tired motor vehicle shall meet the requirements of CSA-M3450-03 (R2012) Braking systems of rubber-tired machines – Performance requirements and test procedures. The brake system of a tracked motor vehicle shall meet the requirements of ISO 10265:2008 Earth-moving machinery – crawler machines – performance requirements and test procedures for braking systems.

A motor vehicle that is operated on the surface must be equipped with a device that warns the operator that the vehicle's stored energy brake system is approaching the critical level of pressure, so that the vehicle can be safely stopped.

SIGNALER REQUIREMENTS

Where the operator of a vehicle, mobile equipment, crane or similar material handling equipment does not have a full view of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment or its load, the vehicle, mobile equipment, crane or similar material handling equipment shall only be operated as directed by a signaler who is a competent person and who is stationed:

- In full view of the operator
- With a full view of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment and its load; and
- Clear of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment and its load
- Wear all required PPE as defined under the site specific HASP

39.1.5. RELATED FORMS

FORM 39.1. – Excavator Pre-Use Inspection Checklist

FORM 39.2. – Skid Steer / Loader Pre-Use Inspection Checklist

39.00 HEAVY EQUIPMENT

MOBILE & OVERHEAD ELECTRIC CRANES

39.2.1. PURPOSE

The purpose of the Mobile and Overhead Electric Cranes Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the use of mobile and overhead cranes in the workplace

39.2.2. SCOPE

The Mobile and Overhead Electric Cranes Program applies to all Biggs & Narciso Construction Services Inc. (B&N) employees and Sub-contractors when dealing with mobile and electric cranes on any B&N location

39.2.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Mobile and Overhead Electric Crane program is implemented at all B&N locations

Supervisory Personnel Responsibility:

- Provide employees and Sub-contractors with awareness on the safe use of Mobile and Overhead Electric Crane's using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Ensure all operators perform a visual inspection of the Mobile and Overhead Electric Crane prior to use
- Ensure the use of any Mobile and Overhead Electric Crane are conducted as required under the Appropriate Provincial Health & Safety Legislation and defined under the site-specific health and safety plan (HASP)

Sub-contractor Responsibilities:

- Ensure that every hoist, crane and lifting device, including all rigging, used at a place of employment is designed, constructed, installed, maintained and operated to perform safely any task for which the hoist, crane, lifting device or rigging is used
- Ensure that a hoist, crane or lifting device is provided with a durable and clearly legible indication of the load rating that is readily accessible to the operator at the control station
- Not require or permit the operator of a hoist, crane or lifting device to raise any load that is greater than the rated load determined by the manufacturer of the equipment or a professional engineer for the condition in which the equipment is to be operated
- Ensure that a copy of the manufacturers operating manual for a hoist or crane is readily accessible to the operator
- Where a hoist or crane is designed to be operated with outriggers or other stabilizing devices, B&N or Sub-contractor shall ensure that the outriggers or other stabilizing devices are used in accordance with manufacturer's instructions, set on a solid footing or pad, have their controls if any readily accessible to the operator and in a suitable position for safe operation
- The area around the outriggers or other stabilizing devices is kept free of obstruction. There is a minimum clearance of 600mm between any moving part of the crane and any obstacle near the base of the hoist or crane

- Where there is a danger of an employee being trapped or crushed by any moving part of the crane when the crane swings, the area around the base of the crane is barricaded to restrict the entry of any site personnel
- Develop written procedures for safely erecting and dismantling a hoist or a crane
- Not move a load until the operator of a lifting device is assured that the working conditions are safe
- Ensure the lifting device legibly shows the manufacturers rated load capacity, the manufacturer's name, the model number, serial number and the year of manufacture or shipment date
- Ensure that a crane or similar hoisting device is not operated in such a way that part of its load passes over another employee unless the other employee is receiving the load
- Wear a seatbelt at all times while the mobile crane is operating
- The use of all running, headlights, warning beacons are mandatory at all times

39.2.4. PROCEDURE

GUIDING PRINCIPLES

B&N will acquire the services for a mobile crane through an approved and registered mobile crane company.

A multi-girder top-running electric overhead traveling crane for general use shall meet the current standards set out in CSA Standard B167-2008, General Purpose Electric Overhead Traveling Cranes. A trained and competent person shall test devices that may affect the safe operation of the crane per the CSA legislation. Devices that may affect the safe operation of: (a) a production crane shall be tested daily when in use; and (b) a service crane shall be tested daily when in use and the test shall be made before the first use of the crane on that day

Operator Qualifications

No operator shall operate a hoist, crane or lifting device unless the employee is a designated operator and has been trained and certified in the operation of that hoist, crane or lifting device and implements the manufacturers recommended operating procedures. An operator of mobile cranes shall:

- Have a current certificate of qualification as a hoisting engineer under the under the Appropriate Provincial Health & Safety Legislation
- Be qualified in accordance the specific site level expectations
- Have written proof of training indicating that he or she is trained in the safe operation of the crane or similar hoisting device

A production crane operator shall be in possession of a current crane operator's medical certificate

A person operating a production crane shall:

- Be physically and mentally fit to conduct the duties of a crane operator
- Undergo a medical examination by a physician before commencing work as a crane operator and every 12 months thereafter
- Obtain a crane operator's medical certificate from the physician certifying that the person is physically fit to operate a crane and is not subject to any infirmity of body or mind that may interfere with the duties of a crane operator

The crane operator's medical certificate shall:

- Expire one year from its date; and
- Be kept on file and recorded on a posted list of active crane operators

Where a crane or hoist will be used to raise or lower employees, the Sub-contractor shall develop and implement work practices and procedures that will provide for the safe raising and lowering of any employee. These procedures shall be completed along with the daily safe work permit and trained to the employees in

those work practices and procedures during the daily safe work permit meeting. The Sub-contractor will ensure that the hoisting equipment and personnel lifting unit are inspected by a competent person before use and daily when in use, and ensure that the competent person records the details of the inspection in the log book

Logbook

The Sub-contractor shall:

- Provide a log book for each hoist and crane with a rated load greater than five tonnes and ensure that the log book is kept readily available on site
- Provide a copy of the log book to the operator on request
- Ensure that the hours of service of the hoist or crane and all details of any inspection, maintenance, testing, findings of any tests and examinations, calibration required by this part are recorded in the log book
- Ensure that each entry required is signed by the person who performs the inspection, maintenance, modifications, or calibration and review and
- Sign the log book on a regular basis

Inspection of Crane

The Sub-contractor shall ensure that a hoist, crane or lifting device is inspected by a competent person to determine whether the hoist, crane or lifting device is in safe working condition before the hoist, crane or lifting device is used at the start of each work shift, at regular intervals as recommended by the manufacturer, and in accordance with the Appropriate Provincial Health & Safety Legislation and the site-specific HASP

Devices that may affect the safe operation of:

- a. A production crane shall be tested daily when in use, and
- b. A service crane shall be tested daily when in use and the test shall be made before the first use of a crane on that day

A competent person shall examine, using non-destructive testing techniques, the shafting of each hoist drive train of a production crane to determine if it is in sound condition before the crane is first used. After a production crane has been first used, a trained person shall examine, using non-destructive techniques, the shafting of each hoist drive train of the crane at a frequency at least equal to that recommended by its manufacture or, if there is no manufacturer's recommendation, at a frequency at least equal to that specified by a competent person in order to determine if it is in sound condition

Maintenance of Crane

While a crane is in use, a competent person shall examine and service devices that may affect the safe operation of the crane at a frequency at least equal to that recommended by its manufacturer or, if there is no manufacturer's recommendation, then at a frequency at least equal to that specified by a competent person

No crane shall be operated:

- a. When in the hoisting rope, the number of broken wires in one lay length exceeds 5 percent of the total in the rope, or defects that seriously affect its strength are known to exist
- b. When a person is in the vicinity of the wheel tracks unless precautions have been taken to ensure his or her safety
- c. By an incompetent and unauthorized person
- d. When any device that may affect safe operation is found to be faulty; and
- e. When the load exceeds the load rating of the crane, except for the purpose of a test

40.00 VEHICLE SAFETY

40.1.1. PURPOSE

The purpose of the Vehicle Safety Program is to establish a process to that will effectively manage recognize, assess and control the hazards associated with the operation of vehicle.

40.1.2. SCOPE

The Vehicle Safety Program applies to all workers who are required to operate a vehicle on behalf of Biggs & Narciso Construction Services Inc. (B&N).

40.1.3. RESPONSIBILITIES

Operations Manager / B&N Responsibilities:

1. Provide all required vehicle inspections checklist and reporting forms to the driver and ensure the drivers follow the appropriate schedules
2. Take appropriate and compliant action for the repair of all defects and major defects
3. Develop a filing system per vehicle containing all inspection and maintenance records in chronological order, which are maintained for a minimum of six (6) months
4. Vehicle inspection checklist and reporting forms shall be made available to the appropriate Provincial Transportation Authorities upon request
5. Ensure any reported damage or defect that may affect the safe operation of the vehicle is corrected before the continued use of the vehicle

B&N Driver Responsibilities:

- Complete and maintain a daily vehicle inspection - **FORM 40.1.** – Daily Passenger Vehicle Pre-Trip Inspection Checklist & Reporting Form
- Provide the vehicle inspection checklist & reporting form to the appropriate Provincial Transportation Authorities as requested
- Record on the vehicle inspection checklist & reporting form whether any defects are found or not
- Notify B&N of any found vehicle damage or defect within a 24-hour period for direction and repair information
- Ensure ongoing awareness and or monitor the vehicle while in use
- Any damage or defect that may affect the safe operation of the vehicle must be corrected before the continued use of the vehicle
- Submit the vehicle inspection checklist & reporting form to the Operations Manager or designate daily, weekly or as directed depending on work schedules

40.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N is committed to promoting safety and responsible driving for all of our employees. To ensure that this commitment is followed, B&N has adopted a vehicle policy that requires all B&N employees who operate B&N owned, leased/rented, or car allowance vehicles to do so in a lawful and safe manner at all times. Use of the aforementioned vehicles will be strictly for the business of B&N and will by no means be considered available for personal use in any way unless authorized by B&N. It is the driver's responsibility to operate the vehicle in a safe manner and to drive defensively to prevent injuries and property damage. B&N endorses and expects all B&N employees to comply with all appropriate Provincial and Federal vehicle legislation relating to driver responsibility. B&N expects each driver to drive in a safe and courteous manner.

DRIVER ELIGIBILITY

1. B&N vehicles are to be driven by authorized employees only, except in emergencies or in case of repair testing by a licensed mechanic. Spouses and other family members are not authorized to drive B&N vehicles
2. Any B&N employee who has a driver's license revoked or suspended shall immediately notify their supervisor and discontinue operation of the B&N vehicle. Failure to do so may result in disciplinary action up to and including termination of employment
3. Drivers must immediately report to their supervisor any summonses received for moving violations during operation of any B&N owned, leased/rented, or car allowance vehicles
4. Drivers must report all accidents, regardless of severity, to the police and B&N Supervisory personnel
5. Motor vehicle records (driver's abstracts) will be ordered periodically to assess employee's driving records and an unfavourable record will result in a loss of the privilege of driving a B&N vehicle
6. Proof of valid license for class of vehicle being operated
7. Proof of insurance coverage for allowance B&N provided vehicles

The following system will be used to determine eligibility to operate a B&N vehicle:

1. All type 'a' violations (as defined below) will result in termination of driving privileges for employees and will disqualify any potential drivers.
2. Any drivers (employees or applicants) showing one of the following will be restricted from driving B&N vehicles:
 - a. One (1) or more type 'A' Violations in the last 3 years
 - b. Three (3) or more accidents (regardless of fault) in the last 3 years.
 - c. Three (3) or more type 'B' violations in the last 3 years
 - d. Any combination of accidents and type 'B' violations which equal Four (4) or more in the last 3 years

Type 'A' Violations:

1. Driving While Intoxicated with Drugs or Alcohol
2. Negligent Homicide Arising out of the use of a Motor Vehicle (gross negligence)
3. Operating During a period of Suspension or Revocation
4. Using a Motor Vehicle for the Commission of a Felony
5. Aggravated Assault with a Motor Vehicle
6. Operating a Motor Vehicle Without the Owners Authority (grand theft)
7. Permitting an Unlicensed Person to Drive
8. Reckless Driving
9. Speed Contest (racing)
10. Hit and Run (Bodily Injury or Property Damage)

Type 'B' Violations:

All Moving Violations not listed as type 'A' Violations including but not limited to:

1. Speeding
2. Using a hand held device
3. Driving without insurance or with expired proof of insurance
4. Failure to stop at red lights or stop signs
5. Failing to yield to pedestrians or emergency vehicles
6. Failure to obey posted traffic signs and road lines

B&N DRIVER SAFETY RULES

1. The use of a company vehicle while under the influence of intoxicants and other drugs is forbidden and is sufficient cause for discipline up to and including termination of employment
2. B&N when in the capacity of the consignor, carrier, consignee or other person must not request, require, or allow a driver to drive if the driver's faculties are impaired by fatigue, illness, injury, prescription medication or a mental or physical infirmity
3. B&N shall not permit any employee to drive that may jeopardize or be likely to jeopardize the safety or health of the public, the driver or the employees of the carrier
4. All drivers/passengers operating or riding in B&N vehicles must wear seat belts at all times
5. No unauthorized personnel (e.g. hitch-hikers) are permitted to ride in B&N vehicles
6. Drivers are responsible for security of B&N vehicles assigned to them. Vehicle engine must be shut off, ignition keys removed and vehicle doors locked whenever vehicle is left unattended. If vehicle is left with a parking attendant, only ignition key is to be left
7. Head lights shall be used ½ hour after sunset and ½ hour before sunrise, during inclement weather or at any time when light is limited
8. Vehicle operators must perform pull-through parking; pulling through a space, so the vehicle is facing outwards in the next space, when available. Backing into a parking space shall be performed when a pull-through technique is not practicable.
9. All other appropriate Provincial and Federal vehicle legislation must be obeyed

INSPECTION SCHEDULES

Commercial Motor Vehicles Over 4,500 Kg GVRW

Trucks, tractors, vehicles and trailers are required to be inspected every day when they are used prior to operating it at the beginning of a work shift. The inspections conducted daily by the driver are called daily inspections or trip inspections.

When an inspection is conducted, the driver must complete and sign an inspection report and carry the correct inspection schedule (vehicles over 4,500 kg Gross Vehicle Rated Weight (GVRW)). These inspections work with the maintenance and repair schedule to keep the vehicles safe.

Commercial Vehicles over 4,500 kg GVRW): It's an offence to operate any vehicle unless it has been inspected as required by the appropriate Provincial and Federal vehicle legislation. Legislation in each province is revised to adopt the National Safety Code (NSC).

Inspection requirements include a specific list of inspection items that must be on and ensure the drivers follow the appropriate schedules. The schedule is issued by B&N and the driver follows the schedule for inspection and it has to be carried by the driver at all times. When requested, the schedule must be given to the appropriate Provincial Transportation Authorities.

For trucks, tractors and trailers there may be 23 or more systems that need to be inspected. Each of these areas has a list of defective conditions. Drivers must be able to find the conditions on their schedule, if they are present, by conducting a visual inspection. The list of inspection reference numbers must be used when recording any defects.

B&N can have someone other than the driver of the vehicle completes the Daily Passenger Vehicle Pre-Trip Inspection Checklist & Reporting Form. Any driver who accepts an inspection report completed by another person must also sign the report. The inspection report must be carried by the vehicle driver.

An inspection report is valid for 24 hours.

B&N Vehicles under 4,500 kg GVRW

B&N owned, leased/rented, or car allowance vehicles must be inspected at the beginning of each work shift. Inspection requirements include a specific list of inspection items to assist the driver in completing their B&N vehicle inspection. The owner's manual is to be referenced for instructions on the safe condition of these items and corrective actions to be taken as required. The maintenance department, owner's manual or qualified service center can assist with answering any specific inspection questions.

DAMAGE OR DEFECTS

Damage or defects are conditions that need to be reported and repaired but may not be an immediate threat to safety. These are conditions that may cause a vehicle to fail a safety inspection. These may include but not limited to:

1. Dents, scrapes or abrasions to the body of the vehicle
2. Windshield cracks or damage
3. Lighting systems out or not functional
4. Malfunction of controls or gauges
5. Rips or tears in fabric or lining of the vehicle
6. Tire condition or wear

Commercial Vehicles over 4,500kg GVRW

Major defects are conditions that are hazardous and will affect the safe operation of a truck, trailer or tractor. Major defects are the same as the "Out of Service" conditions used by many appropriate Provincial Transportation Authorities. So, whether a truck driver or an enforcement officer finds a major defect, the vehicle will be out of service.

No B&N driver shall exceed thirteen (13) hours of driving time in a single day. After a driver has accumulated 13 hours of driving time in a day, the driver shall not drive again on the same day. After a driver has accumulated 14 hours of on-duty time in a day, the driver shall not drive again on the same day.

All B&N drivers must complete a logbook while operating commercial vehicles.

Reporting Defects

The regulations allow many different methods for reporting "defects". They generally need to be reported and repaired within a 24-hour period but the actual period can be longer or shorter than 24 hours depending on the circumstances around the repair and availability of parts.

Major defects must be reported immediately to the B&N Operations Manager or designate. The vehicle cannot be operated with a major defect; carriers need to have a system for dealing with them. Truck drivers must have a way of communicating with the B&N to inform them of the major defect.

Passenger Vehicles under 4,500 GVRW

An unsafe condition is any condition that places the vehicle in violation under the Appropriate Provincial and Federal vehicle legislation, unsafe conditions must be identified as soon as possible, reported to the supervisory personnel and repairs be completed at a registered and qualified vehicle service center.

DEFENSIVE DRIVING RULES

1. Drivers must maintain safe following distance at all times
2. Drivers of all B&N vehicles must drive according to the current weather conditions of the road and maintain safe distances to allow for sudden or emergency stops
3. Drivers must yield the right of way when directed by posted signs or to pedestrians and bicycles on the roadway at all times
4. Turning indicators must be used while performing any turn or lane changes
5. When passing or changing lanes, view the entire vehicle in your rear-view mirror before pulling back into that lane
6. Avoid driving in other driver's blind spots, attempt to maintain eye contact with other driver, either directly or through mirrors
7. Drivers must honor posted speed limits
8. In adverse driving conditions, reduce operating speed that is consistent with the conditions of the road, weather, lighting, and volume of traffic
9. Be alert of other vehicles, pedestrians, and bicyclists when approaching intersections
10. Never speed through an intersection on a caution light. Approach a stale green light with your foot poised over the brake to reduce your reaction time should it be necessary to stop. When the traffic light turns green, look both ways for oncoming traffic before proceeding
11. Avoid backing where possible, but when necessary keep distance traveled to minimum and be particularly careful
12. When waiting to make left turns, keep wheels facing straight ahead. If rear-ended, you will not be pushed into oncoming traffic
13. When stopping behind another vehicle, leave enough space so you can see the rear wheels of the car in front. This allows room to go around vehicle if necessary, and may prevent you from being pushed into the car in front if you are rear-ended
14. Check behind your vehicle - heavy truck operators should walk around vehicle before backing and have a competent traffic control person to guide during reversing
15. Do not back around a corner or into an area of no visibility

IN THE EVENT OF A VEHICLE ACCIDENT

In an attempt to minimize the results of an accident, the driver must prevent further damages or injuries and obtain all pertinent information and report it accurately.

1. Call for medical aid if necessary
2. Secure accident scene - pull onto shoulder or side of road, redirect traffic, set up road reflectors, etc.
3. Call the police. All accidents, regardless of severity, must be reported to the police. If the driver cannot get to phone, he should write a note giving location to a reliable appearing motorist and ask him to notify the police
4. Record names and addresses of driver, witnesses, and occupants of the other vehicles and any medical personnel who may arrive at the scene
5. Complete the Incident Investigation Report - **FORM 8.1.** – Incident Investigation Report
6. Pertinent information to obtain includes:
 - a. License number of other drivers
 - b. Insurance company names and policy numbers of other vehicles
 - c. Make, year, model of other vehicles
 - d. Date and time of accident
 - e. Overall road and weather conditions
 - f. Draw a diagram of the accident scene and note the street names and locations of traffic signs, signals, etc.
7. Do not discuss the accident with anyone at the scene except the police, accept any responsibility for the accident or argue with anyone

8. Provide the other party with your name, address, phone number, driver's license number and insurance information
9. Immediately report the accident to the B&N supervisory personnel and provide a copy of the Incident Investigation Report and/or your written description of the accident as soon as possible
10. Cooperate fully with any follow-up from the Insurance claims personnel

PASSENGER VEHICLE MAINTENANCE

Proper vehicle maintenance is a basic element of any fleet safety program, not only to ensure a safe, road worthy vehicle, but also to avoid costly repair expenses and unexpected breakdowns.

The vehicle should be cleaned (interior & exterior) regularly to help maintain its good appearance for you and B&N. A clean vehicle makes a good impression on customers.

Vehicle manufacturer's maintenance schedule should be referenced and closely following regarding recommended maintenance intervals provided by a registered and qualified vehicle service center.

ENFORCEMENT OF NATIONAL SAFETY CODE (GVRW OVER 4,500 KG)

Both B&N and the driver are responsible for compliance with the National Safety Code and either or both can be charged by the enforcement officers for non-compliance.

40.1.5. RELATED FORMS

FORM 40.1. – Daily Passenger Vehicle Pre-Trip Inspection Checklist & Reporting Form

FORM 8.1. – Incident Investigation Report

41.00 VEHICLE OPERATION - LOGISTICS

VEHICLE OPERATION – LOGISTICS

41.1.1. PURPOSE

The purpose of the Vehicle Operation – Logistics Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with vehicle operation within Biggs & Narciso Construction Services Inc. (B&N).

41.1.2. SCOPE

The Vehicle Operation – Logistics Program applies to all employees who are responsible for operating a vehicle on behalf of B&N.

41.1.3. RESPONSIBILITIES

B&N Responsibilities:

1. Provide a safe workplace and safe systems of work
2. Provide information to employees relating to the hazards they may be exposed to
3. Eliminate or place controls in place of any known hazards
4. Ensure the Vehicle Operation – Logistics program is implemented at all B&N locations

National Fleet & Equipment Manager Responsibilities:

1. Establish maintenance schedules
2. Maintain vehicle, equipment and driver's files
3. Maintain all records at the Provincial place of business or head office as authorized by the Registrar,
4. Records must be maintained in good condition for a minimum of 12 months after the day the record was made
5. Prioritization of maintenance and repair work
6. Ensure the efficient and effective operation of resources
7. Maintain parts inventory
8. Ensure the training of maintenance personnel
9. Ensure compliance of maintenance personnel to the Appropriate Provincial Health & Safety Legislation, and B&N policies and procedures
10. Ensure the collection and analysis of maintenance records within B&N regional jurisdictions

Worker Responsibilities:

1. Comply with all B&N policies and procedures relevant to operating vehicles, handling and/or stowing freight
2. Operate vehicles safely and efficiently by following B&N requirements and all posted notices and warnings
3. Ensure that there is assistance of a signaler in the case of an obstructed view of the intended path of travel, when reversing on site or near power lines where contact could occur or when a person could be endangered by the vehicle or its load
4. Assist fellow employees, when required, in the loading and unloading of the vehicle.
5. Comply with good housekeeping practices
6. Use extreme care when opening rear doors of trailers or roll-off boxes.
7. Ensure appropriate use of a tarpaulin
8. Ensure that all equipment used is in good working order
9. Ensure appropriate documentation is completed for the transportation of materials

10. Wear appropriate Personal Protective Equipment (PPE) as required on all B&N sites, customer premises or as defined in the site-specific health and safety plan (HASP)
11. Report immediately to the Supervisor any overages, shortages or damages to freight
12. Report immediately to the Supervisor, any equipment requiring repairs and/or for assessment of appropriateness
13. Follow B&N's Vehicle Policy

41.1.4. PROCEDURE

GUIDING PRINCIPLES

It is the policy of B&N to make available to certain executives, managerial, sales and operations employees a company leased or company owned vehicle. B&N reserves the right to terminate this program or terminate the participation of persons in this program at any time without notice or explanation. In order to operate a company vehicle, B&N requires that an employee have an appropriate class of license for the vehicle and clean drivers' abstract and be authorized by company management to operate the company vehicle. Further to this, employees have the responsibility of maintaining a company vehicle in good and safe operating condition according to B&N recommendations and procedures.

Any employee operating their own personal vehicle for authorized company business must have an appropriate class of license for the vehicle being operated and appropriate insurance coverage for operating a personal vehicle for business use.

Employees operating any company vehicle must not use any electronic device including iPod, cellular device or MP3 player while in the operation of that vehicle. Employees are strictly prohibited from being in possession of and / or consumption of alcohol, illegal drugs, or the misuse of prescription drugs while operating company leased or owned vehicles or while operating personal vehicles for company business. Bluetooth enabled equipment is permitted if it is properly paired and safe to use during your travel in a hand free manner.

Where a motor vehicle is operated on a grade or ramp, traffic control procedures shall be established including provision for the control of emergency situations as defined in the site-specific HASP. Where a motor vehicle is disabled or parked in the traveled portion of a roadway, a warning to approaching traffic shall be provided by any of the following;

1. Flashing lights
2. Reflectors
3. Lamps, or
4. A worker suitably equipped with a reflective traffic vest to be readily seen, who directs traffic approaching the area.

Mining Operations

A motor vehicle in a mine shall be equipped with wheel chocks that comply with Society of Automotive Engineers Standard SAE J 348:1990 Wheel Chocks. The wheel chocks shall be used to block movement whenever the vehicle is left unattended on a slope or is being maintained or repaired.

REPORTING A COLLISION

When the driver of a company owned vehicle is involved in a collision involving property, vehicle or personal injury, the driver must follow these guidelines.

1. Driver must, at the first opportunity, call their immediate supervisor
2. Once the driver makes contact with the supervisor, the driver or supervisor must notify the National Fleet & Equipment Manager or designate
3. If required, 911 or non-emergency police number shall be called. For minimal vehicle damage to either party, the driver may be directed to report the incident to the reporting center closest to the area of the incident. Call fire rescue or ambulance if required
4. Driver to use the provided disposable camera or cellular device camera to capture any markings on the road (skid marks), damage to vehicles, any unusual circumstances, etc.
5. If the vehicle is in the intersection, warn approaching traffic to prevent further collisions:
 11. Use vehicle hazard lights
 12. Use reflective triangles, if possible; and
 13. Be patient when crossing the roadway or stopping traffic – this can be dangerous
6. Co-operate with all authorities
7. Provide information and obtain information from the other party or parties as required on **FORM 8.1. – Incident Investigation Report**
8. **FORM 8.1. – Incident Investigation Report** shall be completed and returned with the Police Report to the Supervisor. Ensure that all questions are answered
9. Every person required to make a report shall, as soon as possible in the circumstances, take all reasonable emergency measures to reduce or eliminate any danger to public safety that results or may reasonably be expected to result from collision

TRUCK OPERATION GUIDELINES

1. All employees driving a vehicle for commercial business must ensure that they comply with the National Safety Code for Motor Carriers
2. Each truck driver must conduct daily vehicle trip inspections and report, in writing, all apparent safety-related defects on each vehicle operated
3. Each item listed in the driver's inspection report must be repaired or certified that it is not a safety hazard by the carrier to comply with the Commercial Vehicle Maintenance Standards. This report must be carried in the vehicle
4. B&N must not operate, cause or permit to be operated any vehicle for the transportation of freight unless the construction and equipment of the vehicle and the manner in which freight is loaded and secured so the vehicle can be operated safely
5. Every driver must hold a drivers license issued by the province valid for the class of vehicle being operated
6. Every truck driver must meet the approved medical standards
7. A driver must not operate a commercial vehicle in violation of the Hours of Service (HOS) Regulations.
8. Drivers must follow appropriate load security guidelines
9. Every driver must ensure that the vehicle is loaded such that the total dimensions, total weight and the weight on each axle are within the limits authorized by the jurisdictions in which the vehicle is being operated
10. Each employee will ensure three-point contact when entering or exiting a vehicle
11. A tire service company will be hired for all disassembly and reassembly of a tire or wheel assembly in accordance with the manufacturer's specifications. A driver is not permitted to perform this task
12. All heavy trucks & heavy equipment must have an automatic audible warning device which activates whenever the equipment controls are positioned to move the equipment in reverse, and if practicable, the audible warning device can be heard above the ambient noise level
13. Any driver who may be endangered during the loading of a vehicle shall vacate the vehicle.
14. Non-employee passengers are not permitted in company trucks / tractors

15. Training will include: hours of service, daily trip inspection, weights and measures, load securement, Transportation of Dangerous Goods (TDG) and defensive driving
16. Mobile equipment must be equipped with (a) an audible warning signal; (b) a means of illuminating the path of travel at any time when, because of insufficient light or unfavourable atmospheric conditions, (c) adequate illumination of the cab and instruments; and (d) a mirror providing the operator with an undistorted reflected view to the rear of the mobile equipment.
17. No person shall fill the fuel tanks of mobile equipment with gasoline or vaporizing liquids (a) while the engine is running; (b) while a person is smoking in or about the equipment; or (c) while there is a known source of ignition in the immediate vicinity.

Mining Operations

Haulage roads on surface shall be designed, constructed, and maintained to:

1. Minimize hazards from the slipping or skidding of vehicles
2. Enable vehicles to pass each other safely
3. Avoid steep grades wherever practical

The open side of a ramp haulage road in a surface mine shall be provided with a suitable protective manner.

MAINTENANCE

The maintenance department must carry out preventive maintenance in accordance with established schedules. This will minimize equipment repairs and downtime.

Power Units, Trailers & Heavy Equipment

Preventive Maintenance

1. On receipt of new equipment, the National Fleet & Equipment Manager or designate issues a unit reference number, creates a file that contains its specifications and unique references and raises a pre-release inspection work order. The Maintenance Supervisor adjusts the parts inventory, where necessary, and places orders with suppliers
2. The National Fleet & Equipment Manager or designate adds the unit to the equipment database on the computer including the Preventive Maintenance (PM) schedule based on the manufacturer's recommendations, applicable regulations and previous experience with similar equipment
3. The Maintenance Department ensures completion of the initial PM Service Record inspections for the Power Unit PM Service Record, Trailer PM Service Record, the 250 hour PM Service Record, and the Lift Truck 200 hour PM Sheet. The National Fleet & Equipment Manager or designate and the Maintenance Supervisor resolve any warranty problems with the supplier
4. On a regular basis, the Maintenance Supervisor obtains the odometer or hour meter reading of the unit and schedules the unit for maintenance
5. Once a year, all on-the-road equipment is inspected as per provincial guidelines and an "Annual Inspection Certificate" issued by a competent service provider
6. Once a year, all B&N lift trucks and Powered Elevating Work Platforms (PEWP) must have annual lift device inspections completed per the Appropriate Provincial Health & Safety Legislation
7. Pre trip inspections are carried out by the truck drivers and recorded on the Drivers Vehicle Inspection
8. The driver converses with the Maintenance Department where there are defects that cannot be repaired by the driver. The Maintenance Department will either give the driver permission to drive the truck with "minor", "non-safety" defects or will make the necessary repairs or arrange to have the repairs made by an approved outside repair facility

Repairs

In the case of equipment breakdown, the Maintenance Supervisor arranges for the work to be carried out and records the work and replacement parts in his records.

PREVENTATIVE MAINTENANCE (PM)

Demolition / Heavy Equipment

1. On receipt of new equipment, the department supervisor determines a maintenance schedule based on the manufacturer's recommendations, applicable regulations and previous experience of similar equipment and prepares a PM Schedule.
2. The supervisory personnel will ensure all necessary training is provided to operators on how to carry out the maintenance and to complete the maintenance record.
3. The operator carries out the prescribed maintenance and completes the documentation.
4. The supervisory personnel will check periodically that the maintenance is being carried out and that the forms are being filled in correctly. The Maintenance Supervisor retains all completed forms and documentation of the PM activities.

Company Vehicles

All company owned vehicles will be recorded on the PM inventory list. B&N has a corporate program for approved service, maintenance and fuel providers. The maintenance schedule that will be followed will be the manufacturer's suggested preventive maintenance program outlined within the owner's manual.

The preference is that maintenance will be conducted at an approved and qualified facility. Alternate arrangements may be made depending on the physical location of the driver.

It is the responsibility of the National Fleet & Equipment Manager or designate to review the company PM program on an annual basis. This allows for an opportunity for program improvements.

Recommendations that develop as a result of the annual review or throughout the year will be documented and submitted to senior management. The National Fleet & Equipment Manager or designate will follow-up on any recommended corrective actions for completion from senior management.

B&N company vehicle operators are responsible to ensure services to the company vehicles are performed in a timely manner and through approved facilities. Major repairs are to be provided through an approved service provider and approved by fleet services and/or the National Fleet & Equipment Manager or designate.

DRIVERS' RECORDS

All driver records shall be kept for a minimum of 7 years. These records will be made available by the employer to an inspector upon request. B&N will keep at the place of business a file containing all relevant training records, compliance documents and employment information including:

1. Driver's date of employment
2. Commercial Vehicle Operator's Registration abstracts and public abstracts
3. Disciplinary notices
4. Copy of their driver's license
5. All records required to operate a company motor vehicle within the appropriate jurisdiction
6. Records of accidents, damages, violations, etc.
7. Application form
8. Medical or drug testing, as required

41.2.5. RELATED FORMS

FORM 8.1. – Incident Investigation Report

41.00 VEHICLE OPERATION - LOGISTICS

USE OF CELLULAR PHONES / MOBILE COMMUNICATIONS EQUIPMENT

41.2.1. PURPOSE

Communication devices are necessary tools for employees to successfully complete many tasks throughout the work day. Communication devices are defined as cellular phones, two-way radios, blackberries, mobile phones, computers, iPhones, text pagers, and other wireless devices. The safety of Biggs & Narciso Construction Services Inc. (B&N) employees, the general public, property and the environment must be considered when potential distractions may inadvertently minimize personal safety and safe operating of equipment.

41.2.2. SCOPE

This policy applies to all B&N employees, sub-contractors, consultants, temporary workers and other workers including all personnel affiliated with third parties, who work at a B&N location. This policy covers all cell-phones whether owned by B&N or the employee. All employees who are driving any vehicle on work-related business, regardless of whether the vehicle is owned by B&N or the worker are prohibited from using communication devices. Violation of this policy, in full or part could result in disciplinary action up to and including termination.

41.2.3. RESPONSIBILITIES

B&N Responsibility:

- Provide a comprehensive policy and procedure regarding the use of hand-held communication devices
- Ensure compliance with this policy
- Not allow anyone to provide direction to an employee that would contradict this B&N policy or the provincial laws regarding the use of hand-held communication devices
- At their discretion, they may make available hands-free hearing equipment to the employees with B&N issued hand-held communication devices

Supervisor Responsibility:

- Communicate and enforce communication devices policy
- Provide direction on work-site specific rules regarding the use of hand-held communication devices as defined by the site specific health and safety plan (HASP)
- Manage non-compliance performance by means of the B&N progressive disciplinary process

Worker Responsibility:

- Maintain their company issued cellular phones, two-way radios or pagers in good working condition. Any defects or operational concerns of the communication device should be brought to the attention of the Supervisor for resolution
- Make safe operation of any mobile equipment or motor vehicle their first priority
- Make good judgment decisions regarding the use of communication devices when in a moving motor vehicle or mobile machinery
- Stop the machine or motor vehicle they are driving when possible prior to using the communication device
- Do not back up / reverse any equipment or motor vehicle while talking on a “hands-free” communication device or hand-held communication device
- Comply with client specific policies regarding use of hand-held wireless communication devices while on a job site

- Stop performing their task, ie; walking through a warehouse, climbing stairs, while using a hand-held wireless communication device, whenever possible
- Stop and stand in a safe area and then proceed with the use of their communication device
- Use personal hand-held wireless communication and entertainment devices ONLY during company provided breaks and lunches
- Pay for any fines imposed by law enforcement
- Should turn them off or leave them in the vehicle or office when working in potentially gaseous atmospheres such as during the refueling of a vehicle or mobile equipment or installing a propane cylinder

41.2.4. PROCEDURE

GUIDING PRINCIPLES

Communication devices give us the ability to communicate virtually anywhere, including in vehicles and mobile machinery. These devices, along with other activities not related to driving, may distract an employee. These tasks being performed whether it is driving a vehicle, operating a lift truck or as simple as walking through an office or warehouse may affect the safety of employees, the general public, property. The working environment must be considered when potential distractions may inadvertently minimize personal safety and safe operating of equipment.

Prohibited Uses

The following list outlines situations that are prohibited when an employee is operating a B&N vehicle or operating a personal vehicle while on work-related business:

- No employee shall drive a motor vehicle on a public roadway if the display screen of a television or computer in the motor vehicle is visible to the driver
- No employee shall drive a motor vehicle on a public roadway while holding or using a wireless hand-held wireless communication device or other hand-held device that is capable of receiving or transmitting telephone communications, electronic data, mail or text messages
- No employee shall drive a motor vehicle on a public roadway while holding or using a hand-held electronic entertainment device where the primary use of which is unrelated to the safe operation of the motor vehicle
- No employee shall text, type emails, read emails, take pictures, watch videos, or play games while operating a motor vehicle or equipment
- Where client specific policies prohibit the use of hand-held communication devices, all B&N employees shall comply with these client policies and procedures

Allowed Use

The following list outlines situations that are allowed when an employee is operating a B&N vehicle or operating a personal vehicle while on work-related business:

- An employee may drive a motor vehicle on a public roadway while using a wireless communication device if the device is not being held in the employee's hand and the device is in hands-free mode using a hands free microphone, headset or an earpiece with a Bluetooth device. The employee is allowed to press the button of a hand-held device to activate hands-free mode for incoming or outbound calls
- An employee may use a hand-held wireless communication device to contact ambulance, police or the fire department emergency services while operating a motor vehicle and the device is in hands-free mode
- An employee may use a hand-held communication or entertainment device if the motor vehicle is off the roadway or is lawfully parked on a roadway, the motor vehicle is not in motion, and the motor vehicle is not impeding traffic
- GPS (Global Positioning System navigation device) can be used to provide navigation information only if the GPS is in a holder attached to the motor vehicle or is not required to be hand-held

- A logistical transportation tracking system device can be used for commercial purposes to track vehicle location, driver status or the delivery of packages or other goods
- A collision avoidance system device can be used that has no other function than to deliver a collision avoidance system
- An instrument, gauge or system that is used to provide information to the driver regarding the status of various systems of the motor vehicle

It is important to note that drivers who place others at risk as a result of using a hands-free device can still be charged with careless driving and face fines, 6 demerit points, driver's license suspension and possible jail time.

Non-compliance with this policy will result in disciplinary measures up to and including dismissal, depending on the circumstances.

42.00 TRANSPORTATION OF DANGEROUS GOODS

TRANSPORTATION OF DANGEROUS GOODS

42.2.1. PURPOSE

The purpose of the Transportation of Dangerous Goods (TDG) Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the Transport of Dangerous Goods by Biggs & Narciso Construction Services Inc. (B&N) employees.

42.2.2. SCOPE

TDG regulations apply to:

- All B&N modes of transport: highway, rail, marine and air
- All B&N persons involved in the transportation process: consignors, carrier, and consignees
- In all jurisdictions: federal, provincial and municipal

42.2.3. RESPONSIBILITIES

B&N Responsibilities:

1. Ensure all applicable employees receive proper training
2. Ensure that all employees who perform tasks comply with the TDG regulations
3. Do not create a danger to the public
4. Know how to take reasonable measures in event of a spill
5. Have a means of communication while transporting materials under the TDG regulations
6. If you are carrying dangerous goods in a B&N vehicle, or for B&N business, you may have the responsibility of the consignor, carrier or consignee

B&N Management Responsibilities:

- Shall not direct or allow an employee to handle TDG products unless the employee is adequately trained and holds a training certificate or performs those activities under the direct supervision of a person who is adequately trained and who holds a training certificate
- Offer for transport or transport dangerous goods unless the employee is adequately trained

Consignor / Shipper Responsibilities:

- Must be able to produce a copy of any shipping document for two years after the date the shipping document or an electronic copy of it was prepared or given to a carrier by the consignor
- Must be able to produce a copy of any shipping document for two years for dangerous goods imported into Canada from the date the consignor ensured that the carrier, on entry into Canada, had a shipping document or an electronic copy of one at you home B&N location
- Must be able to produce a copy of any shipping document within 15 days after the day on which the consignor receives a written request from an inspector

Carrier / Driver Responsibilities:

1. Shall review the document before accepting it, sign the document, attach placards if required
2. Who transported the dangerous goods must be able to produce a copy of the shipping document that related to the dangerous goods and was required to be in the possession of that carrier while the dangerous goods were in transport
3. Must be able to produce a copy of any shipping document for two years after the date the dangerous goods are no longer in transport
4. Must be able to produce a copy of any shipping document within 15 days after the day on which the carrier receives a written request from an inspector

Consignee / Receiver Responsibilities:

- Shall report "Dangerous Occurrences" resulting during unloading, and retain a copy of the shipping document for the period of two (2) years.

42.2.4. PROCEDURE

TRANSPORTATION OF DANGEROUS GOODS (TDG)

GUIDING PRINCIPLES

A substance is classified as a dangerous good if it meets the certain criteria set out in the Hazardous Products Act.

The transportation of dangerous goods is enforced on the highway and in the workplace by the Transport Canada, and all other Appropriate Provincial Health & Safety Authorities.

Inspector Authorities

Inspectors have the power to:

- Inspect vehicles and shipments
- Request and inspect documentation
- Search, seize and hold goods and transportation units
- Take samples
- Make copies of documentation
- Refuse entry of illegal shipments
- Issue summons for all violations

Dangerous goods regulations can be enforced for compliance by the RCMP officers, local police officer, weigh scale operators, border officers, and Provincial & Federal inspectors. Each inspector is furnished with a certificate of designation as an inspector, showing the purposes, classes of dangerous goods, means of transport and building or places for which the inspector has been designated.

When requested, every person shall give an inspector all **reasonable assistance** to enable the inspector to carry out their duties and function under this act.

No person shall:

- Fail to comply with any reasonable request of an inspector
- Knowingly make any false or misleading statement either orally or in writing to an inspector
- Except with the authority of the inspector, remove, alter or interfere in any way with anything seized or removed by the inspector, or

- Otherwise obstruct or hinder the inspector

If there is anything that you do not understand, please **ask your supervisor.*

Penalties:

Within Canada, the Act and Regulations cover a massive number of products and substances, which can have a significant impact on the general public, property and the environment. The penalties for non-compliance under this act are stringent.

Contraventions and non-compliance with this Act

Anyone that has been found guilty of an offence can be fined up to:

- \$50,000 for a first offence, and not exceeding
- \$100,000 for each subsequent offence; In addition, imprisonment for a term not exceeding 2 years is provided for in the Act

Court Order

Where a person is convicted of an offence, the court may make an order having any of the following effects:

- a. prohibiting the person for a period of not more than one year from engaging in an activity regulated under this act
- b. requiring the person to provide compensation , whether monetary or otherwise, for any remedial action taken or damage suffered by another person arising out of the commission of the offence
- c. requiring the person to do anything that will assist in repairing any damage to the environment arising out of the commission of the offence
- d. requiring the person to conduct programs of technical research and investigation into the development and improvement of safety marks, safety requirements and safety standards , or to pay an amount in the manner prescribed to be used to conduct research

Limited period for summary conviction offences

Proceedings by way of summary conviction may be instituted at any time within, but not later than, two years after the day on which the subject – matter of the proceeding arose.

Continuing Offence

Where an offence is committed or continued on more than one (1) day, the person who committed the offence is liable to be convicted for a separate offence for each day on which the offence is committed or continued.










Officers in a Corporation

Where a corporation commits an offence, an officer, director or agent of the corporation who directed, authorized, assented to, acquiesced in or participated in the commission of the offence is a party to and guilty of the offence and is liable on conviction to the punishment provided for the offence, whether or not the corporation has been prosecuted for the offence.

Defense

No person shall be found guilty if it is established that the person took all reasonable measures to comply with this Act or to prevent the commission of the offence.

TDG Placards / Labels

	<p>Class 1 - Explosives</p> <p>Not WHMIS Controlled Product. Regulated under Explosive Act of Canada. Special permits and training required for use and storage.</p>
	<p>Class 2 - Compressed Gas</p> <p>WHMIS labelling also required. Compressed gases can be flammable, oxidizing, non-flammable or poisonous.</p>
	<p>Class 3 - Flammable Liquids</p> <p>WHMIS labelling also required.</p>
	<p>Class 4 - Combustible Solids</p> <p>WHMIS labelling also required. Can be flammable solid, spontaneously combustible or dangerous when wet.</p>
	<p>Class 5 – Oxidizers</p> <p>WHMIS labelling also required.</p>
	<p>Class 6 – Poisonous</p> <p>WHMIS labelling also required. Can be poisonous or infectious materials.</p>
	<p>Class 7 – Radioactive</p> <p>Not WHMIS Controlled Product. Regulated by the Atomic Energy Control Act. Special permits and training required for use and storage.</p>
	<p>Class 8 – Corrosive</p> <p>WHMIS labelling also required.</p>
	<p>Class 9 – Miscellaneous</p> <p>WHMIS labels may be required. Dangerous waste products are in this class for transportation.</p>

Marine Pollutants

- a. Elevated temperature materials

Training

B&N employees who perform tasks according to the TDG regulations must have training in;

- The aspects of the regulations that relate to their duties
- Classification
- Documentation
- Labels
- Placards: use and removal
- Package specification
- Emergency response assistance planning
- Safe handling procedures
- Reporting accidental releases
- Reasonable emergency procedures
- Procedures to reduce or eliminate the danger to the public in the event of an accidental release

Classification

The classification of dangerous goods includes its Shipping Name, Class(es), United Nations (UN) Number and packing group. There is also a compatibility group for explosives, a category for infectious substances and a category for radioactive materials.

The Consignor is Responsible:

- To determine the classification of the dangerous goods before allowing a carrier to take possession of dangerous goods for transport
- To ensure that the goods have the correct classification before they are transported into Canada
- To use a classification that was determined by
 - a. For Class 1, Explosives, the Chief Inspector of Explosives, Department of Natural Resources
 - b. For Class 6.2, Infectious Substances, the Director, Office of Biosafety, Health Canada, or the Director, Biohazard Containment and Safety, Canadian Food Inspection Agencies
 - c. A previous consignor of the dangerous goods; or
 - d. The manufacturer
- To use the appropriate classification in the International Civil Aviation Organization (ICAO) Technical Instructions, the International Maritime Dangerous Goods (IMDG Code) or the UN Recommendations to transport dangerous goods within Canada by a road vehicle, a railway vehicle or a ship on a domestic voyage if these Regulations or the document from which the classification is taken does not forbid their transport
- To identify when an error in classification is noticed or if there are reasonable grounds to suspect an error in classification, the consignor must not allow a carrier to take possession of the dangerous goods for transport until the classification has been verified or corrected

A carrier who notices an error in classification or has reasonable grounds to suspect an error in classification while the dangerous goods are in transport must advise the consignor and must stop transporting the dangerous goods until the consignor verifies or corrects the classification. The consignor must immediately verify or correct the classification and ensure that the carrier is provided with the verified or corrected classification.

A person may be both a consignor and a carrier of the same consignment, for example, a manufacturer who also transports the dangerous goods he or she produces.

Consignor Responsibilities

Before allowing a carrier to take possession of dangerous goods for transport, the consignor must prepare and give to that carrier a shipping document or, if the carrier agrees, an electronic copy of the shipping document.

When dangerous goods are imported into Canada, the consignor must, before the dangerous goods are transported in Canada, ensure that the carrier has a shipping document or, with the agreement of the carrier, an electronic copy of the shipping document that contains the information required by these Regulations.

Shipping Document

The requirement to produce a shipping document does not apply to a carrier who is involved only in handling the dangerous goods, including storing them in the course of transport.

Filing of Documents

The shipping documents referred to in this section may be kept as electronic copies. The consignor and carrier must retain the shipping document for 24 months after the date the document was prepared. The carrier or consignor must be able to produce the document with 15 days on which the carrier receives a written request from an inspector.

Emergency Response Assistance Plan (ERAP)

Some dangerous goods in certain quantities are more dangerous than others. For those products, the consignor must file and possess an approved Emergency Response Assistance Plan (ERAP) with Transport Canada. This number must be present on the shipping document. An ERAP is required when the quantity shipped exceeds a certain limit set out in schedule 1.

The ERAP must be established by the person offering the goods for transport, or by the person importing them into Canada. The ERAP will describe the goods, the means of containment for the shipment, the geographical area covered, and emergency response capabilities.

A consignment is a quantity of dangerous goods and its means of containment. Consignments packed together in a carton, a box or other container, are called an accumulation of consignments.

Packaging

General Requirements

- Means of Containment (MOC) are:
 - Small if less than or equal to 450 L
 - Large if more than 450 L in capacity
- MOC must:
 - Be standardized (UN approved)
 - Not be overfilled
 - Compatible with the contents

The consignor's main responsibilities for packaging are to:

- Select the appropriate packaging (compatibility, packing group and filling limit)
- Do not use packages if unsafe or not compliant

The carrier's main responsibilities for packaging are to:

- Verify appropriate packaging
- Do not transport packages if unsafe or not compliant

Standardized Packaging

- UN specification packaging requires performance testing of all aspects and applying tests to the entire package
- When using UN packaging, ensure that packaging is approved for correct packing group, all weight or filling limits are observed, and manufacturer's instructions are followed.

Safety Marks

A safety mark is a label, placard, orange panel, sign, mark, number or word that is used to identify dangerous goods and to show the nature of the danger posed by them, ie; placards. A person must not offer for transport, transport, or import a means of containment that contains dangerous goods unless each dangerous goods safety mark is displayed on it.

Safety marks must be displayed:

- In the proper size and colour
- Against a contrasting background
- As a square on point
- Once on a small means of containment

Safety marks must be removed when:

- The MOC has been unloaded, unpacked, cleaned or purged

Placards are usually the first identification seen by emergency responders. The information may be quite general ie; DANGER placard or very specific i.e.; placard with UN number.

Before every large MOC can be loaded or packed with dangerous goods, it must display all required placards and UN numbers. Placarding requirements are determined by the quantity of the dangerous and if it requires an ERAP.

Placards must be displayed on all 4 sides of the large MOC. Other signs must be displayed as required, ie; marine pollutant sign. The driver must replace any lost or stolen placards while in transit.

Placarding Large MOC and Means of Transport (MOT)

Safety marks for large MOC must:

- Have size, design and colour as per TDG
- Be durable and weather resistant
- Be affixed on all 4 sides as a square on point
- Immediately before loading begins
- Without class number of subsidiary risks
- Removed when there is no longer a danger present in the MOC

Labels

One label must be displayed on a small MOC for the primary class and one for each subsidiary class set out in column 3 of Schedule 1 for each of the dangerous goods in transport in the small MOC. A label is not required to be displayed on a small MOC that is inside another small MOC if the other outside small MOC has a label displayed on it and is not opened during loading or unloading or while the dangerous goods are in transport.

When a label is required to be displayed, it must be displayed on any side of the outer surface of a small MOC other than the side on which it is intended to rest or to be stacked during transport.

When dangerous goods in transport are in a small MOC on which the primary class label for the dangerous goods is displayed, the shipping name of the dangerous goods must be displayed next to the primary class label.

When dangerous goods in transport are subject to provision 16 in Schedule 2 of the Transportation of Dangerous Goods Act and are in a small MOC on which the shipping name is displayed, the technical name of the most dangerous related to the primary class of the dangerous goods must be displayed, in parentheses, following the shipping name which must also be shown, in parentheses, on a small MOC or on a tag following the shipping name.

When dangerous goods in transport are in a small MOC on which the primary class label for the dangerous goods is displayed, the UN number for the dangerous goods must be displayed on or next to the primary class label.

The consignor's and carriers' main responsibilities for marking and labeling are to:

- Mark and label the package correctly
- Replace any marks / labels that become illegible during storage

The consignee must remove the label once the container is empty.

Documentation

The shipper must prepare a document:

- Legible and in indelible ink (no bubble jet or ink jet printer)
- In English or in French
- Which may be in electronic format (carrier's choice)
- Which must be available in printed format during transport
- For mixed goods, in one of three formats:
 - a. Use heading "Dangerous Goods" or
 - b. Colour highlight the dangerous goods, or
 - c. Identify the dangerous goods with an "X" in the "DG/MD" column

The shipping document must have:

- The name and address of the consignor's place of business in Canada
- The date on which the shipping document was prepared, or given to the carrier
- A description of each dangerous goods in the following order:
 - a. The shipping name of the product from Schedule 1
 - b. And technical name if the shipping name has special provision 16. The shipping name is to be in upper case letters and the descriptive text in lower case
 - c. The classification number and subsidiary if applicable
 - d. The UN number
 - e. The packing group (all have one except for class 2 gases which all have the same packing group)
 - f. The total quantity (weight or volume) of each dangerous goods expressed in metric units

- g. The number of small means of containment
- h. The words “24-hour number” followed by a telephone number at which the consignor can be reached immediately to provide technical information about the product. With written permission, the telephone number of a competent authority such as CANUTEC may be given 613-996-6666 or *666 on a cellular phone
- i. If an ERAP is required, the ERAP number issued by Transport Canada and the telephone number to activate the ERAP is located on the shipping document.

If the shipping document shows both dangerous goods and other goods, the dangerous goods must be identified by either; listing them first, highlighting them in a contrasting colour or entering an “X” in front of the dangerous goods in a column headed “Dangerous Goods” or “DG”

Additional Information

For Class:

- 1: the net quantity of explosives
- 2.3 and 6.1: toxic inhalation hazard statement
- 4.1 and 5.2: control and emergency temperatures
- 6.2: replace packing group with risk groups
- 7: information required by Packaging and Transport of Nuclear Substances Regulations

For residues:

- May add “residue last contained” if less than 10% except for class 2 and 7

Location of Documents

Documents must be:

- Within reach of driver
- When driver is not present, a location visible from the driver’s door
- On delivery
- Handed to receiver, or
- Attached to the outside of the MOC

Loading and Handling

B&N will not handle, offer for transport, or transport dangerous goods in a MOC unless the MOC is designed, constructed, filled, closed, secured, and maintained so that under normal conditions of transport, including handling, there will be no accidental release of dangerous goods that could endanger public safety.

B&N will load and secure dangerous goods in a MOC and load and secure a MOC on a MOT in such a way to prevent, under normal conditions of transport, damage to the MOC or the MOT that could lead to an accidental release of the dangerous goods.

Accidental Releases

Where an accidental release of dangerous goods in excess of a prescribed quantity or concentration occurs or is imminent from a MOC being used to handle or transport dangerous goods, any person who at the time has the charge, management or control of the MOC shall report the occurrence or imminence of the release. Every person required to make a report shall, as soon as possible in the circumstances, take all reasonable emergency measures to reduce or eliminate any danger to public safety that results or may reasonably be expected to result from the release.

The carrier, consignor or consignee must make an immediate report to the Appropriate Provincial Authority for any:

- Accidental release or imminent accident release of dangerous goods above the specified quantity outlined within the provincial limit
- Imminent accidental release of dangerous goods above the specified quantity
- Any dangerous goods incident or accident at an airport or on board an aircraft

An immediate report must be made to:

- The Appropriate Provincial Authority
- B&N Health & Safety Manager
- The consignor
- The lessee / owner of the road vehicle
- CANUTEC under certain conditions:
- Class 6.2, infectious substances
- Catastrophic failure of a cylinder

B&N must complete a 30-day follow-up report.

Reciprocity

- Reciprocity exists between Canada TDG Regulations and the United States 49 Code of Federal Regulations (CFR) for shipments between two countries
- Restrictions apply to certain cases. Consult TDG Regulations and 49 CFR for further information

43.00 TRANSPORTATION OF WORKERS

43.1.1. PURPOSE

The purpose of the Transportation of Workers Program is to establish a process to that will effectively manage recognize, assess and control the hazards associated with the transport of workers to all Biggs & Narciso Construction Services Inc. (B&N) locations.

43.1.2. SCOPE

The Transportation of Workers Program applies to all situations involving the transport of workers to all B&N locations.

43.1.3. RESPONSIBILITIES

B&N Responsibilities:

1. Reasonable measures taken to evaluate road / weather / traffic conditions to ensure the safe transit of the workers
2. An inspection of worker transportation vehicle has been conducted by a qualified person before first use on a work shift using **FORM 40.1** – Passenger Vehicle Pre-Trip Inspection Checklist
3. Any defect which might affect the safety of workers is corrected before the vehicle is used

Supervisor Responsibilities:

1. Implementing the Transportation of Workers Program in a fair and equitable manner within their work locations
2. Brief all workers and Sub-contractors on the Transportation of Workers Program
3. Provide education and awareness to applicable workers
4. Take prompt and appropriate action when contraventions with the Transportation of Workers have been identified

Vehicle Operator Responsibilities:

The operator of a worker transportation vehicle must:

1. Ensure that the vehicle has the applicable registration and current insurance documentation
2. Ensure worker transportation vehicle has been inspected by a qualified person before first use on a work shift
3. Ensure area around parked worker transportation vehicle has been checked to ensure there is nothing in its path
4. Not operate a vehicle were the operator or worker occupies a seated position unless wearing complete seatbelt assembly provided in a properly adjusted and securely fastened manner
5. The Gross Vehicle Rated Weight (GVRW) of worker transportation vehicle must not be exceeded
6. Be fit for duty. Not operate a motor vehicle to conduct company business when under the influence of drugs or alcohol. This includes: blood alcohol level at or above the provincial legal limit, illegal drugs, and prescription and non-prescription medications that cause drowsiness or other conditions that may cause impairment
7. Ensure regular maintenance of the vehicle is performed according to the manufacturer's recommendations
8. Follow all posted Provincial and Regional road signs and postings
9. Drive according to the current weather conditions
10. Never operate hand held devices while operating any vehicles
11. Remove possible distractions from the vehicle when possible

Rider Responsibilities:

All workers and passengers in a company vehicle must:

1. Wear a seatbelt at all times while the vehicle is operating
2. Keep all body parts inside vehicle unless essential for the work process, and then only if the worker is adequately restrained and the body part is not at risk of injury
3. Do not ride in a vehicle in a standing position unless protected from being thrown off balance

43.1.4. PROCEDURE

GUIDING PRINCIPLES

On occasion, designated B&N employees may provide transportation for other employees within the company. B&N is responsible for the safe transport of the workers to and from a work site or B&N function. Only workers in possession of a valid driver's license may operate a vehicle of the same or lesser classification while conducting B&N work functions. All doors must be closed and latched while the vehicle is in motion. The parking brake must be engaged when the vehicle is left unattended.

SECURING EQUIPMENT

Materials, goods, tools or equipment carried in a portion or compartment of a vehicle in which workers are riding must be located and secured to prevent injury to the operator or employees. If materials, goods, tools or equipment are regularly carried in a B&N employee transportation vehicle there must be a designated area in the vehicle for transporting these items.

Hazardous Materials

The transportation of hazardous materials in a vehicle transporting workers is restricted as follows.

If it is necessary to carry volatile, flammable, or otherwise hazardous materials, the materials must be:

1. Carried in isolated compartments which are accessible only from outside the vehicle
2. Securely fastened and are fitted with adequate ventilation and drainage facilities
3. If internal to the vehicle, separated from the crew compartment by an approved firewall

Passenger Compartments

Any enclosed portion or compartment of a vehicle in which workers are transported must have:

1. Effective ventilation, independent of doors, providing clean air
2. Adequate lighting and means for heating and cooling
3. An effective means of communication between the operator and passengers, and
4. More than one means of exit

PARKING

Vehicle operators must perform pull-through parking: pulling through a space, so the vehicle is facing outwards in the next space, when available or backing into a parking space if necessary.

By backing into a parking space, this may allow for an easier exit in the event of an emergency.

43.1.5. RELATED FORMS

FORM 40.1. – Passenger Vehicle Pre-Trip Inspection Checklist

44.00 CARGO SECUREMENT

44.1.1. PURPOSE

The purpose of the Cargo Securement Program is to establish a process that will effectively manage recognize, assess and control the hazards associated with the transport of cargo by Biggs & Narciso Construction Services Inc. (B&N).

44.1.2. SCOPE

Under the National Safety Code (NSC) Standard 10 for Cargo Securement, this standard applies to all vehicles or combination of vehicles transporting cargo on a highway, and exceeding a registered gross vehicle weight of 4,500 kilograms. This standard also applies when an intermodal container is used to transport cargo.

44.1.3. RESPONSIBILITIES

Supervisory Personnel Responsibilities:

- Ensure all workers are trained on the NSC Standard 10 before driving any B&N vehicle with a registered gross vehicle weight over 4,500 kgs
- Supervise the workers to ensure compliance with the NSC Standard 10
- Provide direction and training to workers as necessary
- Report to the B&N Maintenance Department when additional securement devices are required or damaged securement devices are found and forward the incident report to the Health & Safety Manager
- Not allow a driver to operate a vehicle on a public roadway when the cargo / box does not have proper securement devices attached or not secured in accordance with the NSC standard 10

Worker Responsibilities:

- Ensure compliance with all sections of the NSC Standard 10
- Inspect the vehicle to confirm that all equipment used in its operation are secured
- Ensure that the cargo does not interfere with the driver's ability to drive the vehicle safely or allow for free exit of a person from the cab or driver's compartment of the vehicle
- Use all securement devices provided by B&N and inspect each device prior to each use to ensure compliance with the NSC Standard 10
- Request any additional securement devices that may be required to be compliant with the NSC Standard 10
- Keep all securement devices in good working order
- Any damage to or missing securement devices are to be reported immediately to the Supervisory personnel and an Incident Report is to be filled out
- Any alteration to the securement devices or removal of tags is strictly forbidden
- Ensure that tiedowns are taut while the vehicle is on a highway
- The number of tiedowns is to be calculated for all flatbed loads according to Part 1 - Division 4 – Tiedowns of the NSC Standard 10
- Have available and use the required tiedowns for roll-off trucks is found under Part 2 - Division 8 of the NSC Standard 10
- Not operate a vehicle where the cargo / boxes are not contained, immobilized or secured in accordance with the NSC Standard 10

Health & Safety Department Responsibilities:

- Arrange for training of our Drivers as required, and to address any changes or updates in the regulation and NSC Standard 10

- Work with Appropriate Provincial Transportation Authorities to ensure B&N compliance with the NSC Standard 10 Cargo Securement

44.1.4. PROCEDURE

GUIDING PRINCIPLES

All B&N NSC drivers are to be trained on the National Safety Code (NSC) Standard 10 Cargo Securement and each driver must demonstrate their understanding for the securement as it applies to the vehicle and cargo they are transporting under the NSC Standard 10 Cargo Securement. Cargo transported by a B&N vehicle shall be contained, immobilized, or secured so that it cannot leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle.

SECUREMENT CATEGORIES

1. Cargo is fully contained by structures of adequate strength. This means that cargo is restrained against horizontal movement in all four directions by either the vehicle structure, or by other cargo. Horizontal movement includes forward, rearward, and side-to-side. That means that the cargo cannot shift or tip
2. Cargo is immobilized by structures of adequate strength or a combination of structure, blocking and bracing to prevent shifting or tipping
3. Cargo is immobilized or secured on or within a vehicle to prevent shifting or tipping. This can be accomplished through blocking, bracing, friction mats, tiedowns, other cargo, void fillers or a combination of these methods

Proper Cargo Placement and Restraint Procedures

Preventing cargo from moving when the driver brakes or maneuvers is the most important task the securement system must handle.

To prevent movement, cargo can generally be immobilized in any one of three ways:

1. Place it against:
 - Headboard
 - Bulkhead
 - Stakes or other vehicle structure; or
 - Against other cargo that is immobilized in that manner
2. Place something between the article and the vehicle structure:
 - Blocking and bracing
 - Other cargo
 - Void-filler
 - Friction mats
3. Immobilize cargo with tie downs

Tiedown Systems

The Supervisory personnel must approve all tiedown systems when securing any load. B&N will not allow deviations or alterations from Standard 10 Cargo Securement.

Chains

Only grade 70 chain is to be used for cargo securement. Markings / stampings must be legible or the chain's WLL (Working Load Limit) will be zero and not counted towards the AWLL (Aggregate Working Load Limit). All chains used to secure a roll-off box as described under Part 2 - Division 8 of the NSC Standard 10, must have a minimum

WLL of 5,000lbs and the stampings / markings must be legible or the chain's WLL will be zero and not counted towards the AWLL.

Webbing

All web strapping must have a tag marked with a WLL in kg and lbs and the manufacturers' name. The WLL of the strapping must be suitable for the task. Any webbing that does not have a WLL tag will be zero and not counted towards the AWLL. All strapping used on a roll-off box as described under Part 2 - Division 8 of the NSC Standard 10, must have a minimum WLL of 5,000 lbs. All securement devices used on a lugger box must be used according to the NSC Standard 10.

Number of Tiedowns

The number of tiedowns is dependent on the weight and length of the load and the WLL of each tiedown. The number of tiedowns used must meet compliance with the NSC Standard 10. As B&N standard, lugger trucks will always use 4 approved straps to secure an empty or loaded bin.

Inspection

All B&N drivers are required to inspect the securement devices prior to each use for defects and not use any devices where defects will result in non-compliance with the NSC Standard 10. Drivers are to inspect their cargo and the cargo securement devices before driving the vehicle, and not more than 80 kilometers from the point where the cargo was loaded. The driver shall make adjustments to the cargo securement system when there is a change of duty status of the driver, the vehicle has been driven for 3 hours or the vehicle has been driven for 240 kilometers.

45.00 ELECTRICAL SAFETY

45.1.1. PURPOSE

The purpose of the Electrical Safety Program is to establish a process to that will effectively manage, recognize, assess and control electrical hazards at all Biggs & Narciso Construction Services Inc. (B&N) locations.

45.1.2. SCOPE

B&N believes that electrical safety awareness and the ability to identify potential electrical hazards at all B&N locations, is an essential component in preventing injuries or death from electrical shock, electrical flashes, or high voltages. Competent workers applying approved safe work practices and the manufacturer's instructions must be followed when working with electrical equipment

45.1.3. RESPONSIBILITIES

B&N Responsibility:

- Ensure that all operating electrical equipment shall be kept in safe and proper working condition
- Ensure that in locations where explosive or flammable materials or gases are present, special precautions shall be observed as follows: repairs or alterations shall not be made on any live equipment fits and seals Enclosures shall be maintained in their original safe condition
- Ensure appropriate training and testing is conducted for all B&N employees to ensure thorough understanding of the appropriate procedures and safe work practices relating to electrical work
- Ensure all B&N employees and Sub-contractors who must work with or around electrical hazards, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and our Job Safety Analysis (JSA) procedures
- Ensure that no person performs work within 7m of an overhead power line, without knowing what the voltage is
- Ensure that the operator of (or that is working near) an energized overhead power line must be notified before work may be performed within the safe limit of approach distance as outlined within the Appropriate Provincial Health & Safety Legislation and defined in the site specific HASP

Supervisor Responsibility:

- Ensure potential electrical hazards related the work are defined along with the appropriate Personal Protective Equipment (PPE) within the site specific HASP
- Ensure the daily safe work permit meeting identifies the current site specific electrical hazards or work areas where electrical work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work.
- Develop procedures for workers related to Electrical Safety
- Report all injuries resulting from electrical contact to the Health & Safety Department
- Developing the appropriate procedures within the site specific HASP and Job Safety Analysis (JSA)
- Ensure that no person performs work within 7m of an overhead power line, without knowing what the voltage is
- Ensure that the operator of (or that is working near) an energized overhead power line must be notified before work may be performed within the safe limit of approach distance as outlined within the Appropriate Provincial Health & Safety Legislation and defined in the site specific HASP

Worker Responsibility:

- Provide all information to supervisors for developing procedures related to Electrical Safety
- Follow all procedures and processes developed and implemented related to Electrical Safety
- Report all Electrical hazards and Electrical injuries immediately to the supervisor

Health & Safety Department Responsibilities:

- Schedule training and testing for all B&N employees to ensure thorough understanding of the appropriate procedures and work practices relating to electrical work.
- Assist in developing the appropriate procedures within the site-specific HASP and Job Safety Analysis (JSA)

45.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N believes that electrical safety, awareness and the ability to identify potential electrical hazards at all B&N locations is an essential component in preventing injuries or death from electrical shock, electrical flashes, or high voltages. Safe work practices, site specific HASP, JSA's and the manufacturer's instructions must be followed when working with electrical equipment. Electrical equipment shall be of a type and rating approved for the specific purpose for which it is to be used. Only appropriately qualified electricians can repair electrical circuits and equipment. The daily safe work permit and following meeting shall be completed by a competent person prior to performing any work on energized equipment to identify the current site specific electrical hazards or work areas. No worker shall connect, maintain, or modify electrical equipment or installations unless,

- a. The worker is an electrician certified under the Appropriate Provincial Health & Safety Trades Qualification Legislation, or
- b. The worker is otherwise permitted to connect, maintain, or modify electrical equipment or installations under the Appropriate Provincial Trades Qualification Legislation or the Appropriate Provincial Technical Standards and Safety Legislation

B&N employees or the Sub-contractor will ensure where defects or unsafe conditions have been identified in electrical equipment. B&N will ensure the following steps are taken immediately to protect the health and safety of any worker;

- Ensure all potential sources of energy have been identified and Supervisors follow the appropriate Lock Out / Tag Out (LO/TO) procedures as defined in the site-specific HASP and JSA's
- Provide additional communication using the daily safe work permit and a follow up meeting to provide awareness to the current site specific electrical hazards or work areas

Electrical equipment maintained for emergency service shall be periodically inspected and tested as necessary to ensure its fitness for service. Infrequently used electrical equipment maintained for future service shall be thoroughly inspected before use in order to determine its fitness for service. Defective equipment shall either be put in good order or permanently disconnected, removed from service with appropriate LO / TO identifying the equipment as being defective.

Electrical equipment may be located in special rooms, behind barriers or isolated areas of a building with stored material kept at least 3 feet (0.9m) away from electrical panels or equipment. B&N will post warning signs in high voltage areas and provide safety devices such as interlocks, if required. B&N will ensure all electrical rooms will be kept free of combustible materials or any other type of flammable material stored or placed close to electrical equipment.

Before any work begins on an electrical conductor or electrical equipment and during the progress of that work, B&N shall ensure that the electrical conductor or electrical equipment is isolated, LO / TO, and connected to

ground. If it is not reasonably practicable to de-energize electrical equipment before performing electrical work, alternative hazard controls must be implemented including arc flash protection and site specific Personal Protective Equipment (PPE) approved by the Health & Safety Department before electrical work begins.

TRAINING

All B&N employees shall be provided basic electrical safety training. B&N employees who have the potential to be exposed to live electrical hazards shall be training on working safely with electricity, recognition of electrical hazards, prevention of electrical shock and arc flash, and recognition of electrical shock and arc flash hazard labels.

GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)

When working outdoors or in a wet or damp location, portable electrical equipment, including temporary lighting shall be protected by a CSA certified ground fault circuit interrupter (GFCI) of the class A type installed. The GFCI may be used at the receptacle or on the circuit at the panel, unless another acceptable means of protection is provided. A GFCI will cause the circuit breaker to trip, or the fuse to blow if there is a current overload in the system

Circuit overloads may be caused by:

- Defective or overheating equipment
- Too many electrical connections on the same circuit
- A temporary power surge caused by lightning or electrical motors kicking on
- Wet power tools or electrical cord-to-tool connections of extension cords
- Insulation between two conductors contacting each other creating a short circuit

Never:

- Misuse a multi-outlet adapter by plugging too many cords into one wall receptacle
- Bypass, or disable any circuit or GFCI protective device

REPLACING FUSES OR RESETTING THE BREAKER

- Must only be done by qualified personnel as defined under the Appropriate Provincial Health & Safety Legislation and the site specific HASP
- Always turn the power off and use LO / TO procedure. Never insert a fuse into a “live” circuit
- Wear all appropriate PPE when replacing a fuse or resetting a circuit breaker
- When replacing blown fuses, match system ratings for voltage, current and interrupting rating on replacement fuse
- Never put a coin or piece of metal into a fuse socket to replace a fuse that keeps blowing
- Use an insulated fuse puller when replacing a fuse in a panel where there is any potential for a “live” circuit.
- If any unusual odor, smoke or heat are detected, de-energize the system immediately
- Do not replace the fuse or reset the breaker a second time until the problem is found and corrected

PANELS

- When turning a circuit protection device on or off, stand to one side of the device and look away due to potential arc flash hazard
- Use only fuses or breakers of the recommended amperage
- Follow specified procedure for LO / TO, as required
- Ensure temporary panel boards are securely mounted, protected from weather and water, accessible to workers and kept clear of obstructions

- B&N employees can review electronic modules for awareness relating to panel and electrical hazards

Electrical Boxes

B&N or the Sub-contractor shall ensure that:

- All switches, receptacles, luminaries and junction boxes are fitted with a cover that is approved for the intended use and location of the cover;
- All wire joints or connections are:
 - i. Fitted with an approved cap or other approved cover
 - ii. Enclosed in an approved box; or
 - iii. Where the wire joints or connections are not permanently installed, protected from damage by another approved means; and
- All dead, abandoned or discontinued electrical conductors or equipment are removed from the B&N work site or disconnected with appropriate LO / TO and secured to prevent inadvertent energization

When portable luminaries are used, B&N or the Sub-contractor shall ensure that:

- The electrical extension cord and fittings are approved for the intended use and location of the extension cord and fittings and are properly maintained; and
- The electrical extension cord is not used to supply power to any equipment other than the portable luminaries unless the cord meets the proper requirements
- Ensure a GFCI is used on all electrical extension cord and fittings when portable luminaries are used

Before any work begins on an electrical conductor or electrical equipment and during the progress of that work, B&N or the Sub-contractor shall ensure that:

- The electrical conductor or electrical equipment is isolated, LO / TO procedures are used and connected to ground; or
- Other effective procedures are taken as defined in the site-specific HASP to ensure the safety of all B&N employees

ELECTRICAL CORDS AND PLUGS

All B&N employees using extension and power supply cords used for supplying energy to any electrical equipment must follow these guidelines:

- Is approved for the intended use and location of the electrical extension or power supply cord
- Is fitted with approved cord end attachment devices that are installed in an approved manner
- Is provided with a grounding conductor
- Is maintained and protected from physical or mechanical damage
- Is plugged into an approved GFCI plus adapter or GFCI receptacle
- Use only CSA or ULC approved extension cords
- Inspect extension cords and plugs before each use
- Do not use defective cords or cords with cracked or worn insulation
- Do not splice extension cords
- Ensure extension cords are the right gauge for the job to prevent overheating, voltage drops, and tool burnout
- Never cut off, bend back, or cheat the ground pin on three-prong plugs
- Do not wire plugs directly into outlets
- Coil disconnected extension cords and store in a dry area
- Use extension cords with a special type of covering when working with solvents and oils
- Avoid connecting two extension cords together

TEMPORARY LIGHTING AND WIRING

B&N requirements for temporary lighting and electrical wiring:

- Use only approved temporary wiring and inspect regularly
- Illuminate work areas adjacent to the work location where workers are required to travel
- Illuminate work areas where the nature of the equipment or the operation may create a hazard to a worker due to insufficient lighting
- Ensure panel covers are in place
- Protect the system with ground fault circuit breakers
- Avoid contact with wires for temporary lighting. Frequent movement can loosen connections and break insulation
- Be alert to tripping and shock hazards from temporary wiring and lighting
- Do not use temporary lighting circuits as extension cords
- Replace missing or burned-out bulbs to maintain required lighting levels
- Protect bare bulbs with cages
- Maintain appropriate level of illumination as recommended per CSA

STATIC ELECTRICITY

Static build-up must be discharged to a non-charged object to avoid an electrical shock or explosion in the workplace. This can be achieved by bonding and grounding.

Bonding is achieved by connecting two objects with a bonding wire. This can also be done by maintaining direct contact with the objects if there is no paint or other coating that will separate them. Bonding objects should also be connected to the ground, so the static charge can be completely dissipated.

- Keep containers closed until after bonding has taken place
- Always close the containers first before disconnecting the bonding wire

CONTROLLING CHARGE BUILD-UP IN FLAMMABLE AND COMBUSTIBLE LIQUIDS

- Ensure all decanting is completed with appropriate bonding and grounding in place
- Decant liquids slowly from one container to another
- Decrease the amount of misting, spraying, and splashing of the liquid
- Ensure pipes, pumps, containers, and filters are clean
- Allow time for the charges to relax (go into equilibrium.)The more a material is moved, the more static charge it will have
- The longer a liquid is left at rest, the more the static charge will become equal

ARC FLASH SAFETY

Working on “LIVE” electrical equipment at or above a potential difference of 50 volts presents dangers to unprotected employees, should an arc flash occur.

B&N follows as far as practicable the guidelines identified within CSA Standard Z462 which has been developed in parallel with the U.S. National Fire Protection Association (NFPA) standard NFPA 70E for Electrical Arc Flash. For additional site-specific safety practices and approved procedures, see the JHA in the site-specific HASP.

Electrical equipment such as switchboards, panel boards, motor control centers, industrial control panels or meter socket enclosures installed, other than dwelling units, are likely to have some type of work or inspection performed on them while energized; these must be marked to warn persons of potential electrical shock and arc flash hazards.

LABELING

Labeling for the identification of potential shock or arc flash is required for new installations as per CSA Standard Z462 and is strongly recommended for existing installations to ensure consistency application of this program.

Labeling shall be of permanent type design or one supplied by the manufacturer and mounted in a visible location.

CLOTHING

Clothing and PPE for use by qualified individuals when performing testing and maintenance on live exposed electrical equipment shall be in accordance with the Table set out in NFPA 70E. Every reasonable effort will be made to isolate and LO / TO all electrical equipment or work practices prior to the commencement of work.

PPE requirements within the arc flash boundary shall be determined by completing an arc flash hazard analysis. PPE must cover the entire body when working within the arc flash boundary. This may include, but is not limited to, arc flash suit with face shield, safety glasses, non-conductive head protection, and leather gloves and footwear. Rubber insulating gloves shall be worn for protection from electric shock due to inadvertent contact with an energized electrical conductor or circuit parts. Requirements are outlined within CSA Standard Z462.

Each B&N location will determine the best method to comply with the requirements for PPE and other required equipment as defined in the site-specific HASP and JHA.

NOTE: Use and maintenance of all equipment used for the testing and maintenance of electrical equipment, (i.e. insulated gloves, hot sticks, meters etc.) must be tested in accordance with manufacturer's recommendations.

TOOLS

Tools and other equipment must be CSA approved in accordance with manufacturers recommendations, provided with a grounding device where there is a potential for conducting electricity and endangering the safety of any worker.

ELECTRICAL EMERGENCIES

Mobile Equipment

1. If the piece of equipment being operated comes in contact with an overhead or underground power line, generally the safest course is to stay in the cab and remain calm. If possible, attempt to move the machine and break contact
2. Immediately notify your Supervisor as soon as it is reasonably safe to do so. Your Supervisor will contact the Utility provider to determine the appropriate safe course of action
3. DO NOT touch the ground and the machine at the same time. If you do, the current will complete a circuit and you will be the path for the electricity to get to ground
3. If an emergency forces you from the machine, you must:
 - a. Jump clear
 - b. Keep both feet together when you land
 - c. Shuffle away
4. Control access to the area

ELECTRICAL SUB-CONTRACTOR

B&N shall permit only competent, qualified electrical workers to construct, install, alter, repair, or maintain electrical equipment at all B&N location and job sites. Only qualified electrical workers may enter electrical rooms and enclosures containing live parts. An electrical sub-contractor shall ensure that only a qualified

electrical worker works closer to an exposed energized electrical conductor than the minimum distance set out within the Appropriate Provincial Health & Safety Legislation and defined in the site-specific HASP.

46.00 LOCKOUT / TAGOUT

46.1.1. PURPOSE

The Lock Out / Tag Out (LO / TO) program is designed to prevent injury to Biggs & Narciso Construction Services Inc. (B&N) employees and all others personnel at all B&N locations resulting from accidental release of energy.

46.1.2. SCOPE

The LO / TO Program applies to all B&N employee and Sub-contractors working on equipment or structures where the unexpected ignition or release of stored energy could cause injury or damage.

46.1.3. RESPONSIBILITIES

B&N Responsibility:

- Ensure that all operating electrical equipment shall be kept in safe and proper working condition
- Ensure appropriate training and testing is conducted for all B&N employees to ensure thorough understanding of the appropriate procedures and work practices relating to LO / TO
- Ensure all B&N employees and Sub-contractors who must work with or around electrical hazards, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures

Supervisor Responsibility:

- Ensure potential electrical hazards related the work are defined along with the appropriate LO / TO procedures and required Personal Protective Equipment (PPE) within the site-specific HASP
- Ensure the daily safe work permit meeting identifies the current site specific LO / TO or work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work
- Develop procedures for workers related to LO / TO
- Ensure any machine or tool in the workplace is capable of safely performing the functions for which it is used
- Ensure the worker operates the tool or machine in accordance with the manufacturer's specifications, and the safe work procedures for the workplace
- Inspect that all LO / TO programs are being followed where required
- Developing the appropriate LO / TO procedures within the site-specific HASP and Job Safety Analysis
- Ensure adequate supply of locks, warning tags or other energy isolating devices required for the job are available where required

Worker Responsibility:

- Operate all tools or machines in accordance with the manufacturer's recommendations, and the JSA procedures for all B&N workplaces

KEYWORDS

Affected Employee: A person who operates or uses equipment that may be locked out or works in an area where Lockout / tagout may be used.

Authorized Employee: The key holder of a lockout padlock and a person who must follow a tagout procedure on equipment to perform work on or near that equipment. An authorized employee and an affected employee may be the same person.

Energy Isolation Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to:

- a. Manually operated circuit breakers.
- b. Disconnect switches.
- c. Manually operated switches.
- d. Slip gate.
- e. Blinds or blanks.
- f. Line valve.
- g. Blocks or restraining devices.
- h. Any other similar device used to block or isolate energy.

NOTE: Push buttons, electrical switch indicators and other control circuit type devices are not energy isolating devices.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, kinetic or any other type of energy.

Lockout Device: A device that uses a positive means to hold an energy-isolating device in a safe position and prevents the equipment to get power.

Lock out: The placement of a lockout device on an energy-isolating device ensuring that the energy-isolating device and the machine or equipment being controlled cannot be operated until the lockout device is removed.

Normal Operation: Use of equipment to perform its intended function.

Service and / or Maintenance: Workplace activities such as building, installing, setting-up, cleaning, adjusting, inspecting, maintaining and / or servicing equipment.

Tagout Devices: A prominent warning tag and a means of attaching it securely to lock.

Tagout: A warning tag must be placed and shall be attached with a lock to communicate to all affected to employees / workers / persons the energy source shall not be re-energized. A tag shall communicate name of employee / contractor, name of worker's / Sub-contractor's company, date, and description or work being performed.

- Apply a lock and tag for each device that is to be locked out within the worker's affected area
- Follow all procedures and processes developed and implemented related to Electrical Safety
- Report all Electrical or LO / TO hazards immediately to the supervisor

Health & Safety Department Responsibilities:

- Schedule training and testing for all B&N employees to ensure thorough understanding of the appropriate procedures and work practices relating to LO / TO
- Assist in developing the appropriate LO / TO procedures within the site-specific HASP and Job Safety Analysis

46.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N will implement and maintain a LO / TO Program and provide proper training of all affected employees. Lockout is the placement of a lock on an energy-isolating device, to ensure that the device and the machine or equipment being controlled cannot be operated until the lockout device is removed. Tagout is the placement of a danger tag on an energy-isolating device to communicate to the affected workers that the device and the equipment being controlled cannot be operated until the tag is removed. The tag shall be secured to prevent inadvertent removal. The tagout shall contain the workers name, company name, date and the reason why the LO / TO is being performed. The tag shall be made of non-conducting material.

WARNING

No person shall remove any lock other than their own from an isolating device. Any person caught tampering with or attempting to remove another person's lock without authority, shall be deemed to have committed a serious offence that could lead to disciplinary measures up to and including termination of employment or contract.

Where a machine, a part of a machine or material on a machine requires cleaning, lubrication or adjustment while the machine or part is in motion or under power and it is not reasonably practicable to lockout the machinery, B&N or the Sub-contractor shall develop and implement work practices and JSA's that will ensure the activity is carried out in a safe manner. These practices include:

- a. Live line techniques are used
- b. Approved live line equipment is used
- c. Isolation with adequate LO / TO of all non-critical energy sources
- d. No hazard from explosive or flammable materials exists; and
- e. All necessary precautions to work safely are taken

COMMUNICATION, TRAINING AND EVALUATION

1. B&N will ensure that the LO / TO Policy and Procedures are communicated to all employees through the completion of the daily safe work permit and meeting identifying the current site specific LO / TO requirements defined in the HASP describing where work is required. All Supervisory Personnel on site are responsible and accountable to deliver the appropriate information to the employees
2. All employees taking part in LO / TO work will be trained by qualified person and / or pass course on the fundamentals of eliminating energy sources from a work area. Employees who work in areas where LO / TO may be performed shall be provided awareness through the review of the daily safe work permit
3. The Supervisory personnel will ensure workers receive additional feedback until his / her overall comprehension satisfied the criterion determined in the training or awareness objectives

GENERAL LO / TO PROCEDURE

1. **Preparation for the Shut Down:** Notify all affected B&N employees, persons and / or the supervisor in the area that a LO / TO System is going to be performed and the reason thereof. All appointed authorized employee shall know as a minimum the type and magnitude of energy that the machine or equipment utilizes and the hazards associated. Authorized employee shall be designated by the Supervisor
2. **Shut Down the Equipment:** Use the normal stopping procedure for the equipment being serviced. This may be putting a switch in the “off” position or pressing a “stop pushbutton”. It may involve a more complex operation
3. **Isolate the Equipment:** Carefully turn off and/or disconnect (isolate) every energy source supply such as electrical plugs, switches, valves, and circuit breakers. Restrain or dissipate all stored energy. This includes, but is not limited to, the following:
 - a. Compressed springs-block springs from releasing
 - b. Parts of a machine held up by hydraulic or pneumatic power-block to prevent parts from falling
 - c. Pressurized lines – bleed the pressure from the lines
 - d. Components that are hot-allow sufficient time for cooling before work begins
 - e. Capacitors that may store electrical energy-discharge the energy from the capacitorElectrical equipment that might be fed by more than one source should be tested with a voltage meter to verify the absence of electrical energy
4. **Apply Lockout – Tagout Devices:** Attach a lock and tag to the energy – isolating device to prevent someone from restoring the flow of energy. A personal lock shall be installed and removed only by the authorized employee the key to the lock shall remain in the possession of the authorized employee at all times. Any LO / TO devices i.e.; ball valve, circuit breaker, plug lockout device shall be installed at this time
5. **Control of Stored Energy:** Relieve, disconnect or restrain all potential residual energy sources that could be present, check that all moving parts have stopped turning, relieve trapped pressure, blank pipe flanges (Confined Space Entry), discharge any electrical capacitors, accumulators, block or support elevated equipment
6. **Verify Isolation of Equipment:** Ensure that all B&N employees are clear of the LO / TO area. Test to make sure the right system has been lockout out and cannot be operated, to do this press all start buttons or other activating controls, then return them to the “off” position – this will prevent the equipment from being started by itself when energy is restored

Locks, Keys and Identification Tags:

1. LO / TO boards must be placed in strategic areas available to all qualified B&N employees. Locks, identification tags, multiple lockout hasps or scissors and any other lockout equipment must be readily available
2. Only an authorized employee of B&N may access and use B&N lockout equipment.
3. Only those locks issued by B&N to authorized employees for that specific purpose may be used for the lock out
4. Each affected employee is responsible for applying their own lock and tag
5. Individual tags shall be attached which outlines the workers’ name who placed the lock on device, date and reason for LO / TO
6. Under no circumstances shall lockout locks be used for any other purpose
7. Mobile equipment can be locked out by removing key from the ignition and pocketing it, and detaching the negative battery cable
8. No person shall remove any lock other than their own from an isolating device. Any person caught tampering with or attempting to remove another person’s lock without authority shall be deemed to have committed a serious offence that could lead to disciplinary measures up to and including termination of employment or contract
9. In cases where the authorized employee has lost a lock or key, he/she must report the loss immediately to the Supervisor who will replace the items immediately

10. Duplicate keys are not generally permitted. When applicable and a duplicate key is permissible for a lockout process using a lock and key, B&N shall designate a person to keep any duplicate keys and ensure the duplicate keys are accessible only to the authorized employees. B&N and the Sub-contractor shall ensure that the defined designated person who holds the duplicate keys only allows or permits an authorized employee to use a duplicate key under their supervision with a written record in the log book with the reason for its use and the date of its use and signs the log book each time that the duplicate key is used
11. Should a lock have to be cut off an isolating device for any reason, all Supervisory Personnel must follow the Emergency Lock Removal Procedures as described
12. Since the placing of locks and locking out equipment is the responsibility of authorized employee, it shall also be his / her responsibility to remove his / her lock when the job is completed or he / she leaves the workplace. If a lock is forgotten on an isolating device, the individual must return to the workplace and remove his / her lock
13. Locks and tags will not be removed until all repairs and / or work on the equipment has been completed. The equipment shall be re-energized only once all tools and supplies used during the repairs or maintenance have been removed from the work area, all slip, trip, and fall hazards have been cleared from the area, and guards have been replaced. Equipment must be able to be safely re-energized. This shall be verified by the area Supervisor before equipment start-up occurs
14. A log book shall be maintained to record the area or equipment that has been locked out, the date it was locked out, the reason, the date it was returned to service and the supervisor or operator's signature
15. If there is any doubt as to the proper disconnect(s) and procedure(s), contact your supervisor or a qualified electrician or technician familiar with the equipment before proceeding further

Lock Removal and Machine / Equipment Start-up:

1. All covers / guards / shields must be replaced on machine or equipment to avoid injury from moving parts as per their intended purpose
2. All tools, parts and equipment must be gathered and clear of any moving parts
3. Each authorized employee must remove his / her own assigned lock(s) from the isolating device(s)
4. The last authorized employee to remove his / her assigned lock, (usually the supervisor in charge or lead maintenance person) must ensure all personnel are clear of the danger zone and that restarting the machine or equipment will not cause injury to him / her / others, or damage to the machine or equipment
5. Remove the last isolating device from the equipment; stand to the side of the identified switch (usually to the right) turn your face to the opposite direction, activate the equipment to the "on" position with the hand closest to the panel, in one rapid motion

Emergency Lock Removal:

In the case where an assigned lock has been left on an isolating device, and the authorized employee has left the premises, the following procedure must be communicated to all affected employees involved in the LO / TO procedure, followed and documented.

1. Supervisor in charge must make every reasonable effort to contact the authorized employee responsible for the lock
2. If contacted, the authorized employee of the lock must return to the workplace and remove the lock
3. Every reasonable effort must be made by the supervisor in charge to contact the authorized employee but if unsuccessful, lock removal procedures may be initiated. **NOTE:** Only those persons in authority as designated by B&N may remove another worker's lock and shall do so only once each step of the lock removal procedure has been properly followed
4. A worker's Health and Safety Representative or senior knowledgeable worker or supervisor must take part in lock removal process
5. Accompanied by the worker's Health and Safety representative or senior knowledgeable person, the supervisor in charge must complete a visual check of the entire area of the locked-out machine or equipment

6. Following the visual check, they must be satisfied that the machine or equipment can be operated without undue risk to anyone
7. Once the supervisor in charge and the worker's Health and Safety representative or senior knowledgeable person agree it is safe, designated personnel may remove the lock
8. Once the lock removal procedure is completed, the supervisor must ensure all individuals involved in the Emergency Lock Removal complete and sign the LO / TO Lock Removal Report - **FORM 46.1.** – Lockout / Tagout Removal Report
9. Written documentation of the incident must be kept on file complete with date, time, persons involved and a short description of events using **FORM 8.1.** – Incident Investigation Report
10. If required, a new lock must be placed on the lockout board

Lockout Procedure Affecting Shift Changes:

1. In cases where maintenance or repairs to a machine or piece of equipment are not completed by the end of the shift or before all workers involved in the work leave the worksite, at least one lock must remain in place for the controlled energy source to ensure de-activation of the machine or equipment
2. Where shift changes coincide, the person in charge of the work (supervisor / lead) must only remove his / her lock once the person in charge of the next shift relieves him / her and attaches his / her lock
3. Together they must ensure no lock has been forgotten on any one of the control mechanisms and verify that no person from the first team remains in the danger zone
4. Where shift changes do not coincide, the supervisor in charge must remove his / her lock(s)
5. Departmental keyed alike locks must be attached to the locked-out equipment / device(s). Once the second supervisor arrives on shift, each individual involved with the work must attach their personal locks to each isolating device before removing the departmental lock

Sub-Contractor Lockout:

1. Each Sub-contractor who is directly involved in the intended work and therefore part of the lockout procedure must be trained and qualified in their B&N LO / TO procedure. The Sub-contractors LO / TO procedures must meet or exceed the requirements of B&N, it's LO / TO Program and any Applicable Provincial Health and Safety legislative or site-specific requirements. The Sub-contractor must ensure that each individual involved in the contract work, who may be required to perform lockout procedures, is knowledgeable of B&N LO / TO requirements and participates in the daily safe work permit meetings to identify the current site-specific work as required
2. Sub-contractors must be able to demonstrate that each of their employees involved in the LO / TO process has received adequate training required by Applicable Provincial Health and Safety legislative and defined in the site-specific HASP
3. Sub-contractor's employees are required to lockout must possess adequate locks and identification tags to ensure complete isolation
4. In cases where Sub-contractor's employees do not possess required number of locks or tags, B&N may, at its discretion and based on urgency of work, supply the locks and / or tags
5. It is the Sub-contractor's responsibility to ensure the locks and tags are returned to the B&N representative who supplied the equipment. If the locks and / or tags are not returned, the Sub-contractors employees shall replace the locks and / or tags at their expense
6. Where necessary, Sub-contractors shall supply all supplementary lockout equipment required for work such as blocks, chains, pins, etc.
7. Sub-contractor's employees who violate the B&N LO / TO Policy or Procedure or any applicable legislation shall be deemed to have committed a serious offence that may lead to immediate expulsion from the work site
8. Sub-contractor's employees must follow all applicable safety rules and safe work practices as defined in the site-specific HASP as described during the review of the daily safe work permit. This may include directives on work locations, restricted use of equipment, restricted areas, equipment specific LO / TO procedures or other JSA's as required

9. Sub-contractor's employees are not permitted to shut down, lock out, operate or activate facility equipment machines or mobile equipment without prior permission from the B&N's representative on site

46.1.5. RELATED FORMS

FORM 46.1. – Lockout / Tagout Removal Report

FORM 8.1. – Incident Investigation Report

47.00 CUTTING AND WELDING

47.1.1. PURPOSE

The purpose of the Cutting and Welding Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with cutting and welding operations within all Biggs & Narciso Construction Services Inc. (B&N) workplaces.

47.1.2. SCOPE

The Cutting and Welding Program applies to all B&N employees who are responsible for conducting cutting and welding activities.

47.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to workers of the hazards they are exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Cutting and Welding Program is implemented across all areas of responsibility
- Ensure all equipment provided for Cutting and or Welding meets Manufacturers Specifications

Supervisor Responsibilities:

- Provide employees with appropriate training regarding cutting, welding and combustible activities, where required
- Ensure that workers are informed in the proper use, care and maintenance of cutting and welding equipment
- Ensure that all necessary precautions have been taken by worker(s) engaged in cutting or welding activities including all Personal Protective Equipment as defined under the site specific health and safety plan (HASP)
- Ensure that warning signs are posted in areas where cutting and / or welding activities are being conducted
- Ensure all equipment used for Cutting and or Welding meets Manufacturers Specifications
- Ensure known site level Hot Work hazards and exposures are defined by the HASP
- Ensure a daily walkthrough survey is conducted through our daily safe work permit (DSWP) to assess the potential hazards related to Cutting, Welding or other Hot Work
- Ensure that all employees that handle or work around flammable or combustible substances be trained in the safe handling, use, storage and disposal of the substance
- Ensure that workers / sub-contractors shall not enter or remain in a work area if more than 10% of the lower explosive limit (LEL) of an explosive substance is present in the atmosphere

Worker Responsibilities:

- Participate in any training related to cutting and welding activities
- Abide by manufacturer's instructions for cutting or welding equipment at all times
- Maintain cutting and welding equipment
- Abide by requirements summarized on the Hot Work Permit at all times while cutting or welding
- Do not modify or remove any components of cutting or welding equipment
- Ensure that an appropriately charged fire extinguishers and fire protection is readily available near the area where cutting or welding activities are taking place
- Ensure when they handle or work around flammable or combustible substances that they have been trained in the safe handling, use, storage and disposal of the substance

47.1.4. PROCEDURE

GUIDING PRINCIPLES

It is the policy of B&N to have all employees involved with the work of cutting and welding be properly trained and certified. All B&N employees will adhere to the safe practices, including the wearing of PPE, for all types of welding and cutting operations. This policy provides the minimum standards for the use of welding and cutting equipment and methods of protecting employees and others performing tasks associated with welding and cutting operations.

GENERAL SAFETY PROCEDURES

Welding is the process of joining metal parts using heat and other substances, while flame cutting or torching is the process of separating metal parts using heat and other substances. Both may use the compressed gas cylinders of acetylene, propane and / or oxygen. The production of fumes, gases, and particulate matter may have adverse health effects. Safety hazards connected with cutting or welding include injuries from electrical shock, arc radiation, thermal burns, radiant energy, toxic fumes, hot sparks, fire and explosion.

The following are B&N's general safety precautions relating to hot work:

1. All welding and cutting shall be performed by trained and qualified personnel
2. Hot Work including all cutting or welding operations shall not be performed above any B&N employee or Sub-contractor on any B&N or client locations
3. All equipment and tools provided for Cutting and or Welding must meet all Manufacturers Specifications
4. Welding and cutting will only be performed in areas authorized for that purpose, away from sewers, floor openings and unprotected flammable objects or combustible materials. If combustible materials cannot be removed, they must be covered with sheet metal or a flame retardant blanket
5. Arc welding and cutting shall be protected by flame resistant screens to protect employees from welding arc flash or flame splatter
6. All torches must be equipped with Flash-back arrestors
7. Appoint a fire watch person where required and provide an appropriate fire extinguisher for the work area. A fire watch shall be maintained until 30 minutes after all equipment has been shut down
8. When required, where hot work including welded or cutting has been completed, B&N will post or identify the working area as HOT to prevent incidental contact by other workers or Sub-contractors
9. Approved fire extinguishers shall be available with each permanent piped or portable torch cutting / welding cart
10. Fire extinguishers at a job site shall be approved by B&N, a type whose contents are discharged under pressure and shall have an Underwriter's Laboratories of Canada 4A40BC rating. Additional fire extinguishers may also be at the job site in addition to the above required extinguishers, i.e.; Pressurized Water (APW)
11. Hoses, cables and other equipment shall be kept clear of the cutting / welding area, which shall be kept clean at all times
12. Natural ventilation is permissible for welding and cutting operations if the welders' breathing zone is kept away from the air contaminants. Where required, additional supplied air may be provided when natural ventilation is not sufficient
13. Cylinders, regulators or hoses of compressed gas systems, and charged gas cylinders shall be protected from a source of heat in excess of 55°C (131°F)
14. Regulators and automatic reducing valves should only be used for the gas for which it is designed
15. Workers / sub-contractors shall not enter or remain in a work area if more than 10% of the lower explosive limit (LEL) of an explosive substance is present in the atmosphere
16. A hot work permit **FORM 47.1.** – Daily Hot Work Permit is required to be completed before cutting or welding

PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. All necessary precautions will be taken during cutting or welding activities including all Personal Protective Equipment as defined under the site specific health and safety plan (HASP)
2. Respiratory protection must be worn when performing ALL cutting or welding
3. Eye protection must be worn to protect the eyes from ultraviolet and infra-red radiation that can burn the eyes. Visible and near infra-red radiation can cause permanent eye damage if looked at directly without eye protection. This protection includes flash goggles and a helmet. Exposed personnel shall wear approved face shields, welding glasses or welding hoods with at least a No. 5 filter and side shields, during cutting operations
4. Hearing protection to be worn when noise levels exceed recommended limits according to Appropriate Provincial Health & Safety Legislation
5. Wear gloves made of flame-resistant material or leather when cutting and / or welding
6. Safety Footwear having the CSA approved green triangle must be worn at all times while on B&N job sites.
7. Never wear synthetic clothing. Interior clothing must be made of cotton or wool. Flame retardant coveralls or cotton external clothing are provided by B&N where required
8. Avoid wearing clothing with turned-up cuffs and pockets where sparks can collect

SET UP PROCEDURES FOR PROPANE & OXYGEN CUTTING

1. Keep cylinders away from sources of heat or possible damage and secure them in an upright position
2. Stand to one side and slightly crack cylinder valve (open slightly and close immediately), this removes dirt and dust particles from the opening and prevents dirt from entering the regulator
3. Attach regulators to respective cylinders, tighten nuts with proper wrench and release pressure adjusting screws on regulators
4. Ensure all PPE is used as defined in the site specific HASP
5. Connect green hose to oxygen regulator and red hose to fuel gas regulator, then connect hoses to torch, green to oxygen inlet and red to fuel gas inlet
6. The fuel gas cylinder shall be opened slowly then all the way
7. Standing to the side of the regulator the operator must open the oxygen cylinder valve slowly and then all the way
8. Purge fuel gas and oxygen line individually before lighting torch
9. After moving away from the cylinders the operator shall open the fuel gas torch valve and light the propane before adjusting the flame with the oxygen

WARNING

The accumulation of gases in an enclosed area can build up quickly and result in serious injury or damage. If the torch does not ignite after a few tries, close all gases and wait before trying again. Ensure the use of any compressed gas is conducted in areas with sufficient natural or supplied ventilation.

SHUT DOWN PROCEDURES

1. Close the torch valves by reducing both lines slowly, then turn off fuel valve first and oxygen gas last at the torch
2. Close the cylinder valves, fuel valve first and oxygen gas last
3. To drain the lines and relieve the pressure, open and then close the torch valves individually
4. Disconnect the hoses and regulators from the cylinders
5. Protective caps must be replaced on the cylinders when not in use
6. Secure cylinders upright and in the designated location

LANCING

Thermic lancing is to be carried out in the open air to allow for adequate ventilation. All flammable materials are to be removed from a distance of at least ten (10) meters from the lancing site. Suitable fire precautions must be taken (i.e. fire extinguishers, flame resistant blankets and water) and protecting gas cylinders, bulk tanks, and torching stations from sparks. The operator and other working personnel must work upwind of the lancing operation.

Approved Lancing Equipment Required Includes but is not limited to the Following:

1. Supply of thermic, burning bars
2. Lance holder (torch)
3. Oxygen hose and connections, including flash-back arrestor
4. Supply of oxygen
5. High pressure oxygen regulator
6. Leak detection solution
7. Metal lancing cage
8. CSA approved PPE; fire resistant safety clothing, approved welding helmet or #5 rated face shield, respirator, ear plugs, fire resistant gloves, safety footwear

NOTE: Smoking is strictly forbidden where there is any possible risk of oxygen enrichment.

Basic Lancing Operating Procedures:

1. Handle and store all torches and equipment so they are protected from contamination such as: oil, grease, and other substances that have a reaction in the presence of oxygen
2. Do not operate in the overhead position or over other B&N employees or Sub-contractors
3. Always comply with prescribed safety precautions and fire prevention procedures
4. Ensure a daily walkthrough survey is conducted through our daily safe work permit to assess the workplace for potential hazards
5. Provide the employees with training on work procedures and processes contained in the HASP through our daily safe work permit meetings
6. Inspect all thermic torches (burning bars), holders, and oxygen hose for contamination from oil, grease, or other flammable material. **DO NOT USE CONTAMINATED MATERIALS.** Check all parts of oxygen system for leaks **DO NOT USE CUTTING SYSTEM IF LEAKS ARE PRESENT OR ANY DEFECTS IN EQUIPMENT IS FOUND**
7. Check regulator pressure; should be between 80 - 100 PSI
8. Use effective protective equipment
9. Route oxygen hoses so they are protected from heat, spark, or slag from the burning operation
10. Slowly open oxygen valve to purge torch and ensure there are no oxygen leaks around end cap or torch. Insure oxygen flows freely through torch and any accumulate moisture or dirt has been blown out of the torch. Close the oxygen valve completely. **DO NOT ATTEMPT** to ignite a torch that does not flow freely
11. Igniting thermic torches takes two people, one to control the oxygen valve and the other to heat the end of the torch. Ensure the oxygen control valve is in the **OFF** position, and the bar is pointed in a safe direction
12. Standing in a position between the operator and the end of torch, heat tip of torch until the outer tube and wire filaments are molten
13. Remove the propane / oxygen torch and have the torch operator slowly open the oxygen valve
14. Handle the ignited lance with due caution and take care not to impinge on anything but the work material
15. When torch tip has been properly heated and oxygen flow is open, torch will begin to burn. It will continue to burn as long as the oxygen is flowing. IF TORCH DOES NOT IGNITE, check oxygen flow prior to attempting to re-ignite. Ensure the end of the torch is not welded shut and oxygen flows freely
16. Concentrate on watching closely the progress of the work
17. Hold the lance with sufficient grip to ensure full control at all times

18. After torch is burning adjust oxygen regulator to compensate for pressure drop (100 psi while burning.) Oxygen pressure for the thermic torch will depend on material thickness and material compensation. Material that readily oxidizes will not require as much oxygen pressure as material that has to be melted and blown away
19. If wire filaments are burning up inside the outer tube, oxygen pressure is too low, or oxygen hose is too small. If outer jacket (tube) is burning faster and filament wires are protruding beyond the end of the torch, oxygen pressure is too high
20. If vision becomes impaired for any reason during the operation, turn the oxygen supply off, clear vision, re-ignite and continue operation. Do not attempt to work with impaired vision
21. Do not use the system when the regulator and / or hose is freezing up
22. Inspect all equipment during operations for any changes in integrity of the equipment
23. Only burn a burning bar down to three feet in length. Turn off the oxygen, insert a new burning bar and attach the three-foot section to the end of the new burning bar
24. Escape routes are to be kept clear at all times

COMPRESSED GAS CYLINDERS

Receiving and Storage of Compressed Gas Cylinders:

- Cylinders must be properly identified with WHMIS labels. Any cylinder without a legible written identification of contents must not be used and sent back to the supplier
- All cylinders must be secured in upright position with chain, cable, or other suitable means to keep them from falling
- Cylinders will not be accepted if the protective cap is not over the valve and screwed down
- Cylinders will not be accepted if they are leaking, the valve is corroded or if dents, holes, cracks, fire burns or other signs of deterioration of the container are evident
- Storage areas must have adequate fire extinguishers available. Extinguishers shall be a minimum of 4A40BC
- Cylinders must be stored in a safe, dry, well-ventilated area that is clear and free of combustible material
- Stored cylinders shall be grouped by types of gas contained and signs posted
- Store cylinders of oxygen at least 20 feet from flammable gas containers or combustible materials
- Acetylene cylinders shall be placed in an upright position for at least thirty minutes before use
- The valve protection cover or cap of an oxygen or acetylene cylinder shall be secured in place when the cylinder is not in use and, in the case of a threaded cover or cap, the cover or cap shall be secured at least hand-tight
- Valves on all cylinders shall be closed when stored or not in use

Using the Cylinder:

- Do not engage valve when uncapping cylinders. Check hoses and connections to ensure they are in good condition
- Report to your B&N location supervisory personnel any defects or damage to the cylinders, valves or hoses.
- Secure cylinders in an upright position
- Always fully open all valves
- The fittings must never be lubricated. Oil with oxygen can cause an explosion
- Appropriate pressure regulators must be used to reduce the high cylinder pressure to the required working pressure
- Cylinders must not be used as rollers, supports, or handled roughly
- Gasses must never be substituted
- Oxygen must never be used as a substitute for compressed gas
- Do not strike electrodes against cylinders or place cylinders where they may become part of an electrical circuit
- Handle and store empty containers as if full. Before disconnecting, close cylinder valve and open the pressure regulator valve
- Store full and empty cylinders separately. Ensure all empty cylinders are marked as Empty when being stored

Transporting or Transferring Cylinders:

- Cylinders must never be transported, transferred or moved without the protective cap in place
- Valves on all cylinders shall be closed when transporting a cylinder
- Cylinders must be moved in an upright position at all times
- Cylinders must not be transported or hoisted by means of magnets or choker slings

B&N DAILY HOT WORK PERMIT

The B&N Daily Hot Work Permit - **FORM 47.1.** – Daily Hot Work Permit, may apply for any operation involving open flames or producing heat and / or sparks and is to be completed by B&N Supervisory Personnel prior to starting the hot work operations as determined by site management. Hot Work includes, but is not limited to: Brazing, Torch Cutting, Grinding, Lancing, Soldering, and Welding. If the required precautions cannot be met, Hot Work is not permitted.

When a Daily Hot Work Permit is to be utilized, it is to be completed in full, one for every torch cutter / welder present on site or if there is more than one hot work operation running in a given work location. The Supervisor is to assess the work area and task(s) to be performed. The B&N Supervisory Personnel will communicate the tasks to be performed with the worker(s) and the control measures outlined on the Daily Hot Work Permit that are applicable. The B&N Supervisory Personnel will provide the Daily Hot Work Permit to the worker(s) and the permit shall remain with the worker for the duration of the shift. The Recipient(s) shall ensure they understand the instruction provided by the B&N Supervisory Personnel and be in agreement with the safety precautions outlined on the Daily Hot Work Permit. The Permit Recipient shall return the permit to the B&N Supervisory Personnel at the end of the work / shift and the permit shall be filed in the job site files.

The following are the key items to complete on the B&N Hot Work Permit:

1. The specific job site number and its address as applicable
2. Print name and signature of the B&N Supervisory Personnel
3. Date and time, duration of the shift, recipient(s) name(s) depending on the work site
4. Define where hot work operation is going to take place (i.e.: building main floor; drop off area, etc) and a brief description of the task
5. Supervisor will mark with an “X” in front of the type of hot work to be performed, whether it is: cutting, torching, welding, grinding, etc.
6. B&N Supervisory Personnel will mark with an “X” under applicable column “Y” (yes), “N” (no) or “N/A” (not applicable) for each precaution to be taken

TRAINING

All B&N employees involved in Hot Work activities must first be fully trained and certified. All newly certified employees must be supervised by a qualified person during initial projects or work assignments.

47.1.5 RELATED FORMS

FORM 47.1. – Daily Hot Work Permit

48.00 DEMOLITION

48.1.1. PURPOSE

The purpose of the Demolition Program is to establish a process to that will effectively manage recognize, assess and control hazards related to Demolition work at all Biggs & Narciso Construction Services Inc. (B&N) locations.

48.1.2. SCOPE

The Demolition Program applies to all demolition operations conducted by B&N.

48.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that resources are available to accomplish the task safely and that the work is performed according to the established site-specific procedures
- Ensure appropriate understanding of the required procedures and all safe work practices relating to all aspects of the Demolition
- Ensure all B&N personnel and Sub-contractors who must work with or around potential Demolition, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures
- Only procure competent Sub-contractors to work on B&N locations

Sub-Contractor Responsibilities:

- Ensure that all equipment brought on site for Demolition is under the supervision of a competent worker and in accordance with the manufacturer's recommendations and instructions
- Ensure participation of the daily safe work permit meeting and review of Job Safety Analysis (JSA)

Supervisor Responsibilities:

- Ensure all potential Demolition hazards are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site-specific HASP
- Ensure the daily safe work permit (DSWP) meeting identifies the current site-specific Demolition strategies, potential site hazards, appropriate training and work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all injuries resulting from Demolition operations to the Health & Safety Department
- Assess the risks associated with all tasks assigned to workers, sub-contractors prior to project commencing
- Ensure a site specific written HASP with rescue procedures are developed and available on site
- Ensure all B&N personnel and sub-contractors who must work with or around potential Demolition, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures

Worker Responsibilities:

- Participate in the daily safe work permit meetings to identify the current site-specific Demolition strategies and work areas where work is required
- Provide all information to supervisors for developing procedures related to the demolition work
- Follow all procedures and processes developed and implemented related to the demolition work
- Report all injuries and accidents resulting from demolition work immediately to the supervisor

Health & Safety Department Responsibilities:

- Notify management, workers, or supervisors regarding any nonconformance or non-defined Demolition hazards are found
- Ensure that competent trainers are delivering the training to all required B&N employees according to site specific Policies and Procedures, and Applicable Provincial Health and Safety Legislation
- Assist Supervision with the site specific written HASP with rescue procedures are developed and available on site

48.1.4. PROCEDURE

GUIDING PRINCIPLES

Demolition means the tearing down, destroying, breaking up or razing of a structure and includes the demolition of any major part of a structure that involves outer walls or principle supporting members.

B&N shall appoint a competent supervisor to manage and supervise the demolition work at all times during the duration of the demolition project. B&N shall ensure that all workers involved in demolition work are trained in B&N's safe work procedures, site specific JSA and HASP requirements.

PRE-JOB PROCEDURES

Before a demolition begins, B&N, Sub-contractor or the owner shall ensure that:

- a. An inspection and hazardous assessment of the demolition site is completed by a competent worker
- b. All chemical or biological substances that may be hazardous to workers during demolition are removed from the structure or the part of the structure that is being demolished
- c. Provide a suitably located temporary power service where power is required for illumination or other purposes
- d. All glass is removed from the structure or the part of the structure that is being demolished when required by the client and / or the site-specific Demolition Plan; and
- e. All gas, electrical, telecommunications, sewer and water services connected to the structure or the part of the structure that is being demolished are disconnected

GENERAL PROCEDURES

Where the demolition of a structure may affect the stability of an adjoining structure, B&N, Sub-contractor or the owner shall ensure that:

- a. The demolition is carried out in accordance with procedures certified in writing by a professional engineer to safeguard the stability of the adjoining structure; if required
- b. Design of the support system must include a schedule, based on the stages of demolition, for installation of the components of the support system
- c. A copy of the site specific JSA and HASP is kept at the worksite during demolition
- d. While salvage is taking place before or during the demolition process, the integrity of the structure will be maintained

B&N, Sub-contractor or the owner shall appoint a competent supervisor to be in charge of the demolition at all times that the work is in progress. If the nature and method of demolition will not endanger workers and the stability of adjoining grounds and structures will not be compromised, engineered demolition plans and designs are not required.

B&N, Sub-contractor or the owner shall ensure that all workers or equipment are located clear of any falling material; and where a worker is or may be present in a building during its demolition. B&N shall ensure that the demolition is performed floor by floor from the top downward.

Where there is a danger of material falling into work areas or into the general public areas, protective canopies will be installed or catch platforms will be provided. Barricades shall be utilized to prevent the general public or workers from entering restricted areas due to identified hazards and signage shall be utilized to warn of the hazards.

B&N, Sub-contractor or the owner shall ensure that:

- a. Dust from the demolition is controlled to the extent that is reasonably practicable and may include the use of a chute when removing debris or if dropping debris or dust creates a risk to the safety or health of a worker or any person
- b. Materials and debris are not allowed to accumulate in any area to the extent that the materials and debris cause overloading of a structure that could result in the collapse of all or part of the structure
- c. Any temporary floors, decking, form work or safety-nets must be installed as the work progresses and must be able to withstand the weight as engineer specification indicate
- d. Temporary floors must completely cover the work area except for openings necessary for the movement of workers and materials. These openings required for work will be effectively guarded as per Applicable Provincial Health and Safety Legislation
- e. Any opening or hole in a floor, roof or other surface on which workers are required or permitted to walk or stand shall be suitably guarded or covered and identified as per Applicable Provincial Health and Safety Legislation
- f. Steel structures are dismantled column length by column length and tier by tier from the top downward; and
- g. No wall or other part of the structure being demolished is left in an unstable condition or in danger of accidental collapse except during the actual demolition of that wall or part of the structure

B&N, Sub-contractor or the owner shall ensure that a material chute steeper than 45° from the horizontal is constructed to enclose the material placed in the chute.

If a material chute presents a danger to workers, B&N, Sub-contractor or the owner shall ensure that suitable guardrails are installed around the top of the chute to prevent any person from falling into the chute. Fencing and barricading shall be installed at the bottom of the chute to keep a worker or the general public at a safe distance away from the bottom opening of the chute and from material potentially striking a person.

STRUCTURAL INTEGRITY

B&N, Sub-contractor or the owner shall ensure that structural members that are being removed are not under any stress other than the member's own weight and are secured or supported to prevent any unexpected movement.

Where a structural member is being hoisted by a crane or other similar lifting device from a structure being demolished or from the demolition rubble, B&N, Sub-contractor or the owner shall ensure that the hoisting line is in a vertical position and is over the centre of gravity of the load in a manner that will reduce the danger to workers from a swinging or uncontrolled load.

Before powered mobile equipment is placed on a floor, roof or other surface on which workers are required or permitted to walk or stand for the purpose of demolishing a structure, B&N, Sub-contractor or the owner shall ensure that the floor, roof or other surface is capable of supporting the load that may be placed on the floor, roof or other surface.

Where powered mobile equipment is used for the purpose of demolishing a structure, B&N, Sub-contractor or the owner shall ensure that site specific work procedures including JSA's are developed, communicated and implemented.

49.00 EXCAVATION WORK

49.1.1. PURPOSE

The purpose of the Excavation Work Program is to establish a process to that will effectively manage recognize, assess and control hazards related to excavation work at all Biggs & Narciso Construction Services Inc. (B&N) locations.

49.1.2. SCOPE

The Excavation Work Program applies to all excavation operations conducted by B&N.

Ground Disturbance: is a work operation or activity that results in a disturbance or displacement of the soil. But not if the disturbance or displacement is a result only of routine minor road maintenance, agricultural cultivation to a depth of less than 450 millimeters below the ground surface over a pipeline, or hand-digging to a depth of no more than 30 cm below the ground surface.

49.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that resources are available to accomplish the task safely and that the work is performed according to established site specific procedures
- Ensure the appropriate training is provided by a qualified trainer for all required personnel
- Ensure appropriate training and testing is conducted for all B&N personnel to ensure thorough understanding of the appropriate procedures and work practices relating to Excavation Work
- Ensure all B&N personnel and Sub-contractors who must work with or around potential Excavation Work, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures

Supervisor Responsibilities:

- Ensure potential Excavation Work related the work are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site specific HASP
- Review Emergency Response Procedures for damaged buried facilities
- Ensure machine operators have training for the equipment being used in a ground disturbance
- Ensure the daily safe work permit meeting identifies the current site specific Excavation Work strategies, potential fall hazards and work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work
- Develop procedures for workers related to Fall Prevention
- Ensure that workers are trained to use the equipment and follow the procedures specified for the task in the site specific HASP
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all injuries resulting from excavation work to the Health & Safety Department

Worker Responsibilities:

- Ensure Excavation awareness training records are available on site
- Participate in the daily safe work permit meetings to identify the current site specific Excavation Work strategies, potential fall hazards and work areas where work is required
- Provide all information to supervisors for developing procedures related to excavation work
- Follow all procedures and processes developed and implemented related to excavation work
- Report all injuries and accidents resulting from excavation work immediately to the supervisor

Health & Safety Department Responsibilities:

- Notify management, workers, or supervisors regarding any nonconformance or deficiencies found
- Ensure that competent trainers are delivering the training to all required B&N employees according to site specific Policies and Procedures, and Applicable Provincial Health and Safety Legislation
- Ensure a site specific written rescue procedure is developed and contained within the site specific HASP

49.1.4. PROCEDURE

GUIDING PRINCIPLES

At B&N, excavation work is something that we may be involved in and that our employees may be exposed to. B&N will comply with the Applicable Provincial Health and Safety Legislation regarding excavations and trenches.

PERMITS AND PLANNING

Prior to commencement of any excavation where there is a possibility of buried services:

- Obtain current utility locates from the local utility providers
- Drawings of underground services will be reviewed, and all underground services that may be affected during the excavation process will be identified
- If possible, the underground service shall be isolated
- A review of the daily safe work permit will be held with operators of mechanical equipment
- Before ground is disturbed or existing concrete is removed at a work site, B&N must:
 - Contact the owner or the owner's designate if
 - (i) a pipeline that is within 30 meters of the work site, and
 - (ii) any other buried or concrete-embedded facility that may be affected by the ground disturbance or removal of existing concrete
 - Advise the owner or the owner's designate of the proposed activities
 - Ask the owner or the owner's designate to identify and mark the location of the buried or concrete-embedded facility
 - Not begin disturbing the ground or removing the existing concrete until buried or concrete-embedded facilities have been identified and their locations marked

REQUIREMENTS

The identification of potential hazards such as soil type, underground utilities, and neighboring structures must be done prior to any excavation or trench work. Trenching requirements are regulated provincially. Care must be taken to:

- Contact local utilities companies to locate and mark all underground electrical, gas, and other utility lines or pipes before the excavation begins. Arrange for shut off of the services and have services disconnected if they present a hazard
- Provide support to elevated cables, pipes, or lines to prevent breakage
- No mechanical excavation is permitted until the buried facility has been exposed to sight by hand digging, a non-destructive technique acceptable to the owner of the buried facility or by an equivalent method. Hand expose zone means the strip of land that is 1 meter wide on each side of the locate marks for a buried facility other than a high-pressure pipeline or 5 meters wide on each side of the locate marks for a high-pressure pipeline
- Ensure no work is performed in a trench unless another worker is above ground and close to the trench or the means of access
- Keep the excavation reasonably free of water
- Strip or trim the walls of the excavation of loose rock or other material
- Keep a level area extending 1 meter from the upper edge of each wall free of equipment, soil, rock and other material including spoil piles

- Ensure all over-hangs are removed or supported
- Promptly remove garbage from the excavation
- Do not operate a vehicle or other machinery above the excavation area that could affect the stability of the excavation wall(s)
- Provide a barricade at least 1.1 meters high at the top of every wall, if danger of falling more than 2.4 meters into an excavation
- Where there is poor visibility, provide artificial lighting and warning lights around the excavation.
- Ensure that material is not lowered into the excavation if the operator has limited visibility, unless a signaler is used to direct the movement of the material
- Ensure no person is under the material being lowered into the trench

WARNING

No person shall enter or be permitted to enter any excavation that does not comply with the requirements of the Applicable Provincial Health and Safety Legislation.

GUIDELINES

- Where required by legislation, no worker shall enter a deep trench (depth is specified in the Applicable Provincial Health and Safety Legislation unless the relevant Applicable Provincial Health and Safety Authorities have been notified).
- No person shall operate or park any vehicle in such a way as to affect the stability of an excavation
- Ladders must extend 1 meter above the excavation and be situated not more than 7.5 meters (25 feet) apart. Ramps may be used instead of ladders. These will be cut into the walls at similar strategic intervals to facilitate entry and exit.
- Back hoes or other mechanical excavation equipment will not excavate in a manner as to risk undermining their ground support.
- If an excavation may affect the stability of an adjacent tree, utility poles, rocks, building or structure, the constructor shall support adjacent structures before work commences. A professional engineer shall specify in writing the precautions required. Such precautions as the professional engineer specifies shall be taken.

SLOPE REQUIREMENTS AND PROTECTIVE STRUCTURES

Where a wall of an excavation or trench is cut back, B&N or the Sub-contractor shall ensure that in the case of type 1 or 2 soil, the walls are sloped to within 1.2 meters of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45 degree measured from the horizontal.

In the case of type 3 soil, the walls are sloped from the bottom of the excavation, or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45 degrees measured from the horizontal.

In the case of type 4 soil, the walls are sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than three horizontal to one vertical or 19 degrees measured from the horizontal.

BARRICADES

If a person could fall into an excavation that is more than 2.4 meters deep, a sturdy barrier at least 1.1 meters high shall be provided at the top of every wall that is not properly sloped. These will be designed in such a manner that personnel cannot fall into the excavation. Barricades, flagging and warning signs of danger will be installed around the excavation as long as the hole is open and there is a danger of a worker or equipment falling into an excavation or trench.

EXCAVATING NEAR PIPELINES AND BURIED CABLES

Buried pipelines, power and communication cables may be damaged during excavations when no precautions are taken. The following precautions in areas where underground services are to be taken:

- If an underground service is deeper than 1 meter, then the initial excavation may take place using only appropriately sized mechanical equipment
- No mechanical equipment will be used within 60 cm of a buried pipeline or cable; only hand tools will be used
- Sharp metal probes, picks or any other sharp tools will not be used to locate underground services
- Frozen soil may be thawed using methods appropriate to the work site (i.e., open fires are not permitted in operating facilities without special safety precautions; steam thawing is recommended for these situations.)
- Where contact is made with any pipeline or cable, the incident will be reported to the Construction Manager; because even minor scrapes will initiate corrosion that could eventually result in a leak
- Any damage to exposed pipeline wrappings will be repaired prior to burial under the supervision of a representative of the facility owner

SHORING AND BRACING

The walls of an excavation shall be supported by a support system if the excavation is more than 1.2 meters (4 feet) in depth or is not cut in sound and stable rock is not sloped and a worker is required to enter it.

A support system shall consist of,

- Timbering and shoring, if no hydrostatic pressure is present in the soil, and if the width and depth of the excavation are equal to or less than the width and depth indicated in the following chart

Excavation Shoring and Timbering (Metric Sizes)

Excavation Depth	Soil Type	Sheathing	Struts				Wales
			Width of Excavation at Strut Location		Strut Spacing		
			1.8 m to 3.6 m	Up to 1.8 m	Vert.	Horiz.	
3.0m or less	1	50mmx200mm at 1.2 m o/c	200mmx200mm	150mmx150mm	1.2 m	* 2.4 m	*200mmx200mm
	2	50mmx200mm at 1.2 m o/c	200mmx200mm	150mmx150mm	1.2 m	* 2.4 m	*200mmx200mm
	3	50mmx200mm at 10mm gap	200mmx200mm	200mmx200mm	1.2 m	2.4 m	250mmx250mm
	4	75mmx200mm at 10mm gap	250mmx250mm	200mmx200mm	1.2 m	2.4 m	300mmx300mm
Over 3.0m to 4.5m	1	50mmx200mm with 10mm gap	200mmx200mm	150mmx150mm	1.2 m	2.4 m	200mmx200mm
	2	50mmx200mm with 10mm gap	200mmx200mm	200mmx200mm	1.2 m	2.4 m	250mmx250mm
	3	50mmx200mm with 10mm gap	250mmx250mm	250mmx250mm	1.2 m	2.4 m	250mmx250mm
Over 3.0m to 4.0m	4	75mmx200mm with 10mm gap	300mmx300mm	300mmx300mm	1.2 m	2.4 m	300mmx300mm
Over 4.5m to 6.0m	1	50mmx200mm with 10mm gap	200mmx200mm	200mmx200mm	1.2 m	2.4 m	200mmx200mm
	2	50mmx200mm with 10mm gap	250mmx250mm	250mmx250mm	1.2 m	2.4 m	250mmx250mm
	3	50mmx200mm with 10mm gap	300mmx300mm	300mmx300mm	1.2 m	2.4 m	300mmx300mm

* **NOTE:** For excavations to 3 m deep in soil types 1 and 2, the wales can be omitted if the struts are used at 1.2 m horizontal spacings.

- A prefabricated support system
- A hydraulic support system; or
- An engineered support system

Where the excavation is a trench and the depth exceeds 6 meters or the width exceeds 3.6 meters, the support system shall consist of an engineered support system designed for the specific location and project.

Stabilization of Soil

B&N will stabilize the soil in an excavation by shoring or cutting back. B&N may freeze the soil in an excavation by artificial means or grouting if the process used is designed by a professional engineer to control soil conditions and performed in accordance with the professional engineer's specifications.

Soil Types determine the strength and stability of a trench. Trench stability is also affected by a number of factors such as weather, moisture, vibration, and previous excavation. Soil type is one of the most important factors. In a single trench, soil properties can sometimes vary widely from top to bottom or along its length.

There are four general types of soil from dry, dense, and hard (type 1) to wet, muddy, and unable to support itself (Type 4).

TYPE 1 - Hard, very dense. You can only penetrate it with difficulty by using a small sharp object

- Low natural moisture content, high degree of internal strength. No signs of water seepage
- You need mechanical equipment to excavate this type of soil

TYPE 2 - Very stiff, dense. You can penetrate it with moderate difficulty by using a small sharp object

- Low to medium natural moisture content, medium degree of internal strength
- Has a damp appearance after its excavated

TYPE 3 - Stiff to firm, compact to loose in consistency. May be previously excavated soil

- Signs of surface cracking and water seepage
- When dry, it may run easily into a well-defined conical pile
- Low degree of internal strength

TYPE 4 - Soft to very soft, very loose in consistency, very sensitive to vibration and motion.

- Any disturbance significantly reduces its natural strength
- Runs easily unless completely supported before excavation
- Almost no internal strength
- Wet or muddy
- Exerts substantial fluid pressure on its supporting system

General Guidelines

- When installing shoring or bracing, use a ladder and work downwards from the top of the trench, when removing shoring or bracing use a ladder and work upwards from the bottom of the trench
- Workers must not enter into or be in any un-shored area of a trench
- Ensure shoring / bracing is not removed from excavation until there is no further need for it and ensure no person re-enters the area
- Ensure shoring or bracing is designed by a certified professional engineer or is commercially manufactured. Follow the manufacturer's or engineer's instructions regarding the installation, maintenance, and dismantling of the shoring or bracing
- Ensure that the installation and removal of the support system is supervised by a competent person.
- Monitor the support system to ensure there is no deterioration during operations
- The walls of the excavation do not require shoring for an excavation
 - a. That is less than 1.2 meters deep
 - b. That no worker is required to enter
 - c. That is not a trench and with respect to which no worker is required to be closer to a wall than the height of the wall
 - d. That is cut in sound and stable rock
 - e. Made in Type 1 or Type 2 soil and whose walls are sloped to within 1.2 meters of its bottom with a slope having a minimum gradient of one horizontal to one vertical

- f. Made in Type 3 soil and whose walls are sloped from its bottom with a slope having a minimum gradient of one horizontal to one vertical
- g. Made in Type 4 soil and whose walls are sloped from its bottom with a slope having a minimum gradient of three horizontal to one vertical; or
- h. That is not a trench and is not made in Type 4 soil and with respect to which a professional engineer has given written opinion that walls of excavation are sufficiently stable that no worker will be endangered if no support system is used

TRAFFIC CONTROL

B&N will ensure that all traffic on the site will be effectively controlled and directed by qualified workers who are knowledgeable in the site HASP. Workers on foot, in vehicles or on equipment shall wear a highly visible piece of equipment. Example - (Hi Visibility - vest or reflective stripping on coveralls).

If the worker is designated as a traffic controller they shall wear a highly visible piece of clothing that:

- (a) clearly identifies the worker as a designated traffic controller, properly certified, and
- (b) is retro reflective if the worker is controlling designated traffic in the dark or visibility is poor

LADDERS

- Use of a ladder will allow access and egress to and from the excavation area. The ladder must rest on the bottom of the trench and extend 90 cm beyond the landing or above ground level
- Place ladders 7.5 meters apart, following the progress of operations
- Ladders must be secured at the top and bottom to prevent tipping or falling
- Always visually inspect ladders prior to using them. Ladders with weakened, broken, bent or missing steps broken or bent side rails; broken, damaged or missing non-slip bases; or otherwise defective must not be used and are to be removed from the site immediately
- Always maintain three points of contact when climbing a ladder (e.g. two feet and one hand or one foot and two hands)

CONFINED SPACE

Where there is possible exposure to toxic gases or oxygen deficient or enriched atmosphere within the excavation, follow the procedure outlined in the Confined Spaces (Section – 29) of this program.

Adequate ventilation will be provided to the excavation, where there is a lack of natural adequate ventilation and there is a possibility of exposure to air contamination, such as exhaust from an internal combustion engine.

ACCESS AND EGRESS

Safe means of entry and exit must be provided to all excavations where a worker is required to enter. If workers are required to enter a trench over 1.2 meters deep, the safe point of entry and exit must be located within 8 meters of the workers and the excavation must be safely supported or sloped to the entry and exit location. Walkways must be secured to prevent dislodgment. The open side of an access route into an excavation used by mobile equipment must have a curb.

Spoil piles will be placed back a minimum of 1.2 meters away from the edge of the excavation to ensure that they do not increase the lateral pressure that is exerted upon the edge of the excavation. In addition, the slope of the spoil pile adjacent to the excavation is at an angle of not more than 45 degrees from the horizontal, and loose materials are scaled and trimmed from the spoil pile.

If the spoil pile exceeds 60 cm and shoring is utilized, then the shoring must take into account the increase in lateral pressure being exerted.

STOCKPILES OF UNCONSOLIDATED MATERIAL

Stockpiles of unconsolidated material shall be:

- a. Inspected for hazardous conditions regularly by a competent person; and
- b. Made safe before a worker is allowed to work close to or on top of the stockpile

Bulk or packaged material shall be piled or stacked in a manner to prevent accidental movement or collapse. When a tunnel is used under a stockpile for the purpose of reclaiming material from the stockpile at least two exits shall be provided from the tunnel.

GROUND DISTURBANCE (BEST PRACTICES)

1. Pre-job Safety Meeting

Prior to any ground disturbance, B&N shall conduct a pre-job safety meeting discussing the job, the hazard assessment, roles and responsibilities, buried facilities / pipelines, emergency procedures, etc. All employees involved should be in attendance for this meeting.

2. Safe Work Permits

A work permit shall be completed prior to commencing a ground disturbance to ensure that all pre-job activities are complete and the crossing agreements or approvals are complete. The permit should include the requirements listed in the crossing agreements / approvals, identification of hazards and controls, and evidence of communication to affected personnel.

3. Approvals from Facility Owner

Before the start of a ground disturbance activity, approvals or crossing agreements must be obtained from the buried facility owner. The approval will outline the personnel responsibilities as well as any conditions or limitations for the ground disturbance activity.

4. Confirmation by facility owner before disturbance

Before starting a ground disturbance activity, notification should be made to the Provincial One-Call centre / buried facility owner for the applicable province. The One-Call centre will notify the subscribed buried facility owners of the pending ground disturbance.

5. Competent Persons

Personnel involved in ground disturbance activities should be deemed as competent to complete those activities. Competence includes a combination of training, experience, and qualifications. This shall be completed by each site superintendent.

6. Emergency Response Procedures

When unwanted contact is made with a pipe or buried facility, work shall be stopped immediately and the owner (licensee) must be notified. If the owner cannot be contacted, the applicable one-call centre may be contacted.

7. Confirmation by facility owner before backfilling starts

When a pipe / buried facility is exposed, the owner must be notified at least 24 hours prior to backfilling. The owner must inspect the buried facility to ensure its condition is satisfactory. If the owner cannot be contacted or fails to inspect, the ground disturber must demonstrate that they made every effort to contact them. All records of inspections should be kept for the life of the buried facility.

8. Ground Disturbance Program Review

The ground disturbance written program must be reviewed on a regular basis and updated as necessary. The program must be reviewed when there are changes to regulations or company policy.

ENVIRONMENT – EROSION AND SEDIMENT CONTROL (BEST PRACTICES)

Job Planning must be conducted pre-job, during construction, and after construction. Pre-job meetings must be held to plan for the least amount of disturbance as necessary and what control measures need to be put into place. Job planning shall be conducted during construction to ensure that erosion and sediment control measures are in place and the procedures are being followed. Post-job planning shall be in place to ensure that temporary controls have been removed and that all potential problem areas have been addressed.

Minimizing bare soil exposure. When clearing, stripping land, and excavating during construction activities, the schedule must include a plan to minimize the amount of time that the bare soil is left exposed and to minimize the extent of soil exposure at any one time in order to reduce the amount of erosion and sedimentation that occurs.

Erosion Control. When activities require a disturbance of the soil, B&N shall utilize erosion control devices to prevent erosion and ultimately to help prevent sedimentation. Examples of erosion control devices include: temporary seeding, temporary mulching, permanent sodding, erosion control blankets, and vegetative buffer strips.

Sediment Control Devices. Entry and exit points for any water runoff must be controlled with the use of sediment control devices to prevent sediment from entering any waterways. Commonly, storm drain inlets are protected to prevent sediment from entering the storm drain. Examples of sediment control devices include: silt fencing, straw bales, storm inlet traps, sediment ponds, rock check dams, and intercepting berms.

Inspection of Erosion and Sediment Devices. When erosion and sediment control devices are in use, B&N shall ensure that an inspection and maintenance plan is in place for these devices. A set inspection schedule should be established to view all areas where erosion and sediment control devices are used as well as all disturbed areas. Any erosion or sediment control devices that are found to be damaged or deficient during the inspection shall be corrected as soon as possible. Maintenance must also include removing sedimentation to prevent a breakthrough.

Employee training in Erosion and Sediment Control Devices. B&N employees that are responsible for erosion and sediment control devices must be competent in the design, installation, and maintenance of the devices. Training must be performed in-house or by a 3rd Party. Contact your Remediation Supervisor for training.

ENVIRONMENTAL – WASTEWATER HANDLING AND DISPOSAL (BEST PRACTICES)

Requirements of wastewater. The content of any wastewater should be known before discharging. B&N shall have the waste water tested in order to determine if the contents of the wastewater are hazardous (toxic, corrosive, flammable, etc.). If any are found to be hazardous the wastewater needs to be disposed of in a facility authorized to dispose of hazardous waste.

Coordination with Site Owner. B&N must coordinate with the project site or owner to ensure proper disposal of wastewater. For example, B&N or our third-party contractor must ensure the owner of the site is aware of how wastewater is disposed of to ensure compliance with applicable permits.

Training on the proper handling and disposal of waste water. B&N shall provide the affected employees training on the requirements of handling and disposal of wastewater. Training may be performed in-house or by a 3rd Party. Please contact your Remediation Site Superintendent for training.

50.00 HOISTING AND RIGGING

50.1.1. PURPOSE

The purpose of the Hoisting and Rigging Program is to establish a process to that will effectively manage recognize, assess and control hazards related to operations at all Biggs & Narciso Construction Services Inc. (B&N) locations.

50.1.2. SCOPE

The Hoisting and Rigging Program applies to all Rigging and Lifting operations conducted by B&N.

50.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that the Information is available to the crane operator regarding the weight of any load that is required or permitted to be raised
- Only hire Sub-contractors who qualify under - **FORM 6.2.** – Sub-Contractor Qualification Questionnaire.
- Requires all qualified crane operators to maintain a current record of non-destructive testing
- Requires all qualified crane operators to maintain a valid log book present at the place of work.
- Ensure all qualified crane operators have a valid training certificate available on site
- Ensure all crane operators inspect the crane before the start of each shift to detect any defects or malfunctions

Sub-Contractor Responsibilities:

- Ensure that all rigging is assembled, used, maintained and dismantled under the supervision of a competent worker and in accordance with the manufacturer's recommendations and instructions
- Inspect all components of the crane before the start of each work shift in order to detect any defect, malfunction or hazardous condition
- Ensure that adequate emergency rescue procedures are developed and communicated in writing to all workers involved with the hoisting operation through the daily safe work permit meeting and review of Job Safety Analysis (JSA)
- Ensure that any worker who is required or permitted to assemble, use, maintain, or dismantle rigging is trained and competent in safe rigging practices
- Ensure the crane has a plate or weatherproof label permanently secured to it that legibly shows the manufacturer's rated load
- Ensure that a load chart is available at all times showing the rated load at all permitted boom angles and boom radiuses
- Ensure that the information is available to the operator regarding the weight of any load that is required or permitted to be raised
- Ensure that all hoisting hooks are equipped with a self-closing safety latch
- Ensure that all loads are safely landed and supported prior to detaching hoisting and rigging equipment.

Supervisor Responsibilities:

- Ensure potential hazards related to the work are defined along with the appropriate safe lifting procedures and required Personal Protective Equipment (PPE) within the site-specific health and safety plan (HASP)
- Ensure the daily safe work permit meeting identifies the current site-specific hoisting and rigging work or areas where lifting and rigging is required
- Develop procedures for workers and Sub-contractors related to hoisting and rigging operations
- Provide training and testing to ensure thorough understanding of the appropriate procedures
- Report all injuries resulting from hoisting and rigging operations to the B&N Health & Safety Department
- Ensure that all hoisting hooks used by the Sub-contractor are equipped with a self-closing safety latch

Worker Responsibilities:

- Operate all hoisting and rigging equipment in accordance with the manufacturer's recommendations, the JSA procedures and the site-specific HASP
- Provide all information to supervisors for developing procedures related to hoisting and rigging
- Report all hoisting and rigging injuries as well as incidents relating to hoisting and rigging immediately to the supervisor
- Ensure that all hoisting hooks used by the Sub-contractor are equipped with a self-closing safety latch

50.1.4. PROCEDURE

GUIDING PRINCIPLES

As policy, B&N only contracts reputable crane Sub-contractors and requires that a current record of non-destructive testing as well as a valid log book be present on the job site. B&N requires all crane operators to be competent operators and have valid proof of competency training certificates available on site. The crane operator shall inspect the crane before the start of each work shift in order to detect any defects, malfunctions or hazardous conditions.

B&N will only utilize competent and qualified employees and Sub-contractors to perform the hoisting and rigging operations.

B&N or the Sub-contractor shall ensure that no load is imposed on any rigging that is in excess of 10% of the breaking strength of the weakest part of the rigging (if the rigging is being used to raise and lower workers) and 20% of the breaking strength of the weakest part of the rigging in all other cases.

B&N, the Sub-contractor or supplier shall ensure that a sling is clearly labeled to indicate the slings maximum load.

Hoisting and rigging work must be done by or under the direct supervision of a competent employee familiar with the rigging to be used and with the code of signals authorized by the Applicable Provincial Health and Safety Legislation.

INSPECTION AND SAFETY

Riggers who are trained and competent must inspect hardware and rigging components regularly and before each lift. The worker performing an inspection shall record the condition of the rope or cable inspected in the log book for the crane or similar device.

All cables used by a crane or a similar hoisting device shall be visually inspected by a competent worker at least once a week when a crane or similar device is being used.

Signs to look for include:

- Wear, fraying, oil, chalky exterior, size reduction
- Cracks, chips, bulges
- Severe corrosion
- Deformation / bends
- Mismatched parts
- Obvious damage
- Weather damage; frozen
- Paint or other covering debris
- Writing or other markings
- Missing tags / labels listing Working Load Limit (WLL)

GUIDELINES

Riggers who are trained and competent must follow the requirements as defined in the site specific HASP and the Applicable Provincial Health and Safety Legislation. The following safety requirements must be followed as a minimum but not limited to:

- Only use approved and identified hoisting and rigging components and fittings
- All hoisting and rigging components and fittings must be visually inspected before use on each shift, and defective equipment must be immediately removed from service
- Do not use any equipment deemed unsafe or defective or has been tagged as out of service
- Report any identified defects or damage to the rigging immediately to the Supervisor
- The load must be rigged with its center of gravity directly below the hook (hoist block) to ensure stability
- The crane hook (hoist block) shall be brought over the load's center of gravity before the lift is started
- Crane hook and load line must be vertical before lifting
- The Sub-contractor who is responsible for the cranes on site shall keep a permanent record of all inspections, tests, repairs, modifications to the crane and a log book at all times
- Riggers and competent personnel shall use tag lines to help control movement and prevent rotation during hoisting by crane or similar devices
- Employees must remember to block loose loads before unhooking
- Employees are to stay back when slings are pulled out from under loads
- Employees are never to ride on the load hook, sling, or other hoisting equipment of a crane or similar hoisting material
- A signaler will assist the machine operator, driver, or crane operator where the intended path of travel is obstructed or where a person may be endangered
- No machine operator shall operate machinery in a manner that a machine or part of its load passes over a worker
- Ensure that all loads are safely landed and supported prior to detaching hoisting and rigging equipment
- The load applied to any rigging or rigging assembly must not exceed the Working Load Limit (WLL)
- The rated capacity of a lifting device must not be exceeded
- Natural fibre rope (hemp, linen, cotton) must not be used for hoisting with a powered hoist
- A hook block shall have its load rating and weight legibly cast or stamped on it in a conspicuous location
- Adverse weather conditions must be taken into account and the timing and safe work procedure adjusted accordingly
- Only engineered components such buckets & forks maybe used as hoisting attachment points as per the manufacturer's recommendations
- A load transported on a fork-lift truck must not project above the fork carrier or back rest (carriage) a distance greater than half the height of the load
- A loose load must not project above the fork carrier or back rest (carriage)

Component Identification

- Rigging fittings must be marked with the manufacturer's identification, product identifier and the WLL or sufficient information to readily determine the WLL
- The WLL of existing fittings not identified must be determined by a competent person, then identified on the fitting

Rigging Capacity of Rigging Equipment

A container, sling, or similar device for rigging or hoisting an object, including its fittings and attachments shall be suitable for and capable of supporting the object being rigged or hoisted, it shall be capable of supporting at least five times the maximum load to which it may be subjected, and shall be capable of supporting at least ten times the load to which it may be subjected if it is to be used to support a person. A cable used by a crane or similar hoisting device shall be capable of supporting at least,

- a. Three and one-half times the maximum load to which it is likely to be subjected if it is used on a device other than a tower crane and it winds on a drum or passes over a sheave
- b. Five times the maximum load to which it is likely to be subjected if it is used on a tower crane and it winds on a drum or passes over a sheave
- c. Three times the maximum load to which it is likely to be subjected if it is a pendant or is not subject to winding or bending; and
- d. Ten times the maximum load to which it is likely to be subjected if the crane or similar hoisting device is used for supporting persons

Wire Rope on Mobile Cranes

The minimum design factor based on breaking strength for wire rope on a mobile crane, unless otherwise specified by the crane or wire rope manufacturer, is

- a. For conventional wire rope
 - i. 2.5 for pendant lines, 3 for boom hoist reeving and 3.5 for load lines, during erection, and
 - ii. 3 for pendant lines, 3.5 for boom hoist reeving and 3.5 for load lines, at all times except during erection, and
- b. 5 for wire rope of non-rotating construction

Wedge Socket Connections

If a wedge socket is used as a wire rope termination, the dead end of the rope must be secured to prevent release of the wedge or rope slippage at the socket.

Hoisting Hook

A hoisting hook shall have its load rating legibly cast or stamped on it in a location where the person using the hook can readily see it.

Open Hook Restriction

- A hook must have a safety latch or other means that will retain slings, chains, or other similar parts, under slack conditions
- A hook used in an application where manipulation of a safety latch or other retaining means may cause a hazard to a worker is exempt from the requirements listed under the Applicable Provincial Health and Safety Legislation

Securing Pins

- A shackle-pin, heel-pin and similar device must be secured against dislodgment.
- The pin in a screw-pin type shackle must be wired or otherwise secured against rotation when used in the applications that may cause the pin to loosen.
- A shackle-pin can only be replaced with the approved manufacturers replacement pin.

Wraps Required

At least 2 full wraps of wire rope must remain on winding drums when the load hook is in the lowest position.

Sheaves

- Must be correctly sized for the wire rope,
- Have a device to retain the wire rope within the groove, and
- Be removed from service if the groove or flange has been damaged.

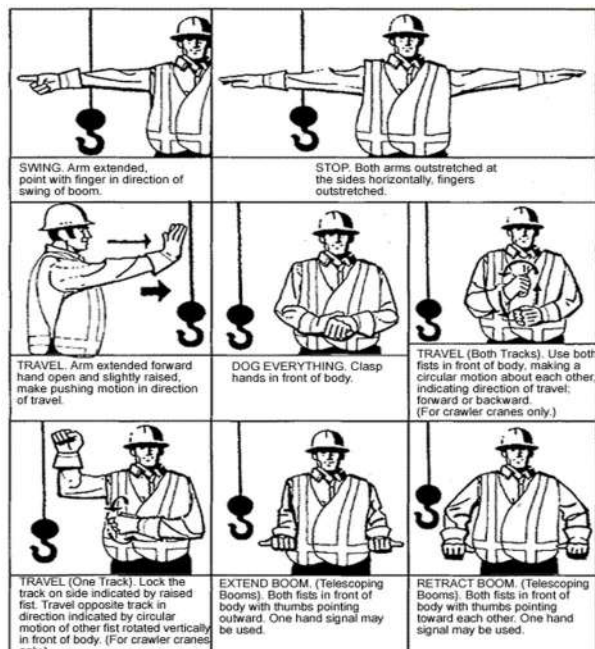
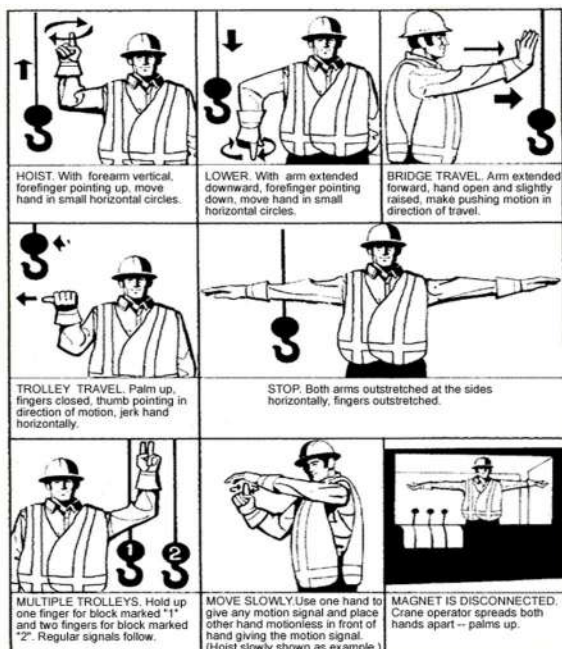
Guylines

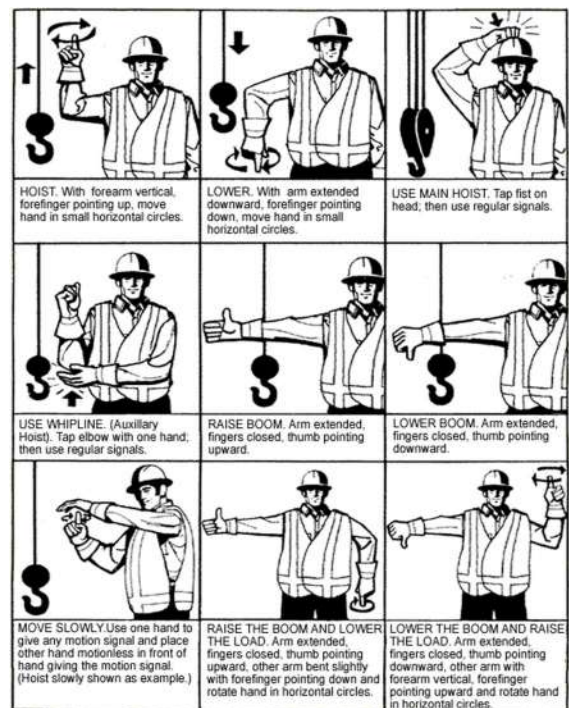
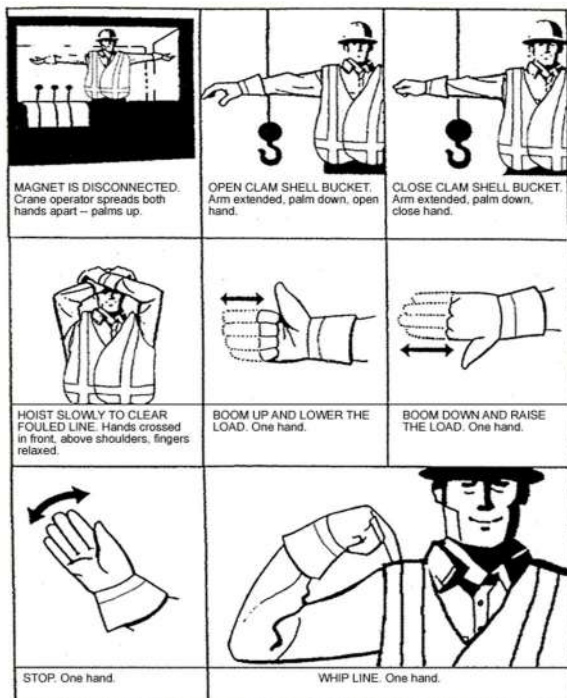
- The strength of each guyline and its anchor must exceed the breaking strength of the load-line rigging arrangement
- A guyline anchor must be placed so that the interior angle, between the guyline and the horizontal plane, does not exceed 45°
- Guylines must be arranged so that the hoisting line pull in any direction is shared by 2 or more guys.
- Guylines and anchor systems, if certified by a professional engineer, may deviate from the requirements of the provincial guidelines

Hand Signals

If hand signals are used between a signaler and the operator of a crane or hoist to control hoisting operations, the following signals must be used.

Figure 1: Hand Signals





Termination Efficiencies

The working load limit must be reduced in accordance with the efficiency rating for the type of termination specified in 51.03

Figure 2: Termination Efficiencies, unless otherwise permitted by the manufacturer.

Wire Rope Clips

1. If the manufacturer's specifications for installing and using wire rope clips cannot be determined, the number of clips and the installation torque must be as shown in 48.03 – **Figure 3: Installation and Use of Wire Rope Clips**
2. The U-bolt part of a wire rope clip must be installed so that it bears on the unloaded end of the wire rope.
3. Malleable cast iron wire rope clips must not be used for hoisting or other critical applications unless approved by the manufacturer for that purpose.

Wire Rope Splices

Wire rope splices made using wire rope clips must:

- a. Use double the number of clips specified by the manufacturer or 51.03 – **Figure 3: Installation and Use of Wire Rope Clips** for a single loop termination, when forming a lap splice, or
- b. Use the number of clips specified by the manufacturer or 51.03 – **Figure 3: Installation and Use of Wire Rope Clips** for each loop termination, when forming a double loop splice.

Figure 2: Termination Efficiencies

Open Type	Closed Type
SWAGED SOCKET	100%
WIRE ROPE SOCKET - SPelter ATTACHMENT	100%
PRESSED SLEEVE LOOP BACK THIMBLE ATTACHMENT	80%
25mm (1 in) diameter and smaller	80%
29mm (1 1/8 in) diameter and larger	92.5%
FLEMISH LOOP WITH MECHANICAL SLEEVE ATTACHMENT	85%
25mm (1 in) diameter and smaller	85%
29mm (1 1/8 in) diameter and larger	92.5%
WEDGE SOCKETS (depending on design)	75 - 90%
CLIPS (number of clips varies with size of rope)	80%
THIMBLE SPlice - HAND TUCKED	80%
8mm (5/16 in)	90%
10mm (3/8 in)	88%
11mm (7/16 in)	87%
13mm (1/2 in)	86%
16mm (5/8 in)	84%
19mm (3/4 in)	82%
22mm (7/8 in)	80%
LOOP SPlice - HAND TUCKED	Efficiencies of loop splice are the same as those given for thimble splice.

Figure 3: Installation and Use of Wire Rope Clips

Diameter of rope		Number of clips	Spacing between clips (centre to centre)		Torque	
millimetres	Inches		millimetres	inches	Newton metres	Foot pounds
6	¼	2	38	1 1/2	20	15
8	5/16	2	51	2	41	30
10	3/8	2	57	2 1/4	61	45
11	7/16	2	64	2 1/2	88	65
13	½	3	76	3	88	65
16	5/8	3	102	4	129	95
19	¾	4	114	4 1/2	176	130
22	7/8	4	133	5 1/4	305	225
25	1	4	152	6	305	225
29	1 1/8	5	178	7	305	225
32	1 ¼	5	203	8	488	360
38	1 ½	6	229	9	488	360
44	1 ¾	7	267	10 1/2	630	465
51	2	8	305	12	881	650
54	2 1/8	8	330	13	881	650
57	2 1/4	8	356	14	881	650

Restriction on Fold Back Eyes

1. A wire rope termination using a swaged fold back eye must be identified with a serial number or other unique identification code, proof tested before being placed in service and a record of the proof test kept available for the service life of the termination
2. A swaged fold back eye termination must be identified with the WLL, the angle in which the WLL is based and the name or mark of the fold back eye manufacturer

Wire Rope Rejection Criteria

Wire rope must be permanently removed from service if:

- a. In running wire ropes, there are 6 or more randomly distributed wires broken in one rope lay or 3 or more wires are broken in one strand in one lay
- b. In stationary wire ropes, such as guylines, there are 3 or more broken wires in one lay in sections between end connections, or more than one broken wire within one lay of an end connection,
- c. Wear, or the effects of corrosion, exceeds 1/3 of the original diameter of outside individual wires,
- d. There is evidence of kinking, bird-caging or any other damage resulting in distortion of the rope structure,
- e. There is evidence of heat or arc damage, or
- f. There are reductions of normal rope diameter, from any cause, in excess of
 - i. 0.4 mm (1/64 in) for diameters up to and including 8 mm (5/16 in)
 - ii. 1 mm (3/64 in) for diameters greater than 8 mm (5/16 in) up to and including 19 mm (3/4 in)
 - iii. 2 mm (1/16 in) for diameters greater than 19 mm (3/4 in) up to and including 29 mm (1 1/8 in), or
 - iv. 3 mm (3/32 in) for diameters greater than 29 mm (1 1/8 in)

Non-rotating Wire Rope

Wire rope with non-rotating construction must be removed from service if

- a. The rejection criteria in section Wire Rope Rejection Criteria are met,
- b. There are 2 randomly distributed broken wires in 6 rope diameters, or
- c. There are 4 randomly distributed broken wires in 30 rope diameters.

Contact with Electric Arc

A rigging component or a wire rope that has been contacted by an electric arc must be removed from service until certified safe for continued use by a professional engineer.

Welding

1. Rigging and fittings which have been repaired by welding must not be placed in service until certified safe for continued use by a professional engineer
2. Alloy steel chain must not be welded or annealed

Hook Rejection Criteria

A worn or damaged hook must be permanently removed from service if:

- a. The throat opening, measured at the narrowest point, has increased by more than 15% of the original opening
- b. The hook has twisted more than 10° from the original plane of the hook
- c. The hook has lost 10% or more of its cross-sectional area
- d. The hook is cracked or otherwise defective, or
- e. Wear or damage exceeds any criteria specified by the manufacturer recommendations

SLINGS

Standards

Unless otherwise required by the Regulation *ASME B30.9-1990*, Slings, wire rope, alloy steel chain, metal mesh, synthetic fibre rope and synthetic fibre web slings must meet the requirements of the Applicable Provincial Health and Safety Legislation.

WORKING LOAD LIMIT (WLL) OF SLINGS

1. The WLL must be present and legible on the sling
2. Ensure that the WLL of any individual component of the assembly is not exceeded
3. The WLL of a sling with more than 3 legs is limited to the WLL of any 3 legs of the sling
4. The load carried by any single leg of a bridle sling must not be greater than the WLL of the leg

Sling Angles

If a sling is used to lift at any angle from the vertical:

- a. The design factors required by this Part must be maintained, and
- b. A competent person or the manufacturer must determine the required reduction of the WLL of the sling, or it must be reduced according to – *Figure 1: WLL Reductions for Slings at an Angle*

Figure 1: WLL Reductions for Slings at an Angle

Angle between the sling leg and vertical	Reduce WLL to
up to 30°	90%
over 30° up to 45°	70%
over 45° up to 60°	50%
over 60°	not permitted unless part of an engineered lift

Proof-Testing Slings

Before being placed in service any new, repaired or altered sling having welded couplers or other welded load bearing attachments must be proof tested by the manufacturer, or the manufacturer's representative or an agency acceptable to the Applicable Provincial Health and Safety Authorities in the manner specified by the manufacturer.

Storage

A sling must be stored to prevent damage when not in use.

Knots

A sling with a knot must not be used.

Sharp Edges

When a sling is applied to a sharp edge of a load, the edge or the sling must be protected to prevent damage to the sling.

Slinging Loads

1. A sling must be selected and used to prevent slipping or overstressing the sling or the load
2. A load consisting of 2 or more pieces of material over 3 m (10 ft.) long must be slung using a 2-legged sling arrangement positioned to keep the load horizontal during the lift, and each sling must be choked around the load with a double wrap

Multiple Piece Lifts

- a. Each member of the lift that is being delivered to a different spot must be independently slung back to the main load hook or master link using graduated length slings
- b. A lifted member must not support another lifted member, and
- c. A crane with power-controlled lowering must be used

WIRE ROPE SLINGS

Sling Identification

A wire rope sling with a swaged or poured socket or a pressed fitting must be permanently identified with;

- a. Its certified WLL,
- b. The angle upon which the WLL is based, and
- c. The name or mark of the sling manufacturer.

Rejection Criteria

1. A wire rope sling must be permanently removed from service when the applicable rejection criteria are found

Wire Rope Rejection Criteria: Wire rope must be permanently removed from service if:

- a. In running wire ropes, there are 6 or more randomly distributed wires broken in one rope lay or 3 or more wires are broken in one strand in one lay
- b. In stationary wire ropes, such as guylines, there are 3 or more broken wires in one lay in sections between end connections, or more than one broken wire within one lay of an end connection
- c. Wear, or the effects of corrosion, exceed 1/3 of the original diameter of outside individual wires

- d. There is evidence of kinking, bird-caging or any other damage resulting in distortion of the rope structure
- e. There is evidence of heat or arc damage, or
- f. There are reductions of normal rope diameter, from any cause, in excess of
 - i. 0.4 mm (1/64 in) for diameters up to and including 8 mm (5/16 in)
 - ii. 1 mm (3/64 in) for diameters greater than 8 mm (5/16 in) up to and including 19 mm (3/4 in)
 - iii. 2 mm (1/16 in) for diameters greater than 19 mm (3/4 in) up to and including 29 mm (1 1/8 in), or
 - iv. 3 mm (3/32 in) for diameters greater than 29 mm (1 1/8 in)
- 2. A sling with damaged end fittings must not be used

Prohibited Slings

Wire rope of non-rotating type construction or of Lang's lay type construction must not be used in a sling.

Temperature Restrictions

- 1. A wire core rope sling must not be exposed to or used at a temperature above 205°C (400°F) unless otherwise specified by the manufacturer.
- 2. A fibre core wire rope sling must not be exposed to or used at a temperature above 100°C (212°F) unless otherwise specified by the manufacturer.

ALLOY STEEL CHAIN SLINGS

Sling Identification

An alloy steel chain sling must be permanently identified with:

- a. The size or gauge
- b. The manufacturer's grade
- c. The WLL
- d. The length and number of legs, and
- e. The name or mark of the sling manufacturer

Chain for Hoisting

- 1. Chain used for hoisting must be approved by the chain manufacturer for hoisting.
- 2. Proof coil and transport chain must not be used for hoisting.

Chain Removal Criteria

A chain sling must be permanently removed from service or repaired by a competent person to the original manufacturer's specification or to the specifications of a professional engineer if the chain has received any damage from use.

Chain Wear

- 1. A chain sling must be permanently removed from service when the chain link wear is more than the maximum allowed by the manufacturer.
- 2. If the manufacturer does not specify removal criteria for use in subsection (1), the chain must be permanently removed from service when the chain size at any point of the link is reduced to the values given in— **Figure 2: Allowable Chain Wear**

Figure 2: Allowable Chain Wear

Chain size		Minimum allowable chain size at any point of link	
millimetres	inches	millimetres	inches
6.3	1/4	5.9	15/64
10	3/8	8	19/64
13	1/2	10	25/64
16	5/8	12	31/64
19	3/4	15	19/32
22	7/8	18	45/64
25	1	21	13/16
29	1 1/8	23	29/32
32	1 1/4	25	1
35	1 3/8	28	1 3/32
38	1 1/2	30	1 3/16
44	1 3/4	36	1 13/32

Periodic Inspection

A chain sling must be thoroughly inspected at least once each year by a competent person and a record of the inspection must be kept.

Temperature Restriction

A chain sling must not be exposed to a temperature above 260°C (500°F) unless otherwise permitted by the manufacturer.

SYNTHETIC WEB SLINGS

Synthetic fibre web slings must be permanently identified with the:

- Manufacturer's name or mark
- Manufacturer's code or stock number
- WLL for the types of hitches permitted, and
- Type of synthetic web material

Temperature Restriction

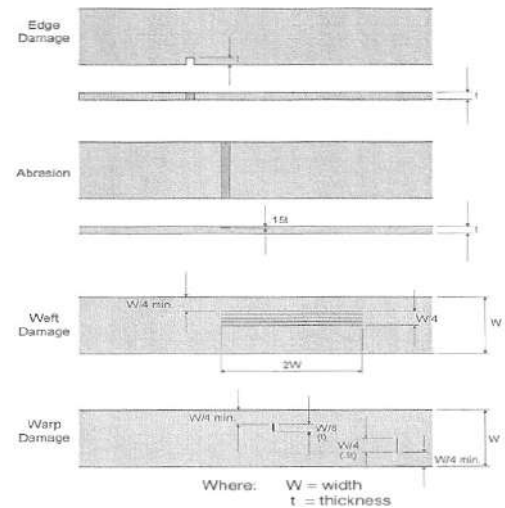
Synthetic fibre web slings must not be exposed to a temperature above 82°C (180°F) unless otherwise permitted by the manufacturer.

Synthetic Web Wing Rejection Criteria

A synthetic fibre web sling must be removed from service when any of the following circumstances occurs:

- The length of an edge cut exceeds the web thickness
- The penetration of abrasion exceeds 15% of the webbing thickness taken as a proportion of all plies
- Abrasion occurs on both sides of the webbing and the sum of the abrasion on both sides exceeds 15% of the webbing thickness taken as a proportion of all plies
- Warp thread damage up to 50% of the sling thickness extends to within 1/4 of the sling width of the edge or exceeds 1/4 the width of the sling
- Warp thread damage to the full depth of the sling thickness extends to within 1/4 of the sling width of the edge or the width of damage exceeds 1/8 the width of the sling
- Weft thread damage allows warp thread separation exceeding 1/4 the width of the sling and extends in length more than twice the sling width
- Any part of the sling is melted or charred, or is damaged by acid or caustic
- Stitches in load bearing splices are broken or worn
- End fittings are excessively pitted or corroded, cracked, distorted or broken
- A combination of the above types of damage of approximately equal total effect are present.

Figure 6: Examples of Synthetic Web Sling Rejection Criteria



METAL MESH SLINGS

A metal mesh sling must be permanently identified with:

- The manufacturer's name or mark, and
- The WLL for vertical basket hitch and choker hitch configurations.

Rejection Criteria

A metal mesh sling must be removed from service if any of the following damage is visible:

- A broken weld or a broken brazed joint along the sling edge
- A broken wire in any part of the mesh
- Reduction in wire diameter of 25% due to abrasion or 15% due to corrosion
- Lack of flexibility due to distortion of the mesh
- Distortion of the choker fitting so that the depth of the slot is increased by more than 10%
- Distortion of either end fitting so that the width of the eye opening is decreased by more than 10%
- A 15% reduction of the original cross-sectional area of metal at any point around the hook opening or end fitting
- Visible distortion of either end fitting
- A cracked end fitting

BELOW-THE-HOOK LIFTING DEVICES

Standards

Spreader bars and other specialized below-the-hook lifting devices must be constructed, inspected, installed, tested, maintained and operated according to the requirements of *ASME B30.20-1993, Below-the-Hook Lifting Devices*.

WLL

Spreader bars and other specialized below-the-hook lifting devices must have their working load limit posted on the device and be certified by a professional engineer or established by the lifting device manufacturer.

Identification

A nameplate or other permanent marking must be on a spreader bar or specialized below-the-hook lifting device and display the:

- a. Manufacturer's name and address
- b. Serial number
- c. Weight of the device, if more than 45 kg (100 lbs.), and
- d. Working load limit

Part of Lifted Load

A spreader bar and any other specialized below-the-hook lifting device must be considered part of the lifted load.

LIFTING CLASSIFICATIONS AND REQUIREMENTS

NOTE: The following are standards for Ontario; refer to your local provincial standards.

Light Lifts

1. Less than 10 tones
2. Less than 80% of crane capacity
3. Lift is free of complexities such as; power lines, high winds, unknown load weight, and other workers in the area

Requirements:

- a. Light lifts require an operator, signalman and a tag line person
- b. Information regarding the lift is to be recorded on a planning information sheet and signed off by all involved

Medium Lifts

1. Between 10 tones and 50 tones
2. Less than 80% of crane capacity
3. Any traveling with a load of any weight
4. Any lift where the load is not in full visibility of the operator
5. Lift is free of complexities
6. Loads of unusual shapes

Requirements:

- a. Medium lifts require an operator, signal man and supervisor
- b. A pre-lift meeting will be held and recorded to discuss the lift
- c. Information regarding a lift is to be recorded on a planning information sheet and signed off by all involved

Critical Lifts

- 1. Any lift 50 tones or over
- 2. Any lift greater than 80% of crane capacity
- 3. Any lift on soft or questionable ground
- 4. Any lift where more than one hook is used
- 5. Any lift done in winds greater than 40 KPH

NOTE: Any of the above-mentioned lifts will be required to have a lifting study done and certified by a Professional Engineer.

50.1.5. RELATED FORMS

FORM 6.2. – Sub-Contractor Qualification Questionnaire

51.00 WORKING AT HEIGHTS PROGRAM

51.1.1. PURPOSE

The purpose of the Working at Heights Program is to establish a process that will effectively manage recognize, assess and control fall hazards.

51.1.2. SCOPE

It is the intent of Biggs & Narciso Construction Services Inc. (B&N) to provide maximum protection to all employees and Sub-contractors in the prevention of falls. Working at Heights and the fall protection requirements will be discussed at all B&N locations.

51.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Ensure that resources are available to accomplish the task safely and that the work is performed according to established site-specific procedures
- Ensure the appropriate training is provided by a qualified trainer for all required personnel
- Ensure that an annual inspection of all working at heights/fall protection equipment is completed and documented by a competent worker
- Ensure appropriate training and testing is conducted for all B&N personnel to ensure thorough understanding of the appropriate procedures and work practices relating to Fall Prevention
- Ensure all B&N personnel and Sub-contractors who must work with or around potential fall hazards, do so under controlled conditions according to documented procedures as outlined under our site-specific health and safety plan (HASP) and Job Safety Analysis (JSA) procedures

Supervisor Personnel Responsibilities:

- Ensure potential fall hazards related the work are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site-specific HASP
- Ensure the daily safe work permit meeting identifies the current site-specific Working at Heights strategies, potential fall hazards and work areas where work is required
- Advise all B&N employees and Sub-contractors on the risks associated with the assigned work
- Develop procedures for workers related to Fall Prevention.
- Ensure that workers are trained to use the equipment and follow the procedures specified for the task in the site-specific HASP
- Ensure that every worker in the crew has appropriate working at heights/fall protection equipment including a safety harness,

KEYWORDS

Anchorage: a secure point of attachment for lifelines, lanyards, or deceleration devices capable of withstanding the anticipated forces applied during a fall.

Fall: to move downward or to come down freely from a higher to lower position moved by the force of gravity.

Fall Arrest System: includes the proper anchorage, body support (belt / harness) and connecting means (lanyards and lifelines) interconnected and rigged to arrest a free fall.

Fall Hazard: occurs during any construction activity that exposes an employee to an unprotected fall which may result in injury.

Fall Prevention: any means used to reasonably prevent exposure to an elevated fall hazard, either by eliminating work at elevation or by using aerial lifts, scaffolds, floors, guardrails or isolating an area.

Fall Protection: involves using fall arrest equipment and systems to minimize the effects of a fall once it has occurred.

Fall-Restraint System: an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from the exposure of falling to a lower level. When standard guardrails are selected, compliance with applicable regulations governing their construction and use shall be followed.

Full Body Harness: a body support configured of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis. The harness provides a D-ring for attaching a lanyard or, lifeline, or deceleration devices.

Lanyard: the connecting means (rope, webbing) used to attach a body harness to a lifeline or an anchorage point. Lanyards are usually 2, 4 or 6 feet long and come with or without a shock-absorber.

Rope Grab: a fall arresting device that provides employees protection while moving in the vertical direction (such as climbing). Rope grabs are designed to move up or down a vertical lifeline which is suspended from a fixed overhead anchorage point. The vertical lifeline is independent of the work platform and is attached to a harness by a rope grab and lanyard. In the event of a fall, the rope grab locks onto the lifeline to arrest the fall. The use of a rope grab device is ideal for working at heights/fall protection during work from two-point suspension scaffolds.

Safety Nets: used to provide passive working at heights/fall protection under and around an elevated work area.

Self-Retracting (Retractable) Lifeline: a deceleration device which contains a drum-wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall. This device limits the fall to approximately 18 inches, and is used during climbing operations or with horizontal lifeline systems.

Shock Absorbing Lanyard: a flexible line of webbing, cable, or rope used to secure a body harness to a lifeline or anchorage point that has an integral shock absorber. The shock absorbing affect minimizes the forces distributed to the employee and anchorage points.

lanyard, shock absorber, rope grab, and self-retracting device for the hazardous or dangerous conditions the worker may be exposed to

- Ensure workers inspect and document all working at heights/fall protection equipment before every use by using **FORM 51.3.** – Working at Heights Harness / Lanyard Inspection Checklist or **FORM 51.4.** – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist or **FORM 51.5.** – Working at Heights Lifeline & Rope Grab Inspection Checklist
- Check guardrails and covers of floor / roof openings daily to ensure they are installed properly and adequate for the situation
- Identify appropriate anchor points to be used and configuration of lifelines or other systems.
- Remove all damaged working at heights/fall protection equipment and / or component from service, and provide appropriate replacements
- Check site for overhead power lines that may pose hazards
- Ensure that a site-specific written rescue plan is in place by using **FORM 51.6.** – Working at Heights Rescue Plan and known by all the workers

Worker Responsibilities:

- Properly wear and use all Working at Heights equipment as required by the site-specific HASP.
- Ensure Working at Heights training records are available on site
- Participate in the daily safe work permit meetings to identify the current site-specific Working at Heights strategies, potential fall hazards and work areas where work is required
- Use Working at Heights equipment when guardrails need to be temporarily removed
- Always replace the guardrail once the task is complete or as soon as possible
- Temporarily restrict access and install signs identifying areas as having potential fall hazards to any unguarded area
- Inspect and document all fall arrest systems and equipment before and after each use by using - **FORM 51.3.** – Working at Heights Harness / Lanyard Inspection Checklist or **FORM 51.4.** – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist or **FORM 51.5.** – Working at Heights Lifeline & Rope Grab Inspection Checklist and report any defects to your supervisor immediately
- Keep debris and materials away from ladders, floor / roof openings or edges
- Report any new fall hazards to your supervisor
- Follow all established Working at Heights JSA's as defined in the site-specific HASP
- Follow developed site-specific written rescue plan in the event of an incident as defined in the site-specific HASP

Health & Safety Department:

- Notify management, workers, or supervisors regarding any non-conformance or deficiencies found
- Ensure inspection records on working at heights/fall protection equipment and devices are kept and maintained
- Ensure that competent trainers are delivering the training to all required B&N employees according to site-specific Policies and Procedures, and Applicable Provincial Health and Safety Legislation
- Ensure a site-specific written rescue plan is developed using **FORM 51.6.** – Working at Heights Rescue Plan and contained within the site-specific HASP
- Purchase and replace all working at heights/fall protection equipment as required
- Conduct an annual inspection including documentation for each piece of all working at heights/fall protection equipment

52.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N believes the best protection is to prevent falls from happening in the first place. Falls are the major cause of fatalities in Canada. Working at Heights or fall protection refers to the procedures or design considerations intended to reduce or eliminate the hazards associated with falling. Working at Heights is required wherever work is performed from elevated heights and platforms. This policy applies to all B&N employees and Sub-contractors working on any B&N location. All equipment and requirements for Working at Heights and protection must comply with all relevant CSA standards. B&N will comply with site-specific criteria for Working at Heights and protection measures.

As a minimum, B&N will comply with the following guidelines:

1. A fall arrest or travel restraint system must be worn whenever a worker is in danger of falling:
 - a. More than 3 meters (10 feet), including from a ladder
 - b. Into operating machinery
 - c. Into water or another liquid
 - d. Into or onto a hazardous substance or object
 - e. More than 1.2 metres, if the work area is used as a path for a wheelbarrow or similar equipment
 - f. Falling more than 1.2 metres without a shock absorber
 - g. Falling through an opening on a work surface
 - h. Into a pit or a shaft
 - i. Where it is impracticable to provide adequate work platforms / guarding
 - j. From barring loose rock, or scaling or cleaning on a face of a surface mine
2. A fall arrest system shall be arranged in such a manner as to ensure the worker does not fall more than 1.5 meters (5 feet) below original work location
3. Additional requirements: where a client has a requirement for a working at heights/fall protection program to be implemented, B&N shall comply with the client requirements and at minimum the Applicable Provincial Health and Safety Legislation

TRAINING

All employees working for B&N must be trained in Working at Heights and/or fall protection when working from heights according to the Applicable Provincial Health and Safety Legislation. B&N will maintain all training records or verification of completed training. B&N employees must be trained and be able to demonstrate competency in the following:

1. Rules and regulations applicable to the workplace
2. How to recognize and minimize fall hazards
3. Safe work practices for working at heights/fall protection systems
4. Inspection and documentation of all working at heights/fall protection equipment by using - **FORM 51.3.** – Working at Heights Harness / Lanyard Inspection Checklist or **FORM 51.4.** – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist or **FORM 51.5.** – Working at Heights Lifeline & Rope Grab Inspection Checklist
5. How to properly fit working at heights/fall protection equipment
6. Emergency response procedures

PLANNING

Where it is not possible to install guardrails, workers must be protected by:

1. Fall restriction,
2. Fall arrest and / or
3. Safety nets

A travel restraint or fall arrest system must be used when a worker is exposed to a potential fall of 10 ft. (3m) or greater, when guardrails are not practicable.

A travel restraint system prevents a worker from falling off an unguarded edge of an elevated work surface. A travel restraint system consists of a full body harness, a lanyard, and an anchor point.

Travel-restraint, and working at heights/fall protection system arrangements must be thoroughly planned, with careful consideration to:

1. Selection of appropriate components, i.e.: lanyard length, retractable lanyard, non-shock absorbing, etc.
2. Location of an approved anchor points, i.e.: steel I-beam, anchor system, etc.
3. Identification of every fall hazard in the proposed work area, i.e. roof edge, opening in ceiling, etc.

Try to select an anchor point that is as close as possible to being:

1. Perpendicular to the unprotected edge. Perpendicular can mean: overhead to a vertical anchor point at a 90° angle to the edge
2. At the center of the work area

A fall arrest system stops a fall from an elevated work area. A fall arrest system consists of an approved anchor point that has a breaking strength of at least 22.2 kilonewtons, connectors, a full body harness, and may include a lanyard, deceleration device, or lifeline. A properly designed fall arrest system will prevent a falling worker from striking an object or the surface below.

Where possible, the areas below workers at height are to be roped or taped off to prevent traffic passing underneath. Adequate signage should be posted warning of the elevated work. Any tools, equipment, PPE, etc. used by the worker, must be fastened to their person or the work area to eliminate hazards resulting from dropping objects.

EQUIPMENT

Working at Heights/Fall protection equipment must be CSA approved for all components including harnesses, lanyards, shock absorbers, self-retracting devices, descent control devices, fall arresters (rope grabs), horizontal and vertical lifelines. B&N employees must ensure that they are following manufacturer's specifications for the use, care and maintenance of all working at heights/fall protection devices or as required by the Applicable Provincial Health and Safety Legislation.

Full Body Harness and Lanyards

1. All components must be CSA approved and have a daily documented inspection of each component using - **FORM 51.3.** – Working at Heights Harness / Lanyard Inspection Checklist or **FORM 51.4.** – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist or **FORM 51.5.** – Working at Heights Lifeline & Rope Grab Inspection Checklist
2. Full body harnesses must be worn with all hardware and straps intact and properly fastened
3. Wear the correct sized full body harness. Never cut or modify the harness if it does not fit
4. Do not write your name on the fabric part of the harness as this voids the manufactures warranty
5. All working at heights/fall protection equipment selected for the job must be as short as possible while allowing for the work to be completed
6. Never tie a knot in any working at heights/fall protection equipment
7. Do not tie or join two lanyards together to obtain length required
8. Full body harnesses or lanyards must not be used as slings, hoists or for other load bearing purposes
9. Lanyards must be protected by padding or similar device where it passes over sharp edges

Lifelines (Rope or Polypropylene)

1. Lifelines must be used where a solid support is unavailable for the attachment of the lanyard, or where procedures require forced movement of the employee
2. Lifelines in a fall arrest system:
 - a. Must be 16 millimeters (5/8") diameter in a polypropylene material
 - b. Shall reach the ground or be knotted at the end to keep the lanyard from running off
 - c. Must be anchored to an approved anchoring location that is independent of the primary load line
 - d. Must be free of knots, splices and imperfections
 - e. Must be used by one person at a time
 - f. Must be located so as to prevent damage from chafing, burns and sharp edges
 - g. Must be protected by padding or similar device where it passes over sharp edges
3. Anchor points must be used and capable of supporting at least twice the force acting on an anchorage, during fall arrest as well as be located to minimize the pendulum effect

Horizontal Lifelines (Wire Rope)

Horizontal lifelines are important components in many of the fall arrest and fall restraint systems. Horizontal lifeline systems are common in work areas lacking overhead anchor points available for personnel tie-off. In its simplest form, the horizontal lifeline consists of a cable attached to two or more anchor points on a roof-top, crane runway, bridge or outdoor construction site, or any other elevated work area that poses a fall risk to personnel. When used in combination with personal protective equipment, a horizontal lifeline can arrest a fall, limiting the amount of force that is transferred both to the worker and the fall arrest system:

Horizontal lifelines must:

1. Be designed by a professional engineer as directed by the Applicable Provincial Health and Safety Legislation
2. Show within the design the arrangement of the system including the anchorage or fixed support system, indicate the components used, state the number of workers that can safely be attached to it, set out instructions for installation or erection, and show the design loads for the system
3. The system shall be installed or erected, and maintained, in accordance with the professional engineer's design and by the Applicable Provincial Health and Safety Legislation
4. Before each use, the system shall be inspected and documented by a competent supervisor.
5. The supervisor shall keep the design at the project while the system is in use

Lifelines used near energized electrical circuits shall be a non-conductive lifeline.

NOTE: Once equipment intended for one-time use only, such as lifelines and shock absorbers, has been used to arrest a fall, it must never be reused. Equipment such as rescue winches, which can be re-certified, will be reissued only if post use testing shows the equipment is still satisfactory.

EQUIPMENT INSPECTIONS

Equipment inspections must be conducted and documented for all working at heights/fall protection equipment before each use by a competent worker by using - **FORM 51.3.** – Working at Heights Harness / Lanyard Inspection Checklist or **FORM 51.4.** – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist or **FORM 51.5.** – Working at Heights Lifeline & Rope Grab Inspection Checklist. All equipment must meet CSA standards and job specific requirements.

Misuse of working at heights/fall protection equipment, work conditions, chemical exposure, and the environment can degrade or damage working at heights/fall protection equipment. When a component of a working at heights/fall protection system is defective or in poor condition or non-functional, B&N employees must not use these components and report the defects to the supervisor for immediately removal from service.

An out of service tag must be placed on the defective working at heights/fall protection device. B&N will then either return the equipment to the manufacturer for repair or replacement.

The Health & Safety Department will conduct an annual inspection including documentation for each piece of all working at heights/fall protection equipment. Any damaged or defective working at heights/fall protection device will be removed from service immediately and be replaced as required. Inspections will be documented on the corresponding forms as related to the specific type of equipment using: **FORM 51.7.** – Working at Heights Annual Lanyard Inspection, **FORM 51.8.** – Working at Heights Annual Harness Inspection, **FORM 51.9.** – Working at Heights Annual Self Retracting Lanyard, **FORM 51.10.** – Working at Heights Annual Robe Grab Inspection, **FORM 51.11.** – Working at Heights Annual Lifeline Inspection

Webbing

1. Inspect entire surface of webbing for damage. Beginning at one end, bend the webbing in an inverted “U”. Holding the body side of the belt toward you, grasp the belt with your hands six to eight inches apart
2. Watch for frayed edges, broken fibers, pulled stitches, cuts or chemical damage. Broken webbing strands generally appear as tufts on the webbing surface
3. Replace according to manufacturer’s instructions

Buckle

1. Inspect for loose, distorted or broken grommets
2. Check belt without grommets for torn or elongated holes, which could cause the buckle tongue to slip.
3. Inspect the buckle for distortion and sharp edges. The outer and center bars must be straight
4. Carefully check corners and attachment points of the center bar. They should overlap the buckle frame and move freely back and forth in their sockets. The roller should turn freely on the frame
5. Check that the rivets are tight and cannot be moved. The body side of the rivet base and outside rivet burr should be flat against the material
6. Inspect for pitted or cracked rivets that indicate chemical corrosion

Rope

1. Rotate the rope lanyard and inspect from end to end for fuzzy, worn, broken or cut fibers. Weakened areas have noticeable changes in the original rope diameter
2. Replace when rope diameter is not uniform throughout, following a short break-in period
3. Lifelines must be inspected and documented daily

Hardware

1. Inspect hardware for cracks or other defects. Replace the belt if the “D” ring is not at a 90-degree angle and does not move vertically independent of the body pad or “D” saddle
2. Inspect tool loops and belt sewing for broken or stretched loops
3. Check bag rings and knife snaps to see that they are secure and working properly. Check tool loop rivets. Check for thread separation or rotting, both inside and outside the body pad belt
4. Inspect snaps for hood and eye distortions, cracks, corrosion or pitted surfaces. The latch should be seated into the snap noose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to close the latch firmly
5. Inspect snap hooks to ensure double locking mechanism works properly

Self-Retracting Lanyard, Controlled Descent and Winches

1. Check housing for signs of damage: dents, cuts, corrosion
2. Inspect winch mechanisms for proper operation, signs of corrosion wear or deformation
3. Examine load indicator at end of snap hook for signs of deployment

4. Ensure rope, cable, webbing extends and retracts easily and is in acceptable physical condition along entire length
5. Look for excessive wear at anchorage connector mount
6. Test unit to make sure it locks properly by pulling sharply on the line
7. Line should retract easily from any start position
8. Make sure that line has not cut into housing or guide bushing

Horizontal Lifelines

1. Look and feel for cuts, abrasions, pulled strands, melting; weld spatter and foreign matter along the entire length
2. Be sure to spread braided rope strands apart to inspect inside for hidden problems along entire Length.
3. Check for discoloration and feel for areas of rigidity
4. Examine splicing (should have at least 5 tucks) and thimbles for looseness, excessive wear or elongation.
5. Swaging crimps should never cut into fibers. Also check for cracks, distortion and signs of looseness
6. Make sure ropes are free of kinks or knots along entire length

Anchors

1. All permanent anchors used for fall prevention or fall arrest are to be certified by a Professional Engineer to ensure they can withstand any potential forces and impact
2. Anchors must be labelled with the fall arrest capacity, in-service date and last inspection date
3. Records from inspections must be kept on file with the Health and Safety department
4. Annual inspections shall be conducted to ensure anchors have not been subject to corrosion, damage or modification
5. If an anchor is subjected to a fall arrest, it must be tagged out of service until an inspection by a Professional Engineer confirms its functionality and safety

EQUIPMENT MAINTENANCE AND CARE

Instructions for Maintenance and Care

1. Working at Heights/Fall protection equipment should be treated with respect when not in use
2. Always store equipment in a clean dry environment free of corrosives and harmful fumes, and out of direct sunlight
3. Surface dirt and grime should be removed from equipment after each use. Accumulated soiling can mask signs of damage as well as shorten the service life of the equipment. Clean by washing the equipment periodically as per manufactures instructions

FALL ARREST EMERGENCY RESCUE

B&N requires that before any employees or Sub-contractors use any fall-arrest system or safety net on a project, B&N will develop site-specific written rescue plan by using **FORM 51.6.** – Working at Heights Rescue Plan prior to a worker using a fall arrest system at a work location. This site-specific written rescue plan will be described in the HASP and cover the scope of work outlining the specific equipment available on site to be used in the event of an emergency.

It's important that a worker involved in a fall arrest be brought to a safe area as quickly as possible without causing injury or putting rescuers at risk. This site-specific rescue plan may include a ladder or elevating work platform to reach the suspended employee. An alternative plan may be to pull the employee back up to the level from which he / she fell as long as the responding rescuing employees are adequately protected from falling. An employee may be pulled to an alternative opening or window. High reaching equipment or use of the emergency response department, such as the fire department may be necessary as long as calling **911 is not the sole method of rescue.**

GUARDRAILS

In most cases, guardrails or barricades are the most common, reliable and convenient means of working at heights/fall protection, and guardrails must be the first consideration. A guardrail system must meet the Applicable Provincial Health and Safety Legislative requirements and must be used if a worker has access to an unprotected edge and is exposed to a fall of 2.4 metres (8 feet) or more. Fencing around an open area can be an alternate control method.

Some examples of areas to be protected are:

1. Open edges of floors, mezzanines, vessels, bins, hoppers, and balconies
2. Open edges of scaffolds, elevated work platforms and ramps
3. Openings in floors, roofs and other working surfaces not otherwise covered or protected
4. Edges of bridge surfaces and pits
5. Locations where a worker may fall into water, operating machinery or hazardous substances

NOTE: Open edges of stairs require guardrail protection. Check the Applicable Provincial Health and Safety Legislation for specifications for wooden arrangement.

1. Guardrails should have a top rail, mid-rail, and toe board secured to vertical posts
2. The guardrails shall be built according to the Applicable Provincial Health and Safety Legislation. A standard guardrail consists of a top rail located between 92 cm (36 in) and 107 cm (42 in) above the work surface, and a mid-rail that is spaced midway between the top rail and the work surface. In Ontario, the top rail must be between 91 cm and 1.07 meters high, toe board at least 10.2 cm high and installed flush with the surface and the posts shall be no more than 2.4 metres apart
3. Wood-slat guardrails, wire rope, and manufactured wire mesh systems are also acceptable
4. Guardrails must be capable of resisting any load likely to be applied against it such as a worker. This means extra reinforcement in special situations, such as where bobcats are being used
5. Guardrails should be installed as close to the edge as possible
6. Guardrails should be installed on balconies. It is not enough, for example, simply to barricade the entrance to a balcony
7. Shoring jacks used as posts should be fitted with plywood softener plates top and bottom

Where guardrails must be removed, the open edge should be roped off and marked with warning signs. In addition, workers inside the area working within 6 feet of the edge must wear working at heights/fall protection and make sure they are tied off. Permission from the supervisor must be obtained before any barricades, guardrails or opening covers are removed.

FLOOR OPENINGS

Guardrails are the preferred method for protecting workers near floor openings but may not always be practical where narrow access routes may rule them out. In such cases, securely fastened covers clearly identified as “Danger Floor Opening” by using planks, plywood, or steel plates may be the best alternative. Refer to the Applicable Provincial Health and Safety Legislation to ensure compliance with floor opening materials and signage to be used. All floor openings are to be completely covered by materials that are able to withstand any load that they may be subjected too (e.g. people, equipment, machinery, materials, etc.).

FEDERAL REQUIREMENTS FOR WORKING AT HEIGHTS/FALL PROTECTION

B&N shall provide a fall-protection system to any person who works from an unguarded structure or on a vehicle, at a height of more than 2.4m above the nearest permanent safe level or above any moving parts of machinery or any other surface or thing that could cause injury to a person on contact.

MUST MEET CSA STANDARDS

The components of our fall-protection system shall meet the following standards: (a) CSA Standard Z259.1-1976, Fall-Arresting Safety Belts and Lanyards for the Construction and Mining Industries, (b) CSA Standard Z259.2-M1979, Fall-Arresting Devices, Personnel Lowering Devices and Life Lines, and (c) CSA Standard Z259.3-M1978, Lineman's Body Belt and Lineman's Safety Strap. The anchor of a fall-protection system shall be capable of withstanding a force of 17.8 kN. A fall-protection system that is used to arrest the fall of a person shall prevent that person: (a) from being subjected to a peak fall arrest force greater than 8 kN; and (b) from falling freely for more than 1.2 m. Where an employee has access to a wall opening from which there is a drop of more than 1.2 m or to a floor opening, highly visible guardrails shall be fitted around the wall opening or floor opening or it shall be covered with material capable of supporting all loads that may be brought to bear on it. Every guardrail shall be highly visible and consist of: (a) a horizontal top rail not less than 900 mm but not more than 1100 mm above the base of the guardrail; (b) a horizontal intermediate rail spaced midway between the top rail and the base; and (c) supporting posts spaced not more than 3 m apart at their centres. Every guardrail shall be designed to withstand a static load of 890 N applied in any direction at any point on the top rail.

Where an employee finds any defect in working at heights/fall protection equipment that may render it unsafe for use, he shall report the defect to his employer as soon as possible. An employer shall mark or tag as unsafe and remove from service any working at heights/fall protection equipment used by his employees that has a defect that may render it unsafe for use.

Every employee who uses working at heights/fall protection equipment shall be instructed and trained in the use, operation, and maintenance of the equipment.

REVIEW OF WORKING AT HEIGHTS PROGRAM

The working at heights program shall be reviewed on an annual basis or when legislative or company changes impact the contents of this program.

51.1.5 RELATED FORMS

FORM 51.1. – Practical Demonstration of Safety Harness Inspection and Proper Donning Form

FORM 51.2. – Practical Demonstration of Rope Grab and Lifeline Inspection Form

FORM 51.3. – Working at Heights Harness / Lanyard Inspection Checklist

FORM 51.4. – Working at Heights Self-Retracting Lanyard (SRL) Inspection Checklist

FORM 51.5. – Working at Heights Lifeline & Rope Grab Inspection Checklist

FORM 51.6. – Working at Heights Rescue Plan

FORM 51.7. – Working at Heights Annual Lanyard Inspection

FORM 51.8. – Working at Heights Annual Harness Inspection

FORM 51.9. – Working at Heights Annual Self Retracting Lanyard Inspection

FORM 51.10. – Working at Heights Annual Rope Grab Inspection

FORM 51.11. – Working at Heights Annual Lifeline Inspection

52.00 LADDERS AND SCAFFOLDING

LADDERS

52.1.1. PURPOSE

The purpose of the Ladder Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the use of ladders in the workplace.

52.1.2. SCOPE

The Ladder Program applies to all employees and sub-contractors when dealing with ladders or step ladders on any Biggs & Narciso Construction Services Inc. (B&N) location.

Where work cannot be safely done from the ground or from a permanent structure, B&N or the sub-contractor shall provide a ladder or other safe working platform that meets the requirements under the Appropriate Provincial Health & Safety Legislation for the use of employees.

52.1.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Ladder and safe work platform program is implemented at all B&N locations

Supervisory Personnel Responsibilities:

- Provide employees with awareness on the safe use of a ladder using the daily safe work permit / hazard assessment meetings and on the Job Safety Analysis (JSA)
- No ladder is loaded in excess of its rated load
- Employees who perform work on a ladder are informed of its rated load
- Employees do not carry any materials or equipment while climbing a ladder
- No ladder shall be loaded in excess of its rated load
- No employee or sub-contractor will be allowed to work on a ladder where hazards exist that have not been corrected that could directly affect the safety of the employee or sub-contractor
- All supports used in the erection of the ladder will withstand adverse weather conditions
- Ensure that the ladder is designed and constructed to support at least 4 times the load that may be imposed on it and the load the ladder is subject to never exceeds the equivalent of $\frac{1}{4}$ of the load for which it is designed

Worker Responsibilities:

- Visually inspect the ladder prior to each use
- Report any defective components of the ladder immediately to the supervisory personnel so it can be removed from service
- They do not carry any material or equipment while climbing a ladder
- Wear fall protection equipment as required
- Do not dismantle any components of a ladder system without the approval of the site supervisor and the employee is qualified and competent to complete this task in a safe manner

52.1.4. PROCEDURE

GUIDING PRINCIPLES

B&N believes that the proper use of ladders or stepladders is essential in preventing injuries. B&N shall provide safety training on ladder safety awareness before working with a ladder using the daily safe work permit / hazard assessment meetings.

GUIDELINES FOR LADDERS

1. Manufactured ladders must meet CSA, ANSI or other standards acceptable to the Appropriate Provincial Health & Safety Authority. A CSA approved label must be affixed to the ladder
2. Alternative products including scaffolds or elevating work platforms shall be used whenever practicable in place of ladders. The daily safe work permit will determine the appropriate safe working platform that meets the requirements for the safest use by the employee
3. Employees are required to visually inspect ladders for defects prior to each use
4. Ladders with broken rungs, split rails, and worn or broken safety feet, frayed or damaged ropes must be taken out of service, have an out of service tag affixed to the ladder and reported to supervisory personnel. Ladders that cannot be repaired and restored to its original design specifications must be destroyed and not returned to the workplace for use by an employee
5. A portable ladder shall be free from broken and loose members or other faults, have non-slip feet, be placed on a firm footing, when not securely fastened, and be inclined so that the horizontal distance from the top support to the foot of the ladder is not less the 1 to 4 Rule. When using a ladder, every four steps of ladder used going up, it should be set out 1 foot away from the wall
6. Working from the top two rungs or steps of a stepladder, or the top three rungs of a portable single or extension ladder is prohibited
7. Ladders used for ascending or descending from one level to another, must extend at least 1 metre (3 feet) above the upper landing
8. All ladders must not be used near energized electrical equipment. All ladders must be non-conductive when in close proximity to electrical hazards
9. Ladders used in locations where they may be struck by employees or equipment must have a ladder attendant stationed at the base of the ladder. Ladders must not be left standing in such a location when not in use
10. Ladders used in active corridors, stairwells or aisles must be barricaded
11. Ladders in use must be placed on a stable, non-slip base and secured to prevent movement including being tied off
12. Employees on ladders are not permitted to hoist equipment to lift or lower items at any time
13. Do not over-reach or allow the center of the body to extend outside the outer rung while working from a ladder
14. Do not use ladders in a horizontal position as components of runaways or scaffolds unless they are part of an engineered or pre-manufactured system
15. Ladders must not be coated with paint or other coating that impairs the process of inspecting the condition of the ladder
16. Do not place ladders against panes of glass
17. Only one person shall use the ladder at any one time
18. When climbing a ladder an employee must face the ladder and maintain 3 point contact at all times on the ladder
19. Use signs and barriers to warn others of work overhead, where appropriate
20. No ladder shall be lashed to another ladder to increase its length
21. Wooden ladders are not acceptable at any B&N Locations

22. An extension ladder shall be equipped with locks that securely hold the sections of the ladder in the extended position and the maximum length of a ladder measure along its side rail shall not be more than:
 - a. 5 metres for a trestle ladder or for each of the base and extension sections of an extension trestle ladder
 - b. 9 metres for a single ladder or an individual section of a ladder
 - c. 15 metres for an extension ladder with two sections
 - d. 20 metres for an extension ladder with more than two sections and any extended section overlaps another section for at least:
 - i. 1 metre, for a ladder less than 11m in length;
 - ii. 1.25 metres for a ladder between 11m and 15 metres in length; or
 - iii. 1.5 metres for a ladder over 15 meters in length

GUIDELINES FOR STEPLADDERS

Stepladders are to be used for tasks that do not require use of a scaffold, and do not exceed the acceptable height use of the ladder as defined by the daily safe work permit / hazard assessment. An employee shall move the position of the stepladder as required to prevent the changing of the center of gravity of the employee on the stepladder. The employee should never overreach when positioned on a stepladder.

1. All stepladders must be built to or exceed the CSA Grade 1 and be constructed from materials suitable for the intended use
2. The employee's both feet are to remain on the ladder
3. Stepladders must have legs that are securely held in position by metal braces or an equivalent rigid support
4. Metal ladders or wire reinforced wooden ladders must not be used near energized electrical equipment. All ladders must be non-conductive when in close proximity to electrical hazards
5. The total combined weight of tools and person shall not exceed the design requirements for a CSA Grade 1 ladder of 250 pounds (114 kilograms) or if the ladder is a CSA grade 1A, then it will hold a weight of 300 pounds (136 kilograms)
6. Each stepladder must be visually inspected prior to use for defects
7. The maximum height must not exceed 20 feet (6 meters)
8. Do not use a stepladder to support any equipment or materials
9. Do not climb above the 3rd rung from the top
10. No excessive pushing or pulling of tools or equipment while standing on the rungs of a ladder
11. When using a stepladder near an opening of a floor, edge of a building or around hazardous material or equipment, where there is a risk of falling through that opening, the employee must be protected with a fall arrest system (regardless of how far off the floor the employee is standing). Consideration shall be made to securing the ladder to prevent it from falling through the opening

52.00 LADDERS AND SCAFFOLDING

SCAFFOLDING

52.2.1. PURPOSE

The purpose of the Scaffold Program is to establish processes that will assist with the recognition, evaluation, and control or elimination of hazards associated with the use of scaffolds in the workplace.

B&N does not normally construct scaffolding, with the exception of low-level rolling scaffolds. The client or an approved scaffolding contractor will construct and approve the installation of scaffolding.

52.2.2. SCOPE

The Scaffold Program applies to all B&N employees and sub-contractors when dealing with scaffolding on any B&N location.

Where work cannot be safely done from the ground or from a permanent structure, B&N or the sub-contractor shall provide a scaffold or other safe working platform or a ladder that meets the requirements under the Appropriate Provincial Health & Safety Legislation for the use of employees.

52.2.3. RESPONSIBILITIES

B&N Responsibilities:

- Provide a safe workplace and safe systems of work
- Provide information to employees relating to the hazards they may be exposed to
- Eliminate or place controls in place of any known hazards
- Ensure the Scaffolding and safe work platform program is implemented at all B&N locations

Supervisory Personnel Responsibility:

- Provide employees with awareness on the safe use of scaffolds using the daily safe work permit meetings and on the Job Safety Analysis (JSA)
- Ensure employees perform a visual inspection of the scaffold prior to use
- Employees who perform work on a scaffold are informed of its rated load
- Employees do not carry any materials or equipment while climbing a scaffold
- No scaffold shall be loaded in excess of its rated load
- No employee or sub-contractor will be allowed to work on a scaffold where hazards exist that have not been corrected that could directly affect the safety of the employee or sub-contractor
- All supports used in the erection of the scaffold will withstand adverse weather conditions
- Ensure that the scaffold is designed, assembled and constructed to support at least 4 times the load that may be imposed on it as defined by the initial engineering report
- Immediately remove any damaged or non-functional sections of scaffold from service

Worker Responsibility:

- Perform a visual inspection of the scaffold prior to use
- They do not carry any material or equipment while climbing a scaffold
- Report any defective components of the scaffold immediately to the supervisory personnel
- Wear fall protection equipment as required under the Appropriate Provincial Health & Safety Legislation and defined under the site-specific health and safety plan (HASp)
- Do not dismantle any components of a scaffold system without the approval of the supervisory personnel
- All B&N employees must be competent to complete the erection and dismantling of the rolling scaffolding

52.2.4. PROCEDURE

GUIDING PRINCIPLES

B&N believes that the proper use of scaffolding is essential in preventing injuries. B&N shall provide all workers awareness on scaffold safety using the daily safe work permit / hazard assessment meetings. The following guidelines have not been developed to install scaffolding, but rather to work safely from them.

GUIDELINES FOR SCAFFOLDING

1. B&N shall provide training and awareness to employees who work on scaffolds on the safe work procedures for using a scaffold during the review of the daily safe work permit or completed through the site-specific HASP and JSA
2. Scaffolds must be erected with all braces, pins, screw jacks, base plates, and other fittings installed, as required by the manufacturer and must meet all requirements under the Appropriate Provincial Health & Safety Legislation and defined under the site-specific HASP
3. The erection and dismantling of scaffolds must be carried out by competent employees or under the supervision of other competent and experienced individuals in such operations (ie, Professional Engineer)
4. No scaffold shall be loaded in excess of the load that it is designed and constructed to bear. Only material for immediate use must be kept on a scaffold but not be overloaded
5. Where a scaffold is partially or fully enclosed, B&N or the sub-contractor shall ensure that all scaffold components and tie-ins are adequate to support the added load that may be placed on the scaffold as a result of the wind or other adverse weather conditions
6. Erecting or dismantling a scaffold more than 2.4 meters (8 feet) high must be tied off with the appropriate fall prevention equipment
7. Scaffolds must be adequately braced horizontally and vertically;
 - a. Most tubular frame scaffolds should have braces both sides on every section in the vertical plane
 - b. Horizontal bracing is provided to some extent by the scaffold platform and the base plates on scaffold legs. However, where scaffolds are several sections high or on casters, most manufacturers recommend horizontal bracing be used
8. Scaffolds must be equipped with guardrails consisting of a top rail, mid-rail and toe board. Guardrails must be installed as defined under the Appropriate Provincial Health & Safety Legislation and the site-specific HASP
9. Scaffold platforms must be at least 46 centimeters (18 inches) wide and if they are over 2.4 meters (8 feet) high they must be planked across their full width
10. Scaffolds must be tied into a building at vertical intervals not exceeding three times, the least lateral dimension, including the dimension of any outrigger stabilizing device
11. Where scaffolds cannot be tied into a building, guide lines adequately secured should be used to provide stability
12. Scaffold frames must be properly pinned together where scaffolds are two frames or more in height or where they are used as rolling scaffold towers
13. Scaffold planks must be securely fastened to prevent them from sliding
14. Scaffold planks must be of good quality, free of defects such as loose knots, splits or rot, rough sawn, measuring 51 mm X 25.4 cm (2" X 10") in cross section, and No. 1 spruce or better when new
15. Scaffolds must be erected, used and maintained in the appropriate condition based on the manufacturer's specifications
16. Scaffold planks must be installed so that they overhang by at least 15 centimeters (6 inches) but no more than 30 centimeters (12 inches)
17. Scaffolds must be equipped with a proper ladder for access. Vertical ladders must be equipped with 15 centimeters (6 inch) stand-off brackets and a ladder climbing fall protection device or safety cage, when they are more than 5 meters (16 feet) high
18. Scaffolds over 15 meters (50 feet) in height must be designed by a professional engineer and constructed, erected and assembled in accordance with the manufacturer's specifications

19. Remove ice, snow, oil, grease and other slippery material from platform and sand surface.
20. Wheels, casters or rolling scaffolds must be equipped with braking devices and securely pinned to the scaffold frame
21. Scaffolds must NOT be moved while employees are on them
22. Parts and sections of scaffolds from different manufacturers must NOT be interchanged
23. If a metal scaffold or a component of a metal scaffold is damaged, deteriorated or weakened so that the strength or stability of the scaffold is affected, B&N or the sub-contractor must ensure that the scaffold is not used until the scaffold or component is repaired or replaced by a competent person in accordance with the manufacturers or a professional engineer's specifications and recommendations
24. All scaffolds that are erected must comply with CSA Standards – S269.2-M87 "Access Scaffolding for Construction Purposes", ANSI standards and/or the specifications required by a registered professional engineer
25. Where required, colour coded tags shall be used at each point of entry to indicate the condition of the scaffold:
 - a. **Green tag:** safe to use
 - b. **Yellow tag:** caution: potential or unusual hazard
 - c. **Red tag:** Unsafe to use
26. No employee shall use a scaffold if it has a red tag, a green tag or a yellow tag that has expired or if no tag is present
27. A scaffold must be effectively grounded if it is a metal scaffold and is located close to a high voltage energized electrical conductor or equipment, and a hazardous level of electrical charge is likely to be induced in the scaffold
28. All connections between the parts of a scaffold must be secure in accordance with the manufacturer's specifications
29. Remove all lightweight materials at the end of each work period to prevent blowing/falling objects.
30. Do not throw or drop objects from the scaffold, use a hand line to raise/lower.
31. No object including the crane boom or loads are to be brought closer to an energized overhead electrical conductor with a nominal phase-to-phase rating as set out below;

<u>Voltage Rating</u>	<u>Minimum Distance</u>
750 to 150,000 volts	3 meters (10 feet)
More than 150,000 to 250,000 volts	4.5 meters (15 feet)
More than 250, 000 volts	6 meters (20 feet)

Inspection of Scaffolding

B&N shall appoint one or more competent persons who are responsible for:

- Supervising the installation, dismantling and removal of a scaffold
- Inspecting the components of a scaffold for defects before the scaffold is first used
- Performing a daily inspection of the scaffold for damages, deterioration or weakening of any scaffold components
- Ensuring any component found to be defective is repaired or replaced before the scaffold is used or is continued to be used

B&N and the sub-contractor, shall ensure that a maintenance and inspection record or tag: is provided for an aerial device, elevating work platform, suspended powered scaffold, personnel lifting unit or scaffold and is attached to the device.

The maintenance inspection record or record tag must have the following recorded on it;

- The date of the last maintenance
- The name and signature of the person who performed the maintenance, and

- An indication that the maintenance has been carried out in accordance with manufacturers specifications

Emergency Response

B&N shall ensure that an emergency response and rescue plan is developed prior to the erection of a scaffolding system as defined under the site-specific HASP. The plan shall address the risks associated with the failure of a scaffold or component of the scaffold. The emergency rescue plan may include the use of a Personal Elevating Work Platform (PEWP), man lift, scissor lift or 911 assistance. Calling 911 is not an adequate sole emergency respond plan.

52.2.5. RELATED FORMS

FORM 52.2. – Scaffold Inspection Checklist

FORM 51.6. – Working at Heights Rescue Plan

FORM 8.1. – Incident Investigation Report