

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SINGLE V-GROOVE WITH BACKING

WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.5

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

Material Specifications: ASTM A-36, 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: N/A

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"	90-150	20-23	6-9 ipm	All Flat, Horizontal	SEE ATTACHMENT
	5/32"	120-200	21-24	6-10 ipm		
	3/16"	170-280	21-24	6-11 ipm		

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°

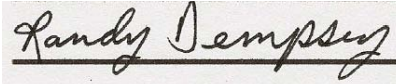
COMMENTS:

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.

The backing material needs to be in intimate contact with the base metal, but in all cases shall have no more than 1/16" gap (see attachment).

WPS Description: Single V-Groove With Backing

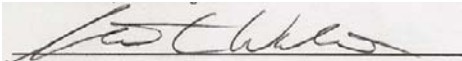
Written By: Randy Dempsey, CWI/CWE, TT IV

Signature: 

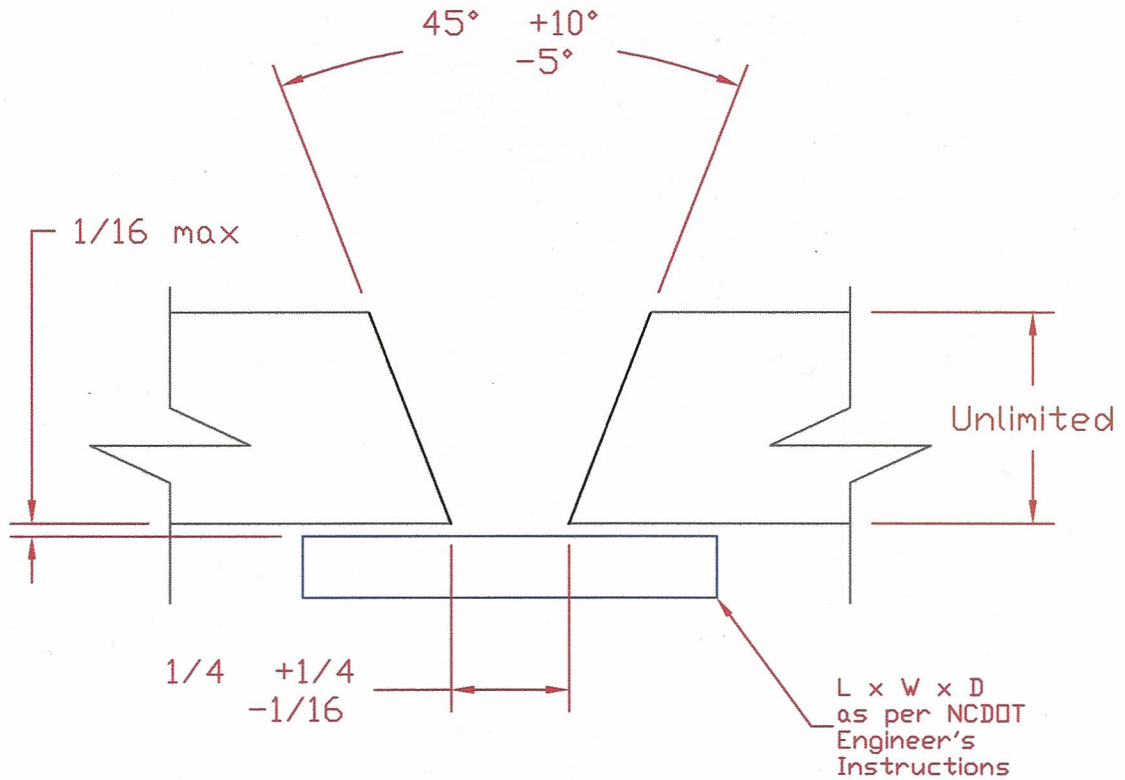
WPS #: 031711021

Authorized By: Steve Walton, Metals Engineer

Revision #: 1

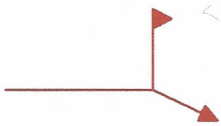
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WPS SINGLE V GROOVE with Backing 031711021 R1
JOINT DETAIL ATTACHMENT

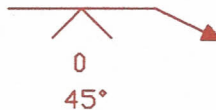


SINGLE V GROOVE with Backing
JOINT DETAILS

Weld Symbol definitions per AWS A2.4:2007



FIELD
WELD
SYMBOL

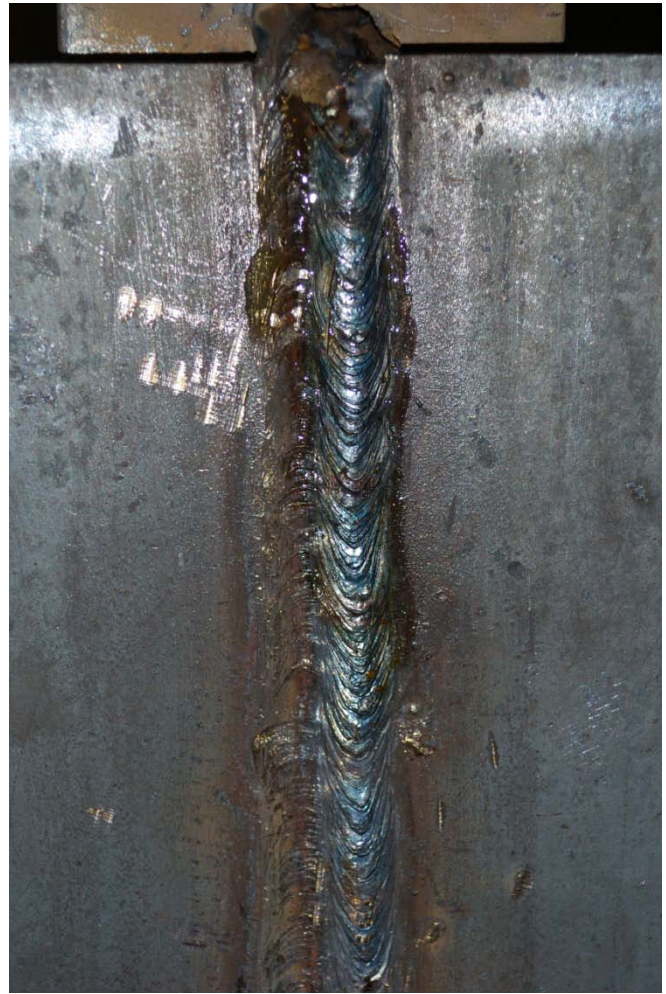


Single V Groove,
w/Root Opening and
Groove Angle

Illustrations for single V-Groove with backing.



Fit-up.



Completed weld.

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)