



STUDY GUIDE

For the

**REGISTERED EXTERIOR WALL OBSERVER (REWO®)
EXAM**

Prepared By
REWO Examination Development Task Force

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REWO Study Guide

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REWO EXAMINATION
International Institute of Building Enclosure Consultants (IIBEC)**

INTRODUCTION

One early goal of IIBEC was to develop a recognized and highly regarded registration program for Quality Assurance Observers. The primary beneficiaries of this program are the public, the exterior walls industry, and those who become registered.

IIBEC offers its REWO Program to all applicants, members and non-members. Registration is a two-part program based on an application process along with satisfactory performance on a comprehensive computer-based examination.

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

The REWO exam development was completed in January 2016 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 observation, or to the design and construction practices unique to any geographic area. It deals primarily with exterior wall systems observations in general. It may include all phases of observation (methodology and construction) and include the following exterior wall systems: cast-in-place concrete, EIFS, masonry, precast concrete, thin stone, stucco, and wood.

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, construction documents, observer responsibilities, field observation practices, exterior wall systems, and reporting. Preparation for the exam is essential and a list of the references most frequently used in its development is provided.

The exam is offered online by Scantron, a computer-based testing company which has over 1,000 conveniently located testing centers. The exam consists of 75 multiple choice questions and is up to three hours in duration.

Consult <https://www.scantron.com/test-site-cities/> for a conveniently located testing site near you.

Approved applications have a two-year shelf life; and once the application has expired, reapplication will be necessary.

Although not required, the following courses provided by IIBEC are highly recommended for those pursuing the REWO designation: *Building Envelope Quality Assurance* and *Exterior Walls Quality Assurance*.

A sample of documents/references which were used to develop the REWO exam is as follows:

References*

	Title	Author	Pub. Date
1	<i>Architectural Sheet Metal Manual, 6th Edition</i>	SMACNA	2012
2	<i>ASTM (All Volumes Related to Exterior Walls)</i>	ASTM	2014
3	<i>Construction Contract Administration Practice Guide</i>	CSI	2011
4	<i>CSI The Project Resource Manual: CSI Manual of Practice, 5th Edition</i>	CSI	2004
5	<i>Masonry Design and Detailing, 5th Edition</i>	Christine Beall	2012
6	<i>Master Format Numbers and Titles</i>	CSI	2014
7	<i>RCI Manual of Practice</i>	RCI (now IIBEC)	2010
8	<i>IIBEC Code of Ethics</i>	IIBEC	2015
9	<i>Sealants: The Professionals' Guide</i>	SWRI	2013
10	<i>SWR Institute Safety & Health Field Manual</i>	SWR Institute	2009
11	<i>SWR Safety Health Manual Program Guide</i>	SWR Institute	2004

*The references listed above are only some of the many that were used in the development of this exam. This is meant to serve as a guide to illustrate the types of references used; this is not a recommendation or suggestion to purchase all of the publications listed. The most useful tool in preparation for the exam is the following list of skills, knowledge and responsibilities identified by the task force as those associated with acceptable performance within the exterior wall quality assurance observer profession. It is recommended that the applicant review this list as it relates to one's experience/skill set and then prepare accordingly with the courses and/or publications which may be helpful to the individual.

As part of the exam development process, the task force of subject matter experts systematically compiled a list of objectives that relate to the responsibilities, knowledge, and skills associated with acceptable performance within the exterior wall quality assurance observer profession. This list provided the organizational framework for the exam and is included below. The percentage of questions on the exam from each section is indicated.

Sections	Section/Objective Title	Percentage of questions from section on exam
Section 1	Construction Documents	13%
Objective 1.1	Describe the elements of construction documents	
Objective 1.2	Identify industry standards relevant to exterior wall systems	
Objective 1.3	Describe industry standard tests related to exterior wall systems	
Section 2	Observer Responsibilities	25%
Objective 2.1	Describe exterior wall observer responsibilities	
Objective 2.2	Demonstrate knowledge of ethical standards	
Objective 2.3	Demonstrate knowledge of basic measurements and calculations	
Objective 2.4	Describe basic communication skills	
Objective 2.5	Describe field observation safety practices	
Section 3	Exterior Wall Systems	22%
Objective 3.1	Describe exterior wall system materials	
Objective 3.2	Demonstrate knowledge of exterior wall system construction	
Objective 3.3	Describe exterior wall system design types	
Section 4	Field Observation Practices	23%
Objective 4.1	Describe field observation procedures during construction	
Objective 4.2	Describe field observation procedures during testing	
Section 5	Reporting	17%
Objective 5.1	Describe the elements of a field report	
	Total	100%

REWO Sample Exam Questions

Sample questions are provided from each section of the exam and are indicative of the types of questions the examinee will encounter. Exhibits and answers have been provided at the end of the study guide. Partial credit is not given for one correct answer where two are required.

Construction Documents

1. As defined by the *RCI (now IIBEC) Manual of Practice*, which two elements are included in the contract documents? (Choose two.)
 - A. general conditions
 - B. building permits
 - C. specifications
 - D. inspection reports

2. Which documents include qualitative requirements for products, materials, and workmanship?
 - A. drawings
 - B. submittals
 - C. shop drawings
 - D. specifications

3. Which CSI division section includes specifications applicable to the installation of manufactured stone veneer over metal lath?
 - A. Division 3
 - B. Division 4
 - C. Division 7
 - D. Division 8

4. **Refer to Exhibit #1**
Which type of sealant failure is shown in the exhibit?
 - A. adhesive
 - B. cohesive
 - C. elastic
 - D. plastic

Observer Responsibilities

5. The installer of an exterior wall system on a large out-of-town project rotates crews at irregular intervals to help limit overtime charges.

According to the *RCI (now IIBEC) Manual of Practice*, which statement is correct in this scenario?

- A. Crew changes do not need to be documented, as installer personnel and costs are not within the scope of the REWO.
- B. Crew changes should be documented, identifying the installer's supervisory personnel on the project during each site visit.
- C. Crew changes should be recorded on the installer's pay application, and reviewed by the REWO for approval prior to submitting for payment.
- D. Overtime charges should be recorded on the installer's pay application, and reviewed by the REWO for approval prior to submitting for payment.

6. You are asked to provide a statement of qualification for an upcoming project which requires you to have an REWO credential. Although your application for the registration exam has been accepted, you have not yet successfully completed the exam.

According to the IIBEC Code of Ethics, which statement is true?

- A. You may list REWO under your qualifications.
- B. You may not list REWO under your qualifications, unless you add a qualifier that the credential is pending.
- C. You may not list REWO under your qualifications.
- D. You may not list REWO under your qualifications, unless you add a qualifier that someone else in your firm has the credential.

7. An REWO is on-site to document the quantity of air barrier applied that day. Workers complete work on the 4th, 5th, and 6th floors on the east elevation during the site visit. Wall segments for each floor measure 60 feet [18.3 meters] long by 10 feet [3.0 meters] tall. Each of the six window openings on the 4th floor measure 4 feet [1.2 meters] by 6 feet [1.8 meters]. Each of the four window openings on the 5th floor measure 8 feet [2.4 meters] by 6 feet [1.8 meters]. The 6th floor does not have any windows.

Approximately how many square feet [square meters] of air barrier was applied on the east elevation?

- A. 864 square feet [80 square meters]
- B. 1464 square feet [134 square meters]
- C. 1656 square feet [154 square meters]
- D. 1800 square feet [167 square meters]

8. During installation of the EIFS, the subcontractor encounters a field condition that varies from the contract documents and approved shop drawings. The subcontractor brings the field condition to the attention of the REWO.

What should the REWO recommend that the subcontractor do?

- A. Call the general contractor and verbally agree on a solution.
 - B. Issue a Request for Information (RFI).
 - C. Contact the EIFS manufacturer and obtain recommendations.
 - D. Perform the work based on the subcontractor's previous experience.
9. An REWO is performing QA observation of an exterior Portland cement plaster (stucco) wall installation from a scaffold.

According to the *Sealant, Waterproofing, and Restoration Institute Safety and Health Manual*, which personal protective equipment (PPE) should the REWO wear in addition to a hard hat?

- A. ear protection
- B. eye protection
- C. hand protection
- D. torso protection

Exterior Wall Systems

10. Which two materials are Type 1 vapor retarders? (Choose two.)

- A. spun bond polyolefin building wrap
- B. 6 mil polyethylene sheet
- C. fiberglass-faced gypsum sheathing
- D. vinyl wall covering

11. **Refer to Exhibit #2.**

Which type of wall system is shown in the exhibit?

- A. mass
- B. barrier
- C. composite
- D. cavity

12. **Refer to Exhibit #3.**

Which type of wall system is shown in the exhibit?

- A. fiber cement
- B. wood
- C. vinyl
- D. composite

13. Refer to Exhibit #4.

Which type of wall is shown in the exhibit?

- A.* barrier
- B.* drainage
- C.* mass
- D.* rainscreen

14. Refer to Exhibit #5.

During the course of a site visit, an REWO observes that sealant has been applied to the brick ties, as shown in the exhibit, which penetrate through the metal sheathing behind a brick veneer masonry wall.

Before the bricks are laid, which two actions should the REWO take? (Choose two.)

- A.* Verify that the correct ties have been installed by calling the brick tie manufacturer.
- B.* Review the approved product submittals and specifications to confirm that the sealant material requirements are met.
- C.* Arrange for a pull test with the sealant manufacturer to ensure that the sealant adheres to the ties and sheathing.
- D.* Review the architectural drawings for the brick tie and sealant installation requirements.

Field Observation Practices

15. An REWO must be knowledgeable about which two areas? (Choose two.)

- A.* building codes
- B.* ASCE-07
- C.* bidding instructions
- D.* safety requirements

16. The REWO is onsite during a delivery of fluid-applied waterproofing.

How should the REWO expect the materials to be delivered to the construction site?

- A.* loose and on pallets
- B.* in unopened containers and packages
- C.* with the shipping label and purchase order
- D.* in boxes covered with waterproof tarps

17. A project that has a \$1000-a-day penalty clause is delayed due to inclement weather. In accordance with the *RCI (now IIBEC) Manual of Practice*, what is the contractor allowed to do?
- A. Request an extension of the project completion date.
 - B. Stop construction until a new completion date is established.
 - C. Void warranties on the work completed.
 - D. Void the delay penalty in the contract.
18. What are two responsibilities of the REWO? (Choose two.)
- A. Tracking production rates against milestones in a project schedule.
 - B. Directing the contractor to remove work that is not in conformance with the project documents.
 - C. Confirming material conformance with the project documents.
 - D. Ensuring the site is safe for the work being done.
19. A delivery of concrete block for a single wythe wall is delivered to the job site. The REWO questions whether the block was manufactured with the specified water repellent. The contractor performs water droplet testing on six blocks and all fail. In accordance with the National Concrete Masonry Association, which additional test should be performed?
- A. a full-scale mock-up test
 - B. an onsite spray bar test
 - C. an onsite RILEM tube test
 - D. a laboratory test

Reporting

20. What must a field report do?
- A. It must report on the means and methods of construction.
 - B. It must be objective and factual.
 - C. It must document production rates of the contractor's employees.
 - D. It must list all addenda, change orders, and payment requisitions.
21. What are two reasons why the REWO reports on the number of workers? (Choose two.)
- A. to ensure that qualified individuals are completing the work according to the contract
 - B. to identify who might be responsible for deficiencies related to a day's work
 - C. to assist in administering the contract
 - D. to confirm that the staffing requirements of the contract are being met

22. Refer to Exhibit #6.

During a site visit, the REWO observes the condition shown in the exhibit at a recently completed EIFS wall installation.

What should the REWO include in the field report?

- A.* EIFS application occurred during wet weather conditions and did not cure properly.
- B.* EIFS will need to be removed and replaced due to deterioration.
- C.* The EIFS lamina is damaged near the downspout.
- D.* Mold has grown on the EIFS due to moisture content of sheathing behind EIFS.

Exhibit #1



Exhibit #2

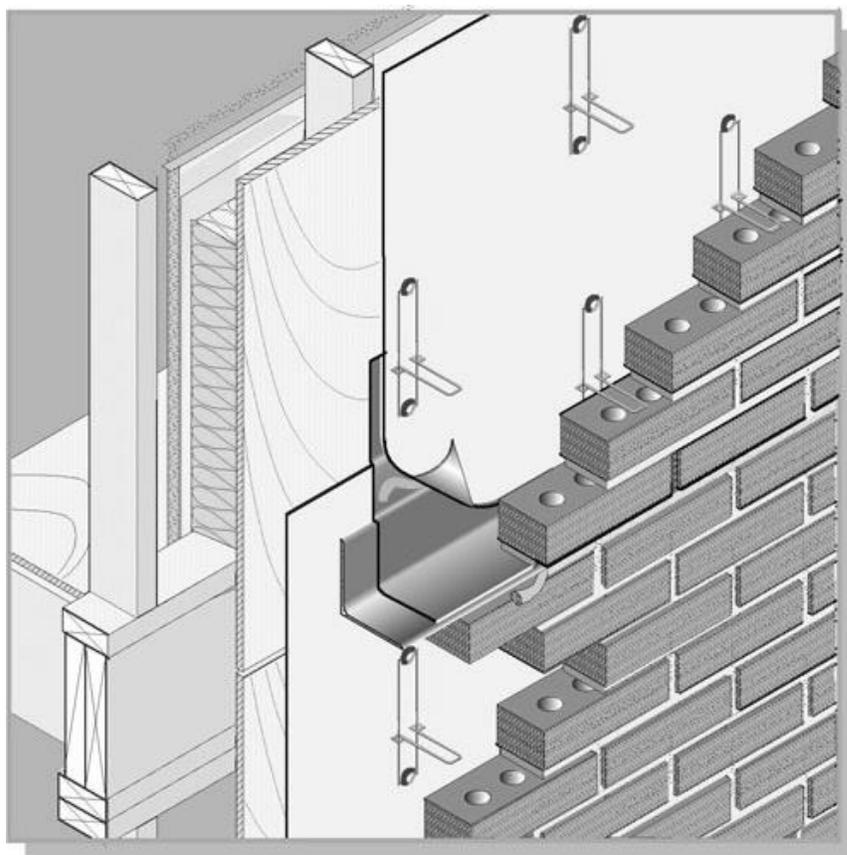


Exhibit #3



Exhibit #4



Exhibit #5

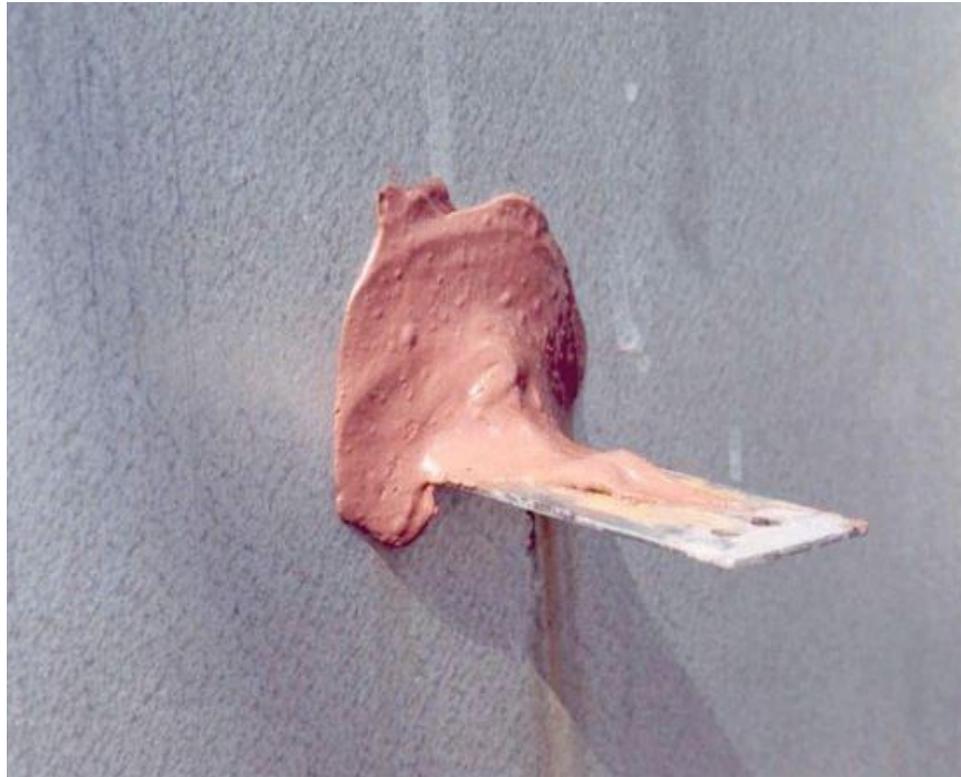


Exhibit #6



REWO Sample Exam Answers

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

Take advantage of the programs provided by IIBEC, including courses on the national and regional levels. The following courses provided by IIBEC are highly recommended for those pursuing the REWO designation: *Building Envelope Quality Assurance* and *Exterior Walls Quality Assurance*.

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