

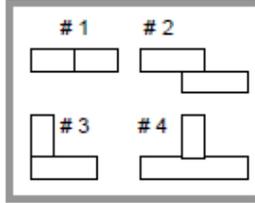
#### \*Type of Welds

1. Fillet Weld
2. Groove Weld



#### \*Weld Joints

1. Butt joint
2. Lap joint
3. Corner joint
4. Tee joint

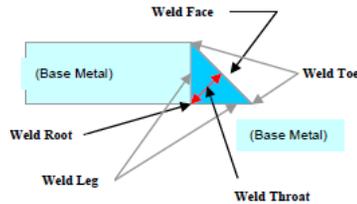


#### \*Welding Process (examples)

1. SMAW – Shield metal arc welding, “stick”
2. FCAW – flux cored arc welding, “flux-core”
3. GMAW - gas metal arc welding, “MIG”
4. GTAW gas tungsten arc welding, “TIG”

#### \*Weld Detail

1. Face
2. Root
3. Leg / Toe
4. Throat



Details of a Fillet Weld

\*Preheat – application of heat immediately prior to welding.

\*Weld position – welding qualified in flat, vertical horizontal, overhead or combination of positions.

\*WPS - welding procedure specification document that is the “recipe” to weld.

\*PQR - procedure qualification record verifies by test that WPS does work when followed.

\*WPQ - welder performance qualification, proof that welder has ability to produce sound welds. Weld test conductor provides this document.

\*Welder registration – credential card issued by the DSPS.

\*Welder symbol – unique ID (mark) assigned to each welder by the employer to identify welds.

\*Welder continuity – written employer record that verifies that welder has welded at least once every six months to assure competency to continuously produce sound welds.

## General Information

Visit the Department of Safety and Professional Services website:

<http://dsps.wi.gov>

After entering the website above, click on Programs and select Welding (structural) from the A-Z Program List

- Administrative Code: SPS 305
- Resources: “Welding Brochure”
- Contacts: Commercial Building Inspector map
- Join email group for automatic code updates



# Structural Welding



State of Wisconsin  
Department of Safety and Professional Services

For more information:  
[Dsps.wi.gov](http://Dsps.wi.gov)  
(608) 266-2112

## Welding Program Synopsis

### STRUCTURAL WELDING

The intent of this brochure is to provide direction and general welding information including basic code references to owners, engineers and local inspectors in the building industry.

Wisconsin's building code requires any structural welding in buildings to be completed by a qualified welder. Every structural welder must be properly registered and carry a valid welder registration card issued by the Department of Safety and Professional Services. These cards must be made available upon request.

To obtain the Safety and Professional Services welder registration, an individual or contractor must first consult with a Wisconsin certified weld test conductor. After consultation, a weld test conductor may assist with welding details, set-up test coupons, arrange weld testing and upon satisfactory test results, provide special documentation for DSPS submittal. Renewal of a welder registration requires periodic re-test by a weld test conductor in each welding process every four years.

### Applicable Code Sections

#### COMMERCIAL BUILDING CODE – SPS-362

SPS 362.2204 Welded connections. This is a department informational note to be used under IBC section 2204.1: Note: The rules pertaining to registration of welders are specified in SPS 305.

#### AMUSEMENT RIDE CODE – SPS 334

SPS 334.39 Welding. Welding of structural members and other critical parts of amusement rides shall comply with SPS 361 to 366. Note: Pursuant to s. SPS 305.34 (1) and (4), no person may perform structural welding on amusement rides unless the person holds a welder registration issued by the department.

#### CREDENTIAL CODE - SPS 305

#### WELDING STANDARDS ADOPTED

**SPS 305.004** Adopts the following standards:

1. AWS D1.1-2010 Steel
2. AWS D1.2-2008 Aluminum
3. AWS D1.3-2008 Sheet Steel
4. AWS D1.6-2007 Stainless

#### STRUCTURAL WELDER RULES

#### **SPS 305.34** Welder Registration Requirements

\*Structural welders shall be qualified in accordance with any adopted standard above.

\*Individuals shall carry Credential and "Evidence of Completion of Welding Tests" cards on person, make cards available immediately upon request and mark welds as required per SPS 305.34(4)

\*Additional documents which may be requested:

1. Welding Procedure Specification- WPS
2. Procedure Qualification Record- PQR
3. Welder Performance Qualification-WPQ
4. Welder Continuity Record

\*Procedure to obtain welder registration:

1. Get a welder registration application
2. Consult with a Wisconsin weld test conductor
3. Perform weldment of test coupon
4. After satisfactory test, obtain results w/ conductor signature on application forms
5. Return application with applicable form & fee

Note: A list of WI certified weld test conductors is provided on the back of the welder's registration form & available on our website

\*Welder registrations require an initial \$15 application fee and \$35 registration fee with re-test for renewal every four years.

#### WELD TEST CONDUCTOR RULES

#### **SPS 305.35** Weld test conductor requirements

\*Process to become a weld test conductor:

An individual shall pass a written Wisconsin exam before conducting structural weld tests.

1. Written examination - \$20 fee
2. Application \$15 + certification fee \$80
3. Renewal every four years

\*Duties may include welding consultation, visual inspection, performance of weld bend / tensile tests, or completion of testing by radiography

\*Maintain welder records for at least five years

\*Provide proper documents to welders to obtain welder registration upon satisfactory test results

### Who Does Structural Inspections?

\*Any authorized representative who holds a valid credential issued by Department of Safety and Professional Services per SPS 305 and given the responsibility to enforce structural welding requirements in commercial buildings.

\*An inspector may be employed by the state, county, municipal or a state contracted authority. The individual could be a local building, boiler, elevator or other public safety official.

#### WELDING DEFINITIONS

\*Registered Welder – person who holds a valid credential issued by the department under SPS 305.34 as a structural welder.

\*Weld Test Conductor – person who holds a valid credential issued by the department under SPS 305.35 as a weld test conductor given authority to test structural welders

\*Materials – AWS standard approved

1. Base Metals – metal welded, brazed or cut
2. Filler Metals – metal to be added to a weld