

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
HEAT STRAIGHTENING DAMAGED STRUCTURAL STEEL

STR:JAB

1 of 3

APPR:MJF:REL:06-04-24
FHWA:APPR:06-10-24

a. Description. This work consists of heat straightening as shown on the plans and as directed by the Engineer. Perform the work in accordance with subsections 713.03.G and 707.03.E.7 of the Standard Specifications for Construction and as specified herein.

Ensure all work is performed by the key staff listed on the heat straightening contractor's prequalification and in the presence of Bureau of Bridges and Structures' personnel along with the Engineer.

Work types:

- Type 1. Localized Damage (prequalification N9-1H or N9-1I permitted)
- Type 2. Complex Heat Straightening and High Load Hits (prequalification N9-1I required)

b. Materials. None specified.

c. Heat Straightening Plan. Submit MDOT Form 0388, along with a Heat Straightening Plan, for review and approval by the Engineer a minimum of 28 days prior to the start of heat straightening operations. Allow 14 days for each subsequent review needed to obtain an approved plan. No extension of time will be granted for plan reviews. Ensure the heat straightening plan is sealed by a Professional Engineer licensed in the State of Michigan who has developed heat straightening designs/plans and assisted in the completion of a minimum of 5 heat straightening projects of similar scope and size to the repairs required in the contract.

The heat straightening plan must include, but is not limited to, the following:

1. Scope of work including locations, photos, and description of the damage.
2. Applicable codes for the work.
3. Qualifications for the licensed engineer preparing the plan.
4. Calculations and drawings including all loads, tolerances, and restraining apparatus.
5. Step by step procedure for all repairs.
6. Equipment including restraining apparatus.
7. Key staff doing the work and indication of person with the authority and responsibility to take all actions necessary for the successful implementation of the heat straightening plan.

d. Pre-Heat Straightening Meeting. Hold a pre-heat straightening meeting to discuss the heat straightening plan in detail. In addition to the Engineer and Bureau of Bridges and Structures' personnel, all Contractor staff, including the heat straightening contractor staff listed on the heat straightening plan, must attend the meeting and record their name on a sign in sheet. The licensed engineer that sealed the heat straightening plan must also be in attendance for Type 1 work performed by a Contractor with heat straightening prequalification N9-1H, and all Type 2 work.

Furnish the Engineer with a meeting notification at least 10 days prior to the meeting date and include the meeting time, location, and call-in number. Ensure the heat straightening plan is approved by the Engineer and reviewed by the Bureau of Bridges and Structures prior to the pre-heat straightening meeting.

e. Construction. Perform all work in accordance with the standard specifications and as specified herein. Ensure the approved heat straightening plan is followed.

Ensure all deformed areas and all weldments located adjacent to areas to be heat straightened are 100 percent visual testing (VT) inspected by an AWS Certified Welding Inspector (CWI) and 100 percent magnetic particle testing (MT) inspected by an American Society of Nondestructive Testing (ASNT) Level II technician before and after heat straightening. Ensure inspection is in accordance with the standard specifications.

Ensure the licensed engineer that sealed the heat straightening plan is present during all heat straightening work for Type 1 work performed by a Contractor with heat straightening prequalification N9-1H and all Type 2 work.

If hydraulic pressure is necessary to provide restraining force, furnish calibrated equipment with pressure gauges. Furnish certification that the equipment and gauges were calibrated as a set annually.

Increasing the set hydraulic pressure or restraining force during heat cycles is not permitted.

f. Measurement and Payment. The completed work, as described, will be measured as a lump sum and paid for at the contract price using the following pay item:

Pay Item	Pay Unit
Heat Straightening Type 1 (Structure Identification).....	Lump Sum
Heat Straightening Type 2 (Structure Identification).....	Lump Sum

1. Heat Straightening Type 1 (Structure Identification) includes the cost of attaining the required structural steel position, field welding, and NDT in accordance with subsection 707.03.E.7 of the Standard Specifications for Construction. The Department will pay for crack repair not shown on the plans as extra work. Payment also includes all costs associated with preparing the heat straightening plan, providing the licensed engineer on site when applicable, and coordination with the Bureau of Bridges and Structures.

2. Heat Straightening Type 2 (Structure Identification) includes the cost of attaining the required structural steel position, field welding, and NDT in accordance with subsection 707.03.E.7 of the Standard Specifications for Construction. The Department will pay for crack

repair not shown on the plans as extra work. Payment also includes all costs associated with preparing the heat straightening plan, providing the licensed engineer on site, and coordination with the Bureau of Bridges and Structures.