

# Welder Certification Program

## Description

The Michigan Department of Transportation's (MDOT) Welder Certification Program is managed by the Department's Structural Fabrication Unit and was developed to allow private testing agencies to perform MDOT welder certification testing. Testing agencies interested in becoming authorized to perform MDOT welder certification testing must be evaluated and approved by the Department. MDOT randomly audits the authorized testing agencies to ensure they are meeting the responsibilities presented in this document and audits new testing agencies interested in becoming authorized to perform MDOT welder certification testing.

The Department's primary objective is to provide an effective program that reduces contractor cost and provides a convenience to contractors by allowing them to select from a list of authorized testing agencies located throughout Michigan to get welders certified for MDOT projects (see Appendix A). MDOT has no interest in stimulating business or being influential in competition between testing agencies as all authorized testing agencies are considered capable of performing the required welder certification testing. Therefore, it is the authorized testing agency's responsibility to solicit work from contractors awarded MDOT projects.

A welder endorsed through MDOT's Welder Certification Program is only permitted to perform the welding listed below. See [MDOT's Welder Qualification Program](#) for more information on other welding.

- Non-main member piling
- Cofferdams and temporary or permanent steel sheet piling
- Temporary supports (except temporary supports defined to be main members)
- False work

This document is broken down into the following sections:

- Authorized Testing Agency Responsibilities
- Certified Welder Guidelines
- Testing Agency Evaluation Process

Please direct any additional questions you may have concerning the MDOT Welder Certification Program to the Structural Fabrication Unit at [MDOT-StructuralFabrication@michigan.gov](mailto:MDOT-StructuralFabrication@michigan.gov).

## Authorized Testing Agency Responsibilities

Welder certification testing must be in accordance with the AWS D1.1 code followed by MDOT (as modified by the current [Frequently Used Special Provision 20SP-707A, Structural Steel and Aluminum Construction and this document](#)) and has an effective period of 2 years. Authorized testing agencies are strictly prohibited from using a third party to perform any portion (cutting, bending, testing, interpretation, reporting, etc.) of the welder certification testing, unless approved by the MDOT Structural Fabrication Engineer. Violation of these requirements could result in removal of the authorized testing agency from

the program. Testing agencies authorized to perform welder certification testing must perform, at a minimum, the following items:

1. Retain a record of all applicable documentation related to the welder certification testing (mill certifications, reports, etc.) for a minimum of 2 years.
2. Supply the welder with mill certified test material of the required steel grade and size (AASHTO M270 Gr 50 for plate and ASTM A252/A252M Grade 3 welded and seamless steel pipe for pipe piles.
3. Witness the coupon welding in accordance with AWS D1.1.
4. Perform all mechanical test requirements in accordance with AWS D1.1.
5. Position for fillet and groove testing must be in accordance with D1.1, except axis must not be inclined and face must not be rotated.
6. For Pipe pile field welding, MDOT will accept either the 6G Pipe test, or the 2G Pipe test (for vertical piling), or the 2G Pipe-Mod test (for battered pipe piling). (See Welder Certification Program Guidelines.) This applies to pipe piles that will be welded in place in the field, not shop spliced.
7. Retain the weld test coupons for 6 months after the reported test date.

The authorized testing agency must have a Certified Welding Inspector (CWI) on staff to witness the entire welding operation, perform the required mechanical testing, and sign the test report. All authorized testing agencies must report test results on MDOT Form 5620 ([Welder Certification Test Report](#)). Certifications reported on unapproved forms will be sent back to the authorized agency and the welder will not be approved to weld on MDOT projects until the certification is properly reported to MDOT. The authorized testing agency must distribute the test report to the following individuals:

- Person paying for the testing
- MDOT Structural Fabrication Unit
- Retain a copy for the authorized testing agency

The Structural Fabrication Unit **requires the report to be electronically sent via email** (see email address above) using the following naming convention:

**5620 Last First Position Process Expiration Date**

Example: **5620 Fox Bill 4G SMAW 050614**

The authorized testing agency is required to maintain a complete record of all applicable documentation related to the welder certification testing for the effective period of the welder certification. Additionally, the agency must keep a welder certification log documenting relevant information for every welder that is tested as part of this program. MDOT will ask to review these records during random audits; therefore, they must be kept available at all times.

Authorized testing agencies are required to notify MDOT if any company information, contact information, or key staff member changes by completing and emailing MDOT Form 5618 ([Welder Certification Program General Information](#)) to the Structural Fabrication Unit. The Department defines a Certified Welding Inspector (CWI) performing the welder certification testing as a key staff member.

Failure to notify the Department of changes to key staff members or other company changes could result in dismissal from the program.

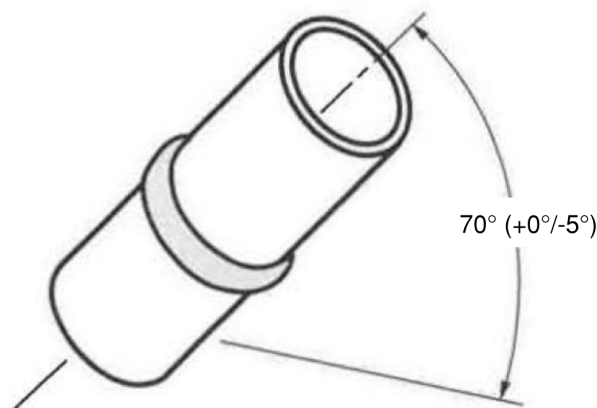
## Welder Certification Program Guidelines

MDOT requires the certified welder to follow the following guidelines:

1. All contract documents including but not limited to the MDOT Standard Specifications for Construction, AWS D1.1, and any project special provisions or plan notes must be strictly followed. Violations could result in loss of certification.
2. Certification is for permanent metal decking (stay in place forms), piling (except piling determined to be primary members in the contract), temporary sheet piling and cofferdams, temporary supports, false work, and other temporary field welding.
3. Welding to primary bridge components as defined in the contract documents, typically in accordance with subsection 707.03.D.8 of the MDOT Standard Specifications for Construction, is not permitted.
4. Welder certification remains in effect for two years, unless the welder does not engage in welding for at least 3 months, or a specific reason exists to question the welder's ability. The Engineer may require a confirming certification test during the progress of the work.
5. Welders must have their certifications (both pages of Form 5620) available at all times. Failure to produce the certification while welding on a MDOT project could result in welding privileges removed from the project until an acceptable report is provided.
6. Certification is good for specific welding rods and positions as permitted by AWS D1.1. Welders must not weld on MDOT projects with welding rods or positions they are not certified to.

For certifying field welding of battered pipe piles only, MDOT will accept standard 6G certification or a modified 2G Pipe certification.

For modified 2G Pipe certification, perform the test in the 6G position but incline the pipe 70° degrees (+0°/-5°) instead of 45° and use ½" thick 12" diameter pipe. Test specimen quantity and locations are the same as 6G test. Indicate 2G-Pipe Mod on the test record.



**PIPE INCLINATION FIXED ( 70° ) AND NOT ROTATED DURING WELDING.**

7. The following are the only approved Shielded Metal Arc Welding (SMAW) rods permitted to be used by a certified welder: E7015, E7016, and E7018.

8. Do not perform welding when the ambient temperature is below 0° F unless heating and housing is approved by the Engineer.
9. Do not weld during periods of precipitation with low hydrogen welding rods unless heating and housing is approved by the Engineer.
10. When the ambient temperature is below 32° F, preheat the base metal a minimum distance of 3 inches in all directions from the weld joint to a minimum of 70° F and maintain the temperature during welding.
11. Welders must not use low hydrogen electrodes that have become wet. They must also not weld using low hydrogen electrodes during periods of precipitation (rain, snow, heavy fog, etc.).
12. The welder is responsible for assuring the electrodes are stored in accordance with the contract requirements.

## Testing Agency Evaluation Process

The process for new and current welder certification testing agency evaluation is shown below. The on-site evaluation process consists of MDOT's representative scheduling an inspection date with the testing agency. The representative will use MDOT Form 5619 ([Welder Certification Program Audit Checklist](#)) to evaluate the agency and is required to take photographs of relevant testing equipment. Please notify the inspector if specific items cannot be photographed. The Department's representative is responsible for observing and reporting. MDOT's Structural Fabrication Unit will follow up with the testing agency if there are any noted deficiencies and issue a letter stating the results of the evaluation.

### Authorized Testing Agencies

Authorized testing agencies are subject to random audits performed by a Department representative. All required documentation and weld test coupons (performed within 6 months) must be available at the time of the evaluation and are subject to audit. If the testing agency has not performed a weld test within 6 months of the Department's audit, then they will be required to perform a mock-up weld test along with all supporting documentation for the Department's review during the audit to ensure compliance with the program.

Failure to comply with the provisions of this program could result in removal of the agency from the program. Changes to key staff members will require an audit to continue participation in the MDOT Welder Certification Program.

### New Testing Agencies

Agencies interested in becoming authorized to perform MDOT welder certification testing are required to complete and email MDOT Form 5618 ([Welder Certification General Information](#)) to the Structural Fabrication Unit. The Department will review the request and contact the agency to discuss their knowledge of MDOT's Welder Certification Program, AWS code, key staff members, and available equipment. An onsite evaluation will be scheduled provided the agency exhibits a good understanding of the above items and has the necessary staff and equipment. All required documentation must be available at the time of the evaluation. Failure to comply with the provisions of this program could result in denial of the agency's request.

# APPENDIX A

[Authorized Testing Agencies](#)