

Ecohousing

Building Systems



PRODUCT INFORMATION

FLOOR PANEL SYSTEM

PRODUCT STATEMENT

About Us

Ecohousing Building Systems is committed to the development, manufacture and marketing of environmentally friendly products and methods. We are “building for the future”, satisfying the need for a low cost, ecologically sound and totally insulated the strength of steel with structural polyurethane. Our Structural Insulated Panels (SIPs), and load-bearing capabilities make building methods, with consequent construction time and costs. High that Ecohousing homes easily meet efficiency requirements. The Ecohousing Building Systems are protected by world-wide patents.



building solution that combines outstanding thermal qualities of products are classified as Their lightness, innate strength them ideal for minimal-frame significant savings in thermal resistance ratings mean the highest star energy

The Ecohousing Floor Panel System Advantage

Floor Panel System

Ecohousing Building Systems has created a unique floor panel system. In elevated and two storey houses, Spandek® Zinalume clad roof panels are utilized as floor panels with lengths up to 10.4 metres with 3.6 metre spans. Floor finish is usually yellow tongue screwed to the panel. The weight of the panels, in concert with their structural rigidity, allows for a reduction in total stumps required for elevated houses and very little use of concrete to anchor posts with no interference to the natural terrain. The insulation value is R 4.6 bare and increases with different coverings to R 5.20

Key Features:

- Generous span capacity of up to 3.6 metres
- Elevated houses leave a much smaller environmental "foot print"
- Site waste dramatically reduced
- Suitable for all sub-frames
- Completes the "thermal overcoat" recommendation for energy efficient housing
- Weather resistant
- **FIRE SAFE**

Advantages of Structural Polyurethane Foam

Polyurethane structural foam has been in use for more than 60 years to manufacture building and refrigeration panels. It is inert and has a **closed cell homogenous structure** that is fire retarded with no oxygen to carry flames whilst retaining its insulation values throughout its life, it has been monitored for over 60 years without signs of deterioration. It is used in all domestic refrigerators where the freezer section is normally at minus 20°C. The insulation section is much thicker in our wall and roof panels, giving exceptionally high insulation values.



Ecological

Ecohousing care about the ecological future of our planet by focusing on:

- CO₂ Production Emission savings
- Vermin (Rodent), ant and termite safe without any poisonous chemicals
- Low embodied energy
- No building waste
- No timber frame used in construction of floor
- Energy usage savings (cooling/heating)



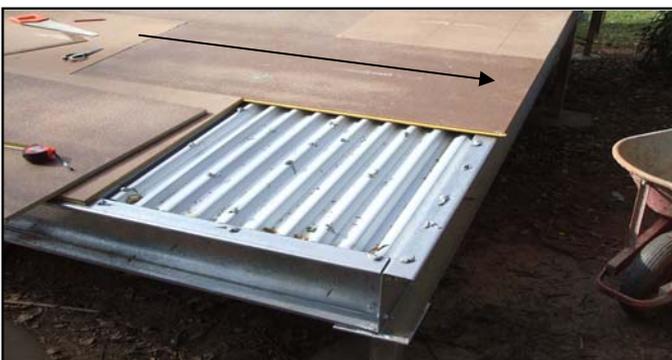
Fixing Method

Floor Panels are joined together along the adjacent edges by way of the incorporated clip locking system. The female edge of one panel has a hollowed recess to allow the male edge of the adjacent panel to be overlapped on each face creating a full length mechanical joint between the panels.

The flooring panels are screwed in the valleys to the C channel bearers beneath to fix them in place.



Yellow tongue panels are then used as flooring on top of the corrugations. The panels are run **across the corrugations** and are fixed using a high performance polyurethane silicon glue. Other floor coverings can then be laid on top of the yellow tongue as desired.



Note: Yellow tongue laid across ridges.

Additional Floor Finishing's

The use of the yellow tongue glued on top of the Spandeck® in Zinalume allows for additional floor coverings to suit the home owners desired. The additional coverings not only allow for a modern tasteful finish but increase the R value of the floor allow for exceptional ratings, Ecohousing floors have ratings up to R 5.20



Above: New Classroom utilising the full Ecohousing Building System floor finished with carpet.

Below: Ecohousing floor panel system finished with modern wooden floor



Ease of Build

Elevated flooring using Ecohousing floor panels allows a project to be completed much faster and substantially easier than conventional elevated flooring products this is because:

- Easy "click in" panel joining
- Less stumps and bearers required as the panels are load bearing and structural.
- Ready to be laid straight away no cutting required on job site.
- Less personnel required to lay floor quickly.

Multi-Storey Applications

The floor panels system is also well suited to multi-storey applications. Standard ceiling finishes can be applied and electrical utilities can be run along the valleys of the Spandek®, if desired a hanging ceiling can also be installed. The panel system also allows for a faster build time as there is no pouring of cement and time wasted while it cures, the panels are also much lighter with comparable strength.

Below featured is Spence Doors and Joinery, it is a multi-storey structure that has utilised the full Ecohousing building system, not standard floor finishes, also note floor panels on the second storey.



For Further Details

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Polystyrene Sandwich Panel Fire Risk

Terminology should not be confused over the two major Sandwich Panel Manufacturing processes. One is injected **Polyurethane structural foam (PUR)** the process used by Ecohousing, the other is glued in place **Expanded Polystyrene foam (EPS)** termed **Polystyrene**.

Polystyrene sandwich panelling is an extremely fire hazardous material to use, especially as a sandwich panel, as the softening point of polystyrene is 100°C and the melting point is only 180°C. This is the temperature that you use when grilling a steak, a light bulb gets to 280°C, pentane a key component of Polystyrene ignites at this temperature. In a fire once this temperature is reached the sandwich panel loses its integrity, collapsing allowing the pentane gas of the melting polystyrene to ignite. Flash over then occurs and sets fire to the rest of the polystyrene foam, travelling within the sandwich panel adding a huge fire load. Within minutes the entire building will be destroyed due to the collapsing roof and walls.

The risk of people being trapped and killed by the rapid spread of the fire with the napalm effect of molten polystyrene dripping from the sandwich panels is very real. In other countries prosecution which involved criminal charges has resulted from non-disclosure of **EPS** product fire risks.

Insurance companies are now refusing to insure commercial buildings & cold rooms etc, manufactured with Polystyrene due to its fire hazard. Examples of this include the Tip Top Bread complex fire in 2002 causing \$100million damages, the \$8 million Detention centre fires in 2002, the Queensland Polystyrene Panel fire in a meat processing plant in 2001 causing an approximately \$25 million in damages and the biggest fire in NZ the Poultry Abattoir in 2007 causing \$NZ 50 million to \$NZ 100 million dollars in damages.

*Customers should be warned of the dangers of **EPS** by the manufactures of the Polystyrene sandwich panels. Not notifying their customers of this risk could be deemed **reckless or even product disclosure negligence**.*



Tip-Top Bakery