

SECTION 01220 - REPAIR DAMAGED REINFORCING BARS

(Follow all instructions and make all edits with "Track Changes" turned on. This Section is not published in the Oregon Standard. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project, unless the item(s) that are included in the subsection, paragraph, sentence, or bullet are not required on the Project and then they should be deleted. In general do not re-number or re-letter subsections when item(s) are deleted. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Section 01220, ~~which~~ is not a Standard Specification and, is included in this Project by Special Provision.

Description

01220.00 Scope - In addition to the requirements of Section 01201, Section 01210, Section 01235, Section 01240, Section 01245, and Section 01260, locate and repair damaged reinforcing bars according to the Specifications.

01220.02 Timing - Perform reinforcing bar repairs after removing all damaged concrete and blast-cleaning all exposed concrete and reinforcement according to Section 01235, and before:

- Patching concrete excavations (including excavation made in competent concrete under this Section) as specified in Section 01235
- Performing any Work under Section 01240
- Performing any installation Work under Section 01245
- Performing any Work other than initial abrasive blast under Section 01260

01220.03 Pre-Welding Conference - Before beginning the Work of this Section, attend a pre-welding conference with the Engineer, at a mutually agreed-upon date and time. Attendance is mandatory for the Contractor's supervisory personnel and the Contractor's Certified Welding Inspector (CWI). The pre-welding conference ~~shall~~ includes discussion of the Contractor's quality control responsibilities, documentation requirements, and welding procedures and Equipment; and demonstration(s) of welder(s) skills.

No later than 21 Calendar Days before the pre-welding conference, submit the following according to 00150.37:

- Descriptions of Materials to be used. Identify all relevant constituents and properties of each Material and the Specifications ~~with which~~ where it complies. Data published by the manufacturer is acceptable, except when certifications of Materials characteristics are required.

- Detailed procedures for performing the Work of this Section. Include the manufacturer's specifications and operating instructions for all Equipment, and:
- Welder certifications according to AWS D1.4
- Pre-approved Welding Procedure Specifications (WPS) or Procedure Qualification Record / Welding Procedure Specifications (PQR/WPS)
- Detailed procedures for electrode control measures
- Detailed procedures for achieving, maintaining and monitoring pre-heat and inter-pass temperatures

Do not schedule the Work until at least 21 Calendar Days after submitting procedures, and do not start Work until written approval is received from the Engineer.

Materials

01220.10 Reinforcing Bars - ~~Provide~~ Furnish uncoated, ASTM A706, Grade 60 reinforcing bars according to 02510.10.

01220.11 Welding Materials - Use weld Materials ~~conforming~~ according to the current version of AWS D1.4, "Structural Welding code - Reinforcing Steel". When using shielded metal arc welding (SMAW), ~~provide~~ furnish low-hydrogen electrodes.

Labor

01220.30 Welders; Welding Inspectors - Provide certified welders and welding inspectors according to AWS D1.4.

Construction

01220.40 Location Requirements - Mark all locations where exposed bars have 50 percent or more section loss. At all such locations, splice bars according to the following:

(a) Sidewalks, Miscellaneous Beams, and Walls - On sidewalks and their supports, and on miscellaneous beams and walls:

- Splice longitudinal and transverse bars at each location having at least 50 percent section loss.
- Splice every stirrup and hoop having a location with at least 50 percent section loss.

(b) Longitudinally Framed Floor Systems:

(1) Girders - In the bottoms of girders, splice every longitudinal bar at each location having at least 50 percent section loss. Use tied splices only.

Splice every stirrup having at least 50 percent section loss.

(2) Bottom of Deck Slabs - Splice every primary deck bar at each location having at least 50 percent section loss except within one half of a splice length of a supporting member.

(c) Transversely Framed Floor Systems:

(1) Transverse Floor Beams - In the bottoms of floor beams, splice every longitudinal bar at each location having at least 50 percent section loss. Use tied splices only.

Splice every stirrup having at least 50 percent section loss.

(2) Bottom of Deck Slabs - Splice every primary deck bar at each location having at least 50 percent section loss except within one half of a splice length of a supporting member. Use tied splices only.

01220.41 Repair Requirements - Remove sound concrete as necessary according to Section 01235, to leave a minimum of 3/4 inch clearance between the bar and concrete around the entire perimeter of all splice bars over their entire length. Remove any additional concrete that cracks or spalls during welding. Remove only as much sound concrete as needed to shape excavations for adequate patch retention. Avoid gouging or loosening rebar and damaging sound concrete outside of splice areas.

~~Provide~~ ~~Furnish~~ splice bars with cross sectional area equal to or greater than the section loss of the bar being repaired. Repair round bars with splice bars the same diameter as the original bars. Repair square bars with round splice bars of a diameter equal to the thickness of the square bars. Extend splice bars both ways beyond the area of 50 percent section loss for at least the minimum splice length shown.

If feasible, place splice bars so as to allow 1/2 inch of concrete cover without raising the original concrete surface. ~~Provide~~ ~~Furnish~~ enough wire ties to keep the splice bar in position during the placement of concrete cover and to provide electrical continuity between existing and new bars.

Except where tied splices are specified, tied or welded splices are allowed.

Perform all weld splicing according to ANSI/AWS D1.4, "Structural Welding Code - Reinforcing Steel". Since the carbon content of existing reinforcement is unknown, assume that preheating is required under ANSI/AWS D1.4. Limit the temperature of reinforcing bar at concrete interface to 500 °F or less, verified using an infrared thermometer.

Perform weld inspection according to ANSI/AWS D1.4. A Certified Welding Inspector ~~shall~~ mark each inspected weld.

01220.42 Documentation - Provide a map in an approved electronic format detailing the locations of all rebar repairs within ± three inches.

Measurement

01220.80 Measurement - The quantities of reinforcing bar repair Work will be measured on the unit basis, by count of splice bars installed.

Payment

01220.90 Payment - The accepted quantities of reinforcing bar repair Work will be paid for at the Contract unit price, per each, for the item "Repair Damaged Reinforcing Bars".

Payment will be payment in full for furnishing and placing all Materials, and for furnishing providing all Equipment, labor and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for documentation of repairs.