DEFINITIONS

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

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 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.

BAT: Formerly, an agency called the Bureau of Apprenticeship and Training of the U.S. Department of Labor was commonly referred to by this acronym. The agency has been dissolved and its functions were subsumed by the Office of Apprenticeship, Training, Employer and Labor Services, which now administers the registration of apprenticeship programs in accordance with the Federal labor standards (29 CFR Parts 29 and 30).

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

CFR: Code of Federal Regulations.

DICTIONARY OF OCCUPATIONAL TITLES (D.O.T.): Formerly used to provide basic occupational information including job definitions, detailed tasks to be performed, and a number indicating a range of time to prepare for average performance in the occupation. Recently replaced by the new Standard Occupational Classification (SOC) system and the Occupational Information Network, or O*NET. See definition of "O*NET."

EMPLOYER: Will mean any business or employer 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.

JOURNEYPERSON: An individual who has sufficient skill and knowledge of the trade or craft, 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.

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.

ON-THE-JOB TRAINING (OJT): See "on-the-job learning."

PROGRAM SPONSOR: The organization, [*INSERT NAME such as a sponsoring ABC Chapter or sponsoring employer firm*], 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 journeyperson(s).

REGISTERED APPRENTICESHIP INFORMATION SYSTEM (RAIS): 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 Training, Employer and Labor Services (OATELS) or a state apprenticeship council or agency recognized by OATELS to register local apprenticeship programs.

SAC: A reference to either a state apprenticeship council or agency that is recognized by the U.S. Department of Labor for purposes of acting as a Registration Agency of Apprenticeship Programs.

SPONSOR: Same as Program Sponsor.

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 contractor or firm 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 contractor or firm 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.

WORK PROCESSES: See "on-the-job learning."

SECTION I. – PROGRAM ADMINISTRATION

1.1 The Apprenticeship Committee

The Apprenticeship Committee may be established by the Program Sponsor. It is responsible for the development, administration, and supervision of these registered standards. The committee shall have a chairperson.

1.2 Duties of the Program Sponsors or its 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 agreements to the appropriate registration agency for registration.
4. To establish minimum standards of related instruction and on-the-job training/work processes 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 Regulations, 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 craft manipulative 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 on-the-job training/work processes 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 of the Code of Federal Regulations, 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 of the Code of Federal Regulations, 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 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 on-the-job training. 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 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 committee that all apprentices employed in the trades covered herein shall be governed by the terms of these standards.

SECTION II. – 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 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, as amended.

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 Sponsor will adopt an affirmative action plan in accordance with Title 29 of the Code of Federal Regulations, Part 30 or similar requirements expressed in a State Plan for Equal Employment Opportunity in Apprenticeship adopted pursuant to Title 29 of the Code of Federal Regulations, Part 30 and approved by the Department of Labor. See Appendix C.

SECTION IV. – QUALIFICATIONS FOR APPRENTICESHIP

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

1. Be at least 16 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 apprenticeship programs.]
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. Pass any specified aptitude test(s) required for a craft or trade.
5. 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.
6. 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.
7. 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

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 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 Regulations, Part 30.

The 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 of the Code of Federal Regulations, 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 sponsor customarily receives applications throughout the year, notice shall be give not less than semi-annually.

5.2 Enrollment Systems

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

[*Note: The 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 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 29 CFR 30.5(b)(1); a random selection system as described in 29 CFR 30.5(b)(2); or an alternative program, such as an open enrollment system, approved by OATELS in accordance with 29 CFR 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 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 of the Code for Federal Regulations, 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 (and if a minor, the parent or guardian) shall sign an Apprenticeship Agreement, which shall be signed by the Program Sponsor or Apprenticeship Committee or its designee. Copies of the Agreement will be furnished to the apprentice, the employer, the committee, the registration agency, and where applicable, the local office of the Department of Veterans Affairs. The effective date of apprenticeship registration (also known as "indenture" date) is that of apprentice's signature of the agreement or first day of employment,

which ever comes later, conditioned on the sponsor's submission of the apprenticeship agreement in writing in accordance with the 29 CFR Part 29. *[Note: State apprenticeship agencies may require the use of their own apprenticeship agreement forms. In such instances, the agreement forms may be obtained from the State agency or the Office of Apprenticeship Training, Employer and Labor Services (OATELS).]*

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 service. [*Note: ABC encourages apprenticeship 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 Agreement shall incorporate by reference the terms and conditions of these standards as they exist on the date of the Agreement and as they may be amended during the period of the Agreement. A copy of each 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 effective date of the registration (also known as the “indenture” date) shall be that of the apprentice’s signature or first day of employment, which ever comes later, conditioned on the sponsors’ submission of the apprenticeship agreement in accordance with Title 29 of the Code of Federal Regulations, Part 29.

The Apprenticeship Agreement shall contain all the requirements contained in Title 29 of the Code of Federal Regulations, 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 29.5(b)(7)

7.1 General Policy

To provide for a steady supply of trained persons into the construction industry and to reflect employment opportunities, apprentice to journeyperson ratios will be enacted in accordance with the following provisions. The numeric ratio of apprentice(s) to journeyperson(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 all trades. For purposes of clarity, the ratio shall mean one apprentice for the first skilled journeyperson may be employed, and one additional apprentice for each additional skilled journeyperson may be employed thereafter.

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

[*Note: The Program Sponsor may submit to the Registration Agency for an adjusted ratio of apprentices to journeyperson when a need can be demonstrated for a particular craft in the workforce. 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 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 journeyperson 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 journeyperson.

(b) A second apprentice who has successfully completed a minimum of 5,000 hours of on-the-job training and the appropriate period of related and supplemental instruction may be permitted to perform work under the indirect supervision of the same journeyperson. 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 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 journeyperson ratio will provide local area 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 employees report for their work assignments. The employer's shop (service center) is considered to be a separate, single job site. 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 OATELS Administrator's Office on the thirty-first day of March of each new calendar year. The Office of Apprenticeship Training, Employer and Labor Services 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 Sponsor. The 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 on-the-job learning. 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 journeyperson, 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 journeyperson 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 journeyperson at all times. This does not imply that the apprentice must always be in-sight-of the journeyperson electrician, or are journeyperson 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 journeyperson 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 trade competencies. Journeyperson are permitted to leave the immediate work area without being accompanied by the apprentice.

SECTION VIII. – TERM OF APPRENTICESHIP

This program 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 competency-based term of training under which this program operates for each occupation is identified on the work processes 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 on-the-job learning or in related instruction may have a period of training extended by not more than 50 percent.

Completion of an apprenticeship utilizing the competency 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 of the Code of Federal Regulations, Part 29.5(b).

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

SECTION IX. PROBATIONARY PERIOD

29 CFR 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 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 on-the-job learning for all hours worked in a pay period. Apprentices who do not complete the required hours of on-the-job-learning 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 one-half the stated traditional term for the occupation. See Section VIII.

SECTION XI. APPRENTICE WAGE PROGRESSION

29 CFR 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 on-the-job learning and related instruction. Apprentice wages shall be based on a percentage of wages paid journeypersons. The entry wage shall be not 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 each registered craft, the arithmetic average of the individual contractor's journeyperson rates will become the journeyperson rate upon which the apprentice wage schedules (as listed with the trade work processes) are applied for apprentices employed by that contractor. 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 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 apprentice, 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 employer, when applicable, must make a request for credit in writing to the Apprenticeship Committee, and the 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 on-the-job learning 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.

12.2 Direct Entry By Transfer

Apprentices will be given immediate credit for documented OJL and related instruction obtained in the same trade through a registered apprenticeship program, unless there are extenuating circumstances.

12.3 U.S. Military Veterans [OPTION]

Veterans who completed military technical training school or participated in a Department of Labor-registered apprenticeship program while in the military in any of the occupations covered by these standards may be given direct entry into the apprenticeship program if there is an appropriate employment opportunity. The Apprenticeship Committee shall evaluate the military training received for granting appropriate credit on the term of apprenticeship and the appropriate wage rate. The Apprenticeship Committee will determine what training requirements a veteran needs to meet to ensure that 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. If no apprentice position is available, a veteran may be placed at the top of any current applicant ranking, if applicable, and given first opportunity for placement.

12.4 Job Corps Graduates [OPTION]

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 if there is an appropriate employment opportunity. If no apprentice position is available, the Job Corps graduate may be placed at the top of any current applicant ranking, if applicable, and given first opportunity for placement. The Apprenticeship Committee shall evaluate the Job Corps training received for granting appropriate credit on the term of apprenticeship. Entry of Job Corps graduates shall be done without regard to race, color, religion, national origin, or sex.

SECTION XIII. WORK EXPERIENCE

29 CRF 29.5(b)(3)

During the apprenticeship period, the apprentice shall receive such on-the-job learning and related instruction in all phases of the occupation necessary to develop the skill and proficiency of a skilled journeyperson. The on-the-job learning shall be under the direction and guidance of [*identify entity*].

The Work Processes for each occupation is covered in Appendix A.

SECTION XIV. - RELATED INSTRUCTION

29 CFR 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 and shall be required to pass an examination in each subject before being granted a certificate of completion. 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 competency based, task oriented, and modular training program). By recording apprentice achievements for the written and performance tests, the total classroom hours and required on-the-job-learning 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 shall not be considered as hours worked when instruction is given outside of regular working hours. Apprentices shall not be paid for attending such related instruction classes, unless required by law or voluntarily by subscribing employer.

The competency-based 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 competency-based 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 29.5(b)(9)

Safe use of tools and equipment and competent on-the-job conduct shall be stressed in related classes and on-the-job training throughout the terms 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 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 journeyperson 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 are working under the supervision of a skilled journeyperson, evaluation of work performance, and completion and submittal of progress reports to the Apprenticeship Committee.

No apprentice shall be allowed to work without journeyperson supervision.

SECTION XVII. - RECORDS AND EXAMINATIONS

29 CFR 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 on a regular basis. The apprentice shall authorize an effective release of their completed related instruction records from local school authorities to the Apprenticeship Committee. The record cards and all data pertaining to the apprenticeship will 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 shall 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 journeyperson, 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 29.5(b)(22) and 30.8

The Program Sponsor shall 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 shall 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 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 shall

so certify in writing to the Registration Agency and request that a Certificate of Completion of Apprenticeship is awarded to the completing apprentice. Such requests shall 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 29.5(b)(18)

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

SECTION XXI. – REGISTRATION, CANCELLATION AND DEREGISTRATION

29 CFR 29.7 and 29.5(b)(17)

These standards upon adoption by the Program Sponsor will 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 program.

Deregistration of the Apprenticeship Program may be initiated by the Registration Agency in accordance with Title 29 of the Code of Federal Regulations, Part 29.7.

Within fifteen (15) days of cancellation or derecognizing of the Apprenticeship Program, 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 of the Code of Federal Regulations, Part 29.7.

SECTION XXII. – AMENDMENTS AND MODIFICATIONS

29 CFR 29.5(b)(17)

Amendments shall not alter Apprenticeship Agreements in effect at the time of the change without the express consent of all parties to such Agreements. Prior to revisions taking affect, the registration agency shall be notified and requested to approve the changes. The registration agency shall be notified of all revisions to the standards. A copy of each amendment or modification will be furnished to each apprentice to whom the amendment or modification applies.

SECTION XXIII. PROCEDURE FOR ADJUDICATING DIFFERENCES AND COMPLAINTS

29 CFR 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 and the apprentice, except as described in this section and the regulations.

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 difference arising 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 60 days of the final decision by the Program Sponsor. The Registration Agency shall render its an opinion within 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 the 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.

[*Note: Insert this paragraph only if there is a review body for discrimination complaints established by the program sponsor.*]In the case of complaints filed directly with a review body designated by the Program Sponsor, if applicable, 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 thirty (30) days from the final decision of such review body, whichever is later.

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

SECTION XXIV. – TRANSFER OF TRAINING OBLIGATIONS & CONTINUITY OF EMPLOYMENT

29 CFR 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 on-the-job training experience in all aspects of the trade.

The 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 committee may transfer this apprentice to another employer. Any transfer of employment will be with the consent of all parties to the 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 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 Agreement with the Program Sponsor, agree to all the terms and conditions contained therein and agree to abide by the 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 craft 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 on-the-job learning 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 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

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*] 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 Experience & Related Instruction Outlines

A.1
TRADE SCHEDULE BRICKLAYER
O*NET/SOC: 47-2021.00 RAIS Code: 0051
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. **SCHEDULE OF WORK EXPERIENCE** (See attached Work Processes/Work Experience 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)

   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 PROCESSES/WORK EXPERIENCE 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**

A5.1- BRICKLAYER 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
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	**532.5**

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

A.2
TRADE SCHEDULE
BUILDING MAINTENANCE REPAIRER
O*NET/SOC: 49-9042.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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) 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 PROCESSES/WORK EXPERIENCE 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**

A5.1- BUILDING MAINTENANCE REPAIRER 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
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	
7.5	
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	565

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

A.3
TRADE SCHEDULE
CARPENTER (CONSTRUCTION)
O*NET/SOC: 47-2031.01 RAIS 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 competency based and will be offered as traditional classroom training or independent study, which may include: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 stagings
   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**

A5.1- CARPENTER 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 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
Welding	25
Metal Buildings	15
Introduction to Project Management and Supervision	15
TOTAL HOURS	**736**

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

A.4
TRADE SCHEDULE
CEMENT MASON
O*NET/SOC: 47-2051.00 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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	**4000**

A5.1- 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	**325**

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

A.5
TRADE SCHEDULE
COMMERCIAL INTERIOR SPECIALIST
O*NET/SOC: 47-2031.01 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2.5 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 5000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- COMMERCIAL INTERIOR SPECIALIST RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules is 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 accuated 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	**315**

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

A.6
TRADE SCHEDULE
CONSTRUCTION CRAFT LABORER
O*NET/SOC: 47-2061.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. 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**

A5.1- CONSTRUCTION CRAFT LABORER 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
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 - Oxyfuel Cutting	17.5
Masonry in High-Rise Construction	17.5

TOTAL HOURS **330**

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

A.7
TRADE SCHEDULE
DATA COMMUNICATIONS INSTALLER
O*NET/SOC: 49-2022.03

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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2.5 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 5000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Project Layout and Planning 200
   a. Reading and interpreting blueprints and specifications
   b. Jobsite coordination
   c. Layout telecommunication cabling systems

2. Underground Installations 200
   a. Trenching and ditch digging
   b. Direct burial
   c. Installing telecommunication cabling systems

3. Routing Cable 250
   a. Fastening and support
   b. Protective sleeves and nipples

4. Installation of Communication Systems 1000
   a. Testing, Certifying and Troubleshooting LAN Systems
   b. Security, Phone, and Sound systems installation

5. Installing and Networking Telecommunication Wires & Cables 1000
   a. Installing and networking between buildings
   b. Wiring large and small campus systems
   c. Installing backbones, horizontals, crossconnects and interconnects

6. Terminating Wires and Cables/Splicing 650
   a. Bundled
   b. Shielded
   c. Unshielded
   d. Optical fiber
   e. Twisted pair
   f. Coaxial cable

7. Service and Troubleshooting 550
   a. Testing, analysis and repair of video, voice and data installations, electronic devices, LAN circuits and telecommunication devices

8. Material handling and fabrication 150
   a. Material/equipment awareness
   b. Fabricating for field installation

9. Safety Awareness & Other Specialized Areas 1000
   a. Safety

b. Sub-systems: Communications, Entertainment, Environmental Control, Fire and Smoke stopping, Hazardous Materials, and Life Safety

TOTAL HOURS **5000**

A5.1- DATA COMMUNICATIONS INSTALLER 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	
Introduction to Construction Math	
Introduction to Hand Tools	
Introduction to Power Tools	
Introduction to Blueprints	
Installation of Cable	
Pulling Cable	
Installation of Work Area Devices	
Termination and Testing	
Standards/Codes	
Perform Site Surveys	
Build Closets	
Install Grounding Infrastructure	
Installation of Work Area Outlet	
Pull Cable	
Pull Horizontal (UTP/SCTP/STP-A)	
Pre-terminate	
Complete IDC Termination	
Assemble and Install Connectors	
Splice Cable	
Troubleshooting and Testing	
Retrofits	
Work Device Installation	
Fire-stopping	
LAN	
Administrative Tasks	

TOTAL HOURS **435**

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

A.8
TRADE SCHEDULE
DRYWALL APPLICATOR
O*NET/SOC: 47-2081.02 RAIS Code: 0145
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 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**

A5.1- 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	**360**

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

A.9
TRADE SCHEDULE
ELECTRICIAN (CONSTRUCTION)
O*NET/SOC: 47-2111.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson 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 journeyperson wage rate.

Term: 8000 Hours

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

4. **SCHEDULE OF WORK EXPERIENCE** (See attached Work Processes/Work Experience 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)

   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 PROCESSES/WORK EXPERIENCE 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 journeyperson
   f. Installing various kinds of wires, cables, and conduits in accordance with requirements
   g. Assisting journeyperson 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 typing
   i. Installing service switches or load center and subfeeders and fastening up these parts, running raceways and pulling in conductors under the direction of journeyperson 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 journeyperson 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 wiremolds on all types of heavy electrical equipment and majorsize 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 overcurrent 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**

A5.1- 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	**642.5**

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

A.10
TRADE SCHEDULE
ELECTRONIC SYSTEMS TECHNICIAN (EST)
O*NET/SOC: 49-2022.03 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- 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	**682.5**

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

A.11
TRADE SCHEDULE
FLOOR LAYER
O*NET/SOC: 47-2042.00 RAIS Code: 0199

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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

1st 1000 hours = 55percent of journeyperson's rate
2nd 1000 hours = 60 percent of journeyperson's rate
3rd 1000 hours = 65 percent of journeyperson's rate
4th 1000 hours = 70 percent of journeyperson's rate
5th 1000 hours = 75 percent of journeyperson's rate
6th 1000 hours = 80 percent of journeyperson's rate
7th 1000 hours = 85 percent of journeyperson's rate
8th 1000 hours = 90 percent of journeyperson's rate

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 1000
   a. Floor Preparation
   b. Basic Math
   c. Scrape
   d. Sweep
   e. Fill
   f. Tear Out
   g. Handling Materials

2. Carpet 2500
   a. Direct Glue
   b. Carpet Over Pad
   c. Carpet Tile
   c. Carpet Steps

3. Hard Surface Flooring 4500
   a. VCT
   b. Sheet Vinyl
   c. Treads
   d. Base
   e. Solid Vinyl and/or Rubber
   f. Fritz Tile
   g. Wood Flooring
   h. Ceramic Tile Flooring
   i. Floors
   j. Walls
   k. Grout
   l. Layout & Foreman

TOTAL HOURS **8000**

A5.1- FLOOR LAYER 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	

Introduction to Construction Math
Introduction to Hand Tools
Introduction to Power Tools
Introduction to Blueprints
Basic Rigging
Carpet:

- History of the Flooring Industry, Residential vs. Commercial, Installer Professionalism, Carpet Construction, Installation Tools and Equipment
- Floor Preparation, Carpet Cushion, Carpet Seaming, Planning, Measuring, Estimating
- Installation of Direct Glue Down, Tackless Installation, Installation of Stair Carpet, Woven Carpet, Pattern Carpet
- Installation of Modular Carpet, Spray Adhesive Technology, Carpet Removal Techniques

Resilient Flooring:

- Asphalt Tile, Linoleum, Cork, VAT, VCT, Sheet Vinyl, Rubber Flooring, History of Driving Forces such as OSHA, ASTM, Material Handling/Job Site Conditions, Types of Sub Floors, Proper Underlayment, Concrete Testing & Proper Preparation, Removal

Residential Sheet & Tile Installations:

- Basic Installation Procedures, Adhesives, Sheet Vinyl, VCT, Self-Adhered Tiles, Solid Vinyl Tile, Accessories

Commercial Sheet Goods:

- Basic Installation Procedures, Flash Coving, Heat Welding, Adhesives, Sheet Vinyl, Linoleum, Rubber Sheet, ESD Sheet, Accessories

Commercial Tiles:

- Basic Installation, Adhesives, VCT, Solid Vinyl Tile, Linoleum, Resinous Matrix Tile, Rubber Tile, ESD Tile, High Oil Resistant Tile, Accessories

Resilient Accessories:

- Stair Treads, Stringers & Risers, Reducer Strips, Wall Base, Tape Systems

Wood Flooring:

- Tools of the Trade, Floor Preparation, Installation Guidelines

Ceramic Tile:

- Installation Materials, Setting Materials, Grouting Materials, Special Products, Notes, Definitions, Installation Guides, Wall Installations, Grouts, Floor Installations, How to Use Handbook, Base/Cove Alternatives, Installation Methods, Floors, Exterior Floors, Interior Walls, Exterior, Walls, Interior, Ceilings & Soffits, Bathtub Walls, Shower Receptors, Walls, Shower Receptors Renovation, Tiles Tubs & Fountains, Curbs, Countertops, Swimming Pools, Stairs, Refrigerator Rooms, Steam Rooms, Renovations, Thresholds, Window Stools, Fire-Rated & Sound-Rated Walls, Movement Joints

TOTAL HOURS **656**

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

A.12
TRADE SCHEDULE
GLAZIER
O*NET/SOC: 47-2121.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- 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	**430**

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

A.13
TRADE SCHEDULE
HEATING AND AIR-CONDITIONING INSTALLER-SERVICER
O*NET/SOC: 49-9021.01 RAIS Code; 686
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 Orientation 350
   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 550
   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 1600
   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 950
   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 1050
   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, and adjust fans and blowers
   g. Align pulleys, bearing blocks, and belt tension

6. Equipment Repair 2900
   a. Disassemble and clean, repair, renew, and test compressors
   b. Repair, pressure test, dehydrate evaporators
   c. Repair condensors, roll condensor 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**

A5.1- 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	**620**

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

A.14
TRADE SCHEDULE
INSTRUMENTATION AND CONTROL MECHANIC
O*NET/SOC: 17-3023.02 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- INSTRUMENTATION AND CONTROL MECHANIC 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
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	Under Revision
Layout and Installation of Tubing & Piping Systems	Under Revision
Clean, Purge and Test Tubing and Piping Systems	Under Revision
Receive, Inspect, Handle, & Store Instrumentation	Under Revision
Instrumentation Circuitry	Under Revision
Grounding & Shielding of Instrumentation Wiring	Under Revision
Terminating Conductors	Under Revision
Protective Measures for Instrumentation	Under Revision
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	**550**

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

A.15
TRADE SCHEDULE
INSULATION WORKER
O*NET/SOC: 47-2131.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 comer 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, fiberous 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		**8000**

A5.1- 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
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	**465**

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

A.16
TRADE SCHEDULE
IRONWORKER (ERECTOR)
O*NET/SOC: 47-2221.00 RAIS Code; 0373
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 a. Use of cables and turnbuckles b. Use of instruments c. Use of hydraulic jacks	300
11. Fabricating a. Layout b. Fit-up	800
12. Reading job plans and specifications	400
TOTAL HOURS	**6000**

A5.1- 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	**525**

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

A.17
TRADE SCHEDULE
METAL BUILDING ASSEMBLER
O*NET/SOC: 47-2221.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Job Site Safety 50
2. Materials 25
   a. Identification
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 50
   a. Site
      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 600
    a. Field Adaptation

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**

A5.1- 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	**402.5**

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

A.18
TRADE SCHEDULE
MILLWRIGHT
O*NET/SOC: 49-9044.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. **SCHEDULE OF WORK EXPERIENCE** (See attached Work Processes/Work Experience 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)

   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 PROCESSES/WORK EXPERIENCE 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**

A5.1- MILLWRIGHT 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
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	**828.5**

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

A.19
TRADE SCHEDULE
OPERATING ENGINEER
O*NET/SOC: 47-2071.00 RAIS Code: 0365
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. **SCHEDULE OF WORK EXPERIENCE** (See attached Work Processes/Work Experience 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)

   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 PROCESSES/WORK EXPERIENCE 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
   a. 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

   a. 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
   a. Learn service, maintain, 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
    a. 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
    a. 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**

A5.1- 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 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
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	**487.5**

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

A.20
TRADE SCHEDULE
OPERATING ENGINEER
O*NET/SOC: 51-8021.02 RAIS Code: 0815
ALTERNATE TITLES: PLANT-EQUIPMENT, BOILER 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Asphalt plants
   a. Learn to keep proper fire under dryer drum to heat and dry aggregates for proper mixing by means of valves or control levers
   b. Learn to handle the levers and controls that automatically weigh dry sand, stone, and asphalt and dump them into the mixing drum
2. Batch plants, concrete mixers, and pug mills
   a. Learn to weigh aggregate for concrete
   b. Adjust scales for required weight of material
   c. Make proper mixes
3. Crushing, screening, and washing plants
   a. Learn to make proper adjustments to crash the size of material desired
   b. Make repairs on the equipment
   c. Service conveyors
   d. Learn to adjust conveyor belts
   e. Learn to operate shaker screens to separate the different sizes of materials
   f. Learn to change screens to get the desired size of materials
   g. Learn to operate a washing plant and sand classifier
4. Material loaders
   a. Learn to operate, service, and adjust various types of front-end loaders, tractors, conveyors, and fork lifts
   b. Learn to make minor repairs and adjustments under the supervision of a repairer
5. Drills
   a. Learn the purpose and use of various types of drills and the operation of same
   b. Learn the maintenance and running repairs and replacements on various types of drills
6. Maintenance, cutting and burning, grease and oils
   a. Learn to make necessary repairs to the equipment under supervision of a heavy duty repairer and welder.
   b. Learn the types of oils and greases and their uses.
7. Erecting and dismantling
   a. Learn to step up and repair all types of plant equipment

8. Welding, cutting, and burning
    a. Learn use of various welders and welding equipment
    b. Learn to build up and repair worn parts
9. Materials
    a. Learn use of instruments and plans for processing the various materials
10. General equipment
    a. Learn to operate, service, and adjust all types of pumps
    b. Learn operation and maintenance of pumping machines, such as pump crete machines, 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 beaters
    e. Learn to operate, service, and adjust all types of electric generating plants
    f. Learn to operate, service, and adjust all types of air compressors and use and operation of auxiliary equipment
    g. Safety

TOTAL HOURS **6000**

A5.1- OPERATING ENGINEER (PLANT-EQUIPMENT OPERATOR) 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	
Basic Math	
Introduction to Hand Tools	
Introduction to Power Tools	
Introduction to Blueprints	
Basic Rigging	
Materials: Composition and Storage	Under Revision
Materials: Handling	Under Revision
Operational Controls	Under Revision
Basic Maintenance Procedures	Under Revision
Loader Operations	Under Revision
Basic Welding: Oxyacetylene Cutting	Under Revision
Fuels and Lubrication	Under Revision
Equipment Erection and Dismantling	Under Revision
Pumping Equipment	Under Revision
Advanced Maintenance	Under Revision
Plant Operation Planning	Under Revision
Planning Preventive Maintenance	Under Revision
Maintenance Management	Under Revision

TOTAL HOURS	**432**

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

A.21
TRADE SCHEDULE
OPERATING ENGINEER
O*NET/SOC: 49-3042.00 RAIS Code: 0336
ALTERNATE TITLES: CONSTRUCTION-EQUIPMENT 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Parts department 400
   a. Identification of repair parts and replacing of stock
   b. Repair parts ordering
   c. Proper use of parts manual
   d. Safety
2. Basic care and maintenance 250
   a. Lubrication
   b. Cleaning
   c. Periodic maintenance
3. Brakes (all types) 200
   a. Air systems
   b. Hydraulic systems
   c. Mechanical systems
4. Clutches and converters 350
   a. Wet clutches
   b. Dry clutches
   c. Single state converters
   d. Multistage converters
5. Transmissions 400
   a. Automatic
   b. Hydrostatic
   c. Standard
6. Final drives 250
   a. Differential
   b. Planetary
7. Steering mechanisms 150
   a. Manual

b. Power assisted	
c. Power	
8. Power control units	250
a. Electrical	
b. Air	
c. Hydraulic	
9. Winches	100
10. Hydraulic systems	400
a. Hoses	
b. Cylinders	
c. Pumps	
d. Valves	
11. Electrical systems	450
a. Starting	
b. Generating	
c. Lighting	
d. Ignition	
12. Engine fuel systems	350
a. Carburetor	
b. Injection	
13. Cooling systems	100
a. Radiator	
b. Heat exchanger	
c. Hydraulic	
d. Air	
14. Engine maintenance, repair, and rebuild	2800
a. Gas	
b. Diesel	
c. Two cycle	
d. Four cycle	
15. Welding	150
a. Electrical	
b. Gas	
16. Field maintenance, general	1400
TOTAL HOURS	**8000**

A5.1- OPERATING ENGINEER (CONSTRUCTION-EQUIPMENT 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	
Basic Math	
Introduction to Hand Tools	
Introduction to Power Tools	
Introduction to Blueprints	
Basic Rigging	
Basic Electricity	Under Revision
Diesel Engine Overhaul	Under Revision
Technical Mathematics	Under Revision
Microcomputer Fundamentals	Under Revision
Diesel Electrical Systems	Under Revision
Heavy Equipment Operating Techniques	Under Revision
Heavy Duty Brake Systems	Under Revision
Principles of Power Transmission	Under Revision
Power Trains	Under Revision
Heavy Equipment Chassis	Under Revision
Basic Hydraulics	Under Revision
Site Engineering	Under Revision
Operation of Ditching and Trenching Equipment	Under Revision
Operation of Hauling and Finish Grade Equipment	Under Revision
Advanced Hydraulics	Under Revision
Hydrostatic and Power Shift Transmissions	Under Revision
Heavy Duty A/C Systems	Under Revision
Planning Preventive Maintenance	Under Revision
Maintenance Management	Under Revision
Technical and Professional Communication	Under Revision
TOTAL HOURS	**576**

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

A.22
TRADE SCHEDULE
OPERATING ENGINEER
O*NET/SOC: 47-2073.02 RAIS Code: 0365
ALTERNATE TITLES: UNIVERSAL-EQUIPMENT 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Shovel and backhoe
   a. Learn the names and uses of various types of shovels and attachments
   b. Learn care, preventive maintenance, proper oils and greases, and minor adjustments
   c. Learn to change teeth and cables and adjust frictions, brakes, and clutches
   d. Learn the controls, their importance in proper operation and movement of machine for safety of other employees and equipment working near machine
   e. Learn to read and set grade stakes; also to read prints and instructions
   f. Learn to make major overhauls working with the operator and the heavy duty repairer and welder
2. Dragline and other bucket-type equipment
   a. Learn the names and uses of various types of draglines and attachments
   b. Learn care, preventive maintenance, proper oils and greases, and minor adjustments
   c. Learn to change teeth, cables, adjust frictions, brakes, and clutches
   d. Learn the controls, their importance in proper operation and movement of machine for safety of other employees and equipment working near machine
   e. Learn to read and set Grade stakes; also to read plans and instructions
   f. Learn to make major overhauls working with the operator and the heavy duty repairer and welder
3. Crawler and wheel-type cranes, derricks, piledrivers, bridge and gantry cranes
   a. Learn the name and uses of various types of cranes and derricks
   b. Learn care, preventive maintenance, proper oils and greases, and minor adjustments
   c. Learn to adjust frictions, brakes, and clutches
   d. Learn the controls, their importance in the proper operation and movement of the machine for the safety of other employees and equipment working near the machine
   e. Learn to read and set grade stakes and to read plans and instructions
   f. Learn to make major overhauls working with the operator and the heavy duty repairer and welder

g. Learn the proper loads that the machine and cables will safely handle
h. Learn the operating differences between a live boom and regular operation
i. Learn to give and receive proper signals for hoisting, swinging, and lowering materials and equipment
j. Learn use of pile-driving equipment
k. Learn to use out-riggers on wheel-type machines for protection of the machine and materials being handled

4. Skip and air tugger hoists, elevators, etc.
   a. Learn proper adjustments on engine-driven hoists to make repairs and adjustments on air tuggers and air compressors

5. Cableways
   a. Learn operation of cableways and service adjustments

6. Motor crane driver
   a. Learn to drive a truck crane and to place it for most convenient operation of the crane

7. Tracked equipment
   a. Learn operation of dinkey and locomotive engines

8. Use of grade instruments and plans
   a. Learn proper use of instruments and to read plans for making grades

9. Soil solidification
   a. Learn principles and methods of soil solidification and operation of specialty equipment designed for same

10. General equipment
    a. Learn to operate, service, and adjust all types of pumps
    b. Learn operation and maintenance of pumping equipment, 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 electric generating plants
    f. Learn to operate, service, and adjust all types or air compressors and the use and operation of auxiliary equipment

11. Auxiliary equipment
    a. Learn uses, rigging, and operation of attachments used on universal equipment.

12. Maintenance, cutting and burning, greases and oils
    a. Learn use of various welders and welding equipment
    b. Learn minor repairs and adjustments
    c. Learn minor welding and cutting repairs
    d. Learn the types of greases and oils and their uses
    e. Safety

TOTAL HOURS **6000**

A5.1- OPERATING ENGINEER (UNIVERSAL-EQUIMENT OPERATOR) 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	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
Introduction to Earth Moving	17.5
Safety, Part Two	15
Scrapers	22.5
Bulldozers	20
Backhoes	20
Front-end Loaders	22.5
Soils, Part Two	12.5
Grades, Part Two	20
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	**467.5**

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

A.23
TRADE SCHEDULE FOR: PAINTER
O*NET/SOC: 47-2141.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- 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	**582.5**

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

A.24
TRADE SCHEDULE FOR: PIPEFITTER
O*NET/SOC: 47-2152.01 RAIS Code: 0666
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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
   a. 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 **8000**

A5.1- PIPEFITTER 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
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.25
TRADE SCHEDULE
PLASTERER
O*NET/SOC: 47-2161.00 RAIS Code: 0423

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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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. Browning 1500
   a. Use of tools and equipment and safety
   b. Scratching (all bases) including preparation of walls and ceilings which are to receive tile
   c. Browning (all bases) including preparation of walls and ceilings which are to receive tile
   d. Lining, dotting, and screening, including preparation of walls and ceilings, which are to receive tile
2. Finishing 1500
   a. Use of tools and equipment and safety
   b. Whitecoating
   c. Sandfinishing
   d. Acoustical plastering
   e. Stucco
3. Specialties 500
   a. Use of tools and equipment and safety
   b. Texture finish
   c. Acoustical tile
   d. Simulated acoustics and acoustical tile
   e. Plaster veneers
   f. Plastic coatings
   g. Fireproofing and-insulating materials
   h. Waterproofing
   i. Bonding agents
   j. Artificial finishes
4. Ornamental 500
   a. Use of tools and equipment and safety
   b. Making molds and templates
   c. Running cornice and mitering
   d. Sticking ornaments
   e. Laying out groins, arches, coffered ceilings, etc.

TOTAL HOURS 4000

A5.1- PLASTERER 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	
Basic Math	
Introduction to Hand Tools	
Introduction to Power Tools	
Introduction to Blueprints	
Basic Rigging	
Introduction to the Trade	
Tools and Materials	
Mixing Materials	
Lathing and Plastering Bases	
Applying Plaster	
Base and Finish Coats	
Special Finishes	
Ornamental Plaster	
Plastering Problems	
TOTAL HOURS	**288**

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

A.26
TRADE SCHEDULE
PLUMBER
O*NET/SOC: 47-2152.02 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. **SCHEDULE OF WORK EXPERIENCE** (See attached Work Processes/Work Experience 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)

   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 PROCESSES/WORK EXPERIENCE 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

A5.1- PLUMBER 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
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.27
TRADE SCHEDULE FOR: POWER-LINE DISTRIBUTION ERECTOR
D.O.T CODE: 821.361-018 O*NET/SOC: 49-9051.00
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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 and wires
   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**

A5.1- POWER-LINE DISTRIBUTION ERECTOR 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
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	
• Bucket Trucks I & II	
Electrical Safety	80
• Reading Diagrams I&II	
• Climbing Steelpoles and Towers	
• Setting & Replacing Poles	
• Pole Framing & Guying	
• Troubleshooting Overhead Lines	
URD Systems	80
• Safety in URD	
• URD Cable/Conduit	
• Basic Electricity Review	
• Distribution Repair (Gloves)	
• Distribution Repair (Sticks)	
• Distribution Line Installation	
System Protection & Monitoring	80
• Pole Top Equip. Replacement I &II	
• AC Fundamentals Review	
• Electromagnetic Induction Review	
• Substations and Switchyards	
• Transformer Connections I	
• Transformer Connections II	
Transformer Troubleshooting	80
• 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.28
TRADE SCHEDULE
PROTECTIVE SIGNAL INSTALLER
O*NET/SOC: 49-2098.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- PROTECTIVE SIGNAL INSTALLER 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
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.29
TRADE SCHEDULE
ROOFER
O*NET/SOC: 47-2181.00 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 2 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 4000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 journeyperson
   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
   a. 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**

A5.1- ROOFER 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
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	**484.5+**

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

A.30
TRADE SCHEDULE
SHEET METAL WORKER
O*NET/SOC: 47-2211.00 RIAS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- 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	**622.5**

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

A.31
TRADE SCHEDULE
SPRINKLER FITTER (PIPEFITTER)
O*NET/SOC: 47-2152.01 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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**

A5.1- SPRINKLER FITTER (PIPEFITTER) 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
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	**588.5**

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

A.32
TRADE SCHEDULE
WELDING
O*NET/SOC: 51-4121.02 RAIS 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: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 years with an OJT 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) Journeyperson: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each additional skilled journeyperson employed thereafter.

3. APPRENTICE WAGE SCHEDULE

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

Term: 6000 Hours

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

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience 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)

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 PROCESSES/WORK EXPERIENCE 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 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
   a. 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**

A5.1- WELDING 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	**1197.5**

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

APPENDIX B
Apprenticeship Agreement

The U.S. Department of Labor Form ETA 671 is provided. SAC 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 &
Selection Procedure

C.1: Program

SECTION I - INTRODUCTION

The Program Sponsor [or its Apprenticeship Committee] enters this Affirmative Action Plan 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 Affirmative Action Plan.

This Plan is a supplement to the Apprenticeship Standards. Any changes made by the Apprenticeship Committee shall become part of this written Plan, once approved by the Registration Agency.

SECTION II - EQUAL OPPORTUNITY PLEDGE

The 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 Apprenticeship Committee 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 Apprenticeship Committee's labor market area. Once the labor force is determined, the Apprenticeship Committee 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 Analysis Worksheet and Goals and Timetables attached.

SECTION IV - OUTREACH AND POSITIVE RECRUITMENT

The Apprenticeship Committee's affirmative action plan 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 Apprenticeship Committee 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 Apprenticeship Committee'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 Apprenticeship Committee's equal opportunity policy should be conducted in such a manner to foster understanding, acceptance, and support among the Apprenticeship Committee'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 Apprenticeship Committee may be required to work with other sponsors and appropriate community organizations. The Apprenticeship Committee 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 Apprenticeship Committee shall make appropriate provisions in its affirmative action plan 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 APPRENTICESHIP COMMITTEE WILL UNDERTAKE TO FULFILL THAT OUTREACH AND RECRUITMENT STEP]

SECTION V - ANNUAL REVIEW OF AFFIRMATIVE ACTION PLAN

In accordance with Title 29 of the Code of Federal Regulations, Part 30.8(b), the Program Sponsor will make an annual review of its Affirmative Action Plan, 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 Apprenticeship Committee for outreach and recruitment, selection, employment, and training. All changes to the Affirmative Action Plan must be submitted to the Registration Agency for registration. The Apprenticeship Committee 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.3 AFFIRMATIVE ACTION PLAN: ANALYSIS WORKSHEET

(SPONSOR MUST COMPLETE A WORKSHEET FOR EACH REGISTERED OCCUPATION)

Occupational Title: _____ RAIS Code: _____

Sponsor: _____ DOT Code: _____

Address: _____ O*NET Code: _____

City: _____ State: _____ Zip: _____

Phone: _____ Type of selection method used: _____

Labor Market Area: _____

LABOR MARKET AREA DATA

Total Labor Force in Labor Market Area: _____

Number Women: ____ (%) of Labor Force

Number Minority: ____ (%) of Labor Force

Working Age Population in Labor Market Area: _____

Number Women: ____ (%) of working age population

Number Minority: ____ (%) of working age population

The General Availability of Minorities and Women with the Present or Potential Capacity for Apprenticeship.

Number Women: ____

Number Minority: ____

SPONSOR'S WORKFORCE DATA

Journeypersons: ____

Number Women: ____ (%) of Journeypersons

Number Minority: ____ (%) of Journeypersons

Apprentices: _____

Number Women: ____ (%) of Apprentices
Number Minority: ____ (%) of Apprentices

DETERMINATION OF UTILIZATION

Minority Underutilization: Yes _____ No ___
Female Underutilization: Yes _____ No ___

(Note: all factors need not be weighted equally.)

SPONSOR'S GOALS:

The sponsor agrees to make good faith efforts to attain the goal of selecting ____ % minorities and ____% women during the next year or hiring period. These goals shall not be used to discriminate against any qualified applicant on the basis of race, color, religion, national origin or sex.

Estimated Number of new apprentices to be hired during the next year: ____

_____	_____
Sponsor's Signature	Approved by Agency
_____	_____
Title	Title
_____	_____
Date	Date

C.3 SAMPLE GOALS AND TIMETABLES ANALYSIS

[*Insert Year*]

The above analysis indicates_____ (chapter/sponsor name) Apprenticeship Program is an underutilizer of minorities and females (minority and non-minority). Therefore, the_____ (chapter/sponsor name) pledges a good faith effort so that _____% (percentage) of apprentices selected this year will be minority group persons, and _____ % (percentage) apprentices selected this year will be female (minority and non-minority) group and no less than the same percentage of minority and female (minority and non-minority) group selections will be made in each successive year until there is no underutilization of minority group or female (minority and non-minority) group persons in the crafts represented. It should be fully realized that any good faith effort will be contingent upon the availability of qualified apprenticeship applicants who meet the criteria of selection procedures. The Affirmative Action Plan of [*insert year*] was developed based on this analysis.

APPENDIX D
Selection Processes

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

D.1 SAMPLE APPRENTICESHIP PROGRAM SELECTION PROCEDURE

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

Refer to 29 CFR 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 the [*program sponsor*], the Apprenticeship Program Sponsor, will screen and select the apprentices who will be referred to the employer.

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 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 _____ (days) between the hours of_____ and _____.

   b. In order for the Apprenticeship Committee to develop a pool of qualified applicants to fill apprenticeship openings that have and will become available, all applications received before [*date*] will be processed by the Committee before [*date]*.
   Alternate language: Applications will be accepted throughout the year [or during specified periods] and qualified applicants are processed to the eligible pool every ___ days, starting with applicants from [date]. Opportunities for entrance to the pool will be announced at least twice yearly at 6 month intervals.

   c. A period of at least one 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 years unless otherwise requested by applicant.

d. 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.
e. 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*.]

D.2 SAMPLE DESCRIPTION FOR APPLICATION PROCESS

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

HOW TO APPLY TO BECOME A CONSTRUCTION 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. Proof of being at least 16 years of age.
    2. A certified copy of high school diploma and transcripts or certified copy of GED. [*or appropriate records of enrollment in high school for secondary school apprenticeship programs*.]
    3. Proof of work experience, such as a letter from employer(s).
    4. If a veteran or Job Corp graduate, proof of training.

3. The applicant will be required to meet with the apprenticeship committee for an interview. You 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. Applicants are 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.

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.

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 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:_____

Score:_____

Rank: [if applicable]_____

ABC Employer of Sponsored Apprentice: [if applicable]_____

		Max Pts.	Pts scored
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.	Vo-tech or CTC graduate 100 pts. Name of vo-tech or CTC: _____	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	80	_____

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 _____

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 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 Committee whether or not the potential
      employer intends to hire and indenture the applicant, and, if not, to include the reasons why not

3. The potential employer contacts, sets up, and conducts 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 sponsor's office. It is reviewed by the 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 applicant 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 29 CRF 29.5(b)(22) and 30.8.

D. 5 SAMPLE APPRENTICE APPLICATION

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

NAME:_____

ADDRESS:_____

TELEPHONE:_____

NAME OF PARENT OR GUARDIAN, IF UNDER 21:_____

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 Assessment _____
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 ABC member, check areas in which you would accept employment:

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 discharge 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's Participation

E.1 INFORMATION FOR SUBSCRIBING EMPLOYERS

1. Employers interested in reviewing the Equal Employment Opportunity Pool 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 indenturing 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.

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 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 sponsor or Registration Agency. On-the-job, the apprentice is hereby guaranteed assignment to a skilled and competent journeyperson 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 [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

Office of Apprenticeship Training, Employer and Labor Services
U. S. Department of Labor

For Latest Listing go to http://www.doleta.gov/atels_bat/stateoffices.asp

Boston
Robert J. Semler
Regional Administrator
U. S. Department of Labor/ETA
JFK Federal Building, Room #E-350
Boston, Massachusetts 02203
Commercial: (617) 565-3630
Fax: (617) 565-2229
States within the Regional Office service area and State One-Stop Career Centers:
Connecticut ; Maine ; Massachusetts ; New Hampshire ; Rhode Island ; Vermont

Dallas (Hub Office)
Joseph C. Juarez
Regional Administrator
U. S. Department of Labor/ETA
Federal Building, Room 317
525 Griffin Street
Dallas, Texas 75202
Commercial: (214) 767-8263
Fax: (214) 767-5113
States within the Regional Office service area and State One-Stop Career Centers:
Arkansas ; Louisiana ; New Mexico ; Oklahoma ; Texas

New York
Marilyn Shea
Regional Administrator
U. S. Department of Labor/ETA
201 Varick Street, Room 755
New York, New York 10014
Commercial: (212) 337-2139
Fax: (212) 337-2144
States within the Regional Office service area and State One-Stop Career Centers:
New Jersey ; New York ; Puerto Rico; Virgin Islands

Kansas City (Affiliate Office)
Herman C. Wallace
Regional Administrator
U. S. Department of Labor/ETA
City Center Square
1100 Main Street, Suite 1050
Kansas City, Missouri 64105
Commercial: (816) 426-3796
Fax: (816) 426-2729

States within the Regional Office service area and State One-Stop Career Centers: Iowa ; Kansas ; Missouri ; Nebraska

Philadelphia (Hub Office)
Thomas M. Dowd
Regional Administrator
U. S. Department of Labor/ETA
P. O. Box 8796
3535 Market Street, Room 13300
Philadelphia, Pennsylvania 19104
Commercial: (215) 596-6336
Fax: (215) 596-0329
States within the Regional Office service area and State One-Stop Career Centers: Delaware ; Washington, D.C. ; Maryland ; Pennsylvania ; Virginia ; West Virginia

Denver (Affiliate Office)
Betty Lucerno-Turner
Regional Administrator
U. S. Department of Labor/ETA
1999 Broadway Street, Suite 1780
Denver, Colorado 80202-5716
Commercial: (303) 844-1650
Fax: (303) 844-1685
States within the Regional Office service area and State One-Stop Career Centers: Colorado ; Montana ; North Dakota ; South Dakota ; Utah ; Wyoming

Atlanta (Hub Office)
Anna W. Goddard
Regional Administrator
U. S. Department of Labor/ETA
61 Forsyth Street, Room 6M12
Atlanta, Georgia 30303
Commercial: (404) 562-2092
Fax: (404) 347-562-2149
States within the Regional Office service area and State One-Stop Career Centers: Alabama ; Florida ; Georgia ; Kentucky ; Mississippi ; North Carolina ; South Carolina ; Tennessee

San Francisco (Hub Office)
Armando Quiroz
Regional Administrator
U. S. Department of Labor/ETA
71 Stevenson Street, Room 830
P. O. Box 193767
San Francisco, CA 94119-3767
Commercial: (415) 975-4610
Fax: (415) 975-4612
States within the Regional Office service area and State One-Stop Career Centers: America Samoa; Arizona ; California ; Guam ; Hawaii ; Nevada

Chicago (Hub Office)
Bryon Zuidema
Acting Regional Administrator
U. S. Department of Labor/ETA
230 South Dearborn Street, Room 628
Chicago, Illinois 60604
Commercial: (312) 353-0313
Fax: (312) 353-4474
States within the Regional Office service area and State One-Stop Career Centers: Illinois ; Indiana ; Michigan ; Minnesota ; Ohio ; Wisconsin

Seattle (Affiliate Office)
Michael Brauser
Regional Administrator
U. S. Department of Labor/ETA
1111 Third Street, Suite 900
Seattle, Washington 98101-3212
Commercial: (206) 553-7700
Fax: (206) 553-0098
States within the Regional Office service area and State One-Stop Career Centers: Alaska ; Idaho ; Oregon ; Washington

F.2 STATE APPRENTICESHIP COUNCIL OR AGENCY

Information provided by NASTAD, the National Association of State and Territorial Apprenticeship Directors, and found at http://www.nastad.net/ for regular updates.

Arizona
Paula Burnam, State Director
Workforce Development Apprentice Office
Arizona Department of Commerce
3800 North Central Avenue, #1150
Phoenix, Arizona 85012
Phone: (602) 280-8134
Fax: (602) 280-1358
E-Mail: paulab@azcommerce.com

California
Mr. Henry Nunn, Chief
Division of Apprenticeship Standards
455 Golden Gate Avenue
8th Floor
San Francisco, California 94102
Phone: (415) 703-4915
Fax: (415) 703-5477
E-Mail: hnunn@hq.dir.ca.gov

Connecticut
Mr. Jack M. Guerrera, Apprenticeship Program Manager
Connecticut Department of Labor
Apprenticeship & Training Division
200 Folly Brook Boulevard
Wethersfield, Connecticut 06109-1114
Phone: (860) 263-6085
Fax: (860) 263-6039
E-Mail: jack.guerrera@po.state.ct.us

Delaware
Mr. Kevin Calio, State Administrator
Apprenticeship and Training Section Division of Employment and Training
Delaware Department of Labor
4425 N. Market Street, Station 313
P.O. Box 9828
Wilmington, Delaware 19809
Phone: (302) 761-8118
Fax: (302) 761-6617
E-Mail: kcalio@state.de.us

District of Columbia
Mr. Lewis Brown, Director
DC Apprenticeship Council
609 H Street, N.E.
Washington, DC 20001
Phone: (202) 698-5099
202-698-3528 (Direct)
Fax: (202) 698-5721
E-Mail: lewis.brown@dc.

Florida
Administrator, Apprenticeship Section
Bureau of Job Training Division of Jobs and Benefits
Department of Labor & Employment Security
1320 Executive Center Drive
Atkins Building, Room 200
Tallahassee, Florida 32399-0667
Phone: (805) 488-9250
Fax: (850) 488-0249
E-Mail: mailto:

Guam
Ms. Terry L. Barnhart, Program Specialist
Apprenticeship and Training Division
Guam Community College
P.O. Box 23069
GMF Guam, M.I. 96921
Phone: (671) 735-5571
Fax: (671) 734-5238
E-Mail:

Hawaii
Ms. Elaine Young, Administrator
Workforce Development Division
Department of Labor and Industrial Relations
830 Punchbowl Street, Room 329
Honolulu, Hawaii 96813
Phone: (808) 586-8837
Fax: (808) 586-8876
E-Mail:

Kansas
Ms. Loretta Shelley, Director (Member at Large)
Kansas State Apprenticeship Council Department of Human Resources
401 SW Topeka Boulevard
Topeka, Kansas 66603-3182
Phone: (785) 296-4161
Fax: (7850 291-3512
E-Mail: lashelle@hr.state.ks.us

Kentucky
Mr. Pat Patterson, Director
Kentucky Labor Cabinet Division of Employment Standards & Mediation
1047 U.S. 127 South, Suite 4
Frankfort, Kentucky 40601
Phone: (502) 564-3070
Fax: (502) 564-2248
E-Mail: patr.patterson@mail.state.ky.us

Louisiana
Mr. Percy Rodriguez, Director (Member at Large)
Louisiana Department of Labor Apprenticeship Division
P.O. Box 94094
Baton Rouge, Louisiana 70804-9094
Phone: (225) 342-7820
Fax: (225) 342-2717
E-Mail: prodriguez@ldol.state.la.us

Maine
Mr. Kenneth "Skip" Hardt (Treasurer)
Director of Apprenticeship Standards
Department of Labor Bureau of Employment & Training Programs
55 State House Station
Augusta, Maine 04333-0055
Phone: (207) 624-6431
Fax: (207) 624-6499
E-Mail: skip.hardt@state.me.us

Maryland
Ms. Sharon G. Middleton, Director
Maryland Apprenticeship & Training Program
Department of Labor, Licensing & Regulation
1100 N. Eutaw Street, Room 606
Baltimore, Maryland 21201
Phone: (410) 767-2968
Fax: (410) 767-2220
E-Mail: smiddleton@dllr.state.md.us

Massachusetts
Ms. Gay Ann Wilkinson, Director
Division of Apprentice Training
Department of Labor and Industries
399 Washington Street, 4th Floor
Boston, Massachusetts 02202
Phone: (617) 727-3488
Fax: (617) 727-8022
E-Mail: gayann.wilkinson@state.ma.us

Minnesota
Mr. Jerry Briggs, Director
Division of Apprenticeship
Department of Labor and Industry
443 Lafayette Road
St. Paul, Minnesota 55155-4303
Phone: (651) 284-5090
1-800-342-5354
651-284-5194 (direct)
Fax: (651) 215-6368
E-Mail: jerry.briggs@state.mn.us

Montana
Mr. Mark S. Maki, Supervisor (President)
Apprenticeship & Training Program
Montana Department of Labor and Industries
P.O. Box 1728
Helena, Montana 59624-1728
Phone: (406) 444-3556
Fax: (406) 444-3037
E-Mail: mmaki@state.mt.us

Nevada
Mr. Terry Johnson, Labor Commissioner
Nevada State Apprenticeship Council
555 E. Washington Avenue, Suite 4100
Las Vegas, Nevada 89101
Phone: (702) 486-2650
Fax: (702) 486-2660
E-Mail: tjohnson@govmail.state.nv.us

New Hampshire
Mr. James Casey, NH Labor Commissioner
New Hampshire Apprenticeship Council
State Office Park South
95 Pleasant Street
Concord, New Hampshire 03301-3593
Phone: (603) 271-6297
Fax: (603) 271-2668
E-Mail: jcasey@labor.state.nh.us

New Mexico
Ms Celina Brewington
State Director of Apprenticeship
Labor and Industrial Division
New Mexico Department of Labor
501 Mountain Road, N.E.
Albuquerque, New Mexico 87102
Phone: (505) 841-8989
Fax: (505) 841-9388
E-Mail: cbrewington@state.nm.us

New York
Mr. Ed Drago, Director
Office of Employability Development/Apprentice Training
New York State Department of Labor
State Campus Building 12, Room 436
Albany, New York 12240
Phone: (518) 457-6820
(518) 457-4393
Fax: (518) 457-7154
E-Mail: USBEFD@labor.state.ny.us

North Carolina
Mr. Barry Judge, Director
Apprenticeship Division
North Carolina Department of Labor
4 West Edenton Street
Raleigh, North Carolina 27601
Phone: (919) 733-0327
Fax: (919) 733-6197
E-Mail: bjudge@mail.dol.state.nc.us

Ohio
Ms. Jean Sickles (Vice-President), Director of Apprenticeship
Ohio State Apprenticeship Council
Ohio Department of Job & Family Services
145 S. Front Street Columbus, Ohio 43215
Phone: (614) 644-2242
Fax: (614)728-9094
E-Mail: SICKLJ@odjfs.state.oh.us

Oregon
Mr. Stephen Simms, Director (Past President)
Apprenticeship and Training Division
Oregon State Bureau of Labor and Industries
800 N.E. Oregon Street #32
Portland, Oregon 97232
Phone: (503) 731-4891
Fax: (503)731-4623
E-Mail: steve.simms@state.or.us

Pennsylvania
Mr. John Judge, Director
Bureau of Labor Law Compliance
Pennsylvania Department of Labor and Industry
1301 Labor and Industry Building
7th and Forster Street
Harrisburg, Pennsylvania 17120
Phone: (800) 932-0665
(717) 787-0746
Fax: (717) 787-0517
E-Mail: jjudge@state.pa.us

Puerto Rico
Ms. Eva Cordero Cruz, Assistant Administrator
Employment, Training & Services to Participants Area Right to Employment
Administration P.O. Box 364452
San Juan, Puerto Rico 00936-4452
Phone: (787) 754-5151
Fax: (787) 764-4856
(787) 751-4858
E-Mail:

Rhode Island
Mr. Harold "Buddy" Ekno, Supervisor
Apprenticeship Training Programs
Rhode Island Department of Labor and Training
Division of Professional Regulations, Bldg #70
1511 Pontiac Avenue
PO Box 20247
Cranston, Rhode Island 02920-0943
Phone: (401) 462-8580
(401) 462-8536 (Direct)
Fax: (401)462-8528
E-Mail: bekno@dlt.state.ri.us

Vermont
Ms. Pat Nagy, Director
Apprenticeship and Training
Department of Employment & Training
5 Green Mountain Drive
P.O. Box 488
Montpelier, Vermont 05601-0488
Phone: (802) 828-5082
Fax: (802) 828-4374
E-Mail: pnagy@pop.det.state.vt.us

Virgin Islands
Mrs. Harriett Tull-George
Director, Training Division
Virgin Islands Department of Labor
2162 King Cross Street
Christiansted, Saint Croix U.S. Virgin Islands 00820-4958
Phone: (809) 773-1440 Ext. 244
Fax: (809) 773-1515
E-Mail:

Virginia
Ms. Jennifer Nolen, Director
Apprenticeship Program
Virginia Department of Labor and Industry
13 South Thirteenth Street
Richmond, Virginia 23219
Phone: (804) 786-8009
Fax: (804) 786-8418
E-Mail: jpn@doli.state.va.us

Washington
Ms. Nancy J. Mason, Apprenticeship Program Manager
Department of Labor and Industries
P.O. Box 44530
Olympia, Washington 98504-4530
Phone: (360) 902-5320
Fax: (360) 902-4248
E-Mail: maso235@lni.wa.gov

Washington, DC
Policy Analyst
Council of State Governments
Hall of States
444 N. Capitol Street, N.W.
Suite 401
Washington, DC 20001
Phone: (202) 624-5460
Fax: (202) 624-5452
E-Mail:

Wisconsin
Ms. Karen Morgan, Secretary/Bureau Director
Department of Workforce Development
Division of Workforce Excellence
Bureau of Apprenticeship Standards
P.O. Box 7972
Madison, Wisconsin 53707
Phone: (608) 266-3133
Fax: (608)267-0330
E-Mail: Karen.morgan@dwd.state.wi.us

APPENDIX G
School-To-Apprenticeship
Program Documents

School-to-Apprenticeship Program Documents

_____CAREER TECHNOLOGY CENTER
SCHOOL- TO- APPRENTICESHIP PROGRAM

What is a school to work 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 OATELS, high occupational and academic standards are set for the participating students.

How will the program benefit employers / students?

Employers	**Students**
*Improved skill levels of potential workers	*Learning from skilled professionals
*Work with a career minded, committed employee	*Earn wages while in school
*Reduction in employee turnover	*Increased career options
*Participating in curriculum development	*Greater worth in the labor market
*Improving their competitive edge	*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
Period 7/8 Math 4

For further information contact
School Staff Apprenticeship Coordinator
(000) 555-1212

SCHOOL-TO- APPRENTICESHIP PROGRAM

_____TECHNOLOGY CENTER DISTRICT

INTRODUCTION

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

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 OATELS, Department of Education, and the local 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 OATELS Representative shall develop and register programs and perform other duties as specified under "Duties of OATELS 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 indentureship 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 gap between school and the world of work.

G. Promote equal opportunities for disadvantaged, handicapped, minorities and women in apprenticeship areas.

H. Cooperate with OATELS Representative assigned to service the program.

I. Carry out any other operation or task related to this program.

DUTIES OF BAT REPRESENTATIVE

THE BAT REPRESENTATIVE SHALL:

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 Council.

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

School District Official:

_____
Assistant Superintendent

Date_____

OATELS Representative:

_____
Office of Apprenticeship Training,
Employer and Labor Services
(OATELS)
U. S. Department of Labor

Date _____

_____
State Director
Office of Apprenticeship Training,
Employer and Labor Services (OATELS)

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 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. When there is a collective bargaining agreement, union and management must be signatory to the apprenticeship standards and apprenticeship agreement.

6. Students involved in this program should receive approximately 180 hours of related classroom instruction and up to 1500 hours of on-the-job training 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:	APPROVED BY:
_____	_____
Name of Sponsor)	(School)
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Instructions for filing 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 CTC their Jr. 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: _____ 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:_____

_____

(Part B)

ATTENDANCE REPORT

Days Absent: _____ Date Verified: _____

Attendance Secretary Signature: _____
_____

FEE STATUS

Jr. 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: Zip Code:
City: 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 insure 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 _____ TR _____ 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 000.000.0000 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