

# BRA Fact finders

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## HEALTH & SAFETY GUIDANCE ON ACCESS AND PLANT FOR MAINTENANCE REQUIREMENTS (including working at heights)

### 1 Minimum Unobstructed Distances

required for working around typical Packaged Plant at heights (see below for dimensional diagrams). Unless otherwise specified by the pack manufacturer, the following minimum access should be allowed:

- (a) Face on which electrical panel situated (front or sides) - at least 1000 mm (to allow engineer to step back in the event of an electrical problem).
- (b) Non-panel front/side - 1000 mm removal of compressors etc.
- (c) Rear - 600 mm to allow change of drier cores etc-

### 2 Ancillary Electrical Fittings

- (a) suitable electrical plug socket (to plug in drills, re-claim units etc. to prevent trailing leads).
- (b) light fittings to generate minimum 300 lux in working area to enable engineer to see when working on pack, condensing units etc.

### 3. If Working at High Level

- (a) **Hand rail** (at least 1100 mm high for final installation - or at least 910 mm if temporary fixture used during construction).
- (b) **Toe-board/kick plate** - (at least 150 mm high to prevent tools etc. being kicked off).
- (c) **Intermediate "rail"** such that a gap of no greater than 470 mm exists through which items/persons could fall.

The safety features detailed above in (a), (b) and (c) are required if persons are working above 2M (i.e. pack placed on top of cold room).

Where persons are working at heights less than 2M from the ground or floor, the above may still be needed, if a risk assessment indicates that other factors may increase the likelihood of a fall, or the risk of serious injury (e.g. where a traffic route passes close to the edge of somewhere from which a person might fall onto a hard, sharp or dangerous surface, e.g. tiled/concrete floor),

- (d) **Fixed access ladder** to top of roof on which pack positioned, or gantry around other equipment, e.g. evaporator:

- unless some other adequate hand hold exists, the stiles of the ladder should extend at least 1100 mm above any landing served by the ladder.
- if the vertical distance of the ladder is more than 6M, it should have a landing or other adequate resting place at every 6M point
- if the ladder passes through an opening in the roof (e.g. the plant room roof), the opening should be as small as possible (allowing for engineer and tools), and a mechanism in place to prevent falls through the opening.

- fixed ladders at an angle of less than 15° to the vertical which are more than 2.5M high should be fitted with safety hoops (at intervals of not more than 900 mm), or a permanent fall arrest system in order to prevent unauthorised access to the top of the plant room, a foldaway (lift type) ladder could be installed as an alternative. The relevant preceding provisions would also apply

- (e) **Fragile materials.** Fragile roof surfaces must be clearly identified as such and crawling boards or similar provided.

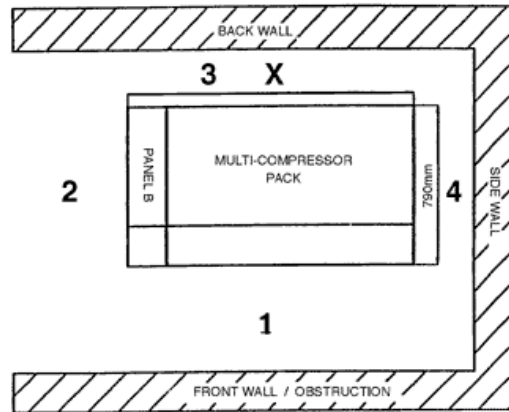
(f) **Removal of equipment** If plant is situated at height, due consideration must be given to the safe removal and replacement of components, e.g. compressors. An RSJ (I beam) should be positioned to allow a block and tackle to be fitted, or other provision made, to facilitate lowering and raising of heavy items. Any fixed barriers should include a removable section if required to assist in this operation.

- (g) **General** Where possible, equipment should not be designed to be placed at height, unless absolutely necessary

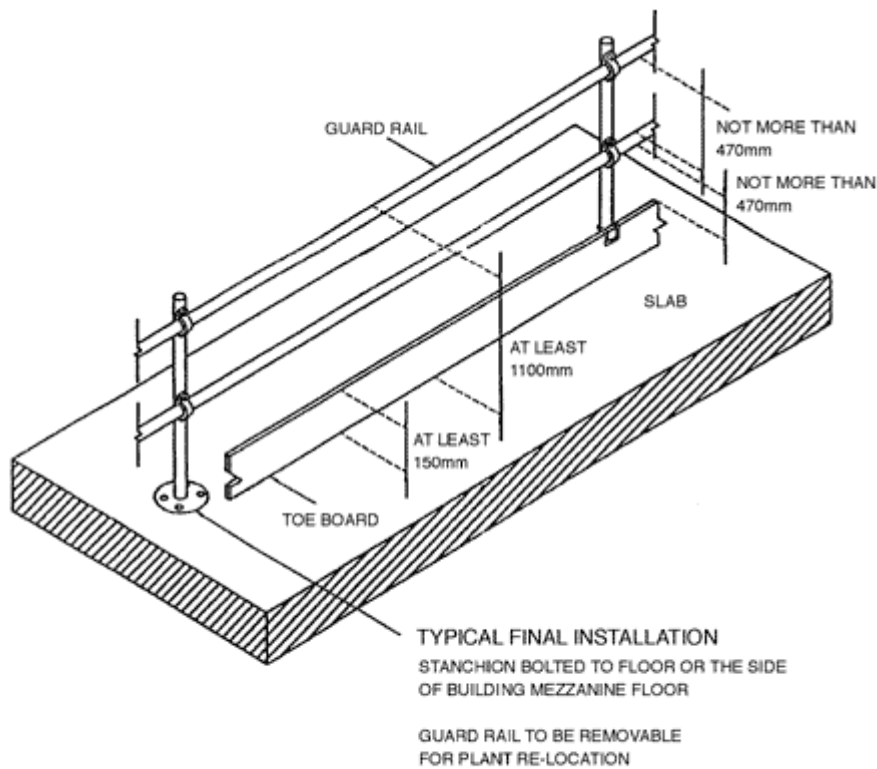
If items, e.g. evaporators are placed on vertical walls, at considerable height, either fixed working platforms (min. 600 mm width) with the above rails, ladders etc. or mobile elevated work platforms should be provided.

**Table of minimum distances for multiple packs/obstructions**

Electrical cabinet position			
position	Panel A	Panel B	
1	1000mm	1000mm	
2	1000mm	1000mm	
3	600mm	600mm	
4	600mm	600mm	



**Hand rail details fixed/permanent for mezzanine floors**



**HAND RAIL FIXED / PERMANENT FOR MEZZANINE FLOORS**

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