

FIELD WELDER QUALIFICATION PROCESS

Office of Structures

Metals Engineering Unit



April 2007
Amended October 2008

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Key for Revisions
October 2008

| indicates changes as amended

Field Welder Qualification Guidelines

Introduction

NYSDOT erects and performs repairs on many steel structures that require field welding to complete. The quality of these welds is critical to the safety and durability of these structures. To ensure the quality of its' field welded products, the Department administers a field welder certification program. This program requires welder testing for initial certification and the proper documenting of work experience for recertification.

These guidelines are being distributed to clarify the Department requirements for field welder certification and recertification. The guidelines in no way supersede the requirements of the NYS Steel Construction Manual (SCM). Any discrepancies between these guidelines and the SCM shall defer to the SCM.

In the past, welders may have qualified for the flat (1G) or horizontal (2G) positions and received certification cards. These welders will still qualify for recertification provided that they submit their certification card and work record before the expiration date. Other welders received a letter stating that they were certified in the 1G or 2G position for a specific project. Welders who want to become certified in the future will have three options. They may take a vertical (3G), overhead (4G), or a fillet weld test as described in the NYSSCM Section 8. Welders who successfully complete the fillet weld test will receive a yellow certification card indicating that they are certified for fillet welding only. The certification process for the vertical (3G) and overhead (4G) positions will remain unchanged and is outlined on the following pages.

Guidance is also provided to show how the Welder Qualification Test Form should be filled out by all parties involved: including the welders, the exam proctors, and the materials lab. A sample form and specific instructions are provided in this brochure.

In the past, each region administered a Regional field welder qualification program that included being the direct contact for setting up the exams, reviewing testing paperwork, submitting work records for recertifications, proctoring exams and issuing cards. Recently, several regions have outsourced some of these tasks but they continue to be responsible for administering the program in their Region.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
QUALIFICATION TEST FOR WELDER CERTIFICATION

All welder qualification tests must be conducted at approved locations and witnessed by a designated State representative. The NYS Department of Transportation (NYSDOT) regional offices are responsible for administering field welder tests within the State unless otherwise directed. In cases where the Regions have delegated the proctoring to an outside agency, the agency personnel reporting to Main Office Structures will be the designated State representative.

1. Welding Processes

Any welder may apply for certification testing in the Shielded Metal Arc Welding (SMAW) process.

Welders on specific NYSDOT projects may apply for testing using alternate processes (SAW, FCAW) that may be approved for the project. Approvals for alternate processes will be project specific, and certified welder cards will not be issued.

2. Joint Configurations and Welding Positions

All welders are required to test with a 1" vertical groove weld (3G), 1" overhead groove weld (4G), or both. See Figure 3 for welding position diagrams. Welders who only perform fillet welds (i.e. stay-in-place forms or girder flange to bearing sole plate welds) may take the fillet weld test as outlined in the SCM Section 811.2c. Those who qualify using the fillet weld test will be issued a yellow certification card which only qualifies the welder to perform fillet welds.

Welders employed on NYSDOT projects may apply for testing in a specific joint configuration and position that is required for that project. The contract number and region must be shown on the welder test forms. Qualification requirements are described in the NYS Steel Construction Manual (SCM).

3. Eligibility for Retest

An individual who has failed a welder qualification test may retest using a single test plate at any time, provided he or she produces a statement from a welding school or State certified welder indicating that he or she has had additional training. The minimum acceptable number of additional training hours is 50 hours of training using 1/8" or 5/32" E7018 electrodes on 1" plate in the vertical, overhead, or both positions depending on what position the welder wants to be qualified in.

Alternately, he or she may retest without a statement concerning additional training. This will require two test plates in each test position that failed, and both plates must pass.

A certified welder whose work record has not been properly maintained will be required to retest. This includes welders who fail to submit their card and work record to the State at the time of expiration. The retest may be performed using either a 3/8" or 1" thick test plate, at the welder's option. Only one retest may be performed on 3/8" plate, and a failure will require that any further testing be done on 1" thick plate.

4. Preparation for Tests

- a. The welder should select sound base metal of a weldable grade. Visual inspection of edges and surfaces should show no indication of internal or surface discontinuities. Base metal discontinuities that appear in radiographs may result in failure of the test coupon.
- b. Edges shall be prepared as shown in Figure 1. Rust, mill scale and surface irregularities shall be removed by grinding within the area to be tested (Figure 2, Area 1). Mill scale shall be left in Area 2, and measurements made (in Area 2) to establish the original plate thickness.
- c. It is recommended that the test plates be tack welded as shown in Figure 2. It is essential that the backing bar fit tightly against the back of the weld joint. Sufficient tack welds should be employed to insure that the backing bar remains tight throughout fit-up and welding.
- d. After the test coupon has been assembled and tack welded, it shall be presented to the State representative or the testing facility personnel responsible for proctoring the exam who will inspect it for conformance with test requirements. The State representative may instruct welders as to the potential consequences of improper fit-up and assembly, but shall not reject the coupon unless the requirements for groove angle and root opening are not met. Any deficiency in fit-up or preparation should be noted on the test report.

5. Identification

After the State representative has completed the inspection of the test assembly prior to welding, he or she shall die stamp one side of the test plate with numbers, letters, and/or distinctive marks on the test assembly which will clearly identify the welder by the code used in the test report.

6. Electrodes

Testing for shielded metal arc welding shall be performed using either 1/8" or 5/32" diameter E7018 electrodes. Properly dried electrodes with sound coatings should be used. Electrodes which have been partially used, or with a damaged coating, are not recommended. Re-striking electrodes may result in indications in the radiograph.

7. Practice and Adjustment of Welding Machine

Welders shall have the opportunity to practice on scrap steel and plates similar to the test plate. Ample time will be allowed to adjust the welding machine. It is suggested that the welder preheat the test plate and the plates on which he practices during adjustment of the machine. The suggested preheat and interpass temperature is 250°F. This is not a mandatory requirement.

8. Bad Starts

A welder may discard a test coupon at any time before it is submitted for final identification. Another test may be performed immediately, or rescheduled, based upon the time commitments of the State representative or testing facility personnel responsible for proctoring the exam.

9. Technique

Welds shall be made in passes and layers. Test coupons sectioned and etched to determine conformance with the SCM will be rejected if:

- a. The root pass of a 1" groove weld is greater than 3/8" thick.
- b. Any subsequent layer of 1" groove weld is greater than 3/16" thick.
- c. Any weave pass within a 1" groove weld is greater than 7/8" wide.
- d. A 3/8" groove weld test is welded in less than two layers.

Vertical welds must be welded upwards, and the last 1/4" of weld thickness in 1" thick vertical test welds must be made by the multi-pass/split layer technique.

10. Cleaning between Weld Passes

Careful cleaning between weld passes is recommended. Cleaning may be accomplished only by using hand chipping hammers, picks, and wire brushes or a mechanically powered wire wheel. Welders will not be allowed to use air carbon arc gougers, pneumatic chippers, needle scalers, cold chisels and hammers,

grinding wheels or any other equipment that may modify the weld profile. Removing test plates from welding position for slag removal will not be allowed.

11. Finish Grinding of Test Plates

At the completion of welding, (groove) weld reinforcement shall be removed by grinding, machining or chipping. The final surface must be produced by grinding. The laboratory will make thickness measurements in the weld area and in un-ground areas of the base metal. Test plates reduced in thickness by 1/16" or more shall be rejected and will not be radiographed.

12. Inspection and Final Identification

The designated State representative shall inspect the weld test plate before and after welding, and monitor the welding in process. Test plates that do not visually meet the requirements of this instruction and the SCM Section 723.1 will not be accepted.

After visual inspection of the completed weld test plate, the designated State representative shall die stamp the plate, indicating its acceptance. These test plates and all necessary paperwork shall be sent directly to the Department laboratory by a designated State representative. Test plates to be shipped to the laboratory by individual welders or contractors shall be die stamped and, in addition, must have tamper-proof tags or tape attached.

Once a test plate has been submitted for acceptance, it becomes the property of the State and is not returnable.

13. Testing by the Department Laboratory

The entire weld shall be radiographed. Three consecutive inches in the length of the test weld shall be evaluated by a State representative, and the evaluation shall be in accordance with the requirements for tension welds in bridges. The area to be examined shall be in the center of the weld length, selected to avoid discontinuities associated with starts and stops of passes at each end. In addition to the radiograph test, the laboratory may section and etch weld coupons to determine if they meet the SCM requirements for weld layer thickness and number of passes.

14. Time Limits

The welder qualification tests shall be completed within a time span of four hours. This includes the time required for set-up and welding, but does not include grinding. Welds that were not completed within four hours shall be rejected.

15. Notice of Test Results and Issuance of Certification

The region that witnessed the test will be notified of the results. They, in turn, shall inform the eligible individuals where to pick up their certificate and work record.

Certificates for welders who tested successfully at facilities located outside of their (DOT) region may request that their certification cards be made available to them for pickup at the regional office of their choice. All welders will receive and sign a standard form stating that the welder understands the qualification process at the time he arrives at the Regional Office to receive his card and work record. The standard form to be signed by all qualified welders is included in Appendix D.

16. Recertification

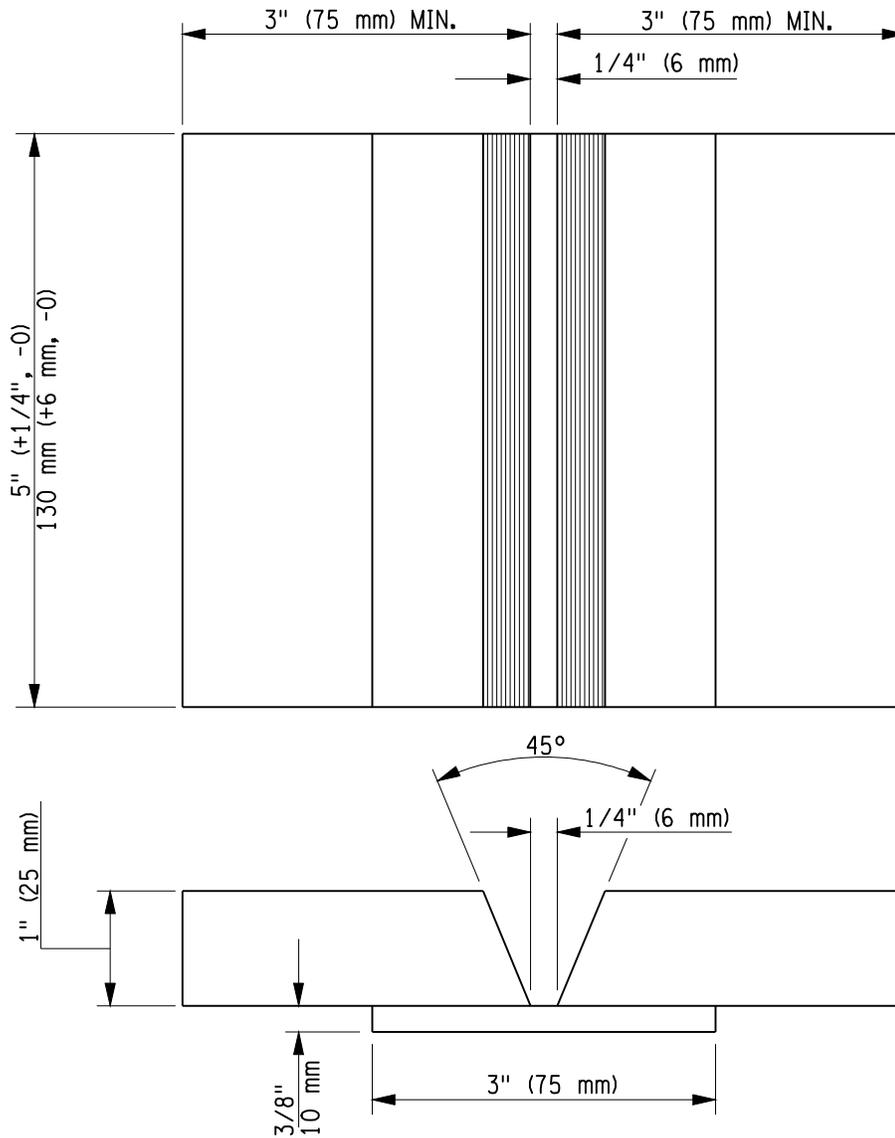
Only welders certified to weld in the 3G and 4G positions and those certified to perform fillet welds will be recertified.

The welder's work record must contain a minimum of six (6) signatures from a PE, CWI, EIC working on a State contract, or NYSDOT Maintenance Supervisor. The welder must perform welding in each position in which he is qualified a minimum of every six (6) months. Welders having gaps greater than 6 months will not be recertified and will have to retest.

PE's, CWI's, EIC's and NYSDOT Maintenance Supervisors shall print their names on the work record so that the names are legible. Work records shall not be signed after the expiration date on the front of the card nor shall they be signed if there are any gaps exceeding 6 months.

Welders shall submit their card and work record at least one month prior to the expiration date. A warning will be issued for late submission one (1) time. The one time warning will be granted only for submissions received a maximum of 3 months after the expiration date on the card. Any welder who submits a card and work record later than 3 months beyond the expiration date must retest according to SCM Section 811.8(b). Recertifications will not be issued for second offenses. Welders who submit their work record late a second time will have to retest.

Appendix A



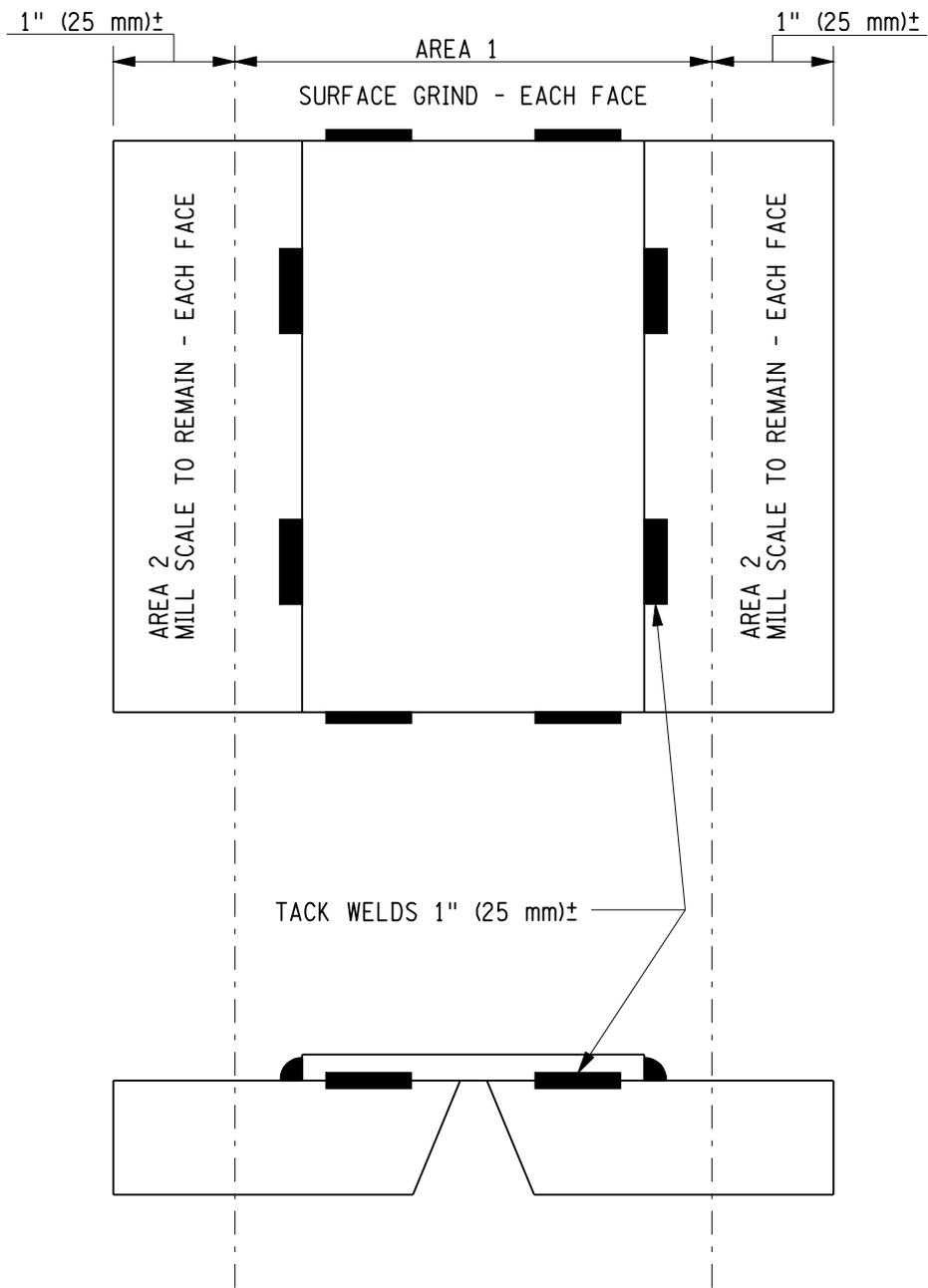
NOTES:

ALL PLATE SURFACES WITHIN THE AREA OF THE BACKING STRIP MUST BE FREE OF MILL SCALE AND SURFACE DEPRESSIONS. THIS INCLUDES THE TOP AND BOTTOM OF THE TEST PLATES AND THE BACKING STRIP.

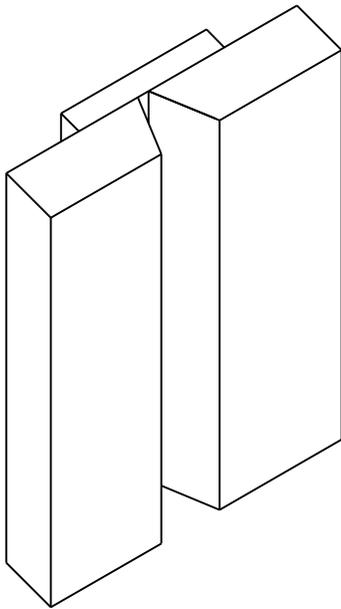
AFTER WELDING, THE WELD REINFORCEMENT SHALL BE GROUND FLUSH WITH THE SURFACE OF THE PLATE. DO NOT REMOVE THE BACKING STRIP.

T = 1 INCH QUALIFIES FOR UNLIMITED THICKNESS WELDING.

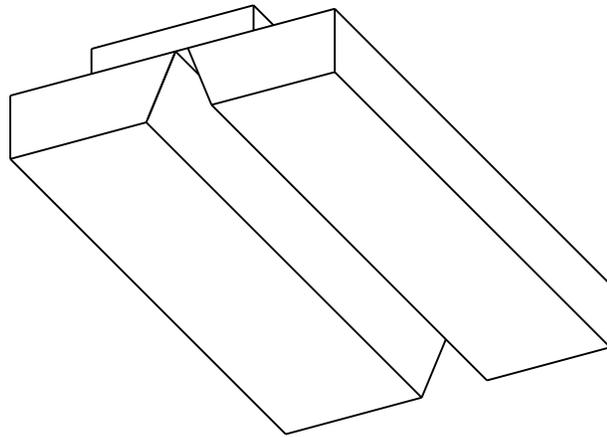
WELDER QUALIFICATION TEST PLATE
FIGURE 1



TEST PLATE ASSEMBLY
FIGURE 2



VERTICAL POSITION (3G)

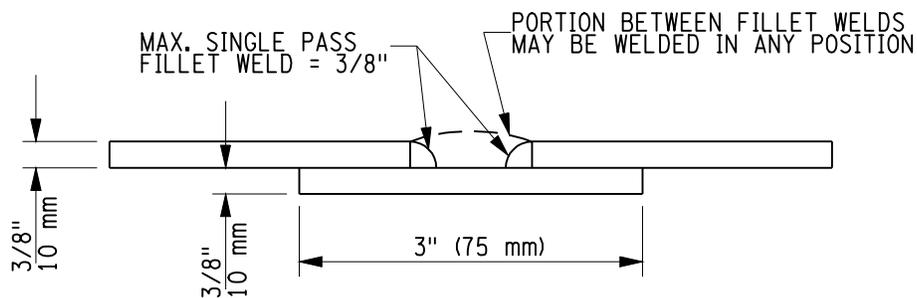
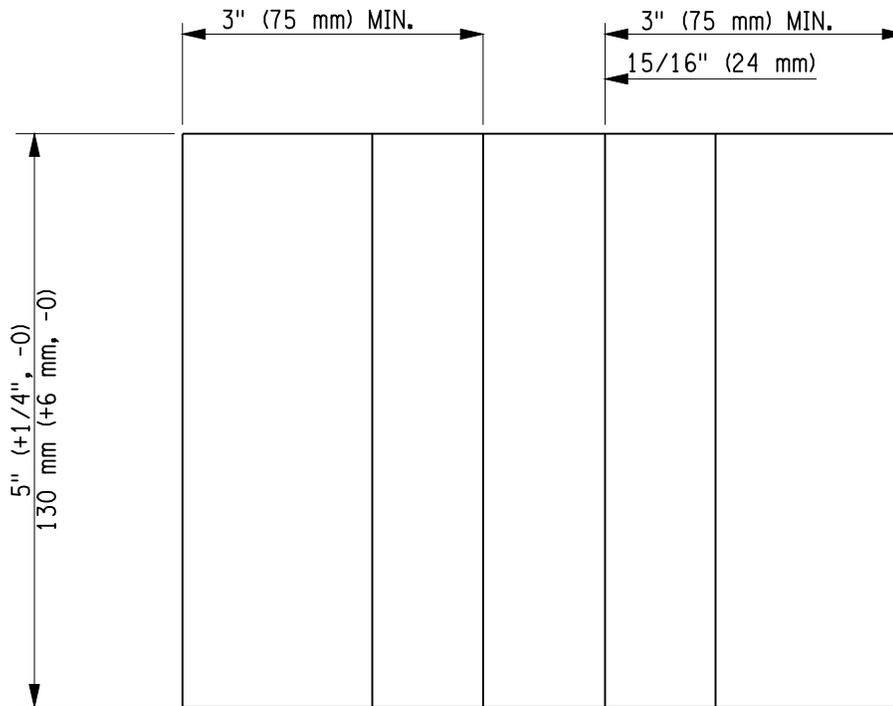


OVERHEAD POSITION (4G)

NOTE: TEST PLATES MUST REMAIN IN POSITION UNTIL WELDING IS COMPLETE.

POSITIONS OF TEST PLATES FOR GROOVE WELDS

FIGURE 3



NOTES:

ALL PLATE SURFACES WITHIN THE AREA OF THE BACKING STRIP MUST BE FREE OF MILL SCALE AND SURFACE DEPRESSIONS. THIS INCLUDES THE TOP AND BOTTOM OF THE TEST PLATES AND THE BACKING STRIP.

AFTER WELDING, THE WELD REINFORCEMENT SHALL BE GROUND FLUSH WITH THE SURFACE OF THE PLATE. DO NOT REMOVE THE BACKING STRIP.

SEE TABLE 811.3 FOR TYPE AND POSITION LIMITATIONS

WELDER QUALIFICATION TEST PLATE - FILLET WELDS

FIGURE 4

NYSSCM TABLE 811.3

811.3 Position Qualified. The type and position of welds qualified by each test plate position shall be as described in Table 811.3

TABLE 811.3 – WELDER QUALIFICATION – TYPE AND POSITION LIMITATIONS

Qualification Test		Type of Weld and Position Of Welding Qualified*	
Test Plate	Plate Position	Groove	Fillet
Figure 1	3G Vertical 4G Overhead 3G& 4G	F, H, V F, OH F, H, V, OH	F, H, V F, H, OH F, H, V, OH
Figure 5	1F Flat 2F Horizontal	- -	F F, H

*Positions of Welding: F=Flat, H=Horizontal, V=Vertical, OH=Overhead

Appendix B

Appendix C

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
WELDER QUALIFICATION TEST

Region Project

Lab. Test No. M W

Lab. Test No. M W

Date Received - -

Name of Welder ID number

Address

Employer's Name Phone

WELDING PROCESSES

Manual Metal Arc Welding: Electrode Mfg. _____ Diam. 5/32" AWS-ASTM Classification E7018

Semi-Auto. Gas-Metal Arc Welding: Wire Mfg. _____ Diam. _____ AWS-ASTM Classification _____

Shielding Gas _____ Gas Flow Rate _____ c.f.h.

Semi-Auto Submerged Arc Welding: Wire Mfg. _____ Diam. _____ AWS-ASTM Classification _____

Flux Mfg. _____ Flux _____ AWS-ASTM Classification _____

MACHINE USED

Ampere Rating AC _____ DC _____ Polarity: Neg Pos

Serial Number Manufactured by

List the following additional material for semi-automatic welding processes:

- 1. Ammeter reading during welding _____ 2. Voltmeter reading during welding _____ 3. Rate of welding - inches per minute _____

Remarks _____

WELD TYPE	POSITION	PLATE THICK.	MARK	SW NO.	LABORATORY TEST RESULTS

Tests Conducted By Title

Tests Conducted By Title

Identification Mark Date of Tests

Bridge Engineer

FOR MATERIALS BUREAU USE ONLY

No. of Samples X-Ray Plate No.

X-Rayed By Date

Reviewed By Date Checked & Reported By Date

DISTRIBUTION INSTRUCTIONS: WHITE to Main Office YELLOW - to Materials Bureau PINK - Retain

THE FOLLOWING INFORMATION IS REQUIRED ON THE BR244 (2/06)

Region : (Filled in by the designated State representative/test proctor)
This is the 2 digit region location 01 thru 11 that relates to where the exam is being proctored.

Project : (Disregard)
Welders will no longer be certified on a project-specific basis.

Lab Test No's. : (Filled in by the NYSDOT lab personnel)
This is the test number for each individual exam given in the different weld positions. The first two boxes indicate the last digits of the year of the each test followed by the designation of "M W".
The remaining four boxes are the x-ray lab numbers assigned for the specified exam test plates. (i.e., 0 6 M W 0 5 0 2)

Date Received : (Filled in by the NYSDOT lab personnel)
This is the date that the test plate arrives at the NYSDOT lab facility to be logged and recorded.

Name of Welder : (Filled in by the welder and or the designated State representative/test proctor)
The first name first, followed by the middle initial then the individual's last name. This should be the legal name of the welder and clearly legible.

Identification No. : (Filled in by the designated State representative/test proctor)
This is the first letter of the welder's first name, followed by the middle initial and then the first letter of the last name. The boxes after the dash indication are the last four digits of the welder's social security number.

Address : (Filled in by the welder and or the designated State representative/test proctor)
This is the complete mailing address, including state and zip code of the individual's residence. Leave one blank space between each word.

Employer's Name : (Filled in by the welder and or the designated State representative/test proctor)
This is the student college name, local union, company name, (i.e. NYS or Thruway Authority) by which the welder taking the exam is employed.

Phone No. : (Filled in by the welder and or the designated State representative/test proctor)
The first three boxes are for the welder's area code, followed by the dash mark and then the remaining 7 digits where the individual can be contacted.

Manual Metal Arc Welding Electrode Mfg. : (Filled in by the designated State representative/test proctor)
This is the name of the welding machine being used for the welding test. (i.e. Lincoln Welding Machine)

The items below under **WELDING PROCESSES** are to be filled in when this form is being used for a **Shop Weld Test only**.

Semi-Auto Gas Metal Arc Welding :

Wire Manufacturer :

Diameter :

Shielding Gas :

Gas Flow Rate :

Semi-Auto Submerged Arc Welding :

Wire Manufacturer :

Diameter :

Flux Manufacturer :

Flux Type :

The items listed below are in the **MACHINE USED** section of the test form.

Ampere Rating : (Filled in by the designated State representative/test proctor)
This is the digital setting set by the welder on the welding machine.
(i.e. 250 or 300 amps)

AC : (Filled in by the designated State representative/test proctor)
This is checked off if Alternate Current is being used.

DC : (Filled in by the designated State representative/test proctor)
This is checked off if Direct Current is being used.

Polarity : Negative or Positive (Filled in by the designated State representative/test proctor)
This is checked off indicating the polarity being used.

Serial Number : (Filled in by the designated State representative)
(i.e., : L C 4 0 4 6 6 7)

Manufactured By : (filled in by the designated State representative)
(i.e., M I L L E R)

Ammeter Reading During Welding :

Voltmeter Reading During Welding :

Rate of Welding (inches per minute) :

Remarks :

Weld Type : (Filled in by the designated State representative/test proctor)
This is the type of weld that the welder is testing.
(i.e. GROOVE)

Position : (Filled in by the designated State representative/test proctor)
This is the welding position that the welder is testing.
(i.e. V for vertical (3G), O for overhead (4G))

Plate Thickness : (Filled in by the designated State representative/test proctor)
This is the thickness material of the weld plate test.
(i.e. 1” thickness or 3/8” (re-qualifications only))

Mark : (Filled in by the designated State representative/test proctor)
This is the first letter of the first name of the administrator (test proctor) followed by the first letter of their last name and then the number 1 or 2 depending on how many tests are indicated on the BR-244 form.
(i.e. W B 1 – for a vertical test & W B 2 for an overhead test)

SW No. : (Filled in by the designated State representative/test proctor)
This is the four digit welders’ plate identification mark that relates to the Lab Test Number.
(i.e. 0 1 2 3)

Laboratory Test Results : (Filled in by NYSDOT Lab personnel)

This space is provided to indicate the reasons why a test plate may be rejected by the lab facility based on visually failing to meet the specification requirements of the NYSSCM.
(i.e. rejected due to over-grinding resulting in plate thickness less than the minimum allowed)

Test Conducted By : (Filled in by the designated State representative/test proctor)

This is the full name of the administrator who is proctoring the exam tests.

Title : (Filled in by the designated State representative/test proctor)

This is the professional job title of the administrator proctoring the exam.

Identification Mark : (Filled in by the designated State representative/test proctor)

This is the identification stamp made by using the steel die punch indentation in the exam plate. The marking relates to the regional location to which the test was proctored and is usually the same identification information in the MARK column.
(i.e. D O T 2)

Date of Tests : (Filled in by the designated State representative/test proctor)

This is the date that the exam was given.
(i.e. 0 6 – 0 2 – 2 0 0 6)

Bridge Engineer :

This is the signature authorization made by the supervisor of the administrator proctoring the exam.

The below items are to be filled in by the NYSDOT Lab Materials Bureau

No. of Samples :

This is the quantity of the total number of tests that an individual welder is submitting.

X-Ray Plate No. : (Film No.)

This is the four digit identification number assigned to the envelope containing the x-rays to be radiographed in the Lab. The designation is generally referred to as the “X-Ray Jacket No.”
The first set of numbers are the year the film was taken.
One test jacket can contain up to three individual weld exam tests.
(i.e. 0 6 – 0 1 2 3)

Reviewed By : (Initials)

Date :

Checked & Reported By : (Initials)

Date :

Appendix D

TO BE GIVEN TO WELDER WHEN NEW CARD IS ISSUED

TO: All Welders Receiving a New or Renewed NYSDOT Welder Qualification Certificate
FROM: “Name of Regional Field Welder Qualification Program Administrator”
New York State Department of Transportation – “Region __”

This is your new Welder Qualification Certificate. Please sign the back of your card and make a copy for your records. The back of the identification card indicates the welding positions which you are qualified to weld. Any box that is blackened out indicates that you are **not** qualified for that welding position.

This card is valid for three years. It is your responsibility to obtain the appropriate signatures as stated on your card. The original record must be signed at least once every six months by either a State of New York Engineer in Charge (EIC), a Licensed Professional Engineer (PE) or a Certified Welding Inspector (C.W.I). If a P.E. or C.W.I. signs your card, make sure that the person writes his/her PE or C.W.I. number legibly and fills in the date of service.

****RENEWAL OF YOUR WELDING CERTIFICATE IS CONTINGENT ON A QUALIFIED PERSON SIGNING YOUR WORK HISTORY WITHIN EVERY SIX MONTH PERIOD AND THAT A MINIMUM OF SIX SIGNATURES IS RECORDED. ****

****NO WELDER IS CONSIDERED CERTIFIED NOR WILL ANY SIGNATURE BE ACCEPTED AFTER THE EXPIRATION DATE. ****

****IF YOU LOSE YOUR CARD AND REQUEST A REPLACEMENT IT IS STILL YOUR RESPONSIBILITY TO PROVIDE A WORK HISTORY WITH QUALIFIED SIGNATURES FROM THE DATE THE ORIGINAL CERTIFICATE WAS ISSUED TO THE DATE OF EXPIRATION OF THE NEW WELDING CERTIFICATE.****

When it is time to renew your card you may make a copy and utilize it until its expiration date. Please send both parts of the original certificate with all appropriate signatures at least six(6) weeks prior to expiration to:

NYSDOT
“Regional Office address”
Attn: “Name of Administrator”
REQUEST RENEWAL OF WELDING CARD

I have read and understand the above mentioned requirements and have received a copy of these instructions.

Name of Welder _____
Please Print First, Middle Initial, Last Name

Signature of Certified Welder _____

Date _____

Cc: Welding File

Appendix E

Responsibilities
Of
NYS Weld Test
Proctor

The Proctor is responsible for completing the portions of the BR 244 as indicated in Appendix C of this brochure prior to the start of welding. The Proctor shall also explain to the welder which sections of the BR 244 form he/she needs to fill out and how.

After the test coupon has been assembled and tack welded, it is the responsibility of the Proctor to inspect it for conformance with test requirements and Figures 1 & 2 in this brochure. The Proctor may instruct welders as to the potential consequences of improper fit-up and assembly, but shall not reject the coupon unless the requirements for groove angle and root opening are not met. Any deficiency in fit-up or preparation should be noted on the test report.

After Proctor has completed the inspection of the test assembly prior to welding, he or she shall die stamp one side of the test plate with numbers, letters, and/or distinctive marks on the test assembly which will clearly identify the welder by the code used in the test report.

The Proctor will inspect the root pass before any subsequent passes are made. There must be 3" of weld with no lack of fusion or trapped slag in the side wall greater in size than that which is allowed by figure 1605a for the applicable weld size. The proctor shall reject any plates which do not meet the requirements and shall terminate the test.

The Proctor shall inspect the weld test plate before and after welding, and monitor the welding in process. Test plates that do not visually meet the requirements of this instruction and the SCM Section 723.1 will not be accepted.

The weld shall contain no cracks and there must be three continuous inches of weld where there is no trapped slag, undercut, lack of fusion, or cluster porosity greater than 5/16" either as a single defect or accumulation of defects with there lengths added together as stated in Section 16 of the SCM.

After visual inspection of the completed weld test plate, the designated State representative shall die stamp the plate, indicating its acceptance. These test plates and all necessary paperwork shall be sent directly to the Department laboratory by the Proctor in a timely manner. If the coupon is rejected, the welder shall be asked to sign the BR244 acknowledging the coupon has failed a visual inspection and will not be submitted for x-ray testing.

The following is a list of items the Proctor shall explain to each candidate before starting the test:

Proctor shall explain to persons taking the welding test what is expected during the test:

- No grinding between weld passes for any reason. Weld cleaning may only be performed by means of a hand held, non-mechanical chipping hammer and/or wire brush. In lieu of a chipping hammer and/or wire brush, a mechanical wire wheel may be used. No grinding wheels will be allowed.
- Any problems with equipment must be brought to the attention of the Proctor.
- Test plates may not be moved from the test position, vertical or overhead, until the test is complete. For any reason.
- Only the person taking the test is allowed in the weld booth. The Proctor is the only other person allowed in the booth during the test session.
- The cover pass must be multiple passes. The cover pass may be a weave or stringer beads however the maximum width for a weave is 7/8". The cover pass shall not be done in one pass.
- All welding rods must be either 1/8" or 5/32" and they must come from the rod oven.
- When the test is completed the weld is ground flush with the base metal. No surface depressions (lines, gouges, nicks, etc.) may remain. The thickness of the test plate and weld shall not be reduced by more than 1/16" during grinding. Excessively ground plates are rejected.
- When grinding is complete the plate is to be presented to Proctor for a visual inspection. The completed weld shall conform to Section 723.1 of the New York State Steel Construction Manual. Plates not meeting the requirements of SCM section 723.1 shall be rejected and not forwarded to the laboratory for testing.

A violation of any of the above requirements is cause for rejection of the plate.

The Proctor shall remain in close proximity of the weld booths to observe the welders during welding to insure that these procedures are followed.

Appendix F

Testing Facility Minimum Requirements

- Rod oven capable of holding 30 lbs. of welding rods.
- Fixtures for clamping test plates in position.
- Welding machines capable of 250 amps minimum.
- If multiple welders are testing at one time their work station must be substantial enough so a welder working on a test plate does not affect another welder.
- Each welding machine shall ground to the work station. The grounds from several machines shall not be clamped to a metal strap that is welded to work station. This causes arc blow.
- Separate work areas shall be provided for grinding test coupons. Several grinders shall be available so that welders do not have to wait to finish grinding coupons.
- Impression stamps for marking test plates shall be provided.
- 2 lbs. ball peen hammer.
- Fire extinguishers.
- Mechanical wire wheel.
- The following items shall be provided by the welder:

Welding shield
Gloves
Chipping hammer
Wire brush