REVISED
STANDARDS OF APPRENTICESHIP

DEVELOPED BY

Texas Tech University – Physical Plant Department
Lubbock, Texas

FOR THE OCCUPATIONS OF

ELECTRICIAN
O*NET CODE: 47-2111.00 RAPIDS CODE: 0159

ELECTRONICS TECHNICIAN
O*NET CODE: 17-3023.01 RAPIDS CODE: 0169

HEATING & AIR-CONDITIONER INSTALLER/SERVICER
O*NET CODE: 49-9021.01 RAPIDS CODE: 0637

PAINTER (Const)
O*NET CODE: 47-2141.00 RAPIDS CODE: 0379

REFRIGERATION MECHANIC (Any Ind)
O*NET CODE: 49-9021.02 RAPIDS CODE: 0666

STATIONARY ENGINEER
O*NET CODE: 51-8021.02 RAPIDS CODE: 0536

WATER TREATMENT PLANT OPERATOR
O*NET CODE: 51-8031.00 RAPIDS CODE: 0619

APPROVED BY:

U. S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP

Steven D. Opitz, Regional Director

03/14/1977
Registration Date

TX012770013
Registration Number

9/07/2012
Revision Date

The legal requirements related to apprenticeship that apply to registered apprenticeship programs are contained in 29 U.S.C. 50 and Title 29, CFR parts 29 and 30. Every effort has been made to ensure that the information in these apprenticeship standards are accurate and up-to-date.

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FOREWORD

These Texas Tech University – Physical Plant Department apprenticeship standards have as their objective, the training of skilled journeyworkers for each occupation covered by these standards. The sponsor recognizes that in order to accomplish this, there must be well-developed on-the-job learning combined with related instruction.

This recognition has resulted in the development of these standards of apprenticeship. They were developed in accordance with the basic standards recommended by the U.S. Department of Labor, Office of Apprenticeship, as a basis from which the sponsor can work to establish an apprenticeship training program that meets the particular needs of the area.

DEFINITIONS

APPRENTICE: Any individual employed by the employer meeting the qualifications described in the standards of apprenticeship who has signed an apprenticeship agreement with the local sponsor providing for training and related instruction under these Standards, and who is registered with the registration agency.

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

APPRENTICESHIP AGREEMENT: The written agreement between the apprentice and the sponsor setting forth the responsibilities and obligations of all parties to the apprenticeship agreement with respect to the apprentice's employment and training under these standards. Each apprenticeship agreement must be registered with the Registration Agency.

APPRENTICESHIP COMMITTEE (COMMITTEE): Apprenticeship Committee (Committee) means those persons designated by the sponsor to act as an agent for the sponsor in the administration of the program. A committee may be either joint or non joint as follows:

(1) A joint committee is composed of an equal number of representatives of the employer(s) and of the employees represented by a bona fide collective bargaining agent(s).
(2) A non-joint committee which may also be known as a unilateral or group non-joint (may include workers) committee has employer representatives but does not have a bone fide collective bargaining agent as a participant.

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

ELECTRONIC MEDIA: Media that utilize electronics or electromechanical energy for the end user (audience) to access the content; and includes, but is not limited to, electronic storage media, transmission media, the Internet, extranet, lease lines, dial-up lines, private networks, and the physical movement of removable/transportable electronic media and/or interactive distance learning.

EMPLOYER: Means any person or organization employing an apprentice whether or not such person or organization is a party to an apprenticeship agreement with the apprentice.

JOURNEYWORKER: A worker who has attained a level of skill, abilities and competencies recognized within an industry as having mastered the skills and competencies required for the occupation. (Use of the term may also refer to a mentor, technician, specialist or other skilled worker who has documented sufficient skills and knowledge of an occupation, either through formal apprenticeship or through practical on-the-job experience and formal training.)

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 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 in which the apprentice must become proficient before a completion certificate is awarded. The learning must be through structured, supervised work experience.

PROGRAM SPONSOR: The sponsor in whose name the standards of apprenticeship will be registered, and which will have the full responsibility for administration and operation of the apprenticeship program.

PROVISIONAL REGISTRATION: Means the one-year initial provisional approval of newly registered programs that meet the required standards for program registration, after which program approval may be made permanent, continued as provisional, or rescinded following a review by the registration agency, as provided for in the criteria describe in §29.3 (g) and (h).

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

REGISTRATION AGENCY: Means the U.S. Department of Labor, Office of Apprenticeship or a recognized State Apprenticeship Agency that has responsibility for registering apprenticeship programs and apprentices; providing technical assistance; conducting reviews for compliance with Title 29, CFR parts 29 and 30 and quality assurance assessments.

RELATED INSTRUCTION: An organized and systematic form of instruction designed to provide the apprentice with the knowledge of the theoretical and technical subjects related to the apprentice's occupation. Such instruction may be given in a classroom, through occupational or industrial courses, or by correspondence courses of equivalent value, electronic media, or other forms of self-study approved by the 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.

SUPERVISOR OF APPRENTICE(S): An individual designated by the program sponsor to supervise or have charge and direction of an apprentice.

TIME-BASED OCCUPATION: The time-based approach measures skill acquisition through the individual apprentice's completion of at least 2,000 hours of on-the-job learning as described in a work process schedule.

TRANSFER: A shift of apprenticeship agreement from one program to another or from one employer within a program to another employer within that same program, where there is agreement between the apprentice and the affected apprenticeship committee or program sponsor.

SECTION I – PROGRAM ADMINISTRATION

Program sponsors, at their discretion, may establish an Apprenticeship Training Committee (ATC) to carry out the responsibilities and duties required of a program sponsor as described in these standards of apprenticeship. While the Office of Apprenticeship recommends that program sponsors utilize the services of an ATC, a sponsor may also elect to administer the program without the services of an ATC. The Texas Tech University – Physical Plant Apprenticeship Training Committee (ATC) will carry out the responsibilities and duties required of the program sponsor as described in these standards of apprenticeship. A list of the membership and the areas of expertise represented is provided to the registration agency.

Structure of the Apprenticeship and Training Committee (ATC)

A. Members of the ATC will be selected by the groups they represent.

B. Membership will be composed of representatives appointed by the sponsor. A minimum of two members must be journeyworkers in one of the trades covered under this program.

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

Administrative Procedures:

A. The ATC will elect a chairperson and a secretary, and will determine the time and place of regular meetings which will take place every month.

B. The chairperson and secretary will have the power to vote on all questions affecting apprenticeship.

C. The chairperson and secretary should rotate among members of the ATC.

Responsibilities of the Apprenticeship and Training Committee:

A. Cooperate in the selection of apprentices as outlined in this program.

B. Ensure that apprentices are under written apprenticeship agreements and register the local apprenticeship standards and agreements with the appropriate registration agency.

C. Review and recommend apprenticeship activities in accordance with this program.

D. Establish the minimum standards of education and experience required of apprentices.

E. Meet at least every month to review records and progress of each apprentice in training and recommend improvement or modification in training schedules, schooling and other training activities. Written minutes of the meeting will be kept.

F. Determine the quality and quantity of experience on the job which apprentices should have and to make every effort toward their obtaining it.

G. Hear and resolve all complaints of violation of apprenticeship agreements.

H. Arrange tests or evaluations for determining the apprentice's progress in manipulative skills and technical knowledge.

I. Maintain a record of all apprentices, showing their education, experience, and progress in learning the occupation.

J. Determine the physical fitness of qualified applicants to perform the work of the occupation that may require a medical examination prior to their employment as apprentices.

K. Advise apprentices on the need for accident prevention and provide instruction with respect to safety in the workplace.

L. Certify that apprentices have successfully completed their apprenticeship program.

M. Notify the appropriate registration agency of all new apprentices to be registered, credit granted, suspensions for any reason, reinstatements, extensions, completions and cancellations with explanation of causes and notice of completions of apprenticeship agreements.

N. Supervise all the provisions of the local standards and be responsible, in general, for the successful operation of the standards by performing the duties here listed by 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; apprentices, employers and journeyworkers.

O. Provide apprentices with a copy of the written rules and policies and the apprentice will sign an acknowledgment receipt of same. This procedure will be followed whenever revisions or modifications are made to the rules and policies.

SECTION II - EQUAL OPPORTUNITY PLEDGE – Title 29 CFR 29.5(b)(21) and 30.3(b)

The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The 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 (CFR), part 30, as amended.

SECTION III- QUALIFICATIONS FOR APPRENTICESHIP – Title 29 CFR 29.5(b)(10)

Applicants will meet the following minimum qualifications:

A. Age

Not less than 18 years of age.
(Applicant must provide evidence of minimum age respecting any applicable state laws or regulations.)

B. Education

A high school diploma or GED equivalency is required. Applicant must provide an official transcript(s) for high school and post high school education and training. All GED records must be submitted if applicable.

Applicants must submit a DD-214 to verify military training and/or experience if they are a veteran and wish to receive consideration for such training/experience.

C. Physical

Applicants will 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.

D. Employment

All applicants must be a full time employee of Texas Tech University's Physical Plant Department and have completed six (6) months of employment. The employee's job performance must rate a "3 – meets expectations" or above in accordance with the Texas Tech University Performance Rating System.

SECTION IV - APPRENTICESHIP AGREEMENT – Title 29 CFR 29.3(d) and (e) and 29.5(b)(11)

After an applicant for apprenticeship has been selected, but before employment as an apprentice or enrollment in related instruction, the apprentice will be covered by a written apprenticeship agreement (Appendix B) signed by the sponsor and the apprentice and approved by and registered with the registration agency. Such agreement will contain a statement making the terms and conditions of these standards a part of the agreement as though expressly written therein. A copy of each apprenticeship agreement will be furnished to the apprentice, the sponsor, the registration agency, and the employer. An additional copy will be provided to the Veteran's State Approving Agency for those veteran apprentices desiring access to any benefits to which they are entitled.

Prior to signing the apprenticeship agreement, each selected applicant will be given an opportunity to read and review these standards, the sponsor's written rules and policies and the apprenticeship agreement.

The registration agency will be advised within forty-five (45) days of the execution of each apprenticeship agreement and will be given all the information required for registering the apprentice.

SECTION V - RATIO OF APPRENTICES TO JOURNEYWORKERS – Title 29 CFR 29.5(b)(7)

The ratio shall be as specified on Appendix A for each occupation covered by these standards. For each occupation identified in these standards of apprenticeship, a numeric ratio of one (1) apprentice to one (1) journeyworker employed by Texas Tech University – Physical Plant Department is consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship.

SECTION VI - TERM OF APPRENTICESHIP – Title 29 CFR 29.5(b)(2)

The term of each occupation shall be as specified on the Appendix A for each occupation covered by these standards and will be supplemented by the required hours of related instruction as stated on the Work Process Schedule and Related Instruction Outline (Appendix A). Full credit will be given for the probationary period.

SECTION VII - PROBATIONARY PERIOD – Title 29 CFR 29.5(b)(8), (b)(20)

All applicants selected for apprenticeship will serve a probationary period as is stated on the Work Process Schedule and Related Instruction Outline for each occupation listed (Appendix A).

During the probationary period either the apprentice or the sponsor may terminate the apprenticeship agreement, without stated cause, by notifying the other party in writing. The records for each probationary apprentice will be reviewed prior to the end of the probationary period. Records may consist of periodic reports regarding progression made in both the OJL and related instruction, and any disciplinary action taken during the probationary period.

Any probationary apprentice evaluated as satisfactory after a review of the probationary period will be given full credit for the probationary period and continue in the program.

After the probationary period the apprenticeship agreement may be canceled at the request of the apprentice, or may be suspended or canceled by the sponsor for reasonable cause after documented due notice to the apprentice and a reasonable opportunity for corrective action. In such cases, the sponsor will provide written notice to the apprentice and to the registration agency of the final action taken.

SECTION VIII - HOURS OF WORK

Apprentices will generally work the same hours as journeyworkers, except that no apprentice will be allowed to work overtime if it interferes with attendance in related instruction classes.

Apprentices who do not complete the required hours of OJL during a given segment will have the term of that segment extended until the required number of hours of training are accrued.

SECTION IX - APPRENTICE WAGE PROGRESSION – Title 29 CFR 29.5(b)(5)

Apprentices will be paid a progressively increasing schedule of wages during their apprenticeship based on the acquisition of increased skill and competence on-the-job and in related instruction. Before an apprentice is advanced to the next segment of training or to journeyworker status, the sponsor will evaluate all progress to determine whether advancement has been earned by satisfactory performance in their OJL and in related instruction courses. In determining whether satisfactory progress has been made, the sponsor will be guided by the work experience and related instruction records and reports.

The progressive increasing wage schedule will be expressed in dollar amounts per hour. The increasing schedule of wages for each occupation is shown on the attached Work Process Schedule and Related Instruction Outline (Appendix A). In no case will the starting wages of apprentices be less than that required by any minimum wage law which may be applicable.

SECTION X - CREDIT FOR PREVIOUS EXPERIENCE – Title 29 CFR 29.5(b)(12) and 30.4(c)(8)

The sponsor 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.

Apprentice applicants seeking credit for previous experience gained outside the supervision of the sponsor must submit the request at the time of application and furnish such records, affidavits, and other documents to substantiate the claim. Applicants requesting such credit who are selected into the apprenticeship program will start at the beginning wage rate. The request for credit will be evaluated and a determination made by the sponsor during the probationary period when actual on-the-job 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.

An apprentice granted credit will be advanced to the wage rate designated for the period to which such credit accrues. The registration agency will be advised of any credit granted and the wage rate to which the apprentice is advanced.

The granting of advanced standing will be uniformly applied to all apprentices.

SECTION XI - WORK EXPERIENCE – Title 29 CFR 29.5(b)(3) and 30.8

During the apprenticeship the apprentice will receive such OJL and related instruction in all phases of the occupation necessary to develop the skill and proficiency of a skilled journeyworker. The OJL will be under the direction and guidance of the supervisor of the apprentice(s).

SECTION XII - RELATED INSTRUCTION – Title 29 CFR 29.5(b)(4)

During each segment of training each apprentice is required to participate in coursework related to the job as outlined in Appendix A. For each occupation, the recommended term of apprenticeship will include no less than 144 hours of related instruction for all occupations for each year of the apprenticeship. Apprentices agree to take such courses as the sponsor deems advisable. The sponsor will secure the instructional aids and equipment it deems necessary to provide quality instruction. In cities, towns or areas having no vocational school or other schools that can furnish related instruction; the apprentice may be required to take an alternate form of instruction that meets the approval of the sponsor and the registration agency.

Apprentices will not be paid for hours spent attending related instruction classes outside of normal working hours.

Any apprentice who is absent from related instruction classes, unless officially excused, will satisfactorily complete all course work missed before being advanced to the next period of training. In cases of failure of an apprentice to fulfill the obligations regarding related instruction (or OJL) without due cause, the sponsor will take appropriate disciplinary action and may terminate the apprenticeship agreement after due notice to the apprentice and opportunity for corrective action.

To the extent possible, related instruction will be closely correlated with the practical experience and training received on-the-job. The sponsor will monitor and document the apprentice's progress in related instruction classes.

The sponsor will secure competent instructors whose knowledge, experience, and ability to teach will be carefully examined and monitored.

SECTION XIII - SAFETY AND HEALTH TRAINING – Title 29 CFR 29.5(b)(9)

All apprentices will receive instruction in safe and healthful 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.

Apprentices will be taught that accident prevention is very largely a matter of education, vigilance, and cooperation and that they should strive at all times to conduct themselves in their work to ensure their own safety and that of their fellow workers.

SECTION XIV - SUPERVISION OF APPRENTICES – Title 29 CFR 29.5(b)(14)

The sponsor will be responsible for the training of the apprentice on the job. Apprentices will be under the general supervision of the sponsor and under the direct supervision of the journeyworker to whom they are assigned. The supervisor of apprentice(s) designated by the employer will be responsible for the apprentice's work assignments, and will ensure the apprentice is working under the supervision of a skilled journeyworker, evaluation of work performance, and completion and submittal of progress reports to the sponsor.

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

SECTION XV - RECORDS AND EXAMINATIONS – Title 29 CFR 29.5(b)(6)

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

Before each period of advancement, or at any other time when conditions warrant, the sponsor will evaluate the apprentice's record to determine whether he/she has made satisfactory progress. If an apprentice's related instruction or on-the-job progress is found to be unsatisfactory, the sponsor 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 sponsor 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 journeyworker, the sponsor will, after the apprentice has been given adequate assistance and opportunity for corrective action, terminate the apprenticeship agreement.

SECTION XVI - MAINTENANCE OF RECORDS – Title 29 CFR 29.5(b)(23)

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

SECTION XVII - CERTIFICATE OF COMPLETION OF APPRENTICESHIP – Title 29 CFR 29.5(b)(15)

Upon satisfactory completion of the requirements of the apprenticeship program as established in these standards, the sponsor will so certify in writing to the registration agency and request that a Certificate of Completion of Apprenticeship be awarded to

the completing apprentice(s). Such requests will be accompanied by the appropriate documentation for both the OJL and the related instruction as may be required by the registration agency.

SECTION XVIII - NOTICE TO REGISTRATION AGENCY – Title 29 CFR 29.3(2)(d) and (e) and 29.5(b)(19)

The registration agency will be notified within forty-five (45) days of all new apprentices to be registered, credit granted, suspensions for any reason, reinstatements, extensions, modifications, completions, cancellations, and terminations of apprenticeship agreements and causes.

SECTION XIX - CANCELLATION AND DEREGISTRATION – Title 29 CFR 29.5(b)(18)

These standards will, upon adoption by the sponsor be submitted to the registration agency for approval. Such approval will be acquired before implementation of the program.

Texas Tech University Physical Plant Department reserves the right to discontinue at any time the apprenticeship program set forth herein. The registration agency will be notified promptly in writing of any decision to cancel the program.

Deregistration of these standards may be initiated by the registration agency for failure of the sponsor to abide by the provisions herein. Such deregistration will be in accordance with the registration agency's regulations and procedures.

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

SECTION XX - AMENDMENTS OR MODIFICATIONS – Title 29 CFR 29.5(b)(18)

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

SECTION XXI - ADJUSTING DIFFERENCES/COMPLAINT PROCEDURE – Title 29 CFR 29.5(b)(22) and 30(11)

The sponsor will have full authority to supervise the enforcement of these standards. Its decision will be final and binding on the employer, the sponsor, and the apprentice, unless otherwise noted below.

If an applicant or an apprentice believes an issue exists that adversely affects his/her participation in the apprenticeship program or violates the provisions of the apprenticeship agreement or standards, relief may be sought through one or more of the following avenues, based on the nature of the issue:

Title 29 CFR 29.7(k)

The sponsor will hear and resolve all complaints of violations concerning the apprenticeship agreement and the registered apprenticeship standards, for which written notification is received within fifteen (15) days of violations. The sponsor will make such rulings as it deems necessary in each individual case and within thirty (30) days of receiving the written notification. Either party to the apprenticeship agreement may consult with the registration agency for an interpretation of any provision of these standards over which differences occur. The name and address of the appropriate authority to receive, process and make disposition of complaints is:

Texas Tech University Physical Plant
ATTN: Apprenticeship Coordinator
Box 43142
Lubbock, TX 79409

Title 29 CFR 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 an apprenticeship program, may personally or through an authorized representative, file a complaint with the registration agency.

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 eighty (180) days from the date of the alleged discrimination or specified failure to follow the equal opportunity standards. The time may be extended by the registration agency for good cause shown.

Complaints of discrimination in the apprenticeship program may be filed and processed under Title 29, CFR part 30, and the procedures as set forth above.

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

SECTION XXII - TRANSFER OF AN APPRENTICE AND TRAINING OBLIGATION – Title 29 CFR 29.5(13)

The transfer of an apprentice between apprenticeship programs and within an apprenticeship program must be based on agreement between the apprentice and the affected apprenticeship committee or program sponsors, and must comply with the following requirements:

I. The transferring apprentice must be provided a transcript of related instruction and on-the-job learning by the committee or program sponsor:
II. Transfer must be to the same occupation; and
III. A new apprenticeship agreement must be executed when the transfer occurs between the program sponsors.

SECTION XXIII - RESPONSIBILITIES OF THE APPRENTICE

Apprentices, having read these standards formulated by the sponsor and signed an apprenticeship agreement with the 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 sponsor may deem necessary to become a skilled worker in the trade.

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 occupation and other pertinent duties assigned by the sponsor and the employer in accordance with the provisions of these standards.

B. Respect the property of the employer and abide by the working rules and regulations of the employer.

C. Attend and satisfactorily complete the required hours in the OJL and in related instruction in subjects related to the occupation as provided under these standards.

D. Maintain and make available such records of work experience and training received on-the-job and in related instruction as may be required by the 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 fellow workers.

F. Sign an acknowledgment receipt of the program written rules and policies and agree to adhere to same.

SECTION XXIV - TECHNICAL ASSISTANCE

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

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

SECTION XXV - OFFICIAL ADOPTION OF APPRENTICESHIP STANDARDS:

Texas Tech University Physical Plant hereby adopts these Standards of Apprenticeship on this 4th Day of May 2012.

Signature of Sponsor

Douglas M Chowning

Printed Name

Sponsor(s) may designate the appropriate person(s) to sign the Standards on their behalf.

APPENDIX A

OCCUPATION SCHEDULE FOR: ELECTRICIAN

O*NET-SOC CODE: 47-2111.00
RAPIDS CODE: 0159

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) Years with an OJL attainment of not less than 8000 hours of reasonably continuous employment and training on the job supplemented by the required hours of related instruction.

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st	6 months (1000 hours) =	$8.25	2nd	6 months (1000 hours) =	$8.75
3rd	6 months (1000 hours) =	$9.26	4th	6 months (1000 hours) =	$9.76
5th	6 months (1000 hours) =	$10.26	6th	6 months (1000 hours) =	$10.76
7th	6 months (1000 hours) =	$11.27	8th	6 months (1000 hours) =	$11.77

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

6. SCHEDULE OF RELATED TECHNICAL INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR
Electrician

Work Processes	Approximate Hours
1. SAFETY AND FIRST AID	500
2. PRINT READING	350
3. TOOLS, EQUIPMENT, BASIC SKILLS	500
4. CONDUITS AND SUPPORTS	800
5. WIRING AND INSTALLATIONS	1,000
6. LIGHTING	600
7. THEORY AND CODES	1200
8. MOTORS AND CONTROLS	1000
9. DESIGNS AND CALCULATIONS	500
10. TRANSFORMERS AND DISTRIBUTION	400
11. CURRENT PROTECTION	400
12. SPECIAL SYSTEMS: FIRE ALARMS AND EMERGENCY POWER SYSTEMS	750
TOTAL HOURS	8,000

RELATED TECHNICAL INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATIONAL TITLE: ELECTRICIAN

RAPIDS CODE: (0159)

Related instruction - This instruction shall include, but not be limited to:

Basic Safety	10.0
Basic Math	10.0
Introduction to Hand Tools	10.0
Introduction to Power Tools	10.0
Introduction to Blue Prints	10.0
Basic Rigging	10.0
Electrical Safety	12.5
Hand Bending	7.5
Fasteners and Anchors	5.0
Electrical Theory I	7.5
Electrical Theory II	7.5
Electrical Test Equipment	5.0
Introduction to NEC	2.5
Raceways, Boxes, and Fittings	15.0
Conductors	15.0
Introduction to Electrical Blueprints	7.5
Electrical Wiring: Commercial and Industrial	7.5
Electrical Wiring: Residential	15.0
Alternating Current	15.0
Motors: Theory and Application	20.0
Grounding	12.5
Conduit Bending	15.0
Boxes and Fittings	10.0
Conductor Installations	12.5
Cable Tray	15.0
Conductor Terminations and Splices	10.0
Installation of Electrical Services	7.5
Circuit Breakers and Fuses	12.5
Contactors and Relays	10.0
Electric Lighting	10.0
Load Calculations - Branch Circuits	12.5
Conductor Selection and Calculations	15.0
Over Current Protection	12.5
Raceway, Box and Fitting Fill Requirements	12.5
Wiring Devices	10.0
Distribution Equipment	12.5
Distribution System Transformers	15.0
Lamps, Ballasts, and Components	5.0

Motor Calculations	12.5
Motor Maintenance, Part I	12.5
Motor Controls	20.0
Electricity in HVAC System	20.0
Hazardous Locations	15.0
Load Calculations - Feeder and Services	15.0
Practical Applications of Lighting	10.0
Standby and Emergency Systems	12.5
Basic Electronic Theory	20.0
Fire Alarm System	15.0
Specialty Transformers	15.0
Advanced Controls	20.0
HVAC Controls	15.0
Welding Machines	10.0
Heat Tracing and Freeze Protection	10.0
Motor Maintenance; Part II	12.5
High Voltage Termination/Splices	10.0
Electrical Level One Revised for NEC2011	10.0
Electrical Level Two Revised for NEC2011	10.0
Electrical Level Three Revised for NEC2011	10.0
Electrical Level Four Revised for NEC2011	10.0
National Electrical Code 2011	10.0

TOTAL HOURS 707.5

APPENDIX A

OCCUPATION SCHEDULE FOR: ELECTRONICS TECHNICIAN

O*NET-SOC CODE: 17-3023.01
RAPIDS CODE: 0169

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) Years with an OJL attainment of not less than 8000 hours of reasonably continuous employment and training on the job supplemented by the required hours of related instruction.

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st	6 months (1000 hours) =	$8.25	2nd	6 months (1000 hours) =	$8.75
3rd	6 months (1000 hours) =	$9.26	4th	6 months (1000 hours) =	$9.76
5th	6 months (1000 hours) =	$10.26	6th	6 months (1000 hours) =	$10.76
7th	6 months (1000 hours) =	$11.27	8th	6 months (1000 hours) =	$11.77

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE
(See attached Trade Schedule)

6. SCHEDULE OF RELATED TECHNICAL INSTRUCTION
(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR
Electronics Technician

Work Processes	Approximate Hours
1. Safety	200
2. Components	800
3. Circuits	2500
4. Microprocessors	1800
5. Instrumentation/controls	950
6. Troubleshooting systems	1750
TOTAL HOURS	8,000

RELATED TECHNICAL INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATIONAL TITLE: ELECTRONICS TECHNICIAN

RAPIDS CODE: (0169)

Related instruction - This instruction shall include, but not be limited to:

33101-10	Introduction to the Trade	2.5
33108-10	Low-Voltage Cabling	20
33201-10	Dc Circuits	15
33202-10	Ac Circuits	20
33203-10	Switching Devices and Timers	15
33204-10	Semiconductors and Integrated Circuits	10
33206-10	Introduction to Electrical Drawings	10
33207-10	Introduction to Codes and Standards	10
33208-10	Cable Selection	10
33209-10	Wire and Cable Terminations	25
33210-10	Power Quality and Grounding	20
33301-11	Buses and Networks	25
33302-11	Fiber Optics	25
33303-11	Wireless Communication	10
46101-11	Fundamentals of Crew Leadership	20
33305-11	Rack Assembly	17.5
33306-11	System Commissioning and User Training	20
33307-11	Maintenance and Repair	20
33401-03	Fire Alarm Systems	40
33403-03	Audio Systems	40
33405-03	CCTV Systems	20
33406-03	Broadband Systems	15
33407-03	Access Control Systems	30
33408-03	Systems Integration	20
33409-03	Systems Commissioning and User Training	10
33410-03	Media Management Systems	10
40201-08	Industrial Safety for E&I Technicians	12.5
40202-08	Introduction to the National Electric Code	5
40203-08	Electrical Theory	15
40204-08	Alternating Current	20
40205-08	E&I Test Equipment	10
40206-08	Flow, Pressure, Level and Temperature	15
40207-08	Process Mathematics	15
40208-08	Hand Bending	10
40209-08	Tubing	15
40210-08	Clean, Purge, and Test Tubing and Piping Systems	7.5
40211-08	Instrument Drawings and Documents, Part One	15
40212-08	Conductors and Cables	10

40213-08	Conductor Terminations and Splices	10
40302-09	Electronic Components	10
40303-09	E & I Drawings	10
40304-09	Motor Controls	15
40307-09	Conductor Selection and Calculations	15
40308-09	Temporary Grounding	15
40309-09	Layout and Installation of Tubing & Piping Systems	22.5
40310-09	Machine Bending Of Conduit	15
40311-09	Hydraulic Controls	15
40312-09	Pneumatic Controls	15
40313-09	Motor-Operated Valves	15
40401-09	Standby and Emergency Systems	12.5
40402-09	Basic Process, Control Elements, Transducers, & Transmitters	15
40403-09	Instrumentation Calibration and Configuration	10
40404-09	Pneumatic Control Valves, Actuators, & Positioners	40
40405-09	Performing Loop Checks	7.5
40406-09	Troubleshooting and Commissioning A Loop	10
40407-09	Process Control Loops and Tuning	20
40408-09	Data Networks	15
40409-09	Programmable Logic Controllers	12.5
40410-09	Distributed Control Systems	17.5

TOTAL HOURS..... 947.5

APPENDIX A

OCCUPATION SCHEDULE FOR: HEATING & AIR-CONDITIONER INSTALL/SERVICE

O*NET-SOC CODE: 49-9021.01
RAPIDS CODE: 0637

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

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

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st 6 months + 1000 hours = $8.40	2nd 6 months + 1000 hours = $9.04
3rd 6 months + 1000 hours = $9.69	4th 6 months + 1000 hours = $10.33
5th 6 months + 1000 hours = $10.98	6th 6 months + 1000 hours = $11.62

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

4. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

5. SCHEDULE OF RELATED INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR
HEATING & AIR-CONDITIONER INSTALL/SERVICE

Work Processes	Approximate Hours
1. Safety	300
a. Principles and objectives.	
B. Job performance safety.	
C. Accident reporting.	
D. First aid for electrical shock.	
2. Hand and special tools	300
A. Use and care of hand & power tools.	
B. Use of acetylene/oxygen equipment.	
C. Pump alignment equipment	
3. Electric/electronic fundamentals	1200
A. Ac circuits and components.	
B. Motors, servos, synchronizers & vsd mechanisms.	
4. Scope of analysis and maintenance	2100
A. Pneumatic automatic control operation.	
B. Thermostat calibration & repair.	
C. Temperature controls.	
D. Pressure and pneumatic controls.	
E. Pump inspection & repair	
F. Field equipment.	
G. Air balancing & hydronic water balance	
H. Chill water systems.	
I. Hot water systems.	
J. Air distribution systems.	
K. Energy conservation.	
L. Switches, motors, and circuit breakers.	
M. Electronic/pneumatic energy management systems	
5. Test equipment	300
A. Fundamentals of proper use and care.	
B. Voltmeters.	
C. Multimeters.	
D. Flowhood, velometer.	
E. Manometers, anemometers.	
F. Amprobe.	
G. Temperature and humidity measuring devices.	
H. Tachometer.	

6.	Trouble shooting A. Trouble systems recognition. B. Identifying faulty components. C. Comparison to approved standards. D. Substitution of units.	1800
TOTAL HOURS		6,000

RELATED TECHNICAL INSTRUCTION FOR APPRENTICES

Occupation Title: Heating & Air-Conditioner Install/Service

RAPIDS CODE: 0637

Related instruction - This instruction shall include, but not be limited to:

186008	Addition and Subtraction	5
186009	Multiplication and Division	5
186010	Fractions, Percents, Proportions, and Angles	5
Dupont	STOP For Everyone	6
Online	Claritynet Safety and Skills Courses 2 Hrs Each	46
Online	EEO refresher (every other year)	1.5
Online	Webinars Applicable To the Trade	12
186024	Energy, Force, and Power	5
0b14	Shop And Hand Tools	5
186001	Trades Safety: Getting Started	5
186002	Working Safely With Chemicals	5
186003	Fire Safety	5
186004	Safe Handling of Pressurized Gasses and Welding	5
186005	Electrical Safety for the Trades	5
186006	Material Handling Safety	5
186007	Machine Shop Safety	5
186052	Common Hand Tools, Part 1	5
186053	Common Hand Tools, Part 2	5
186068	Precision Measuring Instruments, Part 1	5
186054	Electric Drilling and Grinding Tools	5
Dupont	Stop Refresher	1
Online	Claritynet Safety and Skills Courses 2 Hrs Each	40
Online	Webinars	12
186055	Power Cutting Tools	5
186060	Jacks, Hoists, and Pullers	5
4503	Hot-Water Heating	10
5385	Hot-Water Supply	10
186039	Introduction to Print Reading	8
186041	Tolerancing and Symbols	8
186043	Building Drawings	8
186047	Piping: Drawings, Materials, and Parts	8
6732	Reading Piping Prints	5
286040	The Trades of Plumbing and Pipefitting	5
286041	Pipes, Fittings, and Valves	5
286042	Plumbing and Pipefitting Tools	5
286043	Joining And Assembling Pipes	5
286044	Supporting, Installing, and Testing Pipes	5
Dupont	Stop Refresher	1

Online	EEO Refresher	1.5
Online	Claritynet Safety and Skills Courses 2 Hrs Each	24
Online	Webinars	12
286045	Plumbing Fixtures and Appliances	5
286046	Tanks, Pumps, and Boilers	5
286047	Insulation for Piping and Ducting	5
6447a	Principles of Heating, Ventilating, And Air Conditioning 1	10
6447b	Principles of Heating, Ventilating, And Air Conditioning 2	10
6084a	Air Conditioning Systems 1	10
6084b	Air Conditioning Systems 2	10
6636	Controls for Air Conditioning	10
00a9	Cooling, Air Intake, & Exhaust Systems	10
286085	Preventive Maintenance	5
286086	Preventive Maintenance Techniques	5
286093	Bearings and Seals, Part 1	10
286094	Bearings and Seals, Part 2	10
Dupont	Stop Refresher	1
Online	Claritynet Safety and Skills Courses 2 Hrs Each	14
286091	Lubrication, Part 1	10
286092	Lubrication, Part 2	10
286001	Pumps, Part 1	10
286002	Pumps, Part 2	10
286003	Pumps, Part 3	10
286m01	Pneumatic Instrumentation For The Technician	10
5004c	Bench Work, Part 3	10
86052	Industrial Ac Motors	10
86053	Controlling Industrial Motors	10
286088	Predictive Maintenance: Vibration Analysis	10
86063	Digital Test Equipment	10
6307 A	Fluid Flow Measuring & Control Instruments 1	10
6308 B	Fluid Flow Measuring & Control Instruments 2	10

TOTAL HOURS.....579

Appendix A

OCCUPATION SCHEDULE FOR: PAINTER

O*NET-SOC CODE: 47-2141.00
RAPIDS CODE: 0379

1. TERM OF APPRENTICESHIP

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

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st	6 months + 1000 hours = $8.40	2nd	6 months + 1000 hours = $9.04
3rd	6 months + 1000 hours = $9.69	4th	6 months + 1000 hours = $10.33
5th	6 months + 1000 hours = $10.98	6th	6 months + 1000 hours = $11.62

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

6. SCHEDULE OF RELATED INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR PAINTER

Work Processes	Approximate Hours
1. Shop operation, stock room, care and use of tools and equipment	185
2. Preparation and Application of Materials - Exterior and Interior	
a. Painting, staining, coating, sanding, and covering of surfaces	975
b. Floor & wood finishing: staining, filling, waxing, shellacking, sealing, buffing, varnishing, stripping, sanding, antiquing, steel wooling, oiling, etc	525
3. Applying Various Types of Wall Coverings	290
4. Matching, Mixing Colors, and Coloring Putty To Match Natural Woods	375
5. Stippling and Texture	750
6. Dry Wall Finishing and Taping	950
7. Spray Painting	
A. Preparation of Surfaces	375
B. Use and Care Of Spray Gun And Equipment	750
8. Air Ladders, Window Jacks, and Swinging Stage Work Outside Of Buildings	200
9. Use and Safety of Epoxy Materials	175
10. Estimating Time and Materials	200
11. Safety A. First Aid B. Toxic Materials C. Explosive Materials D. Air Pressure And Ladder Safety E. Job and Vehicle Safety	250
TOTAL HOURS	6000

RELATED TECHNICAL INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATION TITLE: PAINTER

RAPIDS CODE: 0379

Related instruction - This instruction shall include, but not be limited to:

07101	Careers in the Painting Trade	5.0
07102	Safety	10.0
07103	Ladders, Lifts, and Fall Protection	10.0
07104	Identifying Surface/Substrate Mat. & Conditions	5.0
07105	Protecting Adjacent Surfaces	5.0
07106	Basic Surface Preparation	15.0
07107	Sealants and Repair/Fillers	5.0
07108	Introduction to Paints and Coatings	10.0
07109	Brushing and Rolling Paints and Coatings	7.5
07201	Painting Failures and Remedies	7.5
07202	Job Planning and Completion	10.0
07203	Chemical Cleaning and Stripping	7.5
07204	Low Pressure Water Cleaning	7.5
07205	Abrasive Blasting	7.5
07206	Drywall Finishing and Patching	25.0
07207	Stains	7.50
07208	Clear Finishes	7.5
07209	Wood Finishing	22.5
07210	Coatings, Part Ii	10.0
07211	Spray Painting (Conventional, Airless, & Hvlp)	32.5
07301	Painting Failures and Remedies, Part Ii	7.5
07302	Job Supervision, Planning, and Control	15.0
07303	Coatings, Part Iii	15.0
07304	Color and Tinting	10.0
07305	Decorative (Faux) Finishes	22.5
07306	Wall Covering	40.0
07307	Graphics	12.5
07308	Texturing	10.0
07309	Spraying With Special Devices	20.0
07401	Safety	10.0
07402	Ladders, Scaffolds, Lifts and Fall Protection	15.0
07403	Containment/Ventilation	7.5
07404	Surface Preparation, Part I	15.0
07405	Surface Preparation, Part Ii	20.0
07406	Surface Preparation, Part Iii	12.5
07407	Industrial Coatings	12.5

07408	Coatings Applications and Equipment	25.0
07409	Quality Inspections	15.0
07410	Coatings Failure and Analysis	7.5
07411	Specialty Materials	12.5

TOTAL HOURS.....522.5

Appendix A

OCCUPATION SCHEDULE FOR: Refrigeration Mechanic (Any Industry)

O*NET-SOC CODE: 49-9021.02
RAPIDS CODE: 0666

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

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

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st 6 months + 1000 hours = $8.40	2nd 6 months + 1000 hours = $9.04
3rd 6 months + 1000 hours = $9.69	4th 6 months + 1000 hours = $10.33
5th 6 months + 1000 hours = $10.98	6th 6 months + 1000 hours = $11.62

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

6. SCHEDULE OF RELATED INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR
REFRIGERATION MECHANIC (ANY INDUSTRY)

Work Processes	Approximate Hours
1. Tools, equipment and supplies a. Operation and care of tools b. Handling of refrigerants and lubricants c. Stock room	100
2. Refrigeration (packages) a. Service on account of breakdowns, etc. b. Preventive maintenance	450
3. Food service refrigeration a. Walk-in boxes, etc. b. Frozen food boxes (storage & display) c. Other	900
4. Refrigeration and air conditioning a. Dx units - air cooled, water cooled b. Chilled water equipment	1000
5. Refrigeration control devices a. Pneumatic b. Electrical	900
6. Electric motors and their controls a. Starting equipment, etc b. Hermetic motors	450
7. Safety a. First aid (1) electric shock. (2) burns. (3) handling of chemicals. b. Job safety (1) horseplay (2) area cleanliness	100
8. Commercial refrigeration a. Service on account of breakdowns, etc.	450
B. Preventive maintenance	

9.	Heat equipment a. Heating coils in air distribution systems b. Gas heat and controls c. Other	900
10.	Blueprint reading	300
11.	Schematics & wiring diagrams.....	450
TOTAL HOURS		6,000

RELATED INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATIONAL TITLE: REFRIGERATION MECHANIC (ANY INDUSTRY)

RAPIDS CODE: 0666

Related instruction - This instruction shall include, but not be limited to:

DuPont	Stop For Everyone	6
Online	Claritynet Skills & Safety Training 2 Hrs Each	26
Online	Eeo Refresher – Every Other Year	1.5
Online	Webinars Applicable To the Trade	12
186005	Electrical Safety for the Trades	5
186008	Addition and Subtraction	5
186021	Linear and Distance Measurement	5
186023	Temperature Measurement	5
186025	Fluid Measurement	5
X0701	Getting Ready For Troubleshooting	10
X0702	Troubleshooting Aids & Tools	10
X0703	Scheduled Downtime	10
X0704	Emergency Downtime	10
X0705	Mechanical Maintenance	10
X0706	Electrical Maintenance	10
286085	Preventive Maintenance	5
4500b	Servicing Gas Appliances	10
Dupont	Stop Refresher	1
Online	Claritynet Skills & Safety Training 2 Hrs Each	22
Online	Webinars Applicable To the Trade	12
286040	The Trades of Plumbing & Pipefitting	10
286042	Plumbing & Pipefitting Tools	10
286043	Joining & Assembling Pipes	10
186001	Trades Safety: Getting Started	5
186003	Fire Safety	5
186004	Safe Handling of Pressurized Gases and Welding	5
186006	Material Handling Safety	5
286086	Preventive Maintenance Techniques	5
286007	Principles of Mechanics, Part I	10
286008	Principles of Mechanics, Part II	10
286045	Plumbing Fixtures & Appliances	5
286046	Tanks, Pumps, & Boilers	5
186039	Introduction to Print Reading	8
186044	Electrical Drawings and Circuits	8
186049	Sheet Metal Basics	8
Dupont	Stop Refresher	1
Online	Claritynet Skills & Safety Training 2 Hrs Each	22
Online	EEO Refresher – Every Other Year	1.5

Online	Webinars Applicable To the Trade	12
1842 A-C	Reading Architects' Blueprints	30
186050	Sketching	8
VB04xx	Blueprint Reading Skills Explained (Video)	1
2175 A-B	Specification Writing	60
G14003	Modern Refrigeration and Air Conditioning	10
Dupont	Stop Refresher	1
Online	Claritynet Skills & Safety Training 2 Hrs Each	30
Online	Webinars Applicable To the Trade	12
6447 A-B	Principles of Heating, Ventilating, And Air Conditioning	20
6084 A-B	Air Conditioning Systems	20
Vb25xx	Basic Air Conditioning (Video)	1
006034	Electric Heating	10
4500b	Servicing Gas Appliances	10
286041	Pipes, Fittings, & Valves	10
286044	Supporting, Installing, & Testing Pipes	10
286047	Insulation for Piping & Ducting	10
286087	Predictive Maintenance	10

TOTAL HOURS..... 579

APPENDIX A

OCCUPATION SCHEDULE FOR: STATIONARY ENGINEER

O*NET-SOC CODE: 51-8021.02
RAPIDS CODE: 0536

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

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

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st 6 months (1000 hours) = $8.25	2nd 6 months (1000 hours) = $8.75
3rd 6 months (1000 hours) =$9.26	4th 6 months (1000 hours) = $9.76
5th 6 months (1000 hours) = $10.26	6th 6 months (1000 hours) = $10.76
7th 6 months (1000 hours) = $11.27	8th 6 months (1000 hours) = $11.77

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

6. SCHEDULE OF RELATED TECHNICAL INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR STATIONARY ENGINEER

Work Processes	Approximate Hours
1. Use and care of basice hand tools a. Common b. Power tools (hand held)	200
2. Boiler operation a. Start up procedures b. Shut down procedures c. Boiler controls d. Operators maintenance procedures e. Blueprints, schematics, and drawings f. Casualty control procedures	1915
3. Water treatment a. Testing chemistry and procedures b. Water treatment chemistry and procedures c. Cooling tower maintenance and treatment	400
4. Centrifugal refrigeration unit operation a. Machine start up procedures (1) From a pumped down condition (2) From an idle condition (3) From an emergency shutdown condition b. Machine shut down procedures (1) To a pumped down condition (2) To an idle condition (3) During an emergency shutdown condition c. Operators maintenance procedures d. Blueprints, schematics, and drawings	2865
5. Reverse osmosis water treating a. Water analysis – raw water (1) Determination of total dissolved solids (2) Desired rate of total treated solids b. Pumps – high pressure booster (1) Raw water PH control, raw water operation temperatures (2) Materials of construction c. Chemical injection pumps (1) Materials of construction (2) Pre-filters and materials of construction	65

d. R. O. cartridge types and sizes
   (1) Cartridge cleanup and storage
   (2) Controls and instrumentation
e. Clean R.O. unit

6. Softener operation — 185
   a. Regeneration procedures
   b. Operators maintenance procedures
   c. Blueprints, schematics, and drawings

7. Air compressor operation — 135
   a. Screw type air compressor
      (1) Start up procedures
      (2) Shutdown procedures
      (3) Emergency shutdown procedures
      (4) Emergency start up procedures
      (5) Operators maintenance procedures
      (6) Reciprocating compressors

8. Back pressure turbine generator operation — 335
   a. Start up procedures
   b. Shutdown procedures
   c. Normal operation

9. Pump operating procedures — 145
   a. Start up procedures
   b. Shutdown procedures
   c. Align shaft
   d. Operators maintenance procedures

10. Boiler and machinery space – misc — 295
   a. Pipe and fitting repairs
   b. Hoisting equipment – use and care
   c. Basic measuring devices
   d. Basic instrumentation technology

11. Welding — 105
   a. Use and care of equipment
   b. Safety procedures and certification
   c. Pipe threader

12.	Plant operator procedures	760
	a. Shift station procedures	
	(1) Plant operation log	
	(2) Plant log readings	
	b. Plant safety and procedures	
	c. Casualty control procedures	
13.	Cogeneration	40
	a. Startup/shutdown cogen steam	
14.	Emergency generator	200
	a. Emergency startup	
	b. Routine startup	
	c. Emergency shutdown	
	d. Operators maintenance procedures	
15.	Un-interruptible power supply system	20
	a. Principles of operation	
	b. Ac line/battery inverter operation	
	c. Emergency operating procedures	
16.	Instrumentation	335
	a. Basic instrumentation technology	
	b. Basic measuring devices	
	c. Pneumatic instrumentation	
	d. Electrical/electronic instrumentation	
TOTAL HOURS		8,000

RELATED TECHNICAL INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATIONAL TITLE: STATIONARY ENGINEER

RAPIDS CODE: 0536

Related instruction - This instruction shall include, but not be limited to:

DuPont	STOP for Everyone	6
Online	EEO Refresher every other year	1.5
Local	Skills & Safety Meetings	36
186008 - 186013	Basic Industrial Math	30
6732	Reading Pipe Prints	10
6691	Pressure Vessel and Tank Print Reading	10
186001	Trades Safety: Getting Started	10
186006	Industrial Safety - Materials Handling	10
186007	Industrial Safety - Machine Shop Safety	10
2530 A-B	Pumps	20
DuPont	STOP Refresher	1
Local	Skills & Safety Meetings	36
2530 C	Pumps	10
28609300	Bearings and Seals, Pt. 1	10
28609400	Bearings and Seals, Pt. 2	10
2531 A-B	Lubrication	20
6553	Condensers	10
6734	Steam Boiler Operation and Maintenance	10
2545	Heat Transfer. (Optional)	10
2620	Steam	10
2505	Types of Steam Turbines	10
6632	Types of Steam Generators	10
DuPont	STOP Refresher	1
Local	Skills & Safety Meetings	36
2592	Oil and Gas Firing for Steam Generation	10
2596A-C	Automatic Combustion Control	30
2506	Steam-Turbine Management & Governing	10
6727	Feedwater Treatment and Equipment	10
2626 A-B	Air Compressors	20
5878	Filtration	10
6810	Flue Gas Analysis	10
4210 A	Electricity	10
DuPont	STOP Refresher	1
Local	Skills & Safety Meetings	36
4210 B-C	Electricity	20
6635	Electrical Blueprint Reading	10
5383	Refrigeration in Air Conditioning	10
6623	Pneumatics	10

0A11	Diesel Engine Operation, Pt.1	10
0A12	Diesel Engine Operation, Pt.2	10
286025	Fundamentals of Welding, Pt.1	10
286066	Fundamentals of Welding, Pt.2	10
6275 A	Gas Cutting	10
6275 B	Gas Cutting	10

TOTAL HOURS..... 584.5

APPENDIX A

OCCUPATION SCHEDULE FOR: WATER TREATMENT PLANT OPERATOR

O*NET-SOC CODE: 51-8031.00
RAPIDS CODE: 0619

This schedule is attached to and a part of these standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

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

2. PROBATIONARY PERIOD

The probationary period for this occupation shall be the first 1000 OJL hours employed as an apprentice.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

Consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to (1) journeyworker employed by Texas Tech University – Physical Plant for each occupation identified in these standards of apprenticeship.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages:

1st 6 months + 1000 hours = $8.40	2nd 6 months + 1000 hours = $9.04
3rd 6 months + 1000 hours = $9.69	4th 6 months + 1000 hours = $10.33
5th 6 months + 1000 hours = $10.98	6th 6 months + 1000 hours = $11.62

At completion = $12.27 per hour as of 5/1/2012. The registration agency will be promptly notified of changes in the apprentice and/or journeyworker wage rates.

5. SCHEDULE OF WORK EXPERIENCE

(See attached Trade Schedule)

6. SCHEDULE OF RELATED INSTRUCTION

(See attached Related Technical Instruction Outline)

TRADE SCHEDULE FOR
WATER TREATMENT PLANT OPERATOR

Work Processes	Approximate Hours
1. Laboratory procedures a. Sample collection and preparation b. Analytical techniques and instrumentation c. Daily, monthly and quarterly sample analyses	480
2. Supervision, administration and planning a. Revise goals list b. Schematic preparation for chemical feed systems c. Laboratory management d. Inventory control e. Monthly cost summary f. Equipment inspections and reports	120
3. Softener operation, evaluation and maintenance a. Schematic preparation b. Performance evaluation of elution studies c. Regeneration procedures and evaluation d. Maintenance procedures	360
4. Reverse osmosis operation, evaluation and maintenance a. Schematic preparation b. Service performance evaluation c. Cleaning procedures and evaluation d. Maintenance procedures	480
5. Polisher operation, evaluation and maintenance a. Schematic preparation b. Service performance evaluation c. Regeneration procedures and evaluation d. Maintenance procedures	120
6. Demineralizer operation, evaluation and maintenance a. Schematic preparation b. Service performance evaluation c. Regeneration procedures and evaluation d. Maintenance procedures	480
7. Filter operation, evaluation and maintenance a. Schematic preparation b. Service performance evaluation c. Maintenance procedures	120
8. Chemical feed system a. Schematic preparation b. Inventory control c. Pump maintenance d. Distribution system maintenance e. System design	240

9.	Boiler chemistry application and controls a. Statistical control of requirements b. Water-side inspections and reports c. Layups d. Properties of boiler chemistry	360
10.	Cooling tower and condenser chemistry application and controls a. Statistical control of requirements b. Water-side inspections and reports c. Layups d. Properties of cooling tower chemistry	480
11.	Distribution system a. Iron, ph, oxygen surveys b. Steam/amine sample collection	120
12.	Cross training a. Plant i b. Plant ii c. Itc d. Museum e. Distribution f. Building systems g. Cogeneration	240
13.	Closed loop a. Statistical control of requirements b. Water-side inspections and reports c. Layups d. Principles of chilled water chemistry	120
14.	Safety A. Safety inspections B. Housekeeping C. Chemical transfers D. Msds management e. Tier ii reports	360
15.	Energy a. Heat transfer efficiency reports	120
16.	Instrumentation and controls a. Statistical control b. Maintenance and installation c. Meter readings	360
17.	Inventory control a. Maintain laboratory reagent inventory b. Maintain treatment chemical inventory c. Maintain instrumentation and feed equipment inventory	240
18.	On-duty chemist	1,200
TOTAL HOURS		6,000

RELATED TECHNICAL INSTRUCTION OUTLINE FOR APPRENTICES

OCCUPATIONAL TITLE: WATER TREATMENT PLANT OPERATOR

RAPIDS CODE: 0619

Related instruction - This instruction shall include, but not be limited to:

Dupont	Stop For Everyone	6
Local	Skills & Safety Meetings	36
186001-186007	Industrial Safety Block	35
2418 A, B&D	Physical Science	30
5011	Elements of Chemistry	10
6553	Condensers	10
6632-5	Types of Steam Generators	10
6727	Feedwater Treatment and Equipment	10
Dupont	Stop Refresher	1
Local	Skills & Safety Meetings	36
5878	Filtration	10
5389	Tanks and Pumps	10
5501	Sanitary Chemistry	10
5013 A-D	Physical Chemistry	40
5005 A-D	Inorganic Chemistry	40
Dupont	Stop Refresher	1
Local	Skills & Safety Meetings	36
5301 A-B	Purification of Water	20
5302 A-D	Operation of Water-Treatment Plants	40
286m03	Environmental Technology for Technicians	10
3048	Sanitary Bacteriology	10
186021-186025	Practical Measurements	25

TOTAL HOURS..... 436