AMENDMENTS TO OPSS 906 (FEB 93) - CONSTRUCTION SPECIFICATION FOR STRUCTURAL STEEL [1]

OPSS 906.07.01.01.01 is amended by the addition of the following:

All welding shall be undertaken by a company certified in Division 1 or Division 2 of CSA W47, "Certification of Companies for Fusion Welding of Steel Structures".

Welding procedures shall be submitted to the Commissioner and be signed by an Engineer licensed in the Province of Ontario.

All welders shall submit their welding certification at the outset of the work.

OPSS 906.07 is amended by the addition of the following subsections:

906.07.07 Rehabilitations

906.07.07.01 Scope

The work shall consist of various repairs to the existing structural steel as identified on the drawings or in the field by the Commissioner.

906.07.07.02 Submissions

A. The contractor shall prepare shop drawings and/or sketches for all repairs to be completed in the field. These shall be submitted to the Commissioner for review prior to fabrication. Indicated on these shop drawings in addition to the dimensions will be grade of material and the diameter of all holes. At the time of submitting shop drawings a detailed repair procedure shall also be provided.

All dimensions shall be verified in the field by the Contractor prior to fabrication.

All discrepancies noted between the dimensions obtained in the field and those shown on the drawings shall be reported to the Commissioner immediately.

1. All references to OPS specifications that have been amended (as noted in LIST T1) are superseded by references to the replacement City of Toronto specifications (as given in LIST T1).

B. Erection/repair procedures which are proposed to deviate from those outlined on the drawings or identified in the specifications shall also be identified in detail on the shop drawings.

C. Mill test certificates for all materials to be incorporated into the work shall be submitted for review prior to fabrication. This includes all bolts and other material.

906.07.07.03 Materials

High strength bolts and nuts shall be structural bolts, heavy hexagonal nuts and hardened washers complying with ASTM A325 or A490 as identified in the drawings.

Unless otherwise indicated, all plates shall conform to CSA Standard CAN3-G40.21-M97 Grade 350W.

906.07.07.04 Operational Constraints

Sufficient tools, equipment and labour shall be provided to complete one stage of the repairs in its entirety during one work period. Work which has begun and not completed in its entirety for whatever reason by the end of the work period, shall continue without delay to its conclusion. The Contractor may be directed by the Commissioner to provide additional tools, labour or equipment to ensure a rapid completion to a repair. Under no conditions will material be left such that it is absent or not adequately secured to the structure.

Prior to commencing repairs in each shift, the Contractor shall meet with the Commissioner to apprise him of the proposed work to be completed within that shift.

906.07.07.05 Workmanship

All welding shall be undertaken by a company certified in Division 1 or Division 2 of CSA W47, “Certification of Companies for Fusion Welding of Steel Structures”.

Welding procedures shall be submitted to the Commissioner and be signed by an Engineer licensed in the Province of Ontario.

All welders shall submit their welding certification at the outset of the work.

906.07.07.06 Execution

A. Holes to be made in the field shall only be drilled or reamed.

B. Reamed or drilled holes shall be cylindrical and perpendicular to the member.

C. All holes shall be either drilled full size or shall be subdrilled and reamed. Where practical, reamers shall be directed by mechanical means.

D. Burrs shall be removed.

E. Reaming or drilling full size holes shall be done using an existing member or a steel template with the utmost care as to position and angle.

F. For any connection, in lieu of subdrilling and reaming, holes may be drilled full size with all thickness of material assembled in the proper position.

G. When holes are reamed or drilled, 85% of the holes in any group shall, after reaming or drilling, show no offset greater than 1 mm between adjacent thickness of metal.

H. Heating to improve the alignment of holes shall not be allowed without the prior written approval of the Commissioner. All heating, cutting or welding must be surrounded by fire resistant tarps as well as having fire extinguishers present during the work.

I. Tack welds, approved for use by the Commissioner, shall be incorporated into the final weld or removed to the satisfaction of the Commissioner. Tack welds for the purpose of holding steel parts together while bolting takes place will not be permitted.

J. All existing steel to be strengthened or repaired shall be cleaned prior to commencing of any drilling or welding operations.

K. Rivets shall be removed by one of the following methods:

1. Shear rivet head using a pneumatic rivet breaker (helldog) and drive out rivet shank with pneumatic punch.

2. Flame cut rivet head 2 mm above the base metal using a rivet scarifying tip and drive out shank using a pneumatic punch. Flame cutting shall be done only by experienced operators approved by the Commissioner. Any damage to the base metal shall be repaired at the Contractor's expense to the satisfaction of the Commissioner.

3. If, in the opinion of the Commissioner, the rivet shanks cannot be removed by punching without damaging the base metal, the rivet shank shall be removed by drilling and paid for under the appropriate Provisional Item.

L. During rivet replacement, remove only one rivet at a time from anyone member for replacement with high strength bolts, unless otherwise authorized in writing by the Commissioner. The replacement bolt shall be installed snug tight prior to the removal of a subsequent rivet.

M. Upon removal of each rivet, plate or member, the base metal shall be examined for surface irregularities and deterioration. All oxidized materials shall be removed.

N. High strength bolts shall be installed in accordance with the AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts". Hardened washers shall be used under both the head and nut of high strength bolts.

O. Bolts shall be installed by the "Turn-of-Nut Method". The Contractor shall supply a calibrated (certified) torque wrench to ensure satisfactory tensions are being obtained.

906.07.07.07 Quality Control

Checks shall be made by the Contractor in the presence of the Commissioner's representative of the tension of the installed bolts using a calibrated torque wrench to rotate the nuts slowly a small amount in the tightening direction. Bolts giving readings below the calibrated torque value shall be further tightened. If satisfactory readings cannot be obtained, the bolts shall be removed and discarded.

Ten percent or a minimum of two bolts in any one connection shall be checked.

If one or more bolts in a connection is below the minimum tension as determined by the torque wrench, all of the bolts in that connection shall be checked.

OPSS 906.10.01 is amended by the addition of the following:

Fabricated structural steel that will be stored at the fabricator's premises or at some other location away from the Working Area will be paid for prior to delivery to the site only when indicated in the specifications and only when the Contractor obtains a lease of the storage area from the fabricator or other property owner which names the Owner as the tenant. The Owner will provide the form of lease for this purpose which will specify payment of $10.00 for the term of the lease. Payment in this situation shall only be made at a rate of 80% of the tender price bid for this item. The remaining 20% of the tender price bid will be made upon delivery to the site.

Unless otherwise specified in the Contract, no payment will be made for fabrication of structural steel until the structural steel is delivered to the site.