

ATRF-1020: INTRODUCTION TO ROOFING TOOLS, MATERIALS, AND CALCULATIONS

Cuyahoga Community College

Viewing: ATRF-1020 : Introduction to Roofing Tools, Materials, and Calculations

Board of Trustees:

January 2025

Academic Term:

Spring 2025

Subject Code

ATRF - Applied Industrial Technology - Roofing

Course Number:

1020

Title:

Introduction to Roofing Tools, Materials, and Calculations

Catalog Description:

Covers the various types of roofing tools and materials used in roofing. Includes measurements and calculations needed to accurately estimate materials needed for specified job.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Roofer's Apprenticeship program.

Outcomes

Course Outcome(s):

Identify and use various types of materials for roofing.

Objective(s):

1. Describe different materials used for roofing.
2. Describe the different applications and use for various types of materials.
3. Explain how to apply various types of materials.
4. Recognize and safely remove asbestos shingles.
5. Describe several unique systems that illustrate the need to remain current in your craft.
6. Explain the importance of performing applications per manufacturer's current specifications.

Course Outcome(s):

Calculate roof dimensions and material needs.

Objective(s):

1. Determine area of roofing space.
2. Measure and determine width and length of roofing space.
3. Determine base and height of roofing space.
4. Calculate square footage of the roof.
5. Determine how many squares are in each bundle of materials.

6. Determine the amount of roofing material needed to complete job.
7. Demonstrate proficient use of tape measure and ability to perform related calculations.

Course Outcome(s):

Identify and select appropriate tools for different types of materials and/or uses.

Objective(s):

1. Describe use of various tools.
2. Discuss appropriate use of tools for different types of materials.
3. Select proper tool for specified materials.

Methods of Evaluation:

1. Quizzes from Roofer's International raining Resource center
2. Exams from Roofer's International Training Resource Center
3. Hands on projects
4. Participation

Course Content Outline:

1. Material Types
 - a. TPO
 - i. Heat Weld
 - ii. Cold Application
 - b. EPDM
 - c. Environmental Liquid Membrane Systems (ELMS)
 - i. Low Slope Systems
 - ii. Green Product
 - iii. Applied over concrete, metal, asphalt, TPO, EPDM PVC, and Polyurethane
 - d. CERTA
 - e. Shingles
 - i. Fiberglass
 - ii. Wood
 - iii. Tiles
 - iv. Asbestos (removal)
 - f. Rubber
 - g. Metal
 - h. Membrane roofs
2. Calculating Roof Dimensions
 - a. Accuracy of measurements
 - b. Square footage calculations
 - c. Material estimation
3. Hand Tools (personal tools)
 - a. Hammer
 - b. Utility knife
 - c. Roofing trowel
 - d. 25 foot tape measure
 - e. Scissors
 - f. Gloves
 - g. Keyhole saw
 - h. Wonder bar
 - i. Nail apron or tool belt
 - j. Chalk line
 - k. Screwdriver
 - l. Roller
4. Power Tools (contractor provided)

- a. Heatweld gun
- b. Drills
- c. Nail gun
- d. Rubber/tar application

Resources Other

1. *Roofer's Training Resource Center*. Rooferstrc.com (<http://catalog.tri-c.eduRooferstrc.com>). 2024.
2. *Roofer's Math Level II*. Roofer's and Waterproofers' Research and Education Joint Trust Fund. 2021.
3. *Center for the protection of Worker's Rights*. <https://www.cpwr.com/> 2024.

Top of page

Key: 5293