

Temporary stairs

on residential construction sites



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

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What the legislation says

The best way to ensure that the temporary stairs on your project are properly designed and installed is to follow 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, runways, ramps, or ladders.
- Under section 71, adequate means of egress from work areas must be provided to allow for the evacuation of workers during an emergency.
- Under section 75, work cannot be performed in a structure unless stairs are installed. As construction progresses, permanent or temporary stairs must be installed from the lowest level, including the basement, up to:
 - The uppermost work level; or
 - If stairs would interfere with work on the uppermost work level, no more than two stories or nine metres below the uppermost level, whichever distance is shorter.

However, this does not apply to:

- A part of a building or structure in which only the structural steel beams or columns are erected
- A structure to which a permanent ladder is attached before the structure is raised into position
- A part of a building or structure in which formwork or falsework is erected to a suspended slab.
- Under section 76, temporary stairs and landings must be designed, constructed, and maintained to support a live load of 4.8 kilonewtons per square metre (100 pounds 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, work cannot be performed in a building or structure with stairs unless the stairs have:
 1. A clear width of at least 500 millimetres (19.5 inches)
 2. Treads and risers of uniform width, length, and height
 3. Stringers with a maximum slope of 50 degrees from the horizontal
 4. Landings that are less than 4.5 metres (14.7 feet) apart measured vertically
 5. A securely fastened and supported wooden handrail on the open sides of each flight. (A wooden handrail shall measure 38 millimetres by 89 millimetres and shall be free of loose knots, sharp edges, splinters and shakes. O. Reg. 213/91, s. 77 (4)).
 6. A guardrail on the open side of each landing.



Installation guidelines

Some guidelines to ensure the proper installation of temporary stairs on a site:

- 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.
- Visually inspect the stairs for any damage or defects prior to installation.
- Install a temporary/prefabricated stairway according to the installation detail (see Figures 1 and 2 for example/reference guidelines) and the construction regulations. Installation must safely accommodate structure conditions.
- Install a handrail on the open sides of each flight of stairs, and a guardrail on the open sides of any landing.
- Where a landing forms part of the stairs, the landing should be installed before the temporary stairs, when possible.

INCORRECT



Bottom of stairway is not properly secured to floor



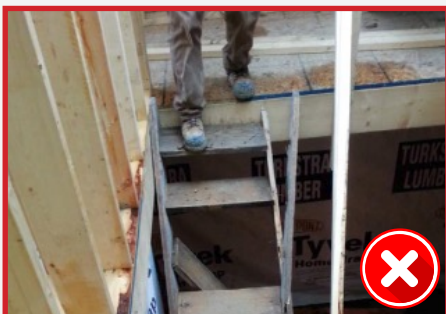
Stairway is too short and installed above a floor opening



Stairway stringers are installed above maximum slope



Stairway is poorly located (cannot end at a wall)



Basement stairs not properly secured at top; missing tread; cracked stringer; no handrail; no guardrail at top



CORRECT



Bottom of stairway secured with uprights attached to stringers (at bottom) and floor joists (at top)



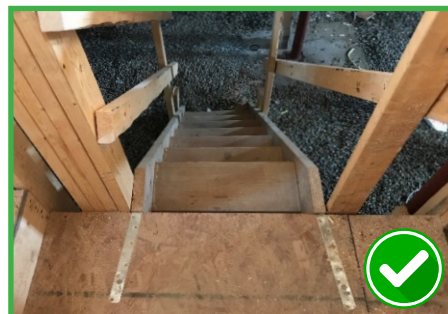
Properly sized and supported stairs



Stairway stringers properly installed



Properly located stairs



Basement stairs properly secured at top with metal straps



Hazards

If temporary stairs are not properly installed, a worker can fall off or the stairs can collapse. This can cause serious injury or even death. Common problems associated with temporary stairs and their installation are listed below. **Under any of these conditions, stairs should not be used**

- The stairway is not properly secured at the header and/or the base. This may cause the stairs to slip and slide when heavy weights are placed on them.
- The stairs are not in good condition. Cracked or damaged stringers or grooves, missing steps, and other defects may reduce the strength of the structure and cause a collapse under heavy weight.
- 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 correctly to the floor (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).
- The stairs have a buildup of ice and/or snow, which can create a slip and fall hazard.
- The stairs are too narrow.
- The handrails/guardrails have been removed. In this case, appropriate warning signs must be placed and fall protection may be required. When possible, hand/guardrails must be reinstalled.
- A ramp is being used as a stairway. Ramps do not comply with the requirements of stairs under the construction regulations. Ramps cannot exceed a slope of 1:3 and their load-bearing requirements are much less (O. Reg. 213/91, s. 73 and 74).

Examples of properly installed temporary stairs leading to a basement*

See figure 1 and 2

Figure 1

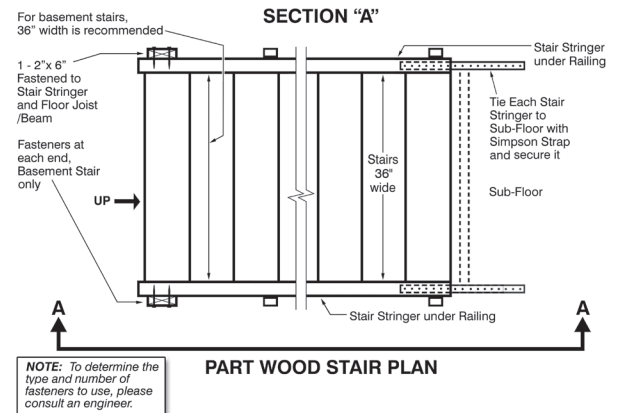
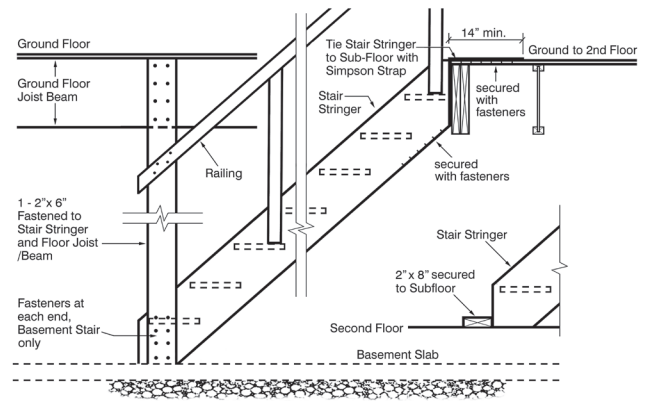
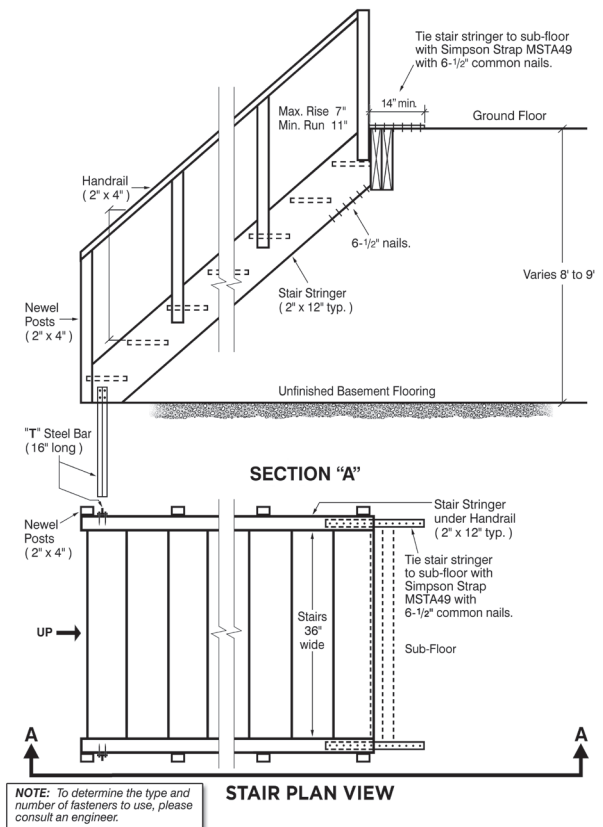


Figure 2



*Note: Guardrails or walls on the upper floor/landing have been excluded to aid readability of the diagrams

What you can do

Whether you're a worker, an inspector, or simply a visitor to a site, here's what you can do to protect yourself when using temporary stairs.

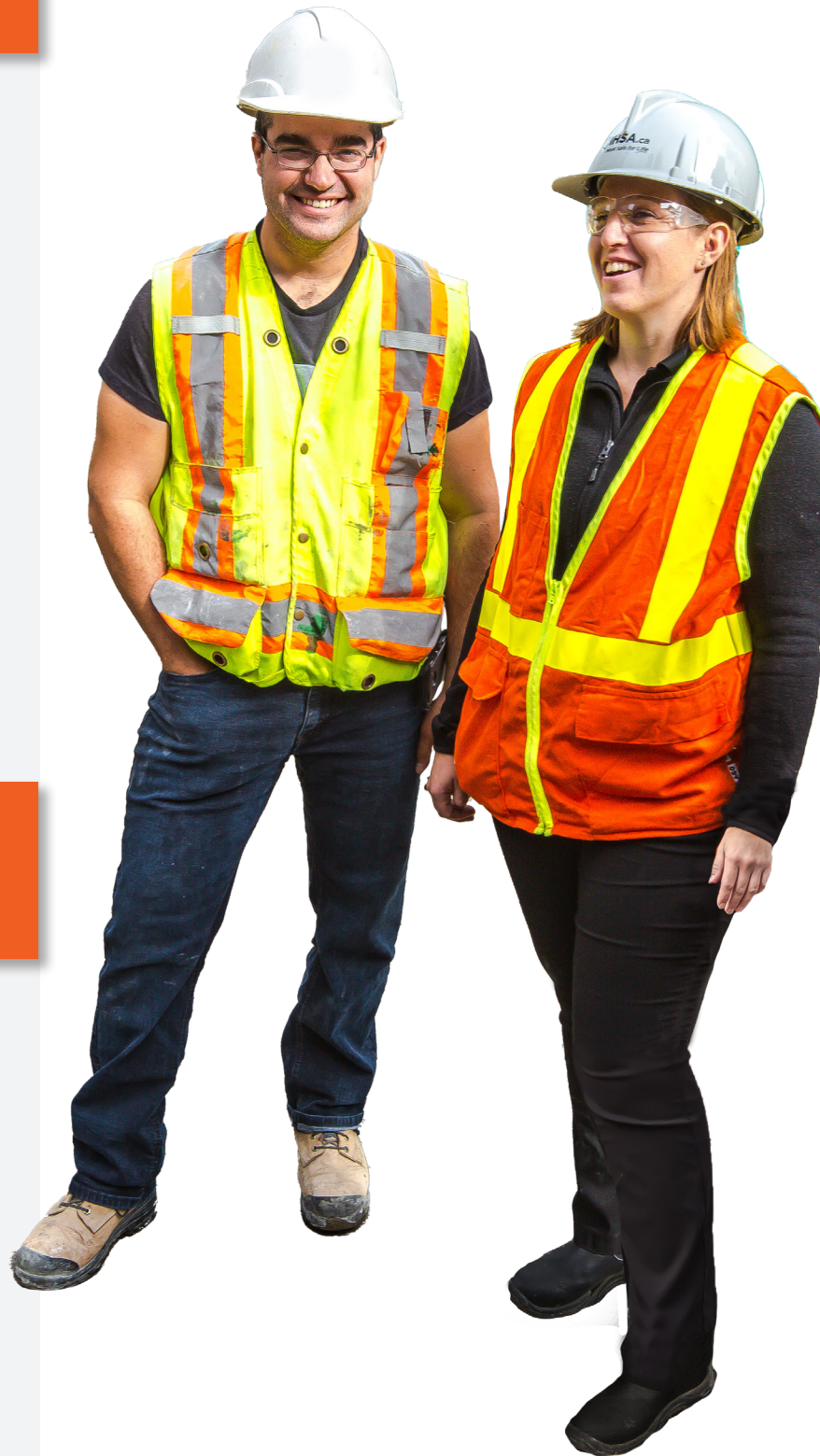
- Make sure the temporary stairs provide a safe way to enter or exit work areas located above or below ground level.
- Inspect the temporary stairs, headers, footers, and handrails to make sure they're in good condition.
- Check to make sure the temporary stairs meet the requirements outlined in section 77 of the construction regulations (see "What the legislations says" section). Use Figure 1 and Figure 2 as reference guidelines.
- 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 them. Check with the supervisor or employer, or use another access way.
- Do not alter/modify temporary stairs.

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