

CEILINGS

Ceilings typically fit into one of two categories:

1. Without Access – No Imposed Load

These are dimensioned only for the panel dead weight. No traffic is allowed on the panels during or after installation. The panels must not be used to support any short or long term imposed loads, such as mechanical fans, armored cables, pipe work etc.

2. With Access

The spanning capabilities of a composite insulated panel are determined by several factors including thickness of panel, operating temperatures, loading, etc.

* HPT ceiling panel maximum spans are based on 0.9kN point load (approx. 90 Kilos) at mid-span and 0.25kN/m² (approx. 25 Kilos) UDL.

Under the above criterion ceiling panels should be classified as “accessible for limited / occasional inspection, maintenance, minor repairs and cleaning only” (essentially read as one man and his tool box only) and it would be recommended to use Youngman type crawl boards.

BS 6399-3: 1996 ‘Loadings for Buildings’ is used for calculating load spans.

The governing factors for load calculation with access criteria are:

For ceilings/roofs where access is required, allowances should be made for an imposed load of equal to or greater than that which provides the worst load effect from one of the following:

- A uniformly distributed load of 1.5kN/m² (UDL) measured on plan; or
- A concentrated load of 1.8kN (point)

Specific project loadings should be determined by a competent and qualified person (typically a structural Engineer).

PRECAUTIONS AND GENERAL ADVICE

- Loads from permanent steel walkways should be transferred to load bearing frames.
- All pipes, ducting and electrical cable runs should be suspended from the main steel work and not hung from or laid directly upon the panel surface. Any pipes or ducting etc., penetrating the panels, should also be suspended from the main steel work.
- Heavy walking and loading in excess of * may well arise and be unavoidable. This could be more prevalent at the construction phase. If this is the case the panel surface should be protected with boarded walkways, which should span between the permanent top hat ceiling support system. These walkways should be constructed of a minimum of 10mm plywood secured with self-tapping screws to the external face of the composite insulated panel. A reduced span/thicker panel may also have to be implemented. If this is not possible, an alternative method should be sourced such as: temporary jack props, or with m12 studding passed through the panels, mechanically fixed and then attached to the building frame.
- At no time should scaffolds, stepladders, extension ladders or trestles be placed directly onto the ceiling panels.
- No hot appliances, welding, cutting gear or chemical processes to be carried out in the vicinity of the panels without adequate protection.
- Cutting of access apertures and penetrations should be carried out by the panel contractor. The adverse effect of penetrations and cut outs on the structural strength of individual panels and the insulated envelope as a whole must be assessed and any strengthening or trimming measures should be designed and specified by a suitably qualified and experienced designer/structural engineer.

- Care should be taken not to drop any items onto the panels. Always clear away any mess caused by working especially small items such as screws and rivets which may cause damage to the panels' surface.
- Any damage to the panels or ceiling support system should be reported immediately so as to avoid the risk of collapse, accidents to site personnel and equipment.

The above are guidance notes and cannot be seen as complete. Each project will have to undergo a comprehensive risk assessment to ensure that all trades likely to be involved in the construction of the ceiling void are aware of the potential risks to panel damage or failure from misuse of the panel surface. During the construction phase it is recommended that a nominated body polices the ceiling to reinforce the above recommendations.

Further detailed information can be found within the IACSC – Guidelines for the Design, Specification, Maintenance and Fire Management of Insulated Envelopes for Temperature Controlled Environments.