

BRIDGE EXPANSION JOINTS AND SEALING OF GAPS

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Bridge Expansion Joints and Sealing of Gaps

NG 2301 General

- 1 A schedule of expansion joints should be included in Appendix 23/1, cross referring to the Drawings where appropriate. Where the use of proprietary joints or materials is envisaged, or the joint is not fully detailed on the Drawings, Appendix 23/1 should also give details of the design movements, to enable the Contractor to propose appropriate joints. Particular requirements for subsurface drainage should be described in Appendix 23/1, cross-referring to the Drawings where appropriate.
- 2 The Engineer should check that all bridge deck expansion joints proposed by the Contractor for use in the Works have a current IAB certificate.
- 3 Where gap sealing is required, e.g. between wing walls and abutments, the details should be shown on the Drawings, with cross references to them and a schedule, if applicable, in Appendix 23/2.

- 5 Where constituent parts of a joint system are required to be cured, the manufacturer's advice should be considered in conjunction with the actual mean air temperature when determining the curing time before the joint can be trafficked.
- 6 Specific requirements for the protection of newly installed joints (complementary, and without prejudice to, the safeguard afforded by Clause 20 of the Conditions of Contract) should be shown on the Drawings.

NG 2303 In Situ Nosings

- 1 Nosings should be dimensioned on the Drawings. They should only be applied to sound concrete and it is imperative that concrete affected by cracking or deterioration be replaced.
- 2 It is emphasised that satisfactory in situ resin based mixes can only be achieved with completely dry aggregates.
- 3 Resin based materials of any composition when placed in thin layers, say 12 mm thick, do not generate sufficient heat to cure satisfactorily below 10°C. A temperature of 10°C or above may be obtained by means of artificial heating to a constant temperature over the whole area.

NG 2302 Installation of Bridge Deck Expansion Joints

- 1 The installation of expansion joints requires a very high standard of workmanship and supervision if premature failure is to be avoided.
- 2 The width of the expansion joint gap and, where appropriate, the deck joint gap to be provided should be related to the amount of residual creep, shrinkage, structural rotation and temperature movements that may be expected in the deck and to the prevailing deck temperature at the time of setting the joint gap. Where a preformed compression seal is to be incorporated in the gap, the gap setting should ensure that the seal does not lock up solid before full expansion has taken place.
- 3 Hardboard has proved to be effective in preventing surfacing materials, where they are to be cut back, adhering to the deck or the waterproofing.
- 4 Holding down bolts installed at an early stage of the deck construction are particularly vulnerable to damage. Care should be taken to protect threads from damage as any slight imperfections may prevent the pre-determined torque load being achieved.

NG SAMPLE APPENDIX 23/1: BRIDGE DECK EXPANSION JOINT SCHEDULE

All bridge deck expansion joints shall satisfy the requirements of UK Department of Transport Standard BD 33/88 'Expansion Joints for Use in Highway Bridge Decks'.

[Notes to compiler: This schedule should list all bridge expansion joints in the Contract by type as described in Table 1 of BD 33/88 and give a cross-reference to the Drawing Number where the joint location is shown. The movement fringes of each joint should be given to enable the Contractor to propose an appropriate joint. Particular requirements for subsurface drainage, including the position and invert level of connections to surface water drains or soakaways should be given. Requirements for surface preparation and protection of metal components against corrosion should also be given/.

NG SAMPLE APPENDIX 23/2: SEALING OF GAPS SCHEDULE (OTHER THAN IN BRIDGE DECK EXPANSION JOINTS)

[Note to compiler: This schedule should include all gap sealing such as joints between wing wall and abutment, etc. Typical aspects to be included are:]

- (i) Joint types and references
- (ii) Filler requirements
- (iii) Sealant requirements
- (iv) Water stop requirements
- (v) A cross-reference to the Drawing Number giving this or further information.