

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PARTIAL JOINT PENETRATION JACK AND BORE

WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.1

Specifications & Codes: NCDOT Standard Specifications/AWS D1.1, Sections 2 thru 6

Material Specifications: ASTM A-36, A500, A529, A572, (A709-36, 50), (M270-GR250, 345) Unlimited Thickness

Welding Process: SMAW Manual or Semi- Automatic or Automatic: Manual

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

| Pass Num. | Electrode Size | Welding Current | | Travel Speed | Position | Joint Details | |
|-----------|----------------|-------------------|----------------|---------------------|------------|-----------------|--|
| | | Amperes | Volts | | | | |
| All | 1/8" 5/32" | 90-150 120-200 | 20-23 21-24 | 6-9 ipm 6-10 ipm | All All | SEE ATTACHMENTS | |
| | | | | | | | |

| PREHEAT | |
|-----------------------|------------|
| Thickness | Min. Temp. |
| Up to 3/4" | 100° |
| Over 3/4" to 1 1/2" | 100° |
| Over 1 1/2" to 2 1/2" | 150° |
| Over 2 1/2" | 225° |

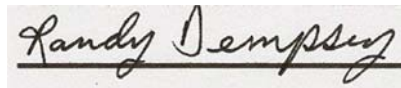
COMMENTS:

Remove all coating, rust, dirt and mill scale within one inch of the area to be welded. Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description: PARTIAL JOINT PENETRATION Jack & Bore

Written By: Randy Dempsey, CWI/CWE, TT IV

Signature:

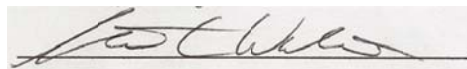


WPS #: 020612031

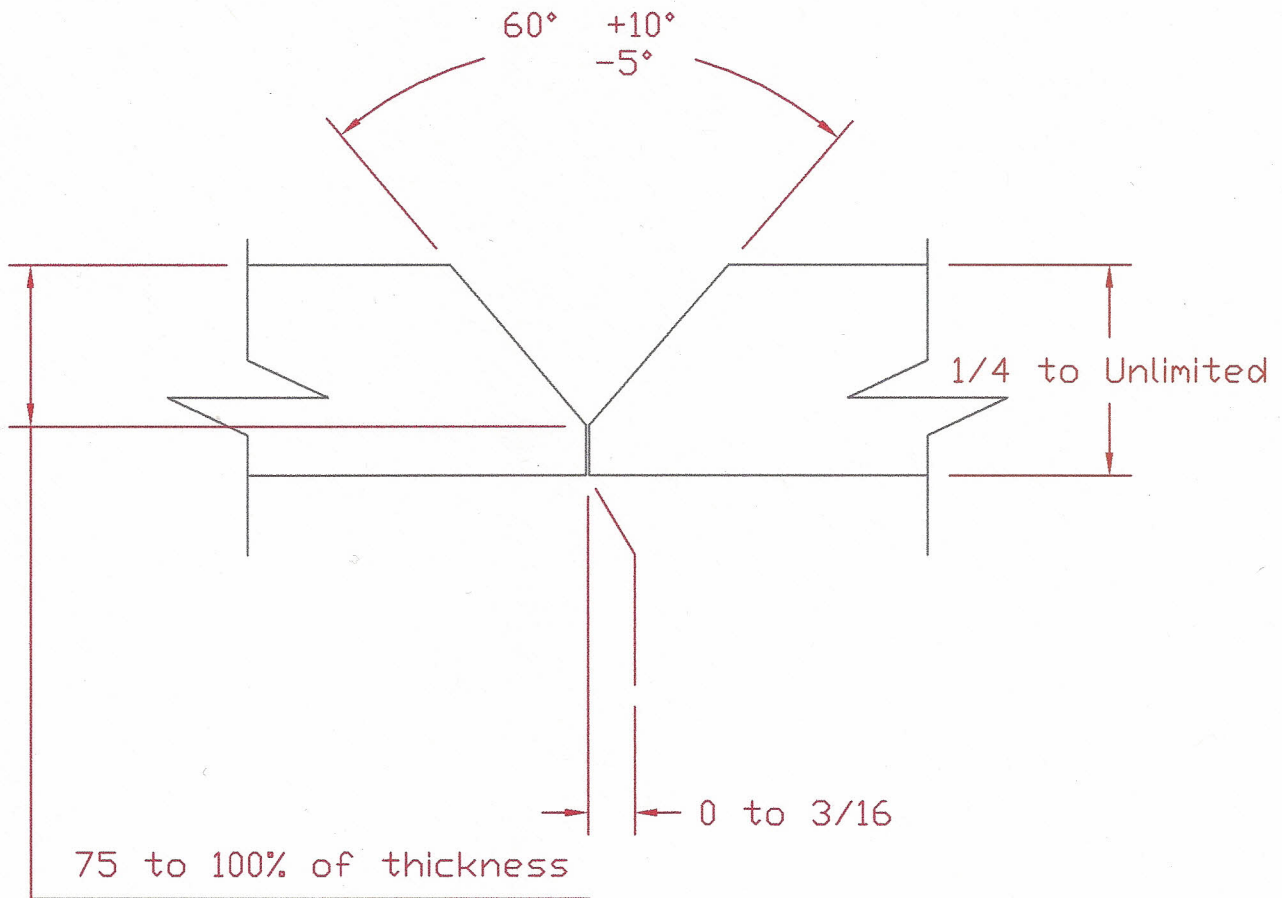
Authorized By: Steve Walton, Metals Engineer

Revision #: 1

Signature:

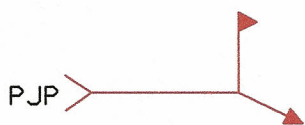


NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)

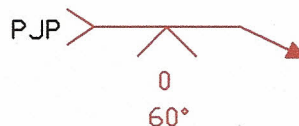


PARTIAL JOINT PENETRATION Jack & Bore SINGLE V GROOVE JOINT DETAILS

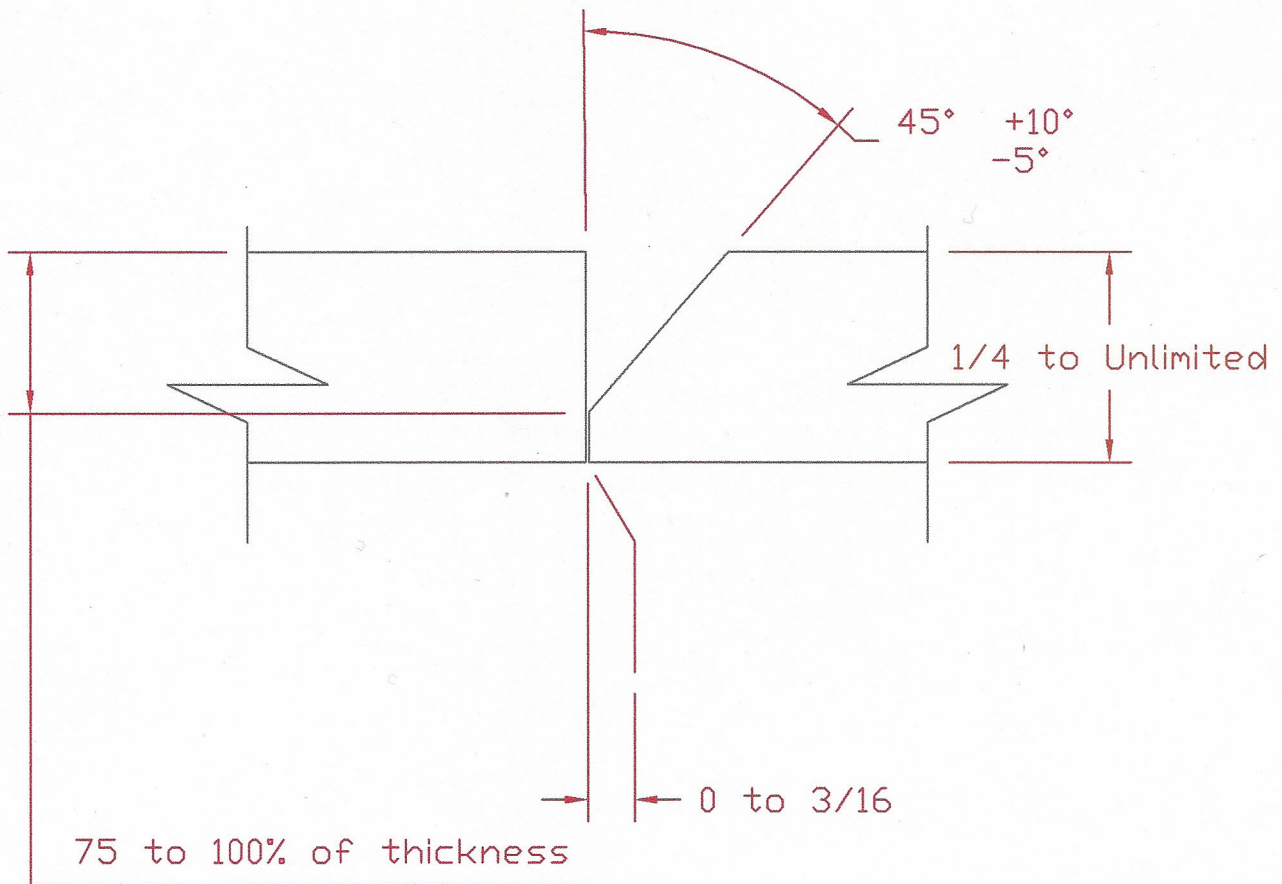
Weld Symbol definitions per AWS A2.4:2007



FIELD
WELD
SYMBOL

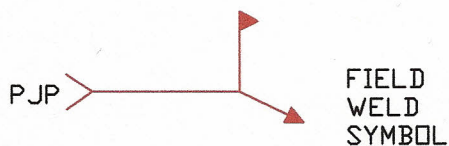


Single V Groove,
w/Root Opening and
Groove Angle



PARTIAL JOINT PENETRATION
Jack & Bore SINGLE BEVEL
JOINT DETAILS

Weld Symbol definitions per AWS A2.4:2007



Illustrations for a partial joint penetration Jack & Bore.



Typical fit-up using a 45 degree Single Bevel.



Typical fit-up using a 60 degree Single V-groove.



Typical appearance after cleaning first pass.



Completed weld

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)