ATCT-1491: RESIDENTIAL STEEL FRAMING

Cuyahoga Community College

Viewing: ATCT-1491 : Residential Steel Framing

Board of Trustees:
September 2025

Academic Term:
Fall 2025

Subject Code
ATCT - Appld Indus Tech - Carpentry

Course Number:
1491

Title:
Residential Steel Framing

Catalog Description:
Introduction to fundamentals of residential framing with steel. Course will include techniques on floor construction, interior/exterior wall construction and roof framing assemblies using steel trusses and/or rafters.

Credit Hour(s):
2

Lecture Hour(s):
2

Requisites

Prerequisite and Corequisite
ATCT-1381 Wood Framing, and departmental approval: Admissions to Carpentry Technology apprenticeship program.

Outcomes

Course Outcome(s):
Select, operate and maintain tools and equipment for constructing floor systems, structural walls, interior walls, and roof trusses.

Objective(s):
1. Identify the tools and equipment of metal fabrication.
2. Identify various fasteners used in steel framing systems.
3. Explain appropriate uses for various tools and equipment.

Course Outcome(s):
Construct floor systems, structural walls, interior walls, and roof trusses following OSHA standards and job site specifications.

Objective(s):
1. Differentiate between structural and non-structural walls.
2. Construct a floor system from steel components.
3. Layout and erect structural walls, and utilize the common designator system.
4. Layout, fabricate, and erect interior walls according to job site specifications.
5. Layout and fabricate components for roof trusses according to job site specifications.
6. Explain the improved efficiency of steel framing according to job site specifications.
7. Recognize the safety concerns and follow OSHA Standards when working at each job site.

Course Outcome(s):
Interpret construction drawings and building codes for layout information.

Objective(s):
1. Recognize symbols pertaining to layout.
2. Recognize symbols pertaining to layout.
3. Explain applicable building codes.

Methods of Evaluation:
1. Quizzes
2. Exams
3. Classroom Participation
4. Completion of assigned projects

Course Content Outline:
1. Concepts
   a. Cold formed light gauge steel technology
   b. Efficiency of steel framing
   c. Cost Saving features of steel framing
   d. Strengths and thickness of steel components
   e. Tools and equipment
   f. Various fastener systems
   g. Knowledge of bearing versus non-bearing framing and bracing
   h. Safety requirements of structural steel framing
   i. OSHA Standards
   j. Common designator system
   k. Building Codes
   l. Floor construction techniques
   m. Interior/Exterior Wall construction techniques
   n. Roof framing assembly techniques.
   o. Construction drawing symbols
   p. Scale references
   q. Squaring technology
   r. Bracing techniques
   s. Framing techniques
2. Skills
   a. Reading construction drawings
   b. Safely cutting and handling steel components
   c. Using common designator system
   d. Laying out and installing floor systems using steel components
   e. Laying out and installing bearing and non-bearing walls
   f. Laying out and installing roof systems, using rafters or pre-fabricated trusses
3. Issues
   a. Safety concerns and OSHA standards
   b. Cost factors when metal framing
   c. Energy efficiency

Resources
Durbahn, Walter. *Fundamentals of Carpentry.* Chicago: American Technical Publishers (most recent edition), 1977.

Timothy Waite. *Steel-Frame House Construction*. 2nd. Craftsman Book CO, 2010.

International Conference of Building Officials, 1998. "The Use of Light Gauge Steel in Residential Construction"

American Iron and Steel Institute. "Cold-Formed Steel Design Manual" 2019.

Carpenters International Training Fund . *Commercial and Residential Steel Framing*. Las Vegas, NV: Carpenters International Training Fund, 2020.

NAHB Research Center. *Steel-Frame House Construction*. NAHB Research Center, 2000.

International Conference of Building Officials. "The Use of Light Gauge Steel in Residential Construction" International Conference of Building Officials, 1998.

American Iron and Steel Institute. "Cold-Formed Steel Design Manual" 2017.

Resources Other

Carpenter's International Training Fund. https://www.carpenters.org/citf-training/.2024

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