



## APPLICATION FOR REGISTERED ROOF OBSERVER (RRO®)

Dear RRO Applicant:

All those who desire to become Registered Roof Observers (RROs) must complete an application and obtain a satisfactory score on a written examination.

Applications must be received, along with the appropriate fee, at RCI forty-five days prior to an exam. **The application fee is \$250.00 for RCI members and \$375.00 for non-members** (this fee permits you to take the exam one time). Applications received between forty-five and twenty-one days prior to an exam will be accepted with a late fee of \$100 for members and \$125 for non-members. Applications will not be accepted after twenty-one days prior to an exam.

After this completed application has been returned to RCI and processed, you will receive an exam registration form. You must register for a specific location to take the exam. An exam schedule may be obtained on the website at [www.rci-online.org](http://www.rci-online.org) under Programs/Calendar. This form should be received at RCI no later than twenty-one days prior to that exam. An authorization letter, along with exam site regulations will then be sent shortly before the exam. Application is required for exam registration. A study guide is included with this application.

To maintain registration, a renewal fee will be charged and evidence of continuing education must be provided annually by December 31.

As an organization founded for the purpose of advancing the profession of quality assurance observation, we at RCI look forward to receiving your application and encourage your active involvement.

Sincerely,

A handwritten signature in black ink that reads 'Micki Kamszik'.

Micki Kamszik  
Associate Director

RCI, Inc.  
1500 Sunday Drive, Ste 204 Raleigh, NC 27607  
(T) 919-859-0742 (F) 919-859-1328  
[www.rci-online.org](http://www.rci-online.org)

# APPLICATION FOR REGISTERED ROOF OBSERVER

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# **INTRODUCTION**

## **REGISTERED ROOF OBSERVER PROGRAM**

### **PURPOSE**

1. Establish a high standard for the profession of Roof Quality Assurance Observation.
2. Provide education, both primary and advanced, for the Q.A. Observer.
3. Encourage members to participate in the educational programs to maintain prescribed standard.
4. Advance the dignity and professionalism of the Q.A. Observer and discourage unethical practices.
5. Enlighten the construction industry and the public in general, regarding the value of qualified, knowledgeable Quality Assurance Roof Observers.
6. Promote cooperation between related trades to provide for a high level of construction standards.
7. Recognize those Q.A. Observers who have obtained a high level of proficiency and knowledge by granting them the title Registered Roof Observer (RRO).

### **THE EXAMINATION**

The examination will be given at the RCI Annual Convention and other times as designated by RCI. The candidate must achieve a satisfactory score on the exam, which tests knowledge regarding the following types of roofing systems: built-up, single-ply, asphalt shingle, wood, sprayed polyurethane foam, tile, metal and slate.

### **EXAM ELIGIBILITY REQUIREMENTS/RECOMMENDATIONS**

1. Knowledge of the English language is required (exam is given in English only).
2. Two years of experience within the roofing industry is recommended.
3. RCI's Roofing Technology and Science I and II, and the Rooftop Quality Assurance courses are highly recommended for those taking the RRO exam.
4. Applicant must complete and submit an RRO Application to RCI headquarters (allow forty-five days for processing prior to the exam) along with the appropriate application fee. The exam registration form must be submitted at least twenty-one days prior to sitting for the exam.
5. Applicant shall always be totally objective, unbiased and impartial in observations, recommendations, and in all actions.

6. Applicant shall never have a conflict of interest or be in a position that would allow for a potential conflict of interest. Conflict of interest, as identified by the RCI By-laws, shall be... “Any activity or employment having any significant financial or other interests or acceptance of any contribution, if it would reasonably appear that such activity, employment, interest, or contribution could compromise the roof observer’s professional judgment or prevent the roof observer from serving the best interests of the client or employer.”

## **MAINTAINING STATUS**

The Registered Roof Observer (RRO) must continue activities as a Q.A. Observer or perform in a job requiring the skills of a Q.A. Observer. The RRO registration must be renewed every year. During that one-year period, a minimum of ten hours of continuing education within the roofing industry must be earned and submitted to RCI in the form of certificates or letters from the sponsoring organizations. A renewal fee must also be paid. Invoices will be sent, however, registration renewal is the responsibility of the RRO.

Once the applicant has been registered as a Q.A. Observer, employment must be maintained as outlined above. In the event the Q.A. Observer discontinues employment in the construction industry or takes employment with a firm that provides services that cause a conflict of interest, the RRO registration will be forfeited. Registration granted by RCI shall remain its property.



**SECTION 3: Code of Ethics for RCI, Inc.**

The Code of Ethics for RCI, Inc. is included in this application (Attachment Sheet I). The Code outlines the obligations of the Quality Assurance Observer to the public, the client or employer, the profession and the building industry. The Registered Roof Observer is required to promote and conform to these standards.

**SECTION 4: Authorization and Release**

Please complete this release form (Attachment Sheet II) and submit to RCI with your application.

**IMPORTANT: FOR YOUR OWN PROTECTION, WE RECOMMEND THAT YOU MAKE A COPY OF THE COMPLETED APPLICATION BEFORE SENDING IT TO RCI.**

# Application for Registered Roof Observer

## Attachment Sheet I: CODE OF ETHICS

### RCI, Incorporated

Adopted July 17, 2001  
Revised March 28, 2006

**Introduction:** The standards contained in this Code of Ethics are statements of ethical principles having broad applicability to members and registrants of RCI, Incorporated (RCI). However, the enumeration of particular duties and the proscription of certain conduct do not negate the existence of other obligations logically flowing from such principles. Conduct deemed unethical may be construed to include lesser offenses, such as aiding and abetting.

Members and registrants of RCI should also recognize that their profession and their practice may be governed by various laws and regulations regarding professional registration and the conduct of trade. It is their responsibility, therefore, to be familiar with those laws and regulations and to conduct themselves accordingly.

**General Obligations:** Members and registrants shall maintain and further their knowledge of the science and profession of roofing, waterproofing, and the building envelope, and shall maintain the highest possible standard of professional judgment and conduct.

**Obligation to the Public:** Members and registrants should uphold the letter and spirit of the ethical standards governing their professional affairs and should consider the full impact of their actions on the community at large.

Thus, a member or registrant shall:

- I. Engage only in accurate, appropriate and truthful promotion of his/her practice;
- II. Be respectful of the rights of others in obtaining professional work or employment; and
- III. Make only accurate, truthful and appropriate statements or claims about his/her professional qualifications, experiences or performance.

**Obligations to the Client:** Members and registrants shall conduct themselves in a fashion that brings credit to themselves, their employers and their profession. In addition to upholding the behavioral standards described above, a member or registrant:

- I. Shall preserve the confidence of his/her client or employer and serve each in a professional and competent manner.
- II. Shall exercise unprejudiced and unbiased judgment and conduct when performing all professional services;
- III. Shall practice only in his/her area of competence;
- IV. Shall decline any activity or employment, avoid any significant financial or other interest, and decline any contribution if it would reasonably appear that such activity, employment, interest, or contribution could compromise his or her professional judgment or conduct, or prevent him/her from serving the best interest of his/her client or employer, without making full disclosure to the client and obtaining the client's consent thereto;
- V. Shall neither offer nor make any payment or gift to any public official, private client or industry representative with the intent of influencing that person's judgment or decision in connection with an existing or prospective project in which the member/registrant is interested; and
- VI. May contribute his services or anything of value to those endeavors which the member deems worthy. Further, a member or registrant has the right to participate in the political process and to contribute time and money to political campaigns.

**Obligations to the Profession and Building Industry:** Members and registrants shall:

- I. Recognize the value and contributions of others engaged in the design and construction process, and refrain from making false statements about the work of others, and shall not maliciously injure or attempt to injure the prospects, practice, or employment position of others; and
- II. Encourage professional education and research, as well as the development and dissemination of information relating to the design and construction of roofing, waterproofing, and building envelope systems.

Further, the following practices are not in themselves unethical, unprofessional, or contrary to any policy of RCI, and RCI members and registrants are free to decide for themselves whether to engage in any of these practices:

- I. Submitting competitive bids or price quotations, including in circumstances where price is the sole or principle consideration in the selection of a consultant;
- II. Providing discounts; or
- III. Providing free services.

## Application for Registered Roof Observer

Name \_\_\_\_\_

Date \_\_\_\_\_

### Attachment Sheet II:

#### **AUTHORIZATION AND RELEASE**

I, the Applicant named above, have read the contents hereof, and to the best of my knowledge and belief the statements contained in this application are true in substance and effect and are made in good faith. I hereby subscribe to and agree to conform to the Code of Ethics for RCI, Inc. I shall endeavor never to place myself in a conflict of interest or permit myself to be placed in a position that would allow for a potential conflict of interest. Conflict of interest shall be defined as any activity or employment having any significant financial or other interest, or acceptance of any contribution if it would reasonably appear that such activity, employment, interest or contribution could compromise my professional and objective judgment as a Registered Roof Observer or prevent me from serving the best interest of my client.

I also hereby authorize any individual, company or institution with whom I have been associated to furnish RCI with any information concerning my qualifications for Registered Roof Observer which they have on record or otherwise, and do hereby release the individual, company or institution and all individuals connected therewith from all liability for any damage whatsoever incurred by me as a result of their furnishing such information.

\_\_\_\_\_  
(Signature of Applicant)



**Attachment Sheet III:**  
**Application for Registered Roof Observer**  
**Payment Form**

Enclosed is a check in the amount of: [  ] \$250.00 member fee [  ] \$375.00 non-member fee

Please accept a late fee: [  ] \$100.00 member fee [  ] \$125.00 non-member

Charge my [  ] VISA [  ] MasterCard [  ] American Express for:

[  ] \$250.00 member fee [  ] \$375.00 non-member fee

[  ] \$100.00 late member fee [  ] \$125.00 late non-member fee

Name \_\_\_\_\_

Telephone \_\_\_\_\_

Account Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

3- or 4-Digit Verification Value Code \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

\*Applications must be received, along with the appropriate fee, at RCI Headquarters forty- five days prior to an exam.

Please return the completed application along with payment in US dollars to:

**RCI, Inc.**  
**1500 Sunday Drive Ste 204**  
**Raleigh, NC 27607**  
**(T) 919-859-0742 (F) 919-859-1328**

**Application for Registered Roof Observer**

**Attachment Sheet IV: CHECKLIST TO ACCOMPANY REGISTERED ROOF OBSERVER APPLICATION**

Applicant's Name \_\_\_\_\_ Date \_\_\_\_\_

A check or initial in the block at the right indicates that you have completed that requirement of the application.

- 1. Application fee enclosed (\$250.00 members/\$375.00 nonmembers).....
- 2. Completed Sections 1 and 2 of the application.....
- 3. Section 3 of the application:
  - a. I have read and agree to abide by the RCI Code of Ethics (Attachment Sheet I).....
- 4. Section 4 of application - Attachment Sheet II:
  - a. Release form has been signed.....

When complete and all spaces are checked, sign below, enclose this checklist, and mail the completed application form unfolded in a large envelope to RCI. Allow forty-five days for processing. **MAKE A COPY OF YOUR COMPLETED APPLICATION BEFORE SENDING TO RCI** for your own protection.

This is to certify that I have completed the application as required by the Association, have checked all details and entries, and herewith submit said application for registration. I understand that registration is contingent upon meeting the requirements of RCI, Inc. and successful completion of the required examination.

\_\_\_\_\_  
Signature of Applicant



# **STUDY GUIDE**

## **Registered Roof Observer Exam**

RCI, Inc.  
1500 Sunday Drive Ste 204  
Raleigh, NC 27607  
800-828-1902 919-859-0742  
FAX 919-859-1328

# RRO Study Guide

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## **STUDY GUIDE RRO EXAMINATION RCI, Inc.**

### **INTRODUCTION**

One goal of RCI, Inc. is to develop a nationally recognized Registration Program for Roof Quality Assurance Observers. The Registration Program was authorized by the RCI Board of Directors in 1989 and implemented in 1992.

RCI is working toward national recognition of its Registration Program and hopes to achieve this goal in the near future. The primary beneficiaries of the Registration Program will be the public, the roofing industry, and those who become registered.

RCI offers its RRO Program to all applicants, members and non-members. Registration is a two-part program based on a brief application process along with satisfactory performance on a comprehensive written examination.

This Study Guide outlines subjects that are addressed in the written examination; however, the Study Guide is not intended to be an inclusive listing of every topic. This document is strictly a guide.

The latest RRO exam revision was completed in June 2006 in compliance with the *Standard for the Accreditation of Certification Programs* as published by the National Commission for Certifying Agencies (NCCA). A committee of subject matter experts followed a rigorous psychometric process in its development.

The examination is not tailored to any one particular area of roof observation, or to the design and construction practices unique to any geographic area. The examination deals primarily with roof observations in general. It may include all phases of roof observations (methodology and construction), both steep and low-slope roofing, and all systems (shingle, tile, slate, built-up, single-ply, wood, metal and spray applied systems).

In order to receive a passing score on the examination, the examinee must be thoroughly familiar with the basic methodology of Q.A.O. and have a broad knowledge of: ethics, roof systems, field testing, reporting, safe work practices, communication, and codes and standards. Two years of roof quality assurance experience are highly recommended as well as participation in industry-related continuing education. Preparation for the exam is essential and references used in its development are provided.

Testing is offered a minimum of four times each year. The dates and locations may be obtained directly from RCI or the Web site ([rci-online.org](http://rci-online.org)). The examination is given at the RCI Annual National Convention and at other times and locations as determined by RCI. It has a closed-book format, consists of 150 multiple choice questions, and is four hours long. A standard psychometric process was used to determine that one must answer 102 questions correctly on the exam to pass.

Questions for the RRO Exam have been prepared based on the following documents:

	<i>Title</i>	<i>Author</i>	<i>Publication Date</i>
1.	Residential Asphalt Roofing Manual	ARMA	1989
2.	Roof Top Quality Assurance Manual	RCI	2006
3.	Concrete and Clay Roof Tile Design Criteria Installation Manual for Moderate Climate Regions	RTI/WSRCA	Jan. 2002
4.	The Slate Book	Stearns/Stearns & Meyer	1998
5.	Metal Roofing Design Guide	MBMA	2000
6.	RCI Roofing Technology 1 and 2	RCI	2006
7.	RCI Manual of Practice Vol. 3	RCI	2003
8.	American Society for Testing and Materials; Section 4, Vol. 4.04, Roofing, Waterproofing, and Bituminous Materials	ASTM	2005
9.	National Roofing Contractors Association; Commercial Low Slope Materials Roofing Guide, (two volumes)	NRCA	February 2001-2002
10.	The NRCA Roofing and Waterproofing Manual, Fifth Edition	NRCA	2001
11.	FM Global (2000 Edition); Loss Prevention Data Sheets 1-7, 1-28, 1-28R, 1-29, 1-29R, 1-49 and 1-52	FMLPD	2000
12.	Factory Mutual Research Corporation, Approval Guide & Roof Coverings	FMRC	2005
13.	International Building Code, Chapter 15, Roof Coverings	IBC	2003
14.	Underwriters Laboratory, Roofing Materials and Systems Annual Directory	UL	2005
15.	Sheet Metal and Air Conditioning Contractor's National Association, Inc. Architectural Sheet Metal Manual, Sixth Edition	SMACNA	2003
16.	Certified Torch Welding Applicator Program, Safety in Torch Welded Roofing	CERTA	1996
17.	Flexible Membrane Roofing, A Professional's Guide to Specifications; Seventh Edition	SPRI	2003
18.	OSHA, CFR 1910 and 1926	OSHA	April 3, 2006 update
19.	Canadian Roofing Contractor's Assoc. Manual	CRCA	2000

20.	New Roof Construction Manual	Cedar Shake and Shingle Bureau	Nov. 2004
21.	Copper and Common Sense	Revere Copper Products Inc	2005
22.	Copper Development Association (Web site)	Copper Dev. Association	accessed site in 2006
23.	Sprayed Polyurethane Foam Alliance 101-I Manual	SPFA	
24.	Manual of Low-slope Roof Systems, 4th Edition	Fricklas & Griffin	2006
25.	Code of Ethics (RCI)	RCI	28 March 2006
26.	Rooftop Safety for Consultants and Building Owners Manual	RCI	2006
27.	Roof Coatings Manufacturer's Association (Web site)	RCMA	accessed site in 2006
28.	Canadian Institute of Treated Wood (Web site)	CITW	accessed site in 2006
29.	SPRI (Web site)	SPRI	accessed site in 2006
30.	Concrete and Clay Roof Tile Design Criteria Installation Manual for Moderate Climate Regions	RTI/WSRCA	Jan. 2002

As part of the exam revision process, the committee of subject matter experts systematically compiled a list of objectives that relate to the responsibilities, knowledge, and skills associated with acceptable performance within the quality assurance observer profession. This list provided the organizational framework for the exam and is attached below. The percentages of questions on the exam from each section and individual objectives are indicated.

<b>Sections</b>	<b>Section/Objective Title</b>	<b>Percentage of questions from section on exam</b>	<b>Percentage of questions from objective on exam</b>
<b>Section 1</b>	<b>Ethics</b>	<b>3%</b>	
Objective 1.1	<b>Identify the obligations of an RRO.</b>		<b>2%</b>
Objective 1.2	<b>Given a scenario, determine a conflict of interest.</b>		<b>1%</b>
<b>Section 2</b>	<b>Roles and Responsibilities</b>	<b>11%</b>	
Objective 2.1	<b>Identify the roles of an RRO and others in a construction project (may use scenarios).</b>		<b>6%</b>
Objective 2.2	<b>Given a scenario demonstrate knowledge of the responsibilities of an RRO.</b>		<b>5%</b>
<b>Section 3</b>	<b>Knowledge of Roof Systems</b>	<b>56%</b>	
Objective 3.1	<b>Identify knowledge of materials and industry standard installation procedures for bituminous roof systems.</b>		<b>13%</b>
Objective 3.2	<b>Identify knowledge of materials and industry standard installation procedures for single ply roof systems.</b>		<b>13%</b>
Objective 3.3	<b>Identify knowledge of materials and industry standard installation procedures for wood shake/shingle roof systems.</b>		<b>2%</b>
Objective 3.4	<b>Identify knowledge of materials and industry standard installation procedures for slate/composite roof systems.</b>		<b>2%</b>
Objective 3.5	<b>Identify knowledge of materials and industry standard installation procedures for clay/concrete tile roof systems.</b>		<b>2%</b>
Objective 3.6	<b>Identify knowledge of materials and industry standard installation procedures for SPF roof systems</b>		<b>1%</b>
Objective 3.7	<b>Identify knowledge of materials and industry standard installation procedures for metal roof systems</b>		<b>5%</b>
Objective 3.8	<b>Identify knowledge of materials and industry standard installation procedures for asphalt shingle roof systems</b>		<b>3%</b>
Objective 3.9	<b>Omitted</b>		<b>0%</b>
Objective 3.10	<b>Identify knowledge of materials and industry standard installation procedures for deck and deck preparation.</b>		<b>3%</b>
Objective 3.11	<b>Identify knowledge of materials and industry standard installation procedures for insulation.</b>		<b>3%</b>
Objective 3.12	<b>Identify knowledge of materials and industry standard installation procedures for air/vapor retarders.</b>		<b>1%</b>
Objective 3.13	<b>Identify knowledge of materials and industry standard installation procedures for sheet metal flashings/accessories.</b>		<b>3%</b>

<b>Section 3</b>	<b>Knowledge of Roof Systems - Continued</b>		
Objective 3.14	Identify knowledge of materials and industry standard installation procedures for base sheet, insulation fasteners and adhesives.		2%
Objective 3.15	Identify knowledge of materials and industry standard installation procedures for coatings.		1%
Objective 3.16	Identify knowledge of materials and industry standard installation procedures for underlayments.		1%
Objective 3.17	Identify knowledge of materials and industry standard installation procedures for blocking.		1%
<b>Section 4</b>	<b>Field Testing</b>	4%	
Objective 4.1	Identify rooftop testing procedures and equipment.		4%
<b>Section 5</b>	<b>Contract Documents</b>	7%	
Objective 5.1	Identify the specification divisions that typically contain information relating to roof construction.		3%
Objective 5.2	Describe the information contained in a roof plan.		1%
Objective 5.3	Describe the information found in the detail drawings.		1%
Objective 5.4	Describe the information found in the submittals.		1%
Objective 5.5	Given a scenario, describe which circumstances would lead to a change <u>order</u> .		1%
<b>Section 6</b>	<b>Reporting</b>	7%	
Objective 6.1	Identify items found in a daily job report.		4%
Objective 6.2	Given a scenario, identify the circumstances that warrant issuing a change <u>directive</u> .		2%
Objective 6.3	Given a scenario, demonstrate the ability to calculate percentage of completed work in a project (e.g., for pay applications).		1%
<b>Section 7</b>	<b>Safe Work Practices</b>	3%	
Objective 7.1	Identify the person or entity who is responsible for the quality assurance observer's (QAO) safety.		1.5%
Objective 7.2	Given a scenario, describe which action should be taken when unsafe work by others is observed.		1.5%
<b>Section 8</b>	<b>Communication</b>	3%	
Objective 8.1	Given a scenario, describe how to interact with other parties on the job.		1.5%
Objective 8.2	Given a scenario, describe knowledge of pathways of communication to applicable parties.		1.5%
<b>Section 9</b>	<b>Codes and Standards</b>	6%	
Objective 9.1	Demonstrate basic understanding of applicable building codes and where to locate information.		3%
Objective 9.2	Demonstrate basic understanding of referenced industry publications and how they apply to roof projects (may use scenarios).		3%

## SAMPLE QUESTIONS

Several sample questions are provided from each section of the exam and are indicative of the types of questions you will encounter. Answers have been provided at the end of the Study Guide.

### Ethics

1. The RRO/QAO is responsible for which primary duties during a roof installation?
  - A. Observe and enforce safe work practices.
  - B. Observe and enforce compliance with the contract documents.
  - C. Observe and report non-compliance with safe work practices.
  - D. Observe and report compliance with the contract documents.

### Roles and Responsibilities

2. What is the RRO/QAO's responsibility regarding codes?
  - A. Interpret the codes for the contractor.
  - B. Interpret and enforce codes.
  - C. Be familiar with codes and notify the designer of any deviations observed between the code and the contract documents.
  - D. Be familiar with codes and act as a mediator if there are disputes interpreting the codes.
3. The contractor has material on-site but does not have approved submittals.  
What should the RRO/QAO do?
  - A. Contact the general contractor for instruction.
  - B. Contact the roofing contractor for instruction.
  - C. Contact the material manufacturer for instruction.
  - D. Contact the designer for instruction.

### Knowledge of Roof Systems

4. Which two statements are true? (Choose two.)
  - A. Asphalt is the most common type of bitumen that is modified with polymers.
  - B. Polymer-modified roof membranes are not generally used over multiple roof membranes.
  - C. Polymer-modified roof membranes are composed of reinforcing fabrics.
  - D. Polymer-modified roof membranes are commonly non-reinforced.
5. What should be used over wood plank boards?
  - A. two layers of fiberglass felt
  - B. taping all joints
  - C. insulation
  - D. red rosin or Kraft paper

6. The designer has specified a four-ply, gravel-surfaced roof with one ply of fiberglass felt as the membrane flashing backer sheet. The contractor prefers to run all four plies of felt above the cant to the flashing height.

What is the correct procedure?

- A.* It is okay to run the field membrane ply sheets to the flashing height.
  - B.* The cant strip can now be eliminated.
  - C.* The field membrane should be installed according to the designer's drawing.
  - D.* The flashing backer sheet can be eliminated.
7. Which statement is true about installing gravel stops when installing BUR systems?
- A.* Gravel stops should be raised above the highest anticipated water level of the roof.
  - B.* Gravel stops should be installed level with the roof.
  - C.* Gravel stops should be installed below the field membrane.
  - D.* Gravel stops should contain provisions for differential (thermal) movement.
8. What is a primary concern when storing roof insulation materials?
- A.* UV degradation
  - B.* moisture absorption
  - C.* temperature
  - D.* wind
9. The specifications state that the counter flashing shall be installed as described in the Architectural Sheet Metal Manual.
- The top of the counter flashing should be elevated how many inches above the finished roof?
- A.* 6 inches
  - B.* 8 inches
  - C.* 10 inches
  - D.* 12 inches
10. In a thermoset, ballasted, single-ply roof system, a separator sheet provides which benefit?
- A.* protection from fastener back-out
  - B.* protection from interior air pressure
  - C.* protection from vapor drive
  - D.* protection from paver abrasion
11. Which membrane type is usually installed with adhesive or seam tape?
- A.* PVC
  - B.* Hypalon (CSPE)
  - C.* EPDM
  - D.* APP

12. TPO and PVC penetration details are mated in the field using which method?
- A.* primer, tape and 2-inch roller
  - B.* primer and scrubber pad
  - C.* adhesive and 2-inch roller
  - D.* heat welder and 2-inch roller
13. What is the line of fixity in metal roof installations?
- A.* This is the location where eave flashing will be attached.
  - B.* This is the location which offers the most wind uplift.
  - C.* This is the location from where thermal expansion will extend.
  - D.* This is the location to which valleys must be attached.
14. When performing an inspection, which two problems are commonly identified with straight-up or racking application of asphalt shingles? (Choose two.)
- A.* lack of proper nailing
  - B.* lack of continuous underlayment
  - C.* improper starter strip application
  - D.* color/shading variations

### **Field Testing**

15. Which size is recommended by NRCA for a slit sample used to determine the coating thickness of a sprayed-in-place polyurethane roof?
- A.* 1 inch by 1/2 inch by 1/2 inch
  - B.* 1 inch by 8 inches
  - C.* 2 inches by 2 inches
  - D.* 4 inches by 4 inches by 1 inch

### **Contract Documents**

16. According to CSI Master Format 2004, which specification section should be used to describe the general requirements of the proposed project?
- A.* Division 01
  - B.* Division 02
  - C.* Division 07
  - D.* Division 10

## Reporting

17. The RRO/QAO arrived on-site to find that the roofing contractor had run out of the specified fastener plates and had substituted plates from another manufacturer, not matching the original screws that were still being used.

What should the RRO/QAO do?

- A.* Record the manufacturer and model of both the screws and plates being used on the project in the daily report.
- B.* Contact the manufacturer of the original screws and request confirmation that the substitute plates are acceptable.
- C.* Examine the plates to ensure that they are intended for use with the gauge of screw being used and, if so, record that they are acceptable.
- D.* Immediately notify the roofing contractor, or the contractor's representative, of the deviation and record the notification and subsequent resolution in the daily report.

## Safe Work Practice

18. Which statement is true about safety?
- A.* The daily report should cite OSHA regulations and violations.
  - B.* Roofing observers should discuss safety in general terms with the roofing contractor.
  - C.* Roofing observers should discuss safety in specific terms with the roofing contractor.
  - D.* Roofing observers should help the contractor with safety means and methods.

## Communication

19. The RRO/QAO observes that a curb has been constructed to the height above the roof deck indicated on the detail drawing. However, an approved change in the insulation material has resulted in an increase in the insulation thickness causing the height of the curb above the plane of the roof to be less than the eight inches required by the specifications.

Who should the RRO/QAO typically contact to resolve the issue?

- A.* roofing contractor
- B.* general contractor
- C.* design professional
- D.* building owner

## Codes and Standards

20. Which organization rates roofing systems for hail resistance?
- A.* ASCE-7
  - B.* building code
  - C.* Underwriters Laboratories
  - D.* NRCA

## STUDY REVIEW

Note your answers. Review the appropriate document(s) in those areas to better understand the rationale behind the indicated correct answer.

The courses provided by RCI will assist in preparation for the exam (Roofing Technology and Science I and II courses, and the Rooftop Quality Assurance course are highly recommended).

1. D
2. C
3. D
4. A and C
5. D
6. C
7. D
8. B
9. C
10. D
11. C
12. D
13. C
14. A and D
15. A
16. A
17. D
18. B
19. C
20. C