

Procedure



Concrete/Masonry Construction Procedure

January 2023

Masonry

Brick Masonry is the laying of bricks bonded together with mortar. Masonry is generally a highly durable form of construction. The materials used, the quality of the mortar and workmanship, and the pattern in which the units are assembled can significantly affect the durability of the overall masonry construction.

Mortar is a workable paste used to bind building blocks such as stones, bricks, and concrete masonry units together, fill and seal the irregular gaps between them, and sometimes add decorative colors or patterns in masonry walls. Mortar includes pitch, asphalt, and soft mud or clay, such as used between mud bricks. Mortar comes from Latin mortarium meaning crushed. There are several types of cement mortars and additives.

The common materials of masonry construction are:

- brick,
- stone,
- marble,
- granite,
- travertine,
- limestone,
- cast stone,
- concrete block,
- glass block,
- stucco,
- tile, and
- cob.

Definitions:

Bull float - A tool used to spread out and smooth concrete.

Formwork - The total system of support for freshly placed or partially cured concrete.

Lift slab - A method of concrete construction in which floor and roof slabs are cast on or at ground level and, using jacks, lifted into position.

Limited access zone - An area alongside a masonry wall, which is under construction, and is clearly demarcated to limit access by employees.

Precast concrete - Concrete members which have been formed, cast, and cured prior to final placement in a structure.

Reshoring - The construction operation in which shoring equipment is placed, as original forms and shores are removed, to support partially cured concrete and construction loads

Shore - A supporting member that resists a compressive force imposed by a load.

Vertical slipforms - These forms are jacked vertically during placement of concrete.

Jacking operation - The task of lifting a slab during the construction of a building where the lift-slab process is being used.

CSA Standard References:

- Concrete Formwork - CAN/CSA-S269.3-M92 (R2013)
- Concrete Masonry Units - CAN/CSA-A165 SERIES-04 (R2014)
- Connectors for masonry - A370-14
- Design of Masonry Structures - S304.1-04 (R2010)
- Fired masonry brick made from clay or shale - CSA-A82-14
- Masonry Construction for Buildings - CAN/CSA-A371-04 (R2014)
- Mortar and Grout for Unit Masonry - CAN/CSA-A179-04 (R2014)

Masonry work spawn multiple occupational hazards with many causes of accidents related to travel on uneven and congested soils, handling heavy loads, working at height on scaffolding or ladders, to strenuous work postures, exposure to weather (heat, cold, humidity) and UV, dust. Finally, the use of cement masons leads to many skin problems (eczema and irritation).

The rate of loss of professional masons is well above average, with more frequent serious and sometimes fatal accidents, and needs reclassification often necessary (lumbosacral back pain, skin allergies), due to debilitating physical consequences requiring the mason restrict or permanently cease its work.

Prevention of occupational hazards Mason begins with a reflection on the upstream site organization and its installation, compliance with safety standards and good practices scaffolding and professional gestures, implementation, and the proper use of lifting equipment and handling aids and working at heights. With these collective preventive measures, add the port imperative suitable personal protective equipment and training continues to safety.

The Main Risks Masons Face

Frequent trips to the site:

- On uneven ground, cluttered, poorly lit, with empty (looks, trenches, excavations) and / or slippery
- The use of machinery or equipment that may be dangerous (disc cutters, grinder, sander or drill lead to many physical risks: wounds, fractures and sprains due to falls of ground floor, cuts to hands and feet, head injuries and crashes members due to falling objects or materials scaffolding or upper floors.

Masonry Saws:

- Masonry saws must be guarded with a semicircular enclosure over the blade.
- Method for retaining blade fragments must be incorporated in the design of the enclosure.

Masonry saws can be used for dry or wet cutting, depending on your application. Always follow appropriate safety precautions and operating procedures for the masonry saw you are using.

Masonry Saw Safety Precautions

The following is a list of safety practices which must be observed when sawing with masonry saws:

1. Keep the area around the saw free from debris which could cause falls.
2. Prohibit the use of the saw by unauthorized or untrained personnel.
3. Keep the conveyor cart free of grit and debris which could allow the material to slip or twist during cutting operations.
4. Hold the material firmly against the backstop of the conveyor cart or guide-a-cut, keeping fingers out of the path of the blade.
5. Position the saw on a firm, flat area and be sure that the saw will not move in use.
6. Replace blade collars if they become worn to less than
 - a. 4" diameter for 18" and 20" blades
 - b. or less than 3 1/2" diameter on 14" blades.

Important:

Always wear proper safety equipment; wear safety glasses, safety footwear, snug fitting clothing, hearing and head protection, and respiratory equipment where required.

Risks associated with handling

The strenuous work postures (bending, squatting, arms in the air ...), heavy loads handled all day, repetitive movements, cause very frequent cause of many accidents' musculoskeletal disorders. In addition, the vibration arms, and hands by the portable equipment (concrete vibrators) are compounded exposure to these risks. Aids unavailable or insufficient handling contribute significantly to the physical difficulty and the occurrence of low back pain and joint damage effort. Lesions of the spine, wrist pain, shoulder, etc., As well as injuries to the knees and ankles are particularly common among Masons.

Risks of working at height

Travel high on ladders or scaffolding, is inherent in the business, as well as the use of platforms on trestles, stepladders. Implementation very frequent cement agglomerates entails risks of falls from height from work platforms, increased risk, or front gable, by the weight of materials handled and working posture adopted.

In masonry, falls from height are a significant proportion of serious and fatal accidents.

They are caused by:

- Inadequate scaffolding, poorly stabilized, poorly anchored,
- Platforms overcrowded and congested,
- Lack of secure access,
- Misuse of scales poorly maintained, poorly placed and /or loose, causing them to slip or reversal
- Work on fragile roofs

In particular, the transition between a means of access and platforms, decks, or gangways, creates the risk of falling.

Risks of working outside

Outdoor work led Masons to be exposed to ultraviolet (UV, weather, cold (wind chill, mental alertness) or heat, and moisture. These variable climatic conditions (frost, heat, rain) accentuate the risk postures binding work and fail to work safely (thunderstorms, high winds, icy land). Frequent exposure to UV, especially shirtless, may be responsible for skin cancer, of ophthalmia (burns of the cornea), especially in altitude, and in any case, solar erythema (sunburn).

Health problems due to heat and prolonged sunlight on the head (effects of sunstroke, dehydration) action generate risks of general malaise, muscle cramps, loss of consciousness, which can be vital in extreme cases (heat stroke). Indirectly, work in hot weather also increases the risk of accidents by fatigue, sweating, decreased alertness.

Chemical risks

Dermal toxicity of cement induces many dermatological problems for Masons irritant dermatitis, allergic dermatitis.

- The wear dermatitis or irritation

The high alkalinity cements during moistening or by addition of water, is in contact with a wet skin, causing skin lesions (red and shiny skin, edema, optionally vesicles), caustic burns, cracks, crevices, painful ulcers. Dermatitis wear or irritation due to the combination of the abrasiveness of sand added, physical assault (handling blocks), and chemical attack (alkalinity of cement).

Fingers and hands are primarily concerned, but also other possible areas of contact as elbows, knees, thighs when Mason leans, sits or kneels in a wetland containing fresh cement, or when casting liquid concrete on the pants.

- Allergic contact dermatitis is caused by allergens contained in cement: chrome (potassium dichromate) particularly, but traces of nickel, cobalt. Mason gradually raises awareness of these products specifically because of the multiplicity of unprotected skin contact. Contact eczema ("gale cement") sits on top of the contact areas with cement but can then extend beyond: back and sides of the fingers and hands, inner wrists. The skin lesions are erythematous with pruritic, vesicular followed by a phase of oozing, and crusting of desquamation, and eczema may become secondarily infected.
- The dermatitis due to cement are quite rebellious and often remains a residual dermatitis and only fully valid treatment is allergen avoidance and therefore stop contact with cement, with a reclassification difficult for older masons, hence the crucial importance of prevention.

Other products used by Masons may contain allergens inducing risk by inhalation, ingestion, and skin contact: seals (accelerator), mastics and masonry façade coatings (epoxy resins), and form oils.

Revision History

Rev	Rev Date	Rev By	Approved By	Description
1.0	1.3.2022	Shayne Torrans	Shayne Torrans	Initial Procedure Document
1.1	12.20.2022	Shayne Torrans	Shayne Torrans	Format Revision

Approvals:

Procedure Owner

Print Name

Date

Signature

Competency Assessment

No.	Questionnaire	C/NYC
Q1		
A1		
Q2		
A2		
Q3		
A3		
Q4		
A4		
Q5		
A5		

Enclosed Attachments	
Risk Assessment	<input checked="" type="checkbox"/>
Environmental Aspect and Impact	<input checked="" type="checkbox"/>
Training and Competency	<input checked="" type="checkbox"/>
Measure and Evaluation Tools	<input checked="" type="checkbox"/>

Competency Checklist

To be filled out by Trainer and signed by Employee, Assessor and Supervisor before being returned to the HSEQT Manager for recording purposes.

Procedure	Competency	Date	Competent YES / NO	Employee Signature

(Please tick appropriate box)

This employee is competent in performing the job.

This employee has not attained the competency level.

*

* *If the employee has not attained all competency levels, the General Manager must assess the action to be taken, provide an extension of training or alternative action as listed below.*

Alternate action to be taken: _____

Signed By Employee: _____ Date: _____

Trainer: _____ Date: _____

Assessor: _____ Date: _____

Regional Manager: _____ Date: _____

Environmental Aspects and Impacts

Identified Environmental Aspects and Impacts

The following table is a summary of the likely environmental aspects and impacts that may be identified during site inspections. The significance of each impact needs to be assessed using the Risk Assessment Model.

Activity	Aspect	Impact
Purchasing & Administrative Work	Consumption of goods	Conservation of natural resources
	Consumption of energy (eg. Electrical equipment and facilities)	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of waste (eg. Paper)	Consumption of space for waste disposal; Habitat loss
Climate Control	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of noise	Disturbance to community; Habitat loss
Cleaning of – offices / vehicles	Storage, use and release of chemicals	Contamination of air, water or soil; Risk to human health
Transport (Fleet vehicles / staff travel)	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Loss of habitat at all stages of generation; Light pollution
	Consumption of goods (eg. Oil)	Consumption of natural resources; Generation of waste; Habitat loss; Biodiversity impacts
	Generation of waste (eg. Oil)	Consumption of space for waste disposal; Potential contamination of water or soil; Habitat loss
	Exhaust emission	Release of greenhouse gases and atmospheric pollution
	Use of dangerous goods (eg. Batteries)	Potential contamination of air, water or soil; Risk to human health
	Generation of noise	Disturbance to community; Habitat degradation
Operations		

Sample only.
To be filled in

Risk Assessment

Risk Assessment // insert name here

<p>Step No: Logical sequence</p>	<p>Sequence of Basic Job Steps documented in the Procedure, Work Instruction and project plans. Break down Job into steps.</p> <p>Each step should be logical and accomplish a major task.</p>	<p>Potential Safety & Environmental Hazards/Impacts at the site of the Job</p> <p>Identify the actual and potential health and safety hazards and the environmental impacts associated with each step of the job.</p>	<p>Risk Rating</p> <p>Refer to the risk matrix or HSEQT.PRO.Risk Mgt</p>	<p>Recommended Corrective Action or Procedure</p> <p><i>Determine the corrective actions necessary to reduce the risk to as low as reasonably practical (ALARP) refer to HSEQ.PRO.Risk Mgt. The risk must be reduced or controlled to ALARP before work commences.</i></p> <p>Document who is responsible for implementing the controls to manage each hazard identified.</p>	<p>Risk Rating refer to the risk matrix or HSEQT.PRO.Risk Mgt</p>
1.					
2.					
3.					
4.					
5.					

Audit



Process: insert// Procedure: Insert //		Date:	Audited by:	
		Location of Audit:	Area Mgr/Supervisor:	
Item	Question	Evidence Sited	Comments	Conformance Score 0,3,5
1.				
2.				
3.				
4.				
5.				
6.				
7.				
AUDITOR'S SIGNATURE:		CONFORMANCE SCORE: / 25		0 – Non-Conformance 3 – Continuous Improvement Opportunity 5 – Total Conformance
SAFETY REP'S SIGNATURE:		CONFORMANCE %:		