

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W455

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588, A-240 TYPE 304
WELDING PROCESS: SHIELDED METAL ARC WELDING
MANUAL OR MACHINE: MANUAL
POSITION OF WELDING: IF AND 2F
FILLER METAL SPECIFICATION: AWS A5.4
WELD METAL CLASSIFICATION: E7018
WIRE/FLOW: D.N.A.
POLARITY: DC+ ON AC
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1/8 INCH
SHIELDING GAS: D.N.A.

MINIMUM PREHEAT AND INTERPASS TEMPERATURE

THICKNESS OF THICKEST PART AT POINT OF WELDING - INCHES

ASTM A-36, A-572 AND A-588
MSB, M223 AND M232
ASTM A789, GRADE 68
ASTM A789, GRADE 68
ASTM A789, GRADE 68

TO 1/8 INCL. 100°F

OVER 1/8 TO 1/4 INCL. 200°F

OVER 1/4 TO 3/8 INCL. 300°F

OVER 3/8 INCL. 350°F

REVISION: 02/08/93
ORIGINAL ISSUE: 01/01/92

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W33X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	368-448	114-146	25.8-36.8	11.8-27.8	368-448	114-146	25.8-36.8	11.8-27.8

JOINT DETAIL: 1/4" FILLET WELD

PRIMARY USE: STIFFENER TO WEB (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W2

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SHIELDED METAL ARC WELDING
MANUAL OR MACHINE: MANUAL
POSITION OF WELDING: ALL (EXCEPT AS NOTED BELOW)
FILLER METAL SPECIFICATION: AWS A5.1 AND A5.5
WELD METAL CLASSIFICATION: E7018/7020 (TACKLING ONLY) AND E8018-1/3
WIRE/FLOW: D.N.A.
POLARITY: DC+ ON AC
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1/8 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	55-55	68-185	6-9	TACK WELDS

JOINT DETAIL: TACK WELDS

PRIMARY USE: STIFFENER TO WEB (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W1X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC OR PARALLEL ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	485-455	127-173	32.7-36.8	17.8-25.8
2-3	458-558	153-217	32.7-36.8	13.5-21.8
4*	682-1888	123-182	34.8-41.8	28.8-32.8

JOINT DETAIL: B-1.2c-S

PRIMARY USE: WEB TO FLANGES (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD 95-3 (EXPIRES 2/6/98)
PROCEDURE QUALIFICATION RECORD 95-4 (EXPIRES 2/17/98)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W33X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588, A240 TYPE 304
WELDING PROCESS: GAS TUNGSTEN ARC WELDING
MANUAL OR MACHINE: MANUAL
POSITION OF WELDING: 2F
ELECTRODE SPECIFICATION: AWS A5.12
ELECTRODE CLASSIFICATION: E6010 (OR EQUIVALENT)
FILLER METAL: AUTOMATIC WELD
ELECTRODE SIZE: 3/16
NOZZLE SIZE: 46 (3/8)
POLARITY: DC-
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: NONE
SHIELDING GAS: 100% ARGON

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	54-68	11.2-12.8	3.8-5.8	18.8-25.8

JOINT DETAIL: 1/4" FILLET WELD

PRIMARY USE: MACHINE SHOP - STAINLESS STEEL OVERLAY (AND OTHER APPLICATIONS AS NEEDED)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W74X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	485-455	127-173	32.7-36.8	17.8-25.8
2-3	458-558	153-217	32.7-36.8	13.5-21.8
4*	682-1888	123-182	34.8-41.8	28.8-32.8

JOINT DETAIL: B-1.2c-S

PRIMARY USE: WEB TO FLANGES (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD 95-3 (EXPIRES 2/6/98)
PROCEDURE QUALIFICATION RECORD 95-4 (EXPIRES 2/17/98)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W74X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	485-455	127-173	32.7-36.8	17.8-25.8
2-3	458-558	153-217	32.7-36.8	13.5-21.8
4*	682-1888	123-182	34.8-41.8	28.8-32.8

JOINT DETAIL: B-1.2c-S

PRIMARY USE: WEB TO FLANGES (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD 95-3 (EXPIRES 2/6/98)
PROCEDURE QUALIFICATION RECORD 95-4 (EXPIRES 2/17/98)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W43X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	368-448	114-146	25.8-36.8	11.8-27.8

JOINT DETAIL: 1/4" FILLET WELD

PRIMARY USE: STIFFENER TO FLANGE (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W5

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: FLOW CORED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC
POSITION OF WELDING: ALL POSITION TACK WELDS
FILLER METAL SPECIFICATION: AWS A5.9
WELD METAL CLASSIFICATION: E717-1
WIRE/FLOW: LINCOLN OUTERSHIELD 710-W
WIRE DIAMETER: 3/32 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 3/8 INCH
SHIELDING GAS: 100% CO2

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	215-243	44-588	24.3-22.8	22.8-28.8

JOINT DETAIL: TACK WELDS

PROCEDURE QUALIFICATION RECORD FCM-84-3 (EXPIRES 9/27/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W5

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: FLOW CORED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC
POSITION OF WELDING: ALL POSITION TACK WELDS
FILLER METAL SPECIFICATION: AWS A5.9
WELD METAL CLASSIFICATION: E717-1
WIRE/FLOW: LINCOLN OUTERSHIELD 710-W
WIRE DIAMETER: 3/32 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 3/8 INCH
SHIELDING GAS: 100% CO2

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	215-243	44-588	24.3-22.8	22.8-28.8

JOINT DETAIL: TACK WELDS

PROCEDURE QUALIFICATION RECORD FCM-84-3 (EXPIRES 9/27/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W43X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	368-588	187-182	23.8-37.3	14.8-23.8

JOINT DETAIL: B-1.1a-S

PRIMARY USE: STIFFENER TO FLANGE (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W43X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	368-588	187-182	23.8-37.3	14.8-23.8

JOINT DETAIL: B-1.1a-S

PRIMARY USE: STIFFENER TO FLANGE (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W43X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588
WELDING PROCESS: SUBMERGED ARC WELDING
MANUAL OR MACHINE: SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING: 2F
FILLER METAL SPECIFICATION: AWS A5.17
WELD METAL CLASSIFICATION: F742-EM12X
WIRE/FLOW: LINCOLN L61/781
WIRE DIAMETER: 3/16 INCH
SINGLE OR MULTIPLE ARC: SINGLE ARC
POLARITY: DC+
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: SEE PREHEAT CHART
ELECTRICAL STICK-OUT: 1 INCH
SHIELDING GAS: D.N.A.

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	368-448	114-146	25.8-36.8	11.8-27.8

JOINT DETAIL: 1/4" FILLET WELD

PRIMARY USE: STIFFENER TO FLANGE (AND OTHER APPLICATIONS AS NEEDED)

PROCEDURE QUALIFICATION RECORD FCM-84-16 (EXPIRES 10/11/97)
PROCEDURE QUALIFICATION RECORD FCM-84-17 (EXPIRES 10/12/97)

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W33X

PROCEDURE SPECIFICATIONS
MATERIAL SPECIFICATION: ASTM A-36, A-572, A-588, A240 TYPE 304
WELDING PROCESS: GAS TUNGSTEN ARC WELDING
MANUAL OR MACHINE: MANUAL
POSITION OF WELDING: 2F
ELECTRODE SPECIFICATION: AWS A5.12
ELECTRODE CLASSIFICATION: E6010 (OR EQUIVALENT)
FILLER METAL: AUTOMATIC WELD
ELECTRODE SIZE: 3/16
NOZZLE SIZE: 46 (3/8)
POLARITY: DC-
ROOT TREATMENT: MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE: NONE
SHIELDING GAS: 100% ARGON

WELDING PROCEDURE

PASS NO.	WELDING CURRENT (AMPS)	WIRE FEED SPEED (IPM)	TRAVEL SPEED (IPM)	WELDING SPEED (IPM)
1	54-68	11.2-12.8	3.8-5.8	18.8-25.8

JOINT DETAIL: 1/4" FILLET WELD

PRIMARY USE: MACHINE SHOP - STAINLESS STEEL OVERLAY (AND OTHER APPLICATIONS AS NEEDED)

DIRECT ALL QUESTIONS TO:
SCOTT W. KOPP, WELDING TECHNICIAN
HIGH STEEL STRUCTURES, INC.
PHONE: (717)358-4222

SHOP DRAWING REVIEW

1. REVIEWED FOR CONFORMANCE WITH
2. REVIEWED FOR CONFORMANCE WITH
3. REVIEWED FOR CONFORMANCE WITH
4. REVIEWED FOR CONFORMANCE WITH

Barrett and Jensen, Inc.
MAR-2-1996

NO.	REVISION	DATE
1	REVISED QUALIFICATION RECORD DATES	2/28/96

HIGH STEEL STRUCTURES, INC.

100 S. PROSPECT AVE
LITTLETON, CO 80120-0008
PHONE: 303-948-0000

WELDING PROCEDURES
U.S. ROUTE 7 OVER OTTER CREEK
BRIDGE NO. 79
TOWN OF WALLINGFORD, COUNTY OF RUTLAND
STATE OF VERMONT
AGENCY OF TRANSPORTATION
STATE CONTRACT PROJECT NO. BR5-0137(13)
OR REF. NO. _____
CONTRACTOR J.A. McDONALD, INC.
IN CHARGE: KOPP, SCOTT W. DATE: 2-13-96
CONTRACT NO. VT-95367 DRAWING NO. WP-1