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FIRETEX Protection of Beams Supporting Grating/Grated Decks

Grated decks, which are regularly installed in plant areas, can apply significant stress loads to the coatings on the beams supporting them. The decks can also tend to hold water (rain/condensation) on the coating surface, this aspect is exacerbated when the grating runs parallel to the beam.

Typical solvent or water based intumescent coatings have a degree of plasticity (they will deform under stress, especially if the temperature is increased) allowing the deck to cut into the coating system. The resulting mechanical damage in conjunction with the propensity of the decks to prolong water contact can cause premature coating breakdown.

Installing a grated deck directly on top of an intumescent protected beam appears to be a typical industry approach. However, this will restrict the expansion of the intumescent coating at the contact points, which in turn has the potential to reduce the period of structural stability that would be achieved in a fire.

Ideally, the grated deck would be spaced off the top of the beam using an angle or "T" welded to the beam upper flange during fabrication. In this way, the full exposed perimeter of the beam can be protected, and space allowed for the intumescent expansion.

An alternative approach adopted by some projects involves the deck panels being fitted to the beam before the intumescent coating is applied to the top surface, the epoxy intumescent subsequently being "poured" onto the top flange to flood the grating. Dulux Protective Coatings does not specifically endorse this approach but at the same time recognises it as a pragmatic solution, originating in the oil and gas industry where grated decks are common. If this approach is adopted for a project, it is essential that the intumescent coating fills up the grating to prevent water being collected and held against the coating surface, an approved non-skid coating can be applied over the FIRETEX surface if required. Installing the grating decks and fire protection in this way will mean the deck panels are difficult to remove.



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