

Occupation Summary

Welder-Fabricators utilize industrial manufacturing skills in welding, metal fabrication, assembly and maintenance; and are employed by a variety of industrial manufacturers, such as marine manufacturers and paper mills. Duties include but are not limited to:

- Using various methods of welding to permanently join a variety of metal pieces, typically 1/8" or greater in thickness, in a variety of structural shapes
- Producing precision fabricated parts and assemblies according to specifications by selecting, and prepping the base materials; performing cutting, drilling, punching and other processes; and inspecting the work
- Performing basic forming processes using manual forming equipment, bending and rolling machines, and automated forming equipment
- Assembling parts, pieces and components
- Maintaining and repairing welding equipment and machines

Summary of Apprenticeship Program

- On-the-job learning is the heart of apprenticeship, constituting approximately 90% of the program. Apprentices learn key duties and tasks in a hands-on manner directly from a skilled worker.
- Paid related instruction teaches apprentices the theory behind their daily duties, and constitutes approximately 10% of the program.
- The Welder-Fabricator apprenticeship is approximately four years, including approximately 7,560 hours of on-the-job learning and 440 hours of paid related instruction.
- The program uses a new "hybrid" model. In on-the-job learning, apprentices must successfully complete learning hours and competencies, as described in the program provisions of the apprentice contract.

On-the-Job Learning

Key duties and tasks, referred to as "work processes," include:

- Adhere to welding and fabrication health & safety rules and regulations
- Interpret technical drawings, prints, job specifications and orders; and apply manufacturing principles to welding and fabrication work processes
- Weld ferrous and non-ferrous metals according to prescribed techniques and industry standards; and produce precision fabricated parts and assemblies according to specifications
- Perform various cutting processes; visual inspection of welds, parts and assemblies; basic forming processes; and job set-up operations

Paid Related Instruction

- Related instruction is provided by Northeast Wisconsin Technical College
- The employer is responsible for paying the apprentice to attend 440 hours of required classes. The apprentice pays for additional hours. The employer does not pay the apprentice for doing homework.
- Certifications are not included in the program, but Paid Related Instruction will prepare an apprentice for American Welding Society certification exams, which might be required by the apprentice's employer

Additional Requirements

- The apprentice in his/her final year must attend the Transition to Trainer course, as indicated in the Special Provisions portion of the apprentice contract
- An employer may require an apprentice to complete basic First Aid and CPR courses.

Participant Support Services

Once registered, apprentices are notified by the Bureau via letter that they might be eligible for supportive services through the SAGE project until December 31, 2012. Services includes:

- Training Funds up to \$1,800 per participant (tuition, book fees, job related tools/clothing/ equipment)
- Supportive Funds up to \$1,800 per participant (transportation, childcare, auto repairs, etc.)

Qualifications of a Welder-Fabricator Apprentice Applicant

- Must be High School graduate or equivalent
- Must be physically able to perform the work of the trade with reasonable accommodations, including lifting, climbing, ability to work outside in all types of weather, without hazard to themselves or others
- May be required to undergo drug or alcohol testing at time of selection as an apprentice

Responsibilities of a Welder-Fabricator Apprentice

- Work safely and follow employer's written work rules and policies
- Maintain a record of training required by the occupation information
- Pay the tuition and book costs for related instruction
- Advance competency on- the-job under the supervision of a skilled worker
- Notify the Apprenticeship Training Representative (ATR) of address changes, new phone numbers, or any other status changes and upon completion of related instruction and work-based competencies

Qualifications of a Sponsoring Employer

- Provide training environment conducive to delivering well-rounded, work-based training for apprentices, including well maintained and current equipment
- Ensure that apprentices are trained in the core work processes identified for this trade, and employ a full time journey worker to supervise the apprentice and ensure safe training at all times

Responsibilities of a Sponsoring Employer

- Train apprentice(s) on-the-job and provide learning experiences as outlined in the occupation information
- Provide proper supervision and mentoring of apprentices from an experienced journey level workers
- Monitor the apprentice's on the job progress and provide feedback
- Ensure apprentice is released from work to attend related instruction (school) and pay apprentices while attending classroom instruction at the same rate as for services performed

Getting Started

- Contact the Bureau of Apprenticeship Standards at (608) 266-3332 or www.wisconsinapprenticeship.org
- The Bureau will put you in contact with the Apprenticeship Training Representative in your area

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Welder-Fabricator • 2-819361010-03-H
Exhibit A - Program Provisions

TERM OF APPRENTICESHIP: The term of apprenticeship shall be Hybrid, which has been established to be 8,000 hours. In addition to the specified hours, the apprentice must successfully attain the competencies described in these program provisions. Hours of labor shall be the same as established for other skilled employees in the trade.

PROBATIONARY PERIOD: The probationary period shall be the first 6 months of employment, but in no case shall it exceed twelve calendar months. During the probationary period, this contract may be cancelled by the apprentice or the sponsor upon written notice to the Department, without adverse impact on the sponsor.

SCHOOL ATTENDANCE: The apprentice shall attend the Wisconsin Technical College System or other approved training provider, as assigned, for paid related instruction four hours per week or the equivalent and satisfactorily complete the prescribed course material for a minimum of 440 hours, unless otherwise approved by the Department. The employer must pay the apprentice for attended related instruction hours at the same rate per hour as for services performed.

WORK PROCESS SCHEDULE: In order to obtain well-rounded training and thereby qualify as a skilled worker in the trade, the apprentice shall have experience and training in the following areas and shall demonstrate competency, as specified herein. This instruction and experience shall include the following operations but not necessarily in the sequence given. Time spent on specific operations need not be continuous.

<u>Work Process Description</u>	<u>Approximate Hours</u> (Min - Max)
Adhere to welding and fabrication health & safety rules and regulations by applying AWS and ANSI Z49 welding health and safety standards, OSHA standards and other required standards correctly.	200
1) AWS and ANSI Z49 • Protect against toxic inhalation and uses purified welding helmets when needed • Maintain hot zones according to standards • Handle hot work safely • Use appropriate personal protective equipment (eyes, head, face, ears, fingers/toes, hands and feet, lungs) based on conditions • Maintain fresh air and ventilation and monitors for oxygen displacement	
2) OSHA • Follow lock-out and tag-out procedures • Demonstrate awareness of confined spaces and complies with entry/exit safety training • Locate and interpret MSDS information • Protect self and other workers from possible electrical hazards and electrocution • Apply fall protection safety based on conditions • Use ladders safely	
3) Other • Follow permitting procedures including depressurizing and cleaning pipes and systems • Maintain clean and safe work areas • Use tool, machine and shop equipment safeguards • Lift and move metal, materials, assemblies, and finished goods safely using	

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proper rigging techniques	
• Protect against fires and is prepared to use fire extinguishers • Respond to emergencies based on employer specific training	
Interpret technical drawings, prints, job specifications and orders	260
• identify materials of construction • read the bill of materials • identify title block contents • identify and select fasteners	
Weld ferrous and non-ferrous metals according to prescribed techniques and industry standards using all of the following methods, and in positions based on customer and employer needs: Shielded Metal Arc Welding (SMAW); Gas Metal Arc Welding or MIG welding (GMAW); Gas Tungsten Arc Welding or TIG welding (GTAW); Flux Core Arc Welding (FCAW).	3200
• inspect welding equipment and completes equipment validations • troubleshoot welding and shop equipment • perform routine and preventative maintenance on welding machines and equipment • obtain and maintain industry certifications based on employer need	
Produce precision fabricated parts and assemblies according to specifications	2200
• apply math calculations in the context of prints and job specifications • prep base metals by cleaning, cutting, grinding, sandblasting, priming, painting, and other procedures • measure metal and material stock • lay out parts, shapes and locations • set-up machines based on conditions and jobs • perform cutting, sawing, drilling, shearing and punching • assemble parts, pieces, and components • verify work quality and tolerances • perform routine and preventative maintenance on assembly and fabrication machines and equipment	
Perform various cutting processes	400
• produce parts according to prints and specifications • apply plasma cutting safety to jobs and work zones • apply oxy-fuel safety to jobs and work zones • set up manual and automated cutting equipment • perform gouging processes • verify work quality and tolerances • perform routine and preventative maintenance on cutting equipment • use other technologies based on employer needs	
Perform visual inspection of welds, parts, and assemblies	400
• self-inspect all work • align assembly components and parts • adhere to acceptance criteria for given codes and/or company standards • take corrective action based on conditions	

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- verify results with blueprint
- use both welding and fabrication inspection equipment such as squares, fillet weld gauges, micrometers, and other inspection resources

Perform basic forming processes 300

- practice safe forming work procedures
- calculate bend allowances
- set up forming equipment based on job requirements
- bend metals
- use hand tools and manual forming equipment
- use automated forming equipment including hydraulic, pneumatic, and electric
- roll various types of metals
- perform other forming processes based on employer specific situations

Perform job set-up operations in order to control distortion 300

- apply metallurgical principles based on job specifications
- apply distortion control techniques
- monitor heat input
- establish welding sequences
- use welding and fabrication fixtures
- select custom fixtures per employer needs

Apply manufacturing principles to welding and fabrication work processes 100

- work efficiently
- minimize waste
- apply lean manufacturing, quality, and continuous improvement to jobs and based on employer needs
- adopt green initiatives when applicable
- adhere to ISO criteria when applicable
- demonstrate awareness to environmental programs when applicable
- effectively apply other manufacturing principles to welding, fabrication, assembly, and cutting work processes

Local Options, including but not limited to 200

- Submerged Arc Welding (SAW)
- soldering and brazing
- resistance welding
- plastic welding/fabrication
- CNC equipment

Paid Related Instruction 440

TOTAL 8000

The above schedule is to include all operations and such other work as is customary in the trade.

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MINIMUM COMPENSATION TO BE PAID:

N/A

Base skilled wage rate N/A per hour.

If at any time the base skilled wage rate rises or falls, the apprentice's wage shall be adjusted proportionately. The wage rate of apprentices employed in this trade and this firm shall be based on the base skilled wage rate stated above.

All apprentices are covered by State and Federal Wage and Hour Standard requirements. All apprentices shall be paid no less than the minimum wage established under regulations.

CREDIT PROVISIONS: The apprentice, granted credit at the start or during the term of the apprenticeship, shall be paid the wage rate of the pay period to which such credit advanced the apprentice.

Work credit hours approved:	N/A
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School credit hours approved:	
Paid related instruction:	N/A

Unpaid related instruction:	N/A
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Total credit hours to be applied to the term of the apprenticeship:	N/A
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SPECIAL PROVISIONS:

The apprentice must take Transition to Trainer in the final year of his or her apprenticeship in order to complete the program.

Welder-Fabricator Apprenticeship

Courses for Related Instruction

Provided by Northeast Wisconsin Technical College

Overview

Related instruction teaches apprentices the science and theory behind their daily duties. It comprises 440 of the 8000 hours of the apprenticeship program, the equivalent of four hours per week when school is in session. The apprentice is paid by the employer to attend.

Course Descriptions

Print Reading, Math, Cutting & Inspection (First Year)

The first course in the related instruction portion of the Welding-Fabrication Apprenticeship program introduces the trade, welding and fabrication safety, blueprint reading, trade math, metal cutting, visual inspection, and an orientation to the college and this apprenticeship program. Course meets for 72 hours & 9 sessions.

Layout & Fabrication Basics with SMAW and GMAW Welding (First Year)

The second course in the related instruction portion of the Welding-Fabrication Apprenticeship program introduces fabrication and layout skills. Apprentices will also develop skills in SMAW and GMAW welding processes. Course meets for 72 hours & 9 sessions.

Advanced Fabrication and Layout with Soldering and Brazing (Second Year)

The third course in the related instruction portion of the Welding-Fabrication Apprenticeship program explores advanced fabrication techniques commonly used by metal fabrication manufacturers. Course topics include rolling, bending, forming, applied math, applied print reading, advanced layout and soldering and brazing metal. Course meets for 72 hours & 9 sessions.

Metallurgy & FCAW and GTAW Welding (Second Year)

The fourth course in the related instruction portion of the Welding-Fabrication Apprenticeship program explores the welding standards and specifications for FCAW and GTAW. Apprentices will also learn about metallurgy, distortion control, and rigging and lifting. Course meets for 72 hours & 9 sessions.

Troubleshooting (Third Year)

The fifth course in the related instruction portion of the Welding-Fabrication Apprenticeship program covers troubleshooting of layout, cutting, welding, and fabrication equipment. The course introduces the apprenticeship to basic troubleshooting procedures and applies those steps to specific equipment and manufacturing work processes. Course meets for 72 hours & 9 sessions.

Automation, CNC and Lean Manufacturing (Third Year)

The sixth and final course in the related instruction portion of the Welding-Fabrication Apprenticeship program introduces the apprentice to CNC, automation, exotic materials, lean manufacturing, and welding standards, certifications, and qualifications. Course meets for 72 hours & 9 sessions.

BAS Transition to Trainer (Third Year)

Transition to Trainer targets final year apprentices who will, as journey workers, soon be responsible for passing on their skills to new apprentices. Developed by the Bureau of Apprenticeship Standards, this 8 hour course teaches soon-to-be journey workers how to serve as a mentor and job coach, how to provide hands-on skill training, and how to give positive and effective performance feedback. Course is available at all of the Wisconsin technical colleges and offered at multiple times each year. Course meets for 8 hours.

**Department of Workforce Development
Division of Employment & Training
Bureau of Apprenticeship Standards**

APPRENTICESHIP TRAINING REPRESENTATIVES – (FIELD STAFF)			
Areas of Responsibilities	Staff Names	Phone Number	<u>Cell /FAX Numbers</u>
Appleton North – Area 8-Counties: Outagamie, Waupaca, Waushara, Winnebago	Lisa Perkofski Lisa.Perkofskilamz@dwd.wisconsin.gov	920 832-5303	920 858-1454 920 735-2473
Chippewa Falls- Area 2 – Counties: Ashland, Barron, Bayfield, Burnett, Chippewa, Clark, Douglas, Dunn, Eau Claire, Iron, Pepin, Pierce, Polk, Rusk, Sawyer, St. Croix, Washburn	Travis Ludvigson Travis.Ludvigson@dwd.wisconsin.gov	715 738-3853	715-577-0253 715 738-3854
Green Bay – Area 7 – Counties Brown, Door, Florence, Kewaunee, Marinette, Menominee, Oconto, Shawano	Burt Harding Burt.Harding@dwd.wisconsin.gov	920 492-5618	920-360-1567 920 498-6315
La Crosse – Area 3 – Counties: Buffalo, Crawford, Grant, Iowa, Jackson, Juneau, LaCrosse, Lafayette, Monroe, Richland, Trempealeau, Vernon	Kathy O’Sullivan Kathleen.OSullivan@dwd.wisconsin.gov	608 785-9176	608-235-5711 608 785-9327
Lakeshore –Area 9 Counties Calumet, Fond du Lac, Manitowoc, Sheboygan	Sandy Destree Sandra.Destree@dwd.wisconsin.gov	920 693-1102	920 901-1764 920-693-1104
Madison North – Area 5 – Counties: Columbia, Green Lake, Jefferson, Marquette, Sauk	Debbie Schanke Debra.Schanke@dwd.wisconsin.gov	608 246-3887	608 235-5708 608 246-5521
Madison South – Area 6 – Counties: Dane, Green Rock	Mary Pierce Maryx.Pierce@dwd.wisconsin.gov	608 246-7900	608-235-5705 608 266-0766
Milwaukee – Area 11 – County: Milwaukee	Kay Haishuk Kay.Haishuk@dwd.wisconsin.gov	414 768-7190	414-587-4397 414 768-7193
Milwaukee – Area 16 – Counties: Milwaukee, Waukesha Barber/Cosmetology only	Hafeezah Ahmad Hafeezah.Ahmad@dwd.wisconsin.gov	414 227-4973	414 840-9815 414 227-4210
Moraine Park—Area 10-Counties Dodge, Ozaukee, Washington	Barbara Robakowski Barb.Robakowski@dwd.wisconsin.gov	262 335-5849	414 840-2535 262 335 5326
Racine – Area 13 – Counties: Kenosha, Racine, Walworth	Sandra Brietzman Sandra.Brietzman@dwd.wisconsin.gov	262-564-3210	414 587-4393 262 564-2951
U.S. Dept. of Labor, Madison – Area 14 –	Mary Harrington Mary.Harrington@dwd.wisconsin.gov	608 267-2355	Fax: 608 266-0766
Waukesha – Area 12 – County: Waukesha	Robert Scheldroup Robert.Scheldroup@dwd.wisconsin.gov	262-695-7778	414 587-4395 262 695-7798
Wausau – Area 4 - Counties: Adams, Forest, Langlade, Lincoln, Marathon, Oneida, Portage, Price, Taylor, Vilas, Wood	Benjamin Stahlecker Benjamin.Stahlecker@dwd.wisconsin.gov	715 261-8754	715-571-4485 715 261-8752

