

Safe Handling of Insulated Panels including use of Mechanical Handling Equipment

One of the principal Health and Safety Issues when handling materials used for roofing and wall cladding is working at height, whether this be working from a truck, a platform, or on the roof.

The guidance paper looks specifically at the handling and installation of insulated panels and the use of mechanical handling equipment in particular. It describes the points and issues that should be considered so that risks can be minimised whether at planning, CDM or installation stages.

Every site is different and any recommendations can only be specific for that site. These may depend on the types of materials use – length and weight of panel; access; height; climatic conditions etc. These notes highlight the important points that should be considered, rather than setting out a preferred method of work and provide typical examples of the most commonly used handling equipment

Insulated Roof and Wall Panels

Insulated Panels are used as the roofs and walls for many different types of buildings. The panels are factory produced and delivered to site as a single piece unit. This produces many benefits especially by allowing off-loading and installation in a single operation. However with the increased thickness of panels to meet the new and future Energy Regulations, insulated panels are becoming heavier and this requires planning and most medium and larger projects benefit from the use of mechanical handling equipment.

The use of mechanical handling equipment for the offloading, handling and installation of insulated panels gives benefits in terms of speed of erection, cost savings, safer handling and reduced time working at height. This is the preferred method for installations where panel lengths exceed 6 metres.

Planning

There are four sections.

- Planning
- Off-loading and handling at ground level
- Handling of roof panels
- Handling of wall panels

Planning the handling of Insulated Panel Units

The following should be considered to minimise risk.

- Plan to use longer length panels e.g. one piece from ridge to eaves, to minimise handling and time working at height. Only shorter length panels should be considered when manual handling is to be used
- Ensure operatives are trained in the use of the Mechanical Handling equipment and working with it
- Select the most suitable handling equipment both for off-loading and presentation of panels to the steelwork according to work and site constraints
- Plan for safe storage as close as possible to wall elevations or roof access
- Where the roof is to be used for storage the cladding contractor should ensure this will not compromise the safety of any personnel, or cause damage to the supporting structure
- Plan the sequencing of operations to ensure firm standing and clear access for all handling equipment
- If roof panels are to be installed by manual handling, plan the positioning of bundles on load bearing trusses and define a safe method of off-loading and movement of panels over the roof
- The Roofing Contractor must ensure that cladding packs do not exceed the 'Design service Load' and that they are carefully placed over primary roof members close to the columns.
- If wall panels are to be installed by mechanical equipment, the ground area at the base of the wall must be firm and clear to allow the equipment access along the length of the elevation.

Safe Handling of Insulated Panels including use of Mechanical Handling Equipment

Page 2



Off-loading and handling at ground level

The 2005 Work at Height Regulations (WHR) state that work at height should be avoided wherever possible and where not, suitable equipment should be used to minimise the consequences of an accident should one occur.

This guidance applies equally to offloading. Machines such as forklifts or lifting beams with crane forks can be used to move packs of panels off the vehicle and stack them neatly in a safe place at ground level until they are to be installed. Using this sort of technique will minimise the work needed on the truck itself, and will mean no manual lifting is required.

As a general yardstick forklifts can be satisfactorily used for panels up to 9 metres in length and lifting beams for panels over 9 metres.

A number of manufacturers have developed equipment using a variety of techniques including lifting rigs/modular beam and slings and also specialist machines for handling individual panels. Crane operated techniques can be used both for offloading and positioning the panels on the roof/wall. Most hire companies will train cladding operatives in the use of their mechanical handling equipment.

Handling of roof panels

Risks are no different for panels than other roofing work. Standard H & S measures such as nets, edge protection and safe methods of access must always be used.

Insulated panels require specific techniques due to their size and weight. With good planning and the use of mechanical handling techniques time and cost benefits can be achieved utilising the one-piece construction of the panels. This approach reduces the time spent at heights and minimises the risk.

Craning of panels into place is the preferred method for all panels. Manual handling from bundles placed by crane on the rafters should only be considered if craning into place is not possible and where panel lengths are below 6 metres.

Insulated panels are robust units and can be used as a progressive working platform, once fixed, from which to place and fix subsequent panels.



Example of handling and working with wall and roof panels.

Safe Handling of Insulated Panels including use of Mechanical Handling Equipment

Page 3

Working with high winds

There is no general rule. Guidance is dependent upon the type of mechanical equipment being used; site conditions; exposure etc. Contractors should consult the providers of the equipment.

Handling of wall panels

The height of wall elevations means that the risks and procedures for working at height on roofs apply equally for this type of work, both for vertical and horizontal orientated wall panels.

For high wall elevations and installation of longer panels craning into place is probably the preferred option. For general elevations where there is clear, firm ground at the base of the wall, vacuum lifting equipment developed by 4 cladding services (cladboy/rotaboy) and GGR Group (cladking/rotaking) for handling panels and presenting them to the elevation is the preferred method. These types of equipment significantly reduce the handling risk compared to manual handling from the ground or from scissor-lifts.



Example of handling and working with wall panels from ground level.

The single piece nature of insulated panels adds many benefits especially through speed and ease of operation, whether manual or mechanical handling techniques are used. The use of mechanical handling equipment further emphasises these benefits with the potential for further cost savings as well as additional safety benefits through reduced time working at heights.

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Whilst every attempt has been made to verify the guidance given, it should not be regarded as definitive. Because individual manufacturers' products vary, the performance should always be confirmed with them.