Continuing Education Course Catalog
NIGHT UPGRADE CLASSES

Sheet Metal Workers Career Training
Table of Contents

- How to register for a night class.................................3
- Payment, Class Confirmation, PEU Information..............4
- Parking, First night of Class, Code of conduct.............5
- Architectural Sheet Metal........................................6
- Building Information Modeling.................................7
- HVAC Sheet Metal..................................................9
- Safety Training......................................................14
- Service...............................................................16
- Testing & Balancing...............................................21
- Welding...............................................................26

Quick tip: Click on the TotalTrack Login box on any page to begin the registration process outlined on the next page.
General Information

REGISTRATION

How to Register for a Night Class

- Login to totaltrack.org
- If you don’t have a TotalTrack login, send an email to training@sheetmetal36.org with your name, cell phone number and IA member number. Allow up to two business days for a reply. You will receive an email with a temporary password.
- When you receive your temporary password, go to totaltrack.org
- You will enter your email address as your user name
- Enter your temporary password
- Enter a permanent password
- Re-enter a permanent password
- Once you’re in TotalTrack there will be two tabs at the top, Home and My Education. Click on My Education
- This is a list of any classes that you have taken. Click Register
- There will be a list of available classes. Check the box to the left of the class that you wish to take. If the class is full, you will be put on a waiting list or you can choose a different class.
- Then click Add To Registration Form
- The class will be added to Register for Classes. Click submit registration to finish.
- You can confirm your registration on My Education
- If you are on the waiting list, you may have to wait until next semester to take the class if it is offered.
General Information

Payment

Each class requires a $50 deposit on the first night of class. The deposit will be refunded on the last night of class provided that you attend 80% of the classes.

YOU ARE REQUIRED TO ATTEND ALL CLASSES TO GET PEU’S.

Make checks payable to Sheet Metal Workers Training School.

Class Confirmation

The school will send confirmation at least two weeks prior to the start of class. Please let us know if at any time prior to the start of class, you won’t be able to attend a class that you are registered.

PEU Credits and Information

You must attend all the classes to receive full PEU credits

What You need to renew your St Louis County Mechanical License

(2 class hours) = (1 PEU credit)

You need 12 PEU credits in the 3 yr. period between renewals

Credits are classified as Core, Trade Specific or Carry Over

Carry Over are neither Core nor Trade Specific

You need:

3 Core Credits
3 Trade Specific Credits
+ 6 Either or Carry Over
12 Total Credits
Parking and Building Entry

Parking for night classes is on the east end of the building (away from Jefferson).

The front gate closes at 4:30pm. Please enter the parking lot between Dyna Labs and the Union offices after 4:30pm.

NO PARKING on Chouteau Ave.

The First Night of Class

Students are required to:

- Show up on time
- Sign in Every Night
- Bring Mechanical License(s)
- Bring Pen or Pencil and Notepad
- View Anti-harassment and Educational Loan Agreement Videos
- Electronically Sign Educational Loan Agreement
- Accept rules and regulation Online
- Update Contact Information Online

Code of Conduct

Students are expected to adhere to the following rules:

- Wear leather shoes (no tennis shoes or sandals)
- No food or drink in class rooms (water is the exception)
- No shorts
- No Smoking on the property
- Dispose of personal trash accordingly
- Show respect for other classes in session

This guide contains (PEU) Professional Education Unit credits and non-credit classes, certifications and SMACNA sponsored Classes.

Classes are available to Journeypersons, Apprentices and Specialists.
BSMS-1-1 Basic Sheet Metal Soldering

This is designed to teach the basic skills necessary to solder sheet metal seams. The course includes identifying materials, flux, and proper heat application to satisfactorily solder watertight seams. Safe work practices and code understanding will also be covered.

8 classes  S/M or HVAC PEU’s  Trade-8 Core-4

TMC-1-1 (Wall Panels) Basic Thermal and Moisture Control & Aerial Lifts Safety Training - II

This course is designed to introduce and teach sheet metal workers through classroom instructions and hands-on applications, SMACNA’s standards on remedies and preventions in the fight to insulate and control moisture and condensation problems. This course is designed to introduce and teach sheet metal workers proper fabrication and installation techniques of Architectural Wall Panels. MCM and 3” Insulated Foam Panels will be used as well as proper caulking techniques to ensure a watertight product. A two night Aerial Lift Safety Training course is also included with a completion card issued at the conclusion of the class.

10 classes  S/M or HVAC PEU’s  Trade-12 Core-3

CAULK-1-1 Caulking and Sealants

This course, 8 (3 hour) classes, is designed to introduce and teach sheet metal workers through classroom instructions and hands-on applications, SMACNA’s standards and ASTM Specifications on remedies and preventions in the war against moisture and condensation problems. This course is intended to provide the product selection criteria of sealants based on joint design and movement considerations. This course will discuss topics on backer-rod selection, cleaners and primers for surface preparation, application instructions and field testing instructions. This course will also discuss quality assurance which includes product quality, skin-over time, elastometric test and field adhesion test, and the removal and replacement of existing sealants. Finally, this course is designed to provide product specifications, documentation and warranties of what is available and what is required. Included with the caulking and sealant course is hours of hands-on applications of the different types of sealants (Silicones, Urethanes, Polysulfides, Acrylics and Butyls) which will ultimately provide the building owner with the longest lasting weatherproofing system available.

8 classes  S/M or HVAC PEU’s  Trade-9 Core-3
Building Information Modeling

DFR-1-1 Basic Sheet Metal Drafting
This is designed to teach the sheet metal worker basic drafting along with the many trade specific aspects of drafting associated with the sheet metal industry. The student is required to have or purchase from the school all the necessary drafting tools needed about $50.

| 8 classes | S/M or HVAC PEU’s | Trade-12 | Core-0 |

TOP-1-1 Take-Off Procedures
This course, 3 (3 hour) classes, is designed to provide sheet metal workers with a general overview of the process of transferring the information from drawings, schedules, etc., into a form that can be used for estimating phase and upon approval of the shop drawings. Accurately accomplished, the take-off procedures enables the company to reduce waste on a job to a minimum and increase profitability. It enables the company to offer the most competitive bid possible and, once the job is secured, to complete that work in the most efficient way. In this module the student will learn about the estimating process and its relationship to fabrication orders and buyouts. The students will also learn about manual take-off procedures, computer-assisted take-off procedures that enable the detailer to work faster and more accurately, and about the relationship between take-off and scheduling.

| 3 classes | S/M or HVAC PEU’s | Trade-4.5 | Core-0 |

FM-1-1 Field Measurement
This course, 6 (3 hour) classes, is designed to provide sheet metal workers with a general overview of field measuring from learning to assess field measurements requirements for a particular task, select the proper measuring tools, perform accurate measurements, and communicate those measurements in an appropriate fashion the first time. It calls for first time accuracy to avoid unnecessary additional expenses and wasted time. It also goes without saying that accurate measurements from the job site are critical for the design and fabrication of systems to be installed. This course also addresses some useful field math for calculating measurements that cannot be obtained directly. This module looks at new technologies and methods for field measurement, such as total station, and how measurements data can be passed back and forth between the total station and Auto-CAD. Techniques for keeping safe while taking on-site measurements are learned, as well as protocols for measuring in a location currently occupied by building tenants.

| 6 classes | S/M or HVAC PEU’s | Trade-9 Core-0 |
IC-1-1 Introduction to Computers and Microsoft Windows

This course is designed to teach basic computer skills, which include the concept of file creation and file management. This class is designed to compliment other curriculum such as Auto-Cad, Tab, Cad-Cam, Estimating and more.

8 classes

IACD-1-1 Introduction to AutoCAD

This course, 13 (3 hour) classes, is designed to teach sheet metal workers the basic principles and techniques of Auto/CAD Drawing. There are three units of study in this course. The first unit of study is Understanding Auto-CAD which teaches the similarities between Auto-CAD and windows. The students will also be introduced to input devices, Auto-CAD Graphical User Interface (GUI)/Graphics Window, toolbars, coordinate systems, drawing units, size and limits, and other basic commands. In this unit, the students will learn to organize files and folders and how to print and plot their work. The second unit of study will be Plan Drawings which will include layers, dimensioning, drawing doors and windows and drawing blocks. The final unit of study is Elevation Drawings which includes the drawing of elevation views, using text commands and text boxes and knowing how to save all their work to files and folders.

13 classes  S/M or HVAC PEU’s  Trade-19  Core-0

AACD-1-1 Advanced AutoCAD

This course, 10 (3 hour) classes, is designed to teach sheet metal workers the advanced principles and techniques of Auto/CAD Drawing. There are four units of study in this course. The first unit of study is Three-Dimensional Drawings including the use of blocks and the use of blocks with attributes. In this unit the students will learn to work with external references (Xrefs), structural grids and match lines and final surface and solid modeling. The second unit of study will be Industry Standards which will include revision management and file and folder structure, CAD standards, layers, and viewports and dimensioning. Third unit of study will be Paper Space which includes the drawing of borders and title blocks, tables, key plans and layouts. The final unit of study is Plotting in which the student will be guided through the many plotting styles and activities.

13 classes  S/M or HVAC PEU’s  Trade-15  Core-0

ADET-1-1 Advanced Detailing

This course, 13 (3 hour) classes, is designed to allow new detailers an opportunity to detail two actual completed projects. The first is an Elementary School’s Gymnasium and the second is a Heart Hospital both in Indiana. The student will be using selected documentation and drawings from the actual construction packages. Using actual project drawings and submittals allows the student a significant amount of hands-on experience mimicking an on-the-job situation. This approach will encourage communication and critical thinking about detailing. This course will be broken into seven units of study with the first lesson is discovering the phases of detailing workflow and concluding with these two individual projects. This unit will cover kickoff meeting, full construction package, study the plans and specifications, communications, submittal packages, coordination and shop drawings and finally take-off of the prints and the actual drawing of plan and elevation views and any project correspondence and coordination that pertains to the projects.

13 classes  S/M or HVAC PEU’s  Trade-19  Core-0
Sheet Metal Layout and Fabrication

BLO-1-1 Basic Layout and Sheet Metal Fabrication
This course is designed to teach the sheet metal worker basic sheet metal duct layout and fabrication. The course will cover the construction of elbows, offset, transitions and square to rounds. Special emphasis will be placed on proper use of equipment and shop safety.

15 classes S/M or HVAC PEU’s Trade-22 Core-0

ALO1-1 Advanced Layout and Sheet Metal Fabrication
This course is designed to teach the experienced sheet metal worker the most advanced pattern layout techniques utilized in the sheet metal industry. Pattern layout techniques covered are triangulation parallel line development, radial lines and rollation.

16 classes S/M or HVAC PEU’s Trade-24 Core-0

CLO1-1 Calculator Application in Layout
This course is designed to provide applications and understanding to the students’ sheet metal layout ability which was developed in previous classes. The calculator will be added to assist in the development of sheet metal layout shortcuts. This course will focus on the mathematical aspects of sheet metal layout. This course will also demonstrate the speed and accuracy that can be obtained by using the calculator as a sheet metal tool. All three types of sheet metal layout techniques (Triangulation, Parallel line development and Radial line development) will be focused on during the duration of the class.

15 classes S/M or HVAC PEU’s Trade-9 Core-0

HVAC PRO-1-1 How to use the Sheet Metal HVAC Calculator
This course, 5 (3 hour) classes, is designed to teach sheet metal workers and HVAC service installer basic mathematical calculations. The custom-designed ITI Sheet Metal / HVAC Pro calculator was specifically created for sheet metal pros to ease the task of performing mathematics on the job. It includes the most popular built-in formulas for sheet metal computations, so you’ll save time, increase accuracy and eliminate errors.

5 classes S/M or HVAC PEU’s Trade-7.5 Core-0

WRL-1-1 Worker’s Rights Legislation
This course, a 4 hour class, is designed to teach the sheet metal worker about the different steps which the labor movement endured through history and through the legislation process that was created to protect the workers’ and the unions’ rights in the United States of America. The class will also refer to Mark Breslin’s book entitled “Survival of the Fittest” which tells that the future of Union Construction depends on every journeyman, every apprentice and you. The class will discuss work ethic, commitment, and attitude to the “Union Yes” promise: Quality, Excellence, and Value.

1 class S/M or HVAC PEU’s Trade-0 Core-2
Sheet Metal Electives

BMATH-1-1 Basic Sheet Metal Math
This course is designed to teach sheet metal worker basic math skills review from high school plus and in depth study on how these basic math skills are necessary to cope in the sheet metal industry. Special emphasis will be placed on problems related to the sheet metal industry.

5 classes  S/M or HVAC PEU’s  Trade-7.5  Core-0

APMATH-1-1 Applied Sheet Metal Math
This course is designed to teach sheet metal worker more advance math skills, plus and in depth study on how these advance math skills are necessary to cope in the sheet metal industry. Special emphasis will be placed on problems related to the sheet metal industry.

5 classes  S/M or HVAC PEU’s  Trade-7.5  Core-0

AMATH-1-1 Advanced Sheet Metal Math
This course is designed to teach sheet metal worker basic math skills review from high school plus and in depth study on how these basic math skills are necessary to cope in the sheet metal industry. Special emphasis will be placed on problems related to the sheet metal industry.

6 classes  S/M or HVAC PEU’s  Trade-9  Core-0

DFR-1-1 Basic Sheet Metal Drafting
This is designed to teach the sheet metal worker basic drafting along with the many trade specific aspects of drafting associated with the sheet metal industry. The student is required to have or purchase from the school all the necessary drafting tools needed about $50.

8 classes  S/M or HVAC PEU’s  Trade-12  Core-0

FIRE-1-1 Fire and Smoke Dampers
This course is designed to teach sheet metal workers the manufacturer’s recommendations and requirements towards proper and safe installation of smoke and fire dampers. This course will distinguish between codes, regulations and fire ratings pertaining to the different types of dampers.

3 classes  S/M or HVAC PEU’s  Trade-4.5  Core-0

BP-1-1 Blue Print Reading
This course is designed to teach the students every aspect of blue print reading as seen through the eyes of both management and the field installer. Among the many topics covered are: the standard organization of plans, (sections), elevations, line typed, scaling, sectional views, detailing, symbols, RFI’s specifications, submittals and the bidding process.

12 classes  S/M or HVAC PEU’s  Trade-0  Core-18
Sheet Metal Electives

FSTOP-1-1  Fire Stopping
The course, 2 (3 hour) classes agrees with the construction industry which fully endorses the use of sprinkler systems, although fire history suggests that there is no single way to make buildings safe when fire breaks out. Owners, architects, and engineers can reduce the risk of property losses and human causalties by incorporating “passive fire and life-safety systems” into the design of commercial, institutional and industrial buildings. These passive fire protection systems may include assemblies rated for their ability to resist fire and smoke; fire barriers, such as drywall, concrete walls and floors, and concrete block walls; floors composed of wood and lightweight concrete; and ceiling assemblies made of tile or drywall. For these systems to be effective, it is necessary to seal service items that penetrate fire walls and floors with firestopping, fire and smoke dampers, or fire doors. These passive systems with firestopping are meant to stop fire from leaping into another part of the building. Typically, they create “compartments” that can protect occupants and contain fires until sprinklers, building personnel, or firefighters extinguish the blaze.

2 classes  S/M or HVAC PEU’s  Trade-0  Core-3

PM-1-1  Foreman Training
This course, 5 (3 hour) classes, is planned for use with students or trainees who will be entering the work force or who may already be working. Content and activities provide information and experiences that will bring about an understanding of how our society operates, including specific information on training programs, management and labor relations, organized labor, social and labor legislation, and employee responsibilities. Other topics that will be discussed will include quality control and productivity, construction cost, paperwork and legal considerations.

5 classes  S/M or HVAC PEU’s  Trade-0  Core-7.5

PML-1-1  Code Review— A Mechanical License Preparation
This course, 6 (3 hour) classes is designed as a review for sheet metal workers or HVAC service installer who are preparing to take the St. Louis County Mechanical License Test. The course reviews each of the textbooks and covers the most important codes, standards and terminology necessary for an adequate understanding of Mechanical application for sheet metal or service industry. Special emphasis will be place on proper equipment hook-up and installation procedures, including any safety recommendations.

6 classes  S/M or HVAC PEU’s  Trade-0  Core-9.0

This course, a three hour class, is designed to primarily review the documentation on construction, installation, operation, and maintenance of systems for air conditioning, warm air heating, and ventilating, including filters, ducts and related equipment to protect life and property from fire, smoke, and gases resulting from fire or from conditions having manifestations similar to fire.

1 classes  S/M or HVAC PEU’s  Trade-1.5  Core-0
Sheet Metal Electives


This course, a three hour class, is designed to primarily review the documentation on fire safety in the design, installation, and use of exhaust systems including hoods, grease removal devices, exhaust ducts, dampers, air moving devices and auxiliary equipment for the removal of products of combustion, heat, grease and vapors from cooking equipment, including the application of associated fire extinguishing systems.

There will be procedures for the use and maintenance of equipment in the fire extinguishing systems as well as the exhaust systems. This course will introduce the sheet metal workers to minimum safety requirements for cooling equipment and recirculation systems. Finally this course will visit the requirements and applications of solid fuel cooking operations and how to minimize the hazards related to these operations.

1 class  S/M or HVAC PEU’s  Trade – 1.3  Core-0

CFL-1-1  Commercial Flat Work Lagging

This course, 6 (3 hour) classes are designed to introduce and re-orientate sheet metal workers with the principles of flat work insulating and industrial cladding of large ductwork. In addition, this course will explain the difference applications for rigid board insulation and rolled insulation. Other common lagging and cladding materials will be encountered and discussed during classroom lecture and demonstrations. This course will review the purpose of lagging and the steps needed to complete a lagging project correctly. Finally, a good review of safety procedure and personal protective equipment will be discussed before any shop hands-on application will take place.

6 classes  S/M or HVAC PEU’s  Trade – 9  Core-0

CHMI-1-1  Commercial HVAC Mechanical Insulation

This course, 4 (3 hour) classes, is intended to instruct sheet metal workers with the principles and proper installation procedures of a commercial duct wrap project meeting all the criteria spelled out in accordance to the “Short Form Field Inspection Check List (NAIMA 66)” which is published by the North American Insulation Manufacturer Association. This 12-hour course will include how to cut, fasten, staple and seal duct wrap insulation onto a given piece of ductwork correctly. In addition, the sheet metal student will be taught the use of proper tools and PPE (personal protective equipment) to complete each job in a safe, timely manner of efficiency and skill.

4 classes  S/M or HVAC PEU’s  Trade – 6  Core-0

CRL-1-1  Commercial Round Work Lagging

This course, 4 (3 hour) classes are designed to introduce and re-orientate sheet metal workers with the principles of round work insulating and industrial cladding of various size round ductwork. In addition, this course will explain the difference applications for rigid board insulation and rolled insulation. Other common lagging and cladding materials will be encountered and discussed during classroom lecture and demonstrations. This course will review the purpose of lagging and the steps needed to complete a lagging project correctly. Finally, a good review of safety procedure and personal protective equipment will be discussed before any shop hands-on application will take place.

4 classes  S/M or HVAC PEU’s  Trade – 6  Core-0
Sheet Metal Electives

**LCTC-1-1  Lean Construction Training Curriculum**

This course, 3 (3 hour) classes, is designed to give the sheet metal worker the competitive advantage they are seeking in this fierce construction market. Lean isn’t a magic bullet. Change requires time and effort. But Lean can make a significant difference. With tough economic times, the pressure builds to find solutions. The purpose of this training course is to give the union sheet metal worker a viable plan of action. As stated, the problem is unprecedented competition for the services sheet metal workers can provide. A solution lies within the full support of the SMART Code of Excellence Program and the values of Lean principles. These principles are a commitment to working in a “smarter” Lean way. Using Lean will help make each sheet metal worker to be more productive, and in this way, help decrease costs and add value to the Sheet Metal and Air Conditioning Industry.

3 classes  S/M or HVAC PEU’s  Trade- 4.5  Core-0

**DCD-1-1 Duct Construction and Design**

This course, 3 (3 hour) classes, is designed to give the sheet metal worker a clear interpretation of requirements for different types of ducts and ductwork. In fulfilling the function of moving air, the duct assembly must satisfy certain fundamental performance criteria. Elements of ductwork assembly are different gauge sheets, reinforcements, seams, and joints. Theoretical and/or practical limits for the following criteria must be considered for the duct assembly and its elements.

- Dimensional stability (shape deformation and strength)
- Containment of the air being conveyed (duct leakage)
- Vibration (fatigue and appearance)
- Exposure Damage (weather, corrosion, temperature extremes, and biological contamination)
- Support (alignment and position retention)
- Seismic restraints
- Thermal conductivity (heat gain or loss and condensation control)

In establishing limitations for these factors, considerations must be given to effects of the pressure differential across the duct wall, airflow friction losses, air velocities, infiltration or infiltration as well as the inherent strength characteristics of the duct components.

3 classes  S/M or HVAC PEU’s  Trade- 4.5  Core-0
Safety Training

CPR-1-1 First Aid / CPR
This course, one (6 hour) class is designed to give sheet metal workers in the workplace the knowledge and skills necessary to prevent, recognize, and provide basic care for injuries and sudden illnesses until advanced medical personnel arrive and take over.

1 classes  S/M or HVAC PEU’s  Trade-0  Core-3

30-hour OSHA Outreach 1926 Construction Safety Training
This course (30 one hour classes) is to provide detailed information to the sheet metal workers into the federal agency known as OSHA—Occupational Safety and Health Agency. What is its purpose and who does it serve? This course includes many different concepts such as the difference between regulations and laws, inspections, employer’s rights and responsibilities, employee’s rights and responsibilities, citations, penalties for violations, imminent dangers, safe work practices and the complaint handling process.

11 classes  S/M or HVAC PEU’s  Trade-11.5  Core-3.5

MSHA Part 46 Surface Mine (Metal & Nonmetal) New Miner Training Program
This course (8 hour class) is to provide detailed information to the sheet metal workers into the federal agency known as MSHA—Mine Safety and Health Agency. What is its purpose and who does it serve? This course includes many different concepts such as the difference between regulations and laws, inspections, employer’s rights and responsibilities, employee’s rights and responsibilities, citations, penalties for violations, imminent dangers, safe work practices and the complaint handling process.

1 class - 8 hrs.  S/M or HVAC PEU’s  Trade-0  Core-4

RJSH-1-1 Recognizing Job Site Hazards
This course, 2 (3 hour) classes, is designed to provide sheet metal workers with guidance especially for construction workers to ensure compliance with mandated Federal regulations, emphasizing accident prevention. This course also outlines steps for organizations to comply with OSHA’s regulations in an easy-to-use style, presenting topics in a “how to” format along with numerous quizzes and a sample fall protection plan. This course covers the latest OSHA regulations. In addition to the text of 29 CFR 1926, the course contains rules of inspections, citations and penalties, as well as the requirements for recording and reporting occupational injuries and illnesses. This course will highlight a number of prominent job site hazards that plague the construction industry on a daily basis. These hazards include but not limited to electrical hazards, lock-out/ tag-out, ladder safety, scaffold safety, fall protection and recognizing other common construction hazards.

2 classes  S/M or HVAC PEU’s  Trade-0  Core-3
ARC-1-1 Arc Flash Safety

This course, 2 (3 hour) classes, is designed to teach the sheet metal worker about arc flash safety with special emphasis placed on the fire retardant clothing designed for electrical safety. This course is also designed to help the sheet metal worker understand the NFPA 70E Compliance Guide. Information will be presented in selecting Proper Arc Flash Wear including rubber gloves, face shields, and flame resistant clothing. The first class will review the causes and effect, exposure and prevention of arc flash. Along with the text review, safe working practice will be discussed in detail to help eliminate arc flash.

2 classes  S/M or HVAC PEU's  Trade-0  Core-3

HAR-1-1 Hoisting and Rigging Safety

This course is a 4-hour class designed to instruct and evaluate the sheet metal workers, in the proper hoisting and rigging techniques needed by all construction worker to ensure a safe and secure jobsite. The benefit of this course is that while a company may train employees with a qualified evaluator, that employee will only be recognized by OSHA as a qualified rigger for that company. Training conducted by a third party evaluator is recognized by OSHA as a portable qualification that stays with the employee from employer to employer. The Sheet Metal Occupational Health Institute Trust believes that every sheet metal worker has the responsibility to perform their job in a safe, productive, and professional way. Training will include: risk management, basic rigging principles, loads on rigging, the rigging triangles, application & inspection of rigging hardware, application & inspection of slings, and block concepts. Common hoisting and rigging calculations will also be discussed as well as general safety guidelines that should be followed when working on a jobsite that is using hoisting and rigging equipment. In this module we will also explore the various licenses available in hoisting and rigging and the privileges they grant. Ultimately, the determination of their level of competence or qualifications can only be made by their employer after additional training relevant to the work being accomplished and effective testing is completed.

2 classes  S/M or HVAC PEU's  Trade-0  Core-3

CHS-1-1 Crane Hand Signals

This course is a 4-hour class designed to evaluate and qualify the sheet metal worker, in the proper and standard method of crane hand signals. The benefit of this course is that while a company may train employees with a qualified evaluator, that employee will only be recognized by OSHA as a qualified signal person for that company. Training conducted by a third party evaluator is recognized by OSHA as a portable qualification that stays with the employee from employer to employer. Training will include: standard method for crane hand signals, radio signals protocol, competency in application of signals, basic understanding of equipment operations and limitations, basic understanding of crane dynamics (swinging, stopping, bloom deflection), and to understand the relevant requirements of 1926.1419-1926.1422 & 1926.1428. Attendees are encouraged to study the Crane Signals Chart prior to class since they will have a written and practical test on this chart that must be satisfactorily completed before passing this class. The Sheet Metal Occupational Health Institute Trust believes that every sheet metal worker has the responsibility to perform their job in a safe, productive, and professional way. Upon completion of this class, each trainee will receive a Qualified Signaler Certificate and Qualified Signaler Wallet Card that states that this trainee has met the requirements of a qualified signaler under OSHA CFR 1926 Subpart CC for Cranes and Derricks Rule.

2 classes  S/M or HVAC PEU's  Trade-0  Core-2
BE-1-1 Basic Service Electricity

This course is designed to teach sheet metal workers basic electricity. This course will include the basic concept of electricity, Ohms and power laws, circuit layout, relays, wiring diagrams, troubleshooting wiring diagrams, alternating currents, capacitors and resistors, electrical meters, electrical service layouts, controls circuits and finally troubleshooting techniques for motors and systems. Special emphasis will be placed on proper use of the equipment and tools to assure adequate shop and field safety.

14 classes  S/M or HVAC PEU’s  Trade-17.5  Core-3.5

EMS Electric Motors and Starters

This course is designed to teach sheet metal workers basic motor principles (magnetism, electromagnets, induction, sine wave, inductive reactance and motor speed), the different types of motors (single phase, 3-phase, split phase, capacitor start, capacitor start-capacitor run and shaded pole motors), wiring and wire diagrams for motors, nameplate data, circuit protection, motor drives and finally how to calculate power, work and horsepower. This course deals with working safely around motors and a thorough understanding of electrical safety practices.

3 Classes  S/M or HVAC PEU’s  Trade-4.5  Core-0

BH-1-1 Basic Heating  Pre-Requisite: Basic Service Electricity

This course is designed to teach sheet metal workers the principles of combustion and heat transfer in basic heating. This course will include such information about combustion, heat transfer, flue sizing, pilots, burners thermocouples, flame rods, gas heating, hydronic heating, oil heating, electric heating. This course will also include heat pumps, and alternative heating methods and humidification, heat loads, and troubleshooting air handlers and boilers that have the capability to deliver up to and more than 1 million BTU’s per hour. Special emphasis will be placed on proper use of the equipment and shop and field safety.

14 classes  S/M or HVAC PEU’s  Trade-17.5  Core-3.5

BC-1-1 Basic Cooling  Pre-Requisite: Basic Service Electricity

This course is designed to teach sheet metal workers the basic refrigeration cycle and how it is applied to all HVAC systems including systems that provide 25 tons or more of cooling. This course will include everything from a simple introduction into compressor, condensers, evaporator coils, metering devices, charging A/C units, piping and leak checking, vacuum pumps and evacuation, sizing a A/C unit, recovery and recycling and on into A/C troubleshooting (both theory and hands-on). Before the students can recover, recycle or reclaim any refrigerant, they will review the Montreal Protocol and be able to pass the EPA (Environmental Protection Agency) test on refrigerant recovery in accordance with Section 608 of the EPA Federal Regulation “Clean Air Act Compliance” for purchasing various refrigerants. This course will also include some basic air flow and duct systems. Special emphasis will be placed on proper use of equipment and shop and field safety.

18 classes  S/M or HVAC PEU’s  Trade-22  Core-5
RR-1-1 EPA-Refrigerant Recovery Certification

This course, **2 classes (one 7 hours, one 3 hours)**, totaling 10 hours is designed to review the Montreal Protocol and prepare sheet metal workers to pass the EPA (Environmental Protection Agency) test on refrigerant recovery in accordance with the EPA section 608 (clean air act compliance) for the purchasing of various refrigerants.

This course is certified through the ESCO Institute.

| 2 classes | S/M or HVAC PEU's | Trade-5 | Core-0 |

**BOIL-1-1 Low Pressure Boilers**

This course, 8 (3 hour) classes, is designed to teach sheet metal workers and service technician low pressure boiler theory. This course will include the basic concepts of boilers along with boiler design (hot water and steam), boiler classification, boiler components, piping, boiler maintenance, boiler safety and boiler room safety. Special emphasis will be placed on proper use of the equipment and tools to ensure adequate field safety.

| 8 classes | S/M PEU's | Trade-0 Core-12 | HVAC PEU's | Trade-9 Core-3 |

**RHVACTECH-1-1 Residential HVAC Retrofit and Customer Relations**

**Pre-Requisite:** Basic Service Electricity, Basic Heating, & Basic Cooling

This 8 hour class designed to teach sheet metal workers basic roles and responsibilities of an HVAC Retrofit Technician. This course will include a closer look at knowledge, skills and basic task performed by the HVAC Retrofit Technician. Special emphasis will be placed on customer relations. How to make good first impressions, and to show respect for customers and their property by avoiding costly property damages through careless material handling. Finally, teaching the students the proper ways to convey system operation and maintenance information to the customer upon completion of the job.

| 1 class | S/M or HVAC PEU's | Trade-4 | Core-0 |

**RHVACTECH-2-1 Regulations, Codes and Safety Applying to Residential HVAC Retrofit**

**Pre-Requisite:** Basic Service Electricity, Basic Heating, & Basic Cooling

This course is an 8 hour class designed to teach sheet metal workers basic regulations, codes, and safety concerns for an HVAC Retrofit Technician. This course will include a closer look at the personal protective equipment needed by the HVAC Retrofit Technician. Special emphasis will be placed on safety concerns for the Retrofit Technician and how, through safe work practices, they can replace or retrofit HVAC equipment and ductwork in residences. This course will also include code awareness not limited to municipal building codes, fire codes, local electrical codes, and plumbing codes that relate to HVAC systems, such as rules about gas piping, drains, or water supplies for humidifiers and CFC refrigerant recovery codes and transportation.

| 1 class | S/M or HVAC PEU's | Trade-0 | Core-4 |
RHVACTECH-3-1 Retrofitting Residential HVAC Systems

Pre-Requisite: Basic Service Electricity, Basic Heating, & Basic Cooling

This course is an 8 hour class designed to teach sheet metal workers about retrofitting residential HVAC systems. This course will include HVAC system’s components, HVAC system theory, and the HVAC system’s conditioning of the air. The components will include but not be limited to just furnaces, evaporator coils, condensing unit, heat pumps, air filters, humidifiers, dehumidifiers, thermostats, heat recovery ventilators (HRV’s), energy recovery ventilators (ERV’s), zone controls and high velocity systems. This course will also discuss duct systems—the HVAC arteries and veins. This discussion will include the different types of duct systems, the importance of design and installation and what makes a duct system efficient or inefficient. Finally, this course will delve into retrofitting process and tasks at hand. How do you prepare the customer and the job sites? How will you evaluate the existing HVAC system and then how do you remove old HVAC equipment and materials. This removal process will include both refrigerant recovery methods and refrigerant recovery processes, along with the removal of unneeded ductwork and obsolete equipment.

1 class  S/M or HVAC PEU’s  Trade-4  Core-0

RHVACTECH-4-1 Installing Retrofit Residential HVAC Equipment

Pre-Requisite: Basic Service Electricity, Basic Heating, & Basic Cooling

This course is an 8 hour class designed to teach sheet metal workers the safe and proper installation techniques through hands-on demonstrations. This course will include installing a residential furnace, installing a split system, the indoor evaporating unit and outdoor condensing unit, installing a package unit, installing a heat pump, installing an air filtering system, installing the humidifier or dehumidifier, installing the programmable thermostats, installing a zone control system, and installing an energy recovery unit. Each one of these individual pieces of equipment will be explained for its purpose and efficiency. The installation process will include connecting utility lines, connecting the control wiring, charging the air conditioning units, running the condensate drains and connecting the flue pipe.

1 class  S/M or HVAC PEU’s  Trade-4  Core-0

RHVACTECH-5-1 Retrofit Residential HVAC Accessories & Start-Up Procedures

Pre-Requisite: Basic Service Electricity, Basic Heating, & Basic Cooling

This course is an 8 hour class designed to teach sheet metal workers the safe and proper installation techniques through hands-on demonstrations. This course will include installing ductwork, registers, grilles, and chimney liners, discussing general duct installation guidelines, installing flexible duct, cutting in new supply registers or return air grilles, cleaning ductwork and finally explaining the system operation and maintenance through start-up procedures and system testing.

1 class  S/M or HVAC PEU’s  Trade-4  Core-0
Sheet Metal Workers
Local 36 Training School

Service Technology

GEO-1-1 Geothermal Heat Exchanger Design and Installation

This course, 8 (3 hour) classes is designed to provide an understanding of the different components of a commercial geothermal system along with a detailed explanation of its operating characteristics. This course will also allow the student to identify the different types of commercial ground heat exchangers and their applications. Students will be shown how to perform a site survey, identify soil and rock classifications, trenching safety, pipe design and layout, pressure drop calculations, pump sizing, fusion procedures, system flushing, building penetrations and grouting procedures.

8 classes  S/M or HVAC PEU’s  Trade-10  Core- 2

GEO-2-1 Geothermal Installation and Service

This course, 6 (3 hour) classes is designed to provide an understanding of commercial geothermal system installation and service along with a detailed explanation of typical operating characteristics. This course will instruct the student on commercial geothermal theory and design, load analysis, equipment choices, installation methods, duct zoning using automated dampers, equipment startup, troubleshooting, servicing procedures and preventive maintenance.

6 classes  S/M or HVAC PEU’s  Trade-9  Core- 0

DCLEAN-1-1 Duct Cleaning IAQ

The course, 4 (3 hour) classes are designed to instruct sheet metal workers on the Indoor Air Quality Issues of duct cleaning. A review of the guidelines set by the National Air Duct Cleaners Association will help solve many of the Indoor Air Quality issues. Why should there be concern with contaminants and microorganisms and the problems associated with each contaminant? The HVAC system is linked to many of these Indoor Air Quality problems. The course is also designed to teach air duct cleaning process and cleaning strategies. Many air duct cleaning technologies will be discussed along with the components to be cleaned.

1 class  S/M or HVAC PEU’s  Trade-6  Core-0

Missouri Propane Class and Gas Certification Test

This course, is conducted once a year during the day and is presented by The Missouri Propane Gas Association. The course generally takes 8hrs which includes a test for certification. PEU credits for mechanical license are administered and awarded by the Missouri Propane Gas Association pending successful completion of the final examination.

1 class  S/M or HVAC PEU’s  Trade 0  Core 4
NATEGH-1-1 NATE Certification Preparation—Gas Heating

This course, 3 (3 hour) classes is designed as a review for sheet metal workers. The first class will cover the core fundamentals which includes such topics as heat and matter, basic gas laws, inductors and inductance, capacitors and capacitance, circuit protection devices, transformers and motors, controls, indoor air quality and safety. The second class will cover more in depth information about gas heating including combustion air requirements, ignition control systems, installing gas furnaces, venting requirements, start-ups, diagnostics and repair, and induced-draft condensing operation. The final class will be a brief classroom discussion on heat pumps and then the NATE tests on Core and Gas Heating. Special emphasis will be placed on proper use of the equipment and shop and field safety.

3 classes  S/M or HVAC PEU's  Trade-4.5  Core-0

NATEHP-1-1 NATE Certification Preparation—Heat Pumps

This course, 3 (3 hour) classes is designed as a review for sheet metal workers. The first class will cover the core fundamentals which includes such topics as heat and matter, basic gas laws, inductors and inductance, capacitors and capacitance, circuit protection devices, transformers and motors, controls, indoor air quality and safety. The second class will cover more in depth information about heat pumps including heat pump fundamentals, reversing valves, heat pump installations, start-up procedures, defrost cycle, performance analysis, and troubleshooting heat pumps. The final class will be a brief classroom discussion on heat pumps and then the NATE tests on Core and Heat Pumps. Special emphasis will be placed on proper use of the equipment and shop and field safety.

3 classes  S/M or HVAC PEU's  Trade-4.5  Core-0
Testing, Adjusting and Balancing

**BT-1-1 Basic TAB**
This course is designed to teach Sheet Metal Workers the principles of Testing, Adjusting, and Balancing (TAB). This course will include the gathering of information to determine quantitative performance of the HVAC equipment. The sheet metal technician must try to regulate the specified fluid flow rate and air patterns at the terminal equipment (e.g. reduce fan speed, throttling). Finally, this course will help the TAB technician to proportion the flows within the distribution systems (zones, branches, and terminals) according to specified design quantities.

This course will include such information as fluid flow, heat flow & transfer, air flow and measurements. Special emphasis will be placed on proper use of instruments and equipment and the concern for field safety.

16 classes  S/M or HVAC PEU’s  Trade-21  Core-3

**AT-1-1 Advanced TAB**  Pre-Requisite: Basic TAB
This course is designed to teach Sheet Metal Workers about more detailed processes of testing, adjusting, and balancing. This course will talk about some of the important components of each system and how to adjust these components to fine tune each system. This course will strictly deal with air and water systems and how to balance each system.

16 classes  S/M or HVAC PEU’s  Trade-21  Core-3

**TABSUP-1-1 TABB Supervisor**  Pre-Requisite: Adv. TAB
This course is designed to teach TABB Certified members the required information to review a comprehensive and chronological history of the procedures followed by the TABB Technician to ensure its accuracy.

4 classes  S/M or HVAC PEU’s  Trade-4.5  Core-1.5

**CLC-1-1 Commercial Load Calculation**
This course is designed with a focus on both manual and computer methods. This advanced training helps the sheet metal worker develop an understanding of how to calculate the various components of a commercial facility’s heating and cooling load. While emphasis is placed on identifying and calculating peak load conditions, discussion is also directed at understanding the structure’s needs under partial load conditions. Much of the information covered is based on the ASHRAE Handbook of Fundamentals. Some of the areas covered in this course will include inside/outside design conditions, heat transmission through structural components, heat gain from internal sources, ventilation loads, dehumidification loads, duct heat gain/loss and infiltration loads.

6 classes  S/M or HVAC PEU’s  Trade-9  Core-0

**ET-1-1 Electrical Theory**
This course is designed to teach Sheet Metal Workers a basic understanding of electricity needed for being TAB technicians. This course includes basic electrical safety, types of circuits, working safely around electricity (lock out/tag out, safety devices and emergency procedures), laws of magnetism, series & parallel circuits, AC/DC current, reactance, transformers, power (RMS, apparent and real power), power factor and finally calculating power, work, mechanical power, brake horsepower, and load factor. This course takes you step by step through each of the topics and more.

3 classes  S/M or HVAC PEU’s  Trade-4.5  Core-0
FANS-1-1 Fans

This course is designed to teach sheet metal workers all about fan classifications. This course will include much detail dealing with the various types of fans used in the sheet metal industry. This course will review the principles of operation, recommended safety practices, testing and rating, fan curves and system resistance curves, fan and system pressure relationships, duct system characteristics, system effects, fan selections, parallel fan operation, poor system performance (noise, insufficient air flow, excessive air flow, incorrect static pressure, premature failure and vibration), fan isolation, fan performance curves and tables and finally troubleshooting an air-moving system. This course takes you step by step through each one of the topics and more.

5 classes  |  S/M or HVAC PEU’s  |  Trade-7.5  |  Core-0

IAQ-1-1 Indoor Air Quality (IAQ)

The course is designed sheet metal workers the duties of an indoor air quality technician and what they must know in working with people with IAQ problems. This course includes sick building syndrome, common pollutants, inadequate ventilation, poor air distribution, inadequate maintenance, indoor pollutants, testing of pollutants, IAQ survey procedures and investigation, air treatments and detail reporting assessments.

3 classes  |  S/M or HVAC PEU’s  |  Trade-4.5  |  Core-0

DEM-1-1 Digital Energy Management Digital Controls

This course is designed for certified TAB technicians to control the heating, ventilation and air conditioning of a whole building or series of building from a single or central location, the technician’s laptop computer. This course reviews the text as it talks about control system terminology, basic control loop configuration, sensors, controller, microprocessor (based control system), heating control strategies and cooling control strategies. Special emphasis will be placed on proper use of the equipment and field safety. Every class will involve some computer lab exercises or calibrations.

16 classes  |  S/M or HVAC PEU’s  |  Trade-21  |  Core-3

EQS-1-1 Equipment Start-up

This course is designed for the TAB Technician and other sheet metal workers in related fields. This particular module covers commissioning, start-up procedures, TAB, start-up plans and preparations, system inspections and other documentation forms. Documentation is very important part of equipment start-up. Documentation is the copies of all checklist (showing that everything has been checked), copies of tests, inspections, and certifications (such as boiler certification pressure tests of fuel lines). Documentation also includes manufacturers’ operation manuals on all major equipment.

2 classes  |  S/M or HVAC PEU’s  |  Trade-3  |  Core-0

HYDSY-1-1 Hydronic Systems   Pre-Req: Basic & Adv TAB

This course is designed to provide and understanding of the different components of a hydronic system. We will investigate the items that need to be check for prebalance preparation. The students will be shown how to obtain measurements from the following hydronic flow measurement devices (meters): venturi, calibrated balancing valve, orifice plate, and averaging pitot tube. We will identify the part of a centrifugal pump and how to use pump law equations to determine proper operation. Finally, we will discuss pumps and pump laws and point out how similar they are to fans and fan laws.

4 classes  |  S/M or HVAC PEU’s  |  Trade-6  |  Core-0
HYDBAL-1-1 Hydronic Balancing  Pre-Req: Basic & Adv TAB

This course is designed to teach sheet metal workers how to test, adjust and balance a hydronic (water) system by the use of one of two methods. Either the hydronic system will be balanced by use of a flow meter and proportional balancing method or by using the thermal methods. This course will instruct the student in a detailed step by step manner, to balance the hydronic system by either method.

4 classes  S/M or HVAC PEU’s  Trade-6  Core-0

PS-1-1 Piping Systems

This course is designed for the TAB Technician and other sheet metal workers in related fields. This particular module covers hydronic systems, piping systems components (heat exchangers, regulators, auxiliary devices and manual valves), piping arrangements (direct return or reverse return, variable flow and constant flow, primary and secondary systems, 2-piping system, 3-piping system or 4-piping system), steam heating systems, balancing instruments and devices, hydronic safety, measuring temperatures, measuring pressure and flow and ultrasonic flow meters. This course takes you step by step through each one of these topics and more.

3 classes  S/M PEU’s  Trade-0  Core-4.5  HVAC  Trade-4.5  Core-0

PUMP-1-1 Pumps

This course is designed for the TAB Technician and other sheet metal workers in related fields. This particular module covers the components of a hydronic system (boiler, chiller, cooling tower, pumps, valves and gauges), centrifugal pumps classifications, primary and secondary pumping, pump laws and equations, pump curve analysis and pressure relationships. This course takes you step by step through each one of these topics and more.

3 classes  TBD  5:00pm to 8:00pm  S/M or HVAC PEU’s  Trade-0  Core-4.5

PAB-1-1 Proportional Air Balancing  Pre-Req: Basic & Adv TAB

This course is designed to teach sheet metal workers about the basic method to determine and balance airflow at the terminals of a HVAC duct system. Proportional air balancing is based on principles of physics. This course will cover the basic principles of proportional air balancing and that is once set, the quantity of air flow from each terminal in a system will always remain the same ratio to that of other terminals. Although the total quantity of air in the system changes, the terminals will remain at the same percentage of flow relationship to one another. This course will also cover design and actual flow rates, distribution systems, as well as key terminals design tolerance and ration of tolerance. The step by step procedures to balance most HVAC will be taught, demonstrated, and practiced several times through out the course.

4 classes

Testing, Adjusting and Balancing
Testing, Adjusting and Balancing

SAB-1-1 Sequential Air Balancing

Pre-Req: Basic & Adv TAB

This course is designed to teach sheet metal workers about the basic method to determine and balance airflow at the terminals of a HVAC duct system. When sequential air balancing is used the student will be taught to set the zone and the branch dampers in sequence, working away from the fan. The sequential method of balancing uses the same standards required for proportional method. This course will also cover design and actual flow rates, distribution systems, as well as key terminals design tolerance and ration of tolerance. The step by step procedures to balance most HVAC will be taught, demonstrated, and practiced several times through out the course. This course will teach balancing procedures for low-pressure systems, for variable volume systems and for multizone systems.

2 classes TBA 5:00pm to 8:00pm

SVT-1-1 Sound and Vibration Technology

This course is designed for the TAB Technician and other sheet metal workers in related fields. This particular module covers a new member of the TAB field and this person is the Sound and Vibration (S&V) Technician. This course examines the duties and responsibilities of the S&V technician. This course will also cover sound frequency, decibels(dB), octave bands, background noise, noise criterion curves, acceptable sound levels, acoustics, vibration isolation, sound and vibration instruments (sound level meter, accelerometer), how to measure sound (octave band readings), and how to measure vibration. This course takes you step by step through each one of these topics and more.

2 classes S/M or HVAC PEU’s Trade-3 Core-0

VAV-1-1 Variable Air Volume Systems

This course is designed for the TAB Technician and other sheet metal workers in related fields. This particular module covers general design to VAV systems, airflow control in VAV systems, types of VAV systems, types of VAV terminal units, supply air temperature control in VAV systems, static pressure controls, air volume controls, building pressurization, system considerations (ventilation air, humidity, system temperatures, room airflow patterns, system sound levels and warm-up cycles), and finally the benefits of a VAV system. This course takes you step by step through each one of these topics and more.

3 classes S/M or HVAC PEU’s Trade-4.5 Core-0

EATC-1-1 HVAC Energy Audit Technician Course for Certification

This course is a 40 hour class designed to teach sheet metal workers basic roles and responsibilities of an HVAC Energy Audit Technician as they develop a EUI (Energy Utilization Index) for a building. This course will include a closer look at the knowledge, skills and basic tasks performed by the HVAC Energy Audit Technician as well as the current and future opportunities for field auditors. The students will have a review of field instrumentation, system controls, hydronics, and the various approaches and configurations of a geothermal installation.

40 hrs. S/M or HVAC PEU’s Trade-20 Core-0
FLST-1-1 Fire Life Safety Technician Course for Certification

This course is a 12-hour class designed to teach the sheet metal worker, how to properly install, inspect, and maintain fire and smoke dampers in order to make an important contribution to the execution of fire protection design and overall building performance in the event of a fire. The management of fire and smoke has served the underpinnings of building codes in the United States for over 100 years. Nearly all buildings intended for human occupancy are required by today’s building codes to be designed with an assurance that over the life of the building, occupants will be reasonably safe from fire and smoke. The building codes require the design of an integrated system of building features such as walls, floors, ceilings, structural members, specific fire and smoke components, products, devices and systems that reinforce one another and cover for one another in case of the failure of any one in the event of a fire. The course will include regulations and regulators, selection and damper installation methods, smoke control system testing, and periodic inspection, maintenance and repair training. The course will include review and discussion on building codes, mechanical codes, fire codes, and life safety codes.

4 classes  S/M or HVAC PEU’s  Trade-0  Core-6

ICRA-1-1 Infection Control Risk Awareness ICRA

This course introduces the rationale for infection control assessments and plans in healthcare facilities during construction and renovation; conveys details regarding infection risks and mitigation; explains responsibilities for various parties; and outlines best practices for sheet metal workers to follow to ensure infection control and protection of patients, staff, and other workers. This course prepares members who wish to take the ICB’s Infectious Control Awareness (ICA) certification exam.

4 classes  S/M or HVAC PEU’s  Trade-0  Core-7.5

Green / Leed Buildings

This course, totaling a minimum of 16 classroom hours, is designed to give the sheet metal worker an understanding of the many ways that buildings impact the environment, the practical information on the green building strategies that are most relevant to their work, and to equip them with the tools needed to take advantage of opportunities in the growing green building market.

TABB Written Test Prep  Trade-6  Core-0

TABB Practical Test Prep  Trade-6  Core-0
Welding Technologies

OFW-1-1 Oxy-Fuel Welding
This course is designed to teach the sheet metal workers oxy-fuel welding, cutting and brazing. All these applications are necessary for the sheet metal industry of today. Special emphasis will be placed on proper use of the equipment and safety procedures.

12 classes  S/M or HVAC PEU’s  Trade-15  Core-3

SMAW-1-1 Shielded Metal Arc Welding (SMAW)
This course is designed to teach the sheet metal workers about electrical power fundamentals, welding power sources and controls, and shielded metal arc welding equipment and processes. These applications are necessary for the sheet metal industry of today. Special emphasis will be placed on proper use of the equipment and safety procedures.

12 classes  S/M or HVAC PEU’s  Trade-15  Core-3

GMAW-1-1 GAS METAL ARC WELDING (GMAW)
This course is designed to teach the sheet metal workers gas metal arc welding commonly known as MIG (metal inert gas) welding. More emphasis will be placed on the different types of metal transfers, the different types of shielding gases and electrodes. All these applications are necessary for the sheet metal industry of today. Special emphasis will be placed on proper use of the equipment and safety procedures. Finally, this course will introduce the sheet metal worker to flux cored arc welding.

12 classes  S/M or HVAC PEU’s  Trade-15  Core-3

GTAW-1-1 GAS TUNGSTEN ARC WELDING (GTAW)
This course is designed to teach the sheet metal workers gas tungsten arc welding process. GTAW can be used effectively for high quality welds in sheet metal. The flexibility of the process makes it especially good for work on small components or in restricted access. This course will also cover proper electrode, filler material, and procedures to follow for using GTAW with mild steel, stainless steel, aluminum, and copper. All these applications are necessary for the sheet metal industry of today. Special emphasis will be placed on proper use of the equipment and safety procedures.

12 classes  S/M or HVAC PEU’s  Trade-15  Core-3

AGTAW-1-1 Advanced GTAW
Pre-requisite: Basic TIG or equivalent experience. This course is designed to show advanced techniques using the TIG process.

12 classes  S/M or HVAC PEU’s  Trade-6  Core-0

OW-1-1 ORBITAL WELDING
This course, 6 (3 hour) classes, is designed to introduce the sheet metal workers to the orbital welding process and procedure. This includes tubing severing and squaring equipment, developing computerized programs to be loaded into the computer. The student will then apply these programs to produce some of the highest quality welds in the sheet metal industry. Special emphasis will be placed on proper use of equipment and safety procedures.

6 classes  S/M or HVAC PEU’s  Trade-9  Core-3
Welding Technologies

JPMW-1-1  Job Practice MIG Welding

This course, 5 (3 hour) classes, is designed for a welder who would like to brush up on his skills and have some time for hands-on practice running beads and weld joints in four different positions (flat, horizontal, vertical, and overhead). The student will be welding on different materials related to the sheet metal industry such as flat bar stock, angle iron and sheet stock including black iron, galvanized sheets, and stainless steels from 18 ga. to ¼” thick. The student will learn the advantages and disadvantage of working with a continuous spool of wire in a semi-automatic welding process. Included in this course the welding staff has built-in six (6) hours of welding safety along with job site safety. Safety is a major part of the welder’s job description.

5 classes  S/M or HVAC PEU’s  Trade– 7.5 Core-0

JPSW-1-1  Job Practice Stick Welding

This course, 4 (3 hour) classes, is designed for a welder who would like to brush up on his skills and have some time for hands-on practice running beads and weld joints in four different positions (flat, horizontal, vertical, and overhead). The student will be welding on different materials related to the sheet metal industry such as flat bar stock, angle iron and sheet stock from 18 ga. to ¼” thick. The student will learn the advantages and disadvantage of welding with a multi-purpose rod in the stick welding process. Included in this course the welding staff has built-in six (6) hours of welding safety along with job site safety. Safety is a major part of the welder’s job description.

4 classes  S/M or HVAC PEU’s  Trade– 6 Core-0

MCP-1-1  MIG Certification Preparation

This course, 4 (3 hour) classes, is designed for a welder who would like to brush up on his skills and have some time for hands-on practice running beads and weld joints in the overhead position. The students will be introduced to how to set-up the material in which they will testing on. The students will be given guidance to proper application and techniques in order to complete the certification test.

4 classes  S/M or HVAC PEU’s  Trade– 6 Core-0

SSW-1-1  Structural Steel Welding

This course, 8 (3 hour) classes, is designed to teach the sheet metal worker about the next step in stick welding process. This course is designed for a more experienced welder who would like to prepare to certify his skills and have some time for hands-on practice running beads and weld joints in four different positions (flat, horizontal, vertical, and overhead) on structural steel material (1/4” and 3/8” black iron plate). The student will learn the advantages and disadvantage of working with just one multi-purpose welding rod. Included in this course the welding staff has built-in six (6) hours of welding safety. Safety is a major part of the welder’s job description.

8 classes  S/M or HVAC PEU’s  Trade-12 Core-0
Welding Technologies

American Welding Society (AWS) D1.1 Structural Steel Welding Certification

This is an eight hour (approximate time) welding test designed to qualify a welder to the American Welding Society’s code (AWS D1.1 code) for structural steel. The test consist of two 3/8” plate welds (one vertical up, one overhead). After welding, the test plates will be visually inspected, then two samples from each test plate will be removed and bend tested. The inspector will checked for imperfection according to AWS D1.1 code for structural steel.

1 test 8 hours S/M or HVAC PEU’s Trade-4 Core-0

American Welding Society (AWS) D9.1 Sheet Metal Welding Certification

This is an four hour (approximate time) welding test designed to qualify a welder to the American Welding Society’s code (AWS D9.1 code) for sheet metal. The test consist of two welded coupons (one-18 gauge galvanized, one-10 gauge galvanized). Both weld coupons are welded in the overhead position. After welding, the test coupons will be visually inspected. The inspector will checked for imperfection according to AWS D9.1 code for sheet metal.

1 test 4 hours S/M or HVAC PEU’s Trade-2 Core-0

GrindSafe-1-1 Electric Power Tool Safety

This course, 1 (3 hour) classes, is designed to teach the sheet metal worker about welding safety with special emphasis will be placed on proper use of the welding equipment and specific safety procedures for each type of welding process. As a welder, you are not only responsible for your own safety, but you are also responsible for the safety of the people working with you. These two responsibilities require the welder to be familiar with and the use of personal protective equipment and to be familiar with electrical dangers, radiation hazards, fume hazards and other ventilation dangers from by-products of compressed gases, along with cylinder safety and finally fire safety and good housekeeping practices.

1 class S/M or HVAC PEU’s Trade-0 Core-1.5

Grind-1-1 Grinding and Polishing

This course, 4 (3 hour) classes, is designed to provide sheet metal workers with a general overview of the various stages of the grinding and finishing process, showing different abrasives and tool requirements. This course will emphasize the “artistic” aspect of this particular skill, how it requires much practice and careful attention to detail to achieve the desired results. This course will also review the typical steps and tools needed to properly grind and polish various welded joints and corners to manufacturer’s specifications and finishes. Finally, this course will make the students aware of all the safety considerations when using abrasives and power grinders and polishers.

4 classes S/M or HVAC PEU’s Trade-6 Core-0