

APPR 189B: PLANS & ARCHITECTURAL APPLICATIONS FOR RESIDENTIAL SHEET METAL (SPECIALIST 2B)

Foothill College Course Outline of Record

Heading	Value
Units:	1.5
Hours:	6 lecture, 48 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Specialist Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- A successful student will be able to fabricate complex flashing, gutter and downspout connections.
- A successful student will be able to produce take-offs and measurements from residential plans.

Description

An advanced study of industry standards, values and requirements in residential sheet metal work, including architectural applications of metal roofing, complex flashing, gutter and downspouts. Use of plans for coordinating installations. Mathematics review and further development of soldering skills.

Course Objectives

The student will be able to:

- Construct complex flashing, gutter and downspout connections.
- Demonstrate professional vertical soldering skills.
- Plan HVAC equipment and duct installations.
- Assess retrofit installations.
- Integrate take-offs and measurements with residential plans.

Course Content

- Gutters and Downspouts
 - Roof jacks
 - Complex gutter installation
 - Complex leader head and downspout installation
 - Diverter, scuppers, flashing and counterflashing
 - Complex miter problems
 - Architectural applications and metal roofing basics
- Soldering

- Soldering safety and review of common techniques
- Vertical soldering techniques and standards
- Soldering with a variety of joint orientations, seams, materials
- HVAC Equipment and Ducting
 - Math review for residential sheet metal
 - Natural gas vs. propane furnaces
 - Furnace and air conditioning connections
 - Residential control systems
 - Residential duct work
 - Grilles and registers
 - Job sequence and scheduling
- Retrofit Installations
 - Assessment
 - Emergency safety procedures review
 - Thermostat location, zone and control system considerations
- Take-offs and Measurements
 - Residential plans, definitions and symbols
 - Take-offs
 - Field measurements for verification

Lab Content

- Practicing safe use of tools and equipment
- Measuring
- Practicing accuracy in layout
- Fabrication of flashing products

Special Facilities and/or Equipment

- Laboratory equipped with sheet metal tools, materials and soldering equipment.

Method(s) of Evaluation

- Results of written quizzes and final exam
- Satisfactory completion of class projects
- Maintenance of a student's workbook with questions drawn from text

Method(s) of Instruction

- Lecture
- Discussion
- Laboratory
- Demonstration

Representative Text(s) and Other Materials

International Training Institute. [Residential HVAC Finish Installer, International Training Institute for the Sheet Metal and Air Conditioning Industry Student Manual](#). Alexandria, VA: International Training Institute for the Sheet Metal and Air Conditioning Industry, 2007.

International Training Institute. [Residential HVAC New Construction Installer, International Training Institute for the Sheet Metal and Air Conditioning Industry Student Manual](#). Alexandria, VA: International Training Institute for the Sheet Metal and Air Conditioning Industry, 2007.

International Training Institute. [Residential HVAC Retrofit Technician, International Training Institute for the Sheet Metal and Air Conditioning Industry Student Manual](#). Alexandria, VA: International Training Institute for the Sheet Metal and Air Conditioning Industry, 2007.

NOTE: These are the standard Sheet Metal textbooks/workbooks used for this course. Although one or more may not be within 5 years of the required published date, they are the most current books used when teaching this course.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

A. Reading assignment from the International Training Institute Residential HVAC Retrofit student manual to determine items to assess to change out a furnace.

B. Writing assignment from the International Training Institute Residential HVAC Finish Installer to order and schedule installation of grilles and registers for a new residence.

Discipline(s)

Sheet Metal