

# **PIPE TRADES TRAINING CENTER**



**H.V.A.C / REFRIGERATION  
Apprenticeship 2016-17**

*Sponsored By:*



FOUNDED 1889

**LOCAL # 525  
PLUMBERS AND PIPEFITTERS**

*and*



APPRENTICESHIP STANDARDS

FOR

H.V.A.C. / REFRIGERATION

DOT CODE - 862.281-022

Formulated By:

UNITED ASSOCIATION OF JOURNEYMEN AND APPRENTICES  
OF THE PLUMBING AND PIPEFITTING INDUSTRY  
OF THE UNITED STATES AND CANADA,  
LOCAL UNION NO.525

and

MECHANICAL CONTRACTORS ASSOCIATION, INC.

In Cooperation With:

The Office of Apprenticeship  
U. S. Department of Labor

Registered With:

NEVADA STATE APPRENTICESHIP COUNCIL

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## FOREWORD

The Pipe Trades Joint Apprentice and Journeyman Training Committee for Southern Nevada recognizes the need for continuous training to maintain the high levels of skill and competence demanded in this industry, to provide adequate numbers of skilled workers, and to insure public satisfaction and provide for the growth and progress of the industry within the community and the Nation.

Experience has demonstrated that the only practical and sound method of preparing workers for skilled occupations is through planned training, providing for employment and training under actual job conditions by skilled workers and at wages commensurate with the apprentice's skill. In addition, the apprentice's knowledge and understanding of the trade is broadened through participation in approved courses of related and supplemental training.

Furthermore, recognizing that the responsibility for training rests with those in the industry, who are users of those skills, therefore the association has formulated and adopted these apprenticeship standards for the training of apprentices in this industry.

I. DEFINITIONS

As herein referred to:

- A. Standards: Means this entire document, including attachments and any future modifications or additions approved by the registration agency.
- B. Joint Apprenticeship and Training Committee: Means the Committee, composed of equal representatives of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada, Local Union No. 525 and the Mechanical Contractors Association, Inc., responsible for operating the program. Pipe Trades Joint Apprentice and Journeyman Training Committee for Southern Nevada as described in Section II of these Standards, is hereinafter referred to as the "Committee".
- C. Employer: Shall mean a person or organization or corporation employing one or more journeymen and who are signatory to the Standards.
- D. Journeyman (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.)
- E. Union: Means UA Local Union No. 525, signatory to these standards.
- F. Apprentice: Shall mean an individual who has entered into a written Apprenticeship Agreement providing for employment and training under the terms and conditions of these Standards and, as such, shall constitute the only persons so employed. Said individual must also be registered with the registration agency.
- G. Apprenticeship Agreement: This term, which is synonymous with the word "indenture" as sometimes used, means the written document between the Apprentice and the Joint Apprenticeship Committee stating the responsibilities and obligations of the parties thereto in connection with the Apprentice's employment and training under these Standards.
- H. Registration Agency: Shall mean the Nevada State Apprenticeship Council.
- I. Coordinator/Director: Means the person designated by the local JATC to perform the duties stated in the Standards of Apprenticeship.

- J. 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 the Standards of Apprenticeship.
- K. Electronic Media: Media that uses 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.
- L. 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 apprentices 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.

## II. JOINT APPRENTICE AND JOURNEYMAN TRAINING COMMITTEE

### A. Authority and Scope

There is hereby established a Joint Apprentice and Journeyman Training Committee which, in accord with the provisions of the collective bargaining agreements in effect between the sponsoring parties of these Standards, shall establish and administer rules and procedures governing the selection, training and transfer of apprentices, and for the training of journeyman and others.

The area not covered by these Standards shall be the wage area set forth in the collective bargaining agreements.

### B. Structure of the JATC

1. The Committee shall be composed of not less than three (3) members representing the Employers and three (3) members representing the Union, selected by the groups they represent.
2. The Employers and the Union shall at all times be equally represented on this Committee, and members named to fill any vacancy shall be selected in the same manner as the original selection.
3. Members may be elected to succeed themselves and may be removed for cause and replaced by the organizations they represent.



C. Administrative Procedures

1. The Committee shall elect from its members a Chairperson and a Co-Chairperson who shall retain right of vote on all matters. When the Chairperson is an Employer representative, the Co-Chairperson shall be a Union member and vice versa.
2. A quorum at meetings shall consist of at least two (2) members representing the Employers and two (2) members representing the Union. Each group shall have a total vote equal to their total number of designated Committee members.
3. The Committee shall schedule regular meetings and shall establish the time and place of such meetings. Special meetings may be called when judged necessary.
4. The Committee shall establish such other policies, rules and regulations governing the administration of this program as it finds necessary, but all actions must show in the minutes and be submitted to the sponsoring organizations on matters affecting the collective bargaining agreement.
5. The Committee Chairperson will be charged with establishing a regular order of business and with conducting meetings in a businesslike manner. The Chairperson may also name regular or special committees to handle particular assignments.
6. The Committee Co-Chairperson, or its' designee, shall be responsible for keeping minutes of all meetings, apprentice files, the registration of apprenticeship agreements, and all other records and reports of the Committee.
7. The name, address, social security number, veteran or non-veteran status of all apprentices, and all apprentice cancellations, terminations, suspensions and completions shall be reported to the State Apprenticeship Council.

D. Responsibilities of the JATC

1. To conduct surveys and studies to determine industry training needs and skill requirements, and to develop other data essential to establishing adequate and effective plans and programs of training.
2. To periodically review these Standards and keep them consistent with National Standards and changes within the industry.

3. To establish minimum qualifications for apprentice applicants within the area covered by these Standards and to devise a system of apprentice selection that will assure the industry of competent workers and all candidates of equal opportunity.
4. To indenture, under a written agreement, all apprentices accepted for training under the provisions of these Standards.
5. To determine the kind and amount of on-the-job training and experience to be required of apprentices and to arrange for such experience and training through the participating employers.
6. To determine the kind and amount of supplemental related instruction to be required of apprentices and to arrange for such instruction to be provided. (Minimum of 220 hours per year.)
7. To determine the capability of employers to provide adequate and reasonably continuous job training and supervision for apprentices and to regulate the number of apprentices to be allowed an employer within the established ratio of apprentices to journeymen in accord with the collective bargaining agreements.
8. To establish a system of permanent records, reports and examinations that will provide means of determining the progress and conduct of each apprentice in both the on-the-job training and related instruction requirements throughout his/her apprenticeship.
9. To adjust such differences as may arise between the parties of an Apprenticeship Agreement as may come within the scope of these Standards.
10. To determine when apprentices have satisfactorily met all requirements of their apprenticeship. To determine if previous experience, such as military training and trade related job tasks, pre apprentice work hours, should be granted as on-the-job learning hours. To then recommend their acceptance as Journeyperson and to obtain and award an appropriate "Certificate of Completion of Apprenticeship" to those satisfactorily completing all requirements of their Apprenticeship Agreement.
11. To register all Apprenticeship Agreements with the NV State Apprenticeship Council within 10 days of signature and notify the Registration Agency of all subsequent apprentice actions taken by the Committee affecting these agreements, such as suspensions, cancellations and completions of apprenticeship.

12. In general, to be responsible for the successful operation of this Apprenticeship and Training Program through appropriate administration and supervision of all phases of training, cooperation with national and state organizations in programs and activities for the improvement of apprentice and journeyman training and appropriate public information.
13. To provide adequate and safe equipment and facilities for training and supervision, and safety training for apprentices on-the-job and in related instruction training that are in compliance with either the Occupational Safety and Health Standards promulgated by the Secretary of Labor under Public Law 91-596, dated December 29, 1970, as amended, or State Standards that have been found to be at least as effective as the Federal Standards.
14. Members of the committee will be educated as to the equal employment opportunity in apprenticeship.
15. Members of the committee will be educated as to the fiduciary responsibility of the JATC.
16. Provide apprentices with a copy of the written rules and policies and the apprentice will sign an acknowledgment of same. This procedure will be followed whenever revisions or modifications are made to the rules and policies.

III. 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, sex, sexual orientation, gender identity or expression, age, disability or national origin; interference with aid or appliance for disability; refusal to permit service animal at place of employment. 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 Regulation, part 30 as amended.

IV. AFFIRMITIVE ACTION PLAN-Title 29 CFR 29.5(b)(21) and 30.4

If the sponsor has five or more apprentices, the JATC will adopt an Affirmative Action Plan and Selection Procedure as required under Title 29, CFR part 30.

V. QUALIFICATIONS FOR AND SELECTION OF APPRENTICES

A. Qualifications

1. Must be at least 18 years of age. Applicant shall submit reliable proof of birthdate with the complete application to ensure the applicant has met the minimum age requirement.

2. Must possess the natural aptitudes essential to acquiring the skills of the trade.
3. Must be physically able to perform work of the trade. Applicants will be able to perform the essential functions of the apprenticeship program without posing a direct threat to the health and safety of the individual or others.
4. Must be legally residing in the United States, of good moral character, genuinely interested in learning the trade, and willing to comply with all terms and conditions of these Standards.
5. Education: Must have a High School Diploma, Graduation Equivalency Document (G.E.D.) or High School Equivalency (H.S.E.) A High School Senior, who will graduate the year of application to this program, may apply for the program by providing a letter of intent to graduate along with legible transcripts of current classes. If the student does not graduate his/her selection into the program will be rescinded. 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.
6. Must have or immediately obtain a valid Nevada ID.

B. Procedures

1. The recruitment, selection, employment and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, gender 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 29 and 30, and equal employment opportunity regulations of the State of Nevada.
2. All apprentices shall be recruited and selected in accordance with the plans and procedures attached to and made a part of these Standards and identified as "Attachment 5".
3. All records relating to the recruitment, application, selection and employment of apprentices, as required by the Registration Agency, including identification of minority participants, shall be maintained for a period of five (5) years and made available to authorized representatives upon request.

#### IV. RESPONSIBILITIES OF APPRENTICES

The Joint Apprentice and Journeyman Training Committee should impress upon all indentured apprentices that in signing the apprentice agreement, they have *voluntarily agreed* to abide by the provisions of these Apprenticeship Standards, and inform the apprentices of their responsibilities and obligations under the apprenticeship system.

- A. To diligently and faithfully perform the work of the occupation and other pertinent duties as assigned by the Employer or the Association in accordance with the provisions of the Standards.
- B. To respect the property of the Employer and abide by the working rules and regulations of the JATC and the Nevada State Apprenticeship Council.
- C. To attend and satisfactorily complete the required related instruction and certifications as provided.
- D. To develop safe working habits and conduct themselves in their work in such a manner as to assure their own safety as well as that of their fellow workers.
- E. To conduct themselves at all times in a creditable, ethical and moral manner, realizing that much time, money and effort will be spent in affording them an opportunity to become skilled craft workers.

#### V. APPRENTICESHIP AGREEMENT

- A. All apprentices and their parents or guardians, if they are minors, shall enter into and sign a written Apprenticeship Agreement with the Joint Apprentice and Training Committee.

**The signing of the Apprenticeship Agreement with the Committee does not obligate the Committee to actually employ the apprentice, but does obligate the Committee to use its best efforts to see that the apprentice is assigned to an employer and is kept as continuously employed as is possible, when work is available.**

- B. The Apprenticeship Agreement shall contain a statement making the terms and conditions of these Apprenticeship Standards a part of the agreement. For this reason, every apprentice applicant will be required to read these Standards before signing the Agreement.

- C. Each Apprenticeship Agreement will be registered with the Nevada State Apprenticeship Council with sufficient copies that, following registration, a copy may be furnished to the following:
  - a. The Committee,
  - b. The Apprentice,
  - c. The Nevada State Apprenticeship Council,
  - d. The Office of Apprenticeship
  - e. The Department of Veterans Affairs, if a veteran.

## VI. CREDIT FOR PREVIOUS EXPERIENCE

- A. All applicants shall undergo the selection procedure described in Section 5 of these Standards. The JATC may grant credit toward 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 of Apprenticeship. Those requesting credit for previous experience and training, outside the supervision of this Committee, must submit their request at the time of their application and furnish such records, affidavits, and other bona fide evidence as the Committee may require substantiating their claims.
- B. Except as provided for in Attachment 5 Selection Procedures, applicants requesting such credit who are selected into the apprenticeship program shall start at the beginning wage rate. The request for credit will be evaluated and a determination made by the JATC 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.
- C. After its evaluation, the Committee may grant such credit on the term of apprenticeship as their evaluation may justify.
- D. Apprentices who are granted credit shall be advanced to the wage rate for the period to which such credit advances them.

## VII. PROBATIONARY PERIOD

The probationary period cannot exceed twenty-five percent of the length of the program, or one year, whichever is shorter. All applicants selected for apprenticeship will serve a probationary period of not more than 12 months, which includes OJL and related instruction. Apprenticeships may be cancelled by either party without stated cause during this time. The records for each probationary apprentice will be reviewed prior to the end of the probation 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 Agreement may be cancelled at the request of the Apprentice, or may be suspended, canceled or terminated by the Committee for good cause with due notice to the Apprentice, and a reasonable opportunity for corrective action, and with written notice to the apprentice and to the Registration Agency of the final action taken. Apprentices will be advised of their appeal rights to the Nevada State Apprenticeship Council.

VIII. TERM OF APPRENTICESHIP

The term of apprenticeship shall be a period of not less than 8500 hours and not less than five (5) years of reasonably continuous employment and training on the job, supplemented by the required hours of related technical instruction.

IX. SUPPLEMENTAL RELATED INSTRUCTION

- A. The Committee shall annually schedule courses of instruction in subjects related to the trade, and each apprentice shall be required to enroll in and attend all sessions scheduled during each year of apprenticeship. Not less than 220 hours of such instruction shall be scheduled each year.
- B. Failure of apprentices to fulfill their obligations as to related instruction attendance and progress shall constitute just cause for disciplinary action by the Committee. Therefore, if apprentices are unable to attend sessions due to illness or other just cause, they shall be expected to obtain an official excuse from the Committee or its designated representative. Hours spent in related instruction shall not be classed as hours of work. (OTJ)

X. ON-THE-JOB (OJT) TRAINING AND EXPERIENCE

- A. Under the supervision of a qualified journeyman, each apprentice shall be given such practical experience and training in the various branches and job processes of the trade as is necessary to develop a proficient and skilled journeyman. The schedule of work experience to be received is set forth in "Attachment 1" of these standards.
- B. Apprentices shall receive instruction in accident prevention and safe work habits. Such instruction shall be coordinated with the actual work being performed on the job and with the tools and equipment being used.

- C. The Committee will secure the cooperation of the employers and the journeymen in providing the varied experience and training on the job; and, if necessary, to assure a rounded training in all branches of the trade, may shift or rotate apprentices from one employer to another. The duration of such transfers should not exceed the hours specified in the Schedule of Work Experience to attain reasonable proficiency in the particular work processes or job operations for which the transfer was made.
- D. Schedule of Work Experience for the Apprentices: See Attachment 1.

## XI. DISCIPLINARY ACTION

- A. The Committee and Coordinator/Director shall have authority to discipline an apprentice who fails to comply prior to the pending Committee meeting with the Apprenticeship Agreement or rules and instructions of the Committee, and all parties agree to abide by this provision. **Disciplinary action which may be employed at the discretion of the Committee or Coordinator/Director includes:**
  - 1. Postponement of scheduled advancement.
  - 2. Suspension – temporary removal from the job causing loss of employment for a day or more.
  - 3. Cancellation - causing termination of the apprenticeship.
  - 4. Random Drug Testing .

The Committee shall notify the apprentice to appear before the Committee for a hearing before cancellation shall be invoked. If the apprentice fails to appear before the Committee, after due notice, such disciplinary action may be invoked without a hearing.

- B. Some of the reasons considered as just cause for disciplinary action may include, but are not limited to the following:
  - 1. Failure to meet related class attendance and progress requirements.
  - 2. Lack of interest, application to, or satisfactory progress in the work and training on the job.
  - 3. Failure to properly prepare and submit required reports.
  - 4. Undesirable attitude or conduct in school or on the job.
  - 5. Violation of the substance abuse policy.



XII. HOURS OF WORK

Apprentices shall work the same number of hours as journeymen employed in the trade, except that apprentices are encouraged not to work overtime if it interferes with their attendance at related instruction classes. Employers will assist the JATC by not creating overtime if it conflicts with scheduled classes. Classes missed due to overtime shall be recorded as absences.

\*Only actual hours worked will be credited on the term of Apprenticeship.

XIII. APPRENTICE WAGES

Apprentices shall be paid a progressively increasing schedule of wages and fringe benefits 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 journeyman status, the JATC or Coordinator shall evaluate all progress to determine whether advancement has been earned by satisfactory work on the job and in related instruction classes. In determining whether satisfactory progress has been made, the JATC or Coordinator shall be guided by the work experience and related instruction records and reports.

The wage schedule shall be a progressively increasing percentage of the journeyman wage rate as established in the collective bargaining agreements.

Six Month Periods

1 <sup>st</sup> *	2 <sup>nd</sup> *	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%

Thereafter: Journeyman Wage Rate

Apprentices shall not be paid other than the wage rate specified for their correct period of apprenticeship except as may be authorized by the Committee.

**Per the Collective Bargaining Agreement fringe benefit contributions shall be the same as the hourly rate of journeypersons.**

XIV. RATIO OF APPRENTICES TO JOURNEYMEN

In order to secure maximum production and to make adequate provisions for apprentices to learn this trade, it is recommended that the ratio of apprentices to journeymen be observed as outlined in the collective bargaining agreement, the ratio shall be one apprentice to the first journeyman and not more than one apprentice for every three additional journeymen not to exceed the overall workforce.

XV. CONTINUITY OF EMPLOYMENT

- A. It is the intent of the Committee to keep apprentices as continuously employed as possible.
- B. Employers shall not summarily discharge an apprentice for any reason without prior notification to the Office of the Committee so that appropriate action can be taken. Likewise, an apprentice shall not leave the employment of an employer to whom they are assigned without prior approval of the Committee.

XVI. ADJUSTMENT OF DIFFERENCES

The employer and the apprentice shall have the right and privilege of appeal to the Joint Apprenticeship and Training Committee in the event of a dispute or controversy arising over any interpretations of the provisions of these Apprenticeship Standards. The Committee shall hear all affected parties and make such adjustments as they consider necessary. Persons wishing the Committee to hear such matters should make a request in writing to the Coordinator/Director, prior to the Committee meetings, so that they may be placed on the agenda.

Either of the parties may appeal the decision of the Committee to the Nevada State Apprenticeship Council, 555 E. Washington Avenue, Ste. 4100, Las Vegas, NV 89101. The name and address of the appropriate authority under this program to receive, process and make disposition of complaints is:

The Pipe Trades JATC for Southern Nevada  
750 Leigon Way  
Las Vegas, NV 89110

XVII. SUPERVISION OF APPRENTICES

- A. The Committee may employ a Coordinator/Director or other person to perform such services as it deems necessary to assure proper supervision of apprentices and administration of this program. Such persons shall perform only those functions as are delegated to them by the Committee.
- B. The facilities selected for related technical instruction shall be responsible for supervision of the related instruction classes under the general direction of the Joint Apprenticeship and Training Committee.
- C. The Committee will insist that through completion of the first four years of apprenticeship, supervision must be direct in that apprentices will work directly with a journeyman on the job. During the last year of

apprenticeship, apprentices, as their skill permits, may work under the indirect but on-site supervision of a Journeyperson. In such instances, compliance with the ratio provision in the collective bargaining agreements will be maintained.

- D. Each employer shall designate a person (The Employer Apprentice Representative) who may be a superintendent, foreman or journeyman, to be responsible for the training of apprentices on the job. This person shall, with the advice and assistance of the Committee, be responsible for the apprentices' work experience on the job, the recording and rating of same on forms provided for this purpose, and to see that the apprentice attends the related instruction classes.
- E. The employer or designated supervisor may be required to appear before the Committee at intervals to keep the Committee informed as to an apprentice's progress, conduct, interest and attitude.
- F. The employer or designated supervisor will be required to carry out the intent and purpose of the local apprenticeship program.

#### XVIII. APPRENTICESHIP RECORDS

- A. An individual record will be maintained by the Committee, showing the status, conduct and progress of each apprentice.
- B. To maintain this record, apprentices will be furnished a "Monthly Work Progress Report" form. It will be the responsibility of the apprentice to keep this record up daily, then to deliver or mail it to the Committee not later than the 8<sup>th</sup> day of the following month.
- C. Failure to keep and submit the required reports on time, properly authenticated, may result in disciplinary action by the Committee.

#### XIX. APPRENTICE EXAMINATIONS AND COUNSEL

- A. Apprentices may be called before the Committee at any time for examination or consultation regarding their apprenticeship.
- B. Examination and review of the apprentice's progress and conduct, both on the job **and** in the related instruction work, will be conducted by or under the direction of the Committee before each advancement period.
- C. Apprentices not showing satisfactory progress may be held in the current period at any time during their term of apprenticeship or subject to such other action as the Committee may determine.

- D. It is mutually agreed that no apprentice shall be advanced to the next period or to Journeyman classification except with the prior approval of the Committee or Coordinator/Director.

XX. CERTIFICATE OF COMPLETION OF APPRENTICESHIP

Upon successful and satisfactory completion of the requirements of the Apprenticeship Agreement, the Committee will notify the Registration Agency and the U.S. DOL to obtain and issue to the Apprentice a "Certificate of Completion of Apprenticeship".

XXI. CONSULTANTS

- A. Representatives of the Office of Apprenticeship and Training, the State Apprenticeship Council and State and Local Departments of Education may be called upon for advice or assistance in the formulation, operation and improvement of this apprenticeship and training system.
- B. Such persons shall serve in an advisory capacity at the request of the Committee, and without vote on Committee decisions.

XXII. QUALIFICATIONS FOR EMPLOYERS

Employers undertaking to employ apprentices must make a request for each apprentice and satisfy the Committee that they can properly train apprentices, including the following qualifications:

- a. Have the necessary facilities to assure proper training.
- b. Steadily employ the required number of journeyman.
- c. Be willing to employ and train apprentices in accordance with these Standards.

XXIII. RELATION OF STANDARDS TO BARGAINING AGREEMENT

No section of these Standards shall be in conflict with the Collective Bargaining Agreements and terms of the current working agreements shall supersede any section or sections of these Standards.

The contents of these Standards are intended only for the training and supervision of apprentices.

#### XXIV. REVISION OF STANDARDS

These Apprenticeship Standards may be revised at any time by the action of the Committee and approval of the sponsoring parties. Copies of any revisions must be registered and approved by the Registration Agency before becoming effective.

Revision of these Standards shall not alter Apprenticeship Agreements already in effect without consent of all parties to the Agreement.

As used in these Standards, the masculine, feminine or neuter gender, and the singular or plural number, shall each be deemed to include the others whenever the context so indicates.

#### XXV. CANCELLATION/DE-REGISTRATION OF APPRENTICESHIP STANDARDS

De-registration of the program may be effected upon the voluntary action of the Committee by request for cancellation of the registration, or upon reasonable cause by the Registration Agency instituting formal de-registration procedures in accordance with the provisions of Part 29 CFR 29 (29.7) or 29 CFR 30, E.E.O.

XXVI. OFFICIAL APPROVAL

The foregoing Apprenticeship Standards were adopted this 19<sup>th</sup>  
day of April, 2016.

Joint Apprentice and Training Committee



Chairman



Co-Chairman

April 19, 2016  
Date

United Association of Journeymen and Apprentices  
of the Plumbing, Pipefitting and Service Technician Industry  
of the United States and Canada  
Local Union No. 525



Business Manager

4-19-2016  
Date

Mechanical Contractors Association, Inc.



President

\*\*\*\*\*

Approved and Registered by the Nevada State Apprenticeship Council  
This \_\_\_\_\_ Day of \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
Secretary - Director

## ATTACHMENT 1 - WORK PROCESSES\*

### I. SCHEDULE OF WORK EXPERIENCE FOR APPRENTICES:

1. Use and Care of Tools	600 hrs.
2. Safety	500 hrs.
3. Copper Pipe Soldering and Brazing	1,000 hrs.
4. Start-Up and Testing	900 hrs.
5. Rigging and Pipe Supports	500 hrs.
6. Trouble Shooting/ Overhauls	1,500 hrs.
7. Welding/ Oxy-Acetylene Cutting	400 hrs.
8. HVAC Piping and Equipment	1,500 hrs.
9. Refrigeration Piping	800 hrs.
10. Refrigeration or Equipment Controls	<u>800 hrs.</u>
<b><u>Total Work Hours:</u></b>	<b>8,500 hrs.</b>

#### **Work Progress Report Work Processes:**

The various work processes contained in the Apprentice Work Progress Report are meant to represent most of the work encountered in the normal working day. There will always be some types of work that may not fit any of the processes on the report. The procedure then is to place the time worked in the process that comes closest to identifying the work being performed.

In filling out the form it is not necessary to put down any process time that is under one hour except for Safety and Use and Care of Tools. It is not expected that the apprentice spend an inordinate amount of time filling out the form but it should be an effortless task to fill out the form if the apprentice will do it daily.

The following is an explanation of the Work Processes contained on the Apprentice Work Progress Report and the number of hours expected to be completed during the five years of apprenticeship.

#### **Use and Care of Tools - 600 hrs.**

This process covers any and all instruction given by either the employer or a journeyman to an apprentice on the use and care of any tool, large or small, powered or hand operated. This can include scheduled instruction such as seminars on Hilti Powder Actuated Tools or simply the instruction by a journeyman on how to use a torque wrench properly. Some of the instruction can fall into the next process - Safety - but use either one or the other not both for those hours.



**Safety - 500 hrs.**

This process covers any and all instruction given by either the employer or a journeyman to an apprentice on any subject having to do with safety. This includes all safety meetings on the job attended by the apprentice. This can also include any safety training given such as Hazardous Material Handling or fall protection. It can also include safety tips given by a journeyman to the apprentice. There are a relatively small amount of hours given to this process but safety should be a part of everything done in the construction field and all of the processes will include safety training for that process. This category should be used for time spent specifically on the safety aspects of the trade.

**Copper Pipe Soldering and Brazing - 1000 hrs.**

This process includes any and all installation, layout, soldering and brazing of copper pipe, tube, and fittings using any and all of the various filler metals and alloys available. This will include all copper hot and cold water lines, copper hydronic heating and cooling lines, and any other piping made with copper pipe, tube and fittings and any supporting hangers.

**Start-up and Testing - 900 hrs.**

This process includes the initial start-up of newly installed or serviced equipment and also includes performing a series of tests to ascertain whether or not the equipment is working properly.

**Rigging and Pipe Supports – 500 hrs.**

This process includes the preparation and the moving and securing of any pipe, fittings, equipment, etc., using cranes, chain falls, ropes, pulleys, come-alongs or any other similar apparatus. Note that this does not include the actual final bolt-up or installation of pipe, fittings, equipment, etc. This should be included under the appropriate process for the type of pipe, fittings, equipment, etc.

This process also includes the installation of pipe or equipment supports not including normal pipe hangers. The supports can be free standing or welded but should be substantial enough as to be considered a separate job in itself. This may also include seismic supports which are separate from the method of hanging or supporting pipe, fittings, equipment, etc. Note also that any time actually welding on the supports should be shown under the Welding process but only if it includes a significant amount of time.



**Troubleshooting / Overhauls - 1500 hrs.**

This process includes diagnosing problems or equipment failures. This category also covers all work done to repair equipment and return it to service.

**Welding and Oxygen and Acetylene Cutting - 400 hrs.**

This process includes the actual cutting of any metallic pipe, fittings, or plate using an oxygen/acetylene torch or plasma cutter. This process also includes the actual welding of metallic pipe, fittings, or plate using any arc welding process including orbital welding.

**HVAC Piping and Equipment – 1500 hrs.**

This process includes the laying out, installation, insulation, start up, and maintenance of any pipe, fittings, hangers, equipment, etc., used for the purpose of heating, venting, and air conditioning. This process includes all types of approved pipe, fittings, equipment, etc., except copper pipe and fittings. This includes heating, cooling, and condensate lines except refrigerant lines. This also includes steam and hydronic lines.

**Refrigeration Piping - 800 hrs.**

This process includes the lay out, installation, and maintenance of any pipe, fittings, hangers, equipment, etc., used for the purpose of carrying refrigerants. This includes all appropriate materials including copper pipe and fittings. This shall also include the insulation, evacuation and charging of refrigerant lines and equipment.

**Refrigeration or Equipment Controls - 800 hrs.**

This process includes the lay out, installation and maintenance of automatic control lines, electric, air, or hydraulic, and hangers, used to control refrigeration, heating and cooling equipment, or any other system needing automatic controls. This will include the calibration of the control system but will not include the actual installation of the control device unless it is a separate operation from the installation of the piping or equipment.

ATTACHMENT 2 - RELATED INSTRUCTION

SEE CURRICULUM SECTION

### ATTACHMENT 3 - AFFIRMATIVE ACTION PLAN

The Pipe Trades Joint Apprentice and Journeyman Training Committee for Southern Nevada (hereafter referred to as the Committee) pledges that the recruitment, selection, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, sex, or age. To accomplish the purposes of the Nevada State Plan of Equal Employment Opportunities in Apprenticeship, the Committee pledges to take affirmative action to encourage minorities and women to apply for the apprenticeship program.

The following activities shall constitute the affirmative action plan. The Committee will make a good faith documented effort to participate in these activities to accomplish the purposes and goals of the State Plan.

1. Announcement of Apprenticeship opportunities shall be made at least 30 days prior to the earliest date of application. Announcement shall be made to:
  - a. Nevada State Apprenticeship Council
  - b. Office of Apprenticeship
  - c. Nevada Employment Services in the Committee's jurisdiction.
  - d. Representative groups identified with minorities and/or women
  - e. Such other appropriate groups as directed by the Nevada State Apprenticeship Council, i.e., newspaper, radio, etc.
2. Participate in workshops conducted by the Nevada State Apprenticeship Council, bona fide organizations of Apprenticeship Coordinators for the purpose of furthering apprenticeship-training opportunities.
3. Cooperate with local school boards and vocational education systems to develop a familiarization with the needs of the industry and the qualifications required for apprenticeship.
4. The Committee shall communicate this plan to its participating parties to promote understanding, acceptance and support among the parties.
5. Grant advance standing and credit on the basis of previously acquired experience, training, skills or aptitude for all applicants equally.
6. Engage in such other activities that may further the entry of minorities and/or women into apprenticeship.
7. The selection of apprentices shall be by means of a selection procedure consistent with the provisions of the Nevada State Apprenticeship Council Equal Opportunity in Apprenticeship State Plan.

8. The Committee shall make an annual study of participation of minorities and women in its utilization of these groups with the rates of their participation in the labor force in this jurisdiction. A percentage participation rate of minorities and/or women in apprenticeship which is less than their respective participation rate in the labor force signifies a utilization deficiency to be corrected through affirmative action.

Occupational Title: *	H.V.A.C. / Refrigeration Technician	
RAPIDS Code: 0666	O*NET/SOC Code:49-9021.1	
Type of selection method used: Alternative		
Labor Market Area description: Las Vegas SMSA		

### C. LABOR MARKET AREA & OCCUPATIONAL PARTICIPATION DATA

<b>C.1 Total Labor Force in Labor Market Area *</b>		
Number of Women:	480,000	44.3% of labor force
Number of Minorities:	389,533	36% of labor force
<b>C.2 Working Age Population in Labor Market Area *</b>		
Number of Women:	480,000	44.3% of labor force
Number of Minorities:	389,533	36% of labor force
<b>C.3 Apprentice Participation in Craft/Occupation in National Apprenticeship System **</b>		
Southern Nevada Number of Women:	12	4.1% of apprentices
Southern Nevada Number of Minorities:	98	33.5% of apprentices
<b>C.4 The General Availability of Minorities and Women with the Present or Potential Capacity for Apprenticeship in Program Sponsor's Labor Market Area. ***</b>		
Number of Women:		44.3%
Number of Minorities:		36%

### D. SPONSOR'S WORKFORCE DATA

<b>D.1 Total Number of Journey/Craft Workers Employed:</b>		
Number of Women:	23	2% of work force
Number of Minorities:	789	58% of work force
<b>D.2 Total Percentage of Apprentices or of Applicant Pool (depending on selection method used)</b>		
Numerical percentage of Women apprentices or women in applicant pool:	12	4.4%
Numerical percentage of Minority apprentices or minorities in applicant pool:	88	32.2%

### E. ADDITIONAL RESOURCE DATA FOR CONSIDERATION IN ESTABLISHING GOALS

Industry Source Data	Minority rate of participation	Female rate of participation
E.1 Registered Apprenticeship Partners Information Data System (RAPIDS): *	98 – 33.5%	12 – 4.1%
E.2 EEOC Occupational Employment Data: **	1305 - 34.7%	63 - 1.7%

\* Data available from Registration Agency

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

**F. DETERMINATION OF UTILIZATION**

Analysis	Yes	No
Minority Underutilization:	↙	
Female Underutilization:	↙	

**G. SPONSOR'S GOALS:**

The program sponsor proposes and agrees to make a good faith effort to attain the goal of selecting **36 %** minorities and **6.4%** women during the next EEO Review cycle. These goals will not be used to discriminate against any qualified applicant on the basis or race, color, religion, national origin or sex.

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

**H. REGISTRATION AGENCY APPROVAL:**

Sponsor	Registration Agency
_____ Sponsor's Signature	_____ Registration Agency Signature
_____ Typed Name	_____ Typed Name
_____ Title	_____ Title
_____	_____

ATTACHMENT 4  
APPRENTICESHIP RELATED INSTRUCTION CURRICULUM  
CHECK LIST

APPRENTICESHIP TITLE: **Southern Nevada Plumbers/ Pipe Fitters**

CURRICULUM TITLE: **H.V.A.C/ Refrigeration Technician**

DOT NUMBER: **862.281-022**

OJT HOURS: **8,500**

220 Minimum Hours of Related Instruction Per Year

Type of Related Instruction

<input checked="" type="checkbox"/> Correspondence Course	<input type="checkbox"/> Outside Contract Instruction
<input type="checkbox"/> Regular College Course	<input type="checkbox"/> Other (Please Explain in
<input checked="" type="checkbox"/> Course Taught By Trade Instruction	Summary Comments)

Subjects To Be Taught During Program:

- |                              |           |
|------------------------------|-----------|
| 1. <u>See Attachment # 2</u> | 7. _____  |
| 2. _____                     | 8. _____  |
| 3. _____                     | 9. _____  |
| 4. _____                     | 10. _____ |
| 5. _____                     | 11. _____ |
| 6. _____                     | 12. _____ |

Source Of Training Material (Title and Publisher):

See Attachment #2

Instruction Location:

<input checked="" type="checkbox"/> Apprenticeship Training Center	<input type="checkbox"/> College Campus
<input type="checkbox"/> Worksite After Hours	<input type="checkbox"/> Home
<input type="checkbox"/> Other (Please Explain in Summary Comments)	

Please designate Length of Related Instruction Program:  
5 Yrs (Example: 3 Yrs., 4 Yrs., etc.)

CURRICULUM CONTENT:

NO YES

- 1. Does the curriculum outline meet the required 246 hours minimum of related instruction per year?
- 2. Does the curriculum provide learning experiences representing competencies expected of employees in the occupation represented by this program?
- 3. Are the course goals, objectives, and activities clearly stated and related directly to a current task analysis for the occupation?
- 4. Are the activities arranged in a logical sequence for maximum attainment of the required industrial skills?
- 5. Is there a criteria for measuring student achievements?
- 6. Does the curriculum satisfy the requirements defined in the DOT?

\_\_\_\_\_

Approved:

\_\_\_\_\_

Not Approved:

State Supervisor of Trade & Industrial Education

SUMMARY COMMENTS:

**Testing method will be in accordance with textbook requirements which consists of written and/or performance tests.**

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## ATTACHMENT 5 - SELECTION PROCEDURE

In accordance with Code of Federal Regulation Title 29, Part 30 - Equal Employment Opportunity in Apprenticeship and Training, Selection Procedure #4, Alternate Selection methods, will be adopted as follows:

### Recruitment Procedure

1. The JATC will evaluate the need for apprentices each year and will determine the frequency of the taking of applications. This may include from once a year to year-round taking of applications. If applications are taken year round the JATC will advertise a minimum of two times per year or as required.
2. Thirty (30) days prior to accepting applications a "Notice of Taking Applications" will be published in three (3) local newspapers.
3. Copies of "Notice of Taking Applications" shall be mailed to local high schools, Construction trade s, contractors, minority organizations, union halls, and other interested parties.

### Selection Procedure

1. Applicant must complete application and provide the following:
  - a. Copy of birth certificate
  - b. Copy of high school diploma, High School Equivalency (H.S.E) or G.E.D. A High School Senior, who will graduate the year of application to this program, may apply for the program by providing a letter of intent to graduate along with current transcripts of classes taken. If the student does not graduate his/her selection into the program will be rescinded.
  - c. Legible copy of high school transcript
  - d. Valid Nevada Drivers license
  - e. Copy of Military DD-214 (if applicable)
2. Applicants that meet minimum standards must attend oral interview when scheduled.
3. Selection of applicants and the number to be offered apprenticeship will be determined by the Committee
4. Those applicants selected are subject to a Substance Abuse test prior to being indentured into the apprenticeship program.

## Applicant Ranking

Applicants will be ranked numerically by the following method.

1. Applicants will receive a combined education score based on the following:
  - a. High School Diploma = 5.0 pt.
  - b. Graduation Equivalency Document = 4.5 pt.
  - c. G.P.A. Score taken from HS/G.E.D. transcript = 4.0 max.
  - d. One point each for courses taken in High School in Construction Technologies, Plumbing, Welding or Refrigeration / HVAC and courses taken after High School such as trade, college, military etc., up to 10 points maximum = 10 max.
2. Applicants will receive a numerical value for work related experience as follows:
  - a. Two points for every year of Plumber/Pipe Fitter/Refrigeration/Helper experience:  
one month= .17 pt. no max.
3. Applicants will receive a numerical value for motivation as follows:
  - a. One point for each time applicant applies with no maximum amount of points
4. Applicants will receive a numerical value for testing as follows:
  - a. Math test will receive points as follows:

90% to 100%	=	10.0 pt.
80% to 89%	=	7.5 pt.
70% to 79%	=	5.0 pt.
60% to 69%	=	2.5 pt.
50% to 59%	=	2.0 pt.
0% to 49%	=	1.0 pt.
5. If applicant receives a total of **20 points** or more from the above criteria and a 5.0 score on the math test the applicant will be scheduled for an oral interview. The applicant during the oral interview will receive from 0 to 60 points as judged by each member of the Joint Apprentice and Journeyman Training Committee.
6. The scores from items 1, 2, 3, 4 and 5 will be totaled together and will be the numerical value given the applicant. Applicants will be ranked from highest score to lowest score. Selection will be based on this ranking.

Alternative Selection Method: (Direct entry – Job Corps with Technical Training, Approved Technical Training School Graduates, Military Veterans with Technical Training, Youthbuild Agencies and Organizational Efforts).

The Pipe Trades JATC encourages preparatory/pre-apprenticeship craft training to facilitate entry into apprenticeship. Consequently, those who complete the Job Corps training program in the plumbing / pipefitting craft areas may be given direct entry into the apprenticeship program. The JATC 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.

Those who graduate from an accredited technical training school that has been reviewed and approved by the International Pipe Trades – Joint Training Committee (IPT\_JTC), or those who graduate with diploma from a High School with two years of Construction Technologies, Plumbing, Welding or Refrigeration Classes, in recognition of the critical training they have already received for occupations registered in the plumbing and pipefitting industry, may be given direct entry into the apprenticeship program. With the approval of the JATC, such a new apprentice may start at the apprentice wage rate recommended by the IPT-JATC for graduates of that particular program. The JATC will determine as to those new apprentices what training requirements they need to meet to ensure that they receive all the necessary training for completion of the apprenticeship program. Entry of technical training school or high school graduates shall be done without regard to race, color, religion, national origin, or sex.

Military veterans, who completed military technical training school and participated in a registered apprenticeship program while in the military in the occupations registered in the plumbing and pipefitting industry, may be given direct entry into the apprenticeship program. The JATC shall evaluate the military training received for granting appropriate credit on the term of apprenticeship and the appropriate wage rate. The JATC will determine as to those new apprentices what training requirements they need to meet to ensure that they receive all the necessary training for completion of the apprenticeship program. Entry of technical training school graduates shall be done without regard to race, color, religion, national origin, or sex.

An employee of a non-signatory employer not qualifying as a journey worker when the employer becomes signatory, shall be evaluated by the JATC, and indentured at the appropriate period of apprenticeship based on previous work experience and related training. (Note: This is a method of direct entry into the apprenticeship program, whereby all minimum qualifications are waived.)

An individual who signs an authorization card during an organizing effort – wherein fifty-one percent (51%) or more of the employees have signed authorization cards, whether or not the employer becomes signatory, and is an employee of the non-signatory employer and does not qualify as a Journey Worker, shall be evaluated and indentured by the JATC at the appropriate period of apprenticeship based on previous work experience and related training. (Note: This is a method of direct entry into the apprenticeship program) for such applicants to be considered they must:

- a. Be employed in the JATC's jurisdiction when the authorization card was signed
- b. Have been employed by the employer before the organizational effort commenced
- c. All employees of the employer must have been offered the opportunity to sign authorization cards and be evaluated
- d. Provide reliable documentation to the JATC to show they were an employee performing plumbing / pipefitting work prior to signing the authorization card

# **Curriculum**

(Curriculum is being reviewed and is subject to change)

## First Year H.V.A.C. / Service Technician Course Description

### I. Related Mathematics

This Introductory course for the newly selected apprentice will provide instruction in related mathematics for the piping trades in subjects such as pipe measurements and formulas.

### II. First Year Apprentice Training

These courses will provide a general introduction to our industry while also preparing the apprentice for subsequent training. The apprentice will receive instruction in several areas allowing for him to become familiar with as much of our trade as possible so that he might become an asset to any employer as soon as possible. These areas will include job safety, use and care of tools, recognition of pipe and fittings and related material, trade-related math, trade-related science, rigging, drawing and blueprint reading, soldering, brazing, customer service and basic electricity. Also included, as mandated by the United Association, will be instruction in the history of the Union movement, UA heritage, and the responsibilities of today's union members. There will also be presentations from various guest speakers on certain aspects of the trade and our community. The apprentice must pass the math course with a minimum of 75%. Failure to pass may result in cancellation from the program.

### First Year H.V.A.C. / Service Technician Apprenticeship Curriculum 242 hours

Subject	Hours	Notes
Orientation	3	All Must Attend
Electricity	32	
Thermal Dynamics	28	
Tools and Equipment	24	
Soldering and Brazing	45	UA-SS1 and UA-51 Certifications to be achieved.
Job Safety and Health	30	
Heritage	24	
Customer Service	18	
Related Mathematics	32	
Final Exams	6	
<b>Total Hours</b>	<b>242</b>	

## Second Year H.V.A.C. / Service Technician Course Description

### I. Second Year Apprenticeship Training

These courses will provide an in-depth introduction to the service trade. The apprentice will receive instruction in six main areas. Electric motors, which will include the diagnoses of faulty equipment, repair and replacement of the defective equipment and adjustments to the proper amperage draws. Refrigeration handling, proper diagnoses of losses, re-charging of systems and the basic understanding of the types of refrigerants, handling and the replacements of these systems. CFC and R410-A certification course is used to assure the proper handling of the various types of refrigerants, the reclamation of refrigerants, re-usage and or replacement. Electric Controls for the diagnoses of faulty equipment, the proper replacement and or troubleshooting of faulty equipment. Rigging is designed to assure the technician is properly certified in the usage of crane signals and a basic understanding of rigging techniques. Customer service skills course that is designed to enhance the technician with the needs of the customer and public.

Instruction in this course will also include hands-on training in the various aspects of the trade to include brazing, soldering, pipe threading, Victaulic systems training, press fit systems, plastic pipe installations, and others.

### Second Year H.V.A.C/ Service Technician Apprenticeship Curriculum 245 hours

<b>Subject</b>	<b>Hours</b>	<b>Notes</b>
Orientation	3	All Must Attend
Electric Motors	24	
Refrigeration	50	
CFC and R410-A	40	CFC Universal and R410-A Certifications to be achieved
Electric Controls	56	
Rigging	54	NCCCO Crane Signalperson Certification to be achieved
Customer Service	18	
<b>Total Hours</b>	<b>245</b>	

**Third Year H.V.A.C. / Service Technician  
Course Description**

**I. Third Year Apprentice Training**

**A. Air Conditioning and Ventilation**

This course is to be designed for the apprentice that will include the continued understanding of the various types of air conditioning and chiller systems design, operation and installation techniques. These practices will also include the troubleshooting techniques of faulty equipment, the removal and replacement of faulty systems and equipment.

**B. Heating Systems and All Weather Systems**

This course will consist of instruction in fabrications of piping intersections and offsets. Also included will be instruction in the Hydronic Heating and Cooling systems, their layout and fabrication, the different types of materials to be used and the basic understanding of these particular types of systems.

**C. Customer Service**

This course will consist of more intense, in-depth service skills for the technician.

**Third Year Class H.V.A.C. / Service Technician Apprenticeship Curriculum  
261 Hours**

<b>Subject</b>	<b>Hours</b>	<b>Notes</b>
Orientation	3	All Must Attend
Air Conditioning and Ventilation	168	
Heating Systems and All Weather Systems	72	
Customer Service	18	
<b>Total Hours</b>	<b>261</b>	



## **Fourth Year Class H.V.A.C / Service Technician Course Description**

### **I. Fourth Year Apprentices Training**

#### **A. Refrigeration & HVAC**

This course is designed to give the apprentice a basic overall knowledge of refrigeration. The apprentice will receive instruction in the principles of refrigeration and refrigerants, evaporators, compressors, condensers, the various valves and fittings used in the system, and refrigerant piping. The apprentice will also be instructed in pneumatic controls, line and low voltage controls installation, and become familiar with Direct Digital Control/Building Automation System. Special emphasis will be given to the installation of refrigeration equipment, refrigerant piping, and the various valves and fittings. The apprentice will be expected to be able to install and start up a system after this class, not necessarily troubleshoot and repair a refrigerant system. Skills such as brazing and use of testing, evacuation and charging equipment will be taught. The HVAC portion will consist of instruction in the basic knowledge of heating and air conditioning systems. Topics will include pumps, steam systems, boilers, hydronic systems, central air systems, and industrial pipefitting installations. Emphasis will be given to the systems which are especially applicable to our local jurisdiction. Blueprint reading, isometric drawing, and mechanical room layout will also be a feature of this class.

#### **B. Steam Systems**

This class will consist of providing a basic knowledge of a steam system. Emphasis will be given to systems that are applicable to our area and trade.

#### **C. Pumps**

These courses will consist of instruction in the basic knowledge of heating and air conditioning systems. Topics will include pumps, hydronic systems, central air systems and industrial pipefitting installations. Emphasis will be given to the systems which are especially applicable to our local jurisdiction. Blueprint reading, isometric drawing, and mechanical room layout will also be a feature of this class.

#### **D. Environmental Codes and Standards**

This course will promote uniform administration and enforcement of the Environmental codes and standards that are used to regulate the handling of refrigerants, standards and laws that are in place to protect the environment.

#### **E. Customer Service**

This course is designed for the increased skills on customer service and customer satisfaction that shall include the enhanced skills of the technician.

**Fourth Year H.V.A.C. / Service Technician Curriculum  
225 Hours**

<b>Subject</b>	<b>Hours</b>	<b>Notes</b>
Orientation	3	All Must Attend
Refrigeration	100	
Steam Systems	60	
Pumps	24	
Environmental Codes and Standards	20	
Customer Service	18	
<b>Total Hours</b>	<b>225</b>	

## **Fifth Year Class Plumbers/Pipe Fitters Course Description**

### **I. Fifth Year Apprentice Training**

#### **A. Foreman Awareness Course**

This course will consist of instruction in the relation to the UA/MCA Forman Awareness Course. The apprentice will be given a directive in the UA Standards for Excellence as well as the job duties and directives to achieve this certification. This course is designed to promote awareness as to the installation of timely projects, the promise of skilled labor in the workforce and how to achieve a complete customer satisfaction of a project in a timely manner. This course is also designed on how to deal with jobsite communications and the completion of a project.

#### **B. Chilled Water Systems**

This course is designed to inform the apprentice on chilled water systems designs, installation techniques, performance and troubleshooting of faulty parts and or designs.

#### **C. Building Automation Systems**

This course is designed to educate the apprentice on the design and installation of building automation systems, their design and layout. This course will also educate the apprentice on the basic functions of these particular types of systems, automation procedures and troubleshooting.

#### **D. Pneumatics**

This course is designed to inform the apprentice on the different types of pneumatic systems, their design and installation techniques.

#### **E. UA STAR**

The UA STAR class and exam is a mastery class based on 12 subjects that have been taught throughout the 5 years of Apprenticeship training for the H.V.A.C. and Service Technician Apprentice.

#### **F. Customer Service**

This course is designed to be a completed path for the service technician to advance their customer skills, handling problems with the customer and to assure that all interested parties are satisfied with the results of the technician.

**5<sup>th</sup> Year Plumber / Pipefitter Apprenticeship Curriculum**  
**220 Hours**

<b>Subject</b>	<b>Hours</b>	<b>Notes</b>
Orientation	3	All Must Attend
UA STAR Certification Course	40	UA S.T.A.R. Certification to be achieved.
Chilled Water Systems	21	
Building Automation	30	
Pneumatics	63	
Customer Service	18	
Foreman Awareness	45	UA Forman Awareness Certification to be achieved.
<b>Total Hours</b>	<b>220</b>	

