APPRENTICESHIP: PIPE TRADES, SHEET METAL, FIELD IRONWORKERS, ELEVATORS (APRT)

APRT 106A • SHEET METAL CONTROL SYSTEMS (FIFTH-YEAR SERVICE)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal-Air Conditioning Service Mechanic Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Development of skills necessary for sheet metal workers to service air conditioning equipment with emphasis on control methods and systems, computerized building management, zone control and variable air volume systems.

APRT 106B • ENERGY MANAGEMENT & CUSTOMER SERVICE (FIFTH-YEAR SERVICE)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal-Air Conditioning Service Mechanic Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Development of skills necessary for sheet metal workers to service air conditioning equipment with emphasis on digital control systems, energy management, business and shop operations and OSHA regulations.

APRT 140A • ELECTRICAL BASICS FOR RESIDENTIAL HVAC SERVICE I

Units: 2.5
Hours: 24 lecture, 30 laboratory per quarter (54 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Residential Service Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Development of basic skills necessary for service technicians to service heating and air conditioning equipment with special emphasis on the basics of electricity and air filtration.

APRT 140B • REFRIGERATION BASICS FOR RESIDENTIAL HVAC SERVICE

Units: 2.5
Hours: 24 lecture, 30 laboratory per quarter (54 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Residential Service Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Development of the basics of refrigeration principles and residential systems for service technicians to service heating and air conditioning equipment.

APRT 141A • COMPONENTS OF RESIDENTIAL HVAC SERVICE

Units: 2.5
Hours: 24 lecture, 30 laboratory per quarter (54 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Residential Service Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Identifying components and evaluating their status in servicing heating and air conditioning equipment. Discussion of the service technician's approach to field problems.

APRT 141B • TROUBLESHOOTING DIAGNOSIS & REPAIR FOR RESIDENTIAL HVAC SERVICE

Units: 2.5
Hours: 24 lecture, 30 laboratory per quarter (54 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Residential Service Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Troubleshooting approaches for HVAC equipment problems, with diagnosis and repair. Testing and tracing of circuits; visual evaluations for electrical and mechanical HVAC equipment. Review and practice of all basic skills necessary for A/C residential service technicians.

APRT 143A • AIR BALANCE TEST EQUIPMENT & INSTRUMENTS (FIRST YEAR)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Development of skills necessary to use test and balance instruments and equipment for HVAC systems and automatic control systems. Use of practical mathematics and mathematical equations to measure air velocity and duct outlets, and to solve air and hydronic balancing problems.

APRT 143B • TEMPERATURE MEASUREMENT INSTRUMENTS & DUCT SYSTEMS (FIRST YEAR)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Continuing study of skills necessary to test and balance instruments and equipment for HVAC systems and automatic control systems. Use of practical mathematics and mathematical equations to measure air velocity and duct outlet, and to solve air and hydronic balancing problems.

APRT 149A • ELECTRICAL SYSTEMS OPERATION, CONTROLS & DEVICES (TAB-2)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Study of individual electrical components and devices of control systems, and understanding their operation and relationship to each other. Identify and use instruments in measuring air movement. Learn how to interpret, use and understand drawings relating to the construction of a building.

APRT 149B • HVAC TESTING & BALANCING PROCEDURES (TAB-2)

Units: 4.5

Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)

Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.

Degree and Credit Status: Degree-Applicable Credit Course

Foothill GE: Non-GE

Transferable: None

Grade Type: Letter Grade (Request for Pass/No Pass)

Repeatability: Not Repeatable

Utilize skills and knowledge previously learned to apply methods of balancing HVAC systems. Balancing of systems will include both air and hydronic. Information gathered during the balancing will be used in completing reports required by the building engineer and owner.

APRT 150A • AIR DISTRIBUTION & MANUFACTURING SYSTEMS (TAB-3)

Units: 4.5

Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)

Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.

Degree and Credit Status: Degree-Applicable Credit Course

Foothill GE: Non-GE

Transferable: None

Grade Type: Letter Grade (Request for Pass/No Pass)

Repeatability: Not Repeatable

The difference, advantages and disadvantages of pneumatic and direct digital control systems will be compared to electrical systems. Students will use laptop computers to access a control system from a remote location; take readings and make minor adjustments to the system. Clean room operation and protocol will be examined.

APRT 150B • SYSTEMS INSTALLATION & TROUBLESHOOTING (TAB-3)

Units: 4.5

Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)

Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.

Degree and Credit Status: Degree-Applicable Credit Course

Foothill GE: Non-GE

Transferable: None

Grade Type: Letter Grade (Request for Pass/No Pass)

Repeatability: Not Repeatable

Proper layout and installation procedures on various control systems. This will include system programming, adjustment, testing, maintenance and repair of the installed system.

APRT 153A • CONTROL SYSTEMS & CUSTOMER SERVICE I (TAB-4)

Units: 4.5

Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)

Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.

Degree and Credit Status: Degree-Applicable Credit Course

Foothill GE: Non-GE

Transferable: None

Grade Type: Letter Grade (Request for Pass/No Pass)

Repeatability: Not Repeatable

Develop skills and knowledge of various control systems in use today in the HVAC test and air balance industry. Develop customer relations in order to effectively deal with the consumer.

APRT 153B • CONTROL SYSTEMS & CUSTOMER SERVICE II (TAB-4)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Continuation of APRT 153A. Develop skills and knowledge of various control systems in use today in the HVAC test and air balance industry. Further development of customer relations in order to effectively deal with the consumer.

APRT 154A • PROJECT MANAGEMENT FOR THE TEST & AIR BALANCE INDUSTRY (TAB-5)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Develop skills and knowledge of project management in use today in the HVAC test and air balance industry. Develop customer relations to effectively deal with the customer, project foreperson, and project engineers.

APRT 154B • HAZARDOUS MATERIAL RECOGNITION FOR THE TEST & AIR BALANCE INDUSTRY (TAB-5)

Units: 4.5
Hours: 30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite: Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree and Credit Status: Degree-Applicable Credit Course
Foothill GE: Non-GE
Transferable: None
Grade Type: Letter Grade (Request for Pass/No Pass)
Repeatability: Not Repeatable

Develop skills and knowledge to recognize hazardous materials in the HVAC test and air balance industry. Use personal protective equipment and tools properly as they relate to hazardous materials. Review current laws governing hazardous material recognition and response.