



## SCAFFOLDING

### Potential Hazards

1. impalement
2. eye injury
3. puncture
4. respiratory illness

### Personal Protective Equipment Required

- |                 |                    |                 |
|-----------------|--------------------|-----------------|
| Hard hat        | CSA Boots          | Eye protection  |
| Hand protection | Hearing protection | Skin protection |
|                 | Face protection    | (clothing)      |

## PRELIMINARY ACTIVITIES

Where multiple trade activity is scheduled, the general contractor is to review in advance the priority of work and schedule the appropriate time frame to allow each trade to complete their scope of work. Prior to any work commencing supervisors must conduct a hazard assessment of all applicable work areas. Any hazards that are found during the hazard assessment must be addressed prior to any work commencing.

### DO'S:

1. Install, use, maintain and dismantle scaffolds in accordance with manufacturer's and/or engineer's specifications.
2. Make sure a competent person has inspected the scaffold before you go up.
3. Inspect the scaffold prior to each use.
4. Provide a stable and level foundation
5. Ensure all bracing, base plates and guardrails are in place and secure.
6. Provide a safe means of access to the working deck.
7. Wear a hard hat whether you work on or under a scaffold.
8. Be sure to wear sturdy shoes with nonslip soles as well.
9. Use a personal fall arrest system whenever required.
10. Watch out for co-workers on the scaffold as well as people below.
11. Always use common sense when working on any scaffold, and move around slowly and carefully.
12. Ask a supervisor if you're not sure if a scaffold or working conditions are safe.

### DON'Ts:

1. Do not take chances.
2. Do not load a scaffold in excess of its rated load.
3. Do not keep debris or unnecessary materials on a scaffold where someone could trip over them or accidentally knock them off the platform.
4. Do not hit a scaffold with anything heavy—a truck, a forklift, a load of lumber, etc.
5. Do not leave materials and equipment on the platform at the end of the day.
6. Do not erect scaffolds in proximity to energized electrical lines.
7. Do not move scaffolds with workers on the platforms.
8. Do not climb or stand on cross braces or guardrails.
9. Do not use an outdoor scaffold in stormy or windy weather, or if it's covered with ice or snow.

## GENERAL SAFE WORK PROCEDURES

A scaffold is a very effective means to provide a temporary safe work platform. However, care must be taken to ensure scaffolds are erected, maintained, and used in a manner to ensure worker safety. Serious accidents and fatalities have resulted from improper design, erection and use of scaffold systems.

1. Ensure that you understand and follow the engineer and/or manufacturer's specifications and instructions on the installation, use, maintenance, and dismantling of a scaffold.
2. Identify competent persons to supervise and inspect the scaffold.
3. Determine a suitable fall protection system to be used when erecting and dismantling scaffolds.
4. Conduct an inspection of all scaffold components to ensure they are undamaged and in proper working condition, prior to the erection of the scaffold.
5. An open access scaffold more than 10 m high, or an enclosed or hoarded access scaffold more than 7.5 m in height, must be designed by an engineer.
6. If the scaffold platform is 3 m or more above the level a worker may fall, it must be equipped with a guardrail.
7. If a scaffold system is 6 m in height, it is equipped with a suitable hoisting device for hoisting materials.



8. If a scaffold is more than 9 m in height it must be equipped with an internal stairway or ladders, and if any ladder exceeds 3 m in height, the ladder must be equipped with fall protection attachments.
9. A scaffold must be anchored and securely guyed or tied back to the building or structure at vertical and horizontal intervals of no more than 3 times the minimum lateral dimension of the scaffold.
10. Protect all planked or working levels with proper guardrails, mid rails and toe boards along all open sides and at the ends of scaffold platforms.
11. Scaffolding shall be erected plumb and level and all connections shall be fastened.
12. Workers shall be aware of the regulations on specific types of scaffolds (refer to WorkSafeBC Regulation);
  - wood scaffolds
  - bracket scaffolds
  - needle beam scaffolds
  - thrust out scaffolds
  - swing stages
  - trestle scaffolds
  - suspended powered platform
  - suspended work platform
  - boatswains chairs
  - tower and rolling scaffolds
  - ladder-jack scaffolds
  - outrigger scaffolds
13. The upright supports of scaffolds shall stand on firm foundations or sills. Pallets, boxes, building blocks, bricks and other unstable materials shall not be used for this purpose.
14. The stability of a scaffold, having a height exceeding three times its minimum base dimension, shall be ensured by securing the scaffold to the structure, or by other appropriate means.
15. Scaffolds, 10 feet (3m) or more above grade, shall have guardrails around their open sides.
16. Toe-boards shall be installed around the open sides of scaffolds to prevent tools and equipment from falling from the scaffold.
17. Scaffold planks shall:
  - be not less than 2 by 10 inches (5cm x 25cm), nominal dimension;
  - extend not less than 6 inches (15cm), and not more than 12 inches (30cm) beyond the supports at each end;
  - be supported at intervals not exceeding 7 feet (2.1m) for heavy work, such as bricklaying and masonry, 10 feet (3m) for light work;
  - be of the same thickness as adjoining planks.
18. Work platforms on scaffolds shall have two or more scaffold planks side by side, or manufactured platforms. Whichever method is used must give a work surface of at least a nominal width of 20 inches (50.8cm).
19. When the distance between the front and rear upright scaffold support is greater than 30 inches (76cm), additional planks shall be used so that there is no opening greater than the width of one scaffold plank.
20. Scaffold planks shall not be sloped more than 2 feet (61cm) vertically and 10 feet (3m) horizontally. Sloped planks shall be secured against slipping. They shall be fitted with cleats on their topside at not more than 16 inch (41cm) intervals. Other non-skid surfaces may be used instead of cleats.
21. Scaffolds shall only be put up or taken down by, or under the supervision of, qualified workers.
22. No damaged or weakened scaffold shall be used until it has been repaired.
23. Only material, which is being used at the time, shall be kept on any scaffold. Scaffolding shall not be overloaded.
24. Access to scaffolds up to 30 feet (9.1m) in height may be gained by:
  - use of the end-frames, where the design provides a ladder-like structure of uniformly spaced horizontal members; or
  - use of fixed vertical ladders, portable ladders, or stairways.
25. Access to scaffolds over 30 feet (9.1m) high shall be by fixed ladders, stairways, or temporary passenger hoists.
26. Never jump onto or off of scaffold planks.



### TOWER AND ROLLING SCAFFOLDS

#### CONSTRUCTION AND ERECTION

Scaffolds shall be constructed and erected in accordance with the manufacturer's specifications and recommendations.

1. All applicable members shall be utilized, including the diagonals in both the vertical and horizontal planes. All necessary fasteners specified and recommended by the manufacturer shall be properly installed and secured.
2. If not using manufactured aluminum planks, a horizontal brace must be affixed to the bottom frame section to prevent the rolling scaffolding from scissoring when moving, or using the scaffold.

#### GUARDRAILS

- Scaffolds with work platforms 10 feet (3m) or more above floor level shall be equipped with guardrails and intermediate rails.

#### SAFE ACCESS

- Access to the platform shall be gained by means of fixed vertical ladders, stairways or hoists in accordance with the requirements of WorkSafeBC Regulations.

#### CASTERS

At least two of the four wheels shall be of the caster type.

1. The caster height adjusting pins or screws shall be installed so that they cannot fall out, or be inadvertently screwed out, from their housings when a scaffold leg is raised clear off the floor.
2. Such pins or screws shall not extend more than 2/3 of their total length or in excess of 12 inches (30cm) from their housings.

#### WHEEL LOCKS

- Except as provided by the WorkSafeBC regulation wheels shall be provided with effective locking devices and kept locked when workers are required to work on scaffolds at heights in excess of 10 feet (3m) above floor level.

#### WHEELS

- Wheels shall be not less than 5 inches (12.7cm) in diameter. When the scaffold is used in proximity to energized electrical equipment, the wheels shall be fitted with non-conductive resilient tires and the provisions of WorkSafeBC Regulations shall be complied with.
- Wheels on at least one end of a rolling scaffold must be of the swivel type.

**Where metal scaffolds are used in any situation where the high electrical potentials involved would result in capacitive or induced current in the scaffold structure, the structure shall be grounded.**

#### DECKING

- Scaffold planks shall extend not less than 6 inches (15 cm), and not more than 12 inches (30 cm), beyond the end supports or bearers of the structure. They shall be fitted with means to retain planks on the bearers (cleats).
- The entire area within the scaffold structure shall be decked at those levels where workers work or ride except where guardrails are installed immediately about the perimeters of partially decked areas.

#### HEIGHT LIMITATION

- The height of any free-standing tower or rolling scaffold shall not exceed three times the minimum dimension of the base, unless the scaffold is securely tied or guyed to prevent overturning.

#### OUTRIGGERS



- If outriggers are used to increase the minimum base dimension of a tower or rolling scaffold, they must be installed on both sides of the scaffold structure unless the scaffold is adjacent to a building or structure, the scaffold must be braced against the structure, and outriggers used on the opposite side.

### ROLLING SCAFFOLDS; RIDING BY WORKERS

No worker shall remain on a rolling scaffold while it is being moved by other workers if the platform height exceeds twice the minimum base dimension.

1. No worker shall remain on a rolling scaffold while it is being moved by his own efforts if the platform height exceeds 1.5 times the minimum base dimension.
2. If the platform height exceeds 1.5 times the minimum base dimension of the scaffold, a worker on the work platform is not permitted to move the scaffold.

### FLOOR REQUIREMENTS

- The floor or surface on which the scaffold is moved shall be within three degrees of level and shall be free from pits, holes, depressions, or obstructions.
- The floor or surface over which an occupied rolling scaffold is moved must be sufficiently firm, within 3 degrees of level, and free from pits, holes, depressions, waste material, or obstructions so as to ensure stability of the scaffold.

### ASSEMBLING MULTIPLE SCAFFOLDING FRAMES

When assembling multiple scaffold frames for deck form work it must be done in a consistent manner, particularly when workers will be working above 10 feet.

1. A control zone should be established to limit access to the work area to authorized personnel only.
2. Set one level of scaffold frames up before commencing work on the second level. When the height of the work is approaching 10 feet we must ensure that adequate anchor points are provided. By constructing width first instead of height we minimize the scaffolding system being tipped over in the event a worker falls.
3. It is important that all components of the scaffolding system be braced together. Scaffold towers should be connected together using cross braces if practicable.
4. Any non-standard components used in the scaffold system must be engineered and the applicable drawings must be available on site and reviewed with the workers responsible for installing those components.
5. When assembling scaffolding for the support of formwork the following procedures will be followed;
6. Place the first set of frames on the deck where the formwork will start. Install two (2) angle braces, one on each side of the frame. Frames should be supported on flat feet, either screw jack or fixed. U heads should not be used as supports for scaffolding frames under any circumstances. Do not use scaffold frames without adequate supports installed.
7. Continue erecting the first level of scaffolding frames until the entire area to be decked is covered. Connect frame sets together using angle braces to ensure stability in the entire scaffold system.
8. Position a 20 inches work platform on the first level of frames and add the second level of scaffolding. The work platform must be constructed out of 2 inch x 10 inch planks or manufactured components. The platform must be capable of supporting the number of workers who will be on the platform. It is recommended that not more than two (2) workers are on a scaffold set at once. Add cross braces as each set of frames is installed.
9. Work platforms are required on each level of scaffolding when working at 10 feet or higher and fall arrest must be used by all workers.
10. Continue erecting the second level of scaffolding frames adding cross bracing between frame sets as required.
11. Continue erecting scaffold frames for additional levels until the required height is achieved.
12. Depending on the height of the frames being used workers may be working above 10 feet. If workers will be assembling scaffolding above 10 feet they must use fall arrest equipment consistent with the way they were instructed.
13. Anchor to the frame of the scaffolding and not the cross braces. Lanyards used for anchoring must have a ladder type self locking hook on them.
14. Lanyards must be kept as short as possible.
15. Workers are not permitted to stand or step onto cross bracing for any reason.