NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STUD 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: N/A

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 1/8&quot;</td>
<td>5/32&quot;</td>
<td>90-150, 120-200</td>
<td>20-23, 21-24</td>
<td>6-9 ipm, 6-10 ipm</td>
</tr>
</tbody>
</table>

PREHEAT

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

COMMENTS:

Remove the protrusion from the bottom of the stud and all coating, rust, dirt and mill scale within one inch of the area to be welded prior to fit-up. Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description: Stud Welding

Written By: Randy Dempsey, CWI/CWE, Transportation Technician IV

Signature: [Signature]

WPS #: 012009007

Authorized By: Steve Walton, Metals Engineer

Revision #: 4

Signature: [Signature]
WPS STUD WELDING 012009007 R4 JOINT DETAIL ATTACHMENT

STUD WELDING DETAILS

Weld Symbol definitions per AWS A2.4:2007

FIELD WELD SYMBOL

FILLET WELD, ARROW SIDE with WELD SIZE

WELD ALL AROUND

5/16"
Illustrations for Stud Welding.

Unacceptable weld (too small)

Acceptable weld

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)