

Safe Work Procedures



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PREPARED BY

Roles	Name	MM/DD/YYYY
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DOCUMENT REVISION HISTORY

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1.0		

Installing Rail System:

1.0 PURPOSE

To ensure workers understand the hazards, including physical, environmental, and psychological, associated with installing the Metro Safety Rail System (MSRS), and the controls required to eliminate or reduce these hazards.

2.0 SCOPE

This procedure applies to all workers installing and inspecting the installed MSRS

3.0 ROLES & RESPONSIBILITIES

3.1 Employer / General Contractor

- Ensure MSR installation meets engineering specifications
- Ensure all engineered drawings are available onsite.
- Maintain system integrity and conduct regular inspections
- Ensure workers receive training and authorization

3.2 Workers / Users

- Follow all procedures
- Conduct pre-use inspections of system and ppe
- Use only approved PPE and lanyards
- Report hazards, defects, or concerns immediately

3.3 Qualified / Competent Person

- May modify procedures only after reviewing site-specific details
- Approves alternative lanyard lengths or unique configurations

4.0 HAZARDS

The following hazards exist when using the MSR system:

4.1 Fall-Related Hazards

- Falling from the unprotected slab edge.
- Incorrect setback distance resulting in inadequate restraint.
- Lanyard length allowing a worker to reach or cross the slab edge.
- Insufficient fall clearance during fall arrest use.
- Transitioning between MSR panels without maintaining 100% tie-off.

4.2 Equipment Hazards

- Damaged or incompatible harness components.
- Worn or unserviceable Y-lanyards or snaphooks.
- Snaphooks connected to non-rated anchorage points.

- Large snaphooks not compatible with harness side D-rings.

4.3 Structural Hazards

- Cracked concrete around post sockets.
- Posts not properly embedded or leaning.
- Cables loose, improperly tensioned, or not parallel to slab edge.

4.4 Environmental Hazards

- Wind, rain, ice, or frost increasing slip or fall potential.
- Poor footing conditions or tripping hazards inside the MSR zone.
- Low visibility due to lighting conditions.

4.5 Human Factors

- Rushing steps, distractions, or bypassing tie-off requirements.
- Inadequate training or misunderstanding of transitions between panels.
- Fatigue or impaired judgment.

4.6 Psychological / Psychosocial Hazards

- Anxiety or fear near slab edges affecting concentration.
- High production pressure leading to rushing or skipped steps.
- Mental fatigue reducing hazard recognition.
- Emotional stress from prior incidents or falls.
- Isolation when working away from the crew.
- Interpersonal conflict or poor communication increasing stress.
- Chaotic environments elevating cognitive load.
- Personal stressors (sleep, finances, family) affecting focus.

5.0 REQUIRED TRAINING & COMPETENCY

Workers must receive training that includes:

- Understanding MSR purpose, limits, and safe zones
- Demonstrated ability to inspect PPE & MSR components

- Hands-on practice performing panel transitions
- Knowledge of emergency procedures and fall rescue requirements
- Awareness of psychosocial hazards and their impact on safe work.
- Ability to communicate concerns related to mental readiness.

6.0 REQUIRED EQUIPMENT

1. Full Body Harness

- Meets ANSI Z359.11, CSA Z259.10, EN361 or ISO 10333-1.
- Includes dorsal D-ring and hip D-rings for backward-pull restraint.
- Includes tear-away parking ring for unused snaphooks.

2. 1.8 m Energy-Absorbing Y-Lanyard

- Meets ANSI Z359.13, CSA Z259.11, EN355 or ISO 10333-2.
- Must support weight of worker and at least a 6 ft free fall.
- Snaphooks must be compatible with harness D-rings.

3. Shopvac with HEPA filter

4. Rubber mallet

5. Drill with socket

6. Posts

7. Cable

8. Turnbuckles

9. Shackles & Clamps

10. Duct Tape

11. Extension cord

12. Tool lanyard

8.0 PRE-USE INSPECTIONS

All inspections must be done in a safe location.

1. Inspect full-body harness and Y-lanyard.
2. Inspect drill and battery, confirm charge

3. Inspect shopvac and filter
4. Inspect posts, confirm no cracks, rust.
5. Inspect cable, confirm guage, ensure ends not frayed.
6. **Mental Readiness Check:** ensure workers are alert, focused, not rushed, and comfortable performing slab-edge tasks.

9.0 Personal Protective Equipment (PPE) Requirements

Workers are required to inspect all PPE prior to use all defective PPE to be removed from service and reported to supervisor.

1. CSA approved hard hat
2. CSA approved steel toed boots minimum 6 inches
3. High visibility vest
4. CSA approved eye protection
5. Ear plugs / muffs
6. Cut resistant gloves
7. CSA approved full body harness
8. CSA approved self-retracting lifeline (SRL)
9. N95 dust mask

	Not Significant	Minor	Moderate	Major	Severe
Almost certain	Medium	High	Very High	Very High	Very High
Likely	Medium	High	High	Very High	Very High
Possible	Low	Medium	High	High	Very High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Low	Medium

10.0 Installation Procedure

Safe Work Procedures



Steps	Hazards	Controls
Gather tools and equipment	Defective tools, missing parts, incompatible parts. Stress from rushing or unclear task expectations	Inspect all tools and equipment prior to beginning task. Ensure all documented inspections are completed by competent individual. Confirm workers understand sequence and are not rushed.
Don full body harness, connect to approved anchor	Defective equipment, incompatible weight limits, improper fit, lack of training, incompatible equipment. Anxiety when connecting fall protection system.	Workers to have current applicable fall protection training. All equipment to be inspected prior to use, remove defective equipment from service and report to supervisor. All equipment to have applicable annual inspection. Provide support for workers expressing discomfort or uncertainty with equipment.
Vacuum inserts	Exposure to noise, exposure to silica, particulate debris, dropped object. Mental fatigue from repetitive tasks	Workers to wear ear protection, N95 mask, eye protection, review silica exposure control plan, review dropped object. program, secure shopvac with tool lanyard to secure anchor. Encourage micro-breathing breaks to reduce fatigue.
Insert posts as per the Safety Guard Rail System Installation Manual	Struck by potential, improper installation. Reduced attention due to distractions or stress	Ensure hands and fingers are out of the way when pounding the post into the insert. Review Safety Guard Rail System Manual. Maintain clear communication, pause task if worker focus decreases.
Connect turnbuckle to first post	Pinch points, improper installation. Pressure to work quickly leading to errors	Ensure hands and fingers are out of the way when connecting the post into the insert. Review Safety Guard Rail System Manual. Reinforce

		taking adequate time for precise alignment.
Attach thimble	Cuts, ergonomics, incompatible equipment. Stress from awkward positioning or tight spaces.	Workers to wear cut resistant gloves. Workers to take micro breaks and stretch as needed. Refer to Safety Guard Rail System Manual to ensure turnbuckle is set to the correct spacing. Encourage worker to speak up if ergonomic strain increases
Run cable thru posts	Cuts, stored energy struck by, damage to equipment, missed post loop. Cognitive overload from managing multiple cable paths	Workers to wear cut resistant gloves and eye protection. Unwind bundled cable, pull termination end through the loops. Confirm all posts have cable running through the correct loop. Work on one cable at a time. Reduce distractions and keep communication clear.
Connect termination end to post.	Cuts, stored energy struck by, damage to equipment, missed post loop, incorrect positioning for Crosby Clips. Stress due to fine-motor tasks performed near the slab edge	Workers to wear cut resistant gloves and eye protection. Confirm all posts have cable running through the correct loop. Work on one cable at a time. Attach thimble and Crosby clamps as per Safety Guard Rail System Manual. Coil excess cable and secure with tape. Ensure worker is mentally ready and not distracted while working near edge.

Safe Work Procedures



Steps	Hazards	Controls
Tighten turnbuckle on first post	Mis threaded, pinch points, over tightening. Cognitive overload from managing new system and installation	Workers to wear cut resistant gloves and eye protection. Keep fingers out the turnbuckle so cables are taught. Taught: when the cable is pushed down it bounces back up. Reduce distractions and keep communication clear.

Notes/ Comments:

12.0 TOOL SECUREMENT & LANYARD USE

To prevent dropped-object incidents while working between the MSR and the slab edge, all tools used in the MSR work zone must be properly secured using approved tool lanyards.

Purpose of Tool Securement

Working near or at slab edges increases the potential for tools to fall to levels below, creating severe injury risks to workers and the public. Tool securement is mandatory when performing any task inside the MSR-controlled zone.

Approved Tool Lanyards

Only tool lanyards meeting the following criteria may be used:

- Rated for the weight of the tool
- Designed with **energy absorption** or **shock-reducing** properties
- Equipped with locking carabiners or fixed loops
- Designed **only for tools**, not for tying off workers

Homemade tool lanyards are not permitted.

Tool Attachment Requirements

Workers must ensure:

- Tools under **2 kg (5 lbs)** are attached using manufacturer-approved lanyard points
- Tools over **2 kg (5 lbs)** require secondary tethering or holstered storage
- Sharp tools (chisels, rebar ties, knives) use fully enclosed holsters
- Battery-operated tools have a secure tether point or holster with retention strap

Tools must never be tied off to:

- MSR cables
- MSR posts
- Harness structural components (other than dedicated tool loops)
- Lanyard D-rings intended for fall protection

Worker Harness Requirements for Tool Use

Harnesses must include:

- **Approved tool loops or rings** (rated for tools only)
- A holster or belt suitable for the work task

Workers must ensure tools do not interfere with:

- Lanyard connection to MSR cables
- Movement during panel transitions
- Access to dorsal or hip D-rings

Tool Use While Connected to the MSR

While working in the MSR zone:

- Maintain **100% tool retention** at all times
- Do not overextend or swing tools beyond the slab edge
- Do not store unsecured tools on MSR components or slab edges
- Ensure tools are removed from service if dropped or damaged

During panel transitions:

- Tools must remain secured to the worker
- Tools must not be carried by hand unless tethered

Inspections & Maintenance

Workers must inspect tool lanyards daily for:

- Frayed webbing
- Damaged stitching
- Bent or malfunctioning clips/carabiners
- Wear at tool-attachment points

Defective tool lanyards must be **tagged out immediately**.

Prohibited Tool Practices

Workers must never:

- Use MSR cables as tool hangers
- Use fall protection lanyards as tool tethers
- Use tape, zip ties, wire, or rope to secure tools
- Place loose tools on the edge, top of MSR, or elevated surfaces

12.0 EMERGENCY RESPONSE REQUIREMENTS

Before work begins, supervisor must ensure:

- A site-specific **Fall Rescue Plan** is in place
- Workers know rescue roles and procedures
- Required rescue equipment is available and functional

Following any fall event:

- MSR section must be removed from service
- A qualified engineer must inspect before re-use

13.0 POST-USE REQUIREMENTS

- Remove harness and lanyard and store properly.
- Report any damage or near misses immediately.
- MSR section must be taken out of service if damage or shifting is observed.

14.0 REFERENCES

- ANSI Z359.11 / CSA Z259.10 / EN361 / ISO 10333-1
- ANSI Z359.13 / CSA Z259.11 / EN355 / ISO 10333-2

Safe Work Procedures



Worker sign off : I have read or have been instructed in the above procedures and agree to follow with them.

Name	Signature

Supervisor signature :

Date :