TOWER SAFETY WEEK

Mobile Access Tower Solutions:
Advantages, Diversity, Potential

Mobile access towers can provide a safe solution in an extensive range of work at height situations. Their flexibility of configuration, strength with lightness and speed of assembly and dismantling are some of their significant advantages.

Standard Towers

Mobile access towers with a platform height from 2.5 m to 12.0 m indoors and from 2.5 m to 8.0 m outdoors.

Mobile access towers (room scaffolds) with a platform height of less than 2.5 m

Advanced Configurations

FACADE TOWER STRUCTURES:

A series of towers joined together to form a facade.

EXAMPLE: This was an example where access was required over the complete face of the structure at 2m height intervals to add insulation and cladding to the interior walls of the building.

LARGE DECK STRUCTURE:

A series of towers joined together in 2 or more directions in a grid linked with bridging beams and platforms. Often referred to as a 'birdcage scaffold' or 'boxing ring'

EXAMPLE: This example is a large working area for the purpose of installing insulation, wiring and a suspended ceiling in a large auditorium. A mobile access tower was the ideal solution because:

- There was very limited access to the auditorium
- The structure could be built on a suspended floor
- The structure needed to be lightweight
- Short project time required the structure to be very fast to build and dismantle
- Structure was fully mobile on rails to allow for relocation beneath all parts of the auditorium ceiling

BRIDGING STRUCTURES:

Towers simply joined together in one direction, from the ends using bridge decks or from the sides of the towers using beams and platforms

EXAMPLE: This is an example where a bridged structure has been used for spanning objects that could not be moved and working over surfaces that could not be supportive, to carry out renovation works in a cathedral. A mobile access tower was an excellent and effective solution because:

- The floor of the building with the crypt areas beneath was not sufficiently strong to support heavier work at height equiptment
- Immovable features and precious floor surfaces within the building needed to be spanned by the structure.
- Access for the works was required across both side walls and ceiling
- Project times were short and the speed of assembly and dismantling the structure was a key factor in its selection

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STEPPED STRUCTURE:

A tower in which the bases of the end frames sit on different levels

EXAMPLES:

Below Left: A tower built in a narrow staircase to replace lighting equipment. Portal end frames are fitted at the base for the purpose of accessing the tower

Below Right: Tower for works over a swimming pool with one end standing on the narrow pool surround and the other end immersed in the pool floor. A mobile access tower was a good solution because:

- The floor of the pool was not strong enough to support a great deal of weight
- The pool could not be drained and project times were very short requiring fast build and dismantle.

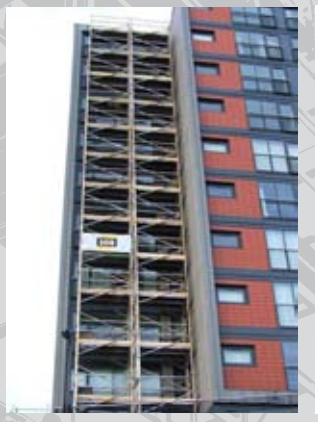
HIGH LEVEL STRUCTURE:

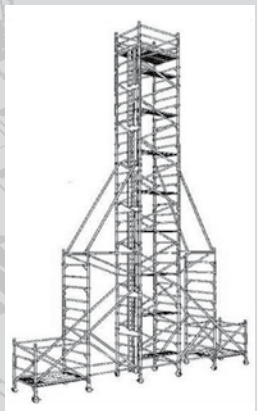
High level structures are towers which exceed the standard freestanding heights of 8m for external use and 12m for internal use

EXAMPLES:

Below Left: A 24m high tower used for window replacement works. Structural ties were installed at 4m height intervals. The mezzanine floor at the base of the tower was not strong enough to support other work at height equipment and access to the area was very limited

Below Right: A 16m freestanding fully mobile structure was required in an area with very limited access. This buttress tower built on castors provided fast and easy repositioning.





CANTILEVER STRUCTURES:

A tower with a working platform projecting beyond the footprint of the structure when the main structure cannot be located alongside the point of work

EXAMPLES:

Above Left: Side cantilever platform to work on the guttering over the top of a projecting porch

Above Right: Large end cantilever providing an increased working area at the top of tower and reaching over obstructing porch and fence below

NOTES

All of these towers are designed in accordance with relevant product standards including:

- **EN1004:** Freestanding towers from 2.5m up to 8m used outdoors and 12m indoors
- **BS 1139 Part 6:** Towers outside of the scope of EN1004 but using the same components. It applies to towers below 2.5m and advanced configurations including large decked structures, cantilever towers, towers with bridges, and towers in façade.
- **BS EN 1298** is the European standard for instruction manuals for towers conforming to EN1004.

The Work at Height Regulations 2005 specifies that *"strength and stability calculations for scaffolding shall be carried out unless—*

(a) a note of the calculations, covering the structural arrangements contemplated, is available; or

(b) it is assembled in conformity with a generally recognised standard configuration.

Depending on the complexity of the scaffolding selected, an assembly, use and dismantling plan shall be drawn up by a competent person. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question".

As such, standard mobile access towers which conform to the requirements of EN1004 are considered to have a "generally recognised standard configuration". Thus the manufacturer will have carried out all the necessary calculations and a user only needs to follow the safety, assembly, use and dismantling information given in the tower manufacturers' instruction manual which should comply with EN1298 - the standard for user instructions for mobile access towers.

Advanced configurations of mobile access tower will require additional calculations by the manufacturer and additional user instructions to supplement the standard user instruction manuals. In the case of some of the special applications described, a specific design would need to be generated together with an assembly, use and dismantling plan.