

Technical Note 50

Treatment of Top Surface and 'Construction Joints' on Deck Units and Girders

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There has been considerable variation in the type of surface finish applied to the top surface of precast deck units and girders. Further to the requirements of MRTS70 (10/11) Clauses 20 and 21, the following sections outline the required surface finishes.

1 Kerb units on transversely-stressed deck unit bridges

A "Construction Joint" must be provided on the area under the cast in-situ kerb as shown on the drawings (typically the outer 350 mm). This construction joint must be prepared as stated in MRTS70 (10/11) Clause 21.1. Unless stated otherwise the remainder of the top surface of the unit shall be broom finished in accordance with Clause 20.2.1 of MRTS70 (10/11). A typical construction joint under the cast in-situ kerb is shown below. (Figure 1 and Figure 2)

Figure 1 Required finish under case in-situ kerb



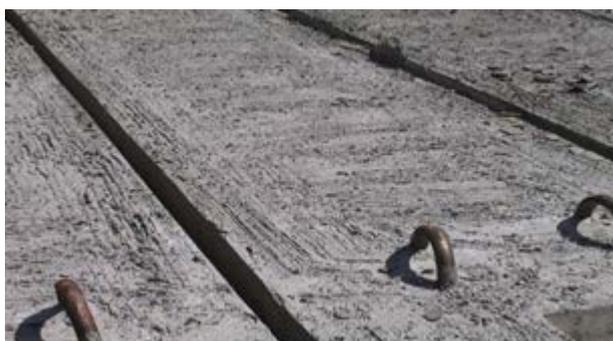
Figure 2 Required finish under case in-situ kerb



2 Deck units on transversely-stressed deck unit bridges

As asphalt is typically placed directly on top of these units, a broom finish is required in accordance with Clause 20.2.1 of MRTS70 (10/11). An example is shown in Figure 3.

Figure 3 Acceptable broom finish



3 Deck units with a case in-situ concrete deck

These units are considered to be the bottom part of a continuous slab; therefore the top surface must be treated as a construction joint. This construction joint can either be prepared as described in Clause 21.1 of MRTS70 (10/11), leaving exposed aggregate (as shown in Figures 4 and 5) or subject to approval by the Contract Administrator in accordance with Section 7 of this technical note. The designer may nominate areas requiring a steel float surface finish. The contractor may require a

smooth edge on the side or the top of the unit for sealing tape or formwork to a maximum width of 20 mm between the units. A recessed edge in the top of the unit should be avoided where ever possible as it is difficult to cast.

4 I-Beam Girders

The complete top surface of these Girders must also be treated as a Construction Joint in accordance with Clause 21.1 of MRTS70 (10/11).

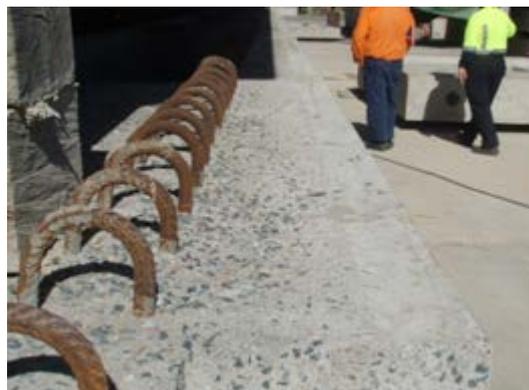
5 Super Tee and Tee-Roff Girders

The top surface must be treated as a Construction Joint in accordance with MRTS70 (10/11) Clause 21.1, leaving exposed aggregate with no cement paste coating the exposed aggregate (as shown in Figures 4 and 5) or subject to approval by the contract administrator in accordance with Section 7 of this technical note. The designer may nominate areas requiring a smooth steel float finish and a smooth edge may be required down the edge of the girder up to a maximum 100 mm wide for attachment of sealing tape between girders.

Figure 4 Required finish on girders



Figure 5 Required finish on girders



6 Construction joints on formed surfaces

All Construction Joints on surfaces cast against rigid forms (such as the joints to cross-girders) must be treated as per Clause 21 of MRTS70 (10/11).

7 Alternative method

Alternately a method which produces an acceptable macro-texture on the surface may be approved by the contract administrator for the top surface of deck units with a cast in-situ deck or the top surface of Super Tee or Teeroff girders with a cast in-situ deck. A sample of the agreed finish will be kept on site.

Approved alternatives must leave a rough finish with the coarse aggregate still firmly embedded but with the aggregate still coated with cement paste. Any desired changes to what is specified on the drawing must have approval from the contract administrator. Failure to achieve the accepted surface finish will result in reduced payment or a non conforming product. Examples of acceptable and unacceptable alternate construction joints are shown in Figures 6 to 11. A smooth trowel finish may be required by the designer in some locations and these will be shown on the drawings.

Figure 6 Acceptable alternative



Figure 7 Not acceptable, too rough not holding aggregate in place



Figure 8 Not acceptable, concrete laitance to be avoided, surface too smooth



Figure 9 Acceptable rake finish



Figure 10 Not acceptable rake finish



Figure 11 Not acceptable rake finish



