

Occupational Health and Safety in Construction Industry (Continued)

General access scaffolds

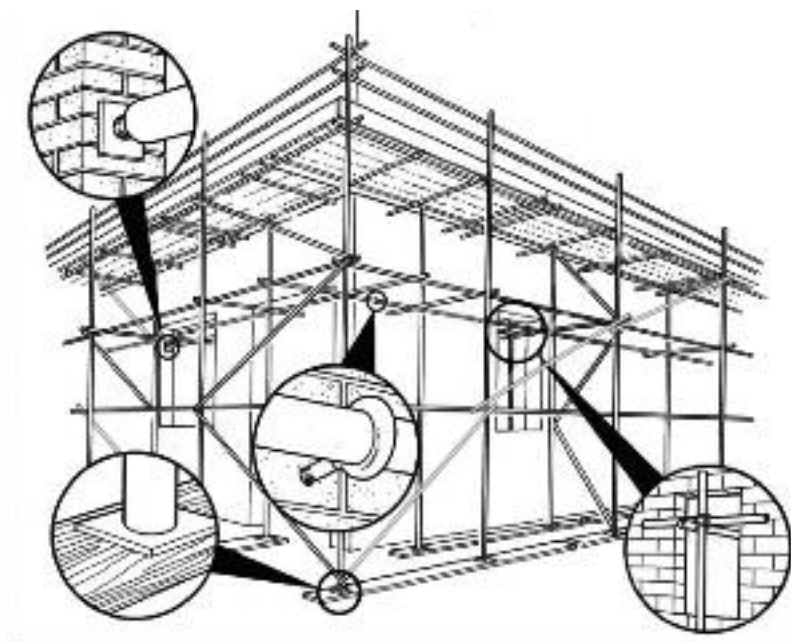
Suitable precautions must be taken to prevent falls. General access scaffolds provide a means of working at height while preventing falls and should be provided whenever practicable.

Scaffolds should be designed, erected, altered and dismantled only by competent people and the work should always be carried out under the direction of a competent supervisor. Scaffolders should always adopt methods of work to prevent falls during the erection of scaffolding. This can be achieved by using an advanced guard rail system. Where this is not practicable, harnesses should be worn to provide a means of fall arrest.

Scaffolds should never be erected or dismantled over people or busy pavements. If the work presents a danger to the public, you should apply for a road closure to eliminate the risk of a member of the public being injured. If this is not granted, erection and dismantling should be done inside a segregated area and during the times when there are fewer members of the public in the vicinity.

Ensure the scaffold is based on a firm, level foundation. The ground or foundation should be capable of supporting the weight of the scaffold and any loads likely to be placed on it. Watch out for voids such as basements or drains, or patches of soft ground, which could collapse when loaded. Provide extra support as necessary.

Ensure it is braced and tied into a permanent structure or otherwise stabilized. Rakers only provide stability when they are braced and footed adequately; single- tube rakers alone do not usually provide this and need to be braced to prevent buckling. Put ties in place as the scaffold is erected and only remove them in stages as it is struck. If a tie is removed to allow work to proceed, an equivalent tie should be provided nearby to maintain stability. Ties must be used within their safe working load limit. Proprietary system scaffolds should be erected and tied according to the manufacturers' instructions.



An independent scaffold

Scaffolds must be capable of supporting loads likely to be placed on them. Scaffolds are not usually designed to support heavy loads on their working platforms. If you are intending to load out platforms, inform whoever is providing the scaffold – a special design is likely to be required. The duty rating of your scaffold should be appropriate to the work you are doing. Scaffolds should be assumed to be 'general purpose' (2 kN/m²) unless informed otherwise by your scaffold provider. Those specifying scaffolds need to be clear about the duty rating required, eg an 'inspection and very light duty' scaffold should be 0.75 kN/m² whereas a 'heavy duty' scaffold should be 3.0 kN/m².

Ensure you never sheet or attach debris netting to a scaffold without informing the supplier you are going to do so, as they will need to ensure the scaffold is designed for it.

Before using any scaffold, make sure that it is safe and suitable for the intended job:

- ensure platforms are fully boarded and wide enough for the work and for access (usually at least 600 mm wide);
- check that scaffold boards are properly supported and not overhanging excessively (eg no more than four times the thickness of the board);
- ensure there is safe access onto the work platforms, preferably from a staircase or ladder tower;
- check that loading bays are fitted with fall protection, preferably gates, which can be safely moved in and out of position to place materials on the platform; and
- make sure the scaffold is suitable for the task before it is used and checked whenever it is substantially altered or adversely affected, eg high winds.

Guard rails, toe boards and brick guards

Guard rails, toe boards and other similar barriers should be provided to prevent falls whenever practicable (see figure below).

They should:

- be strong and rigid enough to prevent people from falling and be able to withstand other loads likely to be placed on them. For example, guard rails fitted with brick guards need to be capable of supporting the weight of stacks of bricks which could fall against them;
- be fixed to a structure or part of a structure capable of supporting them;
- include:
 - a main guard rail at least 950 mm above any edge from which people are liable to fall;
 - a toe board and brick guards where there is a risk of objects rolling or being kicked off the edge of the platform; and
 - a sufficient number of intermediate guard rails or suitable alternatives positioned so that the unprotected gap does not exceed 470 mm.

Barriers other than guard rails and toe boards can be used, so long as they are at least 950 mm high, secure and provide an equivalent standard of protection against falls and materials rolling or being kicked from any edges.

Brick guards are designed to prevent falls of material between the gaps in the guard rails and are not intended to protect against people falling. Therefore brick guards should always be used in addition to the required fall protection consisting of guard rails and toe boards or other similar barriers.

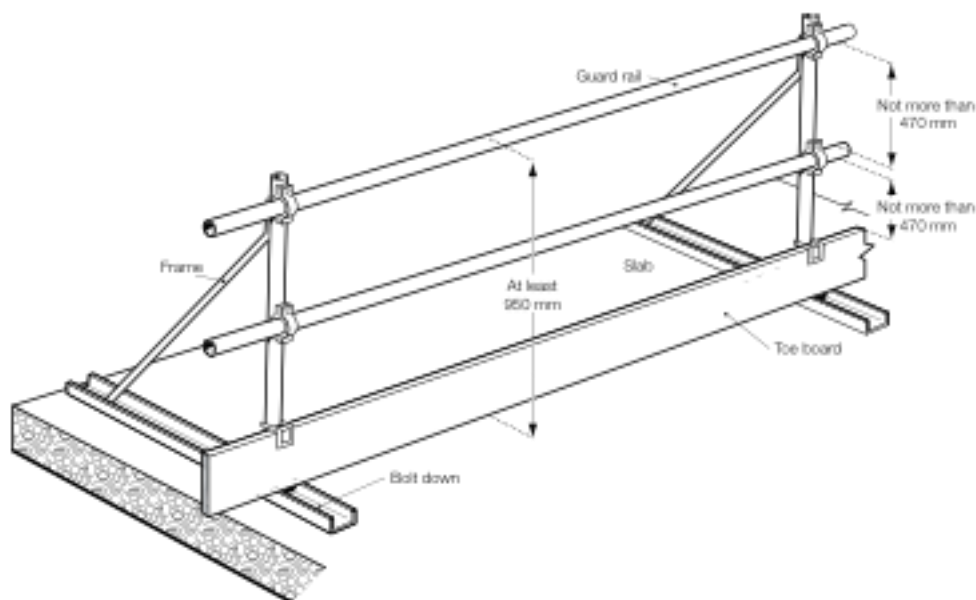
If the risk comes from falling through openings or fragile surfaces (eg roof roof lights or asbestos roof sheets), an alternative to guard rails or a barrier is to cover the opening or material. Any covering should be:

- strong enough to support any loads likely to be placed on it (including the weight of a person); and
- fixed in position to prevent accidental dislodgement. To prevent people removing coverings, mark them with a warning (eg 'Hole below – do not remove').

If possible, discourage passage across covers by directing people around them, eg using a high-visibility tape barrier.

Tower scaffolds

Tower scaffolds (also known as mobile access scaffolds) are widely used and can provide an effective and safe means of gaining access to work at height while preventing falls. However inappropriate erection and misuse of tower scaffolds are the cause of numerous accidents each year. Aluminium towers are light and can easily overturn if used incorrectly. Towers rely on all parts being in place to ensure adequate strength. They can collapse if sections are left out.



Guard rails and toe boards

Before selecting or specifying a tower you must be satisfied that it is the most suitable item of equipment for the job. Tower scaffolds are more likely be suitable for work either at single locations or at the same height at a series of locations, eg work to first floor windows. Tower scaffolds are more difficult to use safely for work that has to be done at varying height, eg underneath a sloping factory roof.

The manufacturer or supplier has a duty to provide an instruction manual that explains the erection sequence, including any bracing requirements and the height to which the tower can be erected safely. If the tower has been hired, the hirer has a duty to provide this information. This information must be passed on to the person erecting the tower.

Towers should be erected by trained and competent people who are following a safe method of work. There are two approved methods.

The first method, an advanced guard rail system, makes use of specially designed temporary guard rail units, which are locked in place from the level below and moved up to the platform level. The temporary guard rail units provide collective fall prevention and are in place before the operator accesses the platform to fit the permanent guard rails. The progressive erection of guard rails from a protected area at a lower level ensures the operator is never exposed to the risk of falling from an unguarded platform (see figure below).

The second is the 'through-the-trap' (3T) method of erection. This method allows the person erecting the tower to position themselves at minimum risk during the installation of guard rail components to the next level. It involves the operator taking up a working position in the trap door of the platform, from where they can add or remove the components which act as the guard rails on the level above the platform. It is designed to ensure that the operator does not stand on an unguarded platform, but installs the components to a particular level while positioned within the trap door of that same level. The 3T method makes use of standard tower components (see figure below)..

If a tower scaffold is used:

- make sure it is resting on firm level ground with the locked castors or base plates properly supported – never use bricks or building blocks to take the weight of any part of the tower;
- install stabilizers or outriggers when advised to do so in the instruction manual;
- provide a safe way to get to and from the work platform, eg using an
- appropriately designed internal ladder;
- provide edge protection (guard rails and toe boards) on all working platforms and platforms used for storing materials.



Advanced guard rails

The stability of any tower is easily affected. Unless the tower has been specifically designed for such use, activities such as those listed below should never be carried out:

- sheeting or exposure to strong winds;
- carrying out grit blasting or water jetting; or
- using the tower to hoist materials or support rubbish chutes.



Through the trap

If ties are needed, check that they are put in place as required when the scaffold is erected and that necessary ties are kept in place when the scaffold is dismantled.

When erecting tower scaffolds:

- do not exceed the safe height-to-base ratio in the instruction manual. Towers should never be erected to a height not recommended by the manufacturer;
- do not use the working platform as a support for ladders, trestles or other access equipment;
- do not overload the working platform;
- do not fix ties to the centres of thin-walled aluminium tubes;
- do not climb up the rungs on the end frames of the tower to reach the platform unless the rungs have been specifically designed for the purpose of getting to and from the working platform – these have rung spacings of between 230 and 300 mm and an anti-slip surface.

When moving a mobile tower:

- reduce the height to a maximum of 4 m;
- check that there are no power lines or overhead obstructions in the way;
- check that the ground is firm, level and free from potholes;
- never move it while there are people or materials on the tower.

When towers are used in public places, extra precautions are required:

- erect barriers at ground level to prevent people from walking into the tower or work area;
- minimize the storage of materials and equipment on the working platform;
- remove or board over access ladders to prevent unauthorized access if they are to remain in position unattended.

To prevent the use of incorrectly erected or damaged tower scaffolds, they must be inspected regularly by a competent person. A new inspection and report is not required every time a tower scaffold is moved to a new location. However, if guard rails or other components have to be removed to enable the tower scaffold to be moved past an obstruction, then a pre-use check should be undertaken by a trained and competent user to make sure the tower has been reinstated correctly. In this situation, the use of a visible tag system (which can be updated each time a check is carried out) to supplement inspection records is one way of recording that the pre-use check has been undertaken.

To be continued in next issue.

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