



Illinois Department of Transportation

Division of Highways / Bureau of Construction
2300 South Dirksen Parkway, Springfield, Illinois 62764

Subject: **CONSTRUCTION MEMORANDUM NO. 07-72**
Structural Steel Damaged
During Deck Removal **Effective: May 15, 2007**
Expires: Indefinite

This Construction Memorandum supersedes Construction Memorandum 95-72, dated January 3, 1995.

Section 501.05 defines the proper procedures for partial removal of existing structures. Deck removal operations that result in jackhammer notches and gouges as well as concrete saw cuts in the top flanges of beams and girders are detrimental to the life of the structure. This type of damage results in stress concentrations that reduce the fatigue life of the structural steel. This could in turn result in fatigue cracking and ultimate failure of the member. Repair or replacement of damaged structural steel is expensive as well as time consuming.

Damage to structural steel can be minimized or eliminated if the Contractor places proper emphasis on controlling the deck removal process. The deck removal process should not result in any damage to the structural steel. However, should damage occur, the following guidelines are being issued to assist field personnel in assuring that proper corrective action is taken. These guidelines are not to be construed as a convenient method by which the Contractor can compensate for negligence in the deck removal process, but rather as a last resort when unavoidable damage has occurred.

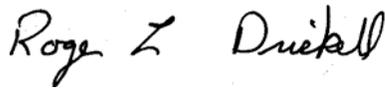
The Contractor will be required to hire a Structural Engineer to provide repair procedures and details for all damage done during the removal operation. No repair shall be undertaken without the recommendations of the Bureau of Bridges and Structures and the concurrence of the Bureau of Construction.

Although some damages may be insignificant, damage which appears insignificant may be major. Damage to the top flange in the negative moment area (steel in tension) on continuous beams or girders is a major concern. Any gouge, notch or depression greater than 1/16 inch (2 mm) deep shall be subject to review by the Bureau of Bridges and Structures. Typical repair procedures require the gouge to be ground smooth with a minimum slope of 1:3 (V:H). All final striations due to grinding shall be parallel to the longitudinal axis of the beam. To ensure that small micro-cracks are not generated during the grinding process, extreme pressure cannot be applied to the grinding tool in order to speed up the grinding operation. After grinding is completed, the area shall be checked with the dye penetrant or magnetic particle testing procedure. The term smooth is defined as American Standards Institute roughness value 250.

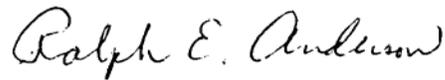
Gouges deeper than 1/4 inch (10 mm) may require specialized repair such as controlled welding accompanied by ultrasound testing, bolted flange plates over the

gouge, or other procedures deemed necessary to restore the integrity of the structural steel member.

Unless there is a preexisting condition, the Contractor will be responsible for all damage resulting from the deck removal operation as well as all cost associated with the corrective work required. Determination of whether or not there is a preexisting condition will require special diligence on the part of the inspector during the deck removal process.



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