

**Revised
NATIONAL
GUIDELINES FOR
APPRENTICESHIP STANDARDS**

developed jointly by

**SHEET METAL, AIR, RAIL AND TRANSPORTATION
WORKERS' INTERNATIONAL ASSOCIATION**

and the

**SHEET METAL AND AIR CONDITIONING
CONTRACTORS NATIONAL ASSOCIATION, INC.**

for the occupation of

SHEET METAL WORKER

O*NET-SOC CODE: 47-2211.00

RAPIDS CODE: 0510HY

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

**APPROVED AND CERTIFIED BY THE
U.S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP**

BY: _____ /s/

**JOHN V. LADD, ADMINISTRATOR
OFFICE OF APPRENTICESHIP**

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FOREWORD

The Sheet Metal, Air Rail and Transportation (SMART) International Association and the National Sheet Metal and Air Conditioning Contractors Association, Inc. recognizes the need for structured training programs to maintain the high level of skill and competence demanded in the sheet metal industry. Registered apprenticeship is the most practical and sound training system available to meet that need, to develop individuals into skilled journeyworkers, and to ensure industry an adequate supply of skilled workers

Title 29, Code of Federal Regulations (CFR), part 29, outlines the requirements for registration of acceptable apprenticeship programs for Federal purposes, and sets forth labor standards that safeguard the welfare of apprentices. Such registration may be by the U. S. Department of Labor, Office of Apprenticeship, or by a State Apprenticeship Agency recognized by the OA as the appropriate body in that State for approval of local apprenticeship programs for Federal purposes. Title 29, CFR, part 30 sets forth the requirements for equal employment opportunity in apprenticeship to which all registered apprenticeship programs must adhere.

The purpose of these National Guidelines for Apprenticeship Standards (National Guideline Standards) is to provide policy and guidance to local Joint Apprenticeship and Training Committee (JATC) members in developing Standards for Apprenticeship for local approval and registration. These National Guideline Standards, developed by the International Training Institute (ITI) are certified by the U. S. Department of Labor, Office of Apprenticeship, as substantially conforming to the requirements of Title 29, CFR parts 29 and 30. State Apprenticeship Agencies recognized by the OA to register local programs, and/or local laws and regulations, may impose additional requirements that must be addressed in the local apprenticeship standards.

Local Standards of Apprenticeship must be developed and registered by each JATC that undertakes to carry out an apprenticeship training program. The local Standards of Apprenticeship will be the JATC's written plan outlining all terms and conditions for the recruitment, selection, employment, training, and supervision of apprentices as subscribed to by the JATC, and must meet all the requirements of the local Registration Agency.

The ITI has dedicated it's time to develop an efficient training program so the apprentice can, through a systematic program of on-the-job learning and related instruction, become a well-qualified Sheet Metal Worker. The degree of success that the ITI has in its operation will depend entirely upon the willingness of all local parties of the sheet metal industry to cooperate in this joint activity. Quality training methods remain a high priority with the Sheet Metal, Air, Rail and Transportation (SMART) International Association and the Sheet Metal and Air Conditioning Contractors National Association, Inc.

DEVELOPMENT OF AFFIRMATIVE ACTION PLAN AND SELECTION PROCEDURES

Equal employment opportunity is required of every registered apprenticeship program. Such requirements apply to the recruitment, selection, employment, and training of apprentices throughout their apprenticeship.

Those programs with five or more apprentices, or where there is a likelihood of five or more apprentices, must have a written Affirmative Action Plan and Selection Procedures that is approved by the Registration Agency as part of the Standards of Apprenticeship.

A sample Affirmative Action Plan and Selection Procedures are attached.

Representatives of the Registration Agency are available to assist the local JATC in developing its Standards of Apprenticeship, Affirmative Action Plan and Selection Procedures using the samples provided. Once developed, the Standards of Apprenticeship, as well as the Affirmative Action Plan and Selection Procedures must be submitted to the Registration Agency for approval and registration. Company Affirmative Action Plan's and Selection Procedures (hiring process) may be considered in lieu of utilizing the samples provided if they meet all of the requirements of Title 29, CFR part 30.

**OFFICIAL ADOPTION OF NATIONAL GUIDELINES FOR
APPRENTICESHIP STANDARDS:**

The Sheet Metal, Air, Rail and Transportation (SMART) International Association and the Sheet Metal and Air Conditioning Contractor's National Association, Inc., hereby officially adopts these National Guidelines for Apprenticeship Standards on this 13th Day of March 2014.

_____/s/_____
Signature

**Joseph J. Nigro, General President
Sheet Metal, Air, Rail and Transportation
(SMART) International Association**

_____/s/_____
Signature

**Randy Novak, President
Sheet Metal and Air
Conditioning
Contractors' National
Association, Inc.**

(SAMPLE)

STANDARDS OF APPRENTICESHIP

DEVELOPED BY

(NAME OF JATC)

FOR THE OCCUPATION OF

SHEET METAL WORKER

O*NET-SOC CODE: 47-2211.00

RAPIDS CODE: 0510HY

APPROVED BY

(REGISTRATION AGENCY)

These “model” National Guidelines for Apprenticeship Standards are an example of how to develop apprenticeship standards that will comply with Title 29, CFR parts 29 and 30 when tailored to a sponsor’s apprenticeship program. These model Standards do not create new legal requirements or change current legal requirements. 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 the model Apprenticeship Standards is accurate and up-to-date.

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FOREWORD

These *[insert name of Joint Apprenticeship and Training Committee (JATC)]* Apprenticeship Standards have as their objective the training of Sheet Metal Workers skilled in all phases of the industry. The JATC recognizes that in order to accomplish this, there must be well-developed on-the-job learning and supplemental related instruction.

This recognition has resulted in the development of these Apprenticeship Standards. 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 JATC's 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 Joint Apprenticeship and Training Committee setting forth the responsibilities and obligations of all parties to the Agreement with respect to the Apprentice's employment and training under the Standards. Each Apprenticeship Agreement must be 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 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).

ASSOCIATION: Shall mean the Sheet Metal, and Air Conditioning Contractors' National Association, Inc. (SMACNA).

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 the Standards of Apprenticeship.

CERTIFICATE OF TRAINING: A Certificate of Training may be issued by the U.S. Department of Labor's Office of Apprenticeship Administrator to those registered apprentices that the JATC has certified in writing to the Registration Agency that the apprentice has successfully met the requirements to receive an interim credential. (*if applicable*)

COLLECTIVE BARGAINING AGREEMENT: The negotiated agreement between the Union and signatory employers that sets forth the terms and conditions of employment.

COORDINATOR: Means the person designated by the local JATC to perform the duties stated in the 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: Any signatory member of the SMACNA, or any other contractors having an agreement with the Sheet Metal Workers' International Association.

HYBRID OCCUPATION: The hybrid approach measures the individual apprentice's skill acquisition through a combination of specified minimum number of hours of on-the-job-learning and the successful demonstration of competency as described in a work process schedule.

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: Means the local Joint Apprenticeship and Training Committee, any person, association, committee, or organization operating an apprenticeship program and in whose name the program is (or is to be) registered or approved.

PROVISIONAL REGISTRATION: Means the 1-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.

SKILLS USA: SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA is a national nonprofit organization serving teachers high school and college students who are preparing for careers in trade, technical and skilled service occupations. It was formerly known as VICA.

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.

TOTAL TRACK: An electronic means of tracking related instruction and OJL that can be verified by both the apprentice, the employer and the Joint Apprenticeship and Training Committee.

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.

UNION: Means any Local Union, affiliated with the Sheet Metal, Air, Rail and Transportation (SMART) International Association, formerly known as SMWIA.

YOUTHBUILD U.S.A.: YouthBuild is a youth and community development program that simultaneously addresses core issues facing low-income communities: housing, education, employment, crime prevention, and leadership development. In YouthBuild programs, low-income young people ages 16-24 work toward their GED or high school diploma, learn job skills and serve their communities by building affordable housing, and transform their own lives and roles in society.

SECTION I. - PROGRAM ADMINISTRATION (SAMPLE)

Structure of the Joint Apprenticeship and Training Committee (JATC)

- A. Members of the JATC will be selected by the groups they represent.
- B. Membership will be composed of an equal number of representatives of the employer(s) and of the employees represented by a bona fide collective bargaining agent(s).
- 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 JATC.

Administrative Procedures

- A. The JATC shall elect a Chairperson and a Secretary, and shall determine the time and place of regular meetings.
- B. The Chairperson and Secretary shall have the power to vote on all questions affecting apprenticeship.
- C. When, in any year, the Chairperson of the JATC is a representative of the contractors, and then the Secretary shall be a representative of the Union, or vice versa.
- D. The JATC may at any time establish such additional rules and regulations as they may deem to be required for the implementation and operation of its apprentice programs.
- E. Nothing contained in the Standards shall in any way abridge the full autonomy of the JATC to supervise and administer its program.

Responsibilities of the JATC

All duly registered apprentices shall be under the supervision and control of the JATC. The JATC shall formulate and make operative such rules and regulations as it may deem necessary, and which do not conflict with the specific terms of the local labor agreement, to govern eligibility, registration, education, transfer, wages, hours and working conditions of the apprentice and the operation of an adequate apprenticeship program to meet the needs and requirements of the occupation. Furthermore, the JATC shall be vested with the authority to set-up an apprenticeship program in conformity with the National Guideline Standards recommended by the ITI for the Sheet Metal Industry. The JATC shall regulate, supervise and control all matters relating to apprenticeship of the Sheet Metal Worker and be the sole agency within the jurisdiction of the sponsoring local groups governing apprenticeship matters. The JATC shall:

- A. Employ an Apprenticeship Coordinator. Experience has proven the need for and the value of a full-time Apprenticeship Coordinator and will ensure that maximum benefits are derived from the training program.
- B. Determine the need for new apprentices, with due regard to present and future needs of the trade.
- C. Ensure that apprentices are under written Apprenticeship Agreements and register the local apprenticeship standards and Agreements with the appropriate Registration Agency.
- D. Establish the minimum standards of education and experience required of apprentices.
- E. The Apprenticeship Agreement executed between an apprentice and the JATC does not obligate the JATC to actually employ the apprentice; but it does obligate the JATC to see to it that the apprentice is properly trained and supervised by the employer. The Agreement also obligates the JATC to use its best influence to keep the apprentice continuously employed when work is available.
- 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 adjust all complaints of violation of Apprenticeship Agreements.
- H. Arrange tests 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. Make a periodic report covering the work of the JATC to the local employers and the union. (Minutes shall be kept of each meeting of the JATC.)
- K. Determine the physical fitness of qualified applicants to perform the work of the occupation which may require a medical examination prior to their employment as apprentices and drug test.
- L. Advise apprentices on the need for preventing accidents and give instruction with respect to safe construction.
- M. Notify the appropriate Registration Agency of all terminations and cancellations with explanation of causes therefore 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. In areas where the SMWIA code of Excellence Program (see Appendix E) has been adopted by local leadership and approved by members, apprentices will be educated as to the utility, purpose and intent of the Program.
- P. When permissible, make space available for rent to occupation related vendors and testing agencies on a limited basis.
- Q. 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, part 30, as amended (insert applicable state regulations here, if applicable).

SECTION III. - AFFIRMATIVE ACTION PLAN - Title 29 CFR 29.5(b)(21) and 30.4

If the employer employs five or more apprentices, the local JATC will adopt an Affirmative Action Plan and Selection Procedures as required under Title 29, CFR part 30. It will be attached as Appendix C.

SECTION IV. - QUALIFICATIONS FOR APPRENTICESHIP - Title 29 CFR 29.5(b)(10) (EXAMPLES)

Applicants shall meet the following minimum qualifications:

- A. Age

Shall be at least 18 years of age.

An applicant who is sixteen (16) years of age and is participating in a school-to-work program or equivalent and who otherwise meets all qualifications may be rated, ranked and placed on the list of eligible

applicants. Such an applicant must be eighteen (18) years of age prior to being accepted into the apprenticeship program.

B. Education

A high school diploma or GED equivalency is recommended. 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

Shall be physically capable of performing the essential functions of the apprenticeship program without posing a direct threat to the health and safety of the individual or others.

Qualified applicants may be subject to a physical examination or drug screening or both on acceptance into the program and prior to being employed. The cost of the examination and/or drug screening shall be the responsibility of the JATC or the Employer.

SECTION V. - SELECTION OF APPRENTICES - Title 29 CFR 30.5

Selection into the apprenticeship program will be in accordance with the selection procedures made a part of these standards. (Appendix D)

SECTION VI. - 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 shall be covered by a written Apprenticeship Agreement (Appendix B) signed by the JATC and the apprentice and approved by and registered with the Registration Agency. Such agreement shall 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 shall be furnished to the apprentice, the JATC, the Registration Agency, the employer and the Union. 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 shall be given an opportunity to read and review these Standards, the JATC's written rules and policies, the Apprenticeship Agreement and the sections of the Collective Bargaining Agreement (CBA) that pertain to apprenticeship.

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 VII. - RATIO OF APPRENTICES TO JOURNEYWORKERS - Title 29 CFR 29.5(b)(7)

A numeric ratio of apprentices to journeyworkers consistent with proper supervision, training, safety, and continuity of employment and applicable provisions in collective bargaining agreements, except where such ratios are expressly prohibited by the collective bargaining agreements. The ratio language must be specific and clearly described as to its application on the job site, workforce, department or plant. The ratio of apprentices to journeyworkers will be (1) one apprentice to (2) two journeyworkers.

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

The recommended term of the apprenticeship shall be either four (4) years* with an OJL attainment of approximately 6,400 hours supplemented by the required hours of related instruction, or five (5) years with an OJL attainment of approximately 8,000 hours supplemented by the required hours of related instruction as stated on the Work Process Schedule and Related Instruction Outline (Appendix A). Full credit shall be given for the probationary period.

An apprentice, who, by exceptional aptitude or as a result of past education and/or practical experience, achieves the desired level of competency in a phase of the apprenticeship program in less than the time designated, may be advanced to the next phase, therefore accelerating the term of their apprenticeship.

* A year is considered to be 1600-1800 hours of OJL.

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

All applicants selected for apprenticeship will serve a probationary period. The probationary period cannot exceed twenty-five (25) percent of the length of the program, or one-year (1), whichever is shorter.

During the probationary period either the apprentice or the JATC 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 JATC for reasonable cause after documented due notice to the apprentice and a reasonable opportunity for corrective action. In such cases, the JATC will provide written notice to the apprentice and to the Registration Agency of the final action taken.

SECTION X - HOURS OF WORK

Apprentices shall generally work the same hours as journeyworkers, except that no apprentice shall 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 shall have the term of that segment extended until the required number of hours of training are accrued.

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

Apprentices shall 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 JATC shall evaluate all progress to determine whether advancement has been earned by satisfactory on-the-job learning and in related instruction classes. In determining whether satisfactory progress has been made, the JATC shall be guided by the work experience and related instruction records and reports.

The progressive wage schedule shall be an increasing percentage of the journeyworker wage rate as established in the CBA. The percentages that will be applied to the applicable journeyworker rate are shown on the attached Sample 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 XII - CREDIT FOR PREVIOUS EXPERIENCE - Title 29 CFR 29.5(b)(12) and 30.4(c)(8)

The JATC 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 of Apprenticeship. There are three (3) ways to accelerate the program; direct entry, previous experience, demonstration of acquired competencies (skills and knowledge) as verified by the sponsor, where the following requirements are met:

Apprentice applicants seeking credit for previous experience gained outside the supervision of the JATC must submit the request at the time of application and furnish such records, affidavits, and other (insert requirements) to substantiate the claim. The request for credit will be evaluated and a determination made by the JATC while actual on-the-job and related instruction performance can be examined. 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 shall be advanced to the wage rate designated for the period to which such credit accrues.

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

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

During the apprenticeship the apprentice shall receive such on-the-job learning and related instruction in applicable phase or phases of the occupation necessary to develop the skill and proficiency of a skilled employable journeyworker. The on-the-job learning shall be under the guidance of qualified journeyworkers.

The work process for the occupation is covered in the attached Work Process Schedule (Appendix A).

SECTION XIV. - RELATED INSTRUCTION - Title 29 CFR 29.5(b)(4)

During each segment of training each apprentice is required to attend classes in subjects related to the job as outlined in Appendix A. For each occupation, the recommended term of apprenticeship will include no less than 200 hours of related instruction for each year of the apprenticeship. Apprentices agree to take such subjects as the JATC deems advisable. These subjects will be determined by direct counseling with the student and must offer the student an in depth knowledge of one or more aspects of the industry that provide the best opportunity for future continued employment. The JATC shall 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 shall be required to take a correspondent course in sheet metal that meets the approval of the JATC and Registration Agency.

Apprentices (***JATC inserts "will" or "will not"***) be paid for hours spent attending related instruction classes.

The JATC shall inform each apprentice of the availability of college credit through the International Training Institute's College Credit Program with the American Council on Education (ACE) and Ivy Tech State College, and the National Labor College.

Any apprentice who is absent from related instruction classes, unless officially excused, shall satisfactorily complete all class work missed before being advanced to the next period of training. In cases of failure of an apprentice to fulfill the obligations regarding classroom or OJL without due cause, the JATC shall 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 shall be closely correlated with the practical experience and training received on the job. The JATC shall monitor and document the apprentice's progress in related instruction classes.

The JATC shall secure competent instructors whose knowledge, experience, and ability to teach will be carefully examined and monitored. This may be accomplished through such media as; classroom, occupational or industry courses, or electronic media, or other instruction as approved by the administering agency. All apprenticeship instructors shall meet the State Department of Education's requirements for vocational-technical instructor in the state of registration and/or be recognized as a subject matter expert, e.g., journeyworker. The JATC will require the instructors to attend the International Training Institute Training Programs for course work in teaching techniques and adult learning behaviors and learning styles.

SECTION XV. - SAFETY AND HEALTH TRAINING - Title 29 CFR 29.5(b)(9)

All apprentices shall receive instruction in safe and healthful work practices both on-the-job and in related technical instruction that are in compliance with the Occupational Safety and Health Standards promulgated by the Secretary of Labor under Public Law 91-596, dated December 29, 1970, and subsequent amendments to the Public 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 in such manner as to ensure their own safety and that of their fellow workers.

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

No apprentice shall work without proper or adequate supervision of the journeyworker.

For the purpose of these apprenticeship standards, adequate or proper supervision of the apprentice means the apprentice is under the supervision of a fully qualified journeyworker or supervisor at all times who is responsible for making work assignments, on-the-job learning and safety at the worksite.

To adequately or properly supervise an apprentice does not mean the apprentice must be within eyesight or reach of the supervisor, but that the supervisor knows what the apprentice is working on; is readily available and making sure the apprentice has the necessary instruction and guidance to perform their level of performance safely, correctly, and efficiently.

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

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

Before each period of advancement, or at any other time when conditions warrant, the JATC shall evaluate the apprentice's record to determine whether he/she has made satisfactory progress. If an apprentice's related instruction or on-the-job progress is found to be unsatisfactory, the JATC may determine whether the apprentice will continue in a probationary status, or require the apprentice repeat a process or series of processes before advancing to the next wage classification. In such cases, the JATC 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 JATC will, after the apprentice has been given adequate assistance and opportunity for corrective action, terminate the Apprenticeship Agreement.

Written and/or electronic records of progress evaluations and corrective and final actions shall be maintained by the JATC. The Registration Agency will be notified of all registrations, credit granted, suspensions for any reason, reinstatements, extensions, completions, and cancellations.

SECTION XVIII - MAINTENANCE OF RECORDS - Title 29 CFR 29.5(b)(23) and 30.8(e)

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

SECTION XIX. - 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 JATC shall 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 shall be accompanied by the appropriate documentation for both the on-the-job learning and the related instruction.

Certificate of Training – A Certificate of Training may be issued by the U.S. Department of Labor’s, Office of Apprenticeship Administrator to those registered apprentices that the JATC has certified in writing to the Registration Agency that the apprentice has successfully met the requirements to receive an interim credential. Any individual who successfully completes one or more of the ITI career paths identified in Appendix “A” may receive a Certificate of Training.

SECTION XX. - 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 XXI. - CANCELLATION AND DEREGISTRATION – Title 29 CFR 29.5(b)(18) and 29.8(a)(2)

These Apprenticeship Standards will, upon adoption by the JATC be submitted to the Registration Agency for approval. Such approval will be acquired before implementation of the program.

The JATC reserves the right to discontinue at any time the apprenticeship program set forth herein. The Registration Agency shall be notified promptly of any decision to cancel the program.

Deregistration of these Standards of Apprenticeship may be initiated by the Registration Agency for failure of the JATC 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 JATC will notify each apprentice of the cancellation and the effect of same. This notification will conform to the requirements of Title 29, CFR part 29.8.

SECTION XXII. - AMENDMENTS OR MODIFICATIONS - Title 29 CFR 29.5(b)(18)

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

SECTION XXIII. - ADJUSTING DIFFERENCES/COMPLAINT PROCEDURE - Title 29 CFR 29.5(b)(22), 29.7(k) and 30.11

The JATC shall have full authority to supervise the enforcement of these Apprenticeship Standards. Its decision will be final and binding on the employer, the union, and the apprentice, unless otherwise noted below.

If an applicant or an apprentice believes an issue exists that adversely affects their 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)

For issues regarding wages, hours, working conditions, and other issues covered by the CBA, apprentices may seek resolution through the applicable Grievance and Arbitration procedures contained in the Articles of the CBA.

The JATC 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 JATC 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: **(The JATC should insert applicable information here).**

Title 29 CFR 30.11

Any apprentice or applicant for apprenticeship who believes that they have 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 or her selection have not been followed in the operation of an apprenticeship program, may personally or through an authorized representative, file a complaint with the Registration Agency or, at the apprentice or applicant's

election, with the private review body established by the Program Sponsor (if applicable).

The complaint shall be in writing and shall 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, and, in the case of complaints filed directly with the review body designated by the Program Sponsor to review such complaints, any referral of such complaint by the complainant to the Registration Agency must occur within the time limitation stated above or thirty (30) days from the final decision of such review body, whichever is later. The time may be extended by the Registration Agency for good cause shown.

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

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

SECTION XXIV. - COLLECTIVE BARGAINING AGREEMENTS – Title 29 CFR 29.11

Nothing in this part or in any apprenticeship agreement will operate to invalidate:

- a. Any apprenticeship provision in any collective bargaining agreement between employers and employees establishing higher apprenticeship standards; or
- b. Any special provision for veterans, minority persons, or women in the standards, apprentice qualifications or operation of the program, or in the apprenticeship agreement, which is not otherwise prohibited by law, Executive Order, or authorized regulation.

SECTION XXV - 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:

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

If the Sponsor is unable to fulfill his/her training obligation due to lack of work or failure to conform to these Standards the Sponsor will make every effort to refer the apprentice with his/her consent to another employer, Registration Agency or One Stop for placement into another registered apprenticeship program. This will provide the apprentice an opportunity for continuous employment and completion of their apprenticeship program. The apprentice must receive credit from the new employer for the training already satisfactorily completed.

SECTION XXVI. - RESPONSIBILITIES OF THE APPRENTICE

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

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

- A. Perform diligently and faithfully the work of the trade and other pertinent duties assigned by the JATC and the employer in accordance with the provisions of the Standards.
- B. Respect the property of the employer and abide by the working rules and regulations of the employer, union and the JATC.
- C. Attend and satisfactorily complete the required hours in the on-the-job learning and in related technical instruction in subjects related to the trade as provided under these standards.
- D. Maintain and make available such records of work experience and training received on the job and in related instruction in written or by electronic means utilizing Total Track as may be required by the JATC.
- E. Develop and practice safe working habits and work in such a manner as to assure his/her personal safety and that of other workers.
- F. Work for the employer to who assigned to the completion of apprenticeship, unless reassigned to another employer or the Agreement is terminated by the JATC.

SECTION XXVII - 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 JATC.

The JATC 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 XXVIII - OFFICIAL ADOPTION OF APPRENTICESHIP STANDARDS:

The *(Name of JATC)* hereby adopts these Standards for Apprenticeship on this _____ Day of *(Insert Month/Year)*.

REPRESENTING THE *(Name of the JATC)*:

Signature of JATC Chairperson

Signature of JATC Secretary

Printed Name

Printed Name

Appendix A

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

This occupation schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

The minimum term of the occupation shall be either four (4) years* with an OJL attainment of approximately 6,400 hours supplemented by the required hours of related technical instruction, or five (5) years with an OJL attainment of approximately 8,000 hours supplemented by the required hours of related technical instruction.

*A year is considered to be 1600-1800 hours of OJL.

2. RATIO OF APPRENTICES TO JOURNEYWORKERS

Insert ratio as covered in the Collective Bargaining Agreement (CBA).

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyworker wage rate, or as per the CBA.

4 Year Term Example:

1 st 6 Months + hours = <u>50%</u>	5 th 6 Months + hours = <u>70%</u>
2 nd 6 Months + hours = <u>55%</u>	6 th 6 Months + hours = <u>75%</u>
3 rd 6 Months + hours = <u>60%</u>	7 th 6 Months + hours = <u>80%</u>
4 th 6 Months + hours = <u>65%</u>	8 th 6 Months + hours = <u>85%</u>

5 Year Term Example:

1 st 6 Months + hours = <u>50%</u>	6 th 6 Months + hours = <u>75%</u>
2 nd 6 Months + hours = <u>55%</u>	7 th 6 Months + hours = <u>80%</u>
3 rd 6 Months + hours = <u>60%</u>	8 th 6 Months + hours = <u>85%</u>
4 th 6 Months + hours = <u>65%</u>	9 th 6 Months + hours = <u>90%</u>
5 th 6 Months + hours = <u>70%</u>	10 th 6 Months + hours = <u>95%</u>

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

JATC's may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Course Outline)

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

Core sheet metal work	Approximate Minimum/Maximum hours	
	4 YR	5 YR
	3,200 – 3,600	4,000 – 4,500

Upon completion of this course the apprentice will be able to identify and describe trends and technologies necessary to keep sheet metal workers at the forefront of the profession and to perform the basic skills every sheet metal worker needs to become a competent journeyman.

Career Paths: **Approximate Minimum/Maximum hours**
Choose one or more of the following career paths:

Architectural Sheet metal work -- 3200-3600
 Upon completion of this course the apprentice will be able to layout, fabricate, install and maintain architectural sheet metal systems and components.

Residential HVAC\Service work -- 3200-3600
 Upon completion of this course the apprentice will be able to layout, fabricate, install, maintain and repair residential hvac systems.

Commercial HVAC work -- 3200-3600
 (The nature of the work in this path could fulfill the "CORE" hours)
 Upon completion of this course the apprentice will be able to layout, fabricate and install commercial hvac systems and components.

Industrial sheet metal\Welding work (blow pipe, -- 3360-3760
 Cyclones, bag houses, conveyor systems, etc.)
 Upon completion of this course the apprentice will be able to layout, fabricate and install industrial sheet metal systems and components.

Testing and Balancing\Commissioning\Filtration..... -- 3200-3600
 Upon completion of this course the apprentice will be able to test, adjust and balance building environmental systems to meet the design engineer's objectives.

Sign work -- 3200-3600
 Upon completion of this course the apprentice will be able to layout, fabricate and install sheet metal signs and components.

Commercial-Industrial Service work..... 3200-3600
 Upon completion of this course the apprentice will be able to fabricate, install maintain and repair commercial and industrial HVAC systems and components.

Detailing (Developing coordination drawings, Field measuring, construction documents, etc.) This path requires the apprentice to work a minimum of 3200-3600 hours in HVAC commercial work.

Upon completion of this course the apprentice will be able to operate computer programs that assist with the creation of Building Information Models, working shop drawings and other construction documents.

Supplemental work

The supplemental hours are provided in addition to the Core and Career Paths. Select any of the following to enhance the apprentice’s employability.

Approximate Minimum/Maximum hours

Project Management work..... --- 800-900

Upon completion of this course the apprentice will be able to direct a construction project for a contractor.

Foreman work --- 800-900

Upon completion of this course the apprentice will be able to practice effective principles for managing and leading others on a construction project.

Welding work..... --- 800-900

Upon completion of this course the apprentice will be able to set-up welding machines and to perform welding procedures on different metals.

Blueprint reading ---800-900

Upon completion of this course the apprentice will be able to read, understand and interpret construction plans, specifications and related documents.

	4 YR	5 YR
TOTAL HOURS.....	6,400 – 7,200	8,000 – 9,000

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Sheet Metal Curriculum (s) (Choose one or more of the following career paths)	Approximate hours
Sheet Metal Core	400
Architectural	400
Residential HVAC/Service	400
HVAC.....	400
Industrial Sheet Metal (Includes Welding Supplemental).....	560
Testing and Balancing	300
Sign Work	400
Commercial-Industrial Service Work	400
Detailing	450

Supplemental Curriculums	Approximate hours
The supplemental curriculums are provided in addition to the Core and Career Paths. Select any of the following to enhance the apprentice's employability.	
Project Management.....	250
Foreman.....	250
Welding.....	500
Blueprint Reading (Plans and Specifications	250

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Core Curriculum

- | | |
|---|--|
| I. Trade Overview | XXXVIII. Round Elbow Layout |
| II. Trade History | XXXIX. Round Taper Layout |
| III. Roles and Responsibilities | XL. Roof-Jack Layout |
| IV. Getting Along at Work | XLI. Offset Square-to-Round Layout |
| V. Good Communication | XLII. Layout of Rectangular Transitions |
| VI. Respect | XLIII. Duct-Change Elbow Layout |
| VII. Teamwork | XLIV. Regular and Change-Ogee Offset |
| VIII. Ethics | XLV. Round Y-Branch Layout |
| IX. Conflict | XLVI. Gutters and Ventilators |
| X. Survival Skills | XLVII. Safety: OSHA 10 |
| XI. Personal Finance | XLVIII. Introduction to OSHA |
| XII. Looking Ahead | XLIX. Electrical Safety |
| XIII. Trade Materials | L. Fall Protection |
| XIV. Properties of Metal | LI. Tool Safety |
| XV. Architectural Principles | LII. Scaffold Safety |
| XVI. Alternative Materials | LIII. Stairway and Ladder Safety |
| XVII. Hardware of the Craft | LIV. Personal Protective Equipment (PPE) |
| XVIII. Fabrication | LV. Materials Handling and Storage |
| XIX. Sheet Metal Hand Tools | LVI. Fire Safety |
| XX. Seams, Locks and Edges | LVII. Hazard Communications |
| XXI. Shop Procedures | LVIII. Safety |
| XXII. Shop Equipment | LIX. Job-Site Safety |
| XXIII. Drafting | LX. Confined Spaces |
| XXIV. Drafting Tools | LXI. Blood borne Pathogens |
| XXV. Lines and Lettering | LXII. Forklift Safety |
| XXVI. Computers and CAD | LXIII. Motor Vehicle Safety |
| XXVII. Orthographic Projection | LXIV. HAZMAT |
| XXVIII. Pictorial Drawings and Sketches | LXV. Ergonomics |
| XXIX. Plans and Specifications | LXVI. Welding Safety |
| XXX. Layout | LXVII. Field Installation |
| XXXI. Layout Construction | LXVIII. Organizing Tools and Equipment |
| XXXII. Layout Tools and Terms | LXIX. Materials Handling and Staging |
| XXXIII. Principles of Layout | LXX. Field Installation by Specialty |
| XXXIV. Parallel-Line Layout | LXXI. Plans, Specifications |
| XXXV. Radial- Line Layout | LXXII. Costing and Bidding |
| XXXVI. Triangulation | |
| XXXVII. Round Tee Layout | |

TOTAL: 400 HOURS

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Architectural Curriculum

I.	Introduction to ASM	XL. Materials Handling
II.	Overview	XLI. Transporting
III.	Relationships	XLII. Staging
IV.	Safety in ASM	XLIII. Wall Systems
V.	Career Specialties	XLIV. Overview
VI.	Materials	XLV. Wall Panels
VII.	Properties of Metals	XLVI. Screens and Curtains
VIII.	Characteristics of Metals	XLVII. Shop Layout and Fabrication
IX.	Gauging of Metals	XLVIII. ASM Shop
X.	Non-Metal materials	XLIX. Layout
XI.	Moisture Control	L. Fabrications
XII.	Water Movement	LI. Supports and Substrates
XIII.	Expansion and Contraction	LII. Structure
XIV.	Problems	LIII. Underlayments
XV.	Solutions	LIV. Roof Drainage Systems
XVI.	Sealants	LV. Design Factors
XVII.	Functions, Types, and Uses	LVI. Downspouts
XVIII.	Packaging and Application	LVII. Gutters
XIX.	Soldering	LVIII. Additional parts
XX.	Flashing	LIX. Miscellaneous Components
XXI.	Flashing Overview	LX. Installation
XXII.	Types and Installation	LXI. Roof Systems
XXIII.	Seams, Locks, and Edges	LXII. Overview
XXIV.	Lap and Butt Seams	LXIII. Metal Panels
XXV.	Interlocking Seams	LXIV. Types of metal Roofs
XXVI.	Edges	LXV. Roofing Accessories
XXVII.	Fastening and Joining	LXVI. Louvers
XXVIII.	Fastening Types	LXVII. Ventilators
XXIX.	Compatibility	LXVIII. Special ASM
XXX.	Tools and Equipment	LXIX. Typical Miscellaneous Work
XXXI.	Hand Tools	LXX. Restoration and Repair
XXXII.	Shop Equipment	LXXI. Project Management
XXXIII.	Measurement	LXXII. Plans and Specs
XXXIV.	Techniques	LXXIII. Scope of Work
XXXV.	Tools	LXXIV. Costing
XXXVI.	Practical Applications	LXXV. Implementation
XXXVII.	Field Installation	
XXXVIII.	Installation Steps	<u>TOTAL: 400 Hours</u>
XXXIX.	Cleaning Metals	

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Residential/Service Curriculum

- | | |
|---|--|
| I. Role of the Tradesperson | XXVIII. Design and Installation |
| II. The Necessary Qualities | XXIX. Types and Efficiencies of Duct Systems |
| III. Qualities of Residential HVAC Installers | XXX. Professionalism |
| IV. New Construction Installers | XXXI. Interacting with Clients |
| V. Residential Safety | XXXII. Productivity |
| VI. OSHA and Safety Standards | XXXIII. Working with other Trades |
| VII. Safety Equipment | XXXIV. Continuing Education |
| VIII. Avoiding Injuries | XXXV. Industry Knowledge |
| IX. Fall Protection Railings | XXXVI. Installing New Construction Materials |
| X. Environmental Conditions | XXXVII. General Installation Process |
| XI. Electrical Hazards | XXXVIII. Cutting Penetrations for Ductwork |
| XII. Ladder Safety | XXXIX. Installing Ductwork |
| XIII. Lifting | XL. Ductwork materials |
| XIV. HVAC Systems Theory | XLI. General Duct installation Guidelines |
| XV. HVAC System Breakdown | XLII. Installing Sheet Metal Duct |
| XVI. Goals and Components of an HVAC System | XLIII. Installing Flexible Duct |
| XVII. An HVAC Systems Treatment of Air | XLIV. Installing Dryer Vents |
| XVIII. HVAC Components | XLV. Installing Kitchen Vents |
| XIX. Furnaces | XLVI. Installing Bath Fans |
| XX. Air Conditioning Units | XLVII. Installing Combustion Flues and Vents |
| XXI. Heat Pumps | XLVIII. Installing Thermostat Wiring |
| XXII. Air Filtering Systems | XLIX. Installing Laundry Chute |
| XXIII. Humidifiers and Dehumidifiers | L. Installing a Manufactured Fireplace |
| XXIV. Thermostats | |
| XXV. Heat and Energy Recovery Ventilators | |
| XXVI. Zone Controls | |
| XXVII. High Velocity Systems | |
- TOTAL: 400 HOURS**

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

**Suggested Outline for Commercial Heating, Ventilating and Air Conditioning
Curriculum**

- | | |
|---|--|
| I. Introduction to HVAC | XXXVI. Installing HVAC Systems |
| II. The Job of the HVAC Technician | XXXVII. Retrofitting HVAC Systems |
| III. The HVAC Curriculum | XXXVIII. Plans and Specifications |
| IV. Systems and Components | XXXIX. Lessons Learned |
| V. HVAC Systems | XL. Contractual Obligations |
| VI. Heating Systems | XLI. Using Specifications |
| VII. Cooling Systems | XLII. Pick-off/take-Off Lists |
| VIII. Ventilation | XLIII. Submittals |
| IX. Heating | XLIV. Case Studies |
| X. Heat Transfer | XLV. Load Calculation and Duct Design |
| XI. British Thermal Units | XLVI. Unit Size and Duct |
| XII. Heat Sources and Systems | XLVII. Configuration Concepts |
| XIII. Piping | XLVIII. Load Calculation |
| XIV. Installation and Startup | XLIX. Duct Design |
| XV. Refrigeration | L. Basic TAB |
| XVI. Introduction to Cooling | LI. Introduction to TAB |
| XVII. How Refrigerants Work | LII. Preparing for a TAB Job |
| XVIII. Components and Operation | LIII. Instruments |
| XIX. Cycling On and Off | LIV. Duct Leakage testing |
| XX. Heat Pumps | LV. Fluid Flow |
| XXI. Chillers | LVI. Fans |
| XXII. Installation and Service | LVII. Centrifugal Pumps |
| XXIII. Chlorofluorocarbons and Startup | LVIII. Commissioning |
| XXIV. Understanding Electricity | LIX. The Commissioning Process |
| XXV. Introduction to Electricity | LX. Indoor Air Quality |
| XXVI. Measuring and Testing | LXI. Energy Retrofitting |
| XXVII. Understanding Automatic Control Systems | LXII. Project Management |
| XXVIII. Introduction to Automatic Control Systems | LXIII. Manage the Work |
| XXIX. Pneumatic Controls | LXIV. Manage the People |
| XXX. Digital Control Systems | LXV. Make a Profit |
| XXXI. Field Installation | LXVI. Closing out a Project |
| XXXII. Field Measurements | LXVII. How to become a Project Manager |
| XXXIII. Penetration Layout | |
| XXXIV. Installing Ductwork | |
| XXXV. Hoisting and Rigging | |
- TOTAL: 400 HOURS**

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Industrial Sheet Metal and Welding Curriculum

- | | |
|--|--|
| I. Introduction to Industrial Sheet Metal Work | LIII. Field Skills |
| II. Scope of Work | LIV. Job Sites |
| III. Safety | LV. Job Site protocol |
| IV. Situational Awareness | LVI. Field Installation |
| V. Job Site Safety | LVII. Staging Areas |
| VI. HAZMAT | LVIII. Crew Size/Composition |
| VII. Material Safety Data Sheets (MSDS) | LIX. Permits |
| VIII. Confined Spaces | LX. Shutdowns |
| IX. Helicopter Safety | LXI. Scope of Work |
| X. Responsibility to the Industry | LXII. Forms |
| XI. Productivity | LXIII. Scheduling |
| XII. Opportunities: Salesmanship | LXIV. Coordinating with Other trades |
| XIII. Materials | LXV. Field measuring |
| XIV. Types of Metal materials | LXVI. Transit |
| XV. Types of Non-Metallic materials | LXVII. Lasers |
| XVI. Weldability | LXVIII. Total Station |
| XVII. Shapes | LXIX. Lagging |
| XVIII. Coatings | LXX. System Design Basics |
| XIX. Linings | LXXI. Hood and Duct Design |
| XX. Tolerances | LXXII. Material Properties |
| XXI. Fasteners | LXXIII. Cubic Feet per Minute (CFM) |
| XXII. Welding | LXXIV. Collection |
| XXIII. Welding Symbols | LXXV. System Types |
| XXIV. Code Awareness | LXXVI. Conveyors |
| XXV. Pipe Welding | LXXVII. Separation |
| XXVI. Flanges | LXXVIII. Filtration |
| XXVII. Braze Welding | LXXIX. Seismic Bracing for Ventilation/Exhaust Systems |
| XXVIII. Grinding and Finishing Stainless Steel | LXXX. SMACNA Industrial Duct Standards |
| XXIX. Tools and Abrasives | LXXXI. Industrial Ventilation Manual |
| XXX. Procedures | LXXXII. Hoisting and Rigging |
| XXXI. Non-Destructive Testing (NDT) | LXXXIII. Licensing |
| XXXII. Shop Skills | LXXXIV. Rigging Objectives |
| XXXIII. Power Equipment Operation | LXXXV. Managing Risks |
| XXXIV. Press Brakes | LXXXVI. Wire Rope |
| XXXV. Power Slip Rolls | LXXXVII. Synthetic Rope |
| XXXVI. Shears | LXXXVIII. Chains |
| XXXVII. Rotary machines | LXXXIX. Communication |
| XXXVIII. Saws | XC. Overhead Crane |
| XXXIX. Plasma Cutters | XCI. Jib Crane |
| XL. Ironworkers | XCII. Helicopter |
| XLI. Rotary Punches | XCIII. Mobile Crane |
| XLII. Lathes | XCIV. Boom Truck |
| XLIII. CNC Machines | XCV. Winches |
| XLIV. Manual Tools | XCVI. Chain fall |
| XLV. Power Tools | XCVII. Come-a-Long |
| XLVI. Using Tools Safely | XCVIII. Glossary of Terms and Definitions |
| XLVII. Layout Skills | |
| XLVIII. Parallel Line Development | |
| XLIX. Radial Line Development | |
| L. Triangulation | |
| LI. Basic layout | |
| LII. Fabrication Skills | |

TOTAL: 560 HOURS

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Testing, Adjusting and Balancing of Air and Hydronic Systems

- I. A Future in Testing, Adjusting and balancing
- II. General Care of Instruments
- III. Basics of an HVAC System
- IV. Airflow
- V. Psychrometrics
- VI. Heat and Heat Transfer
- VII. Fundamentals of Electricity
- VIII. Electrical Measurements
- IX. Motors and Starters
- X. Rotational Speed Measurements
- XI. Temperature Measurements
- XII. Air pressure and Air Flow Measurements
- XIII. Methods of Air Flow Measurements
- XIV. Duct Systems
- XV. Automatic Controls
- XVI. Fans
- XVII. Fan Laws and V-Belt Drives
- XVIII. Preparation for Balancing and TAB Forms
- XIX. Methods of Balancing: Proportional and Sequential
- XX. Hydronic Systems
- XXI. Hydronic Pressure
- XXII. And Flow Measurements
- XXIII. Pumps and Pump Laws
- XXIV. Principles of the Cooling Tower
- XXV. Hydronic Balancing: Flow Meter Method
- XXVI. Hydronic Balancing: Thermal Method
- XXVII. TAB Related Disciplines

TOTAL: 300 HOURS

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for the Sign Industry Curriculum

- | | |
|----------------------------------|--|
| I. Basics | XXX. Parallel Line Layout |
| II. Starting Your Apprenticeship | XXXI. Parallel Line Layout for Curved Surfaces |
| III. Working with People | XXXII. Radial Line Layout |
| IV. Organizing Your Time | XXXIII. Triangulation |
| V. Measurement and Numbers | XXXIV. Triangulation for Square Tapers |
| VI. Types of Signs | XXXV. Triangulation for Round Tapers |
| VII. Lighting | XXXVI. Letters |
| VIII. Safety | XXXVII. Channel Letters |
| IX. Field Safety | XXXVIII. Reverse Channel Letters |
| X. Electrical Safety | XXXIX. H Letters |
| XI. Hazardous materials | XL. Beveled letters |
| XII. Emergency Procedures | XLI. Prismatic letters |
| XIII. Tools and Equipment | XLII. Adler Letters |
| XIV. Hand Tools | XLIII. Soldering and Welding |
| XV. Shop Equipment | XLIV. Soldering |
| XVI. Materials | XLV. Overview of Welding |
| XVII. Types of Metals | XLVI. Field Installation |
| XVIII. Plastics | XLVII. Outside Equipment |
| XIX. Other Materials | XLVIII. Ladders and Scaffolds |
| XX. Fasteners | XLIX. Hoisting |
| XXI. Drafting | L. Rigging |
| XXII. Geometric Construction | LI. Moving Signs and other Heavy Loads |
| XXIII. Pictorial Drawing | LII. Installing Signs |
| XXIV. Reading Sign Drawings | LIII. The Years Ahead |
| XXV. Computers | |
| XXVI. Using Computers | |
| XXVII. Computer Programs | |
| XXVIII. Layout | |
| XXIX. Basic layout on Metal | |
- TOTAL: 400 HOURS**

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Commercial-Industrial Service Work Curriculum

- | | |
|--|--|
| I. Tools, Instruments, Tubing and Torch Equipment | XLIV. Ohms and Power Law |
| II. Environmental Service Industry | XLV. Circuit Layouts |
| III. Hand Tools | XLVI. Circuit Faults |
| IV. Instruments and Gauges | XLVII. Electrical Meter |
| V. Refrigeration Tubing and Pipe | XLVIII. Circuit Operating Characteristics |
| VI. Tubing Fabrication Procedures | XLIX. Alternating Current Circuit Principles |
| VII. Oxy-Acetylene Torch Equipment | L. Measuring and AC Circuit Values |
| VIII. Filler Alloys and Fluxes | LI. Opposition to Current Flow in AC Circuits |
| IX. Preparing Joint – Solder or Braze | LII. Capacitors and Capacitor Testing |
| X. Introduction to Refrigeration Principles | LIII. AC Power and Power Factor |
| XI. Pressure and Pressure Measurements | LIV. Single Phase Transformers |
| XII. Temperature and Characteristics of Heat | LV. Three Phase Transformers |
| XIII. Methods of Heat Transfer | LVI. Electrical Service Layouts |
| XIV. Heat Content | LVII. Low Voltage and its Impact on Motors |
| XV. Heat Transfer Capacity | LVIII. Voltage Imbalance and Phase Loss on Three Phase Systems |
| XVI. Pressure/Temperature Relationships | LIX. Single Phase Induction Motors |
| XVII. T-P Chart and Refrigerant Conditions | LX. Three Phase Induction Motors |
| XVIII. Components | LXI. Special Motors |
| XIX. Low Side Terminology | LXII. Servicing Electric Motors |
| XX. High Side Terminology | LXIII. Motor Circuits (Protection) |
| XXI. Refrigeration Cycle Operation | LXIV. Line Duty Control Circuit |
| XXII. Major Components-Performance Factors | LXV. Pilot Duty Control Circuit |
| XXIII. Refrigeration Systems | LXVI. Low Voltage Control Circuit |
| XXIV. Basic Air Conditioning | LXVII. Additional Control Circuit Components |
| XXV. Psychrometric Properties of Air | LXVIII. Hermetic Compressor Motors and Start Relays |
| XXVI. Comfort Conditions and Room Air Distribution | LXIX. Hermetic Compressor Motor Protection |
| XXVII. Filtration-Ventilating-Mixing | LXX. Servicing Hermetic Motors |
| XXVIII. Basics of Air Flow and Duct Systems | LXXI. Hermetic Motor Burnouts |
| XXIX. Air Moving Devices | LXXII. Diagnosing Compressor Circuit Problems |
| XXX. Air Systems Measurement | LXXIII. Electrical Schematics and Diagrams |
| XXXI. Refrigerant Circuit Component Removal or Replacement | LXXIV. Trouble Shooting a System with Electrical Diagrams |
| XXXII. Opening Systems for Repairs | LXXV. Introduction to Electronic Devices |
| XXXIII. Recovering-Recycling-Reclaiming | LXXVI. Basic Electronic Devices |
| XXXIV. Diagnostics and Refrigeration Cycle Operation | LXXVII. Circuits |
| XXXV. System Working Relationships | LXXVIII. Electronic Device Applications |
| XXXVI. Condensing Units versus Piping Losses | LXXIX. Electrical Safety for Service Work |
| XXXVII. Measuring Refrigeration Cycle Vital Signs | LXXX. Business and Shop Operations |
| XXXVIII. Inspections and Measurements | LXXXI. Service Trucks and Field Procedures |
| XXXIX. Basic Analysis | LXXXII. Regulatory Environment |
| XL. Component Analysis | LXXXIII. Business Practices |
| XLI. System Analysis | LXXXIV. Introduction to HVAC Systems and ventilation |
| XLII. Low Capacity Analysis | LXXXV. Air and its Properties |
| XLIII. Basic Concepts of Electricity | LXXXVI. Fans and Air Flow in Duct |
| | LXXXVII. Duct Systems |

LXXXVIII.	Duct Design	CXXIV.	Commercial Systems Evaporators
LXXXIX.	Outlets and Other Buyout Items	CXXV.	Evaporator Installation and Capacities
XC.	Dampers	CXXVI.	Commercial Defrost Systems
XCI.	Balancing the System	CXXVII.	Additional Commercial System Components
XCII.	Instruments and Air Cleaning	CXXVIII.	Installing Commercial Systems
XCIII.	Basic Heating Elements	CXXIX.	Starting, Charging, and testing Commercial Systems
XCIV.	Hydronic Heating	CXXX.	Servicing Commercial Systems and Components
XCV.	Oil Furnaces	CXXXI.	Leak Testing and Evacuating Commercial Systems
XCVI.	Electric Heating	CXXXII.	Servicing Refrigerant Controls, Electric Motor Circuits, Hermetic Compressors, Condenser Controls and Refrigerant Lines
XCVII.	Alternative Heating Methods and Humidification	CXXXIII.	Commercial Systems Heat Loads
XCVIII.	Heat Loads for heating	CXXXIV.	Constant Volume Air Conditioning System
XCIX.	Air Conditioning Systems Concepts	CXXXV.	Constant Volume/Variable Temperature
C.	Central Air Conditioning Systems	CXXXVI.	Multi-zone Units
CI.	Chilled Water System Concepts	CXXXVII.	Control Systems –Fundamentals
CII.	Chilled Water Comfort Cooling Systems	CXXXVIII.	Pneumatic Control Systems
CIII.	Systems using Air Cooled Condensers	CXXXIX.	Pneumatic Thermostats
CIV.	Systems using Water Cooled Condensers	CXL.	Pneumatic Auxiliary Devices
CV.	Compressor Protection Devices	CXLI.	Pneumatic Damper and Valve Control
CVI.	Compressor and Condensing Unit Capacities	CXLII.	Pneumatic System Calibration/Trouble Shooting/Maintenance
CVII.	Refrigerant Line Components	CXLIII.	Electric Control Systems
CVIII.	Refrigerant Lines and Capacities	CXLIV.	Electronic Control Systems
CIX.	Pressure Regulating and Flow Control Valves	CXLV.	Computerized Building Management
CX.	Heat Loads for Cooling	CXLVI.	Zone Control Systems
CXI.	Heat Pump Operation	CXLVII.	Operation and Service of Zone Control
CXII.	Heat Pump Operating Cycles and Efficiency ratings	CXLVIII.	Variable Air Volume System
CXIII.	Heat Pump Compressors, Motors, and Motor Control	CXLIX.	VAV Terminal Control (DDC)
CXIV.	Heat Pump Refrigerant Controls	CL.	Direct Digital Control Systems
CXV.	Heat Pump Reversing Valves	CLI.	DDC Install/Service/Diagnostics/Repair
CXVI.	Heat Pump Condenser and Evaporator Coils	CLII.	Energy Management
CXVII.	Heat Pump Defrost	CLIII.	Timers, Thermostats and Load Controllers
CXVIII.	Heat Pump Heaters and Two Speed Units	CLIV.	Energy management – Economizers
CXIX.	Heat Pump Installation	CLV.	Safety
CXX.	Heat Pump Electrical Controls		
CXXI.	Heat Pump Startup and Servicing		
CXXII.	Safety		
CXXIII.	Commercial Systems Application		
			<u>TOTAL: 400 HOURS</u>

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Detailing Curriculum

- | | |
|---|---|
| I. Introduction to Detailing | XXVIII. The Take-Off Process |
| II. For Detailing Students | XXIX. Introduction to AutoCAD |
| III. For JATC Training Coordinators | XXX. Understanding AutoCAD |
| IV. For Business Owners | XXXI. Plan Drawings |
| V. Computers | XXXII. Elevation Drawings |
| VI. Inside the Computer | XXXIII. Mechanical Drawings |
| VII. Microsoft Office Applications for the Detailer | XXXIV. Advanced AutoCAD |
| VIII. Organizing and sharing your work | XXXV. Three Dimensional Drawings |
| IX. Computer Maintenance | XXXVI. Industry Standards |
| X. Security | XXXVII. Paper Space |
| XI. Job Documents | XXXVIII. Plotting |
| XII. Construction Management-The Big Picture | XXXIX. Coordination |
| XIII. Workflow and Job Documents | XL. The Coordination Meeting |
| XIV. HVAC System Design Resources | XLI. Construction Coordination Software |
| XV. Plans & Specifications | XLII. Third Party Software |
| XVI. Project Correspondence | XLIII. Construction Coordination Software (CCS) |
| XVII. The Writing Process | XLIV. Advanced Detailing |
| XVIII. Effective Writing | XLV. Introduction |
| XIX. Preparing Project Correspondence | XLVI. Detailing Project Workflow |
| XX. Field Measurement | XLVII. Review of Detailing |
| XXI. Introduction to Field Measurement | XLVIII. Value Engineering |
| XXII. How Field Measurement Works | XLIX. Employing Field Measurement |
| XXIII. Field Measurement Tools | L. Elementary School Project |
| XXIV. On the Job Site | LI. Hospital project |
| XXV. Back at the Shop | |
| XXVI. Take-Off Procedures | |
| XXVII. Introduction to Take-Offs | |
| | <u>TOTAL: 450 HOURS</u> |

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Project Management Curriculum

- I. The Project Manager
- II. Construction Documents
- III. Controlling Costs
- IV. Preparing for a Project
- V. Schedules and Meetings
- VI. Paperwork

- VII. Quality Control and Productivity
- VIII. Tools, Equipment, and Materials
- IX. Legal Considerations
- X. Completing the Project
- XI. The Future

TOTAL: 250 HOURS

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Foreman Work Curriculum

- | | |
|------------------------------------|--------------------------------|
| I. Introduction to Foreman Work | VI. Safety Culture |
| II. Self-Evaluation | VII. Human Relations |
| III. Successful Foreman Attributes | VIII. Professional Development |
| IV. Managing and Leading Others | |
| V. Project Management | |
| | <u>TOTAL: 250 HOURS</u> |

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Welding Curriculum

- | | |
|---|---|
| I. Oxy-Fuel Gas Cutting | XXXII. Operate Plasma Arc Cutting Equipment |
| II. Perform Safety Inspections (OFC) | XXXIII. Perform Straight Cutting Operations (PAC) |
| III. Making Minor External Repairs (OFC) | XXXIV. Perform Shape and Pierce Cutting Operations (PAC) |
| IV. Set-Up For Oxy-Acetylene Cutting Operations | XXXV. Metallurgy |
| V. Operating Oxy-Fuel gas Cutting Equipment | XXXVI. Basic Electricity |
| VI. Performing Straight Cutting Operations (OFC) | XXXVII. Flux Core Arc Welding (FCAW) |
| VII. Performing Shape Cutting Operations (OFC) | XXXVIII. Perform Safety Inspections (FCAW) |
| VIII. Performing Bevel Cutting Operations (OFC) | XXXIX. Make Minor External Repairs (FCAW) |
| IX. Performing Weld Removal Operations (OFC) | XL. Set-Up for Flux Core Operations |
| X. Performing Pierce (Hole) Cutting Operations (OFC) | XLI. Operate FCAW Equipment |
| XI. Shielded Metal Arc Welding (SMAW) | XLII. Deposit Beads on Flat Plate (FCAW) |
| XII. Perform Safety Inspections (SMAW) | XLIII. Deposit Lap Beads on Flat Plate (FCAW) |
| XIII. Make Minor External Repairs (SMAW) | XLIV. Fillet Welds (FCAW) |
| XIV. Set-Up SMAW Equipment | XLV. Groove Welds in 2G,3G and 4G Positions (FCAW) |
| XV. Operate SMAW Equipment | XLVI. Gas Tungsten Arc Welding (GTAW) |
| XVI. Depositing Beads on Flat Plate (SMAW) | XLVII. Perform Safety Inspections (GTAW) |
| XVII. Depositing Lap Beads on Flat Plate (SMAW) | XLVIII. Make Minor External Repairs (GTAW) |
| XVIII. Gas Metal Arc Welding (GMAW) | XLIX. Basic GTAW Set-Up |
| XIX. Perform Safety Inspections (GMAW) | L. Operate GTAW Equipment |
| XX. Make Minor External Repairs (GMAW) | LI. Deposit Beads on Flat Plate (GTAW) |
| XXI. Set-Up for Gas Metal Arc Welding Operations | LII. Deposit beads on Typical Sheet metal Joints (GTAW) |
| XXII. Operate Gas Metal Arc Welding Equipment | LIII. Carbon Arc Welding (CAW) |
| XXIII. Deposit Beads on Typical Sheet Metal Joints (GMAW) | LIV. Perform Safety Inspections (CAW) |
| XXIV. Fillet Welds (GMAW) | LV. Make Minor External Repairs (CAW) |
| XXV. Single V-Groove Welds in the 2G, 3G, and 4G Positions (GMAW) | LVI. Set-Up CAW Equipment |
| XXVI. Groove Welds/Short Circuit Transfer (GMAW) | LVII. Operate CAW Equipment |
| XXVII. 1G (Flat) Groove Welds with Spray Transfer (GMAW) | LVIII. Oxy-Acetylene Welding |
| XXVIII. Plasma Arc Cutting (PAC) | LIX. Perform Safety Inspections (OAW) |
| XXIX. Perform Safety Operations (PAC) | LX. Make Minor External Repairs (OAW) |
| XXX. Making Minor External Repairs (PAC) | LXI. Set-Up for Oxy-Acetylene Welding Operations |
| XXXI. Set-Up for Plasma Cutting Operations | LXII. Operate Oxy-Acetylene Welding Equipment |
| | LXIII. Gas Metal Arc Welding-Pulsed Spray Transfer (GMAW-P) |
| | LXIV. Perform Safety Inspections (GMAW-P) |
| | LXV. Set-Up GMAW-P Equipment |
| | LXVI. Operate GMAW-P Equipment |
| | LXVII. Gas Tungsten Arc Welding- Pulse |
| | LXVIII. Perform Safety Inspections (GTAW-P) |

- LXIX. Set-Up GTAW-P Equipment
- LXX. Operate GTAW-P Equipment and Deposit Beads on Plate with and without Filler Metal

TOTAL: 500 HOURS

**RELATED INSTRUCTION OUTLINE
SHEET METAL WORKER
O*NET-SOC CODE: 47-2211.00 RAPIDS CODE: 0510HY**

Suggested Outline for Blueprint (Plans Specifications) Curriculum

- | | |
|---|--|
| I. Overview | XXIX. The Procedures for Handling Plans |
| II. Construction Documents | XXX. Drawings from Three Different Points of View |
| III. The Professionals Who Shape the Documents | XXXI. Using Coordinates to Understand the Relationships Between Drawings |
| IV. Why Do Plans and Specifications Matter? | XXXII. Coordinates |
| V. Significance of Plans and Specifications | XXXIII. Detail Drawings and Detail References |
| VI. Types of Firms | XXXIV. Lines and Their Meanings |
| VII. Unique Factors | XXXV. Types of Lines |
| VIII. How are Plans and Specifications Used? | XXXVI. Scaled Drawings |
| IX. Plans | XXXVII. How to Use a Scale |
| X. Specifications | XXXVIII. A Closer Look at Specifications |
| XI. Organizing Plans | XXXIX. Why We Need Specifications |
| XII. Where to Begin | XL. How Specifications Are Used |
| XIII. Title Sheets | XLI. Specifications and the Construction Process |
| XIV. Title Blocks | XLII. Using Specifications to Make a Bid |
| XV. Civil Drawings | XLIII. Coordination Meetings |
| XVI. Architectural Drawings | XLIV. Using Specifications in the Shop and the Field |
| XVII. Structural Drawings | XLV. Using Specifications After Initial Construction is Complete |
| XVIII. Mechanical Drawings | XLVI. Conflicts Between Plans and Specifications |
| XIX. Electrical Drawings | XLVII. The Organization of Specifications |
| XX. Industrial and Specialty Drawings | XLVIII. How to Find Information |
| XXI. Schedules | XLIX. Revisions of Plans and Specifications |
| XXII. Detail Drawings | L. Addenda |
| XXIII. The Big Picture Behind a Set of Plans and Specifications | LI. Documents for Changing Plans and Specifications |
| XXIV. Submitting a Bid | |
| XXV. The Construction Specifications Institute Master Format 2004 | |
| XXVI. System of Organization | |
| XXVII. A Closer Look at Plans | |
| XXVIII. The Basics of Plans | |

TOTAL: 250 HOURS

Recommended Reference Books

A. International Training Institute for the Sheet Metal and Air Conditioning Industry

- 1) Architectural Sheet Metal Curriculum
- 2) Benchmark BIM Curriculum
- 3) Core Sheet Metal Curriculum
- 4) Curtain Wall Curriculum
- 5) Detailing Curriculum
- 6) Direct Digital Controls
- 7) Duct Leakage Testing
- 8) Electrical Theory
- 9) Electric Motors and Starters
- 10) Energy Audit Curriculum
- 11) Energy Management In Commercial Building Systems
- 12) Equipment Start-Up
- 13) Fans
- 14) Fire Life Safety Curriculum
- 15) Firestopping Curriculum
- 16) Food Service Sheet Metal Curriculum
- 17) Foreman Training Curriculum
- 18) Green/LEED Construction Curriculum
- 19) Heating and Cooling Load Calculations Curriculum
- 20) HVAC Curriculum
- 21) HVAC Systems Cleaning and Restoration Curriculum
- 22) Indoor Air Quality
- 23) Industrial Sheet Metal and Welding Curriculum
- 24) Laboratory Fume Hood Performance Testing Curriculum
- 25) Sheet Metal Layout Curriculum
- 26) Lean Construction Curriculum
- 27) Fundamentals of Piping Design
- 28) Project Management Curriculum
- 29) Piping Systems
- 30) Pumps
- 31) Reading Plans and Specifications Curriculum
- 32) Residential Architectural Sheet Metal and Roofing Curriculum
- 33) Residential HVAC Curriculum
- 34) Roofing Curriculum
- 35) Service Work Curriculum
- 36) Sheet Metal Business 101 Curriculum
- 37) Sheet Metal Math Curriculum
- 38) Sign Industry Curriculum
- 39) Soldering in the Sheet Metal Industry
- 40) Sound and Vibration Technology
- 41) Supervisory Training Curriculum
- 42) Testing, Adjusting and Balancing Curriculum
- 43) Welding 1-4 Curriculum
- 44) Variable Air Volume Systems

B. Sheet Metal, Air, Rail and Transportation (SMART) International Association

- 1) Constitution and Ritual of the Sheet Metal Worker's International Association, Washington, DC
- 2) The affiliated Local Union Collective Bargaining Agreement (CBA)

C. Sheet Metal and Air Conditioning Contractors' National Association, Inc.

- 1) Accepted Industry Practice for Industrial Duct Construction
- 2) Accepted Industry Practices for Sheet Metal Lagging
- 3) Architectural Sheet Metal Manual
- 4) Building Systems Analysis & Retrofit Manual
- 5) Ducted Electrical Heat Guide for Air Handling Systems
- 6) Energy Systems Analysis & Management Manual
- 7) Fibrous Glass Duct Construction Standards
- 8) Fire, Smoke & Radiation Damper Installation Guide for HVAC Systems
- 9) Guide for Steel Stack Construction
- 10) HVAC Air Duct Leakage Test Manual
- 11) HVAC Duct Construction Standards, Metal and Flexible
- 12) HVAC Duct Systems Inspection Guide
- 13) HVAC Systems Commissioning Manual
- 14) HVAC Systems-Duct Design
- 15) HVAC Systems-Applications
- 16) HVAC Systems-Testing, Adjusting, and Balancing
- 17) IAQ Guidelines for Occupied Building under Construction
- 18) Indoor Air Quality A System Approach
- 19) Managers' Guide for Welding
- 20) Rectangular Industrial Duct Construction Standard
- 21) Residential Comfort System Installation Standards Manual
- 22) Round Industrial Duct Construction Standard
- 23) Seismic Restraint Manual, Guidelines for Mechanical Systems
- 24) SMACNA Master Index of Technical Publication
- 25) Thermoplastic Duct (PVC) Construction Manual

Appendix B

AER Sponsor Manual
ETA – 671 APPRENTICESHIP AGREEMENT

Appendix C

AFFIRMATIVE ACTION PLAN

ADOPTED BY

(INSERT NAME OF JATC)

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

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

**APPROVED BY _____
REGISTRATION AGENCY**

DATE APPROVED: _____

SECTION I - INTRODUCTION

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

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

SECTION II - EQUAL OPPORTUNITY PLEDGE

The JATC commits to the following Equal Opportunity Pledge:

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

SECTION III - UTILIZATION AND ANALYSIS, GOALS AND TIMETABLES

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

SECTION IV - OUTREACH AND POSITIVE RECRUITMENT

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

- A. An announcement of apprenticeship openings must be disseminated thirty (30) days in advance of the earliest date for application at each interval to the following agencies/organizations:

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

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

- B. Participation in annual workshops conducted by employment service agencies for the purpose of familiarizing school, employment service and other appropriate personnel with the apprenticeship program and current opportunities.
- C. Cooperation with school boards and vocational educational systems to develop programs for preparing students to meet the standards and criteria required to qualify for entry into the apprenticeship program.
- D. Internal communication of the JATC's equal opportunity policy should be conducted in such a manner to foster understanding, acceptance, and support among the JATC's various officers, supervisors, employees, and members, and to encourage such persons to take the necessary action to aid in meeting its obligation under Title 29, CFR part 30.
- E. Engaging in programs such as outreach for the positive recruitment and preparation of potential applicants for apprenticeships; where appropriate and feasible, such programs shall provide for pre-testing experience and training. In initiating and conducting these programs, the JATC may be required to work with other sponsors and appropriate community organizations. The JATC shall also initiate programs to prepare women and encourage women to enter traditionally male programs.
- F. Encouraging the establishment and utilization of programs of pre-apprenticeship, preparatory trade training, or others designed to afford

related work experience or prepare candidates for apprenticeship. The JATC shall make appropriate provisions in its AAP to assure that those who complete such programs are afforded full and equal opportunity for admission into the apprenticeship program.

- G. Utilizing journeyworkers to assist in the implementation of affirmative action in the apprenticeship program.
- H. Granting advance standing or credit on the basis of previously acquired experience, training, skills, or aptitude for all applicants equally.
- I. Other appropriate action to ensure that the recruitment, selection, employment, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, or sex (e.g., general publication of apprenticeship opportunities and advantages in advertisements, industry reports, articles, etc., use of present minority and female apprentices and journeyworkers as recruiters; career counseling; development of reasonable procedures to ensure employment opportunity, including reporting systems, on-site reviews, briefing sessions)

(Identify Action:)

FOR EACH BOX CHECKED IN SECTION IV, LIST EACH SPECIFIC STEP THAT THE JATC WILL UNDERTAKE TO FULFILL THAT OUTREACH AND RECRUITMENT STEP

SECTION V - ANNUAL REVIEW OF AFFIRMATIVE ACTION PLAN

The JATC will make an annual review of its current AAP and its overall effectiveness and institute any revisions or modifications warranted. The review shall analyze (independently and collectively) the affirmative action steps taken by the JATC for evaluating the positive impact, as well as the adverse impact in the areas of outreach and recruitment, selection, employment, and training. They will work diligently to identify the cause and affect those results from their affirmative action measures. The JATC will continually monitor these processes in order to identify the need for a new affirmative action effort and/or deletion of ineffective existing activity(ies). All changes to the AAP must be submitted to the Registration Agency for registration. The JATC will continually monitor the participation rates of minorities and women in the apprenticeship program in an effort to identify any type of underutilization. If underutilization exists, corrective action will be immediately implemented. The goals and timetables also will be reviewed annually and updated where necessary.

SECTION VI - OFFICIAL ADOPTION

The *(Insert Name of JATC)* hereby officially adopts this Affirmative Action Plan on this _____ Day of __*(Insert Month/Year)*.

SIGNATURE OF JATC CHAIRPERSON

PRINTED NAME

SIGNATURE OF JATC SECRETARY

PRINTED NAME

AFFIRMATIVE ACTION PLAN WORKFORCE ANALYSIS WORKSHEET

A. SPONSOR INFORMATION

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

B. OCCUPATIONAL INFORMATION

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

C. LABOR MARKET AREA & OCCUPATIONAL PARTICIPATION DATA

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

Resources for obtaining labor market information.

* Data available from Registration Agency.

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

D. SPONSOR'S WORKFORCE DATA

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

E. ADDITIONAL RESOURCE DATA FOR CONSIDERATION IN ESTABLISHING GOALS

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

* Data available from Registration Agency

F. DETERMINATION OF UTILIZATION

Analysis	Yes	No
Minority Underutilization:		
Female Underutilization:		

G. SPONSOR'S GOALS:

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

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

H. REGISTRATION AGENCY APPROVAL:

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

Instructions for preparing and completing this worksheet

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

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

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

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

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

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

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

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

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

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

Appendix D

**QUALIFICATIONS AND SELECTION
PROCEDURES**

ADOPTED BY

(INSERT NAME OF JATC)

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

APPROVED BY _____
REGISTRATION AGENCY

DATE APPROVED _____

The certification of this selection procedure is not a determination that, when implemented, the selection procedure meets the requirements of the Uniform Guidelines on Employee Selection Procedures (41 CFR part 60-3) or 29 CFR part 30. Note that selection procedures may need to be modified to provide reasonable accommodations to qualified individuals with disabilities.

SECTION I - MINIMUM QUALIFICATIONS

Applicants shall meet the following minimum qualifications:

A. Age

Shall be at least 18 years of age.

An applicant who is sixteen (16) years of age and is participating in a school-to-work program or equivalent and who otherwise meets all qualifications may be rated, ranked and placed on the list of eligible applicants. Such an applicant must be eighteen (18) years of age prior to being accepted into the apprenticeship program.

B. Education

A high school diploma or GED equivalency is recommended. 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

Shall be physically capable of performing the essential functions of the apprenticeship program without posing a direct threat to the health and safety of the individual or others.

Qualified applicants may be subject to a physical examination or drug screening or both on acceptance into the program and prior to being employed. The cost of the examination and/or drug screening shall be the responsibility of the JATC or the Employer.

SECTION II - APPLICATION PROCEDURES

A. Applicants shall be accepted throughout the year. All persons requesting an application shall have one made available upon signing the applicant log or submission via electronic means (website, email, Total Track, etc.).

B. All applications shall be identical in form and requirements. The application form shall be numbered in sequence corresponding with the number appearing on the applicant log so that all applications can be accounted for.

Columns will be provided on the applicant log to show race/ethnic and sex identification and the progress by dates and final disposition of each application.

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

SECTION III - SELECTION PROCEDURES

- A. The JATC shall schedule the interview and evaluation session. All applicants who have met the minimum qualifications and have submitted the required documents must be notified of the date, time, and place to appear.
- B. The interviewer(s) will rate each applicant during the interview on each of the factors on the Applicant Rating Form taking into account the information on the application, required documents, if applicable, and the judgment derived from the interview.
- C. After completing the interview and evaluation of the applicants, the individual rating scores of the interviewer(s) will be added together and averaged to determine the applicant's final rating.
- D. Applicants will be placed on the appropriate ranking list according to their chosen career path and scores at the evaluation session, with the applicant having the highest score being at the top of that list, and all applicants then listed in descending order based on score.
- E. As openings for the registration of new apprentices occur, the highest ranked applicant will be notified of selection. It shall be the responsibility of the applicant to keep the JATC informed of their current mailing address and phone number(s).

- F. Selected applicants must respond to the notice of selection within forty-eight (48) hours of notice. If applicants cannot be reached by telephone, their names will be passed and notice sent to their address by "Certified Mail-Return Receipt Requested," to determine if the applicants are still interested. If no response is received in fifteen (15) working days from the written notice, the applicants' name will be removed from the list. Only one certified notice will be mailed.
- G. Qualified applicants remaining on a preceding ranking list will automatically be carried forward on the new ranking list and slotted in wherever their rating score placed them for a period of two (2) years, unless the applicant has been removed from the list by their own written request or following failure to respond to an apprentice opening. Applicants, who were not placed during the two (2) year period, they were on the ranking list, will be required to reapply.
- H. During the two (2) year period, applicants who feel that their qualifications have improved since their original rating may submit documented evidence of such additional experience or training and request reevaluation and rating at the next regular processing cycle.

SECTION IV – DIRECT ENTRY

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

- A. Military veterans who completed military technical training school and/or elect to participate in the Building and Construction Trades Helmets to Hardhats Program or a registered apprenticeship program or related occupation while in the military in the occupations registered in the Sheet Metal 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 what training requirements they need to meet to ensure they receive all necessary training for completion of the apprenticeship program. Entry of Military Veterans shall be done without regard to race, color, religion, national origin, or sex. ***(Note: This is a method of direct entry into the apprenticeship program.)***

- B. Youth who complete a SkillsUSA training program in any occupation covered in these Standards, who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the SkillsUSA graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The JATC will evaluate the SkillsUSA training received for granting appropriate credit on the term of apprenticeship. Entry of SkillsUSA graduates will be done without regard to race, color, religion, national origin or sex. **(Note: This is a method of direct entry into the apprenticeship program).**
- C. Youth who complete a YouthBuild U.S.A. training program in any occupation covered in these Standards who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the YouthBuild U.S.A. graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The JATC will evaluate the YouthBuild U.S.A. training received for granting appropriate credit on the term of apprenticeship. Entry of YouthBuild U.S.A. graduates will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
- D. Youth who complete a Job Corps training program in any occupation covered in these Standards, who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the Job Corps graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The JATC will evaluate the Job Corps training received for granting appropriate credit on the term of apprenticeship. Entry of Job Corps graduates will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
- E. Those who graduate from a Technical Training School in any occupation covered in these Standards that has been reviewed and approved by the JATC who meet the minimum qualifications of the apprenticeship program, may be admitted directly into the program, or if no apprentice opening is available, the Technical Training School graduate may be placed at the top of the current applicant ranking list and given first opportunity for placement. The JATC will evaluate the Technical training received for granting appropriate credit on the term of apprenticeship. Entry of Technical School graduates will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**
- F. An employee of a non-signatory employer not qualifying as a journeyworker when the employer becomes signatory, will be evaluated by the JATC in accordance with the procedures for the granting of credit for previous experience,

and indentured at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. Entry into the program through this method shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**

G. 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 journeyworker, will be evaluated in accordance with the procedures for the granting of credit for previous experience and indentured by the JATC at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. Entry into the program through this method shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program).** For such applicants to be considered they must:

1. be employed in the JATC's jurisdiction when the authorization card was signed;
2. have been employed by the employer before the organizational effort commenced;
3. have been offered the opportunity to sign authorization cards and be evaluated along with all other employees of the employer; and provide reliable documentation to the JATC to show they were an employee performing Sheet Metal work prior to signing the authorization card.

H. An individual who is or who has worked for a signatory or non-signatory employer and who, of his/her own choosing, solicits membership as a journeyworker and does not qualify as a journeyworker, will be evaluated in accordance with the procedures for granting of credit for previous experience and indentured by the JATC at the appropriate period of apprenticeship based on previous work experience and related training. Any employee not eligible for receipt of credit must make application in accordance with the normal application procedures. Entry into the program through this method shall be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program).**

I. Transfer of Apprenticeship - Direct Entry. In order to transfer an apprenticeship agreement between two Local Sheet Metal JATC's registered apprenticeship programs, the following requirements must be met:

1. The apprentice must submit a written request for transfer, describing in detail the needs and reasons upon which the request is based.
 2. The apprentice's sponsoring JATC must agree to the transfer.
 3. The receiving JATC must agree to accept the transfer.
 4. The two Sheet Metal Worker Unions must agree to the transfer.
 5. The receiving JATC shall have complete access to all apprenticeship records pertaining to the transferring apprentice.
 6. Upon being accepted by the receiving JATC, the apprentice's existing apprenticeship agreement shall be terminated.
 7. Register proceedings shall be initiated with the receiving JATC and the appropriate Registration Agency. The Registration Agency will be provided with all documentation necessary and/or required to verify that the transfer is justifiable.
 8. Apprentices accepted for transfer will be given full credit for on-the-job learning experience and related instruction successfully completed while registered in a Sheet Metal, Air, Rail and Transportation (SMART) International Association apprenticeship program.
 9. The transferring apprentice must:
 - a) Complete an application form, accurately responding to all questions.
 - b) Provide the receiving JATC official documentation pertaining to their participation in the apprenticeship program that they are transferring from.
 - c) An official copy of all records established with the sponsoring JATC (including a copy of the application form and the apprenticeship agreement properly registered with the Registration Agency) and other information submitted shall be provided to the receiving JATC. The receiving JATC will examine all documentation submitted before granting permission to transfer. All such records shall become part of the receiving JATC's permanent files.
- J. Direct Entry for Skill Shortages. If there is a recognized shortage of skilled workers in a particular facet of the Sheet Metal Industry, an individual with experience in the recognized area of shortage who meets the minimum qualifications of the apprenticeship program may be admitted directly into the

program. The JATC will evaluate the individual for granting appropriate credit on the term of apprenticeship. Entry of individuals into the program based on skilled worker shortages will be done without regard to race, color, religion, national origin, or sex. **(Note: This is a method of direct entry into the apprenticeship program.)**

SECTION V - COMPLAINT PROCEDURE

- A. Any apprentice or applicant for apprenticeship who believes that he or 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 or her selection have not been followed in the operation of an apprenticeship program, may personally or through an authorized representative, file a complaint with the Registration Agency or, at the apprentice or applicant's election, with the private review body established by the local JATC (if applicable).
- B. The complaint shall be in writing and shall be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the JATC involved, and a brief description of the circumstances of the failure to apply equal opportunity standards.
- C. The complaint must be filed not later than 180 days from the date of the alleged discrimination or specified failure to follow the equal opportunity standards, and, in the case of complaints filed directly with the review bodies designated by the JATC to review such complaints, any referral of such complaint by the complainant to the Registration Agency must occur within the time limitation stated above or 30 days from the final decision of such review body, whichever is later. The time may be extended by the Registration Agency for good cause shown.
- D. Complaints of sexual harassment in the workplace may be filed and processed under Title 29, CFR part 30, and the procedures as set forth above.
- E. The JATC will provide written notice of their complaint procedure to all applicants for apprenticeship and all apprentices.

SECTION VI - MAINTENANCE OF RECORDS

The JATC will keep adequate records including a summary of the qualifications of each applicant, the basis for evaluation and for selection or rejection of each applicant, the records pertaining to interviews of applicants, the original application for each applicant, information relative to the operation of the apprenticeship program, including but not limited to job assignment, promotion, demotion, layoff, or termination, rates of pay or other forms of compensation or conditions of work, hours including hours of work and, separately, hours of training provided, and any other records pertinent to a determination of compliance with these regulations, as may be required by the Registration Agency. The records pertaining to individual applicants, selected or rejected, shall be maintained in such manner as to permit the identification of minority and female (minority and non-minority) participants.

Each JATC must retain a statement of its AAP for the prompt achievement of full and equal opportunity in apprenticeship, including all data and analysis made pursuant to the requirements of Title 29, CFR part 30.4. Each JATC also must maintain evidence that its qualification standards have been validated in accordance with the requirements set forth in Title 29, CFR part 30.5(b).

In addition to the above requirements, adequate records shall include a brief summary of each interview and the conclusions on each of the specific factors, e.g., motivation, ambition, and willingness to accept direction which are part of the total judgment. Records shall be maintained for five (5) years and made available upon request to the Department of Labor or other authorized representative.

SECTION VII - OFFICIAL ADOPTION OF SELECTION PROCEDURES

The *(Insert Name of JATC)* hereby officially adopts these Selection Procedures on this _____ Day of __*(Insert Month/Year)*.

SIGNATURE OF JATC CHAIRPERSON

PRINTED NAME

SIGNATURE OF JATC SECRETARY

PRINTED NAME

Appendix E

(SAMPLE)

SMWIA CODE OF EXCELLENCE PROGRAM

ADOPTED BY

**SHEET METAL, AIR, RAIL AND TRANSPORTATION (SMART)
INTERNATIONAL ASSOCIATION**

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

**APPROVED BY _____
REGISTRATION AGENCY**

DATE APPROVED: _____



SMWIA CODE OF EXCELLENCE PROGRAM

WHAT IS THE CODE OF EXCELLENCE POLICY

Our members demonstrate on a continuing basis skills and professionalism that are the industry standard. While we have and continue to recognize the commitment of these individuals, our Code of Excellence Program is designed for SMWIA local unions to promote and establish a uniform best practices format that will instill a sense of pride in the union and bring out the best from all our members. The SMWIA Code of Excellence Program is our action plan to establish policies designed to demonstrate and showcase the skills and professionalism of SMWIA members. In essence, the Code of Excellence Program is a marketing and action policy designed to develop a pride of ownership in our members that demonstrates the professional workmanship and productivity provided by SMWIA members every workday on every jobsite.

The basic tenets of the Code of Excellence Program shall be to provide to the SMWIA, the employer and client:

- Members of the SMWIA who provide the highest level of quality at the highest level of performance;
- Who use superior craft skills; and
- Who have proven best work practices.

The Code of Excellence Policy is therefore a written policy of the culture of the SMWIA designed to instill a sense of pride and professionalism in our membership. When adopted and implemented, the uniformity of this Code of Excellence Policy shall demonstrate to employers and their clients that contracting the services of SMWIA members is synonymous with contracting excellence.

The Code of Excellence Program is an internal SMWIA program and therefore not dependent on external forces. This allows the success of the Code of Excellence Program to rest solely within the control of the SMWIA leadership and members.

The Code of Excellence Program, therefore, must have the total support of the local union membership at all levels, and in particular the full commitment of local union leadership who must set the example in promoting the policies set forth.

With adoption and implementation at the local union level, it shall be incumbent upon the Business Manager with the assistance of their Business Representatives to participate actively in enforcement of all provisions set forth in the Code of Excellence Program.



SMWIA CODE OF EXCELLENCE PROGRAM

CODE OF EXCELLENCE PROGRAM DESIGN COMPONENTS

The Code of Excellence Program is designed to be flexible and to be used in every local union within the SMWIA. Specific issues of concern to local union leaders and memberships can be incorporated into the Code of Excellence Program; however, the key components of the Code of Excellence Program must be consistently applied if the program is to be successful.

The key components of the Code of Excellence Program and which must remain consistent are:

1. Commitment- The Code of Excellence Program requires a commitment by the local union at every level of leadership, with membership acceptance, to abide by the responsibilities stated within the program.
2. Business Manager- The Business Manager or his/her designee is empowered to address workplace issues with members and to communicate to employers the individual workplace needs requiring management involvement.
3. Member Professionalism- SMWIA members have a responsibility to their union and fellow members to present themselves and represent their local union in a professional manner. This includes meeting employer and end user expectations about the work we perform.
4. Member Responsibility- If a member is failing to meet the standards we have set for ourselves, it is incumbent upon each member to assist each other in meeting our standards.
5. Consequences of Failure- SMWIA members must clearly understand the consequences if we fail to meet the customer's needs. Our ability as a union to ensure good wages and working conditions is directly related to our ability to perform.



SMWIA CODE OF EXCELLENCE PROGRAM

IMPLEMENTATION OF THE CODE OF EXCELLENCE

The Code of Excellence Program is an internal SMWIA program. Therefore, implementation of the program shall be accomplished at the local union level using the following steps:

1. **Presentation to all Local Union Officers** - The program shall be presented by an SMWIA International Representative to the officers and leaders of the local union.
2. **Adoption by Officers** - Local union officers and leadership shall discuss the provisions of the program and develop necessary local provisions for inclusion into the document. Local union leadership then commits through a recommendation by the local union executive board that implementation of the Code of Excellence Program be adopted by the full membership.
3. **Presentation to Membership** - Following adoption by local union leadership, the program is presented to local union membership for approval.
4. **Local Officers and Leadership Training** - Upon request of the local union, the International will assist in training local union leadership on the goals and implementation of the program.
5. **Local Membership Training** - Training will be provided to the membership by the local union with assistance from the International. Through the training process, the expectations necessary to achieve the acceptable level of professionalism and productivity for each SMWIA member will be discussed and defined.
6. **Presentation to Employer** - Once the local union adopts the Code of Excellence Program, the Business Manager or his/her designee presents the program to the Employer.



SMWIA CODE OF EXCELLENCE PROGRAM

SMWIA MEMBERSHIP COMMITMENT

As we face unprecedented competition for the services provided by the membership of the SMWIA, we must recognize our primary marketable qualities are our skills, productivity and professionalism. To succeed we must present to the end user, be it contractor or end user clients, the value in using SMWIA members. This requires that each member conforms to and supports the Code of Excellence Program responsibilities set forth below. As a result, our promise of professionalism and productivity is met every day by every member. The future of our membership and the SMWIA is dependent upon our ability to establish our added value to the employers and end users within the Sheet Metal industry.

SMWIA RESPONSIBILITIES:

The Business Manager of the local union will have ultimate responsibility for implementation and administration of the Code of Excellence Program. The program structure is designed to ensure that the Business Manager or his/her designee shall be the first point to resolve Code of Excellence Program issues quickly and effectively.

Our responsibilities include the following:

Working Time

- First and foremost, our members shall adhere to our core principle of productivity, eight hours work, for eight hours pay.
- All members shall adhere to established contractual starting and quitting times and shall meet their responsibility to their fellow members and employers by arriving to work on time and ready to work.
- Break and lunch periods are limited to the time allowed by the contract, or agreement(s).
- Members shall meet their responsibility not to leave the jobsite without proper approval.
- When absent the member shall contact supervision in advance of their established starting time to confirm such absence.
- All members shall be productive and efficient, with idle time kept to a minimum.



SMWIA CODE OF EXCELLENCE PROGRAM

- Personal cell phone usage shall be limited to appropriate break times or lunch periods, or emergency use as defined by the local union Business Manager.
- Members shall meet their contractual responsibility to eliminate work disruptions on the job.
- All members shall work toward the goal of completion of projects on or under the allotted time.

Safety

- Safety, being a primary concern for both our members and contractors, members shall meet their obligation to perform work safely and effectively, following employer and industry established rules.
- Members will meet their contractual and personal responsibility to utilize proper safety equipment and safety methods.
- Members will participate in OSHA 10 courses as offered by the local union and when required by their collective bargaining agreements.

Tools

- In meeting their responsibility as highly skilled and qualified craftsmen, all members shall carry the necessary and proper tools as required by the collective bargaining agreement.
- Members shall meet their responsibility in taking care of the equipment and tools provided by the employer.

Fitness for Duty

- Members shall meet their responsibility of being fit for duty by accepting work for which they have the requisite skills and training.
- Members shall exhibit and maintain a level of craftsmanship recognized to be within the industry standard.
- Members shall meet their responsibility to be fit for duty, with zero tolerance policy for substance abuse.



SMWIA CODE OF EXCELLENCE PROGRAM

- As representatives of their local union and the employer, all members will be professional in appearance.
- The wearing or display of inappropriate materials shall not be tolerated.
- The Business Manager or his/her designee and leaders on the job shall work with other members who have displayed unacceptable work habits so that each member on the job meets a standard of quality and productivity second to none.

Labor/ Management Relations

- Members shall respect the property of the contractor and end users, and graffiti and other forms of destruction and waste will not be tolerated.
- Members shall respect all legal facility rules of the client and or end user.
- Activities which cast the International Association or the local union in disrepute shall not be tolerated.
- Any inappropriate behavior toward another member or group of members shall not be tolerated.
- Inappropriate behavior toward customer representatives or employer representatives shall not be tolerated.
- The goal of the SMWIA Code of Excellence Program is to promote professionalism within the total membership of the SMWIA and a sense of pride in our membership.

EMPLOYER RESPONSIBILITIES:

The ultimate responsibility of managing the work and projects falls within the control of the employer. With such responsibility our signatory employers, and if applicable our employer associations, have a responsibility to manage their jobs effectively. Therefore, to build confidence and trust in the Code of Excellence Program, the employer must meet its responsibilities in addressing job performance issues, including the following:

- To address ineffective supervisors, including superintendents, general foremen, and foremen.



SMWIA CODE OF EXCELLENCE PROGRAM

- To ensure proper job planning, supervision and layout, to minimize down time.
- To make available the proper types and quantities of tools, equipment and materials to ensure job progress.
- To ensure proper maintenance, care, storage, and security for employer- provided and employee-provided equipment and tools.
- To demonstrate to the customer the efficiency of our partnership, the employer will ensure there are adequate numbers of employees to perform the work efficiently and, conversely, to limit the number of employees to the work at hand.
- To provide the necessary jobsite leadership to eliminate problems and provide effective solutions.
- To instill in supervisors the necessary positive attitude that the SMWIA local union, their members and the employer are working together.
- To ensure that jobsite leadership takes the necessary ownership of mistakes created by management decisions.
- To eliminate unsafe work conditions and ensure that proper safety training, equipment, and methods are utilized.
- To address concerns brought forth by the Business Manager or his/her designee. If the problem is not resolved at the lowest level of management, the Business Manager or his/her designee may choose to address the issue with higher levels of management.
- If the issue is not resolved, the local union or employer may call for a labor-management meeting to resolve concerns or issues.



SMWIA CODE OF EXCELLENCE PROGRAM

MEMBERSHIP DISPUTE RESOLUTION CRITERIA

Overview

The success of the Code of Excellence Program is dependent upon the acceptance and understanding by each member of the scope of their responsibilities as established within the program.

It must be understood that a truly successful workplace environment can only be achieved by participation of both the SMWIA and the Employer in meeting their responsibilities. The union's role is to address with its members any individual problems that are brought to its attention to ensure the Union's obligation to live up to the promise of providing a skilled and professional workforce to the employer and the end user is maintained and improved.

UNION RESPONSIBILITIES:

- The Business Manager or his/her designee will work with members through a process of mentoring to correct and solve problems related to job performance.
- On a regular basis, the Business Manager or his/her designee will communicate with management on Code of Excellence Program issues. This will then be communicated to SMWIA members through the local union leadership and workplace stewards.
- If an individual member is not meeting established responsibilities under the program and the correction of such adverse behavior cannot be achieved through mentoring between the local union leadership, member peers and the individual member, the local union Executive Board shall have the responsibility to review, evaluate, and address such problems with the individual member. If the member is unwilling or unable to meet his/her obligation under the Code of Excellence Program, the local union Executive Board shall be empowered to take necessary action up to and including filing of appropriate charges under the Constitution and Ritual of the SMWIA.



SMWIA CODE OF EXCELLENCE PROGRAM

The following is inconsistent with the conduct required under the Code of Excellence Program:

1. Refusal of jobs or unavailable (no returned call) upon call from the dispatcher for work shall upon the third violation result in removal from the out of work list and placement in the "inactive file".
2. Not showing for work when dispatched, which shall be deemed to be a violation of the Constitution, and may, subject the member to local union charges and trials.
3. Acceptance of employment or job under false pretenses, no adequate skills for the job, which shall also be deemed a violation of the Constitution, and may subject the member to local union charges and trials.
4. Conduct resulting in termination by an employer for cause, which shall be documented upon the attached form which is to be supplied by the local union. If the employer indicates that a terminated employee is not eligible for rehire, such designation shall be honored by the dispatch office for a minimum of 180-days. Provided that, if the local union determines to process a grievance contesting such a termination, such termination shall not be considered as being for cause until a Local Joint Adjustment Board, a Panel, the National Joint Adjustment Board (or any alternative procedures negotiated by the local parties) determines that such termination was for cause, or the grievance process is otherwise completed without invalidating the termination.

The Business Manager and or his/her designee, as well as the employer, must endeavor to correct performance problems with individual members at the workplace, so that their performance meets the standards of the Code of Excellence Program. However, there will be instances where the local union ultimately must withhold contractual referral privileges from; those employees that have demonstrated that they are either unwilling, or incapable, of meeting acceptable standards of workplace behavior. In such circumstances, employers have a reciprocal obligation to terminate such employees for cause, rather than merely laying them off, so that such employees are not simply referred for employment with another employer. A disciplinary action plan shall be implemented which establishes a "Three Strikes Policy" for violation of the Code of Excellence Program provisions. Such plan shall provide that, in any case where there are three separate instances within a 24-month period where the employee has been convicted of constitutional violation under points 2 or 3 or has been subject to termination under point 4, in any combination, the employee's referral privileges shall be suspended indefinitely.



SMWIA CODE OF EXCELLENCE PROGRAM

The employee may appeal the suspension to the Local Joint Adjustment Board, a Panel, the National Joint Adjustment Board (or any alternative procedure negotiated by the local parties), which shall have authority to reduce the period of any suspension of referral privileges, if it determines that fairness and equity require such action under the circumstances of the particular case or to terminate the suspension when it determines that the underlying causes for the suspension have changed so that the employee deserves to be restored to referral privileges.

A sample copy of the Notice of Termination Form is attached as Exhibit A.

Exhibit A
NOTICE OF TERMINATION



SMWIA CODE OF EXCELLENCE PROGRAM

SMWIA Local --- (Required by Code of Excellence Program)

Name: _____

Address: _____

Last 4- Digits of Soc. Sec. No. _____ Termination Date: _____

Employee Classification: _____

Lay Off

Discharge

Voluntary Quit

Reduction of Forces

Not Qualified

To Take Another Job

Absenteeism

To Seek Another Job

Dates: _____

Leaving Area

Not-Productive

Sickness

Insubordination (Explain)

Other (Explain)

Misconduct (Explain)

Employer: _____

Explanation: _____

Appendix F

(SAMPLE)

EMPLOYER ACCEPTANCE AGREEMENT

ADOPTED BY

**SHEET METAL, AIR, RAIL AND TRANSPORTATION
(SMART) INTERNATIONAL ASSOCIATION**

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

APPROVED BY _____
REGISTRATION AGENCY

DATE APPROVED: _____

Appendix F

EMPLOYER ACCEPTANCE AGREEMENT

The foregoing undersigned employer hereby subscribes to the provisions of the Apprenticeship Standards formulated and registered by the Sheet Metal, Air, Rail and Transportation Workers' International Association and the Sheet Metal and Air Conditioning Contractors National Association, Inc. and agrees to carry out the intent and purpose of said Standards and to abide by the rules and decisions of the Sponsor established under these Apprenticeship Standards. We have been furnished a true copy of the Standards and have read and understood them, and do hereby request certification to train apprentices under the provisions of these Standards, with all attendant rights and benefits thereof, until cancelled voluntarily or revoked by the Sponsor or Registration Agency. On-the-job, the apprentice is hereby guaranteed assignment to a skilled and competent journeyworker and is guaranteed that the work assigned to the apprentice will be rotated so as to ensure training in all phases of work. The employer further agrees to accept for employment apprentices who are selected and referred to him/her by the Apprenticeship Committee to the extent appropriate employment opportunities are available.

Signed: _____ Date: _____
Title: _____

Name of Company:
Address:
City/State/Zip Code:
Phone Number:

Disposition:
Original –
Copies – Employer, and Registration Agency