

Code of Practice Step (half) joints

1. Scope and application

BTN018 Step (half) joints states VicRoads' requirements for the design of bridges with step (or half) joints.

Bridge Technical Notes are a Code of Practice. Compliance with Bridge Technical Notes is mandatory.

Other than as stated in this document and relevant VicRoads standard specifications, the provisions of AS5100:2017 shall apply. Where this document differs from AS5100:2017, its requirements override those of AS5100:2017.

2. General

The step (or half joint) form of construction comprises a suspended beam or deck slab (the drop-in span) supported on a short cantilever or corbel as shown in Figure 1.

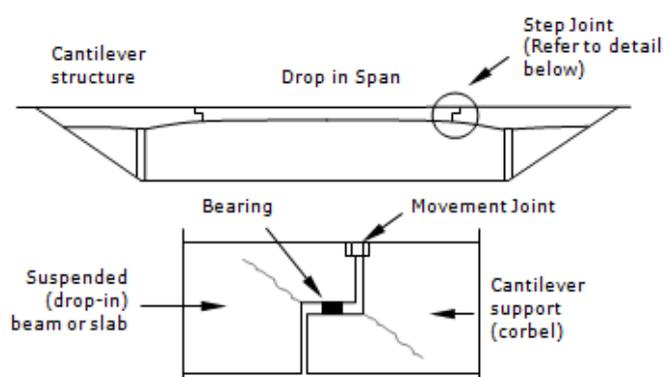


Figure 1 - Cantilever and Drop in Span Structure

Use of a step joint can result in ease of construction and enhanced vertical clearance due to reduction in superstructure depth, however, these effects can be achieved by other means such as creation of a continuous superstructure by building-in the existing step joint (see 3.2 below).

The following issues are encountered during the life of a bridge with step joints:

- difficulty of access for inspection and maintenance
- hidden or obscured surfaces which may conceal cracking, corrosion or other defects
- limitations if bridge strengthening is required due to the nature of the half-joint detail
- the need for lane and/or road closures arising from inspection and maintenance activities.

AS5100 requires that deck joints and bearings are readily accessible for inspection, maintenance and replacement (including jacking of components).

However, step joints have been positioned several metres from the adjacent pier or abutment which places them over traffic lanes or waterways. Lane and/or road closures or other special means of access may be required in these instances to enable inspection and maintenance.

3. Restrictions and requirements

3.1. New bridges

The use of step joints in new bridges is not permitted.

3.2. Existing bridges

If an existing step joint bridge is to be widened, the following options exist:

- replication of the step joint in the widening. In this case, the design of the widening including the bearing and the bearing plinth must be in accordance with the requirements for access, inspection and maintenance stated in AS5100
- replacement of the step joint by building-in in conjunction with the widening to form a continuous superstructure over the half joint. The design shall, in this case, consider the effects of building-in and the consequent effects of continuity on the whole structure.

Preference shall be given to designs that provide adequate access and minimise the need for maintenance.

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Bridge Technical Notes are subject to periodic review and may be superseded.