GUIDANCE NOTE – NOVEMBER 2024

HANDLING OF T-BEAMS

This guidance note gives the reader information on how to handle prestressed T-beams.

Prestressed T-beams are designed with 5mm reinforcement wires located in the bottom half of the section which are prestressed at the time of manufacture. This arrangement gives the beams their strength but will induce an upwards deflection known as camber. If beams are not stacked correctly or mis handled, see Bison Precast guidance note on stacking of beams, then micro cracks can occur which propagate from the top surface to the mid depth of the beam along the length of the beam. When the beams are loaded out these micro cracks will close up and do not affect the long term structural performance of the beams. It should be noted that all concrete elements weather traditionally reinforced or prestressed are designed to have small crack widths present. The permitted width of the crack will depend on the location of the beams, e.g. general use is 0.35mm.

Micro cracks can be present in beams that have been stored with bearers too far from the ends of the beams. The self weight of the beam which cantilevers from the bearer induces the crack. If stored for a long period of time the cracks can propagate into large cracks which may render the beam unusable. Micro cracks can also occur if the beams are handled with forks too close together or if the beams are picked up in double or triple stack heights with the bottom stack exhibiting the micro cracks. Traversing over rough ground can also cause micro cracks to occur.

Figures 1 and 2 show the typical arrangement of micro cracks.

Figure 1 – micro crack present on top surface

Figure 2 – micro crack propagating down the top part of the beam

Micro cracks are a common occurrence and do not affect the long term structural performance of the beams.

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