



Section 8 – Bridge Joint Seals Snowplow Deflector Details

XS Sheet Numbers

XS8-130-1 & XS8-130-2

Description of Component

Snowplow deflectors are used to prevent snowplow equipment blades from dropping into the joint opening and thus damaging the joint seals (See Figure 1). Issues with older designs as shown in Figure 1 occur when dirt or debris gets into the space between the concrete recess, the snowplow deflectors bend up and will not function as intended. If snowplow deflectors undergo such damage where they bend upward as shown in Figure 2 & 3, they will get caught by the blade of the snowplow truck or can come in contact with traffic. When this happens the anchor bolts eventually fail, and deflector plates can become projectiles. This is potentially a traffic hazard.

This design includes anchoring the deflector with two drill and bond threaded inserts at one end and one insert at the other end while allowing movements with a slotted hole.



Figure1: Snow Plow deflectors



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Figure 2: Damaged Deflector



Figure 3: Damaged Deflector



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Standard Drawing Features

- The snowplow table includes the movement range (MR) and skew at joint locations
- Placement of snowplows at edge and mid- traffic lanes
- Placement of snowplows with respect to the compression seals, bonded and strip joints
- Details of anchors and deflector holes

Design/General Notes

- Only snowplow deflectors made of glass fiber reinforced acetal copolymer plates are allowed
- Anchor the deflector at one side of the expansion joint and use a slotted hole at the other so the deflector plate always remains recessed below the deck surface while allowing service movements at the same time
- Fill the area between the concrete recess and the snowplow deflectors with Type A sealant
- Use an internally threaded insert in conjunction with a galvanized tap bolt
- Place the top of the bolt 1/8 inch from the deck profile
- Use structurally stiffer (wider) deflectors
- Keep deflectors off wheel lanes
- Use deflectors only when it is needed, that is, when the joint skew varies from 10 degrees to 30 degrees

The length (L) of the deflector depends on the joint movement range (MR) and is given as:

$$L = 26 + MR + (W / \cos(\text{skew})) \quad (\text{inches})$$

where 'W' (inches) is equal to joint opening normal to the center line of the joint and, skew is the skew angle (degrees) at the joint location.

Contract Specifications

Standard Specifications Section 51-2.01B (2)

Restrictions on Use of Standard Drawings

Snowplow deflectors are used when the skew at joint location is greater than or equal to 10 degrees and less than or equal to 30 degrees or as directed by the Engineer.

Place snowplow deflectors to avoid wheel lanes and surface rutting.