Royal Metal Industries, LLC

Home Builder Division

February 8, 2023

Permit# 20222104

Address: 1608 SW 27th St
Whispering Woods Lot 47
Lees Summit, MO 64082

Welded connections for: New Mark Homes

Welding rod 7018, per industry standards was used by our certified welder, Dan Brown, contracted employee through Royal Metal Industries.

Weld Certification attached.

Best Regards,

Laura Schinkel
Customer Representative
Royal Metal Industries
913-440-0026

ROYAL METALS INDUSTRIES

Welding Operator Qualification Test Record

RMI-SMAW-OH-DB

WQTR No. RMI-SMAW-OH-DB Welder Name DAN BROWN Welder Id DB

WPS No. RMI-SMAW Revision Date 2/27/2018

Variables	Record Actual Values Used In Qualification	Qualification Range
Process (Table 4.10, Item (1))	SMAW	SMAW-MILD STEEL GROUPS
Transfer Mode (GMAW): Short-Cir. ☐ Globular ☐ Spray ☐		Short-Circuiting ☐ Globular ☐ Spray ☐
Type Manual ☒ Machine ☐ Semi-Auto ☐ Auto ☐		Manual ☒ Machine ☐ Semi-Auto ☐ Auto ☐
Number of Electrodes Single ☐ Multiple ☐		Single ☐ Multiple ☐
Current/Polarity AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐		AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐
Position (Table 4.10, Item (4))	Overhead	Flat, Overhead, Horizontal, 4G
Weld Progression: (Table 4.10, Item (6)) Up ☐ Down ☐		Up ☐ Down ☐
Backing [Table 4.10, Item (7)]	Use Backing ☒	With Backing ☒ Without Backing ☒
Consumable Insert (GTAW)	Use Insert ☐	With Insert ☐ Without Insert ☐
Material/Spec.	A-36 to A-36	MILD STEEL GROUPS
Thickness (Plate): Groove (in)	.375	.125 - .750 in
Fillet (in)	.375	Any - Any in
Thickness (Pipe/tube): Groove ( )		-
Fillet ( )		-
Diameter(Pipe): Groove ( )		-
Fillet ( )		-
Notes		
Filler Metal (Table 10, Item (2))		
Spec.	5.1	
Class.	E-7018 LH	
F-No.	4	
Gas/Flux Type (Table 4.10, Item (3))		
Other		

VISUAL INSPECTION (4.8.1) Acceptable Yes

GUIDED BEND TEST RESULTS (4.30.5)

Type	Result	Type	Result
ROOT	PASSED	FACE	PASSED
ROOT	PASSED	FACE	PASSED

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance GOOD Fillet Size .340" Macroetch SOUND

Fracture Test Root Penetration COMPLETE Description PASSED

Inspected By Test No. RMI Organization A-Z WELDER Date 2/27/2018

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification No.	Result	Remark

Interpreted By

Organization

Test No.

Date

AWS QC1 RICHARD P CADY 91010241 CWI

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of ANSI/AWS D1.1, (2015) Structural Welding Code-Steel.

Manufacturer ROYAL METALS INDUSTRIES Authorized By Date 2/27/2018

ROYAL METALS INDUSTRIES

Welding Operator Qualification Test Record

RMI-SMAW-V-DB

WQTR No. RMI-SMAW-V-DB Welder Name DAN BROWN Welder Id

WPS No. RMI-SMAW Revision Date 2/27/2018

Variables	Record Actual Values Used In Qualification	Qualification Range
Process (Table 4.10, Item (1))	SMAW	SMAW-MILD STEEL GROUPS
Transfer Mode (GMAW): Short-Cir. ☐ Globular ☐ Spray ☐		Short-Circuiting ☐ Globular ☐ Spray ☐
Type Manual ☒ Machine ☐ Semi-Auto ☐ Auto ☐		Manual ☒ Machine ☐ Semi-Auto ☐ Auto ☐
Number of Electrodes Single ☐ Multiple ☐		Single ☐ Multiple ☐
Current/Polarity AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐		AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐
Position (Table 4.10, Item (4))	Vertical	Flat, Vertical, Horizontal, 3G
Weld Progression: (Table 4.10, Item (6)) Up ☒ Down ☐		Up ☒ Down ☐
Backing [Table 4.10, Item (7)]	Use Backing ☒	With Backing ☒ Without Backing ☒
Consumable Insert (GTAW)	Use Insert ☐	With Insert ☐ Without Insert ☐
Material/Spec.	A-36 to A-36	MILD STEEL GROUPS
Thickness (Plate): Groove (in)	.375	.125 - .750 in
Fillet (in)	.375	Any - Any in
Thickness (Pipe/tube): Groove ( )		-
Fillet ( )		-
Diameter(Pipe): Groove ( )		-
Fillet ( )		-
Notes		
Filler Metal (Table 10, Item (2))		
Spec.	5.1	
Class.	E-7018 LH	
F-No.	4	
Gas/Flux Type (Table 4.10, Item (3))		
Other		

VISUAL INSPECTION (4.8.1) Acceptable Yes

GUIDED BEND TEST RESULTS (4.30.5)

Type	Result	Type	Result
ROOT	PASSED	FACE	PASSED
ROOT	PASSED	FACE	PASSED

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance GOOD Fillet Size .310" Macroetch SOUND

Fracture Test Root Penetration COMPLETE Description PASSED

Inspected By Test No. RMI Organization A-Z WELDER Date 2/27/2018

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification No.	Result	Remark

Interpreted By

Organization

Test No.

Date

AWS QC1 RICHARD P CADY 91010241 CWI

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of ANSI/AWS D1.1, (2015) Structural Welding Code-Steel.

Manufacturer ROYAL METALS INDUSTRIES Authorized By Date 2/27/2018

ROYAL METALS INDUSTRIES

Procedure Qualification Record

RMI-SMAW

PQR No. RMI-SMAW Revision ____ Date ____ By ____

Authorized By ____ Date ____ Type Manual ☒ Machine ☐

Welding Process(es) SMAW Reference WPS No. RMI-SMAW Semi-Auto ☐ Auto ☐

JOINT

Type Butt

Backing Yes ☐ No ☒ Single Weld ☐ Double Weld ☒

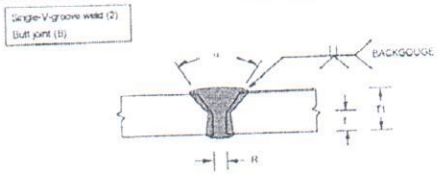
Backing Material BACK WELD

Root Opening 3/32" Root Face Dimension 3/32"

Groove Angle 60 Radius (J-U) ____

Back Gouging Yes ☒ No ☐

Method GRIND AND BRUSH



Welding Process	Joint Designation	Base Metal Thickness (Unlimited) T1	T2	Groove Preparation: Root Opening / Root Face / Groove Angle	Tolerances: As Detailed (Sec 3.13.1)	Tolerances: As Fit Up (Sec 3.13.1)	Permitted Welding Positions	Notes
SMAW	B-U2	U	-	R = 0 to 1/8 f = 0 to 1/8 α = 60°	+1/16, -0 +1/16, -0 +10°, -0°	+1/16, -1/8 Not limited +10°, -5°	All	C, D, N

BASE METALS

Material Spec A-36 to A-36

Type or Grade ____ to ____

Thickness: Groove (in).375 Fillet (in).375

Diameter (Pipe,) ____

FILLER METALS

AWS Specification 5.1

AWS Classification E-7018 LH

SHIELDING

Flux ____ Gas ____

Composition ____

Electrode-Flux (Class) ____ Flow Rate ____

Gas Cup Size ____

PREHEAT

Preheat Temp., Min. 50 F

Interpass Temp., Min. 50 F Max. 450 F

POSTWELD HEAT TREATMENT

Required ☐

Temp. ____

Time ____

POSITION

Position of Groove Vertical Fillet Vertical

Vertical Progression: Up ☒ Down ☐

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW):

Short-Circuiting ☐ Globular ☐ Spray ☐

Current: AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐

Other ____

Tungsten Electrode (GTAW):

Size ____ Type ____

TECHNIQUE

Stringer or Weave Bead Both

Multi-pass or Single Pass (per side) Both

Number of Electrodes 1

Electrode Spacing: Longitudinal ____

Lateral ____ Angle ____

Contact Tube to Work Distance ____

Peening ____

Interpass Cleaning GRIND-BRUSH

WELDING PROCEDURE

Layer/Pass	Process	Filler Metal Class	Diameter	Cur. Type	Amps or WFS	Volts	Travel Speed	Other Notes
1-n	SMAW	E-7018 LH	5/32"	DCEP	130 A	20 V	7IPM	BACK GOUGE BACK WELD

AWS QC1

RICHARD P CADY
91010241
CWI

ROYAL METALS INDUSTRIES

Procedure Qualification Record

RMI-SMAW

TEST RESULTS

TENSILE TEST

Specimen no.	Width	Thickness	Area	Ultimate tensile load, lb	Ultimate unit stress, psi	Character of failure and location

GUIDED BEND TEST

Specimen no.	Type of bend	Result	Remark
1	ROOT	PASSED	
2	FACE	PASSED	
3	ROOT	PASSED	
4	FACE	PASSED	

VISUAL INSPECTION

Appearance: GOOD

Undercut: NONE

Piping porosity: NONE

Convexity: SLIGHT

Test date: 2/27/2018

Witnessed by: _____

Other Test

GROOVES AND FILLETS AWS D1.1 STRUCTUAL CODE

Radiographic-ultrasonic examination

RT report no: _____ Result _____

UT report no: _____ Result _____

FILLET WELD TEST RESULTS

Minimum size multiple pass

Macroetch

1. _____ 3. _____

2. _____

Maximum size single pass

Macroetch

1. .295" 3. PASSED

2. .310"

All-weld-metal tension test

Tensile strength, psi _____

Yield point/strength, psi _____

Elongation in 2 in.,% _____

Laboratory test no. _____

Welder's name: DAN BROWN Clock no. _____ Stamp no. DB

Test conducted by: A-Z WELDER Laboratory

Test number: RMI Per: AWS D1.1

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of ANSI/AWS D1.1, 2015) Structural Welding Code-Steel.

AWS QC1 RICHARD P CADY 91010241 CWI

Manufacturer: ROYAL METALS INDUSTRIES By _____ Date: 2/27/2018

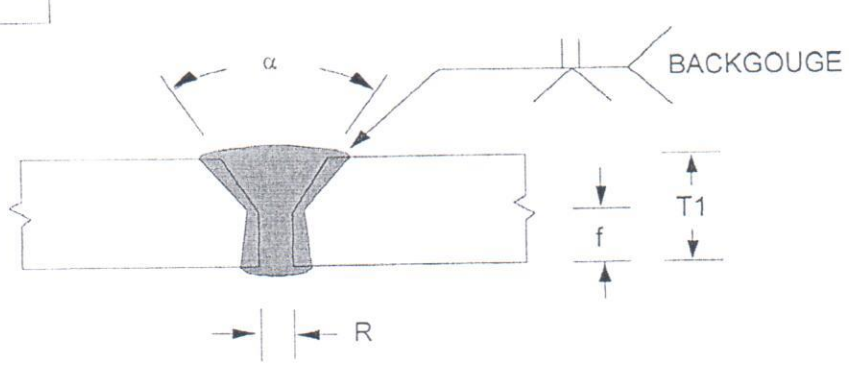
Title

ROYAL METALS INDUSTRIES

Procedure Qualification Record

RMI-SMAW

Single-V-groove weld (2)
Butt joint (B)



Welding Process	Joint Designation	Base Metal Thickness (U=unlimited)		Groove Preparation			Permitted Welding Positions	Notes
				Root Opening Root Face Groove Angle	Tolerances As Detailed (see 3.13.1)	Tolerances As Fit Up (see 3.13.1)		
		T1	T 2					
SMAW	B-U2	U	-	R = 0 to 1/8 f = 0 to 1/8 α = 60°	+1/16, -0 +1/16, -0 +10°, -0°	+1/16, -1/8 Not limited +10°, -5°	All	C, D, N

MEMO

AWS D1.1 STRUCTURAL CODE- GROOVES AND FILLETS

AWS D1.1
RICHARD P CADY
91010241
CWI