

QUALIFICATION OF STEEL REINFORCEMENT TACK WELDERS

1. SCOPE: This method, based on modifications of the AWS (American Welding Society) Bridge Welding Code A5.1, A5.5, A5.18, or D1.4, current edition, outlines the procedures for qualifying tack welders for welding steel reinforcement. Information herein is taken from Section 605 of the Standard Specifications For Road and Bridge Construction.
2. PROCEDURE:
 - 2.1. Use the bar stock and welding equipment that is required for fabrication of the steel at the precast or prestress producer's facility. Acceptable electrodes and welding processes are listed in Section 3.
 - 2.2. Prepare ~~2~~ 3 sample tack welds of the following 4 combinations: #~~3~~ 4 (~~10~~ 13 mm) to #6T (19T mm), #6 (19 mm) to #~~3~~ 4T (~~10~~ 13T mm), #4 (13 mm) epoxy to #5T (16T mm), and #5 (16 mm) epoxy to #4T (13T mm) where T is the short bar of the welded intersection. Samples do not necessarily need to be cut from a cage but the long bar should be in the vertical position when tack welded, thereby simulating actual welding conditions.
 - 2.3. The bar to be tested shall be approximately 24 inches long. The 'T' cross bar shall be 6-8 inches long. The weld shall join the bars at mid point +1" length of each long bar.
 - 2.4. Prepare the bars samples in the presence of the KYTC inspector. Securely tape the 3 bars of each combination sample pairs together. The inspector will deliver the test bars samples (and the appropriate forms) to the Division of Materials ~~Laboratory~~ for evaluation.
 - 2.5. The Division of Materials' Physical Section will evaluate each bar to determine if the physical properties of the bar have been degraded by the weld sample for tensile strength across the point of the tack weld. Each bar sample must meet the minimum requirements for TENSILE and YIELD strength of the bar stock as well as % ELONGATION and BEND. If any bar fails, the 3 bar combination fails. If any combination fails, the welder fails to qualify.
3. ELECTRODES:
 - 3.1. Shielded Metal-arc Process: Use only electrodes with low hydrogen classifications E7015, E7016, E7018, E7028, E9015, E9016, E9018, or E9028 according to AWS A5.1 or A5.5 as applicable.
 - 3.2. Gas Metal-arc Process: Use electrode classification ER70S according to AWS A5.18.

4. QUALIFIED STATUS:

- 4.1. If the welder fails to qualify ~~meet the qualification requirements~~, he or she may take a re-test provided double the number of bars ~~two test specimens~~ are welded for each combination specimen that failed. If any of the re-test bars fail ~~specimens do not meet all requirements~~, the welder must wait 90 days before he or she can take the test again.
- 4.2. Qualified status shall be limited to two years from the date of completion of testing. If the welder is not engaged in the welding process for which he/she is qualified for a period exceeding 6 months, qualification status may be revoked within that two year period. Or, in the judgment of the Engineer, there is reason to question the welder's ability, qualification status may be revoked within that two year period.

5. COST OF TESTING:

- 5.1. The cost of the materials is the responsibility of the welder or fabricator.
- 5.2. The cost of testing weld specimens shall be the responsibility of the welder or fabricator. Contact the Physical Section in the Division of Materials to schedule testing and to obtain test cost information.

APPROVED _____
Director
DIVISION OF MATERIALS

DATE 10/6/06

Attachment

Kentucky Method 64-109-056
Revised 10/6/06
Supersedes 64-109-05
Dated 1/05/05

km10906rev.doc

KENTUCKY TRANSPORTATION CABINET
Division of Materials

TC 64-752
Rev. ~~1/20/05~~ 10/6/06

TACK WELDERS
Section 605.03.04

ID NUMBER _____ Date Sampled _____

INSPECTOR ID _____ INSPECTOR NAME _____

COMPANY NAME _____ LOCATION _____

TYPE OF INSPECTION _____

MATERIAL CODE _____ 7069 _____

~~INSPECTED QUANTITY~~ _____ ~~UNITS~~ _____ ~~Each~~ _____

Welder SSN _____ Expiration Date _____

Welder Name _____ Previously Approved for KY (Yes) _____ (No) _____

Route or Street _____

City _____ State _____ Zip Code _____

PCN # _____ Project Number _____

Date Received _____ Pass/Fail _____ Date Complete _____

CHECK APPROVED TACK WELDS

~~3~~ 4 + 6T _____ 4E + 5T _____

Carbon Equivalent _____ Carbon Equivalent _____

6 + ~~3~~ 4T _____ 5E + 4T _____

Carbon Equivalent _____ Carbon Equivalent _____

WELDING PROCESS TYPE: Shielded Metal-Arc _____ Gas Metal-Arc _____

Electrode or Wire Classification _____ Electrode Size _____ Preheat Temperature _____

VISUAL INSPECTION: Appearance _____ Rod Oven Temp °F _____

Undercut _____ Porosity _____

Inspector Observing Welding _____

Title _____ District _____

REMARKS:

COPIES:

KM 64-109-0~~56~~

