NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
H-PILE
WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.5

Specifications & Codes: NCDOT Standard Specifications/AASHTO/AWS D1.5, Section 2, 5 and 12


Filler Metal Specification: AWS A5.1 Classification: E-7018

Manufacturer: NCDOT Approved Electrodes Single or Multiple Pass both Position of Weld Flat, Horizontal, Vertical, Overhead

Welding Current: DC Polarity: Positive Progression: Vertical – up

Root Treatment: Back Gouge with a grinder to sound metal prior to applying the back weld.

Preheat Temp: 100° minimum Interpass: 450° maximum Post Heat: N/A

<table>
<thead>
<tr>
<th>Pass Num.</th>
<th>Electrode Size</th>
<th>Welding Current</th>
<th>Travel Speed</th>
<th>Joint Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>1/8”</td>
<td>90-150 Amperes, 20-23 Volts, 6-9 ipm</td>
<td>6-10 ipm</td>
<td>SEE ATTACHMENT</td>
</tr>
<tr>
<td>All</td>
<td>5/32”</td>
<td>120-200 Amperes, 21-24 Volts,</td>
<td></td>
<td></td>
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</table>

**PREHEAT**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Min. Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3/4”</td>
<td>100°</td>
</tr>
<tr>
<td>Over 3/4” to 1 1/2”</td>
<td>100°</td>
</tr>
<tr>
<td>Over 1 1/2” to 2 1/2”</td>
<td>150°</td>
</tr>
<tr>
<td>Over 2 1/2”</td>
<td>225°</td>
</tr>
</tbody>
</table>

**COMMENTS:**

Any distorted material in the web or flanges that was damaged by the pile driving process shall be removed.

Remove all coating, rust, dirt and mill scale within one inch of the area to be welded prior to fit-up.

The theoretical alignment of the pieces joined shall be within 10% of the thickness of the material, as required by the AWS D1.5 Bridge Welding Code.

Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description H-PILE Written By: Randy Dempsey, CWI/CWE, TT IV

Signature: [Signature]

WPS #: 080508001 Authorized By: Steve Walton, Metals Engineer

Revision #: 4 Signature: [Signature]
WPS H-PILE 080508001 R4 JOINT DETAIL ATTACHMENT

△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL

△ POSITION OF PILE DURING WELDING

H-PILE SPLICE DETAILS

Weld Symbol definitions per AWS A2.4:2007

- BACK WELD, OTHER SIDE
- V WELD, ARROW SIDE WITH BEVEL ANGLE
- Back Gouge Required before welding side two
- BACKGOUGE DETAIL "A"
- BACKGOUGE DETAIL "B"
- BACK FIELD WELD, ARROW SIDE WITH BEVEL ANGLE
Illustrations for H-Pile Fit-Up

45 degree bevel on inside of flange and right side of web, inspection of the bevel angle.

Runoff tabs are recommended but not required. The tabs make it easier to fill the groove at the end of the flanges.
Illustrations for H-Pile Welding

Unacceptable Weld (material was not beveled before fit-up, mis-alignment is greater than the allowable 10%, incomplete weld, incomplete fusion)

Acceptable (filled to full cross section, run-off tabs removed and edge was finished with a grinder)

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)