Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

Subject:
Welding of Construction Accessories to Structural Steel Bridge Members
Section 505

CONSTRUCTION MEMORANDUM NO. 95-15

Effective: **January 3, 1995**

Expires: **Indefinite**

This Construction Memorandum supersedes Construction Memorandum No. 85-15, dated January 1, 1985.

The ideal situation would be to have no welding or drilling of holes in structural steel members other than those called for on the plans; we realize that such additional welding and drilling of holes is often advantageous during the construction of the bridge and should result in a savings to the State. In this regard, this office would offer no objection to granting permission for welding and drilling of holes provided the following limitations are adhered to:

1. Field welding of construction accessories will not be permitted to the web and bottom flange of beams or girders nor to the top flange of beams or girders of continuous design for a distance equal to one-fourth the span length each way from the pier supports over which the beams are continuous. On simple spans for their entire length and on continuous spans outside of the restricted area over the continuous supports, field welding of construction accessories to the top flange may be permitted providing that the minimum weld length is 40 mm (1 $^1/_2$") and maximum weld length is 50 mm (2") in the direction of stress (along the axis of the beam or girder). If 30 mm (1 $^1/_4$") or 40 mm (1 $^1/_2$") standard pipe holders are used for screed supports and have to be welded to the top flange, the base of the pipe shall be welded to the top flange with a continuous fillet weld (spot welding shall not be permitted). Maximum fillet weld size permitted shall be 6 mm ($^1/_4$").

   As an alternate to welding the pipe screed support to the top flange, the pipe may be welded to a separate plate and epoxy bonded to the top flange. This would be the preferred way of attaching the screed supports to the flange.

2. Drilling holes in the webs of steel beams for the purpose of aiding the Contractor in the forming of the bridge deck is permissible providing that the holes are drilled and are located in the center half of the web and are uniformly spaced to avoid unsightly appearance. After their use the holes shall not be filled with weld metal, but must be filled with high strength bolts with hardened washers. Holes should not be permitted in the web of exterior beams which would be otherwise clear and unbroken, for example, a beam having no bolted diaphragm connections or vertical stiffeners.

Preferably, the proposed holes should be shown on the fabrication plans and drilled in the fabrication shop. If the proposed holes are not shown on the fabrication plans and drilled in the fabrication shop, a location plan and proposed procedure for drilling the holes must be submitted for approval by the Bureau of Bridges and Structures. Burning of holes will not be permitted under any circumstances.

3. No welding will be permitted on reinforcing bars unless specifically shown on the plans or provided for in the special provisions.

4. This memorandum is not to be construed in any way as taking precedence over restrictions included on the plans or in the special provisions.

If there are any questions concerning a proposal by a Contractor, you may wish to refer the Contractor's proposal to this office for review and consultation with the Bureau of Bridges and Structures.

Robert L. Hinton, P.E.
Engineer of Construction