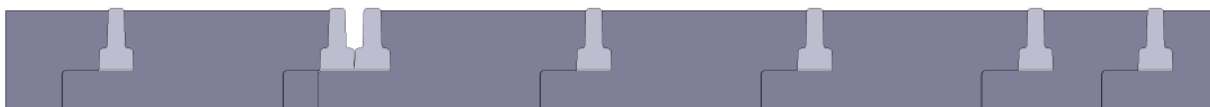
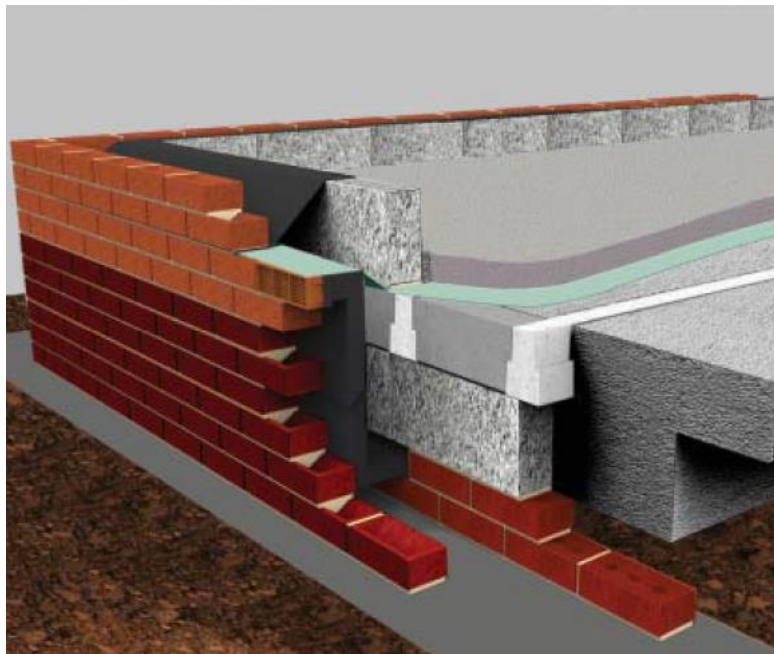


Tdeck™ Installation Manual



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What is Tdeck™?

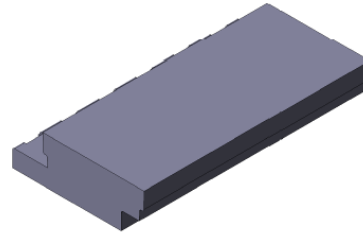
The Tdeck™ EPS Panel System is a cost effective thermal beam and block flooring solution and an alternative to sheet insulation. The system is a highly efficient and progressive flooring solution whereby the Tdeck infill panels sit between and beneath concrete beams eliminating cold bridging and achieving high thermal performance. The system offers many benefits including:

- Extremely quick install times for groundworkers
- Easy to fit insulation panels
- Improved speed of install compared with concrete block and beam
- Lightweight panels reduce working load to groundworker
- Perfect solution if you do not want EPS above the beam
- No need for top sheet insulation
- Patented Tdeck extension toe ensures complete layer of insulation under multiple beam locations (Patent GB 2487265)
- Can be used with variety of concrete toppings including reinforced micro-fibre
- Minimal waste
- Recyclable EPS panels
- Range of U-values available to 0.08 w/m²k
- Install with hand tools, removing need for power tools
- Psi Strip™ supplied to reduce thermal bridging at perimeter of floor

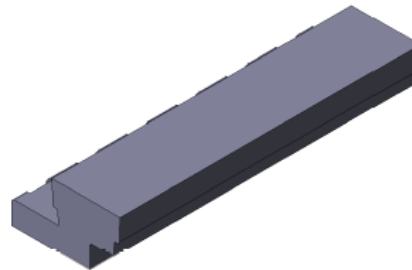


Tdeck Components

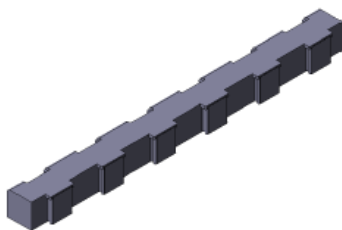
Typical Tdeck Full Panel (542mm top width)



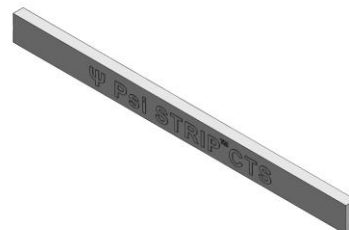
Typical Tdeck Half Panel (271mm top width)



Patented Tdeck Extension Toe



Psi Strip™

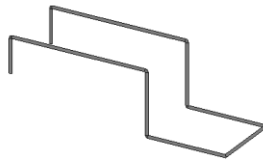


To complete Tdeck you will also need concrete closure blocks and you can also use steel edge starter clips. None of these parts are supplied by Moulded Foams. These parts should be ordered with your authorised Tdeck distributor.

Closure Blocks- the closure blocks are to be used in conjunction with Tdeck EPS Panel system, supplying a solid support thus allowing the continuation of the inner skin build. The closure blocks have a crushing strength of $7.0 \text{ N}\cdot\text{mm}^{-2}$. Closure blocks are to be installed between beam ends around the periphery of the floor, onto a mortar bed.



Steel Edge Clips- the edge clips provide a bearing for the EPS panels around the periphery of the build if required. A well-cut block will have suitable support therefore edge clips are not mandatory and are solely down to personal preference. The edge clips are installed at the same bearing level as the floor beam. The clip will support the underside of the EPS panel to provide additional support. Typical usage is 2 clips per panel.



Delivery & Site Handling

The EPS panels are shrink wrapped and bonded in cube packs, but otherwise unprotected. All Tdeck EPS panels will have product name, dimensions, Agrément number and CE label attached. Care is to be taken when moving parts and during storage to avoid damage. Tdeck Panels are to be stored in clean, dry conditions, stacked on a flat base clear of the ground. Avoid storing in direct sunlight for prolonged time and secure to avoid wind damage. The EPS components shall be protected from being dropped or crushed by objects; care shall be exercised when storing large quantities on site. Do not expose Tdeck EPS panels to open flame or other ignition sources and store away from flammable material such as paint and solvents. To ensure maximum performance of Tdeck when installed, on site precautions shall be taken to protect from contaminants.

Installation Procedure

Once the floor has been constructed to correct coursing height and DPC is laid, you may begin to install Tdeck. Starter Edge Clips may be used to support the start and end panels, although if the internal wall blockwork is already built to finished floor height then they may not be needed. Tdeck is installed one bay at a time and should begin as per the approved drawing.

1. Starter Panel- the approved drawing will state the measurement for the required starter panel. The starter panel is formed from a cut row and is the male cut as per diagram below. The female cut forms the end panel and can be used at the end of the bay unless the drawing states otherwise. The starter panel is rotated under the first beam along the bay, the beam then pushed up tight to lock the panel in place. The starter panel must not be wider than 300mm at the top.



2. Once the starter panels are in place the next row can be installed. The approved drawing will specify if a full or half panel is needed. Each panel is installed at an angle and then locked into place. All panels are designed to have a normal bearing of 20mm on the beam.



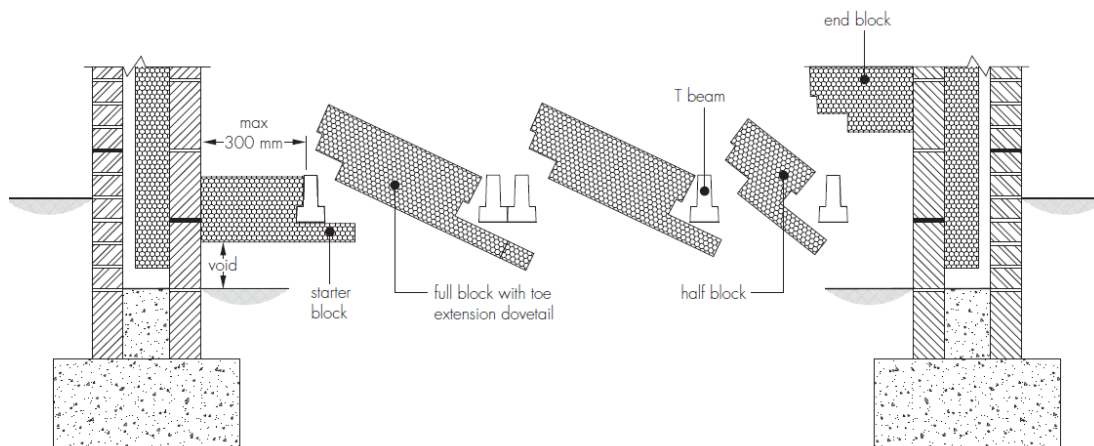
3. When the row of panels has been installed there may be excess. Once marked, the panel can be cut to fit the floor. This offcut can then be used to begin the next row. Eps blocks must not be used if less than 275mm.



4. Patented Tdeck Extension Toe- in the case of multiple beams toe extensions are provided to prevent cold bridging. They are simply connected to the full or half panel using the dove tail connections in situ. If this added toe means installation of the panel is affected then the toe can be installed after the panel is installed before the multiple beam is in place.



5. The system is installed as per the approved drawing. Install process is also detailed below for a visual aid.



block installation process

6. Service Pipes- all penetrations including service pipes should be cut as neatly as possible. Any gaps around the service pipes should be filled using a polyurethane expanding foam. Excess expanding foam should be removed to leave a sealed neat finish.
7. End Panel- complete the installation as per approved drawing. The offcut from the starter panel should be used as the end panel which will again rest on steel edge clips if they are being used. End panels must not be wider than 300mm at the top.
8. Closure blocks- concrete closure blocks are used to sit between the ends of the beams on either end of the floor. These will need to be mortared in place.
9. Membrane sheets- a gas or damp proof membrane can be installed if required.
10. Psi Strip™ - before applying concrete topping, a Psi Strip™ must be fitted to the perimeter wall. Psi Strip™ is supplied, minimum 25mm thickness and 75mm height to match perimeter screed height

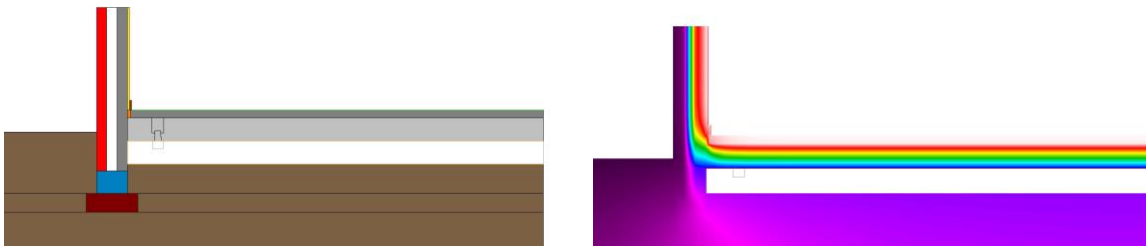
Thermal Performance

Tdeck™ EPS panels:

Declared thermal conductivity λ_D (W·m⁻¹·K⁻¹)

- EPS panels : 0.030

U-value calculations are calculated by authorised Tdeck™ distributors upon receipt of detailed site plans. Along with U-value calculations, psi (Ψ) calculations will also be included. To ensure psi calculations are delivered it is imperative that the Psi Strip™ is fitted between the concrete topping and inner block work.



Structural Performance

Tdeck infill panels provide a temporary formwork to the structural concrete topping. They make no further contribution to the long-term structural performance of the floor, once the structural concrete topping has been placed and obtained its full design strength.

Load span calculations are completed by authorised Tdeck™ distributors upon receipt of detailed site plans. Approved distributors will design floors to meet structural and thermal performance. The distributor's technical departments design floor layouts using beams made to BS EN 1991-1-1 and BS EN 1992-1-1 obeying maximum loading spans to create the most effective layouts for installation.

Concrete Toppings

To avoid damage to EPS panels, the structural topping shall be laid as soon as possible after the blocks have been installed. In case of underfloor heating being used with the floor, this is clipped to a clamp track. Avoid stapling if membranes have been fitted as staples will penetrate through. Specified structural concrete topping shall be poured carefully and not dropped from a height greater than 500mm. Ensure heaping is kept to a height of no greater than 300mm.

Two types of concrete can be used to form the oversite on top of the beam and EPS system. In both case the minimum strength class is C25/30 and should ideally have a minimum sand content of 47.5% to aid the placement and finishing of the concrete.

- Standard concrete – ideally the aggregate size should be 10mm but up to 20mm can be used. The recommended consistence class is not less than S3 (100 – 150mm) but preferably S4 (160 – 210mm). The higher consistence class minimises the temptation for site operatives to add water on site, which will result in excessive bleeding, segregation, surface dusting and poor quality surface finish.
- Self-compacting (also referred to as flowing concrete) – the maximum aggregate size for this type of concrete shall be 10mm and a slump-flow of not less than SF3 is recommended.

Reinforcement type:

There are four types of reinforcement that may be used in any of the floor systems covered by an Agrément certificate. A concrete slab cast in accordance with these recommendations satisfies the NHBC Standard requirements:

- Micro Fibre- the minimum requirement for non-structural screeds shall consist of 12mm long (minimum), 22 microns diameter (minimum) monofilament polypropylene fibre at a minimum dosage of 0.91kg/m³. Suitable examples of available fibres are Fibrin XT, Fibremesh 150-12, Grace microfibre.
- Polymer Macro Fibre- Macro fibres increase the post cracking performance of the concrete and improves its durability compared to micro fibres. The typical specification is 40 - 50mm long fibres

with diameters of between 0.30 & 1.0mm diameter at a minimum dosage of 3.5kg/m³. Suitable examples are Durus S400, Durus Easy finish, Novomesh B&BA, HPP 50 & STRUX 90/40.

- Steel Macro Fibre- Steel macro increase the post cracking performance of the concrete and improve its durability compared to micro fibres. These types of fibres are mainly used in self-compacting concrete as they are better at overcoming floatation issues. The minimum specification is 50mm long (minimum), 0.95mm diameter (minimum) at a minimum dosage of 17.5kg/m³. It should be noted that some self-compacting concrete is supplied with 0.91kg/m³ of micro fibre as well as the steel macro fibres. Suitable examples are Novocon FE1050.
- Welded Fabric Reinforcement- Welded fabric may be used with the concrete topping. The minimum requirement shall be A142 mesh placed at mid height of the slab using a suitable chair system. Open ended fabric (flying ends) is recommended to overcome build up when overlapping mesh. Alternatively, the mesh can be butted together and lapped using loose bar with the minimum lap being 40 x the diameter of the reinforcement bar. Please note that it is not recommended to walk on the mesh once placed.

Disclaimer

The information provided in this Operation manual should only be used in conjunction with the Tdeck™ EPS Panel System, and not any other product or system. Specifications are only valid when using Tdeck™ materials and specified equipment. Any other material and/or equipment used would fall outside of the Tdeck™ Agrément Certificate and therefore not acknowledged.

These instructions do not purport to cover all details or variations in the equipment and do not claim to provide for every possible contingency met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently, the matter should be referred to Moulded Foams Ltd.