

Access ladders should be installed in accordance with the crane manufacturer's instructions and care should be taken to ensure that the pitch of the ladder treads is maintained at junctions between sections.

Particular problems may occur where transition sections are used between towers of different width, or on access ladders to the jibs of luffing cranes (see **Figure 1**). Any variations in rung pitch due to the design of the ladders should be taken up with the crane manufacturer.

All access ladders should be regularly maintained to ensure that they are securely fixed, clean and kept free of obstructions. Ladders should never be used as supports for items such as cables and hoses (see **Figure 2**).

Access ladders within the tower are generally inclined or vertical, with short runs of ladder between rest platforms spaced at intervals up the tower, thus limiting the potential distance a person can fall.

A small number of older cranes are fitted with one vertical ladder extending the full height of the tower; with rest platforms to one side of the ladder (see **Figure 3**). In this case, where a person can fall more than 6 metres, additional means of fall protection; such as vertical safety lines or inertia reel lanyards, used with a suitable fall arrest harness, must be provided.

#### Ladder Positioning and Hoops Guards

Ladders which are intended to be used without personal protective equipment against falls from a height should have rest platforms at least every 6 metres and where there is a risk of falling greater than 5 metres, be equipped with a hoop guard or an alternative means of protection.

The alternative to a hoop-guard is where the ladder is located inside a structure, such that the structural members provide equivalent protection. This equivalent protection is achieved when the two following conditions are fulfilled:

- a) a sphere of 0.6 metre diameter cannot pass horizontally through the vertical structure;
- b) the free space inside the structure is equivalent to that given by the hoop guard. See the examples given in **Figure 4**.

The hoops of a hoop guard should be connected by three or five longitudinal bars spaced equally around the hoop. In all cases, a bar shall be fixed in a position diametrically opposite to the centre line of the ladder.

Flights of ladders should be positioned, or other means provided, to prevent persons falling more than 6 metres.

Requirements for access ladders on tower cranes are given in Clause **5.4.4.3** of EN 14439:2006 +A2:2009.



Figure 1 - Uneven Rung Pitch



Figure 2 - Cables Attached to Ladder



Figure 3 - Single Vertical Ladder

Key 1:  
Inside diameter = hoop  
dimension

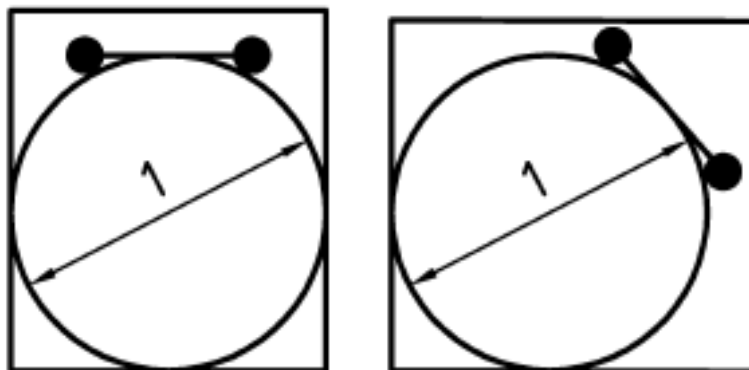


Figure 4 - Free Space Inside Structure