

Shallow Composite Floor Decks

Sitework

Shear connectors

The most commonly used shear connectors are 19mm diameter headed studs which are welded to the support beam through the deck by specialist stud welding contractors.

Make sure the site conditions are suitable for welding then carry out bend tests as necessary. The spacing and position of the shear connectors is important and must be defined by the design engineer on the deck set-out drawings.

Minimum Spacing: Ensure that the minimum centre-to spacing of stud shear connectors are 5d along the beam and 4d between adjacent studs, where d is the nominal shank diameter. Where rows of studs are staggered the minimum transverse spacing of longitudinal lines of studs should be 3d. The shear stud should not be closer than 25mm to the edge of the beam. See Page 6 under design info

More information

To find out more about shear studs in The Steel Construction Institution publications: P300 Composite Slabs and Beams Using Steel Decking: Best Practice for Design and Construction, P055 Design of Composite Slabs and Beams with Steel Decking.

Placing the mesh

You can utilise Fibredeck in place of anti-crack mesh, which eliminates all mesh position issues. If you use reinforcing mesh ensure that you position it towards the top of the slab.

The top cover to the reinforcement mesh must be a minimum of 15mm and a maximum of 30mm. Support stools are required to maintain the correct mesh height.

The mesh must be lapped by 300mm for A142 and A193 mesh, and by 400mm for A252 and A393 mesh.

Casting concrete

As dirt and grease could adversely influence the performance of the hardened slab, you should clear the decking before you pour the concrete (the oil left on the decking from the roll forming process may stay). Pour the concrete evenly, working in the direction of span. Take care to avoid heaping concrete in any area during the casting sequence. Construction and day joints should occur over a support beam, preferably also at a deck joint.

Ceilings and services hanger systems

The dovetail shaped re-entrant rib on MetFloor® 55 and the raised mini-dovetail re-entrant stiffener on MetFloor® 60 and MetFloor® 80 profiles let you suspend the ceiling and services quickly and easily.

There are two suspension systems:

(a) Threaded wedge nut fixings

Wedges are dovetail shaped steel blocks threaded to take metric bolts or threaded rods. The wedge nut hanger system is installed after the concrete of the composite slab has been poured and is hardened.



MetFloor® 55



MetFloor® 60 & MetFloor® 80

How to install the system

To install the system insert the wedge nuts into the raised re-entrants of the profile before being rotating 90 degrees, after which the dovetail shaped wedge nuts will lock into the dovetail re-entrants under vertical loading. Finger-tighten the bolts or threaded rods up to the roof of the re-entrants and then mechanically tighten.