

**ABC NATIONAL
TIERED CAPRPENTRY TRAINING APPRENTICESHIP STANDARDS
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DEFINITIONS

APPRENTICE: Any individual employed by the company meeting the qualifications described in the Standards of Apprenticeship who has signed an Apprenticeship Agreement with the Program Sponsor providing for training and related instruction under the Standards, and who is registered with the Registration Agency.

APPRENTICE ELECTRONIC REGISTRATION (AER): Is an electronic tool that allows for instantaneous transmission of apprentice data for more efficient registration of apprentices and provides Program Sponsors with a faster turnaround on their submissions and access to their apprenticeship program data.

APPRENTICESHIP ADMINISTRATOR: An individual designated by the Program Sponsor to supervise or have charge and direction of administering the Apprenticeship Program.

APPRENTICESHIP AGREEMENT: The written agreement between the apprentice, or if a minor, the parent or guardian, and the Program Sponsor setting forth the responsibilities and obligations of all parties to the Agreement with respect to the Apprentice's employment and training under the Standards. Each Apprenticeship Agreement must be properly registered with the Registration Agency.

APPRENTICESHIP COMMITTEE: The Apprenticeship Committee that may be established by the Program Sponsor under these standards that is charged with the operation of the program. (References herein to Apprenticeship Committee apply equally to a Program Sponsor that has no such Apprenticeship Committee.) Refer to Section 1.3 Duties of the Apprenticeship Committee.

CERTIFICATE OF COMPLETION OF APPRENTICESHIP: The Certificate of Completion of Apprenticeship issued by the Registration Agency to those registered apprentices certified and documented as successfully completing the apprentice training requirements of the standards of apprenticeship.

CERTIFICATE OF TRAINING: A Certificate of Training may be issued by the U.S. Department of Labor's, Office of Apprenticeship Administrator to those registered apprentices documented as successfully completing a defined career lattice component of the apprentice training requirements as outlined in the Work Process Schedule of these Standards of Apprenticeship.

CERTIFICATION: Indicates that the individual has a specific set of knowledge, skills, or abilities in the view of the certifying body. The certification is awarded through the certifying body, the National Center for Construction Education and Research (NCCER). Students become certified through training and completion of one of three progressive levels. For each level, to obtain certification the students must pass a related instruction test and be able to perform all tasks outlined in on-the-job learning.

ELECTRONIC MEDIA: Electronic Media shall include, but is not limited to electronic storage media, transmission media, the Internet, extranet, lease lines, dial-up lines, private networks, and the physical movement of removable/transportable electronic media and/or interactive distance learning.

EMPLOYER: Will mean any chapter member of the Program Sponsor or its affiliate employing an apprentice under this apprenticeship and training standards under an approved employer acceptance agreement. See also, the definitions of sponsoring employer and subscribing employer.

EMPLOYER ACCEPTANCE AGREEMENT: The written agreement between the Program Sponsor and the employer that undertakes to participate in the Apprenticeship Program.

HYBRID OCCUPATION: In addition to time-based occupations which have a fixed set time for completion and competency/performance-based occupations, a third alternative has evolved which, in effect, is a "hybrid" of the two types of occupations previously mentioned. This third type of training method is basically a combination of time and performance considerations whereby work processes are developed with a minimum-maximum time/hours for each task or job requirement.

JOURNEYPERSON: An individual who has sufficient skill and knowledge of the profession, either through formal apprenticeship or through practical on-the-job experience and training, to be recognized by his/her employer as being qualified to perform the work of the trade or craft. Use of the term may also refer to a mentor, technician, specialist or other skilled worker.

or

An individual who has documented sufficient skills and knowledge of a trade, craft or occupation, either through formal apprenticeship or through practical on-the-job experience, and formal training. This individual is recognized by his/her employer as being fully qualified to perform the work of the trade, craft or occupation.

O*NET-SOC CODE: The Occupational Information Network (O*NET) codes and titles are based on the new Standard Occupational Classification (SOC) system mandated by the Federal Office of Management and Budget for use in collecting statistical information on occupations. The O*NET classification, which replaces the Dictionary of Occupational Titles, uses an 8-digit O*NET-SOC code. Use of the SOC classification as a basis for the O*NET codes ensures that O*NET information can be readily linked to labor market information such as occupational employment and wage data at the national, State, and local levels.

ON-THE-JOB-LEARNING (OJL): Tasks learned on the job which the apprentice must be proficient in before a completion certificate is granted. The learning must be through structured, supervised work.

PROGRAM SPONSOR: The organization, Associated Builders and Contractors, Inc. that registers an apprenticeship program with a Registration Agency and that has the full responsibility for administration and operation of the apprenticeship program. See also "Apprenticeship Committee."

RATIO: The number of apprentice(s) permitted to work under the supervision of a certain number of journeyman(s).

REGISTERED APPRENTICESHIP PARTNERS INFORMATION DATA SYSTEM (RAPIDS): The Federal system, which provides for the automated collection, retention, updating, retrieval and summarization of information related to apprentices and apprenticeship programs.

REGISTRATION AGENCY: The U.S. Department of Labor's, Office of Apprenticeship (OA) or a State Apprenticeship Council or Agency recognized by the OA to register local apprenticeship programs. (Insert Appropriate Name)

SAA: A reference to either a State Apprenticeship Agency that is recognized by the U.S. Department of Labor for purposes of acting as a Registration Agency of Apprenticeship Programs.

SPONSORED APPLICANT: One who is gainfully employed by a Subscribing Employer, who applies as an applicant into the approved apprenticeship program having already met the minimum qualifications for apprenticeship application as enumerated above in these standards, thereby qualifying for immediate registration into the apprenticeship program.

SPONSORING EMPLOYER: An individual chapter or affiliate organization that administers an in-house apprenticeship program registered by a Registration Agency.

STANDARDS OF APPRENTICESHIP: This entire document including all appendices and attachments hereto, and any future modifications or additions approved by the Registration Agency.

SUBSCRIBING EMPLOYER: An individual chapter that employs apprentice(s) in accordance with the standards of apprenticeship through agreement with a Program Sponsor.

SUPERVISOR OF APPRENTICES: An individual designated by the Program Sponsor or Subscribing Employer to supervise or have charge and direction of an apprentice.

TIME-BASED OCCUPATION: A time-based occupation requires a minimum of 2,000 hours of OJL and recommended 144 hours of related instruction, which includes an outline of the specific work processes and the approximate time requirement for each individual work process under that occupation. *(if applicable)*

SECTION I. - PROGRAM ADMINISTRATION

1.1 The Apprenticeship Committee

The Apprenticeship Committee may be established by Associated Builders and Contractors, Inc. is responsible for the development, administration, and supervision of these registered standards. The Apprenticeship Committee shall have a chairperson.

1.2 Duties of the Apprenticeship Committee

1. To establish minimum standards of education and experience required of apprentices, review apprenticeship activities in accordance with these standards, and when appropriate, establish such additional provisions governing the program's procedures as may be necessary.
2. To select apprentices as outlined in this program.
3. To ensure that apprentices are under written Apprenticeship Agreements and to submit these Apprenticeship Agreements to the appropriate Registration Agency for registration.
4. To establish minimum standards of related instruction and OJL required of apprentices and to make a good faith effort toward the apprentices meeting such standards.
5. To meet with sufficient regularity, either in person or electronically, to ensure adequate supervision of the program, but no less than once per quarter, to review apprentices' and program's progress, and to recommend improvements to the program.
6. To certify that apprentices have successfully completed their apprenticeship program.
7. To hear and adjust all complaints arising under Apprenticeship Agreements. See also, Title 29 of the Code of Federal Regulations (CFR), parts 29.5(b)(21), 29.11 and 30.11 and Section XXIII of these Standards.
8. To arrange for the administration of tests for determining the apprentice's progress in skills and technical knowledge.
9. To provide apprentices with occupational safety and health education and training as an integrated part of apprenticeship instruction.
10. To notify the Registration Agency of all new apprenticeship applications, credit granted, suspensions with appropriate explanation, reinstatements with appropriate explanation, extensions with appropriate explanation, cancellations with appropriate explanation, and completions of Apprenticeship Agreements.
11. To maintain a record of each apprentice's application, education, experience and progress in OJL and in related classroom instruction.
12. To monitor participation rates of minorities and women in the apprenticeship program in accordance with the Affirmative Action Plan, and to annually review the Affirmative Action Plan's success and update the plan when necessary in accordance with Title 29, CFR parts 30.4 and 30.8.

13. To keep adequate records of applicants, apprentices, Affirmative Action Plan, and the program for a period time in accordance with Title 29, CFR part 30.8.
14. To supervise all the provisions of these standards and be responsible, in general, for the successful operation of the standards by performing the duties here listed and cooperating with public and private agencies which can be of assistance by obtaining publicity to develop public support of apprenticeship and by keeping in constant touch with all parties concerned, including apprentices, employers and journeypersons.

1.3 Supervision of Apprentices

During the term of apprenticeship, the apprentice shall be under the jurisdiction and control of the Program Sponsor or its Apprenticeship Committee. The Apprenticeship Committee shall have the authority to protect the apprentice's welfare and also to instruct, direct, and discipline the apprentice. Each employer shall designate a staff member (customarily a journeyperson) who shall be responsible for the supervision of the apprentice's OJL. This supervisor shall be responsible for assuring that the apprentice is trained in all work processes of the trade, including safety in the use of tools, equipment and job conduct.

A qualified person, to be known as the Apprenticeship Administrator [*or other appropriate title, such as coordinator or director*], may be designated by the Program Sponsor to assist in the administration of these standards.

1.4 Policy

On or after the date these standards of apprenticeship are duly registered, it shall be the policy of each subscribing employer and the Apprenticeship Committee that all apprentices employed in education covered herein shall be governed by the terms of these standards.

SECTION II. - EQUAL OPPORTUNITY PLEDGE
29 CFR part 29.5(b)(20) and part 30.3(b)

The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The Program Sponsor or the sponsoring employer shall take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29 of the Code of Federal Regulations, part 30.

SECTION III. - AFFIRMATIVE ACTION PLAN
29 CFR part 29.5(b) (20) and part 30

If the Program Sponsor enrolls five or more apprentices, the Program Sponsor will adopt an Affirmative Action Plan and Selection Procedures in accordance with Title 29, CFR part 30 or similar requirements expressed in a State Plan for Equal Employment Opportunity in Apprenticeship adopted pursuant to Title 29, CFR part 30 and approved by the U.S. Department of Labor.
See Appendix C.

SECTION IV. - QUALIFICATIONS FOR APPRENTICESHIP

29 CFR part 29.5(b)(10)

Applicants shall meet at a minimum the following requirements to qualify for an interview to become an apprentice.

1. Be at least 18 years of age.
2. Provide a certified copy of high school diploma and official transcripts or certified copy of GED. [or appropriate records of enrollment in high school for secondary school education programs.] Applicants must submit a DD-214 to verify military training and/or experience if they are a veteran and wish to receive consideration for such training/experience.
3. Have a dependable means of transportation to the employer's place of business and/or jobsite and to the place where classroom job-related instruction is conducted.
4. Be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others.
5. Submit a completed and signed official application and the required attachments by the application deadline to the Apprenticeship Committee at the location indicated on the application materials.
6. May be required to submit to: 1) a physical agility or fitness test, 2) screening for the current illegal use of drugs; or 3) both as a condition of acceptance into the program and prior to being employed.

SECTION V. - SELECTION OF APPRENTICES
29 CFR part 30.5

5.1 Application Process

The recruitment, selection, employment, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, or sex. The Apprenticeship Committee will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29, CFR part 30.

The Program Sponsor shall publish a notice about apprenticeship opportunities, the application requirements, and its equal opportunity policy, in accordance with its Affirmative Action Plan and Title 29, CFR part 30.4(c), at least 30 days in advance of the earliest date for application at each interval for accepting applications. In the event that the Program Sponsor customarily receives applications throughout the year, notice shall be given not less than semi-annually.

5.2 Enrollment Systems

The Program Sponsor shall use the following selection procedures for enrolling individuals as apprentices from a pool of qualified applicants:

[Note: The Program Sponsor should indicate in the Apprenticeship Standards a description of the mechanism to be used to select apprentices from qualified applicants. As explained in greater detail in Appendix D, the Program Sponsor may use one of several selection procedures for enrolling individuals as apprentices from a pool of qualified applicants, including a ranking system as described in Title 29, CFR part 30.5(b)(1); a random selection system as described in Title 29, CFR part 30.5(b)(2); or an alternative program, such as an open enrollment system, approved by OA in accordance with Title 29, CFR part 30.5(b)(4). In addition, selection procedures should provide for admission, as appropriate, of qualified sponsored applicants (see Definitions), qualified transfers from other registered apprenticeship programs, and/or qualified U.S. Military Veterans or Job Corps graduates who may be preferred over other apprentice candidates in the pool. (See Sections 12.2, 12.3 and 12.4 for more information.) The Program Sponsor may also have a school-to-apprenticeship program.]

Qualified applicants shall be retained on the list subject to selection for a minimum period of two years. Applicants may be removed from the list at an earlier date by their request or following their failure to respond to an apprentice job opportunity given by "Certified Mail," return receipt requested. Exceptions for discarding eligibility lists or qualified applicants are contained in Title 29, CFR part 30.6.

Before being enrolled as an apprentice, qualified applicants may be subject to a physical examination and/or drug test as a condition of acceptance into the apprenticeship program. The cost of such examination and/or drug test shall be the responsibility of the Apprenticeship Committee or the Subscribing Employer.

5.3 Apprenticeship Registration

Upon the confirmation of an employment opportunity for the apprentice and their subsequent acceptance, the apprentice shall sign an Apprenticeship Agreement, which shall be signed by the Apprenticeship Committee or its designee. Copies of the Apprenticeship Agreement will be
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furnished to the apprentice, the employer, the Apprenticeship Committee, the Registration Agency, and where applicable, the local office of the Department of Veterans Affairs. *[Note: State Apprenticeship Agencies may require the use of their own Apprenticeship Agreement forms. In such instances, the Apprenticeship Agreement forms may be obtained from the State Apprenticeship Agency or the OA.]*

5.4 School-to-Apprenticeship [OPTION]

The Program Sponsor will partner with secondary school(s), [insert names], to introduce construction professional craft opportunities to students, to develop an apprenticeship and/or apprenticeship preparation program, and to provide support services. *[Note: ABC encourages apprenticeship Program Sponsors to establish relationships with secondary schools. See Appendix G.]*

SECTION VI. - APPRENTICESHIP AGREEMENT
29 CFR parts 29.5(b)(11) and 29.6

After an apprenticeship applicant has been selected, but before employment as an apprentice or enrollment in related instruction, the apprentice shall be covered by a written Apprenticeship Agreement signed by the Apprenticeship Committee or Program Sponsor or its designee and the apprentice and approved by and registered with the Registration Agency. Prior to signing an Apprenticeship Agreement, each selected applicant shall be given an opportunity to read and review these Standards, any relative additional rules and policies of the Program Sponsor, and the Apprenticeship Agreement.

Such Apprenticeship Agreement shall incorporate by reference the terms and conditions of these standards as they exist on the date of the Apprenticeship Agreement and as they may be amended during the period of the Apprenticeship Agreement. A copy of each Apprenticeship Agreement shall be furnished to the apprentice, the employer, and the Registration Agency. An additional copy of the Apprenticeship Agreement will be provided to the Veteran's State Approving Agency for those veteran apprentices desiring access to any benefits to which they are entitled.

The Apprenticeship Agreement shall contain all the requirements contained in Title 29, CFR part 29.6.

The Registration Agency shall be advised promptly of the execution of each Apprenticeship Agreement and will be given all the information required for registering the apprentice. See Appendix B.

SECTION VII. - RATIO OF APPRENTICES TO JOURNEYPERSONS

29 CFR part 29.5(b)(7)

7.1 General Policy

To provide for a steady supply of trained persons into the construction training industry and to reflect employment opportunities, apprentice to journeyman ratios will be enacted in accordance with the following provisions. The numeric ratio of apprentice(s) to journeyman(s) established by the Program Sponsor will be consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, and the allowable ratio will be 1:1 for the trade. For purposes of clarity, the ratio shall mean one (1) apprentice for the first skilled journeyman may be employed, and one (1) additional apprentice for each additional skilled journeyman may be employed thereafter.

7.2 National Demonstration Program for Ratio of Apprentice(s) to Journeyman(s)

*[Note: The Program Sponsor may submit to the Registration Agency for an adjusted ratio of apprentices to journeyman when a need can be demonstrated. Such a program would have to include an advanced Affirmative Action Plan to attract underutilized populations, such as minorities and women. **Any such proposal must be made with the primary consideration being the safety and welfare of the apprentices.** The U.S. Department of Labor would expect to conduct additional auditing to assure compliance with and success of the program.]*

The number of electrician apprentices employed on a given job site will not exceed a ratio of two apprentices for each electrician journeyman normally employed where the Program Sponsor or its Apprenticeship Committee deems such a ratio to be consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, and is limited to the electrician trade, in accordance with the following provisions:

(a) One apprentice may be in any period of training in their apprenticeship, and will be under the direct supervision of a journeyman.

(b) A second apprentice who has successfully completed a minimum of 5,000 hours of OJL and the appropriate period of related and supplemental instruction may be permitted to perform work under the indirect supervision of the same journeyman. Indirect supervision must meet the requirements of Section XVI of these apprenticeship standards.

(c) Any work assigned to an apprentice eligible under (b) of this provision, must be reasonable and prudent in relation to the individual apprentice's knowledge, skills and ability, consistent with their progress in apprenticeship.

The Program Sponsor agrees that only such number of apprentices will be employed as can be given proper and thorough training and supervision, as well as a reasonable opportunity for employment in the trade after completion.

This provision for increased apprentice to journeyman ratio will provide local area Program Sponsors with expanded opportunity to increase female and/or minority participation in the construction industry.

For purposes of this section, a job site is considered to be the physical location where apprentices report for their work assignments. All other physical locations where workers report for work are each to be considered a single, separate job site.

The above ratio language and permission to work apprentices without direct supervision will be permitted for a trial period of not more than two (2) years, from the date of approval by the administrator. The program sponsor will provide at least annually, information relative to accidents, injuries and deaths of any apprentices who were employed under the conditions of this trial ratio. These reports will be due in the OA Administrator's Office on the thirty-first day of March of each new calendar year. The Office of Apprenticeship reserves the right to rescind this trail ratio upon receipt of sufficient evidence that this trail ratio may not be in the best interest or protect the welfare of the apprentice.

During the entire term of the apprenticeship, the apprentice shall be under the jurisdiction of the Program Sponsor. The Program Sponsor shall have the authority and responsibility to instruct, direct, discipline and protect the welfare of the apprentice.

Each employer shall designate a staff member to be responsible for supervision of the apprentice's OJL. The supervisor shall document the apprentice's job record and shall grade the quality of performance on-the-job. The supervisor shall assure that the apprentice is assigned to a journeyman, and that work is rotated so as to insure training in all phases of the work of the trade.

The employer, supervisor of apprentices and/or journeyman shall ensure that workplace safety shall be maintained in accordance with applicable requirements of the U.S. Occupational Safety and Health Administration (OSHA).

An apprentice is to be under the supervision of a journeyman at all times. This does not imply that the apprentice must always be in-sight-of the journeyman in occupations listed in these standards, or are journeyman required to constantly observe an apprentice. Supervision shall not be of such a nature that prevents the development of responsibility and initiative. Work may be laid-out by the employer's designated supervisor or journeyman based on their evaluation of the apprentice's skills and ability to perform job tasks. Apprentices shall be permitted to perform job tasks in order to develop job skills and training competencies. Journeymen are permitted to leave the immediate work area without being accompanied by the apprentice.

SECTION VIII. - TERM OF APPRENTICESHIP

29 CFR part 29.5(b)(2)

The specific hybrid carpentry program listed in the APPENDIX A intends to move from a Time-based duration of training to one that permits apprentices to advance at a pace commensurate with their skills, knowledge, and motivation. The Hybrid type of training under which this program operates for each occupation is identified on the Work Process Schedule found in Appendix A. Under the option of advancement based upon demonstrated achievement of skills and knowledge by the individual apprentice, the apprentice's term of training may be reduced to not less than one-half the stated traditional term for the occupation. Apprentices failing to make satisfactory progress during OJL or in related instruction may have a period of training extended by not more than 50 percent.

Completion of an apprenticeship utilizing the hybrid format must be at the approval of the Subscribing Employer and the Program Sponsor. Under no circumstances will the competency-based advancement conflict with the requirements of Title 29, CFR part 29.5(b).

Full credit shall be given for the probationary period. See Section IX.

SECTION IX. - PROBATIONARY PERIOD
29 CFR parts 29.5 (b)(8) and (b)(19)

9.1 During Probationary Period

All apprentices employed in conformity with these standards shall be subject to a probationary period not to exceed 1000 hours or one (1) year, whichever is later, after signing the Apprenticeship Agreement. An apprentice who successfully completes the probationary period will be granted full credit for the hours earned toward completion of apprenticeship. During the probationary period, the Apprenticeship Agreement may be cancelled without stated cause by notifying the other party in writing. Appropriate records shall be maintained and reviewed prior to the end of the probationary period.

9.2 After Probationary Period

After the probationary period, the Apprenticeship Agreement may be cancelled at the request of the apprentice or the Subscribing Employer for good cause after due notice and reasonable opportunity for corrective action. In such cases, the Apprenticeship Committee will provide written notice to the apprentice and the Registration Agency of final action. When a Subscribing Employer terminates an apprentice who has completed the probationary period, the Apprenticeship Committee shall be immediately notified, given the name of the apprentice, the reason of termination, and the effective date of same. The apprentice will be interviewed by the Apprenticeship Committee or its designee and placed with another employer if appropriate or possible.

SECTION X. - HOURS OF WORK

Apprentices will receive work experience in the craft in which they are registered in accordance with the attached work processes, though not necessarily in the order listed. The hours of work for apprentices and the conditions associated therewith shall be the same as those for journeypersons. The apprentice shall not be required to work such hours as would interfere with attendance at related instruction classes except in cases of emergency. Apprentices shall receive credit for OJL for all hours worked in a pay period. Apprentices who do not complete the required hours of OJL during the given segment will have the term of that segment extended until the required numbers of hours of training are accrued. However, a period of training shall be extended by no more than 50 percent. Under the option of advancement based upon demonstrated achievement of skills and knowledge by the individual apprentice, the apprentice's term of training may be reduced to not less than 50 percent the stated traditional term for the occupation. See Section VIII.

SECTION XI. - APPRENTICE WAGE PROGRESSION

29 CFR part 29.5(b)(5)

Apprentices shall be paid a progressively increasing schedule of wages consistent with skill performance and knowledge levels achieved and demonstrated in OJL and related instruction. Apprentice wages shall be based on a percentage of wages paid journeypersons. The entry wage shall not be less than the minimum wage prescribed by the Fair Labor Standards Act, where applicable, unless a higher wage is required by other applicable Federal law, State law, or respective regulations. The Registration Agency shall be notified of any change in the wage rate for a journeyperson or apprentice.

Within the registered craft, the arithmetic average of the individual Program Sponsor's journeyperson rates will become the journeyperson rate upon which the apprentice wage schedules (as listed with the trade Work Process Schedule) are applied for apprentices employed by that Program Sponsor. Each Subscribing Employer shall be responsible for the submission to the Program Sponsor of journeyperson pay rates for each craft for which apprentices are employed under the apprenticeship program. It will be the Program Sponsor's responsibility to maintain the information on an up-to-date basis. At a minimum, the Subscribing Employers shall annually determine the average journeyperson wage rate, and if there has been any change in the rate from the last reporting period, the Apprenticeship Committee will be so notified. The apprentice will be made aware of the employer's average journeyperson rate prior to being sent on the job. In the event the apprentice is transferred or changes employers, his/her wages will be based upon the journeyperson rates of the new employer, with the achieved percentage level being retained.

SECTION XII.- CREDIT FOR PREVIOUS EXPERIENCE
29 CFR parts 29.5(b)(12) and 30.4(c) (8)

12.1 General Provisions

The Program Sponsor or Apprenticeship Committee may grant credit towards the term of apprenticeship to new apprentices who demonstrate previous acquisition of skills or knowledge equivalent to that which would be received under these standards. The granting of such credit will be uniformly applied to all apprentices, and any credit applied shall be of the kind received (i.e., related classroom instruction will be given for classroom credit and OJL will be given of OJL credit, respectively).

1. Such applicants shall submit at the time of application certified school records, employers' affidavits of training and similar records to support any claim of prior work and school experience. These would include documented credit from a technical college or other post secondary school, School-to-Work Program, or verification letters from the employer or previous employer, or payroll records.
2. The applicant and the Subscribing Sponsor, when applicable, must make a request for credit in writing to the Apprenticeship Committee, and the Apprenticeship Committee will advise the Registration Agency of any credit granted.
3. Applicants requesting such credit who are registered into the apprenticeship program will start at the beginning wage rate. The request for credit will be evaluated and a determination made by the Apprenticeship Committee during the probationary period when actual OJL and related instruction performance can be examined. Prior to completion of the probationary period, the amount of credit to be awarded will be determined after review of the apprentice's previous work and training/education record and evaluation of the apprentice's performance and demonstrated skill and knowledge during the probationary period.
4. Applicants meeting all other entry requirements who have completed a high school construction School-to-Work Program may be given credit based on any guidelines set forth by the Apprenticeship Committee.
5. Such credit entitles the apprentice to be progressed to the appropriate pay level.
6. The Registration Agency will be advised of any credit granted and the wage rate to which the apprentice is advanced.

SECTION XIII.- WORK EXPERIENCE

29 CFR part 29.5(b)(3)

During the apprenticeship period, the apprentice shall receive such OJL and related instruction in all phases of the occupation necessary to develop the skill and proficiency of a skilled journeyman. The OJL shall be under the direction and guidance of the Associated Builders and Contractors, Inc.

The Work Process Schedule for each occupation is covered in Appendix A.

SECTION XIV. - RELATED INSTRUCTION

29 CFR part 29.5(b)(4)

Apprentices registered under these standards are recommended each year to attend a minimum of 144 hours of technical and theoretical instruction or its equivalent in subjects related to their craft. Instruction can incorporate elements of both electronic media and traditional classroom, and shall be required to pass an examination in each subject before being granted a Certificate of Completion of Apprenticeship. Successful completion of competency testing (both written and performance exams) is also permitted to meet this requirement. Safety training in the use of tools and equipment and on-the-job conduct shall be included in the related instruction curriculum.

Achievement of skills and knowledge is documented through the use of the nationally standardized curricula (i.e., a hybrid, task oriented, and modular training program). By recording apprentice achievements for the written and performance tests, the total classroom hours and required OJL is a supportive requirement to skill and knowledge acquisition.

Related instruction is provided through use of the nationally standardized curricula. The curricula provide an organized and systematic form of instruction specifically designed to provide the apprentice with technical and theoretical knowledge required by the craft. [Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.]

Attendance at related instruction classes will not be considered as hours worked when instruction is given outside of regular working hours. Apprentices will not be paid for attending such related instruction classes, unless required by law or voluntarily by Subscribing Employer.

The hybrid apprenticeship option is based upon demonstrated achievement of skills and knowledge by the individual apprentice. The apprentice's term of related classroom training may be reduced to not less than one-half the stated traditional term of related classroom training as identified in the attached competencies. The Apprenticeship Committee will review and approve an apprentice's application for the hybrid option as well as an instructor's recommendation for the means to implement and monitor a program of this nature.

If applicable, the Apprenticeship Committee will inform each apprentice of the availability of college credit through the appropriate educational institution.

The Program Sponsor will secure the instructional aids and equipment it deems necessary to provide quality instruction and provide competent instructors whose knowledge, experience and ability to teach will be carefully reviewed. To the extent possible, related instruction will be closely correlated with the practical experience and training received on the job. Where classes are not available through the local school or Program Sponsor, correspondence courses or distance learning of equivalent value may be approved by the Apprenticeship Committee.

SECTION XV. - SAFETY AND HEALTH TRAINING

29 CFR part 29.5(b)(9)

Safe use of tools and equipment and competent on-the-job conduct shall be stressed in related classes and OJL throughout the term of apprenticeship. Apprentices shall be provided with initial instruction in order to enable them to perform their work in a safe manner.

Such initial instruction shall include pertinent safety regulations, reporting of accidents, and availability of first aid medical facilities.

Sponsors are urged to encourage uniform and mandatory drug testing throughout the program in keeping with local policies and local and State laws.

The employer shall at all times exercise reasonable precaution for the health and safety of apprentices engaged in the performance of their work. The apprentice and the employer shall comply with all applicable provisions of Federal, State, and municipal safety, health, and sanitation statutes and codes.

As an integral part of this training program, the apprenticeship supervisor and/or instructor shall provide competent training and instruction pertaining to safe work habits to keep the apprentice informed of the methods necessary to perform all phases of the work in a proper and safe manner.

Apprentices will receive instruction in safe and healthy work practices both on-the-job and in related instruction that are in compliance with the Occupational Safety and Health Standards promulgated by the Secretary of Labor under 29 U.S.C. 651 et seq., as amended, dated December 29, 1970, and subsequent amendments to that law or State Standards that have been found to be at least as effective as the Federal Standards.

SECTION XVI. - SUPERVISION OF APPRENTICES

29 CFR part 29.5(b)(14)

The employer shall be responsible for the training of the apprentice on the job. Apprentices shall be under the general supervision of the employer and under the direct supervision of the journeyman to whom they are assigned. The supervisor of the apprentice(s) designated by the employer shall, with the advice and assistance of the Apprenticeship Committee, be responsible for the apprentice's work assignments' ensuring the apprentice is working under the supervision of a skilled journeyman, evaluation of work performance, and completion and submittal of progress reports to the Apprenticeship Committee.

No apprentice will be allowed to work without direct journeyman supervision.

SECTION XVII. - RECORDS AND EXAMINATIONS

29 CFR part 29.5(b)(6)

Each apprentice shall be responsible for maintaining a record of his/her work experience/training on the job and in related technical instruction and for having this record verified by his/her supervisor at the end of each week. The apprentice will authorize an effective release of their completed related instruction records from local school authorities to the Apprenticeship Committee. The record cards and all data, written records of progress evaluations, corrective and final actions pertaining to the apprenticeship, will be maintained by and be the property of the Apprenticeship Committee. Appropriate records will be included in each apprentice's record file maintained by the Apprenticeship Committee.

Before each period of advancement, or at any other time when conditions warrant, the Apprenticeship Committee will evaluate the apprentice's record to determine whether he/she has made satisfactory progress. If an apprentice's related instruction or on-the-job progress is found to be unsatisfactory, the Apprenticeship Committee may determine whether the apprentice will continue in a probationary status, or require the apprentice to repeat a process or series of processes before advancing to the next wage classification. In such cases, the Apprenticeship Committee will initiate a performance improvement plan with the apprentice.

Should it be found that the apprentice does not have the ability or desire to continue the training to become a journeyman, the Apprenticeship Committee will, after the apprentice has been given adequate assistance and opportunity for corrective action, terminate the Apprenticeship Agreement.

The Apprenticeship Committee will maintain written records of progress, evaluations and any corrective or final actions taken.

SECTION XVIII. MAINTENANCE OF RECORDS

29 CFR parts 29.5(b)(22) and 30.8

The Program Sponsor will maintain for a period of five (5) years from the date of last action, all records relating to apprentice applications (whether selected or not), the employment and training of apprentices, and any other information relevant to the operation of the program. This includes, but is not limited to, records on the recruitment, application and selection of apprentices, and records on the apprentice's job assignments, promotions, demotions, layoffs, terminations, rate of pay, or other forms of compensation, hours of work and training, evaluations, and other relevant data. The records will permit identification of minority and female (minority and non-minority) participants. These records shall be made available on request to the Registration Agency.

SECTION XIX. - CERTIFICATE OF COMPLETION OF APPRENTICESHIP
29 CFR part 29.5(b)(15)

Upon satisfactory completion of the requirements of the Apprenticeship Program as established in these standards, the Apprenticeship Committee or Program Sponsor will so certify in writing to the Registration Agency and request that a Certificate of Completion of Apprenticeship be awarded to the completing apprentice(s). Such requests will be accompanied by the appropriate documentation for the OJL and the related instruction as may be required by the Registration Agency.

SECTION XX. - NOTICE TO REGISTRATION AGENCY

29 CFR part 29.5(b)(18)

The Registration Agency will be notified promptly of all new apprentices to be registered, credit granted, suspensions for any reason, reinstatements, extensions, modifications, completions, cancellations, and terminations of Apprenticeship Agreements and causes. The effective date of apprenticeship registration (also known as " Date Apprenticeship Begins " date) is that of apprentice's signature of the Apprenticeship Agreement or first day of employment, which ever comes later, conditioned on the Program Sponsor's submission of the Apprenticeship Agreement in accordance with the Title 29, CFR part 29.

SECTION XXI. - REGISTRATION, CANCELLATION AND DEREGISTRATION
29 CFR 29.7 and 29.5(b)(17)

These standards will, upon adoption by the Program Sponsor be submitted to the Registration Agency for approval. Such approval will be required before implementation of the program.

The Program Sponsor reserves the right to discontinue at any time the Apprenticeship Program set forth herein. The Registration Agency will be notified promptly in writing of any decision to cancel the program.

Deregistration of these Standards may be initiated by the Registration Agency for failure of the Program Sponsor to abide the provision herein.

Within fifteen (15) days of cancellation of the Apprenticeship Program, (whether voluntary or involuntary) the Program Sponsor will notify each apprentice of the cancellation and the effect of same. This notification will conform to the requirements of Title 29, CFR part 29.7.

SECTION XXII. - AMENDMENTS AND MODIFICATIONS
29 CFR part 29.5(b)(17)

These Standards may be amended or modified at any time by the Sponsor provided that no amendment or modification adopted will alter any Apprenticeship Agreement in force at the time without the consent of all parties. Such amendment or modification will be submitted to the Registration Agency for approval and registration prior to being placed in effect. A copy of each amendment or modification adopted will be furnished to each apprentice to whom the amendment or modification applies.

SECTION XXIII. PROCEDURE FOR ADJUDICATING DIFFERENCES AND COMPLAINTS

29 CFR parts 29.5(b)(21), 29.11, and 30(11)

The Program Sponsor or its Apprenticeship Committee will have full authority to supervise the enforcement of these Standards. Its decision will be final and binding on the employer, the Program Sponsor, and the apprentice, except as described in this section and the regulations.

If an applicant or an apprentice believes an issue exists that adversely affects his/her participation in the apprenticeship program or violates the provisions of the Apprenticeship Agreement or Standards, relief may be sought through one or more of the following avenues, based on the nature of the issue: The name and the address of the appropriate authority to receive, process and to make disposition of complaints is: [Insert contact name, title, address, etc.]. A copy of these complaint procedures shall be made available to all apprentices and apprentice applicants.

23.1 Complaints Regarding Standards or Agreement - 29 CFR 29.5(b)(21) and 29.11

Any controversy or differences arise under an Apprenticeship Agreement or these Standards, other than complaints regarding discrimination (see 29 CFR 30.11), may be presented to the Apprenticeship Committee in writing within fifteen (15) days of the incident that is the basis for the complaint. The Apprenticeship Committee shall make such rulings, as it deems necessary in each individual case within thirty (30) days of receiving the written notification, except where extenuating circumstances exist.

Complaints which cannot be resolved locally may be submitted by an apprentice or his/her representative to the Registration Agency. Direct such complaints to: **[insert Registration Agency authority name and address]**. The complaint must be in writing and signed by the complainant or representative and submitted within sixty (60) days of the final decision by the Program Sponsor. The Registration Agency shall render its opinion within ninety (90) days after receipt of the complaint.

23.2 Complaints Regarding Discrimination - 29 CFR 29.5(b)(21) and 30.11.

Any apprentice or applicant for apprenticeship who believes that he/she has been discriminated against on the basis of race, color, religion, national origin, or sex, with regard to apprenticeship or that the equal opportunity standards with respect to his/her selection have not been followed in the operation of the Apprenticeship Program may, personally or through an authorized representative, file a complaint with the Registration Agency [or at the election of the apprentice or apprentice applicant, with a private review body established by the Program Sponsor. *Note: if such a body is established, insert name and contact information.*]

The contact information for the Registration Agency is: **[insert contact information]**.

The complaint will be in writing and will be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the Program Sponsor involved, and a brief description of the circumstances of the failure to apply equal opportunity standards.

The complaint must be filed not later than one hundred and eighty (180) days from the date of the alleged discrimination or specific failure to follow the equal opportunity standards. The time may

be extended by the Registration Agency for good cause shown.

Complaints of harassment in the Apprenticeship Program must be filed and processed under Title 29, CFR part 30.11, using the procedures set forth in this section.

The Program Sponsor will provide written notice of its complaint procedure to all applicants for apprenticeship and all apprentices.

SECTION XXIV. - TRANSFER OF TRAINING OBLIGATIONS & CONTINUITY OF EMPLOYMENT
29 CFR part 29.5(b)(13)

The Program Sponsor may transfer an apprentice from one employer with the apprentice's agreement to another to provide continuous employment and to assure the apprentice more complete OJL experience in all aspects of the trade.

The Program Sponsor will assist in obtaining, as far as possible, continuous employment to all apprentices in its program. In the event the employer does not have sufficient work for the apprentice, the Apprenticeship Committee may transfer this apprentice to another employer. Any transfer of employment will be with the consent of all parties to the Apprenticeship Agreement.

In the event the apprentice loses work due to loss of business or layoff, the Apprenticeship Agreement shall be automatically suspended, but not revoked. The apprentice may be allowed to continue related instruction. The Program Sponsor will place that apprentice at the top of the applicant pool, if applicable, and will actively try to find the apprentice employment with another Subscribing Employer.

SECTION XXV. - RESPONSIBILITIES OF THE APPRENTICE

Apprentices, having read the Standards formulated by the Program Sponsor and signed an Apprenticeship Agreement with the Program Sponsor, agree to all the terms and conditions contained therein and agree to abide by the Program Sponsor's rules and policies, including any amendments, serve such time, perform such manual training, and study such subjects as the Program Sponsor may deem necessary to become a professional.

In signing the Apprenticeship Agreement, apprentices assume the following responsibilities and obligations under the apprenticeship program:

- A. Perform diligently and faithfully the work of the trade and other pertinent duties assigned by the Program Sponsor in accordance with the provisions of the Standards.
- B. Respect the property of the employer and abide by the working rules and regulations of the employer and the Program Sponsor.
- C. Attend and satisfactorily complete the required hours in the OJL and in related technical instruction in subjects related to the trade as provided under these standards.
- D. Maintain and provide such records of work experience and training received on-the-job and in related instruction as may be required by the Program Sponsor.
- E. Develop and practice safe working habits and work in such a manner as to assure his/her personal safety and that of other workers.
- F. Work for the Subscribing Employer to the completion of apprenticeship, unless reassigned to another employer or the Apprenticeship Agreement is terminated by the Program Sponsor.
- G. The apprentice will be provided with a copy of the written rules and policies and will sign an acknowledgment receipt of same. This procedure will be followed whenever revisions or modifications are made to the rules and policies

SECTION XXVI. - CONSULTANTS/TECHNICAL ADVISORS

Technical Assistance such as that from the U.S. Department of Labor, Office of Apprenticeship and State Apprenticeship Agencies, and vocational schools--may be requested to advise the Program Sponsor.

The Program Sponsor is encouraged to invite representatives from industry, education, business, private and/or public agencies to provide consultation and advice for the successful operation of their training program.

The Program Sponsor or its Apprenticeship Committee may request, at any time it deems advisable, interested public agencies, private organizations or educational institutions to appoint representatives to serve as consultants or technical advisors. Such persons or organizations will serve without vote and be available for consultation on matters that will improve the training of apprentices and the operation of this program.

SECTION XXVII. OFFICIAL ADOPTION AND REGISTRATION OF APPRENTICESHIP STANDARDS

The [Insert Program Sponsor/apprenticeship committee] and the Apprenticeship Program Sponsor, hereby adopts these Apprenticeship Standards on this _____ day of _____, the year of _____.

On behalf of [insert Program Sponsor]:

[Insert name of Program Sponsor representative and their title beneath signature]

REGISTRATION

Registered as by _____ [insert Registration Agency] as required by Title 29 of the Federal Code of Regulations, parts 29 and 30.

On behalf of [*insert Registration Agency Name*]:

[*Insert name of registration agency representative and their title beneath signature*]

Date of Registration: _____

APPENDIX A

Work Process Schedule & Related Instruction Outlines

A.1
WORK PROCESS SCHEDULE
BRICKLAYER
O*NET-SOC CODE: 47-2021.00 RAPIDS CODE: 0052
ALTERNATE TITLE: MASONRY

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency-based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate
- 6th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A1.1 - WORK PROCESS SCHEDULE **HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Proper care and use of all tools of the trade and safety	250
2. Learning various types and consistencies of mortar according to job specifications and nature of the material to be used	200
3. Using trowel in handling and spreading of mortar and proper consistency of mortar	375
4. Proper preparation of foundation walls and bases for starting brick work	50
5. The selecting, cutting, shaping, and placing of brick tile, cement, and cinder block and fire brick in proper position	1000
6. Laying brick and tile to wood, metal, or other types of fixtures and frames	500
7. Laying brick to form arches and designs	750
8. Learning the various kinds and types of bonds	250
9. Setting and anchoring keystones	50
10. Building chimneys and fireplaces of brick and other types of masonry	1200
11. Building cupolas, furnaces linings, bakers' ovens, kilns, circular stairways, bay window, and other irregular structures	1100
12. Repairing, remodeling, and renovating brick work	225
13. Checking and inspecting finished work	50
TOTAL HOURS	6000

A1.2 - BRICKLAYER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to Masonry	5
Mortar	10
Masonry Units and Installation Techniques	75
Residential Masonry	25
Grout and Other Reinforcement	15
Metal Work in Masonry	15
Advanced Laying Techniques	50
Construction Techniques and Moisture Control	20
Elevated Work	15
Construction Inspection and Quality Control	15
Masonry In High-Rise Construction	17.5
Specialized Materials and Techniques	60
Repair and Restoration	17.5
Commercial Drawings	25
Estimating	25
Project Planning	25
TOTAL HOURS	487.50

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.2
WORK PROCESS SCHEDULE:
BUILDING MAINTENANCE REPAIRER
O*NET-SOC CODE: 49-9042.00 RAPIDS CODE: 0310

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 75 percent of journeyman's rate
- 4th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

**WORK PROCESS SCHEDULE
 BUILDING MAINTENANCE REPAIRER
 O*NET-SOC CODE: 49-9042.00 RAPIDS CODE: 0310**

A2.1 - WORK PROCESS SCHEDULE HOURS

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

- | | | |
|----|--|------|
| 1. | Orientation to the Trade | 250 |
| | a. Introduction to Training Program | |
| | b. Terminology | |
| | c. Maintenance Procedures | |
| | d. Safety Training | |
| | e. Asbestos Abatement | |
| | f. Lead Based Paint Abatement | |
| | g. Fire Prevention | |
| | h. Application of Building Codes | |
| | i. Energy Conservation | |
| 2. | Care and Use of Tools and Equipment | 300 |
| | a. Hand Tools | |
| | b. Power Tools | |
| | c. Electrical Testing Equipment | |
| | d. Refrigeration Testing Equipment | |
| 3. | Test, Inspect and Repair of Electrical Equipment | 750 |
| | a. Trouble Shooting | |
| | b. Unit Replacement | |
| | c. Component Repair | |
| 4. | Preventive Maintenance | 700 |
| | a. Maintain Permanent Records of Each Unit | |
| | b. Maintain Warranty Records | |
| | c. Equipment Inventory | |
| | d. Spare Parts | |
| | e. Requisition for New and Replacement Parts | |
| 5. | Repairs and Maintenance | 2000 |
| | a. Plumbing, Drains & Sewer Lines | |
| | b. Appliances | |
| | c. Pumps | |
| | d. Motors | |
| | e. Heating & Cooling Systems | |
| | f. Interior Maintenance | |
| | g. Exterior Maintenance | |
| | h. Ground Upkeep and Repair | |
| | i. Playground and Pool Maintenance | |
| | j. Windows, Screens and Doors | |

TOTAL HOURS 4000

A2.1 - BUILDING MAINTENANCE REPAIRER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to HVAC	2.5
Copper and Plastic Piping Practices	5
Soldering and Brazing	7.5
Basic Electricity	12.5
Introduction to Cooling	30
Introduction to Heating	15
Electrical Safety	12.5
Hand Bending	7.5
Fasteners and Anchors	5
Electrical Theory One	7.5
Electrical Theory Two	7.5
Electrical Test Equipment	7.5
Introduction to the National Electrical Code	2.5
Raceways, Boxes, and Fittings	12.5
Conductors	15
Introduction to Electrical Blueprints	7.5
Wiring: Commercial and Industrial	7.5
Wiring: Residential	15
Introduction to the Plumbing Trade	5
Plumbing Tools	7.5
Introduction to Plumbing Math	7.5
Introduction to Plumbing Drawings	12.5
Plastic Pipe and Fittings	10
Copper Pipe and Fittings	10
Cast Iron Pipe and Fittings	10
Carbon Steel Pipe and Fittings	10
Fixtures and Faucets	10
Introduction to Drain, Waste, and Vent (DWV) Systems	10
Introduction to Water Distribution Systems	10
Orientation to the Trade	2.5
Wood Building Materials, Fasteners, and Adhesives	7.5
Hand and Power Tools	20
Floor Systems	25
Wall and Ceiling Framing	20

Roof Framing	37.5
Windows and Exterior Doors	12.5
Ladders, Scaffolds, Lifts, and Fall Protection	10
Identifying Surface/Substrate Materials and Conditions	5
Protecting Adjacent Surfaces	5
Basic Surface Preparation	15
Sealants and Repair/Fillers	5
Brushing and Rolling Paints and Coatings	15

TOTAL HOURS **535**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.3
WORK PROCESS SCHEDULE
CARPENTER HYBRID INTERIM CREDENTIALS (CONSTRUCTION)
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653HY

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction. As outlined in related instruction and OJL, interim or sub apprenticeship and credentialing shall be offered at three levels starting at the first 2800 hours with 2600 hour increments leading to full apprenticeship at 8000 hours.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A.3 (cont.)
WORK PROCESS SCHEDULE
CARPENTER HYBRID INTERIM CREDENTIALS (CONSTRUCTION)
ENTRY LEVEL FRAMING AND FINISHING - CARPENTER "C" - LEVEL 1
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653HY

Description: Provide framing and finishing services for customers. Understand basic construction safety requirements and core carpentry competencies. The apprentice will be able to utilize hand tools, power tools, measurement and design layout.

Term: Hybrid (estimated 2800 to 4000 hours) it is intended that after a combination of 2800 to 4000 hours of OJL including a minimum of 288 hours of related instruction, the apprentice will demonstrate competence in the skills outlined below. Select apprentices will be able to demonstrate competence and receive advanced placement in the program.

On-The-Job Learning: Apprentices will receive training in the various work experiences listed below. The order in which this training is given will be determined by the flow of work on-the-job and will not necessarily be in the order listed. The times allotted to these various processes are the estimated times which the average apprentice will require to learn each phase of the occupation. They are intended only as a guide to indicate the quality of the training being provided and the ability of the apprentice to absorb this training in an average amount of time. The suggested related instruction supplements OJL, follows the work process schedule.

A3.1 - FRAMING AND FINISHING

HOURS

This instruction and experience shall include the following operations but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

- | | |
|--|-----------|
| <ul style="list-style-type: none"> 1. Foundations, walls, and floors <li style="padding-left: 20px;">a. Laying out and leveling <li style="padding-left: 20px;">b. Building and placing straight concrete forms <li style="padding-left: 20px;">c. Lining up and bracing concrete walls and columns <li style="padding-left: 20px;">d. Laying out footings <li style="padding-left: 20px;">e. Building irregular concrete forms <li style="padding-left: 20px;">f. Building forms for concrete stairways <li style="padding-left: 20px;">g. Laying out building lines <li style="padding-left: 20px;">h. Safety | 720 - 900 |
| <ul style="list-style-type: none"> 2. Framing (foundations and walls) <li style="padding-left: 20px;">a. Concrete handling and placing <li style="padding-left: 20px;">b. Laying out and framing sills and girders <li style="padding-left: 20px;">c. Framing and setting floor joists <li style="padding-left: 20px;">d. Erecting walls and partitions <li style="padding-left: 20px;">e. Lining up and bracing walls and partitions <li style="padding-left: 20px;">f. Installing sheathing and plaster grounds <li style="padding-left: 20px;">g. Building staging | 720 - 900 |

- h. Laying out walls and partitions
 - i. Safety
- 3. Roofs 350 - 500
 - a. Framing and setting common rafters
 - b. Framing and setting valley rafters
 - c. Framing and setting hip rafters
 - d. Framing and setting jack rafters
 - e. Applying sheathing, composition shingles, and other types of roof coverings
 - f. Safety
- 4. Exterior mill work 180 - 290
 - a. Determining use of tools, materials, and equipment
 - b. Operating skill saw, electric drill, and sander
 - c. Setting up and operating bench saw
 - d. Safety
- 5. Interior wall coverings 180 - 290
 - a. Applying wood coverings
 - b. Applying composition, sheet rock, or fiberboard
 - c. Installing baseboards
 - d. Safety
- 6. Floors 80 - 240
 - a. Laying sub floors
 - b. Laying hardwood floors
 - c. Erecting forms for concrete
 - d. Safety
- 7. Stairs 80 - 240
 - a. Laying out and cutting stair horse for various types of stairways
 - b. Laying out and cutting various threads
 - c. Installing railings
 - d. Safety
- 8. Interior finish 350 - 500
 - a. Cutting and fitting base
 - b. Cutting and fitting molding
 - c. Setting doorjambs
 - d. Fitting and hanging windows
 - e. Fitting and fastening hardware
 - f. Fitting and hanging doors

g. Suspended ceilings	
h. Cabinet installation	
i. Safety	
9. Miscellaneous	100 -140
a. Building walkways	
b. Erecting scaffolding	
c. Making temporary sheds	
d. Making miscellaneous repairs and additions	
e. Erecting miscellaneous types of concrete forms	
f. Safety	
TOTAL HOURS	2760 – 4000

A3.2
RELATED INSTRUCTION OUTLINE
FRAMING AND FINISHING CARPENTER
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653HY

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules is suggested estimates only.

Modules	Hours
Basic Safety	6 - 10
Introduction to Construction Math	6 - 10
Introduction to Hand Tools	3 - 7
Introduction to Power Tools	1 - 3
Introduction to Blueprints	2 - 6
Basic Rigging	7 - 14
Orientation to the Trade	1 - 2
Building Materials, Fasteners and Adhesives	2 - 6
Hand and Power Tools	4 - 8
Reading Plans and Elevations	7 - 14
Floor Systems	9 - 18
Wall and Ceiling Framing	8 - 16
Roof Framing	14 - 32
Introduction to Concrete and Reinforcing Materials	4 - 8
Windows and Exterior Doors I	4 - 8
Basic Stair Layout	4 - 8
Commercial Drawings (elective for residential construction path)	6 - 17
Roofing Applications: Residential (elective for commercial construction)	6 - 17
Thermal and Moisture Protection	2 - 4
Exterior Finishing: Residential (elective for commercial construction)	6 - 10
Cold-Formed Steel Framing	6 - 10
Drywall Installation	6 - 10
Drywall Finishing	6 - 10
Doors and Door Hardware	6 - 10
Suspended Ceilings (elective for residential construction)	6 - 10
Window, Door, Floor, and Ceiling Trim	6 - 10
Cabinet Installation	3 - 5
Cabinet Fabrication (elective)	3 - 5
TOTAL HOURS	144- 288

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

**A3.3
 WORK PROCESS SCHEDULE
 CARPENTER HYBRID INTERIM CREDENTIALS (CONSTRUCTION)
 FORMS AND COMCRETE SPECIALIST - CARPENTER "B" - LEVEL 2
 O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653HY**

Description: Provide framing and finishing and forms and concrete services for customers. Understand basic construction safety requirements and core carpentry competencies. The apprentice will be able to utilize hand tools, power tools, measurement and design layout.

Term: Hybrid (estimated 2600 to 4000 hours) it is intended that after a combination of 2600 to 4000 hours of OJL including a minimum of 288 hours of related instruction, the apprentice will demonstrate competence in the skills outlined below. Select apprentices will be able to demonstrate competence and receive advanced placement in the program.

On-The-Job Learning: Apprentices will receive training in the various work experiences listed below. The order in which this training is given will be determined by the flow of work on-the-job and will not necessarily be in the order listed. The times allotted to these various processes are the estimated times which the average apprentice will require to learn each phase of the occupation. They are intended only as a guide to indicate the quality of the training being provided and the ability of the apprentice to absorb this training in an average amount of time. The suggested related instruction supplements OJL follows the work process schedule.

A3.4- FORMS AND CONCRETE

	HOURS
1. Foundations, walls, and floors <ul style="list-style-type: none"> a. Laying out and leveling b. Building and placing straight concrete forms c. Lining up and bracing concrete walls and columns d. Laying out footings e. Building irregular concrete forms f. Building forms for concrete stairways g. Laying out building lines h. Safety 	1000 – 1500
2. Framing (foundations and walls) <ul style="list-style-type: none"> a. Concrete handling and placing b. Laying out and framing sills and girders c. Framing and setting floor joists d. Erecting walls and partitions e. Lining up and bracing walls and partitions f. Installing sheathing and plaster grounds g. Building staging h. Laying out walls and partitions i. Safety 	650 - 900
3. Roofs	200 - 300

a.	Framing and setting common rafters	
b.	Framing and setting valley rafters	
c.	Framing and setting hip rafters	
d.	Framing and setting jack rafters	
e.	Applying sheathing, composition shingles, and other types of roof coverings	
f.	Safety	
4.	Floors	100 - 200
a.	Laying sub floors	
b.	Laying hardwood floors	
c.	Erecting forms for concrete	
d.	Safety	
5.	Stairs	100 - 200
a.	Laying out and cutting stair horse for various types of stairways	
b.	Laying out and cutting various threads	
c.	Installing railings	
d.	Safety	
6.	Interior finish	100 - 200
a.	Cutting and fitting base	
b.	Cutting and fitting molding	
c.	Setting doorjambs	
d.	Fitting and hanging windows	
e.	Fitting and fastening hardware	
f.	Fitting and hanging doors	
g.	Suspended ceilings	
h.	Cabinet installation	
i.	Safety	
7.	Miscellaneous	450 - 700
a.	Building walkways	
b.	Erecting scaffolding	
c.	Making temporary sheds	
d.	Making miscellaneous repairs and additions	
e.	Erecting miscellaneous types of concrete forms	
f.	Safety	
TOTAL HOURS		2600 – 4000

**A3.5
RELATED INSTRUCTION OUTLINE**

Associated Builders and Contractors, Inc.

FORMS AND CONCRETE CARPENTER
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653HY

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	6 - 10
Introduction to Construction Math	6 - 10
Introduction to Hand Tools	3 - 7
Introduction to Power Tools	1 - 3
Introduction to Blueprints	2 - 6
Basic Rigging	7 - 14
Orientation to the Trade	1 - 2
Building Materials, Fasteners and Adhesives	2 - 6
Hand and Power Tools	4 - 8
Reading Plans and Elevations	7 - 14
Floor Systems	9 - 18
Wall and Ceiling Framing	8 - 16
Roof Framing	14 - 32
Introduction to Concrete and Reinforcing Materials	4 - 8
Windows and Exterior Doors I	4 - 8
Basic Stair Layout	4 - 8
Rigging Equipment	4 - 8
Rigging Practices	6 - 10
Properties of Concrete	4 - 8
Reinforcing Concrete	6 - 10
Handling and Placing Concrete	8 - 14
Trenching and Excavating	4 - 8
Foundations and Slab-on-Grade	7 - 14
Vertical Formwork	9 - 18
Horizontal Formwork	7 - 14
Tilt-Up Wall Panels	7 - 14
TOTAL HOURS	144 - 288

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

h.	Laying out walls and partitions	
i.	Safety	
3.	Roofs	550 - 900
a.	Framing and setting common rafters	
b.	Framing and setting valley rafters	
c.	Framing and setting hip rafters	
d.	Framing and setting jack rafters	
e.	Applying sheathing, composition shingles, and other types of roof coverings	
f.	Safety	
4.	Floors	350 - 500
a.	Laying sub floors	
b.	Laying hardwood floors	
c.	Erecting forms for concrete	
d.	Safety	
5.	Stairs	350 - 500
a.	Laying out and cutting stair horse for various types of stairways	
b.	Laying out and cutting various threads	
c.	Installing railings	
d.	Safety	
6.	Interior finish	150 - 200
a.	Cutting and fitting base	
b.	Cutting and fitting molding	
c.	Setting doorjambs	
d.	Fitting and hanging windows	
e.	Fitting and fastening hardware	
f.	Fitting and hanging doors	
g.	Suspended ceilings	
h.	Cabinet installation	
i.	Safety	
7.	Miscellaneous	150 - 200
a.	Building walkways	
b.	Erecting scaffolding	
c.	Making temporary sheds	
d.	Making miscellaneous repairs and additions	
e.	Erecting miscellaneous types of concrete forms	
f.	Safety	
TOTAL HOURS		2600 - 4000

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

A3.8 ADVANCED BUILDING SYSTEMS CARPENTER

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	6 - 10
Introduction to Construction Math	6 - 10
Introduction to Hand Tools	3 - 7
Introduction to Power Tools	1 - 3
Introduction to Blueprints	2 - 6
Basic Rigging	7 - 14
Orientation to the Trade	1 - 2
Building Materials, Fasteners and Adhesives	2 - 6
Hand and Power Tools	4 - 8
Reading Plans and Elevations	7 - 14
Floor Systems	9 - 18
Wall and Ceiling Framing	8 - 16
Roof Framing	14 - 32
Introduction to Concrete and Reinforcing Materials	4 - 8
Windows and Exterior Doors	4 - 8
Basic Stair Layout	4 - 8
Site Layout I: Distance Measurement and Leveling	8 - 16
Site Layout II: Angular Measurement	10 - 18
Advanced Floor Systems	8 - 16
Advanced Wall Systems	8 - 16
Advanced Roof Systems	8 - 16
Advanced Acoustical Systems	
Exterior Finish: Commercial	
Advanced Stair Systems	8 - 16
Introduction to Welding (elective)	6 - 10
Site Preparation	
Introductory Skills for the Crew Leader	6 - 10
TOTAL HOURS	144 - 288

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.4
WORK PROCESS SCHEDULE
CARPENTER (CONSTRUCTION)
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0067

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is time based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A4.1- WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Foundations, walls, and floors	1500
a. Laying out and leveling	
b. Building and placing straight concrete forms	
c. Lining up and bracing concrete walls and columns	
d. Laying out footings	
e. Building irregular concrete forms	
f. Building forms for concrete stairways	
g. Laying out building lines	
h. Safety	
2. Framing (foundations and walls)	800
a. Laying out and framing sills and girders	
b. Framing and setting floor joists	
c. Erecting walls and partitions	
d. Lining up and bracing walls and partitions	
e. Installing sheathing and plaster grounds	
f. Building staging's	
g. Laying out walls and partitions	
h. Safety	
3. Roofs	800
a. Framing and setting common rafters	
b. Framing and setting valley rafters	
c. Framing and setting hip rafters	
d. Framing and setting jack rafters	
e. Applying sheathing, composition shingles, and other types of roof coverings	
f. Safety	
4. Exterior mill work	1000
a. Determining use of tools, materials, and equipment	
b. Operating skill saw, electric drill, and sander	
c. Setting up and operating bench saw	
d. Safety	
5. Interior wall coverings	500
a. Applying wood coverings	
b. Applying composition, sheet rock, or fiberboard	
c. Installing baseboards	
d. Safety	
6. Floors	500
a. Laying subfloors	
b. Laying hardwood floors	
c. Erecting forms for concrete	
d. Safety	
7. Stairs	500
a. Laying out and cutting stair horse for various types of stairways	
b. Laying out and cutting various threads	
c. Installing railings	

d. Safety	
8. Interior finish	1000
a. Cutting and fitting base	
b. Cutting and fitting molding	
c. Setting doorjambs	
d. Fitting and hanging windows	
e. Fitting and fastening hardware	
f. Fitting and hanging doors	
g. Safety	
9. Miscellaneous	1400
a. Building walkways	
b. Erecting scaffolding	
c. Making temporary sheds	
d. Making miscellaneous repairs and additions	
e. Erecting miscellaneous types of concrete forms	
f. Safety	
TOTAL HOURS	8000

A4.2 - CARPENTER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules is suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Orientation to the Trade	2.5
Wood Building Materials, Fasteners, and Adhesives	7.5
Hand and Power Tools	20
Floor Systems	25
Wall and Ceiling Framing	20
Roof Framing	37.5
Windows and Exterior Doors	12.5
Reading Plans and Elevations	20
Site Layout One — Distance Measurement and Leveling	22.5
Introduction to Concrete and Reinforcing Materials	10
Foundations and Flatwork	15
Concrete Forms	32.5
Reinforcing Forms	15
Handling and Placing Concrete	22.5
Manufactured Forms	22.5
Exterior Finish	35
Roofing Applications	25
Thermal and Moisture Protection	5
Stairs	15
Framing with Metal Studs	15
Drywall One: Installation	15
Drywall Two: Finishing	12.5
Interior Finish One: Doors	20
Interior Finish Two: Suspended Ceilings	25
Interior Finish Three: Window, Door, Floor, and Ceiling Trim	25
Interior Finish Four: Cabinet Installation	10
Site Layout Two: Angular Measurement	25
Advanced Roof Systems	15
Advanced Floor Systems	15
Advanced Wall Systems	20
Advanced Stair Systems	25
Introduction to Light Equipment	10
<i>Welding</i>	25
<i>Metal Buildings</i>	15
Introduction to Project Management and Supervision	15

TOTAL HOURS **725**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.5
WORK PROCESS SCHEDULE
CEMENT MASON
O*NET-SOC CODE: 47-2051.00 RAPIDS CODE: 0075
ALTERNATE TITLES: Cement Finisher, Cement Paver, Concrete
Finisher, Concrete Form Builder, Concrete Floater

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 80 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A5.1- WORK PROCESS SCHEDULE

HOURS

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Safety and good work habits	80
2. Learning to set screeds and layout work	700
3. Learning proper mix and consistency	500
4. Pouring and tamping concrete	300
5. Using vibrating machine	240
6. Rough finishing, hand or machine. Floating	500
7. Floating hand troweling to smooth finish	1000
8. Patching, hand rubbing	200
9. Marking and edging	400
10. Protecting newly poured and laid concrete from weather, rain, sun and wind	800
TOTAL HOURS	4720

A5.2- CEMENT MASON RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to Concrete Construction and Finishing	10
Properties of Concrete	10
Preparing for Placement	12.5
Placing Concrete	12.5
Finishing: Part 1	20
Curing and Protecting Concrete	5
Introduction to Troubleshooting	5
Properties of Concrete, Part Two	7.5
Estimating Concrete Quantities	10
Forming	20
Site Concrete	30
Architectural Finishes	20
Industrial Floors	22.5
Super Flat Floors	22.5
Surface Treatments	12.5
Quality Control	10
Making Repairs	10
TOTAL HOURS	312.50

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.6
WORK PROCESS SCHEDULE
COMMERCIAL INTERIOR SPECIALIST
O*NET-SOC CODE: 47-2031.01 RAPIDS CODE: 0653
ALTERNATE NAMES: CARPENTER, INTERIOR SYSTEMS

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two and one-half (2 ½) years with an OJL attainment of 5000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 5000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A6.1- WORK PROCESS SCHEDULE

HOURS

This instruction and experience shall include the following operations but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1.	Comprehensive Skills/Knowledge	1250
	a. Safety and First Aid	
	b. Basic Hand Tools – Use and Safety	
	c. Basic Power Tools – Use and Safety	
	d. Industry Orientation	
	e. Rigging, Material Handling and Storage	
	f. Scaffolding	
	g. Construction materials, Fasteners and Hardware	
2.	Interior Finish	1250
	a. Jambs, Casings, and Stops	
	b. Doors, Swinging	
	c. Doors, Folding and Sliding	
	d. Latch and Lock Sets	
	e. Mechanical Closing Devices, Stops and Exit Hardware	
	f. Toilet partition and restroom accessories	
	g. Industry Specific – (i.e., chalkboards for schools)	
3.	Interior Systems	1250
	a. Metal Jambs and Borrowed Light Frames	
	b. Drywall Installation on Wood, Metal and Masonry	
	c. Stick-up Ceilings	
	d. Suspended Lay-in Ceilings	
	e. Concealed Ceilings	
	f. Insulation and Sound Control	
	g. Laser Instruments	
	h. Transit, Level and Laser	
4.	Commercial Metal Framing	1250
	a. Framing Layout	
	b. Metal stud – Wall Framing/Culkheads	
	c. Framed Partitions and Curtain Walls	
	d. Joisting Systems	
	e. Deck Systems	
	f. Roof Framing and Installation	
	g. Trussed Roof Systems	
	h. Stairs	
	i. Welding	
TOTAL HOURS		5000

A6.2 COMMERCIAL INTERIOR SPECIALIST RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Module	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
First Aid & CPR	10
Power actuated tools	20
Orientation to the Industry	2.5
Trade math	10
Laser Instruments	10
Nails, Fasteners, and Adhesives	10
Wall Systems	25
Interior Finish: Ceiling Systems	25
Welding	15
Introduction to Supervision	15
Metal Studs and Drywall	15
Interior Finish: Doors and Windows	25
Supplement to Ceiling Systems	10
TOTAL HOURS	265

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.7
WORK PROCESS SCHEDULE
CONSTRUCTION CRAFT LABORER
O*NET-SOC CODE: 47-2061.00 RAPIDS CODE: 0661

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 65 percent of journeyman's rate
- 3rd 1000 hours = 80 percent of journeyman's rate
- 4th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Site/Project Preparation and Maintenance	600
a. Clearing bucking and falling	
b. Transportation, dismantling and stockpiling of scaffolding and work platforms	
c. Grading and compaction	
d. Layout and staking protocols	
e. Rigging and signaling for work traditionally done by Construction Craft Laborers	
f. Site Preparation, clean up and security	
2. Tools, Equipment and Materials	500
a. Recognition and preparation	
b. Hand, Electric, gas, pneumatic and power tool equipment use and maintenance	
c. Material storage and security	
3. Safety	500
a. Confined space safety	
b. Flagging, signaling and traffic safety awareness	
c. Hazard material recognition	
d. Trenching and site excavation safety	
4. Environmental Remediation	800
a. Asbestos abatement, hazardous waste abatement, lead abatement, and petro-chemical abatement	
b. Radiation and radiation remediation	
5. Building Construction	800
a. Concrete - tending, placement and removal	
b. Landscaping	
c. Mason/Plasterer tending	
d. Pipe Laying	
6. Heavy/Highway Construction	800
a. Asphalt, drilling and blasting	
b. Pipe laying for work traditionally performed by Construction Craft Laborers	
c. Tunnel and shaft	
d. Concrete - tending, placement and removal	
e. Bridges	
TOTAL HOURS	4000

A7.2- CONSTRUCTION CRAFT LABORER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Basic Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5

Basic Rigging	20
Carpentry - Orientation to the Trade	2.5
Wood Building Materials, Fasteners, and Adhesives	7.5
Site Layout 1 - Distance Measurements and Leveling	22.5
Introduction to Concrete and Reinforcing Materials	10
Handling and Placing Concrete	22.5
Exploring Careers in Construction	17.5
Foundations and Flatwork	15
Reinforcing Concrete	15
Concrete Forms	32.5
Patented Forms	22.5
Masonry - Elevated Work	15
Mobile Crane Operations - Orientation to the Trade	15
Ironworking - Introduction to the Trade	5
Electrical Safety	12.5
Metal Building Assembly - Forklifts	10
Industrial Welding - Ox fuel Cutting	17.5
Masonry in High-Rise Construction	17.5

TOTAL HOURS **332.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.8
WORK PROCESS SCHEDULE
DRYWALL APPLICATOR
O*NET-SOC CODE: 47-2081.02 RAPIDS CODE:
ALTERNATE TITLES: DRYWALL INSTALLER, GYPSUM DRYWALL SYSTEMS INSTALLER

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 65 percent of journeyman's rate
- 3rd 1000 hours = 80 percent of journeyman's rate
- 4th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. General Trade	500
a. Practice proper safety precautions and aware of hazardous materials and jobsite conditions	
b. Proper use of hand tools	
c. Correct use and interpretation of blueprints and specifications	
d. Proper handling and storage of materials	
2. Framing	1500
a. Proper identification of framing materials and fasteners	
b. Installation of Basic Non-load leaving wall framing	
c. Correct installation of ceiling framing	
d. Demonstrate proper installation of furring strips	
e. Demonstrate proper layout techniques	
f. Installation of structural load bearing walls	
g. Install hollow metal doors	
h. Installation of demonstrate partitions	
3. Hanging	1500
a. Proper layout and installation of metal frame walls and ceilings	
b. Install insulation and sound control	
c. Installation of pre-finished gypsum board	
d. Apply-laminated surfaces	
e. Show proper construction of angles and curves	
4. Finishing	500
a. Correct identification and use of finishing tools and procedures	
b. Proper application of textures and coatings	
c. Identification of typical problems and remedies	
TOTAL HOURS	4000

A8.2 - DRYWALL APPLICATOR RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	2.5
Furring	5
Hanging Materials and Fasteners	10
Wallboard Hanging on Wood	10
Wallboard Hanging on Metal Walls, Part I	15
Wallboard Hanging on Metal Ceilings, Part I	10
Thermal Insulation and Sound Control	5
Trim Installation	2.5
Advanced Trade Math	10
Layout	12.5
Load- Bearing Framing	10

Special Framing Conditions	10
Installing Hollow Metal	5
Demountable Partitions	5
Wallboard Hanging on Metal Walls, Part 2	7.5
Wallboard Hanging on Metal Ceilings, Part 2	7.5
Pre-finished Gypsum Board	5
Laminated Applications	5
Angles and Curves	7.5
Finishing Materials	5
Finishing Tools	7.5
Finishing Procedures	17.5
Textures	7.5
Problems and Remedies	15

TOTAL HOURS **270**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.9
WORK PROCESS SCHEDULE
ELECTRICIAN (CONSTRUCTION)
O*NET-SOC CODE: 47-2111.00 RAPIDS CODE: 0159

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter. *(Note: An optional National Demonstration Program Ratio of two (2) to one (1) in accordance with the provisions stated in section VII of this manual may also be utilized.)*

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A9.1 - WORK PROCESS SCHEDULE **HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Preliminary work	600
a. Learning the names and uses of the equipment used in the trade, such as kind, size, and use of cable, wire, boxes, conduits and fitting, switches, receptacles, service switches, cutouts, etc	
b. Learning names and uses of the various tools use in assembling this material, care of these tools, and other instructions necessary to familiarize the apprentice with the material and tools of the trade	
c. Safety	
2. Residential and commercial rough wiring	2500
a. Assisting in getting the material from stockroom	
b. Loading truck and unloading material and equipment on the job	
c. Laying out the various outlets, switches, receptacles, and other details of the job from blueprints or by direction of the superintendent of construction	
d. Laying out the system with materials to be used, where they are to be placed, and other details as to how they shall be run	
e. Cutting wires, cables, conduit and raceway; threading and reaming conduit, boring and cutting chases under the direction of the journey person	
f. Installing various kinds of wires, cables, and conduits in accordance with requirements	
g. Assisting journey person in pulling wires, attaching wires to fishtape, and keeping wires from kinks or abrasions	
h. Connecting conductors to switches, receptacles, or appliances with proper methods of splicing, or soldering, and taping	
i. Installing service switches or load center and sub-feeders and fastening up these parts, running raceways and pulling in conductors under the direction of journey person electricians	
j. Assisting in preparing lists of materials used, including names, number of pieces, or number of feet, etc. for office records	
k. Loading unused material and cleaning UP job area	
3. Residential and commercial finish work	1500
a. Connecting and setting switches, receptacles, plates, etc.	
b. Installing proper size and types of fuses for each circuit	
c. Installing and connecting various kinds of fixtures	
d. Tracing the polarity of conductors and devices	
e. Testing the circuit for grounds and shorts and locating and correcting job defects	

f.	Assisting journey person in installing and completion of work in accordance with the rules and regulations of the National Board of Fire Underwriters and special local regulations-proper sizes of wires, service, conduits, etc.	
4.	Industrial lighting and service installation	2000
a.	Installing rigid conduit, electric metallic tubing, BX armored cable wire molds on all types of heavy electrical equipment and major size service entrance	
b.	Wiring all types (gas, oil, stoker, etc.) of heating equipment	
c.	Installing wiring and controls for air conditioning	
d.	Wiring of specialized systems to include: sound systems, CRT and data systems, telephones, fire alarm systems, fiber optics, energy management systems, nurse call systems, closed circuit TV, street and highway lighting, and signal systems	
5.	Troubleshooting	1000
a.	Repairing all kinds of electrical work	
b.	Checking out trouble and making repairs under supervision of electrician	
c.	Checking out trouble and making repairs without supervision	
6.	Motor installation and control	400
a.	Installing over current devices.	
b.	Checking for installation and rotation.	
c.	Installing replacement motors.	
d.	Analyzing motor circuits and troubleshooting.	
e.	Installing emergency generators and controls.	
f.	Installing pushbuttons, pilot lights, relays, timing devices, and interlocking controls.	
	TOTAL HOURS	8000

A9.2 - ELECTRICIAN RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Electrical Safety	12.5
Hand Bending	7.5
Fasteners and Anchors	5
Electrical Theory One	7.5
Electrical Theory Two	7.5
Electrical Test Equipment	7.5
Introduction to the National Electrical Code	2.5
Raceways, Boxes, and Fittings	12.5
Conductors	15
Introduction to Electrical Blueprints	7.5
Wiring: Commercial and Industrial	7.5
Wiring: Residential	15
Alternating Current	15
Motors: Theory and Application	20
Grounding	12.5
Conduit Bending	15

Boxes and Fittings	10
Conductor Installations	10
Cable Tray	15
Conductor Terminations and Splices	7.5
Installation of Electric Services	15
Circuit Breakers and Fuses	12.5
Contactors and Relays	10
Electric Lighting	10
Load Calculations-Branch Circuits	12.5
Conductor Selection and Calculations	15
Overcurrent Protection	12.5
Raceway, Box and Fitting Fill Requirements	12.5
Wiring Devices	10
Distribution Equipment	12.5
Distribution System Transformers	15
Lamps, Ballasts, and Components	5
Motor Calculations	12.5
Motor Maintenance, Part One	12.5
Motor Controls	20
Hazardous Locations	15
Load Calculations-Feeder and Services	15
Practical Applications of Lighting	10
Standby and Emergency Systems	12.5
Basic Electronic Theory	20
Fire Alarm System	15
Specialty Transformers	15
Advanced Motor Controls	20
HVAC Controls	15
Heat Tracing and Freeze Protection	10
Motor Maintenance, Part 2	12.5
High Voltage Terminations/Splices	10

TOTAL HOURS **622.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.10
WORK PROCESS SCHEDULE
ELECTRONIC SYSTEMS TECHNICIAN (EST)
O*NET-SOC CODE: 49-2022.03 RAPIDS CODE: 1041

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency-based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A10.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

- | | |
|---|------|
| 1. Prepare for System Installation | 800 |
| a. Review & understand electronic system requirements & documentation (blueprints, etc) | |
| b. Perform site survey | |
| c. Develop overall job plan | |
| d. Organize technical work plan | |
| e. Complete pre-assemblies & fabrication of sub systems | |
| f. Gather inventory/parts | |
| g. Pre-test components | |
| h. Inventory tools | |
| 2. Wire Buildings | 800 |
| a. Use documentation to lay out components | |
| b. Secure area – drop cloths- safety cones, etc. | |
| c. Rough in device component locations | |
| d. Install cable support structure or drill wire paths | |
| e. Pull & secure wire | |
| f. Label tag wire/cable per documentation | |
| 3. Trim | 1500 |
| a. Pre-termination functions | |
| 1. Prepare cable ends | |
| 2. Route cable | |
| b. Connect passive devices | |
| 1. Connectors | |
| 2. Outlets | |
| 3. Patch panels | |
| c. Splicing | |
| d. Intermediate termination | |
| 4. Install Components | 1500 |
| a. Remote location components | |
| b. Central/main location | |
| 5. Configure- Program | 500 |
| a. Calibrate & align electronically and physically | |
| b. Install or enter control programs, if applicable (complex) | |
| c. Setup system instructions labels, etc (simple) | |
| 6. Test, Troubleshooting, Debug | 800 |
| a. Power up | |
| b. Operate and test functions | |
| c. Evaluate performance | |
| d. Identify problems, errors, discrepancies | |
| e. Diagnose causes of problems | |
| f. Take remedial action | |
| g. Document actions (See documentation section) | |

7. Train Users	500
a. Review user documentation manuals & instructions	
b. Identify training objectives	
c. Confirm actual users and their requirements	
d. Procure – develop training & user aids manuals tip sheets	
e. Demonstrate system function- guide user through system	
f. Observe user using the system- have customer demonstrate knowledge of system	
g. Communicate results of training back to all relevant parties	
8. Documentation	800
a. Review final blueprints, wiring diagrams, and hookup instructions	
b. Complete work reports and time sheets	
c. Provide/prepare/deliver system documentation	
1. User manual and training materials	
2. As built drawings	
3. Zone diagrams	
4. Equipment lists	
5. Warranty paperwork	
9. Maintenance & Repair	800
a. Maintenance - Perform scheduled preventive maintenance	
b. Repair - Diagnose problems	
c. Read documentation	
TOTAL HOURS	8000

A10.2 - ELECTRONIC SYSTEMS TECHNICIAN (EST) RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Introduction to the Trade	10
Construction Materials and Methods	17.5
Pathways and Spaces	15
Fasteners and Anchors	5
Hand Bending Conduit	7.5
Electrical Theory One	7.5
Electrical Safety	12.5
Low Voltage Cabling	20
Craft-Related Mathematics	10
Electrical Theory II	12.5
Basic Electronic Theory	10
Electrical Test Equipment	15
Power Quality and Grounding	20
Introduction to Electrical Blueprints	7.5
Voice and Data Systems	25
Switching Devices and Timers	10
Terminating Conductors	15

Introduction to Codes and Standards	10
Computer Applications	20
Cable Selection	15
Busses and Networks	25
Fiber Optics	20
Video Systems	15
Wireless Communication	15
Site Survey, Job Planning, Documentation	15
Maintenance and Repair	15
Introduction to Supervision	15
Fire Alarm Systems	40
Security Systems	30
TOTAL HOURS	507.50

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.11
WORK PROCESS SCHEDULE
GLAZIER
O*NET-SOC CODE: 47-2121.00 RAPIDS CODE: 0221

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency-based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate
- 6th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A11.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

- | | |
|---|------|
| 1. General Trade | 2000 |
| a. Demonstrate proper safety procedures | |
| b. Identify various types of glass | |
| c. Demonstrate proper mechanical and manual glass handling techniques | |
| d. Proper use and interpretation of blueprints use of specifications | |
| e. Proper identification and use of sealants. | |
| f. Proper use of optical instruments | |
| g. Proper care and use of ladders, scaffolds, stages and man lifts | |
| h. Demonstrate proper rigging & hoisting procedures | |
| i. Sketching & takeoffs | |
| j. Finishes and coatings | |
| 2. Glass | 2000 |
| a. Demonstrate proper glass cutting techniques | |
| b. Proper fabrication of mirrors & glass | |
| c. Proper fabrication of plastics and panels | |
| d. Re-glazing techniques | |
| e. Installation of custom mirrors | |
| f. Proper installation of sloped and two sided glazing | |
| g. Installation of sloped glazing/skylights | |
| h. Installation of curtain walls | |
| i. Structural silicon glazing | |
| 3. Metal | 2000 |
| a. Aluminum fabrication | |
| b. Entrances and hardware | |
| c. Shower and tub enclosures | |
| d. Mall front installation | |
| e. Store front installation | |
| f. Proper installation of mechanical fasteners | |
| g. Troubleshooting doors & hardware | |

TOTAL HOURS**6000****A11.2 - GLAZIER RELATED CLASSROOM INSTRUCTION**

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	2.5
Types of Glass	7.5
Handling Glass Manually	7.5
Handling Glass Mechanically	7.5

Sealants	5
Basic Glass Cutting	7.5
Mirror and Glass Fabrication	25
Plastics and Panels	5
Aluminum Fabrication	25
Storefront Installation	27.5
Contract Documents	10
Safety Glazing Code	2.5
Intermediate Trade Math	12.5
Sealants II	10
Custom Mirror Installation	7.5
Reglazing	20
Introduction to Insulating Glass	5
Types of Windows	5
Glass Fabrication II	15
Aluminum Fabrication II	30
Entrances and Hardware	27.5
Shower and Tub Enclosures	5
Mechanical Fasteners	5
Advanced Rigging and Hoisting	7.5
Work Platforms	10
Job Measurement	15
Sketching and Takeoffs	7.5
Introduction to Supervision	25
Sloped Glazing/Skylights	10
Curtain Wall	30
Finishes and Coatings for Aluminum and Glass	7.5
Entrances and Hardware, Part II	10
TOTAL HOURS	470

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.12
WORK PROCESS SCHEDULE
HEATING AND AIR-CONDITIONING INSTALLER-SERVICER
O*NET-SOC CODE: 49-9021.01 RAPIDS CODE: 0637
ALTERNATE TITLES: AIR-CONDITIONING MECHANIC, ENVIRONMENTAL-CONTROL SYSTEM
INSTALLER-SERVICER, HEATING AND AIR-CONDITIONING MECHANIC, HEATING MECHANIC

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency-based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A12.1 - WORK PROCESS SCHEDULE

HOURS

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

<ol style="list-style-type: none"> 1. General Trade Orientation <ol style="list-style-type: none"> a. Care and use of tools b. Test and measurement devices c. Types and sizes of fittings, piping, and tubing d. Safety procedures e. Equipment records and reports f. Environmental safety, CFC handling 2. Fabrication of Systems Components <ol style="list-style-type: none"> a. Cut, thread, flare, bend, shape piping and tubing b. Install fittings c. Solder and braze tin fittings and components d. Care and use of torches e. Silver and soft soldering 3. System Installation and connection <ol style="list-style-type: none"> a. Electrical supply lines and cables b. Electrical connections c. Water service lines d. Air supply lines e. Steam lines and steam return lines f. Steam traps and strainers g. Pressure reduction, expansion, evaporators, stop valves h. Suction and discharge lines i. Gauges j. Dehydrators k. Filters and strainers l. Controls 4. Equipment Installation <ol style="list-style-type: none"> a. Install condensers b. Prepare compressor and motor bases c. Install and align compressors and motors d. Install evaporators and other cooling coils e. Install and align centrifugal pumps and bases f. Use slings, lines, blocks and falls, chain hoists, rollers, dollies and skids 5. System Maintenance <ol style="list-style-type: none"> a. Troubleshoot field systems b. Test pressure and flow c. Check liquid levels d. Check and repair leaks e. Purge, dehydrate, and recharge systems f. Repair, align, adjust fans and blowers g. Align pulleys, bearing blocks, and belt tension 	<p>350</p> <p>550</p> <p>1600</p> <p>950</p> <p>1050</p>
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6. Equipment Repair	2900
a. Disassemble and clean, repair, renew, and test compressors	
b. Repair, pressure test, dehydrate evaporators	
c. Repair condensers, roll condenser tubes	
d. Remove, replace, disassemble, test, clean, calibrate, and renew parts on controls of all types	
1. Pneumatic	
2. Electrical	
3. Electro-pneumatic	
4. Thermostatic	
5. Humidity	
5. Pressure	
6. Vacuum	
7. Machine Shop Practice	300
a. Use of grinders, drill presses, lathes	
b. Tool and drill sharpening	
8. Miscellaneous	300
a. Housekeeping	
b. Safety	
TOTAL HOURS	8000

A12.2 - HEATING AND AIR-CONDITIONING INSTALLER-SERVICER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to HVAC	2.5
Copper and Plastic Piping Practices	5
Soldering and Brazing	7.5
Basic Electricity	12.5
Introduction to Cooling	30
Introduction to Heating	15
Air Distribution Systems	10
Chimneys, Vents, and Flues	5
Maintenance Skills for the Service Technician	17.5
Alternating Current	7.5
Basic Electronics	5
Electric Heating	5
Introduction to Control Circuit Troubleshooting	30
Accessories and Optional Equipment	7.5
Metering Devices	7.5
Compressors	15
Heat Pumps	15
Leak Detection, Evacuation, Recovery, and Charging	20
Planned Maintenance	20

Troubleshooting Gas Heating	12.5
Troubleshooting Electric Heating	5
Troubleshooting Oil Heating	10
Troubleshooting Cooling	20
Troubleshooting Heat Pumps	12.5
Troubleshooting Accessories	10
Troubleshooting Electronic Controls	7.5
Hydronic Heating and Cooling Systems	30
Airside Systems	15
Air Properties and Balancing	20
Advanced Blueprint Reading	25
Indoor Air Quality	15
Energy Conservation Equipment	10
Building Management Systems	17.5
Water Treatment	10
System Start-Up and Shut-Down	22.5
Heating and Cooling System Design	25
Commercial and Industrial Refrigeration	22.5
TOTAL HOURS	600

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.13
WORK PROCESS SCHEDULE
INSTRUMENTATION AND CONTROL MECHANIC
O*NET-SOC CODE: 17-3023.02 RAPIDS CODE: 0644
ALTERNATE TITLES: INSTRUMENT MECHANIC

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency-based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A13.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Safety & Proper Use of Related Tools & Equipment	1000
2. Fabrication & Installation of Instrument Piping & Tubing	2000
3. Welding	500
4. Rigging and Materials Handling	1000
5. Electronic Instruments & Devices	1500
6. Systems Installation	1000
7. Troubleshooting & Maintenance	1000
TOTAL HOURS	8000

A13.2 - INSTRUMENTATION AND CONTROL MECHANIC RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Hand Tools for Instrumentation	12.5
Electrical Safety	12.5
Power Tools for Instrumentation	10
Electrical Systems for Instrumentation	22.5
Metallurgy for Instrumentation	7.5
Fasteners	7.5
Instrument Drawings and Documents, Part One	10
Gaskets and Packing	7.5
Lubricants, Sealants and Cleaners	7.5
Flow, Pressure, Level and Temperature	10
Tubing	12.5
Piping - 2" and Under	10
Hoses	7.5
Craft Related Mathematics	15
Instrumentation Drawings and Documentation II	20
Principles of Welding for Instrumentation	10
Process Control Theory	20
Detectors, Secondary Elements, Transducers and Transmitters	20
Controllers, Recorders, and Indicators	10
Control Valves, Actuators, and Positioners	15
Relays and Timers	7.5
Switches and Photoelectric Devices	5
Filters, Regulators, and Dryers	7.5
Analyzers and Monitors	5
Panel-Mounted Instruments	7.5
Installing Field-Mounted Instruments	25
Raceways for Instrumentation	17.5

Instrument Piping Math	20
Layout and Installation of Tubing & Piping Systems	45
Clean, Purge and Test Tubing and Piping Systems	10
Receive, Inspect, Handle, & Store Instrumentation	2.5
Instrumentation Circuitry	25
Grounding & Shielding of Instrumentation Wiring	10
Terminating Conductors	20
Protective Measures for Instrumentation	20
Instrumentation Formulas & Equations	12.5
Instrumentation Drawings & Documents, Part 3	10
Identify and Use Calibration Test Equipment	15
Calibrate for Temperature	10
Calibrate for Flow	12.5
Calibrate for Vibration	5
Calibrate for Level	5
Calibrate for Pressure	5
Calibrate Valves	10
Calibrate Controllers	5
Calibrate Recorders	5
Perform Continuity Check Per Loop & Verify Mechanical Installation	5
Perform Final Calibration Checks, Simulate, & Prove Loop	2.5
Troubleshoot Loop	5
Commission Loop	5
Tune Loop	7.5
Programmable Logic Controllers	7.5
Distributed Control Systems	7.5
Analyze Density & Specific Gravity	2.5
Analyze Viscosity	2.5
Analyze pH	2.5
Analyze Electrical Conductivity	2.5
Analyze Gas	5
Ultraviolet/Infrared Analyzers	5

TOTAL HOURS **702.5**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.14
WORK PROCESS SCHEDULE
INSULATION WORKER
O*NET-SOC CODE: 47-2131.00 RAPIDS CODE: 0909

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A14.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Pre-fabrication of fittings	600
2. Making plastic cement fitting-applying canvas	500
3. Blocking boiler, tanks and flues	400
4. Applying finish reinforcements and corner board	300
5. Applying rigid board on duct work and housings	400
6. Insulating valves and flanges with blocks or curved segments	400
7. Low temperature insulation, such as, cellular glass, fibrous glass, expanded forms, etc.	1000
8. Applying sectional pipe covering	400
9. Applying manufactured fittings	200
10. Vapor sealing of fittings, flanges, etc.	300
11. Applying finish cements	600
12. Applying clip type and welded pins	200
13. Applying flexible duct insulation	200
14. Canvassing large areas, tanks, ducts, etc.	600
15. Fabricating removable insulation for turbines and vessels with rigid and flexible materials	800
16. Applying felt paper and metal for weather protection of pipes and fittings	300
TOTAL HOURS	7200

A14.2 - INSULATION WORKER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Orientation	5
Trade Relations	7.5
Material Handling and Storage	2.5
Characteristics of Pipe Insulation	5
Installing Fiberglass Pipe Insulation	30
Installing Fittings, Valves and Flanges	40
Installing Flexible Foam Insulation	32.5
Installing Blanket Insulation for Ducts	7.5
Installing Board Insulation for Ducts	20
Installing Calcium Silicate Pipe Insulation	15
Installing Mineral Wool Insulation	12.5

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Installing Rigid Foam Insulation	20
Installing Board and Block Insulation	17.5
Cement and Fabric Finishes & Mastics	10
Plumbing Systems	7.5
Chilled and Hot Water Heating Systems	5
Air Duct Systems	5
Theory of Heat Transfer and Moisture Effects	2.5
Adhesives and Their Uses	2.5
Steam, Condensate, and Process Water Systems	5
Large Boilers, Breechings, Precipitators, and Apparatus	10
Refrigeration and Cryogenic Systems	2.5
Specialized Insulation Systems	5
Jacketing Fabrication- Piping and Fittings	42.5
Jacketing Fabrication-Vessels and Equipment	40
Sheet Metal Lagging	12.5

TOTAL HOURS **437.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.15
WORK PROCESS SCHEDULE
IRONWORKER (ERECTOR)
O*NET-SOC CODE: 47-2221.00 RAPIDS CODE: 0669
ALTERNATE TITLES: STRUCTURAL STEEL WORKER

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate
- 6th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A15.1 - WORK PROCESS SCHEDULE

HOURS

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Tools	175
a. Name and proper use	
b. Care	
c. Safety	
2. Materials	250
a. Identification	
b. Shapes	
3. Equipment-ornamental, reinforcing, structural	400
a. Light equipment-blocks, ropes, etc.	
b. Heavy equipment-derricks, etc.	
4. Erecting-job, erecting equipment	2000
a. Layout	
b. Drilling	
c. Welding-acetylene and electric	
1. Cutting	
2. Burning	
d. Riveting	
1. Selection of proper size and types of rivets	
2. Heating rivets	
3. Use and care of tools	
5. Dismantling, rigging equipment, scaffolding, floats	100
6. Ornamental, reinforcing, structural	375
a. Sorting materials	
b. Distributing	
7. Placing, spacing, tying	500
8. Ornamental layout and fabrication	300
a. Stairs and door bucks	
b. Hand railings and sash	
c. Metal partitions	
9. Hoisting	400
a. Hook on	
b. Learn signals	
c. Learn safety factors	
10. Fitting-up, plumbing-up	300
a. Use of cables and turnbuckles	
b. Use of instruments	
c. Use of hydraulic jacks	
11. Fabricating	800
a. Layout	
b. Fit-up	

12. Reading job plans and specifications 400

TOTAL HOURS 6000

A15.2 - IRONWORKER (ERECTOR) RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	5
Means & Methods of Access	7.5
Tools and Equipment of the Trade	10
Construction Cranes I	10
Rigging for Ironworking I	10
Rigging Equipment and Hardware	7.5
Materials and Storage	5
Structural Ironworking I	7.5
Plumbing, Aligning & Guying	5
Fastening	5
Oxyfuel Cutting	17.5
Introduction to Arc Welding	15
Steel Joists and Joist Girders I	5
Metal Decking	10
Field Fabrication I	15
Position Arc Welding	20
Introduction to Reinforcing Steel And Steel Fabrication	10
Miscellaneous Ironworking	7.5
Trade Math Two	10
Blueprint Reading Two	10
Rigging Two	10
Structural Ironworking Two	30
Steel Joists And Joist Girders Two	15
Construction Cranes Two	15
Levels, Transits, And Electronic Survey Devices	17.5
Weld Testing	10
Pre-Engineered Systems	7.5
Ornamental Ironworking	5
Stud Welding	10
Post-Tensioning	5
Placing and Tying Reinforcing Steel	20
Construction Cranes III	10
Special Rigging	10
Field Fabrication II	25
Demolition	10
Precast/Tilt-Up Erection	20
Structural Ironworking III	20

TOTAL HOURS 505

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.16
WORK PROCESS SCHEDULE
METAL BUILDING ASSEMBLER
O*NET-SOC CODE: 47-2221.00 RAPIDS CODE: 0877

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 80 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Job Site Safety	50
2. Materials Identification	25
3. Tools	100
a. Name and proper use	
b. Care	
4. Equipment	100
a. Light – Blocks, ropes, etc.	
b. Heavy – Cranes, fork lifts, boom trucks, etc.	
5. Pre-assembly procedures Site	50
1. safety and emergency services	
2. concrete and anchor bolts	
3. conditions at work site	
6. Hoisting	200
a. Rigging	
b. Ground Control Signals	
c. Unhooking	
7. Assembly	2600
a. Materials Receiving	
1. planning and scheduling	
2. handling and inventory	
3. storage and protection	
4. unloading and shake-out	
b. Structural	
1. primary framing	
2. secondary framing	
c. Fitting Up	
1. bracing	
2. plumbing and squaring	
3. field adaptation	
4. builders' transit	
d. Covering	
1. wall panels	
a. layout	
b. insulation	
c. standard ribbing	
d. concealed fastener panels	
e. composite panels	
f. accessories	
g. field adaptation	
2. roof panels	
a. layout	
b. insulation	
c. standard ribbed panels	
d. standing seam panels	

e.	composite panels	
f.	accessories	
g.	field adaptation	
8.	Trim and Flashing Field Adaptation	600
9.	Field Adaptation	100
a.	Structural	
b.	Masonry	
c.	Crane and Hoist	
10.	Reading Job Plans and Specifications	100
11.	Job Completion	75
a.	Final clean up	
b.	Punch list	
TOTAL HOURS		4000

A16.2 - METAL BUILDING RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	7.5
Fasteners	5
Insulation	5
Bolting and Aligning	5
Plumbing and Leveling Devices	5
Erecting Interior Bays	10
Erecting End Bays	7.5
Plumbing, Leveling, and Squaring	5
Wall Panel Types and Coatings	5
Layout and Installations of Wall Coverings	17.5
Erection Drawings and Schematics	15
Oxyacetylene Flame Cutting	15
Cranes	10
Forklifts	10
Personnel Lifts and Scaffolding	7.5
Receiving and Distribution	7.5
Trim and Flashing	10
Door and Window Installation	20
Roof Panel Types and Systems Design	10
Installing Standing Beam Roof Systems	32.5
Installing Lap Seam Roof Systems	12.5
Glossary	5
Long Bay Systems	5
Tilt-Up Systems	5
Performed Architectural Metals	10
Special Use Buildings	15

Decorative Assemblies	12.5
Wall Retrofit	10
Reroofing	10

TOTAL HOURS **367.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.17
WORK PROCESS SCHEDULE
MILLWRIGHT
O*NET-SOC CODE: 49-9044.00 RAPIDS CODE: 0335

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A17.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. General Trade	1500
a. Process Equipment	
b. Safe procedures, practices, personnel protective equipment, tool safety and work area safety	
c. Rigging and wire rope	
d. Use of and care of tools and equipment.	
e. Use of precision measuring tools	
f. Material handling	
g. Blueprints, Specifications & Layout	
h. Gaskets, Packing, Seals and Bearings	
i. Bend pipe and tubing	
j. Mechanical fasteners	
k. Fabrication	
2. Related Equipment	2000
a. Pumps	
b. Motors	
c. Couplings and Clutches	
d. Gear Boxes	
e. Compressors	
f. Turbines	
g. Drive Systems	
3. Installation	2000
a. Packing & Seals	
b. Bearings	
c. Lifting machinery	
d. Installation level and alignment of equipment and machinery	
e. Precision fitting	
4. Repair and Maintenance	2500
a. Oxyacetylene Cutting	
b. Fabrication of parts	
c. Valves, traps and strainers	
d. Belt conveyors	
e. Chain conveyors	
f. Screw conveyors	
g. Vibration analysis	
h. Field balancing	

TOTAL HOURS**8000****A17.2 - MILLWRIGHT RELATED CLASSROOM INSTRUCTION**

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5

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Introduction to Blueprints	7.5
Basic Rigging	20
Millwright Hand Tools	20
Fasteners	10
Basic Layout	15
Cutting and Fitting Gaskets	10
Oxyfuel Cutting (from Welding curricula)	33
Intermediate Trade Math	20
Field Sketching	10
Intermediate Blueprint Reading	30
Specialty Tools	10
Millwright Power Tools	20
Complex and Heavy Rigging	10
Light Lifting Devices	10
Lubrication	20
SMAW Equipment and Setup (from Welding curricula)	3
Physical Characteristics and Properties of Metals (from Welding curricula)	3
Introduction to Bearings	15
Advanced Trade Math	20
Precision Measuring Tools	25
Installing Couplings	15
Prealignment for Drilling and Tapping	25
Fabricating Shims	5
Installing Packing	10
Installing Mechanical Seals	20
Alignment Fixtures and Specialty Jigs	10
Installing Belt and Chain Drives	10
Installing Fans and Blowers	10
Installing Bearings	20
Installing Seals	5
Conveyors	5
Basic Hydraulic Systems	10
Basic Pneumatic Systems	15
Troubleshooting and Repairing Compressors	20
Vibration Analysis	5
Setting Baseplates and Soleplates	15
Conventional Alignment	30
Pumps	20
Troubleshooting and Repairing Pumps	10
Troubleshooting and Repairing Hydraulic Equipment	10
Troubleshooting and Repairing Gearboxes	20
Troubleshooting and Repairing Conveyors	15
Advanced Blueprint Reading	25
Troubleshooting and Repairing Pneumatic Equipment	10
Turbines	20
Troubleshooting and Repairing Turbine Equipment	15
AC/DC Motor Operation	10
Preventive and Predictive Maintenance	10
Performing Reverse Alignment	30
Performing Optical Alignment	25
Performing Laser Alignment	25

TOTAL HOURS **831.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.18
WORK PROCESS SCHEDULE
OPERATING ENGINEER
O*NET-SOC CODE: 47-2071.00 RAPIDS CODE: 0872
ALTERNATE TITLES: ASPHALT-PAVING MACHINE OPERATOR

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate
- 6th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A18.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

- | | |
|---|-----|
| 1. Graders | 750 |
| a. Learn to check, read, and set grade stakes and read plans | |
| b. Learn to service, maintain, and adjust the machine | |
| c. Learn the different types of work the machine does, such as find grading, black sloping, mixing and laying oil, etc. | |
| d. Learn to operate and maintain elevating graders | |
| e. Learn to make adjustments and minor repairs with the heavy-duty repairer and welder | |
| 2. Scrapers, self-propelled | 750 |
| a. Learn to operate the various types of motor and motor-electric driven machines | |
| b. Learn to make proper cuts and fills to the grade stakes | |
| c. Learn to service, maintain, and repair the different makes of machines | |
| 3. Rollers, flat wheel, sheep foot, and pneumatic, and other type compacting machines | 600 |
| Learn the purpose of the different machines, the different procedures for compaction for various materials, and the operation and care of different types of rollers and other compaction equipment | |
| 4. Tractor-type skin loaders and hi-lift | 300 |
| Learn to operate the various types and to service and make minor repairs and adjustments | |
| 5. Wheel-type tractors, including forklifts, lumber carriers, etc. | 300 |
| Learn service, maintain, and make minor repairs and adjustments | |
| 6. Trenching machines | 300 |
| a. Learn to read grade stakes and cut trench to grades so indicated | |
| b. Learn to operate the various types and sizes of machines and their maintenance and repair | |
| 7. Bulldozer and electric-propelled dozers | 450 |
| a. Learn the different types of work assigned the dozer from pioneer and rough excavation to finish work. | |
| b. Learn to read grade stakes. | |
| c. Learn to make minor adjustments and repairs and work with mechanic on major repairs. | |
| d. Learn the operation, service, and adjustment of auxiliary equipment, such as tractor crane, side boom, pipeline equipment, etc. | |
| 8. Scraper, towed | 350 |
| a. Learn to operate properly | |
| b. Learn to service, adjust, and change cables on cable-controlled machines | |
| c. Learn to read grade stakes for cuts and fills | |
| 9. General equipment | 500 |
| a. Learn to operate, service, and adjust all types of pumps | |
| b. Learn operation and maintenance of pumping machines, such as pump crete machine, concrete pump, gunite machine, etc. | |
| c. Learn the installation, operation, and maintenance of well point systems | |
| d. Learn to operate, service, and adjust all types of mechanical heaters | |
| e. Learn to operate, service, and adjust all types of electrical generating plants | |

f. Learn to operate, service, and adjust all types of air compressors and use and operation of auxiliary equipment	
g. Safety	
10. Concrete, stone, and asphalt spreaders, screed and finishing machines	450
Learn to service, make minor repairs, adjust, and be able to operate the machines	
11. Concrete mixer-paver	400
a. Learn to operate and also become familiar with control of mixing time apparatus	
b. Learn to make adjustments and repairs and to service machine	
12. Specialty paving equipment	450
Learn to operate, service, and adjust gutter pavers, curb pavers, vibrators, concrete saws, pavement breakers, and similar-type equipment	
13. Maintenance, cutting and burning, grease and oils	400
a. Learn use of various welders and welding equipment	
b. Learn minor repairs and adjustments	
c. Learn minor welding repair and cutting	
d. Learn the types of greases and oils and their use	
TOTAL HOURS	6000

A18.2 - OPERATING ENGINEER (ASPHALT PAVING EQUIPMENT OPERATOR) RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	15
Trucks	7.5
Heavy Equipment	15
Cranes	7.5
Below-Grade Construction	12.5
Earthmoving	12.5
Plant Operations	7.5
Paving	7.5
Structures	12.5
Orientation to the Trade	10
Safety, Part One	10
Identification of Heavy Equipment	7.5
Equipment Preventive Maintenance	10
Dump Trucks	27.5
Tractors	10
Soils, Part One	10

Grades, Part One	10
Finish Operator	25
Advanced Safety	17.5
Telescoping Excavators	20
Motor Graders	25
Excavators	25
Finishing and Grading	20
Soils, Part Three	17.5
TOTAL HOURS	415
*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year	

A.19
WORK PROCESS SCHEDULE
PAINTER
O*NET-SOC CODE: 47-2141.00 RAPIDS CODE: 0379

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 75 percent of journeyman's rate
- 5th 1000 hours = 85 percent of journeyman's rate
- 6th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A19.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Sandpapering, puttying, and priming of woodwork	200
2. Preparing and sizing of walls	200
3. Safety training in safe work habits	50
4. Calcimining and use of water-base paints	100
5. Finishing walls with flat coat and enamel	500
6. Finishing wood trim with oil, enamel, or varnish	500
7. Preparing stains; staining, bleaching woodwork	400
8. Pore-filling and shellacking	300
9. Lead stippling and starching wall	300
10. Outside painting and surface preparation	650
11. Applying various types of wall covering	200
12. Rag and sponge stippling	200
13. Blending and glazing walls and woodwork	400
14. Mixing and matching colors	600
15. Graining, warbling, metal leafing	500
16. Stenciling, striping, spackling	300
17. Making putty	50
18. Operation, care and use of all tools and equipment connected with the trade	350
19. Scaffolding and ladders	200
TOTAL HOURS	6000

A19.2 - PAINTER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Careers in the Painting Trade	5
Ladders, Scaffolds, Lifts, and Fall Protection	10
Identifying Surface/Substrate Materials and Conditions	5
Protecting Adjacent Surfaces	5
Basic Surface Preparation	15
Sealants and Repair/Fillers	5
Introduction to Paints and Coatings	10
Brushing and Rolling Paints and Coatings	15
Painting Failures and Remedies	7.5

Job Planning and Completion	10
Chemical Cleaning and Stripping	7.5
Low-Pressure Water Cleaning	7.5
Abrasive Blasting	7.5
Drywall Finishing and Patching	25
Stains	7.5
Clear Finishes	7.5
Wood Finishing	22.5
Coatings, II	10
Spray Painting (Conventional, Airless and HVLP)	32.5
Painting Failures and Remedies II	7.5
Job Supervision, Planning and Control	15
Coatings III	15
Color and Tinting	10
Decorative (Faux) Finishes	22.5
Wallcovering	40
Graphics	12.5
Texturing	10
Spraying with Special Devices	20
Ladders, Scaffolds, Lifts and Fall Protection	15
Containment/Ventilation	7.5
Surface Preparation I	15
Surface Preparation II	20
Surface Preparation III	7.5
Industrial Coatings	12.5
Coatings Applications and Equipment	25
Quality Inspections	15
Coatings, Failures & Analysis	7.5
Specialty Materials	7.5

TOTAL HOURS **572.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.20
WORK PROCESS SCHEDULE
PIPEFITTER
O*NET-SOC CODE: 47-2152.01 RAPIDS CODE: 0414
ALTERNATE TITLES: REFRIGERATION, HEATING, AND AIR-CONDITIONING

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A20.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Use and care of tools and equipment and safety	750
Welding, soldering, and brazing	
2. Installation and service (compression systems)	750
a. Compressors-all types	
b. Condensers-water, air, combinations, cascade, and evaporative	
c. Receivers—tube type and shell	
d. Evaporators-tube, fin, plate, brine, wet, and dry	
e. Piping-all materials	
3. Refrigerant controls	450
a. Expansion valves-hand, thermostatic, and automatic	
b. Power elements, mechanism	
c. Float controls-high side., low side, bucket and ball types	
d. Capillary tubes-sizing and orifices	
e. Check valves-solenoids, unloaders, pressures, and relief	
f. Safety-hazards and controls	
4. Motor controls (installation and service)	450
a. Thermostats	
b. Pressure devices	
c. Combinations, adjustment mechanism	
d. Switches-relays, fuse elements, and protections and delays	
5. Electric motors (service) up to 5 horsepower	225
a. Installation-alignment and load test	
b. Lubrication	
c. Field test	
d. Servicing	
6. Installation and service (absorption systems)	225
a. Solid absorbent	
b. Liquid absorbent	
c. Controls	
7. Installation and service (hermetic, semihermetic)	225
a. Dismantle and rebuild	
b. Field test	
c. Shop and field repair	
d. Controls	
8. Commercial refrigeration (various applications)	1425
a. Condensing units—all types	
b. Coils and evaporators—wet and dry	
c. Heat exchanger—dryers and chemical reactivators	
d. Surge tanks, separators, refrigerant piping and insulating	
e. Vacuum and pressure test—evacuating and charging	
f. Multiple installations—multitemp and freezers	
g. Truck and transport refrigeration	
h. Marine installation service	

i. Cold storage and processing—maintenance and service	
j. Assemblies—cooling towers and process water recovery	
k. Icemakers, brine chillers	
9. Installation and service (air conditioning systems)	800
a. Humidifiers and dehumidifiers	
b. Filtering and air cleaning equipment	
c. Circulating equipment—fans, natural and controls	
d. Cooling equipment	
e. Packaged units—combinations, single, and multiple	
f. Cooling towers—water recovery and evaporator and air-cooled condensers	
10. Installation and service (heating equipment)	800
a. Furnaces—boilers (round, square, and sectional)	
b. Fuel burners—stokers, oil burners, gas burners, and electric	
c. Unit heaters (blowers), all types	
d. Packaged units—multiple, combination, and single	
e. Safety—hazards and controls	
11. Installation and service (fuel-burning equipment)	400
a. Oil burners—piping, tank and controls	
b. Gas burners—adjustments and controls	
c. Stokers—hopper, bin feed, and controls	
d. Electric heaters—controls	
e. Safety—hazards and controls	
12. Boiler room piping (service and installation)	400
a. Heaters	
b. Circulators—flow control and regulating valves	
c. Pumps—condensers, P.R. valves, tank, and blowdowns	
d. Expansion loops—joints, anchors, and boiler trim	
e. Safety—hazards and controls	
13. Installation (heating systems)	750
a. Hot water—one-pipe forced circulation	
b. Hot water—two-pipe forced circulation	
c. Steam—one-pipe, two-pipe vapor and vacuum systems	
d. Installation panels—coils, blowers, rods, convectors, etc.	
TOTAL HOURS	7650

A20.2 - PIPEFITTER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Pipefitting Hand Tools	20
Pipefitting Power Tools	15
Threaded Pipe Fabrication	15
Ladders and Scaffolds	10

Motorized Equipment	10
Excavations	10
Underground Pipe	12.5
Intermediate Excavations	10
Underground Pipe Installation	20
Drawings and Detail Sheets	12.5
Piping Systems	5
Pipefitting Trade Math	15
Socket Weld Pipe Fabrication	12.5
Butt Weld Pipe Fabrication	45
Rigging	17.5
Pipe Hangers and Supports	15
Advanced Blueprint Reading	15
Standards and Specifications	7.5
Advanced Trade Math	20
Motorized Equipment	15
Introduction to Aboveground Pipe Installation	20
Identifying and Installing Valves	20
Field Routing and Vessel Trim	15
Spring Can Supports	10
Testing Piping Systems and Equipment	20
Basic Plumbing	12.5
Planning Work Activities	7.5
Advanced Pipe Fabrication	50
Performing NDE Testing	15
Stress Relieving and Aligning	10
Steam Traps	10
In-Line Specialties	10
Special Piping	25
Hot Taps	10
Maintaining Valves	10
TOTAL HOURS	620

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.21
WORK PROCESS SCHEDULE
PLUMBER
O*NET-SOC CODE: 47-2152.02 RAPIDS CODE: 0432

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A21.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Interior and exterior underground sanitary and storm sewer or private sewage system work	1200
2. Vertical stacks, horizontal lines, and branch lines for soil, waste, and venting piping	2100
3. Water supply system – Sizing of lines, selecting of material to use, and job, cross-laying out connection control and water treatment equipment	1700
4. Setting and connecting of all types of plumbing fixtures and appliances and water treatment equipment	1500
5. Care and safe use of tools, materials and equipment used on the job. Job lay out and site safety requirements. Driving and operating of equipment used in the job	500
6. Industrial , process piping, gas piping, compressed air piping, and chemical piping . welding and rigging of equipment.	500
7. Installing and maintenance of high/low pressure boilers, and chilled water cooling systems	500
TOTAL HOURS	8000

A21.2 - PLUMBER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Plumbing Trade	5
Plumbing Tools	7.5
Introduction to Plumbing Math	7.5
Introduction to Plumbing Drawings	12.5
Plastic Pipe and Fittings	10
Copper Pipe and Fittings	10
Cast Iron Pipe and Fittings	10
Carbon Steel Pipe and Fittings	10
Fixtures and Faucets	10
Introduction to Drain, Waste, and Vent (DWV) Systems	10
Introduction to Water Distribution Systems	10
Intermediate Math	15
Reading Commercial Drawings	20
Installing and Testing DWV Piping	30
Installing Roof, Floor, and Area Drains	5
Types of Valves	5

Installing and Testing Water Supply Piping	25
Installing Fixtures, Valves, and Faucets	15
Installing Water Heaters	5
Fuel Gas Systems	20
Servicing Fixtures, Valves, and Faucets	5
Applied Math	17.5
Codes	7.5
Types of Venting	15
Indirect and Special Waste	15
Sewage and Sump Pumps	17.5
Sizing Water Supply Piping	20
Backflow Preventers	20
Water Pressure Boosters and Recirculating Systems	20
Servicing Piping Systems, Fixtures, and Appliances	20
Business Math for Plumbers	10
Sizing DWV and Storm Systems	15
Private Water Supply Systems	12.5
Private Waste Disposal Systems	12.5
Locating Buried Water and Sewer Lines	12.5
Hydronic and Solar Heating Systems	15
Water Supply Treatment	25
Swimming Pools and Hot Tubs	15
Compressed Air	10
Corrosive-Resistant Waste Piping	12.5
Plumbing for Mobile Homes & Mobile Home Parks	10

TOTAL HOURS **622.5**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.22
WORK PROCESS SCHEDULE
POWER-LINE DISTRIBUTION ERECTOR
O*NET-SOC CODE: 49-9051.00 RAPIDS CODE: 0281
ALTERNATE TITLE: LINE ERECTOR

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 65 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 85 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A22.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Install Electrical Distribution Systems	1500
a. Guy anchor	
b. Pole equipment	
c. Capacitor banks	
d. Substation equipment	
e. Utility meters	
f. Armor rods	
g. Direct burial cable	
h. Cable markers	
i. Underground cable ducts	
j. Cable racks	
k. Test grounding systems	
2. Perform Maintenance and Inspection Duties	1500
a. Control vegetation in powerline right-of-way and substations	
b. Inspect conductors, poles, crossarms, fences and warning signs	
c. Check for corroded hardware, fuse cutouts, high voltage switches, circuit breakers and regulators, and deterioration of cable, connectors and poles	
d. Perform di-electric and load tests	
3. Troubleshoot and Repair System Components	1000
a. Replace defective conductor, crossarms, substation breaders, transformers, regulators and relays	
b. Transfer hot and dead conductors to new poles	
4. Utilize Electrical Line Service Tools and Equipment	1500
a. Utilize handtools and hotline tools safely and use rubber protection as needed	
b. Operate equipment	
5. Perform Street and Security Lighting Activities	500
a. Install street and flood light fixtures	
b. Lighting control components and ballast	
TOTAL HOURS	6000

A22.2 - POWER-LINE DISTRIBUTION ERECTOR RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Introduction to T&D	80
• Distribution	
• Transmission	
• Overhead Distribution Systems	
• Climbing Wooden Poles	
• Rigging I & II	
Safety in T&D Maintenance	80
• Mobile Hydraulic Systems	
• Hydraulic Hand Tools I&II	
• Compressors & Pneumatic Tools	
• Hydraulic Derricks & Digging Equipment	

<ul style="list-style-type: none"> • Bucket Trucks I & II 	80
Electrical Safety	80
<ul style="list-style-type: none"> • Reading Diagrams I&II • Climbing Steelpoles and Towers • Setting & Replacing Poles • Pole Framing & Guying • Troubleshooting Overhead Lines 	
URD Systems	80
<ul style="list-style-type: none"> • Safety in URD • URD Cable/Conduit • Basic Electricity Review • Distribution Repair (Gloves) • Distribution Repair (Sticks) • Distribution Line Installation 	
System Protection & Monitoring	80
<ul style="list-style-type: none"> • Pole Top Equip. Replacement I &II • AC Fundamentals Review • Electromagnetic Induction Review • Substations and Switchyards • Transformer Connections I • Transformer Connections II 	
Transformer Troubleshooting	80
<ul style="list-style-type: none"> • Service Installations • Padmount Transformers & Switchgear • Cable Fault Locating I & II • Cable Splicing I • Cable Splicing II • Cable Terminations 	

TOTAL HOURS **480**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.23
WORK PROCESS SCHEDULE FOR:
PROTECTIVE SIGNAL INSTALLER
O*NET-SOC CODE: 49-2098.00 RAPIDS CODE: 0459

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 65 percent of journeyman's rate
- 5th 1000 hours = 70 percent of journeyman's rate
- 6th 1000 hours = 75 percent of journeyman's rate
- 7th 1000 hours = 80 percent of journeyman's rate
- 8th 1000 hours = 85 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A23.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Blueprint Reading	400
2. Install Boxes & Fittings	400
3. Install Anchors and Fasteners (installs cable conduits and panels to walls and ceilings)	400
4. Bend Conduit	400
5. Install Low Voltage cable	2000
6. Install Relays and Timers	600
7. Terminate Conductors	500
8. Project Planning, Survey and Layout Systems	800
9. Install and Program fire Alarm Devices & Panels	1100
10. Install Security Devices (video cameras, electronic locks, card access)	200
11. Voice and Data Systems	100
12. Test Systems	500
13. Repair and Troubleshoot Systems	600

TOTAL HOURS**8000****A23.2 - PROTECTIVE SIGNAL INSTALLER RELATED CLASSROOM INSTRUCTION**

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Construction Materials/Methods	17.5
Pathways and Spaces	15
Fasteners and Anchors	5
Hand Bending	7.5
Electrical Safety	12.5
Electrical Theory 1	7.5
Electrical Theory 2	7.5
Electrical Blueprints	7.5
Voice and Data Systems	10
Switches & Timers	10
Terminate Conductors	15
Basic Electronics	10
Introduction to Codes and Standards	10
Power Quality & Grounding	15
Electrical Test Equipment	7.5
Low Voltage Cabling	20
Cable Selection	15
Busses and Networks	25
Fiber Optics	20
Video Systems	15
Project Plan, Site Survey, Documentation	15
Maintenance and Repair	15

Wireless Signal Communication	15
Computer Applications	20
Supervision	15
Fire Alarms	40
Security	30
Programmable Logic Control	30
Energy Management systems	15
Sound & Signal	20
Preactive/Deluge Sprinkler	39

TOTAL HOURS

579

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.24
WORK PROCESS SCHEDULE
ROOFER
O*NET-SOC CODE: 47-2181.00 RAPIDS CODE: 0480

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 4000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 60 percent of journeyman's rate
- 3rd 1000 hours = 70 percent of journeyman's rate
- 4th 1000 hours = 80 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A24.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. General	400
a. Carrying and placing materials for use by journey person	
b. Material handling, setting up job site, cleaning up job site	
c. Hoisting, loading and unloading all materials and tools	
2. Built-up roofing, tar, asphalt, and general work	2700
a. Preparing materials, equipment; regulating and heat of pitch and asphalt	
b. Preparing roof surfaces for covering	
c. Apply pitch or asphalt to roof	
d. Prepare, cut, place, fit trim strips to felt, tar paper, roofing paper or insulating board to roof	
e. Apply additional layers of roofing material to roof as required	
f. Cement tar paper with hot tar, or asphalt, or flashing cement	
g. Evenly distribute crushed gravel or slag over top coat or tar or asphalt	
h. Properly install gravel stop, scuppers, roof drains, etc.	
i. Properly flash all curbs, parapets and other openings in roof	
3. Shingle work	450
a. Asphalt shingles and 90# roll roofing	
b. Cover roof sheathing with felt	
c. Nail shingles, provide for proper overlap	
d. Cut shingles to fit ridges, valleys and edges	
e. Apply flashing	
f. Cleaning complete job	
4. Other materials	225
a. Felt, wood, coal, oil, lumber, roofing paper, insulation board, pitch, flashing cement, gravel, or slag	
b. Tile blocks, cement mortar, grout, water, dilute acid solution, asphalt	
c. Roofing cement, slate, terra cotta, asbestos shingles, wood shakes, roofing felt, sheet metal flashing and all other materials used by roofers	
5. Tools and equipment	225
Axe, ladders, iron buckets, hoist, heater, scaffolding, nails, hatchet, saw, knife, dipper, cotton mop, scoop shovel, bucket, rake, stiff bristled broom, ladder rule, trowel, hammer, level, straight-edge, roofer's hammer, punch, pliers, roofer's take, chalk line, paper cutter, rule and other tools.	
TOTAL HOURS	4000

A24.2 - ROOFER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20

Nails, Fasteners and Adhesives	7.5
Concrete and Reinforcement Materials	10
Fasteners, Hangers and Supports	7.5
Steel and Other Metals	2.5
Introduction to Sheet Metal Layout and Processes	7.5
Bolting and Aligning	5
Roof Framing	37.5
Soldering	15
Gutters and Downspouts	10
Roof Flashing	7.5
Trim and Flashing	10
Roof Panel Types and Systems Design	10
Installing Standing Seam Roof Systems	32.5
Installing Lap Seam Roof Systems	12.5
Physical Characteristics/ Properties of Metals	
Introduction to Welding, Brazing and Cutting	20
Roofing Applications	25
Installation of Cornices, Gutters, and Downspouts	12
Fabrication II-Radial Line Development	55
Reroofing	20
Roof Coatings	
Shop Production and Organization	25
Fabrication IV-Comprehensive Review	60

TOTAL HOURS **464.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.25
WORK PROCESS SCHEDULE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A25.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Use of hand tools	350
2. Use of machine tools and processes	1000
3. Flux, rivets, and fastening devices	500
4. Measurements and layouts	650
5. Benchwork	1100
6. Welding	750
7. Installing duct work and equipment	2050
8. General sheet fabrication and installation of skylights and ventilators	1000
9. Safety practices	500
10. Insulation of duct work (lining, etc.)	100
TOTAL HOURS	8000

A25.2 - SHEET METAL WORKER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Sheet Metal Trade	5
Fasteners, Hangers, and Supports	7.5
Installation of Air Distribution Accessories	5
Insulation	7.5
Introduction to Sheet Metal Layout and Processes	7.5
Trade Math I	12.5
Fabrication I — Parallel Line Development	22.5
Trade Math II	20
Basic Piping Practices	7.5
Fabrication II-Radial Line Development	55
Bend Allowances	5
Blueprints and Specifications	20
Air Properties and Distribution	15
Sheet Metal Duct Fabrication Standards	7.5
Soldering	15
Fiberglass Duct	20
Trade Math III: Field Measuring and Fitting	15
Airside Systems	10
Introduction to Welding, Brazing, and Cutting	20
Principles of Refrigeration	7.5

Principles of Air Flow	22.5
Comprehensive Blueprint and Specification Reading	30
Fabrication Three: Triangulation	40
Architectural Sheet Metal	15
Shop Production and Organization	25
Air Balance	15
Fabrication Four	60
Louvers, Dampers and Access Doors	17.5
Hoods and Ventilators	10
Fume and Exhaust Systems Design	25

TOTAL HOURS **617.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.26
WORK PROCESS SCHEDULE
SPRINKLER FITTER (PIPEFITTER)
O*NET-SOC CODE: 47-2152.01 RAPIDS CODE: 0414

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 8000 Hours

- 1st 1000 hours = 50 percent of journeyman's rate
- 2nd 1000 hours = 55 percent of journeyman's rate
- 3rd 1000 hours = 60 percent of journeyman's rate
- 4th 1000 hours = 70 percent of journeyman's rate
- 5th 1000 hours = 75 percent of journeyman's rate
- 6th 1000 hours = 80 percent of journeyman's rate
- 7th 1000 hours = 85 percent of journeyman's rate
- 8th 1000 hours = 90 percent of journeyman's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

A26.1 - WORK PROCESS SCHEDULE**HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Plan reading and interpretation	750
a. Reading shop drawings	
b. Symbols and abbreviations	
c. Familiarization with NFPA's #13, 14, 20 and 24	
2. Care of tools, materials, and equipment	800
a. Identifying materials, grades and types of pipe, fittings, valves, hose and equipment, and sprinkler heads	
b. Use and operation of trade tools	
c. Maintaining and servicing of tools and equipment	
3. Preparation of tools, material and equipment	650
a. Selection of pipe, fittings, hangers and devices for rough and distribution and finish work	
b. Loading of required materials and equipment	
c. Unloading of materials and equipment at job site using safety precautions and care in not damaging materials for equipment	
d. Set up and use of rigging, scaffolding and mechanical lifts and platforms	
4. Pipe cutting, threading, reaming and welding	1250
a. Use of hand cutters	
b. Use of dies and reamer	
c. Set up and operation of power threading machine	
d. Operation of power drills	
e. Operation of torch and welder	
5. Installation of underground piping and accessories	650
a. Installation of cast iron pipe and fittings	
b. Installation of plastic pipe and fittings	
c. Installation of valves, post indicators and hydrants	
d. Rodding and thrust block installation	
e. Valve pit installation	
f. Flushing and testing of underground piping	
6. Wet pipe systems	1600
a. Distribution of system	
b. Installation of feed main and cross main, grooved, screwed and welded	
c. Branch line installation on exposed systems	
d. Branch line installation for concealed piping with drop nipples	
e. Hanger types and installation	
f. Trimming of valves including Siamese connection installation	
g. Set up and testing of system	
7. Dry pipe systems	500
a. Distribution of system	
b. Installation of feed main and cross main, grooved, screwed and welded	
c. Branch line installation on exposed systems	
d. Hanger types and installation	
e. Trimming of valves including Siamese connection installation	
f. Set up and testing of system	

8. Standpipe systems	500
a. Distribution of system	
b. Pipe installation	
c. Installation of hose, hose VA's, nozzles and accessories	
d. Testing procedures	
9. Special hazard installation	350
a. Installation of deluge systems	
b. Installation of pre-action systems	
c. Installation of halon systems	
d. Installation of cardox systems	
e. Installation of fire extinguishers	
10. Installation of fire pumps and accessories	350
a. Setting of fire pumps and jockey pumps	
b. Alignment of fire pump and driver	
c. Trimming of fire pump, jockey pump and controllers	
d. Start up and testing of fire pumps and equipment	
11. Maintenance and Repairs	600
a. Fabrication and installation of pipe on job site	
b. Care in cutting and patching of walls and ceilings	
c. Repair and replacement of system components	
d. Restoring system to service	
e. Notifying owner, fire department, insurance company of impairment to system	
TOTAL HOURS	8000

A26.2 - SPRINKLER FITTER (PIPEFITTER) RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Introduction to the Trade	6
Hangers, Supports, Restraints, and Guides	12
Threaded Steel Pipe	15
Flanged, Grooved, and Plain End Fittings	45
Plastic Pipe	9
Copper Tube Systems	9
Underground Pipe	12
Introduction to Sprinklers	9
Standard Sprinklers	21
Special Sprinklers and Nozzles	24
General Purpose Valves	15
Wet Fire Sprinkler Systems	36
Dry-Pipe Systems	45
General Trade Math	33
Construction and Plans	33
Water Supplies	15

Standpipes	24
Preaction/Deluge Systems	39
Fire Pumps 36	
Special Extinguishing Systems	42
System Design	36
Inspection and Maintenance	15
Foremanship	15

TOTAL HOURS **618.50**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

A.27
WORK PROCESS SCHEDULE
WELDER
O*NET-SOC CODE: 51-4121.02 RAPIDS CODE: 0622

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be three (3) years with an OJL attainment of 6000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to one (1) Journeyman: one apprentice for the first skilled journeyman employed, and one additional apprentice for each additional skilled journeyman employed thereafter.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyman wage rate.

Term: 6000 Hours

- 1st 1000 hours = 50 percent of journeyman's Rate
- 2nd 1000 hours = 60 percent of journeyman's Rate
- 3rd 1000 hours = 70 percent of journeyman's Rate
- 4th 1000 hours = 75 percent of journeyman's Rate
- 5th 1000 hours = 85 percent of journeyman's Rate
- 6th 1000 hours = 90 percent of journeyman's Rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. General Trade	1000
a. Demonstrate proper safety precautions and procedures	
b. Electrode identification	
c. Interpretation of blueprints and specifications	
d. Proper use of welding tools and equipment	
2. Cutting Process	1000
Oxyfuel Cutting	
3. Welding Process	3000
a. Use of low hydrogen electrodes	
b. Fast freeze electrodes	
c. Pipe welding	
d. SMAW pipe welding	
e. GTAW pipe welding	
4. Related Welding Activities	1000
a. Welded joints	
b. Power joints	
c. Weld testing	
d. Polarities & Arc Blow	
e. Codes and Qualification	
TOTAL HOURS	6000

A27.2 - WELDER RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates only.

Modules	Hours
Basic Safety	15
Introduction to Construction Math	15
Introduction to Hand Tools	10
Introduction to Power Tools	5
Introduction to Blueprints	7.5
Basic Rigging	20
Welding Safety	2.5
Oxyfuel Cutting	17.5
Base Metal Preparation	12.5
Weld Quality	10
SMAW - Equipment and Setup	5
SMAW - Electrodes and Selection	2.5
SMAW - Beads and Fillet Welds	120
SMAW - Groove Welds with Backing	10
Joint Fit-Up and Alignment	5
SMAW - Open V-Groove Welds	120
SMAW - Open-Root Pipe Welds	100
Welding Symbols	5
Reading Welding Detail Drawings	12.5
Stainless Steel Groove Welds	80
Air Carbon Arc Cutting and Gouging	12.5
Plasma Arc Cutting	7.5

GMAW and FCAW - Equipment And Filler Metals	10
GMAW and FCAW - Plate	80
GTAW - Equipment and Filler Metals	10
GTAW - Plate	40
GTAW - Aluminum Plate	50

TOTAL HOURS **785**

*DOL apprenticeship program standards recommend 144 hours related instruction per level and/or year.

APPENDIX B

Apprenticeship Agreement AER SPONSOR MANUAL

The U.S. Department of Labor ETA 671 Form is provided. SAA States will have different forms. The ETA 671 is provided in a separate document if you are viewing these standards electronically.

APPENDIX C

Affirmative Action Plan

ADOPTED BY

(INSERT NAME OF SPONSOR)

**AS REQUIRED UNDER TITLE 29, CODE OF FEDERAL REGULATIONS, PART 30
AMENDED MAY 12, 1978**

**DEVELOPED IN COOPERATION WITH THE
U. S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP**

**APPROVED BY: _____
REGISTRATION AGENCY**

DATE APPROVED: _____

C.1: Program

SECTION I - INTRODUCTION

The Program Sponsor enters this Affirmative Action Plan (AAP) with good faith for the purpose of promoting equality of opportunity into its Registered Apprenticeship Program. The Apprenticeship Committee seeks to increase the recruitment of qualified women and minorities for possible selection into the apprenticeship program in the event females and/or minorities are underutilized in the apprenticeship program. The Program Sponsor [or its Apprenticeship Committee] hereby adopts the following nondiscriminatory pledge and AAP.

This Plan is a supplement to the Apprenticeship Standards. Any changes made by the Program Sponsor [or its Apprenticeship Committee] shall become part of this written AAP, once approved by the Registration Agency.

SECTION II - EQUAL OPPORTUNITY PLEDGE

The Program Sponsor or its Apprenticeship Committee commits to the following Equal Opportunity Pledge:

“The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The sponsor will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29 of the Code of Federal Regulations, part 30.”

SECTION III - UTILIZATION AND ANALYSIS, GOALS AND TIMETABLES

In order to allow positive recruitment and full utilization of minorities and women in the apprenticeship program, the Program Sponsor pledges to identify outreach efforts under Section IV which will be undertaken. The purpose of the analysis is to determine the minority and women's labor force in the Program Sponsor's labor market area. Once the labor force is determined, the Program Sponsor can determine if deficiencies exist in terms of underutilization of minorities and/or women in the occupations registered with the Registration Agency, using the Affirmative Action Plan Workforce Analysis Worksheet and Goals and Timetables attached.

SECTION IV - OUTREACH AND POSITIVE RECRUITMENT

The Program Sponsor's AAP includes the following selected outreach and positive recruitment efforts that would reasonably be expected to increase minority and women's participation in apprenticeship by expanding the opportunity of minorities and women to become eligible for apprenticeship selection. **Once those efforts have been selected, the Program Sponsor shall set forth the specific steps they intend to take under each identified effort.** The Apprenticeship Committee will identify a significant number of activities in order to enable it to meet its obligation under Title 29, CFR part 30.4(c).

- A. An announcement of apprenticeship openings must be disseminated thirty (30) days in Advance of the earliest date for application at each interval of application, or for year-round open application at least semi-annually to the following agencies/organizations:
- Registration Agency
 - Women's Organizations/Centers

- Local Schools
- Employment Service Centers
- One Stop Centers
- Vocational Education Schools
- Other Organizations/Centers (which can effectively reach minorities and women)
- Newspapers (which are circulated in the minority community and among women)

The announcement shall include the nature of the apprenticeship, requirements for admission to apprenticeship, availability of apprenticeship opportunities, sources of apprenticeship applications, and the Program Sponsor's equal opportunity policy. Applications will be taken for no less than a two (2) week period.

- B. Participation in annual workshops conducted by employment service agencies for the purpose of familiarizing school, employment service and other appropriate personnel with the apprenticeship program and current opportunities.
- C. Cooperation with school boards and vocational educational systems to develop programs for preparing students to meet the standards and criteria required to qualify for entry into the apprenticeship program.
- D. Internal communication of the Program Sponsor's equal opportunity policy should be conducted in such a manner to foster understanding, acceptance, and support among the Program Sponsor's various officers, supervisors, employees, and members, and to encourage such persons to take the necessary action to aid in meeting its obligation under Title 29, CFR part 30.
- E. Engaging in programs such as outreach for the positive recruitment and preparation of potential applicants for apprenticeships; where appropriate and feasible, such programs shall provide for pre-testing experience and training. In initiating and conducting these programs, the Program Sponsor may be required to work with other Program Sponsors and appropriate community organizations. The Program Sponsor shall also initiate programs to prepare women and encourage women to enter traditionally male programs.
- F. Encouraging the establishment and utilization of programs of pre-apprenticeship, preparatory trade training, or others designed to afford related work experience or prepare candidates for apprenticeship. The Program Sponsor shall make appropriate provisions in its AAP to assure that those who complete such programs are afforded full and equal opportunity for admission into the apprenticeship program.
- G. Utilizing journeypersons to assist in the implementation of affirmative action in the apprenticeship program.
- H. Granting advance standing or credit on the basis of previously acquired experience, training, skills, or aptitude for all applicants equally.
- I. Other appropriate action to ensure that the recruitment, selection, employment, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, or sex (e.g., general publication of apprenticeship opportunities and advantages in advertisements, industry reports, articles, etc., use of present minority and female apprentices and journeypersons as recruiters; career counseling; development of reasonable procedures to ensure employment opportunity, including reporting systems, on-site reviews, briefing sessions)

(Identify Action:)

[FOR EACH BOX SELECTED ACTION IN SECTION IV, LIST EACH SPECIFIC STEP THAT THE PROGRAM SPONSOR WILL UNDERTAKE TO FULFILL THAT OUTREACH AND RECRUITMENT STEP]

SECTION V - ANNUAL REVIEW OF AFFIRMATIVE ACTION PLAN

In accordance with Title 29, CFR part 30.8(b), the Program Sponsor will make an annual review of its current AAP, including its overall effectiveness, and institute any reasonable modifications to goals, timetables and outreach and recruitment efforts. The review shall analyze the affirmative action steps taken by the Program Sponsor for outreach and recruitment, selection, employment, and training. All changes to the AAP must be submitted to the Registration Agency for registration. The Program Sponsor will continually monitor the participation rates of minorities and women in the apprenticeship program in an effort to identify any type of underutilization. If underutilization exists, corrective action will be immediately implemented. The goals and timetables also will be reviewed annually and updated where necessary.

SECTION VI - OFFICIAL ADOPTION

The (Insert Name of Program Sponsor) hereby officially adopts this Affirmative Action Plan on this _____ day of _____ (INSERT YEAR).

SIGNATURE OF (SPONSOR PROVIDES TITLE)

PRINTED NAME

C.2 AFFIRMATIVE ACTION PLAN: WORKFORCE ANALYSIS WORKSHEET

**AFFIRMATIVE ACTION PLAN
WORKFORCE ANALYSIS WORKSHEET**

A. SPONSOR INFORMATION

Program Number:		
Name of Sponsor:		
Address:		
City/State/Zip Code:		
Contact Person:		
Phone Number:		FAX Number:
E-Mail Address:		

B. OCCUPATIONAL INFORMATION

Occupational Title: *		
RAPIDS Code:		O*NET/SOC Code:
Type of selection method used:		
Labor Market Area description:		

C. LABOR MARKET AREA & OCCUPATIONAL PARTICIPATION DATA

C.1 Total Labor Force in Labor Market Area *		
Number of Women:		% of labor force
Number of Minorities:		% of labor force
C.2 Working Age Population in Labor Market Area *		
Number of Women:		% of labor force
Number of Minorities:		% of labor force
C.3 Apprentice Participation in Craft/Occupation in National Apprenticeship System **		
Number of Women:		% of apprentices
Number of Minorities:		% of apprentices
C.4 The General Availability of Minorities and Women with the Present or Potential Capacity for Apprenticeship in Program Sponsor's Labor Market Area. ***		
Number of Women:		
Number of Minorities:		

Resources for obtaining labor market information.

* http://www.census.gov/hhes/www/eeoindex/page_c.html

** RAPIDS Data available from Registration Agency.

*** Program Sponsors may use any reasonable method for determining the general availability of minorities and women with the present or potential capacity for apprenticeship, including relying on the data recorded in Section C.1 for "Total Labor Force", C.2 for "Working Age Population", and C.3 "Apprentice Participation in Particular Craft/Occupation" to propose the entries for "The General Availability of Minorities and Women."

**AFFIRMATIVE ACTION PLAN
WORKFORCE ANALYSIS WORKSHEET**

D. SPONSOR'S WORKFORCE DATA

D.1 Total Number of Journey/Craft Workers Employed:		
Number of Women:		% of work force
Number of Minorities:		% of work force
D.2 Total Percentage of Apprentices or of Applicant Pool (depending on selection method used)		
Numerical percentage of Women apprentices or women in applicant pool:		%
Numerical percentage of Minority apprentices or minorities in applicant pool:		%

E. ADDITIONAL RESOURCE DATA FOR CONSIDERATION IN ESTABLISHING GOALS

Industry Source Data	Minority rate of participation	Female rate of participation
E.1 Registered Apprenticeship Partners Information Data System (RAPIDS): *		
E.2 EEOC Occupational Employment Data: **		

* Data available from Registration Agency

** <http://www.eeoc.gov/stats/jobpat/jobpat.html>

F. DETERMINATION OF UTILIZATION

Analysis	Yes	No
Minority Underutilization:		
Female Underutilization:		

G. SPONSOR'S GOALS:

The program sponsor proposes and agrees to make a good faith effort to attain the goal of selecting _____ % minorities and _____ % women during the next EEO Review cycle. These goals will not be used to discriminate against any qualified applicant on the basis of race, color, religion, national origin or sex.

The number of new apprentices to be hired during the next year (or selection period) is estimated to be: _____

H. REGISTRATION AGENCY APPROVAL:

Sponsor

Sponsor's Signature

Typed Name

Title

Date Signed

Registration Agency

Registration Agency Signature

Typed Name

Title

Date Signed

AFFIRMATIVE ACTION PLAN WORKFORCE ANALYSIS WORKSHEET

Instructions for preparing and completing this worksheet

The purpose of this workforce analysis worksheet is to establish a benchmark against which the demographic composition of the sponsor's apprenticeship program can be compared. The sponsor must separately determine the availability of minorities and women for each occupational title represented by the program. In determining availability, the sponsor must consider, at the very least, the factors identified at 29 CFR 30.4(e) in order to determine whether barriers to equal employment opportunity may exist with a particular occupational title.

Part A The Program Sponsor information section may be prepared by the sponsor representative or servicing Registration Agency Representative.

Part B Occupational information will be taken from the registered program standards, and may be prepared by the sponsor representative or servicing Registration Agency Representative. A Workforce Analysis Worksheet must be completed for each occupational title identified.

Part C Sponsors must use the most current and discrete statistical data available in determining availability estimates for the labor market area specified by the sponsor in Part B. Census data is one example of an appropriate source of statistical information. Other sources include data from local job service offices and data from colleges or other training institutions. Where possible, the Registration Agency has provided examples of appropriate sources of data.

For purposes of this section, the term "labor force" is defined to include both those individuals who are employed and those who are unemployed but looking for employment. The term "working age population" means persons ages 15 years and over whether or not they are currently in the labor force or looking for employment.

Part D The Program Sponsor must provide current workforce data as described in Part D. If the sponsor utilizes either Selection Method §30.5(b) (1) or (2), the data in D-2 will be reflective of the "pool" from which selections will be made. If the sponsor utilizes the Selection Method under §30.5(b) (3) or (4), the data in D-2 will be reflective of the current apprentices registered in the program.

Part E Additional Resource Data for consideration in establishing reasonable goals will be provided by the Registration Agency. This data will provide a snapshot of the national labor force for the given occupation title.

Part F Utilizing the data found in Parts C, D and E, the Program Sponsor is to determine if minorities and/or women are underutilized and must check the appropriate response.

AFFIRMATIVE ACTION PLAN WORKFORCE ANALYSIS WORKSHEET

Part G If the Program Sponsor's analysis determines that minorities and/or women are underutilized, the Sponsor, utilizing the resource data found in Parts C, D and E, will establish goals which are reasonable in consideration of the results which could be expected from its good faith efforts to make its overall affirmative action program successful. The Registration Agency will review and assess the proposed goals and if found to be reasonable and attainable, will acknowledge receipt of the Sponsors goals for minorities and/or women.

Proposed goals for minorities and/or women that are lower than the current participation rate under the Program Sponsor will not be approved.

APPENDIX D

Selection Procedures

This Appendix includes sample documents for distribution to apprentice applicants. Before using any document, refer to Title 29, CFR part 30.5(b)(1) and seek legal counsel for any application and selection procedures to assure compliance with federal, State and local law.

**(SAMPLE)
QUALIFICATIONS AND SELECTION
PROCEDURES**

ADOPTED BY

(INSERT NAME OF SPONSOR)

**DEVELOPED IN COOPERATION WITH THE
U. S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP**

**APPROVED BY: _____
REGISTRATION AGENCY**

DATE APPROVED: _____

The certification of this selection procedure is not a determination that, when implemented, it meets the requirements of the Uniform Guidelines on Employee Selection Procedures (41 CFR part 60-3) or Title 29, CFR part 30.

D.1 SAMPLE APPRENTICESHIP PROGRAM QUALIFICATIONS AND SELECTION PROCEDURES

[Program sponsor, address, telephone, website, email]

Refer to Title 29, CFR part 30.5(b)(1) and seek legal counsel for any application procedure to assure compliance with Federal, State and local law.

1. Apprenticeship Committee of Program Sponsor will screen and select the apprentices.
2. Applications of responding candidates will be recorded and filed by the [Program Sponsor name, address]. Application records will be kept on file for not less than five (5) years, but applicants accepted as potential apprentices shall indicate continued interest in the program as required by the Program Sponsor to remain an active candidate.
 - a. Application forms may be obtained from the _____ [Program Sponsor/Address] on _____ (day) between the hours of _____ and _____. Applications will be accepted throughout the year and qualified applicants are processed to the eligible pool every thirty (30) days, starting with applicants from January 1st. Opportunities for entrance to the pool will be announced at least twice yearly at six (6)-month intervals. All persons requesting an application will have one made available upon signing the applicant log.
 - b. A period of at least one (1)-month shall be allowed for new apprenticeship applicants to apply, and for apprenticeship applicants to reapply. Qualified applicants shall be retained on the list of eligible candidates subject to selection for a period of two (2) years unless otherwise requested by applicant.
 - c. Applicants are placed in the eligible pool if they complete the application form and provide accompanying documents, complete a satisfactory personal interview based on objective and relative rating criteria, score a passing score on an aptitude test for the craft, and pass a physical.
 - d. Those placed in the pool of candidates for becoming an apprentice are selected to become apprentices by the following system(s): [*Refer to Section V. of these Standards.*]
 - e. All applications will be identical in form and requirements. The application form will be numbered in sequence corresponding with the number appearing on the applicant log so that all applications can be accounted for. Columns will be provided on the applicant log to show race/ethnic and sex identification and the progress by dates and final disposition of each application.

- f. Before completing the application, each applicant will be required to review the Apprenticeship Standards and will be provided information about the program. If the applicant has any additional questions on the qualifications or needs additional information to complete the application, it will be provided by the Program Sponsor.
- g. Receipt of the properly completed application form, along with required supporting documents (proof of age, driver's license, birth certificate or other acceptable documentation; copy of high school diploma, GED Certificate or other acceptable documentation) will constitute the completed application.
- h. Completed applications will be checked for minimum qualifications. Applicants deficient in one or more qualifications or requirements or making false statements on their application will be notified in writing of their disqualification. The applicant will also be notified of the appeal rights available to them. No further processing of the application will be taken.
- i. Applicants meeting the minimum qualifications and submitting the required documents will be notified where and when to appear for an interview (if applicable).

D.2 SAMPLE DESCRIPTION FOR APPLICATION PROCESS

[Program sponsor, address, telephone, website, email]

HOW TO APPLY TO BECOME AN APPRENTICE

1. You must apply in person at the office of the Apprenticeship Program Sponsor, located at: [address] on [days/dates] between [hours accepting applications].
2. Applicants must submit a completed and signed official application and the required attachments by the application deadline to the Apprenticeship Committee at the location indicated on the application materials. Attachments shall include:
 1. Be at least 18 years of age.
 2. Provide a certified copy of high school diploma and official transcripts or certified copy of GED. [or appropriate records of enrollment in high school for secondary school education programs.] Applicants must submit a DD-214 to verify military training and/or experience if they are a veteran and wish to receive consideration for such training/experience.
 3. Have a dependable means of transportation to the employer's place of business and/or jobsite and to the place where classroom job-related instruction is conducted.
 4. Be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others.
 5. Submit a completed and signed official application and the required attachments by the application deadline to the Apprenticeship Committee at the location indicated on the application materials.
 6. May be required to submit to: 1) a physical agility or fitness test, 2) screening for the current illegal use of drugs; or 3) both as a condition of acceptance into the program and prior to being employed.
3. The applicant will be required to meet with the Apprenticeship Committee for an interview. And will be notified by mail [and telephone] when and where the interview will be held.
4. Following a satisfactory interview, qualified applicants may be required to take an aptitude test for the craft(s) administered by the [name of agency/location] on the date and time appointed. The Program Sponsor will make the appointment.

5. Applicants must be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others. As a result a physical will be required of qualified applicants before being placed in the pool of eligible apprentice candidates.
6. The interviewer(s) will rate each applicant during the interview on each of the factors on the applicant rating form taking into account the information on the application and required documents, if applicable. The interviewer will record the questions asked and the general nature of the applicant's answers. The interviewer will then prepare a written summary of his/her judgment of the applicant derived from the interview.
7. After completing the interview and evaluation of the applicants, the individual rating scores of the interviewer(s) will be added together and averaged to determine the applicant's final rating.
8. As openings for the registration of new apprentices occur, the highest ranked applicant will be notified of selection by telephone. It will be the responsibility of the applicant to keep the Sponsor informed of their current mailing address and telephone number.
9. Selected applicants must respond to the notice of selection within **(INSERT HOURS)** hours of notice. If applicants cannot be reached by telephone, their names will be passed and notice sent to their address by "Certified Mail-Return Receipt Requested" to determine if the applicants are still interested. If no response is received in fifteen (15) working days from the written notice, the applicant's name will be removed from the list. Only one certified notice will be mailed.
10. Qualified applicants remaining on a preceding ranking list will automatically be carried forward on the new ranking list and slotted in wherever their rating score placed them for a period of two (2) years, unless the applicant has been removed from the list by their own written request or following failure to respond to an apprentice opening. Applicants who were not placed during the two (2) year period that were on the ranking list, will be required to reapply.
11. During the two (2)-year period, applicants who feel that their qualifications have improved since their original rating may submit documented evidence of such additional experience or training and request reevaluation and rating at the next regular processing cycle.

NOTE: The apprentice must have a dependable means of transportation to the employer's place of business and/or jobsite and to the place where classroom job-related instruction is conducted.

12. DIRECT ENTRY

Sponsors who wish to invoke the direct entry provision may do so without regard to the existing selection procedure or minimum qualifications used for entry into the apprenticeship program. Individuals selected into the apprenticeship program via direct entry shall only include those individuals described below who have received training or employment in an occupation directly or indirectly related to the occupation(s) registered in these Standards. The Program Sponsors will award Credit for Previous Experience in accordance with Section XII of these Standards, and will pay the apprentice(s) at the wage rate commensurate with their skill attainment. The Credit for Previous Experience shall be awarded without regard to race, color, religion, national origin or sex. The methods for direct entry shall include the following:

1. Youth who complete a Job Corps training program in any occupation covered in these Standards, who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the Job Corps graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The Program Sponsor will evaluate the Job Corps training received for granting appropriate credit on the term of apprenticeship. Entry of Job Corps graduates will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
2. Youth who complete a YouthBuild U.S.A. training program in any occupation covered in these Standards, who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the YouthBuild U.S.A. graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The Program Sponsor will evaluate the YouthBuild U.S.A. training received for granting appropriate credit on the term of apprenticeship. Entry of YouthBuild U.S.A. graduates will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
3. Military veterans who completed military technical training school and/or participated in a registered apprenticeship program or related craft while in the military in the occupations registered in the Construction industry, may be given direct entry into the apprenticeship program. The Program Sponsor shall evaluate the military training received for granting appropriate credit on the term of apprenticeship and the appropriate wage rate. The Program Sponsor will determine what training requirements they need to meet to ensure they receive all necessary training for completion of the apprenticeship program. Entry of Military Veterans shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
4. Former inmates of Department of Justice - Bureau of Prisons (BOP) who have participated in or have successfully completed a specific BOP apprenticeship program, where the Apprenticeship Program Sponsor agrees to admit such inmates without regard to race, color, religion, national origin, or sex and all individuals receive equal consideration. Program

Sponsors agreeing to admit such individuals into apprenticeship must agree to do so without regard to present minimum qualifications, eligibility lists or the necessity of passing written apprenticeship entrance tests. **(Note: This is a method of direct entry into the apprenticeship program.)**

5. An employee of a non-signatory employer not qualifying as a journeyworker when the employer becomes signatory, will be evaluated by the Program Sponsor in accordance with the procedures for the granting of credit for previous experience, and registered at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. Entry into the program through this method shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
6. An employee of a non-participating employer who becomes a new member employer of the sponsoring organization who does not qualify as a journeyworker when the employer becomes a member, will be evaluated by the Program Sponsor in accordance with the procedures for the granting of credit for previous experience, and registered at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. **(Note: This is a method of direct entry into the apprenticeship program, whereby all minimum qualifications are waived.)**
7. An individual who is or who has worked for a signatory or non-signatory employer and who, of his/her own choosing, solicits membership as a journeyworker and does not qualify as a journeyworker, will be evaluated in accordance with the procedures for granting of credit for previous experience and indentured by the Program Sponsor at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. Entry into the program through this method shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program).**

13. COMPLAINT PROCEDURE

1. Any apprentice or applicant for apprenticeship who believes that he/she has been discriminated against on the basis of race, color, religion, national origin, or sex, with regard to apprenticeship or that the equal opportunity standards with respect to his/her selection have not been followed in the operation of an apprenticeship program, may personally or through an authorized representative, file a complaint with the Registration Agency or, at the apprentice or applicant's election, with the private review body established by the Program Sponsor (if applicable).
2. The complaint will be in writing and will be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the Program Sponsor involved, and a brief description of the circumstances of the failure to apply equal opportunity standards.

Associated Builders and Contractors, Inc.

3. The complaint must be filed not later than 180 days from the date of the alleged discrimination or specified failure to follow the equal opportunity standards, and, in the case of complaints filed directly with the review bodies designated by the Program Sponsor to review such complaints, any referral of such complaint by the complainant to the Registration Agency must occur within the time limitation stated above or 30 days from the final decision of such review body, whichever is later. The time may be extended by the Registration Agency for good cause shown.
4. Complaints of discrimination in the apprenticeship program may be filed and processed under Title 29, CFR part 30, and the procedures as set forth above.
5. The Program Sponsor will provide written notice of their complaint procedure to all applicants for apprenticeship and all apprentices.

14. MAINTENANCE OF RECORDS

1. The Program Sponsor will keep adequate records including a summary of the qualifications of each applicant, the basis for evaluation and for selection or rejection of each applicant, the records pertaining to interviews of applicants, the original application for each applicant, information relative to the operation of the apprenticeship program, including, but not limited to, job assignment, promotion, demotion, layoff, or termination, rates of pay or other forms of compensation or conditions of work, hours including hours of work and, separately, hours of training provided, and any other records pertinent to a determination of compliance with the regulations at Title 29, CFR part 30, as may be required by the U.S. Department of Labor. The records pertaining to individual applicants, selected or rejected, will be maintained in such manner as to permit the identification of minority and women (minority and non-minority) participants.
2. Each Program Sponsor must retain a statement of its AAP for the prompt achievement of full and equal opportunity in apprenticeship, including all data and analysis made pursuant to the requirements of Title 29, CFR part 30.4. Each Program Sponsor also must maintain evidence that its qualification standards have been validated in accordance with the requirements set forth in Title 29, CFR part 30.5(b).
3. In addition to the above requirements, adequate records will include a brief summary of each interview and the conclusions on each of the specific factors, e.g., motivation, ambition, and willingness to accept direction which are part of the total judgment. Records will be maintained for five (5) years from the date of last action and made available upon request to the U.S. Department of Labor or other authorized representative.

D.3 SAMPLE RANKING SYSTEM FORM

[Program sponsor, address, telephone, website, email]

Notice to applicants: Applicants who meet the minimum qualifications of the application process shall be ranked objectively, and the highest ranking applicants shall be given priority in referral for interviews with employers. The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The Apprenticeship Committee will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29 of the Code of Federal Regulation, part 30. The ranking criteria are provided in this form.

Notice to interviewers: The contents of this form are CONFIDENTIAL except to the extent it may be reviewed by the Program Sponsor Apprenticeship Committee, representatives of Registration Agency.

Last name: _____ First name: _____

Trade: Training and Development Manager

Score: _____

Rank: [if applicable] _____

ABC Employer of Sponsored Apprentice: [if applicable] _____

	<u>Max Pts.</u>	<u>Pts score</u>
1. Previous Experience in the trade* 20 pts for each verified year of experience in this specific trade. Yrs in trade:	120	_____ _____
2. Currently Employed in the trade* Must have letter from current employer	100	_____
3. Recommendations 20 pts for each recommendation turned in. Recommendation received:	60	_____
4. High School graduate or equivalent 100 pts if applicant submitted copy of H.S. diploma or GED	100	_____
5. Vocational Technical College or Community Technical College graduate 100 pts. Name of Vocational Technical College or Community Technical College graduate:	100	_____ _____
6. Post-High School education or training 25 pts for each year of post-high school training (non-trade-related) 100 pts for each year of post-high school training (trade-related)	200	_____ _____ _____
7. Attitude and interest toward the trade and understanding of apprenticeship responsibilities 30 pts for answering all questions on pg. 2 of questionnaire (-5 for each question not answered) Multiply 5 times overall points given at interview	80	_____ _____ _____

8. Math 200 _____
50 pts for completing practice math (-10 for each blank answer) _____
10 pts for each correct answer on math test (max 150) _____

Total points earned MAXIMUM SCORE _____ POINTS _____

*"the trade" shall mean the trade of application

There will be no discrimination in apprenticeship or employment during apprenticeship after selections have been made, including but not limited to job assignment, promotion, layoff, or termination, rates of pay or other forms of compensation or condition of work. All apprentices shall be subject to the same job performance requirements.

D. 4 SAMPLE EXPLANATION OF OPEN ENROLLMENT SYSTEM

[Program sponsor, address, telephone, website, email]

1. Once the applicant has completed the applicant process and is notified that they are in the pool of eligible candidates for apprenticeship, the applicant's complete file is placed along with the other qualified applicants' files in the Equal Employment Opportunity Apprenticeship Pool (EEOAP), and that file will now be available for review by potential employers for the next two (2) years.
2. If after reviewing the files in the EEOAP a potential employer decides to interview a qualified applicant, the potential employer is given:
 - a. a copy of the applicant's file
 - b. a copy of the Employer's Acceptance Agreement
 - c. a list of steps to follow for the potential employer whether the employer decides to hire or not
 - d. a follow-up sheet to be returned to inform the Apprenticeship Committee whether or not the potential employer intends to hire and register the applicant, and, if not, to include the reasons
3. The potential employer contacts, sets up, and conduct the interview according to the employer's company policy.
4. After the applicant has been interviewed, the potential employer returns the interview follow-up sheet (and the Employer's Acceptance Agreement if the applicant has been hired) to the Program Sponsor's office. It is reviewed by the Apprenticeship Committee. If the potential employer has decided not to hire the applicant, the interview follow-up sheet is filed separately from the applicant's file, and the applicant's information remains in the file for other employers to review. If the potential employer has decided to hire the applicant, the applicant's file is pulled from the EEOAP, the Apprenticeship Agreement is completed, the apprentice is notified when related classroom training begins, and the complete file is removed from the pool.
5. Complete records shall be maintained in accordance with Title 29, parts CFR 29.5(b)(22) and 30.8.

D. 5 SAMPLE APPRENTICE APPLICATION

[Program sponsor, address, telephone, website, email]

NAME: _____

ADDRESS: _____

TELEPHONE: _____

RACE/ETHNIC/SEX GROUP: (Optional)

American Indian _____ Black _____ Oriental _____ Male _____

Spanish Surnamed American _____ White _____ Female _____

TRADE INTERESTED IN:

CURRENTLY EMPLOYED: ___ YES ___ NO

WORK HISTORY — BEGIN WITH PRESENT JOB AND WORK BACKWARD (INCLUDING MILITARY SERVICE)

1) Name and Address of Company _____

Job _____

Employment Dates _____

Reason for Leaving _____

2) Name and Address of Company _____

Job _____

Employment Dates _____

Reason for Leaving _____

3) Name and Address of Company _____

Job _____

Employment Dates _____

Reason for Leaving _____

4) Name and Address of Company _____
Job _____
Employment Dates _____
Reason for Leaving _____

HIGH SCHOOL

Name and Location of School _____
Number of Years Completed _____
Graduation or GED date _____
Trade Related Courses _____

Attach a copy of your high school diploma or GED. Include a copy of high school transcripts.

TRADE SCHOOLS, VO-TECH, COLLEGE, TRADE ASSOCIATION, OR UNION

Name and Location of School(s) _____
Number of Years Completed _____
Trade Related Courses _____

Attach a copy of transcripts from any post-secondary schools.

OTHER INQUIRIES

How did you learn about our apprenticeship program? _____

Have you ever been enrolled in an apprenticeship program before? Yes _____ No _____

If yes, complete the following:

Trade: _____ Sponsoring Agency or Local _____

Address _____

Length of time enrolled: _____ Did you complete the program? _____

If you did not complete the program, reason for leaving _____

If unemployed or not currently employed by an Associated Builders and Contractors, Inc., member, check areas in which you would accept employment:

_____ City _____ City _____ City _____ City

List any skills or trade knowledge you have. What do you know how to do in this trade?

Do you have reliable transportation? _____ Yes _____ No

Do you have a current Drivers License or CDL? _____ Yes _____ No

If yes, Driver License # _____

Is your license suspended at this time? _____

Military training: Did you take any construction-related courses in the military? _____
If yes, what courses? _____

Job Corps: Did you take any construction-related courses in Job Corps? _____

If yes, what courses? _____

REFERENCES:

Authorization and Understanding

Completeness and Accuracy of Information:

I affirm that all of the information now or hereafter given by me in support of my application for apprenticeship is true and complete. I understand that any false or misleading information in support of my application may disqualify me from becoming an apprentice or subject me to be discharged at any time during the period of my apprenticeship. If I have any questions about this applicant or the selection process, I may direct them to [name, title, telephone, and address] prior to submitting the application.

Authorization of Release of Information and Release from Liability:

I authorize you to verify any of the information given during the application process with appropriate individuals, companies, institutions, or agencies, and I authorize them to release such information as you require, including my prior disciplinary employment record, without any obligation to give me written notice of disclosure. I hereby release you and them from any liability whatsoever as a result of such inquiries and disclosures. A photocopy or other electronic reproduction of this authorization/release is binding, and may be relied upon.

I acknowledge that I have read, understood, and accept the above statement in its entirety, and have had opportunity to ask questions regarding any aspect of this application, and that I accept the above terms.

Signature

Date

APPENDIX E

Employer Participation

E.1 INFORMATION FOR SUBSCRIBING EMPLOYERS

1. Employers interested in reviewing the EEOAP for apprenticeship should contact [insert name/address/telephone] to schedule a time to review applications.
2. Upon selecting applicants to interview, the employer [or Program Sponsor] can contact the applicants for an interview.
3. After interviews are conducted, the employer must complete an "Interview Follow-Up Sheet."
4. If the employer would like to make a job offer to an applicant, they must notify the [Program Sponsor], and the applicant will be contacted by the Program Sponsor [or employer].
5. If the applicant accepts employment, the employer must complete an "Employer Agreement."
6. The applicant must complete an "Apprenticeship Agreement."
7. The employer is responsible for notifying the Apprentice and [Program Sponsor] of the starting date.

NOTE: If at any time it is determined that discrimination by an employer in the selection process is taking place, the [Program Sponsor or] Apprenticeship Committee will cease sponsoring apprentices of the employer until all discriminatory practices of selection are corrected and positive affirmative action has taken place. Also, if any employer refuses to follow the corrective measures outlined by the Program Sponsor [or Apprenticeship Committee], all apprentices currently employed by that employer will be decertified and let go from the program.

E. 2 SAMPLE EMPLOYER AGREEMENT

The foregoing undersigned employer hereby subscribes to the provisions of the Apprenticeship Standards formulated and registered by the [PROGRAM SPONSOR]. [Employer Name] agrees to carry out the intent and purpose of said Standards and to abide by the rules and decisions of the Program Sponsor established under these Apprenticeship Standards. We have been furnished a true copy of the Standards and have read and understood them, and do hereby request certification to train apprentices under the provisions of these Standards, with all attendant rights and benefits thereof, until cancelled voluntarily or revoked by the Program Sponsor or Registration Agency. On-the-job, the apprentice is hereby guaranteed assignment to a skilled and competent journeyman and is guaranteed that the work assigned to the apprentice will be rotated so as to ensure training in all phases of work.

This form must be signed and returned to the [Program Sponsor/Address] no later than the first day of class for the apprenticeship to become effective.

Signed: _____ Date: _____

Title: _____

Name of Company: _____

Address: _____

City/State/Zip Code: _____

Phone Number: _____

Disposition:

Original – [Program Sponsor]

Copies – Employer and Registration Agency

E. 3 INTERVIEW FOLLOW-UP SHEET

Please complete and return to [Program Sponsor/Address] office within 10 days of the interview date.

Applicant's Name: _____

Date of Interview: _____

Interviewer: _____

Trade: _____

- I intend to hire and register the above named applicant
- I intend to hire, but not register the above named applicant
- I do not intend to hire the above named applicant because the applicant:
 - has insufficient work experience
 - has insufficient educational background
 - found other employment
 - did not show up for interview
 - did not want to work for our company
 - other, please explain:

Signature of company representative

Date

Company

APPENDIX F

Registration Agency Contact Information

F.1 STATE OFFICES

**U. S. Department of Labor
Office of Apprenticeship**

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APPENDIX G

School-To-Apprenticeship Program Documents

School-to-Apprenticeship Program Documents

CAREER TECHNOLOGY CENTER SCHOOL-TO-APPRENTICESHIP PROGRAM

What is a school to apprenticeship program?

The School-to- apprenticeship is one component of a career opportunity available to help students enter a highly skilled occupation. The program links secondary and post- secondary education, business, industry and government together to provide a seamless career path. Well planned and supervised school-based and work-based learning experiences are the foundation for the program. Because it is linked with a formal apprenticeship program approved by the OA, high occupational and academic standards are set for the participating students.

How will the program benefit employers/students?

Employers

- *Improved skill levels of potential workers
- *Work with a career minded, committed employee
- *Reduction in employee turnover
- *Participating in curriculum development
- *Improving their competitive edge

Students

- *Learning from skilled professionals
- *Earn wages while in school
- *Increased career options
- *Greater worth in the labor market
- *Establish a rewarding career

Student work/school schedule

Half of the students will report to work full time for two-week intervals getting hands-on experience. The other half of the students will be in school receiving the academics needed to graduate as well as the related classes needed to succeed on the job site. Every two weeks the students will rotate between work and school. The employer can have an apprentice on the job site full time with this program.

2001/2002 School-to-Apprenticeship two-week rotation class schedule:

Periods 1 & 2 - Academics
Period 3 - Tech English,
Lunch
Period 4- (Program) Related
Period 5, (Program) Lab/Related
Periods 7 & 8 Math 4

**For further information contact
School Staff Apprenticeship Coordinator
(insert local contact number)**

SCHOOL-TO-APPRENTICESHIP PROGRAM

_____ **TECHNOLOGY CENTER DISTRICT**

INTRODUCTION

The School-To-Apprenticeship Program is designed to bridge the gap between the local vocational school and apprenticeship in the industry-labor complex. This program is a cooperative venture between OA, Department of Education, Division of Vocational Education, and the local vocational school.

The purpose is to effectively utilize the existing vocational systems to assist the students in making the transition from school-to-apprenticeship, thus creating an orderly transition from the learning environment to an apprenticeship program.

OBJECTIVE

The objective is to place students in a registered apprenticeship program while attending high school or adult vocational education.

Placement will be accomplished with the assistance of OA, Department of Education, and the local vocational school district, and will utilize placement opportunities with craft unions, public and private commerce, and individual employers.

The coordinator of the program shall be selected by the _____ school. The coordinator shall be responsible for the duties as specified under "Duties of Coordinator."

The OA Representative shall develop and register programs and perform other duties as specified under "Duties of OA Representative."

Counseling and selection of students shall be a team effort within the local school district(s).

The goal of the program is to provide a continuity of education and work experience for students in vocational education. These students would be enrolled in registered apprenticeship programs through the involvement with employers having registered programs. Also, this would provide a simple method of delivery of students who wish to participate in this type of work experience. Credit toward completion of apprenticeship will be earned by the student. Full sponsorship as an apprentice with the participating employer shall be the desired result upon graduation of the student.

DUTIES OF THE COORDINATOR

THE COORDINATOR SHALL:

- A. Be responsible for the operation of the school-to-apprenticeship program.
- B. Establish contacts with all facets of business, industry, and commerce in order to develop and expand apprenticeship opportunities for students.
- C. Maintain contact with VEPD schools to explain the program to students and encourage participation.
- D. Assist in developing apprenticeship-related vocational materials for schools to satisfy industries' needs.
- E. Be responsible for gathering of data and preparation of statistical analysis.
- F. Help bridge the gap between school and the world of work.
- G. Promote equal opportunities for disadvantaged, handicapped, minorities and women in apprenticeship areas.
- H. Cooperate with OA Representative assigned to service the program.
- I. Carry out any other operation or task related to this program.

DUTIES OF OA REPRESENTATIVE

THE OA REPRESENTATIVE MAY:

- A. Assist in providing training for the coordinator to promote apprenticeship.
- B. Provide information on apprenticeship requirements.
- C. Assist coordinator in obtaining business and industry community support of program.
- D. Develop apprenticeship standards and register standards with (insert State) State Apprenticeship Agency.
- E. Assist in bridging the gap between the local schools and the world of work.
- F. Cooperate with the coordinator to make this program successful.
- G. Promote equal opportunity for disadvantaged, handicapped, minorities and women in the apprenticeship areas.

COUNSELING AND SELECTION OF STUDENTS

- A. Selection of students shall be done through the ____ school.
- B. Sources of referral could include vocational education instructors, counselors, supervisors, and directors in schools.

C. Project coordinator will strive to maintain a continuing relationship with each student enrolled in the project dealing primarily with their work adjustment and career goals.

PROGRAM REGISTRATION

The (insert State) State Apprenticeship Agency, through U. S. Department of Labor, OA shall have the responsibility to develop and register all programs in accordance with the requirements of the Advisory Council on Apprenticeship and the (insert State) State Apprenticeship Agency.

School District Official:

OA Representative:

Assistant Superintendent

U.S. Department of Labor
Office of Apprenticeship

Date: _____

Date: _____

State Director
Office of Apprenticeship

Date: _____

INTENT TO REGISTER AGREEMENT

The employer agrees to the following specifications relating to the school-to-apprenticeship program:

1. All apprentice employers must have a copy of their registered standards **or sign this agreement indicating their intention to develop a registered apprenticeship program** with the assistance of the appropriate Apprenticeship and Training Representative.
2. That all students who are placed for training shall be registered and certified as apprentices.
3. The employer agrees to promptly furnish any progress or special reports that may be required within the time period specified.
4. The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The Program Sponsor will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under State and federal regulations.
5. Students involved in this program should receive approximately 180 hours of related classroom instruction and up to 1,500 hours of on-the-job learning after fulfilling the junior year. Actual **on-the-job hours** and **144 related class hours** may be credited towards the term of apprenticeship training depending on company policy.

APPROVED BY:

(Name of Sponsor)

By: _____

Title: _____

Date: _____

APPROVED BY:

(School)

By: _____

Title: _____

Date: _____

Instructions for filling out the Apprenticeship Applications

- 1) **Students** to fill in the **top portion (Part A)** of the form **only**.

- 2) **Students** to list on the back **all** their instructors at Community Technical College their Junior Year. **Do not** take to instructors for signatures; just provide a list for the Apprenticeship Coordinator.

- 3) Turn in completed **(Part A)** applications to **Program Instructor**.

- 4) **Program Instructors:** When all students have turned in their applications, put in folder and call or return folder to Apprenticeship Coordinator.

- 5) **Apprenticeship Coordinator** will take care of getting the **attendance report, fee status, credit checks,** and **supervisor approval** portions of the applications.

School Name
APPRENTICESHIP APPLICATION
(Part A Completed by the Student)

Name (Last First Middle): _____ Program: _____

Address: _____ City/State: _____ Zip: _____

E-Mail Address: _____ Birth Date: _____ Age: _____

Home Phone: _____ Home School: _____

Are You Presently Working In The Trade You Are Applying For: Yes: No:
If "Yes", Name of Employer: _____

Do You Want To Serve Your Apprenticeship With this Employer: Yes: No:

ATTENDANCE REPORT

Days Absent: _____ Date Verified: _____

Attendance Secretary Signature: _____

FEE STATUS

Junior Program Fee Paid: Yes: No: / Tool Kit Paid: Yes: No: NA:

Cashier Signature: _____ Date: _____

CREDIT CHECK

Student Meets Graduation Requirements (If all senior classes are passed): Yes: No:

Comments: _____

Passed All Proficiency Tests: Yes: No: NA:

School Cumulative GPA: _____ Date: _____

School Guidance Counselor Signature: _____

SUPERVISOR APPROVAL

Supervisor Signature: _____ Date: _____

ON NEXT PAGE PLEASE LIST ALL OF YOUR TEACHERS AT THE (INSERT TRAINING CENTER)
THIS FORM MUST BE COMPLETED BEFORE JOB PLACEMENT WILL BE APPROVED)

(Part A)
SCHOOL
SCHOOL-TO-APPRENTICESHIP AGREEMENT

Student Name:	Employer:
Social Security No:	Address:
Address:	City/State: Zip Code:
City/State: Zip Code:	Telephone: () Fax: ()
Telephone: () E-mail:	E-mail address:
Home School:	Supervisor/Mentor:
Program:	Rate of pay:
Age: DOB: Grade: 12	Hours:

This is a bonafide vocational program, approved by the _____ Department of Education, the Division of Vocational and Adult Education. In order to operate effectively and be in compliance with State and federal regulations, all parties must agree to the following:

Everyone understands:

- The term of School-to-Apprenticeship placement training agreement is for the current school year ending _____. It is the intention of this program that the student will be kept on as an employee, but employment after this date and aspects thereof are between the student and the employer.
- That any and all parties shall consult with the coordinator about concerns before considering termination of this agreement.
- A training plan shall be developed cooperatively between the coordinator and the employer and updated cooperatively as needed.
- Adjustments in employment may be necessary depending upon the student's progress, economic conditions, changes in company policies, etc.
- This is a training agreement and may be terminated by the coordinator, and the student may be returned to the classroom situation if the student fails to perform adequately on the job and/or fails to follow all requirements of this job placement agreement and the coordinator deems it necessary for the student's continuing education.

The student will:

- Provide adequate and reliable transportation to and from work.
- Maintain attendance and punctuality on the job at all times unless excused by the coordinator. The student must notify the coordinator before an absence, obtain permission for the absence and then notify the employer in advance.
- Maintain good performance and grades in school work and perform all duties (school & job) with honor and sincerity and in a manner that will reflect positively on the school, employer and the student.

The parent will:

- Assume responsibility for personal conduct of the student.
- Assume responsibility for transportation of the student to and from the job site.
- Assure that the student has appropriate apparel for the job site.
- Call the vocational teacher in case of student's illness and ensure that the employer has been notified in advance of any absence.
- Encourage and support the student to succeed in this job-training experience.

The coordinator & vocational teacher will:

- Provide the related instruction necessary for the student's progress in both school and at the job site.
- Observe student frequently on the job and assist the employer in evaluating the student.
- Enforce attendance and disciplinary regulations as per student handbook and supplemental agreements.
- Place students only with those employers who provide employment in accordance with federal, State and local laws and regulations including nondiscrimination of any applicant or employee because of race, color, sex, national origin, or disability.
- Review the training plan progress on a regular basis.
- Verify that the student is proficient in the critical core competencies prior to placement in an approved apprenticeship position.

The employer will:

- Affirm that the company is an equal opportunity employer.
- Place student on job in accordance with the agreed upon and **approved training plan**.
- Give the student adequate orientation for the job site to enable the student to become productive.
- Evaluate the performance of the student regularly and in accordance with the coordinator.
- Cooperate with the coordinator to maintain continued progress of the student on the job.
- Prohibit the student from working if the student did not attend school on that work day and does not have permission of the coordinator.
- Provide the student with the same considerations given other employees regarding safety, health, social security, general working conditions and other regulations.
- Notify the coordinator immediately with any concerns about the student or his/her job site.
- Contact the coordinator immediately if there is any reason that termination is being considered to allow the instructor time to work with the student to correct the problem.
- Pay the student a beginning wage of \$ _____ per hour for _____ per week.
- Maintain the following work schedule for the student:
- **(State beginning and ending time for each day.)**

M _____ T _____ W _____ TH _____ F _____ S _____
SU _____

Starting Date: _____

All parties have read and agree to abide by the above statements.

Student: _____ Parent/Guardian: _____

Employer: _____ Vocational Teacher: _____

STA Coordinator: _____

The School-to-Apprenticeship Program is in compliance with Title IX of the Education Amendment of 1976, Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973. The School-to-Apprenticeship Program provides equal opportunities to all people without regard to age, gender, sex, disability, marital status, race, color, creed, national origin or religion.

STUDENT APPRENTICE WEEKLY WORK REPORT

NAME: _____ PROGRAM: _____

EMPLOYER: _____

DATE: _____ TO: _____

	HOURS	TYPE OF WORK or REASON FOR ABSENCE
MON.		
TUE.		
WED.		
THR.		
FRI.		
SAT.		
SUN.		
TOTAL		

Employer Signature/Comments: _____

Employer Observations

Category	Excellent	Good	Fair	Poor
Punctuality	4	3	2	1
Appearance	4	3	2	1
Cooperation	4	3	2	1
Efficiency	4	3	2	1
Accuracy	4	3	2	1
Follows Instructions	4	3	2	1
Alertness & Interest	4	3	2	1

Student signature/Comments: _____

Parent/Guardian signature/Comments _____

This report must be turned in on given day per the schedule issued by the Apprenticeship Coordinator.
 (Any questions or concerns contact _____ Apprenticeship Coordinator at (Insert Telephone Number) or at e-mail address: _____)

NAME OF INSTRUCTORS AT SCHOOL

VOCATIONAL INSTRUCTOR: _____

ACADEMIC INSTRUCTOR: _____

APPLIED INSTRUCTOR: _____

APPLIED INSTRUCTOR: _____

TUTOR: _____

OTHERS: _____

_____ *School Training Plan*
SAFETY RECORD

Student: _____ Teacher: _____
Subject: _____

Listed is each safety test that was administered for each job/task.

Date	SUBJECT	GRADE