

The What The Why & The How

Using Composite Insulated
Panels (CIP's)



Health and Safety in composite panel construction

The History and Use of CIP's

The use of composite insulated panels (CIPs) as a core construction material is fast replacing traditional masonry and concrete in a growing range of retail, leisure and industrial applications.

Indeed, in cold store and warehouse developments, apart from a concrete slab and steel frame, composite panels are increasingly used as the single envelope for the entire building, all with significant benefits.

Self-finished and manufactured off site, the material is lightweight and tremendously durable, with significantly improved thermal qualities. Combine these with a low environmental impact, exceptional fire performance and construction savings in both cost and time, it's no surprise that CIPs are increasingly specified in lieu of traditional building materials.

But with some panels extending to over 19 metres handling can be challenging even in the lightest winds. Structural properties are also entirely different to traditional materials, especially in roofing and ceiling applications. This puts the focus firmly on Health and Safety, and rigorous attention throughout the installation phase and particularly for follow on trades is crucial to ensure an incident free and smooth project delivery.

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1. Delivering a strong, cost effective project

To guarantee a strong, cost efficient and workable outcome it's best to get designer, architects, engineers and contractors with thermal, refrigeration and building envelope experience, all working together and combining industry knowledge from project inception. 'Workable' means it will be safer as the team must consider both the hazards associated with the building's construction and its maintenance. This leads to selecting working practices and components to eliminate hazards or at least to minimise their impact.

2. Minimising safety risks and hazards

Many of the risks and hazards associated with a building's construction and future maintenance can be minimised during the design phase and those that are unavoidable can be planned for, especially with input from all parties at the earliest phases. By getting the design right and then building to the design fewer incidents are likely. The early involvement of qualified H&S professionals with the requisite experience should form part of this process.

For composite panel construction, secondary steel work and fixing points, for example, are a significant factor. Over specification is wasteful and costly, but insufficient material can lead to support and prolonged fixing issues, with delays and unforeseen risks when jobs don't run smoothly.

Selecting the right panel is equally important. Specification and fixing systems change constantly with a growing number of suppliers and almost constant innovations in terms of thermal performance, fire ratings, finished surface, fixings and structural integrity. Input from the selected installation contractor and where possible the manufacturer, will spot potential issues before construction even commences with a beneficial impact on risk assessment and safety. BIM expertise across all parties can further improve H&S outcomes as issues and conflicts can be pinpointed and remedied before any work starts. Selecting installation contractors with professional in-house design expertise will further reduce issues and risk.

8 steps to a safe build with CIP's

3. Correct installation from a trusted source

Choosing a competent installation partner with a proven track record avoids problems. Even then don't assume that installation has been carried out correctly or that the environment is safe for follow on trades. Fixings, connections and interfaces between panels and between the roof lid and the wall for example, require special attention and must be installed correctly. Quality control at each stage, before hand over to the next operation, will identify failings and reduce risk.

4. A full risk assessment is essential

The principle contractor will be responsible for establishing minimum Health and Safety standards that everyone involved on the project should work to. But these may not take account of the particular properties that composite panel construction brings and other main contractors may apply different standards for the scope of their work, or implement the same standards in a different way. Achieving consistency between all parties is therefore crucial and you should expect full risk assessments to be carried out for each phase of the work.



5. Working at height – the risks

The installation of composite panels invariably involves handling issues, simply because of their size, and a considerable time working at height is a known high risk activity for any construction worker. When you factor in additional issues such as the use of mobile work platforms and cranes, other contractors working in close proximity, plus exposure to the elements especially winds and you have a complex situation to plan for and manage. Again, the earlier qualified H&S professionals are involved in the process, the better.

Most scenarios should be planned for at the design stage and it is important to gather as much information as possible from clients, design teams and principle contractors in order to prepare. Pre-start meetings and site visits to identify specific hazards including ground conditions, adjacent structures and access routes must be carried out and regular site monitoring is essential. Even then situations can change within minutes (wind and other Trades working nearby) and site teams have to be ready to recognise these, and respond appropriately so that those involved remain safe.

Specific hazards include falls from the edge of the roof or through gaps that haven't been completed. Large panels also present a large surface area and can easily shift in a light wind. Fall prevention training and fall arrest equipment with safety nets, harnesses and guardrails are crucial. Structural engineers will also need to ensure that the supporting structure including steel purlins and the like will carry the extra loads and the weight of the contractors during the build.

6. Following industry standards

If a 'permit to work' system is employed, this should set out the precautions required to complete the work safely, based on a documented risk assessment, and will normally describe what work will be completed and how it should be carried out. The roof covering for cold storage warehouses where composite insulated panels are used is an obvious candidate here. The permit must take full account of the specific properties of the composite panels, but it is also important that they are properly enforced with proper interim checks. There are plenty of examples where incidents and injury could have been avoided had the permit for work system been followed.

7. Communicating change management and Plan B

Change management and design creep can present some of the biggest challenges to health and safety particularly on large projects involving multiple construction elements and trades. Composite panels are manufactured off-site so finding they don't fit because dimensions have been changed will bring delays and increased risk for installation workers. Strong communication to ensure design changes are fully understood by all parties will limit the number of issues and therefore risks as the construction progresses. Poor interface management and the risk of one contractor's activities on another are also potential problem areas to watch out for.

8. Due diligence when appointing contractors is key

Selecting a contractor with a proven track record in composite panel construction goes without saying. They should also be able to demonstrate proper Health and Safety management practices with independent auditing through bodies like Achilles, plus programmes for continuous improvement with key performance indicators.

The ability to deliver the project is crucial but a proven H&S track record is just as important.

