On residential construction sites, temporary stairs are often put in place before the permanent stairs are built. However, when these stairs are improperly installed or poorly designed, it can be hazardous for workers, inspectors, and other visitors to the site.

Temporarily stair hazards

If temporary stairs are not installed properly, a worker can fall off or the stairs can collapse. This can cause serious injury or even death. Listed below are some common problems associated with temporary stairs.

- The stairway is not properly secured at the header and the base. This may cause the stairs to slip and slide when heavy weights are placed on the stairs.
- The stairs are not in good condition. Cracked or missing stringers, steps, and grooves may reduce the strength of the structure and cause a collapse when heavy weights are applied.
- The bottom of the stairway is installed over a floor opening that may not be able support the weight of heavy loads.
- The stairway is too long or short to attach to the floor correctly (e.g., if an eight-foot stairway is connected to the floor nine feet above it, the stairway would be installed at an incorrect angle or a base would have to be added at the bottom).
- The stairway going down to the basement is installed without making allowances for pouring the concrete slab. If workers have to raise or move the stairs, it reduces the structural integrity of the stairs and all connecting points.
- The stairway is installed at an improper location (e.g., it leads to a concrete wall instead of an entrance to the upper floor).
- A ramp used as a stairway does not comply with the requirements of stairs under the construction regulations. A ramp cannot exceed a slope of 1:3 and is required to support a much lighter load than stairs (O. Reg. 213/91, s. 73 and 74).
- Workers do not notice warning signs posted on temporary stairs that have not been installed properly.
- The stairs are too narrow.
- A buildup of ice and snow on the stairs cause a slip and fall hazard.
Preventing temporary stair hazards

What the legislation says

The best way to ensure that the temporary stairs on your project have been properly designed and installed is to follow the legislation in the Regulations for Construction Projects 213/91.

- Under section 70, all construction projects must have access to and egress from work areas located above or below ground level by stairs, runway, ramps, or ladders.
- Under sections 17 and 71, adequate means of egress must be provided from work areas during an emergency for the evacuation of workers.
- Under section 75, no work should be performed in a structure that will be at least two storeys high unless stairs are installed. As the construction progresses, permanent or temporary stairs must be installed up to the uppermost work level or to within two storeys or nine metres below the uppermost work level.
- Under section 76, the temporary stairs and landings must be designed, constructed and maintained to support a live load of 4.8 kilonewtons per square metre (100 lbs per square foot) without exceeding the allowable unit stresses for each material used. No temporary stair or landing should be loaded in excess of the load it is designed and constructed to bear.
- Under section 77, no work should be performed in a building or structure with stairs unless the stairs have:
  1. a clear width of at least 500 millimetres
  2. treads and risers of uniform width, length and height

Source: Electrical Safety Authority

Progresses, permanent or temporary stairs must be installed up to the uppermost work level or to within two storeys or nine metres below the uppermost work level.

Consult the site supervisor before using stairs with warning signs.

Source: Electrical Safety Authority

Bottom of stairway is not properly secured to the floor.

Stairway is too short and installed above a floor opening.

Stairway is too narrow and has missing steps.

Fall hazard caused by excessive ice and snow.

Ramp is not strong enough or at the proper slope to be used as a stairway.

Stairway is poorly located.

Stairway stringers are installed above the maximum slope.

Stairway is installed above a floor opening.
3. stringers with a maximum slope of 50 degrees from the horizontal
4. landings that are less than 4.5 metres apart measured vertically
5. a securely fastened and supported wooden handrail on the open sides of each flight
6. a guardrail on the open side of each landing.

What installers can do
If you’re responsible for installing temporary stairs on a site, here are some ways to ensure you’ve installed them correctly.

- Before installing the stairs, plan the layout and location to provide easy access between floors. Users should not have to change direction when entering or exiting the stairs and the vertical distance between the landings and the floor entrances and exits should be consistent.
- Install a prefabricated stairway according to the manufacturer’s instructions and the construction regulations.
- If a prefabricated stairway is not installed according to the manufacturer’s specifications, erect some type of guardrail to physically prevent workers from using it. Placing warning stickers on the stairway isn’t good enough.

What you can do
Whether you’re a worker, an inspector, or simply a visitor to a site, here are some things you can do to protect yourself when using temporary stairs.

- Upon entering the site, make sure the temporary stairs provide a safe way to enter or exit work areas located above or below ground level.
- Inspect the temporary stairs, headers, footers, and handrails to make sure they’re in good condition.
- Check the temporary stairs to make sure they meet the requirements outlined in section 77 of the construction regulations (see above). Use Figure 1 as a reference guide.
- If you are unsure of the condition of the temporary stairs or if you see a warning sticker on the permanent stairs, do not use it. Check with the supervisor or employer or use another access way.
- Do not tamper with or make any changes to the stairway.

Figure 1: An example of properly configured temporary stairs leading to the basement

Source: Ontario Concrete & Drain Contractors Association