

ATRF-1030: STEEP SLOPE ROOFING I

Cuyahoga Community College

Viewing: ATRF-1030 : Steep Slope Roofing I

Board of Trustees:

January 2025

Academic Term:

Spring 2025

Subject Code

ATRF - Applied Industrial Technology - Roofing

Course Number:

1030

Title:

Steep Slope Roofing I

Catalog Description:

Covers measurements and calculations, tools, equipment, and materials needed for installation of residential and small commercial roofing. Includes procedures for moving and hoisting roofing materials, including fall protection, rigging and signaling, and utility location procedures.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Roofer's Apprenticeship program.

Outcomes

Course Outcome(s):

Accurately measure span, run, and rise to determine the slope and pitch of a steep slope roof.

Objective(s):

1. Identify and calculate the span, run, and rise of a steep slope roof.
2. Measure dimensions of roof and calculate span, run, and rise of a steep slope roof.
3. Differentiate between roof pitch and roof slope.
4. Recognize alternate terminology used in various parts of the country.

Course Outcome(s):

Identify, select, and demonstrate use of appropriate tools and equipment used for steep slope roofing.

Objective(s):

1. Identify tools individual workers provide.
 2. Discuss appropriate use of tools for different types of materials.
 3. Select proper tool for specified materials.
 4. Demonstrate use of smaller equipment (i.e. forklift, aerial lift, scissor lift).
 5. Identify materials used in steep slope roofing.
 6. Discuss which steep slope roofing materials would be Class A Fire Rating.
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Course Outcome(s):

Demonstrate moving and hoisting techniques used when working on steep slope roofing.

Objective(s):

1. Explain fall restraint, fall arrest, and work positioning devices.
 2. Describe accidents related to lifting or moving roof materials.
 3. Identify the various ways that materials can be moved to the roof.
 4. Identify the location of utilities (i.e. power lines) based on a set of site plans that include existing utilities.
 5. Determine where the roofing materials would be delivered to the lot, hoisted to the roof, and placed on the roof., while avoiding hazards including powerlines, traffic, etc.
 6. Properly put on fall protection gear.
 7. Demonstrate how to use hoisting equipment and discuss required safety practices.
 8. Demonstrate rigging and signaling techniques.
 9. Assemble and take apart any hoisting equipment.
 10. Demonstrate tying a load and hoisting it a few feet off the ground.
 11. Accurately determine proper knots and demonstrate how to make them.
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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. Pitch
 - a. Measurement
 - b. Calculation
 - i. Span
 - ii. Run
 - iii. Rise
2. Slope
 - a. Measurement
 - b. Calculation
 - i. Level
 - ii. Rule
3. Terminology
 - a. Saddle vs. Cricket
 - b. Drip vs. Edge
4. Personal Tools
 - a. Tool belt
 - b. Nail pouch
 - c. Tape measure
 - d. Straight claw hammer
 - e. Shingle hatchet with a gauge
 - f. Pry bar
 - g. Utility knife
 - h. Snips
 - i. Chalk line
 - j. Knee pads
5. Contractor supplied
 - a. Fall protection gear
 - b. Safety glasses
 - c. Scaffolding
 - d. Ladders
 - e. Roof brackets and planks
 - f. Ladder jacks

- g. Pneumatic Nailers with compressor and hoses
- h. Staplers
 - i. Pneumatic
 - ii. Hammer type
- i. Power saws may have carbide tip
- j. Gas saw with masonry blade (tile cutting)
- k. Roof stripper
- l. Brooms
- m. Broom shovel
- n. Tear of shovels
- o. Pitchforks
- 6. Steep Slope Roofing Materials
 - a. Drip edge
 - b. Tar paper roofing felt
 - c. Shingles
 - i. Asphalt
 - ii. Metal
 - iii. Tile
 - iv. Slate
- 7. Moving and Hoisting
 - a. Fall protection
 - i. Fall restraint
 - ii. Fall arrest
 - iii. Work positioning devices
 - 1. Hoisting equipment
 - 2. Cranes
 - 3. Ladder wheel
 - 4. Ladder platform hoist
 - b. Moving materials to roof
 - i. Manually
 - ii. Conveyer belt
 - iii. Lifting
 - iv. Avoiding utility lines
 - c. Rigging
 - i. Bowline
 - ii. Running Bowline
 - iii. Bowline on a Bight
 - iv. Clove Hitch
 - v. Square Kot
 - vi. Timber Hitch
 - vii. Sheet Bend
 - viii. Munter Hitch
 - ix. Bowline in a Bight
 - x. Grapevine Hitch
 - d. Hoisting
 - i. Signals
 - ii. Equipment
 - 1. Aerial Lift
 - 2. Scissor Lift
 - 3. Boom lift
 - e. Safe handling of material
 - i. On ground
 - ii. From ground to roof
 - f. Storage of material
 - i. On ground
 - ii. On roof

Resources

Roofers' and Waterproofers' Research and Education Joint Trust Fund. *Steep Slope Roofing*. Roofers' and Waterproofers' Research and Education Joint Trust Fund, 2020.

Roofers' and Waterproofers' Research and Education Joint Trust Fund. *Roofer's Safety and Health Manual*. Roofers' and Waterproofers' Research and Education Joint Trust Fund, 2018.

Roofers' and Waterproofers' Research and Education Joint Trust Fund. *Fall prevention and protection for Residential Roofing*. Roofers' and Waterproofers' Research and Education Joint Trust Fund, 2021.

Resources Other

1. *Roofer's Training Resource Center*. Roferstrc.com (<http://catalog.tri-c.eduRoferstrc.com>). 2024.
2. Videos and Slides of Hoisting Operations

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