

LOW-SLOPE ROOF SYSTEMS EXAM



NRCA
PROCertification®

NATIONAL ROOFING CONTRACTORS ASSOCIATION



NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam Content Outline

Individuals who want to earn an NRCA ProCertified® Roof System Installer certification for a low-slope roof system must pass the NRCA ProCertified Roof System Installer Low-slope Roof Systems Exam before scheduling a performance exam.

Refer to the NRCA ProCertification® Quick Start Guide for Roof System Installers and other resources available at nrca.net/procertification to learn more about certification.

Test Format

The NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam is an online exam. The exam has these features:

- It contains 60 questions in multiple-choice format.
- It can be taken in English or Spanish.
- Test-takers can choose to hear audio versions of questions and answers in addition to viewing the text.
- It can be accessed from NRCA's website at any time.
- The test can be taken before or after applying for certification.
- Candidates can take the exam as many times as necessary to achieve a passing score. Additional registration may be required.
- Results of a successful test are valid for 12 months to meet the eligibility requirement for NRCA ProCertification®.

Test Content

Questions on the exam are not system specific and are common to low-slope roof systems. NRCA defines low-slope roofs as: a category of roofs that generally includes weatherproof membrane types of roof systems installed on slopes at or less than 3:12.

The test is developed to assess general low-slope roofing knowledge shown in the content outline. The approximate percentage of the test devoted to each high-level topic is shown in the outline.

Technical content in exams is based on NRCA's technical manuals and best practices. Exam questions about safety are based on federal regulations that affect roofing workers. They are not based on regional, state or local regulations.

The following outline lists all the topics included in the NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam. It is recommended candidates review this outline and ensure they are familiar with all topics before taking the exam.

Project Safety (16% of exam)

- A. Fall protection
 - 1. Setup, use and maintenance of personal fall-arrest systems while working on low-slope roofs
 - 2. Setup and use of other fall-protection systems while working on low-slope roofs
 - a. Warning lines and safety monitors
 - b. Guardrail systems
 - c. Holes and skylight covers
 - d. Safety nets
 - 3. Moving and walking safely on a low-slope roof
- B. Selection, use and maintenance of proper personal protective equipment
 - 1. Eye protection
 - 2. Hand protection
 - 3. Head protection (hard hats)
 - 4. Clothing
 - 5. Foot protection
 - 6. Hearing protection
 - 7. Respiratory protection
- C. General roofing safety
 - 1. Company-specific safety programs
 - 2. Roles and responsibilities for working safely
 - 3. Selection, set-up and use of ladders
 - 4. Work safely with scaffolds and work platforms
 - 5. Work safely around cranes and hoists; basic rigging, hand signals and work practices
 - 6. Keep people below roof level safe
 - 7. Work safely with electrical extension cords and powered tools
 - 8. Importance of grounding electric cords and powered tools
 - 9. Work safely with pneumatic powered tools and equipment
 - 10. Safely handle flammable liquids
 - 11. Recognize fire hazards created when installing various membrane types
 - 12. Protect property during roofing operations

I. General Work Practices and Communication (6% of exam)

- A. General work practices
 - 1. Participate effectively in conversations using basic roofing terminology
 - 2. Perform essential roofing measurements and calculations
 - 3. Perform tasks with pride and seek to achieve high-quality standards
 - 4. Carry and accept personal responsibility and accountability for your work performance

B. Communication

1. Conduct strong two-way communication with supervisors
2. Conduct clear, honest communication with customers
3. Regularly review and clarify project objectives
4. Actively participate in meetings and conversations to identify and address safety hazards, issues or problems on a job site

II. Tools and Equipment (10% of exam)

A. Tool identification and usage

1. Identify and select the proper tools and equipment used to install each type of low-slope roof system
2. Demonstrate proper and safe use of all tools and equipment used to install low-slope roof systems
3. Identify and select the specific PPE required when using each type of tool or equipment for a specific roofing project
4. Operate potentially dangerous tools such as hot-air welders, heat-induction welders or open-flame torches following best safety practices
5. Locate and properly use safety equipment such as fire extinguishers, water access and first aid equipment

B. Inspection and maintenance

1. Inspect all ladders, tools and equipment as required
2. Maintain tools properly
3. Tag and remove defective or unsafe tools or equipment
4. Repair or replace tools in a timely manner

C. Equipment usage

1. Verify safety equipment, such as fire extinguishers, first aid kits and PPE are on-site
2. Describe the function of each type of low-slope roofing equipment
3. Regularly inspect equipment including ladders, generators, powered or motorized equipment for defects

III. System Materials (9% of exam)

A. General system materials knowledge

1. Identify various materials that may be used on a low-slope roof (such as vapor retarders or air retarders, insulation, membrane types, membrane flashings, metal flashings and accessories, surfacing types)
2. Determine area coverage rates of various low-slope membranes
3. Read, identify and implement information found in a safety data sheet
4. Describe how to reduce hazard exposures when working with specific materials
5. Describe the impact that varying weather conditions have on membrane installation

IV. Materials Installation (37% of exam)

A. General installation preparation

1. Setup and inspection of all safety-related equipment and devices
2. Installation sequence for all required system components
3. Different fastener and adhesive types

4. Fastening patterns and attachment requirements for all materials and accessories
 5. Staging and positioning of all required materials, tools and equipment
 6. Inspection of all materials and accessories for damage; replace as necessary
 7. Calculation of rate of coverage for various primers and adhesives used to install membranes
- B. Vapor retarders, air retarders and insulation
1. Substrate preparation
 2. Layout, attachment and sealing of all types of air retarders and vapor retarders including at side laps, end laps and penetrations to meet specifications
 3. Identify various types of rigid board insulation
 4. Insulation installation processes and attachment methods
 5. Crickets and saddles and their purposes
- C. Field membrane installation
1. Various application, attachment or adhesion methods for each type of low-slope membrane to meet specifications
 2. Principles of sheet layout, sequencing and procedures for each type of low-slope membrane
 3. Correct seaming method for each type of single-ply membrane
 4. Process for installing built-up roof membranes
 5. Application methods for spray- and liquid-applied membranes and coatings
- D. Describe quality control process when installing materials

V. Flashings and Accessories (17% of exam)

- A. General flashing and accessory knowledge
1. Identify the functions of various membrane flashings, sheet-metal flashings and sheet metal accessories
 2. Follow the installation sequence for all required flashing components and accessories
- B. Flashing and accessory installation
1. Installation procedures for each membrane flashing and sheet metal accessory component including application methods and sequencing, fastener types and locations, and any additional securement to meet project requirements and manufacturer's specifications
 2. Roof expansion joints and area dividers
 3. Installation procedures for copings, gutters, embedded metal edge flashings, counterflashings and other types of accessories
 4. Apply mastics and sealants at all flashing and accessory details to meet project requirements and manufacturer's specifications

VI. Job-site Housekeeping (5% of exam)

- A. General job-site housekeeping
5. Removal of all kinds of construction waste and debris from all roof surfaces
 6. Clean spills of mastics, sealants, solvents or chemicals from roof surfaces
 7. Ensure sharp-edged materials, fasteners, tools and equipment do not cut, puncture or scrape installed surfaces

8. Correct any incidental damage to newly installed membranes or accessories following manufacturer's guidelines
9. Safely remove all remaining equipment, materials and debris when breaking down a completed project
10. Ensure every completed roofing project is left clean and free of scrap, excess fasteners, waste materials or other debris

Sample Questions

The following sample questions are similar in content and format to the questions on the NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam:

1. While at a job site, you are standing on the ground talking to a worker 15 feet up on the roof. According to OSHA regulations, what type of PPE should you be wearing at a minimum?

- A. Safety glasses
- B. A hard hat
- C. Gloves

(The correct answer is B.)

2. What should you do if you discover unsafe working conditions on a roof?

- A. Continue working cautiously unless a problem arises
- B. Stop working and notify your office staff
- C. Secure the area and notify your foreman and other crew members

(The correct answer is C.)

3. How do you measure the area of a rectangular opening on a roof deck?

- A. Height x width
- B. Length x height
- C. Length x width

(The correct answer is C.)

4. According to The NRCA Roofing Manual, what is the recommended minimum flashing height for walls, curbs and other miscellaneous penetrations?

- A. 8 inches
- B. 10 inches
- C. 12 inches

(The correct answer is A.)

5. Which flashing component should you install at an HVAC flashing detail if the top of the curb cannot be wrapped with flashing membrane?

- A. Sealant
- B. Backer rod
- C. Counterflashing

(The correct answer is C.)

Terminology

Roofing professionals use a variety of different terms to refer to some materials or tasks. This is a result of regional differences, different manufacturers' product names or other reasons. However, NRCA makes an effort to provide consistency in terminology in NRCA ProCertification exams. Candidates are encouraged to be familiar with all terms and concepts included in the NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam Content Outline using NRCA's glossary of roofing terms. The glossary can be accessed at nrca.net/technical/glossary.

NRCA ProCertified® Roof System Installer Job Task Analysis

NRCA publishes a job task analysis for every NRCA ProCertification® certification. A JTA defines the general body of knowledge, skills and abilities necessary for roofing professionals in that role. NRCA ProCertification online exams and system-specific hands-on performance exams draw from these JTAs. However, individuals preparing to take the online core knowledge exam should focus on studying the NRCA ProCertified® Roof System Installer Low-slope Roof Systems Exam Content Outline.