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SIGNATURE

DATE

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ISSUE/REVISION INDEX

| Issue Code | Revision | | | | | Revision Details |
|------------|----------|----|--------|------|------------|--|
| | No. | By | Rev'd. | App. | Date | |
| RR | 01 | SC | | DS | 2020-12-18 | No exit from manbasket at any elevation, requirement for trauma prevention device. |
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Issue Codes: RC = Released for Execution, RD = Released for Design, RF = Released for Fabrication, RI = Released for Information, RP = Released for Purchase, RPA = Released for Permit Application, RQ = Released for Quotation, RR = Released for Review and Comments.




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1.0 PURPOSE

To prevent actual or potential falls from height and to eliminate the risk of fatalities, injuries and incidents from working at height activity. Our goal is fall prevention.

All applicable regional OH&S legislation, regulation and standards apply. In addition to the applicable legislation, operators of all equipment (ex. PPE, ladders, and mobile equipment) must always be familiar with and strictly follow the manufacturers requirements.

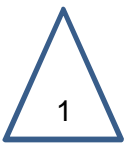
This procedure meets the intent of the RAC01 Working at Heights requirements.

2.0 SCOPE

This program shall apply whenever workers are exposed to a potential or actual fall from height of 1.8 meters (6 ft) or greater. This includes all activities and surfaces where a worker is not protected completely by suitable guard rails or some other type of approved fall protection, prevention, and restraint and or arrest device.

3.0 REQUIREMENTS

The NAPG Projects require 100% tie off at 6 feet fall potential (5 ft for Manitoba), or in any situation where risk of a fall from heights could result in an injury. (i.e.: Working on a platform of less than 6 ft without installed handrail.)




Trauma prevention such as stirrups, relief steps or similar in order to provide short term relief from the effects of orthostatic intolerance.

At no time shall a supervisor plan and or supervise a working at height activity if they are not trained in working at heights requirements themselves.

The expectations of this document shall cover all working at height scenarios on both surface and underground.

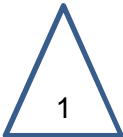
When there are competing expectations, the greater requirement shall be applied in all situations.

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3.1 Work Methodology and Assessments

Contractor Work Group Supervision and NAPG Project Team shall always consider work methodologies that reasonably eliminate working at height hazards from the onset. The preferred method of activity is one that has no working at height hazards. Working from the ground can eliminate or reduce the exposure of falling. Examples include modular building, designing and constructing facilities with emphasis on first closing in openings and completing walls roofs and floors where possible prior to completing remaining work activity.

If the hazard of falling cannot be eliminated by the implementation of engineering controls prior to utilizing fall arrest equipment, focus on the use of fixed hard barriers like temporary handrails, fencing and guardrails, floor covering and other means to separate the work group from fall hazards and prevent workers from accessing open and or lead edge fall hazards and being exposed to potential falls.



When this is not possible work methods shall not include working at height options for advancing schedule, saving time, minimizing costs and or limiting scope. All reasonable precautions shall be taken to protect those who must perform the work at the project on the behalf of NAPG.


All Significant Working at Heights activities will be captured in the Pre-Mobilization Risk Assessment with appropriate allowances and controls identified as part of the work planning process. **Elimination** of working at height hazards and risks is the preferred method of control.

Each working at height scenario shall have a detailed work methodology risk assessment (JHA) conducted. All hazards are to be assessed to the standard of the hierarchy of controls.

Every worker should also utilize their FLHA and 20-20-20 principles to consider the risks and ensure the appropriate controls are in place prior to beginning a task with working at height hazards.

In addition to the tools listed above workers and supervision must consider the following prior to beginning their working at height task.

0 Total Fall Distance Clearance Required (calculation)

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- 0 Swing Fall/ Pendulum Effect Hazards
- 0 Leading Edge Hazards
- 0 Selection of appropriate equipment for task
- 0 Selection of Anchor Points
- 0 Rescue Systems and Plans
- 0 Dropped Object Prevention
- 0 Signage, Barricading, Boundary, and Demarcation

See following section 8 on Risk Analysis for more detail

3.2 Permitting


A Working at Heights permit must be completed prior to any working at heights activity; this will require additional supporting documentation (Training Records, Task Specific JHA, FLHA, Rescue Plan, Equipment Certifications, Dropped Objects Procedure). The Permit is requested by Work Group through NAPG Area Lead and must include all required supporting documentation or when acceptable be immediately available to the project team. NAPG HSE Advisor and NAPG Construction Area Lead will review all documentation prior to issuing permits.

4.0 DEFINITIONS

Working at Height - (WAH)

100% Tie Off - Shall be utilized for all work done at height.

The use of dual connections (Y apparatuses) are always to be used when a work method requires a person to change position or tie off location. This allows for movement and change of an anchor point along a work environment while maintaining a connection to at least one anchor point. all times.

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Fall arrest system - means an assembly of components joined together so that when the assembly is connected to a fixed support, it can arrest a worker's fall.

Fall restricting system - means a type of fall arrest system that has been designed to limit a worker's fall to a specified distance.

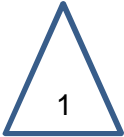
Fixed support means - a permanent or temporary structure or a component of such a structure that can withstand all loads and forces the structure or component is intended to support or resist and is enough to protect a worker's health and safety and includes equipment or devices that are securely fastened to the structure or component.


Full-body harness - means a device that can arrest an accidental vertical or near vertical fall of a worker and which can guide and distribute the impact forces of the fall by means of leg and shoulder strap supports and an upper dorsal suspension assembly which, after the arrest, will not by itself permit the release or further lowering of the worker.

Leading Edge- leading edge is the unprotected side and or edge of a floor, a roof, or structure

Travel restraint system - means an assembly of components capable of restricting a worker's movement on a work surface and preventing the worker from reaching a location from which he or she could fall.

Orthostatic intolerance (OI) is an abnormal response to being upright that can cause dizziness, fainting, and other symptoms that go away when you're seated or lying down. Typically, symptoms arise when you first stand up and are often due to an abnormal drop in blood pressure.




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5.0 RESPONSIBILITIES

5.1 Employer

The Employer is responsible to:


- 0 Ensure all engineering and administrative control options have been explored by a competent person before controlling fall hazards with personal protective equipment;
- 0 Establish adequate measures and procedures for fall protection for situations in which engineering and control measures are not available;
- 0 Appoint competent supervisors who have been trained and are knowledgeable with respect to fall protection;
- 0 Ensure workers are adequately trained and competent in the Fall Protection Plan;
- 0 Ensure workers are adequately trained in limitations and proper use of fall protection systems;
- 0 Develop written WAH procedure and approve rescue plans
- 0 Properly implement and periodically audit the Fall Protection Activities Rescue Plan
- 0 Ensure rescue equipment is in location or agreed to proximity to where the work is being performed.

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5.2 Contractor management (Work Groups)

Work Groups are responsible to:

- 0 Provide proof of accepted fall protection training to the Project prior to performing any work that requires fall protection;
- 0 Provide written fall protection strategies, procedures or measures to the Project Area Lead person prior to the commencement of work. Rescue strategies must be relayed in Rescue Plans.
- 0 Provide own fall protection equipment in good working condition;
- 0 Use the fall protection equipment required in the correct manner;
- 0 Inspect, maintain equipment register and store the fall protection equipment as required;
- 0 Notify direct supervision and Project Area Lead of any questions or concerns with fall protection or associated equipment;
- 0 Notify direct supervisor and Project Area Lead of any contraventions of the Act, Regulations or NAPG Project procedures.
- 0 Ensure their employees are trained and deemed competent to perform their allocated tasks in accordance with the Provincial Regulations.
- 0 Documented proof of this training must be provided to the Project HSE Administrator prior to mobilization to site.
- 0 Must perform formal monthly fall arrest equipment inspection, update register and provide documentation upon request.

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5.3 Contractor Management Supervisors


Supervisors are responsible to:

- 0 Plan all work activities in advance to minimize all hazards and associated risks;
- 0 Communicate potential and actual hazards associated with the work performed to the workers;
- 0 Apply and ensure the Fall Protection Plan for all affected personnel in the workplace;
- 0 Apply, audit and ensure compliance specific to the Fall Protection Plan;
- 0 Ensure that workers using fall protection equipment are using appropriate equipment in the correct manner;
- 0 Provide employees with fall protection equipment as required; and
- 0 Notify the Work Group Safety Department when fall protection equipment is purchased so it can be added to the fall protection equipment register.

5.4 Contractor H&S Personnel

The Health & Safety Department is responsible to:

- 0 Assist in implementing and coordination of the Fall Protection Plan;
- 0 Ensure that procedures and measures are adequate to the task required and that consideration to the hierarchy of controls has been reviewed;

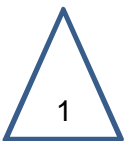
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- 0 Periodically review NAPG Project sites to ensure that their Work Groups are complying with this procedure;
- 0 Maintain the fall protection equipment detailed Inventory for all employee-used fall protection equipment; and
- 0 Arrange training for employees engaged in activities governed by this procedure.

5.5 Workers

Workers are responsible to:


- 0 Participate in all training as required by this procedure;
- 0 Comply with the Fall Protection Plan;
- 0 Use the fall protection equipment as instructed/trained;
- 0 Inspect, maintain and store fall protection equipment daily or per use;
- 0 Notify direct supervisor of any questions or concerns with fall protection or associated equipment;
- 0 To attach trauma prevention devices as per manufacture instruction



5.6 NAPG project team

NAPG Director: Ensures resources are available for the implementation and maintenance of the Working at Height program.

NAPG Construction Manager: verify Work Groups' compliance prior to permitting them to perform work at any of the Project facilities.


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NAPG Construction Superintendents: review the proposed Working at Heights procedure(s) and supporting documentation

NAPG HSE Manager will ensure that the w working at heights program is being followed. Establish routine audit of the program.

NAPG HSE Personnel will assist the Contractors in implementing the working at height program. Review proposed work plan and associated document. Retention of the WAH permit

- 0 Assist in implementing and coordination of the Fall Protection Plan;
- 0 Ensure that procedures and measures are adequate to the task required and that consideration to the hierarchy of controls has been reviewed;
- 0 Periodically review NAPG Project sites to ensure that their Work Groups are complying with this procedure;
- 0 Arrange training for employees engaged in activities governed by this procedure.

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6.0 TRAINING

Training requirements are the responsibility of the Work Group Supervision and the employers Management Team.


All training must be completed to a MOL Chief Prevention Officer (CPO) approved training program and facilitated by a qualified and approved training provider. Contractors are expected to follow any additional site WAH training requirements.

| Jurisdiction | Acceptable training |
|---------------------------|---|
| Ontario | MOL approved training WAH provider |
| Manitoba | Construction Safety Association of Manitoba |
| Newfoundland and Labrador | WSHCC |

6.1 Requirements

The Working at Heights Basic Theory module must be successfully completed before the Working at Heights Practical module is taken.

Employers shall supplement any training program that meets the requirements of this training program standard with additional information, instruction and training in workplace-specific policies and procedures and workplace-specific equipment related to working at heights. In addition, employers must ensure that they meet the training and other requirements of the relevant Occupational Health and Safety Act and its regulations.

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Retraining update is to be provided for all employees every three years or whenever there is a change in their job assignments, a change in condition, equipment or processes that present a new actual or potential hazard, or when there is a change in the Fall Protection Plan.

6.2 CPO Syllabus

All training must be completed in a face to face learning environment with an instructor

The following are the minimum hours for training delivery:

Working at Heights Basic Theory module — 3 hours.

Working at Heights Practical module — 3.5 hours


6.2.1 Working at heights basic theory module

The Working at Heights Basic Theory module contains the following:

- 0 Rights and responsibilities related to working at heights under the Occupational Health and Safety Act (or applicable local regulations)
- 0 General hazard recognition for working at heights,
- 0 Hierarchy of controls,
- 0 Safety procedures for warning methods and physical barriers,
- 0 Safety procedures for ladders and similar equipment; and
- 0 An introduction to personal fall protection equipment.

6.2.2 Working at heights practical module

- 0 The Working at Heights Practical module contains the following:
- 0 Barriers and safety nets

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- 0 Personal fall protection equipment,
- 0 Anchor points,
- 0 Work positioning systems, work access and platforms; and
- 0 Rescue planning.


6.2.3 Additional Requirements

The Work Group Field/Line Supervision will ensure that all necessary personnel are trained regarding the following:

- 0 the Work Group's Fall Protection Plan;
- 0 the limitations of fall protection equipment;
- 0 the selection, care, inspection, use and maintenance of the required fall protection equipment;
- 0 the requirement for an adequate rescue plan and associated rescue procedures;
- 0 the legislative requirements for fall protection; and
- 0 their occupational safety responsibilities relating to fall protection.

The Work Group Supervision will ensure that training is kept current, The NAPG to audit compliance and employers shall maintain a record of training and certification onsite as part of their project record and data base.

Additional retraining must also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe that there are deviations from or inadequacies in the worker's knowledge or use of the Fall Protection Plan.

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NAPG Project employees not trained in fall protection, this procedure and related procedures, are prohibited from working where a fall hazard exists.

7.0 EQUIPMENT OVERVIEW


7.1 Guardrail Systems and Covers

Continuous use of the provided guardrail or handrail is mandatory when ascending or descending staircases.

- 0 A guardrail system or protective covering shall be used to prevent a worker from falling through an opening in a work surface.
- 0 The protective covering must:
 - Completely cover the opening, securely fastened and clearing identified as a cover;
 - Be capable of supporting all loads due to pedestrian use; For loads greater than pedestrian traffic covers must be adequately identified as covering an opening to include visual indication of max allowable load as calculated by a licenced engineer; and;
 - Be made from material adequate to support all loads to which the covering may be subjected and meet CSA Standards. (Access Scaffolding for Construction Purposes)
- 0 A guardrail shall be used if a worker has access to the perimeter of an open side of a floor (including balcony and mezzanine), surface of a bridge, a roof, a scaffold platform or other work platform, runway or ramp and is exposed to a fall of 1.8 metres or more for temporary structures and 1.2 meters for permanent structures or less if required.

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- 0 It shall also be used to protect floor or roof openings to enclose the hazard on all sides to prevent access to the fall hazard.
- 0 Where a guardrail may be temporarily removed, an anchor point is to be provided.
- 0 A guardrail shall have a top rail not less than 920mm and no more than 1070mm above the surface to be guarded; have a mid rail; a toe board of at least 200mm;
 - When constructed of wood it shall be of appropriate classification (minimum Grade 1 Spruce), free of defects and splinters protruding nails and meet all requirements under the regulation and applicable standards. Access Scaffolding for Construction Purposes and Engineering Design in Wood)
- 0 Permanent guardrail shall be constructed to meet the structural requirements for guards as set out in the Building Code and Vale Engineering Standard Specifications.

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7.2 Scaffolding

Scaffolding includes tube and couplers, modular frames, drop staging, swing stages, purpose design stages all with full decking, guardrails and toe boards.

Scaffolding in light, medium and heavy-duty applications must conform to relevant standards (Reference Scaffolding Program- NAPG-SAF-SPI-0011 for more details).

A name plate with maximum load capacity is to be utilized.


7.3 Mechanical Elevating Work Platforms

Mechanical elevating platforms include cherry pickers, boom arms, scissors lifts, order pickers, building maintenance units. It is important to select the right type of EWP for the work being performed. Considerations include:

1. Lifting capacity;
2. Surface conditions;
3. Platform size and configurationMobility;
5. Material to be liftedAccess;
7. Terrain or building obstructions; and
8. Degree of operator training and skill.

7.3.1 General Requirements

For the specific unit in use, operators must have documented general/generic and model specific training; before any employee is permitted to perform work using an Elevated Work Platform they must show proof of training from an NAPG accepted authority. This training can be performed by a third-party provider with suitable training program or to a in house program performed by a competent person if accepted by the relevant NAPG project management team.


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Work Group/Employer is to physically review operator competency prior to allowing employees to operate this equipment.

Fall Protection training is also required and 100% tie-off is mandatory on all powered elevating work platforms.

Tie off provisions for this equipment should always be selected and adjusted to keep the workers within the confines of the basket.


- 0 Workers shall always maintain both feet flat on the floor surface of the basket.
- 0 A copy of the specific equipment Operating and Maintenance manual must always be kept on the unit.
- 0 Before and during the use of any elevated work platform, the following criteria and instruction must be reviewed and followed:
- 0 Always survey the work environment for possible obstructions and hazards particularly from overhead lines or structures prior to mobilizing the equipment or operating the platform.
- 0 Observe limits of approach around live electrical lines and equipment; and if unsure of anything, stop and ask for further instruction/ clarification.
- 0 Use of an escort is always required while operating an EWP to travel/ move it from one location to another.
- 0 Before leaving the machine unattended lock or otherwise prevent its unauthorized use;
- 0 The maximum safe working load(s) shall be clearly indicated at a conspicuous place. Maintain platform load below maximum rated working load capacity. Consider all potential sources of weight

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(people, tools and materials). Complete the calculations prior to use.

- 0 Make sure that all controls are labelled properly with legible action and directions.
- 0 Ensure guardrails in good condition and make sure that chain or gate at openings is secure before moving platform.
- 0 Shut off power, ensure Zero Energy State and insert required chocks before servicing machine or checking for problems.
- 0 Never remove guardrails when platform is raised.
- 0 Don't jam controls through neutral to reverse direction of movement or operation. Move control gradually, pausing in neutral, for safer smoother operation.
- 0 Notify all occupants or persons in proximity to the basket prior to movements to ensure they are prepared and in a safe location for use.
- 0 Deploy stabilizers or outriggers according to manufacturer's instructions before raising platform basket, or bucket.
- 0 Position boom in line with direction of travel wherever possible
- 0 Keep ground personnel away from machine and out from under platform, bucket or basket.
- 0 Never allow workers to walk the boom to climb on or off the platform or bucket.
- 0 It is prohibited to exit the elevated work platform from elevation.



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- 0 A task specific work method and JHA is required prior to entering/exiting the basket in an elevated position. A written rescue plan shall also be in place.
- 0 Never try to move, push, lift, or free the machine by telescoping the boom.
- 0 Make sure that accessory extension cords and or welding cables are long enough to reach the expected platform height.
- 0 Use on a firm level surface, must be operated according to manufacturer's written instructions.
- 0 Power elevating work platforms and Aerial devices and their constituent elements and attachments shall be of good design and construction, sound material and adequate strength for the purpose for which it is used.
- 0 Power elevating work platforms and Aerial devices shall be accompanied at the time of delivery to the construction site with instructions for use and with a test certificate from a competent person.
- 0 Variable safe working loads limits are not allowed unless each maximum safe working load at the condition which it is applicable shall be clearly indicated by effective posted chart at the operator control automatically controlled through interlocks.
- 0 Controls for the positioning of a basket, bucket, platform or other device shall be equipped with positive pressure controls.
- 0 Power elevating work platforms or aerial devices shall be equipped with an interlock device to limit any further movement when the height of the platform would exceed that specified by the manufacturer.

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- 0 Daily inspections of the EWP are being conducted and recorded.
- 0 A trained ground person (spotter) must be located with all EWP activity. The ground person must be competent (record of training) of lowering the basket in an emergency both manually and powered.
- 0 All warning levels and stickers are to be clearly visible and legible.

7.4 Ladders

7.4.1 General Requirements

On the NAPG Project, no physical work is to be performed from a ladder where the worker cannot maintain constant 3-point contact. Ladders are only intended for access and egress.


Aluminum or painted ladders **are not** permitted on the NAPG Project.

Extension ladders **must** be a maximum of 6 meters in length.


If a step ladder is intended to be used as a working platform, only a platform ladder designed and manufactured for this purpose shall be used.

Before and during the use of any ladder, the following criteria and instruction must be reviewed and followed:

- 0 Read and follow all manufacturers instruction in the care set up and use of the ladder.
- 0 Always inspect the ladder to ensure all components are in place, there are no loose or missing rungs and that side rails are in good condition.
- 0 Before erecting or using ladders, always check for electrical hazards example lighting or overhead power lines.

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- 0 Inspect non-skid feet for wear, imbedded material, and proper pivot action on swivel feet.
- 0 Replace frayed or worn ropes on extension ladders with type and size equal to manufacturer's original rope.
- 0 Check wooden ladders for cracks, splits, and rot.
- 0 **Check** all ladders for grease, oil, caulking, embedded stone and material or other materials that could make them unsafe.
- 0 Do not repair any ladders.
- 0 Defective ladders are to be taken out of service and tagged "Do not Use".
- 0 **Clear** scrap and storage material away from the base and top of the ladder since getting on or off the ladder is of increased risk.
- 0 **Secure** the base and top of the ladder against accidental movement.
- 0 Set the ladder on a firm and level surface. On soft non-compacted or rough soil, use a mudsill.
- 0 Ladders should be stood using the **4 to 1 rule**.
- 0 Single width job-built ladders are only meant for one worker at a time.
- 0 Make sure that rails on ladders extend at least three feet (1 m) above the landing. This allows for secure grip while stepping on or off.
- 0 Consider walk through designs for access and egress.

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- 0 Maintain a **3-point contact** when using a ladder. That always means two hands and one foot or two feet and one hand on the ladder.
- 0 Keep your center of gravity between the side rails. Your belt buckle should never be outside the side rails.
- 0 When climbing up or down do not carry tools or material in your hands. (use a hoist rope instead).
- 0 Keep boots free of mud, grease or any slippery material, which could cause loss of footing.
- 0 Never erect ladders on boxes, carts, cables, or other unstable surfaces.
- 0 Do not set up ladders in doorways, passageways, landings, driveways or any other locations where they can be struck or knocked over. Or on flexible or moveable surfaces.
- 0 **Never** stand on the last three rungs of any ladder.
- 0 Always face the ladder when climbing up or down and while working from it, and never overreach in any direction.
- 0 **Never hop** or bounce a ladder to reposition it.

8.0 FALL ARREST SYSTEM

8.1 Use of Personal Fall Protection Equipment

Fall arrest systems are used when travel restraint or fall restricting systems are not feasible.

If a fall restraint device is identified as being necessary, personnel who are trained, assessed and deemed competent to work at height must be used.

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A person shall wear a fall-arrest harness and attachment device with a shock absorbing lanyard, or Self Retracting Lanyard whenever they are at risk of falling and incurring injury. The lanyard must always be attached to a secure anchorage capable of supporting a minimum preferred 5000 lbs. while the person is in an exposed position in accordance with the manufacturer's specifications.

The 100% tie-off standard necessitates the use of double leg/ Y lanyards so that one lanyard can be left attached while the second is being moved to the next anchorage. A self-retracting life line SRL may be used in place of a shock-absorbing lanyard.

When any employee is working over operational equipment they shall be tied off. In addition to the minimum fall distances in the regulations, the lanyard and anchor point shall be short enough to not allow the employee to strike this equipment, hazardous chemical, water etc. should they fall.

Fall arrest systems consist of approved full-body harnesses, connecting subsystems, and anchor points.

An energy absorbing lanyard is used with fall arrest systems unless the use of the shock absorber will allow the worker to hit the ground or other object below the workers position. A "non – use" exemption must be approved by NAPG Project Director and HSER Manager. SRL should be considered prior to removal of shock absorbers.


Fall arrest systems must be professionally designed to provide vertical fall arrest, horizontal travel restraint, or a combination of both for work on sloped surfaces.

Fall arrest systems require the use of anchor points that will bear at least 22 kNs of force per person.

Safety belts must never be used in fall arrest systems.

A fall arrest system must be arranged so that the worker cannot hit the ground or an object or level below the work.

A fall arrest system must be configured to minimize swing fall hazards.

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8.2 Anchor points are to be placed as high as possible relative to the work surface and always preferably directly (or as near to it) overhead as can reasonable be accomplished. If an anchor point cannot be located overhead, then it should be located parallel to the d ring located on the back of the harness or as low as the waist (common stanchion height) if possible and reasonable as per the application. All Anchor points are dependent on equipment selection and the manufacturers limitations and requirements. An anchor point is never to be located below a worker’s feet or elevation of work surface. Grid Mesh Removal and Installation (Grating)

Prior to the removal of any part of any access walkway, such as grating, a grid mesh and/or brattice, a removal permit (NAPG-SAP-FRM-0006), obtained from the NAPG project, shall be completed and approved prior to the work commencing:

A work methodology JHA shall be completed;


A substantial physical hard barricade (not rope) with appropriate signage shall be erected at all approaches to the area where the mesh is to be removed;

Any personnel working inside the barricaded fall protection area shall wear appropriate fall protection;

The area below the intended opening that may be affected by overhead hazards shall be barricaded, Tagged and sign-posted to prevent access.

After work has been completed and prior to the barricade being removed, all mesh or floor plates are to be inspected to ensure that all welding, clamps and clips have been re-secured and permit returned to NAPG project for close-out (signed off).

Note: New Installations -These rules shall also apply to the protection of incomplete and or unsecured zones of new installation and fitment of grating, roofing and similar materials (decking as example) prior to completion.

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8.3 Fall Restricting Systems


Fall restricting systems are a combination of engineered components designed to prevent a worker's fall from exceeding 0.6 metres of free fall.

The systems must be adequately installed, inspected and used in accordance with the manufacturer's instructions.

The support or anchor points used for a fall restricting system must be capable of supporting a static force of at least 8Kn (3600lbs).

Where a rope grab is used as a fall restricting system:

- 0 Ensure it is installed right side up. Most grabs feature a directional arrow to indicate proper orientation;
- 0 Where using a rope grab there must be some means – such as a suitable knot or end splice in the lifeline – to prevent the rope grab from proceeding along the lifeline to a point where the worker is no longer restrained from falling.
- 0 Ensure that the proper size lifeline is used. The required size is marked on the rope grab;
- 0 After mounting the grab on the lifeline, pull the grab down sharply. The grab should lock within 300mm;
- 0 Lifelines shall be made of Polypropylene Blend Rope intended for lifelines. Polypropylene Utility rope is not suitable and therefore **not an approved lifeline material**.
- 0 Lifelines must be at least 16mm in diameter and of adequate strength;

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- 0 A competent worker must inspect lines from end to end before installation, looking for cuts, burns, fraying, and chemical or heat damage. Signs of decreased diameter may indicate that line has been involved in a fall arrest and should be discarded;
- 0 Ensure that lifelines are securely attached to solid anchor points;
- 0 Attach only one lifeline to each anchor;
- 0 Never anchor to bundles of material that may be moved or depleted through use.; and
- 0 Do not anchor to exposed rebar unless embedment length is adequate.

8.4 **Leading Edge Hazards and Equipment Selection**


Leading Edge Hazards can place additional risk to the user of fall protection equipment.

Fall protection equipment is often deployed in scenarios where the anchor point is located at shoulder height or below.

When fall protection equipment such as a retractable lifeline is not placed (anchored) directly overhead the potential to damage the line or unit in the event of a fall from a leading edge is significant.

Only equipment that is classified as Leading edge protected and compliant (LE) shall be used in these situations where any part of the arresting system can meet the leading edge during the fall or arrest.

The material edge does not have to be particularly hard, sharp and or thin for this to have significant impact on the safety of the worker. The actual hazard is in the bending and friction that occurs as the line or unit is deployed over an edge.

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All Leading-Edge fall protections scenarios must use appropriately designed equipment manufactured to the relevant leading-edge standard.

8.5 Lift Basket with Crane

A certified lifting device suitable to lift personnel, that is constructed to relevant standards, and is designed by the manufacturer for use as a personnel hoist shall be used. An Engineered lift plan is to be created as per the Cranes and Lifting Equipment procedure (NAPG-SAF-SPI-0010) and applicable Regulations and Standards.


Note: Where the use of a basket with a crane is required, the use of the basket must be approved by the NAPG Project or Construction Manager. A technical review and acceptance by the NAPG Area Lead and the HSER Manager is also required. A Permit issued by the NAPG project, for use is required for each occasion when using a lift basket with crane or other hoisted personnel lifting equipment. NAPG Construction Manager, HSER Manager and NAPG Area Lead **to approve** the working at heights permit.

8.6 Rescue Plans

All working at height activities Shall at a minimum have a task specific rescue plan that meets the expectations of the NAPG Rescue Procedure

Work Group Supervisors shall ensure the following basic requirements are met:

- 0 Develop a written task specific rescue plan for work that involves the use of a fall arrest system.
- 0 Review the rescue procedures with all personnel involved with the work, prior to work commencing.
- 0 Ensure rescuers are familiar with and trained in its use, all rescue equipment identified in the rescue plan and its application.
- 0 All required (as listed in the plan) equipment and material are to be staged in the immediate area and ready for immediate use.

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- 0 Equipment shall be set up to ensure its in working order / and it is suitable location for application prior to commencing work.
- 0 Fall victims must be rescued promptly. Prolonged suspension in fall arrest equipment can result in serious harm to the worker.
- 0 Rescue Plans can include:
 - self-rescue;
 - rescue by co-workers, and/or;
 - Rescue by a rescue team.

All personnel involved shall be familiar with the details of the rescue plan prior to commencing. This will be documented via any personnel signing off on the applicable JHA and rescue plans.

8.7 Objects Falling from Height


Refer to NAPG Dropped Object Prevention Procedure (NAPG-SAF-SPI-0012).

A system shall be in place to prevent tools, materials and other objects from falling from height.

Work shall not be permitted under overhead work where the risk of falling objects is present. This area shall be properly barricaded and tagged. Where these work activities must coincide, additional precautions coordination and controls must be taken.

An inspection of the worksite and the adjacent area shall be conducted to ensure that everything is secure and that there are no loose items which may become a dropped object. An inspection of all high-level equipment and workspaces shall be conducted on a regular basis to ensure that no components have worked or vibrated loose. Always minimize loose tools, equipment, and materials to what is immediately necessary.

The controls used to safeguard persons do not prevent objects from falling then additional means must be used to protect persons under or near the area. These may include the provision of tool lanyards, of a screen or an overhead protective structure that catches falling objects, however, the primary means of control will include cordoning off the area

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below the worksite or the establishment of a no-go zone with the necessary signage and barriers as well as training of personnel in its observation. Where work above and below is necessary, special precautions need to be established in the Work Method and JHA.

9.0 WORKING AT HEIGHTS RISK ANALYSIS

9.1 Purpose


This process describes a systematic approach to controlling the risks associated with Working at Heights, commencing with Hazard Identification of potential falls through to selecting and implementing suitable control measures including both temporary and permanent solutions.

For any work where there is the potential risk of a person falling from height, a suitable means of control must be determined and implemented.

- Where suitable controls are not available, and the use of temporary control measures may have to be implemented for short duration work or for use while a permanent solution is commissioned.
- To establish a suitable means of control for each risk it may be necessary to refer to the PMRA.
- If there is any doubt over the adequacy or use of permanent/fixed or temporary systems to control the risks posed from working at height, then they must be confirmed with the PROJECT HSE Team or Designate.

Identify the hazard(s) of the task/job to be completed:

- Identify each hazard where a person is likely to be exposed to a potential fall from one level to another at the workplace;
- The identification of the need to control a hazard of falling from height can come from many sources such as;
- The result of a Work Method, PMRA Process Hazard Review (PHR), and Job Hazard Analysis (JHA);


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- Reference to previous incidents or near miss accidents/incidents;
- Inclusion as a part of another procedure e.g. Confined Space Entry;
- An Inspection by Supervisors / Safety Representative;
- Detailed feedback from workers in the area; and
- Site specific Height Policy, 6 feet.

9.2 Risk Assessment Requirements

All working at height must be preceded by a risk assessment and a work method with a task specific JHA. The personnel and their supervisor must conduct a risk assessment of the work, duration, frequency and potential consequences prior to work commencing. This assessment may include the following factors:

- If a person were to fall what severity of injury would result?
- How often will personnel be exposed to the hazard?
- What is the potential/likelihood of a fall occurring?
- Conduct a thorough risk assessment of the hazards by considering the following contributing factors:
 - How far would a person fall?
 - What would the person fall onto / into?
 - What injuries may result from the fall?
- Will personnel need to move from one surface to another unprotected area?
- Will all the surfaces support the intended load?
- Are there any holes or opening in the surface?
- Are there any unprotected edges, openings?
- Are there any level changes? (Elevation)
- Is the surface slippery or steep (over 30%)?
- Will ladders need to be used?
- Are the surfaces unstable? Could they become unstable?

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- Is the existing lighting suitable to the task? Has additional task lighting been installed.
- Will adverse weather affect the site conditions? Cold, wet, hot, humid, etc.
- Could falling objects affect the safety of people or equipment?
- Are there any other identified hazards that may affect the job e.g. chemical, electrical, and mechanical, noise, pressure, radiant, biochemical or microbiological hazards?
- Will any step of the task involve or introduce an instability/stability factor?


9.2.1 Temporary Control Measure

If the answers to the above questions are not positive then due to financial or time restrictions to the ultimate control measure it is necessary to still complete the task while the permanent solution is engineered, designed, constructed and installed. A temporary control measure must be used at this point while the permanent control measure is commissioned.

9.2.2 Alternative Control Measures

By referring to the current JHA, the risk assessment of the hazard combined with detailed suggestions from the risk analysis process it should be possible to select a suitable alternative control measure such as:


- Using a mobile platform;
- Erecting suitable scaffolding to the area;
- Using a suitable elevating work platform;
- Using another type of mechanical platform;
- Using a Fall Arrest System and Fall Arrest Harness;
- Using mobile ladders with appropriate safety equipment and a safe working procedure to provide adequate protection; and

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- Enlisting the services of a specialised industrial rope access team.

10.0 REFERENCES

Cranes and Lifting Equipment NAPG-SAF-SPI-0010
 Equipment Inspection NAPG-SAF-FRM-0010
 Personal Protective Equipment – NAPG-SAF-SPI-0007
 Permit to Work – NAPG-SAF-FRM-0002
 Scaffolding – NAPG-SAF-SPI-0029
 HSE Plan NAPG-SAF-SPI-0005
 Dropped Objects Prevention – NAPG-SAF-SPI-0011
 Working at Heights Permit NAPG-SAF-FRM-0004
 Floor Openings and Grating Removal Permit NAPG-SAF-FRM-0006
 Job Hazard Analysis Procedure NAPG-RA-SPI-0001
[IHSA Guideline for Ladder Use](#)
[MOL Guideline for CPO Approved Working at Height Training](#)
 NEWFOUNDLAND AND LABRADOR REGULATION 5/12
 Ontario construction regulation 213
 Ontario Mining Regulation 854.

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