



The mission of RCI, Inc. is to advance the profession of building envelope (roofing, waterproofing and exterior wall) consultants.



Educational Offerings 2017/2018



RCI offers a series of educational courses and seminars throughout the year in the U.S. and Canada covering all segments of the building envelope. Seminar material is continually updated with the latest technology and industry practices. Courses are taught by RCI professional staff and field professionals or RCI volunteers with years of experience and a wealth of expertise.

Courses are available in three formats: as on-site delivered courses at chapter and national level, delivered by staff, approved instructors, or a combination of both; by on-line delivery as e-learning courses; or as contract courses. Please contact RCI for more information about the contract course option. For online courses, please see registration information at www.rci-e-learning.org/home. For course dates and locations, check the Calendar of Events on RCI's website: www.rci-online.org. Manuals are provided for on-site courses and are also available for purchase separately.

For on-line courses, slides may be printed to create a manual. Although they are recommended, the courses below are not intended as preparatory for RRC®, RWC®, RRO®, REWO®, or REWC® exams. All courses offer Continuing Educational Hours (CEHs).

Director of Educational Services	Rebecca Cunningham, RA, LEED AP
Education Committee	Joshua Summers, SE, REWC, PE, (Chairman)
	Raymond Wetherholt, RRC, RWC, REWC, RBEC, PE
	Paul Buccellato, RWC, FASTM, REWC, AIA
	James Hoff, DBA
	Kami Farahmandpour, FRCI, RRC, RWC, PE
	Keith Davis, RRC, RWC, REWC, RBEC
	Matthew J. Innocenzi, PE, RRC, RWC, REWC, RBEC
Education Advisor/Consultant	Gerard Teitsma, RRC, RRO, CCA

Roofing Technology and Science I

This two-day course is the first component of a two-part series covering aspects of the technology and science of roofing in detail. It covers the history and evolution of roofing up to present-day common applications. It features terminology and technical information regarding roof decks and structures, roof insulation, bitumen membranes, built-up and modified-bitumen membranes, and flashing systems. An understanding of heat transfer theory, moisture, thermal design, and the calculation of U-factors are also presented.

Highlights of the program include: critical aspects of roof decking and related supporting structures, heat transfer and practical heat transfer calculations, the function of heat transfer and the different types of roof insulation, the technology behind roofing bitumens and their related BUR and modified-bitumen membranes, and basic flashing nomenclature and bituminous flashing system construction.

The Roof Technology and Science I course features fundamental concepts that prove useful for students in other RCI educational programs. Roof consultants, facility managers, contractors, architects, engineers, roofing material salespeople, property managers and others can gain new insight and professional development in the continually evolving world of roofing technology.

Available on-site with both U.S. and Canadian content, online, and as a contract course. CEHs: 16 (8 online)

Roofing Technology and Science II

This two-day class is the second course of the two-part series covering aspects of the technology and science of roofing in detail.

Highlights of the program include: fundamentals of single-ply, polyurethane foam and PMR roof systems; basic concepts and terminology of metal roofing; steep roof design and installation of asphalt shingles, tiles, wood shakes and shingles; building codes; fire testing/ratings of roofing; a basic understanding of wind interaction upon roofing and typical wind ratings; and principles of roof asset management, including roof inspections, maintenance, and nondestructive evaluations.

This course is designed to provide individuals of differing backgrounds with relevant information about roofing technology and design. The chapters vary in intensity, from basic roofing concepts to advanced specific application principles and theory.

Available on-site with both U.S. and Canadian content, online, and as a contract course. CEHs: 16 (8 online)



Rooftop Quality Assurance

Rooftop Quality Assurance is a one-day course for professionals interested in observation to help assure roof installation is consistent with construction documents. The program covers the diverse and challenging aspects of roofing as encountered in the field and is ideal for roofing material manufacturers, general contractors, quality assurance observers, and field inspectors. Course participants will receive objective and knowledgeable insight into the field of roof observation and role delineation for the observer. The course also helps prepare individuals to provide an independent measure of quality and assists with project communications and coordination. Successful students will be able to apply roofing technology to the observer function.

Instructors cover fundamentals of quality assurance, component assembly, and quality practice guidelines for a variety of roofing systems, including: low-slope roofing, metal roofing, steep-slope roofing, and liquid-applied membranes. Although not a preparatory course for the Registered Roof Observer (RRO) exam, this course provides useful information for the observer who is preparing for RRO registration.

Available on-site with both U.S. and Canadian content, online, and as a contract course. CEHs: 8 (8 online)

Roofing Basics

Roofing Basics provides an understanding of all types of low-slope roofing materials and systems and their associated vocabulary. It is helpful to those who have little or no roofing knowledge. Topics include roof decks, insulation, various types of membranes, and maintenance information.

Available as an online course. CEHs: 4



Professional Building Envelope Consulting

This two-day course is a classroom extension of the *RCI Manual of Practice*. It provides an overview of the consultant roles that are unique in roofing, exterior walls and waterproofing work. It also identifies the consultant practices that are common to these three broad disciplines. In simple terms, it looks at building envelope consultants and discusses what they do and how they do it.

The course is designed to provide background in the procedures and policies that are important to practicing consultants, whether they are part of the A/E team or act as the design professional. It is the recommended foundation course for anyone interested in becoming more specialized in their professional work in roofs, walls or waterproofing.

Highlights of the program include important concepts for becoming more professional as a consultant; roof consulting ethics, including the mission and history of RCI; business concerns such as legal and insurance matters, contracts, and contract documents; design-related consulting issues such as roof system selection criteria; reroofing considerations; roof asset management; roof inspections; and selected technical issues, including the chemical and physical forces in roofing and an overview of waterproofing.

Available on-site, and as a contract course. CEHs: 16

Roof System Thermal and Moisture Design

Consultants or industry members who want to develop more in-depth thermal and moisture design skills will want to take this course. Subjects move quickly beyond basic thermal terminology and calculations to cooling-load calculations, annual energy consumption and payback calculations, cool roofing, and temperature calculations within cross sections. Moisture starts with the psychrometric chart and moist-air properties. Additional topics include vapor retarders, the effects of moisture on insulation, air barriers, and mold issues. Ample time is reserved for practice problems.

Available on-site, online, or as a contract course. CEHs: 8 (4 online)

Vegetative Roofs for the Design Professional (Formerly Green Roofing)

This one-day course is structured for those who design vegetative green roofs or who are responsible for correcting vegetative green roof thermal or moisture-protection performance problems. Vegetative green roof design is a technically demanding and evolving growth industry. This course provides guidance in the areas of design criteria, system selection, reference standards, and flashing principles and discusses the influences of Factory Mutual, ASTM, GRHC, and NRCA publications and guidelines. The course is focused on the specific aspects of thermal and moisture performance with an introduction to green roof vegetation and soil considerations. It is not intended to provide in-depth information on plants or growing media.

Available on-site or as a contract course. CEHs: 8

RRC® Review and Update

This one-day course is aimed at those who have already passed the RRC exam and want a review of skills and to be updated with new information, as well as those who have the necessary tools to complete the RRC registration exam and desire a quick brush-up on technical topics as a review. Covered are a review of wind design, including ASCE 7 and FM Global requirements; thermal calculations; contract management, green-roofing principles; and roof asset management (RAM) calculations. Updated information is provided in all areas.

Available on-site or as a contract course. CEHs: 8

Metal Roofing

Long an aesthetically appealing design element, metal has unique properties that separate it from other roof choices. The introduction of corrugated metal roofing in the late 19th century became a welcome economical material option. Metal roofing has continued to evolve with technological advances in alloys, coatings, and the use of “floating” standing-seam roof panels. RCI’s Metal Roofing educational program provides attendees with a well-rounded look at metal roofing history, properties, design, and installation practices. The program is divided into several sections, covering both traditional and modern metal roofing.

Available on-site, online, or as a contract course. CEHs: 16 (8 online)

Building Envelope Quality Assurance

Building Envelope Quality Assurance is a one-day course for professionals interested in field inspections and quality of applications, including material manufacturers, general contractors, quality assurance observers, and field inspectors. This course covers the diverse and challenging aspects of roofing, waterproofing, and exterior walls encountered in the field. Highlights of the program include the role and responsibilities of the quality observer associated with roofing, waterproofing, and exterior wall projects; contract administration; construction contract documents; ethics; and job site safety.

Available as an on-site course. CEHs: 8

Roof Drain Design and Calculations

Roof Drain Design and Calculations is focused on methodology of design and sizing of interior roof drains, leaders, piping, and scuppers, as well as exterior gutters and downspouts.

Available as an online course. CEHs: 4

Wind Design for Low-Slope Roofs – Part I: Understanding ASCE 7-05 Wind Load Calculations

This course offers step-by-step instructions for calculating wind-uplift pressures on low-slope roofs in accordance with ASCE 7-05 and the International Building Code. Skills learned in this course provide insight into all wind design guides.

Available as an online course. CEHs: 4

Wind Design for Low-Slope Roofs – Part I: Understanding ASCE 7-10 Wind Load Calculations

This course offers step-by-step instructions for calculating wind-uplift pressures on low-slope roofs in accordance with ASCE 7-10 and the International Building Code. Skills learned in this course provide insight into all wind design guides.

Available as an online course. CEHs: 4

Wind Design for Low-Slope Roofs – Part II: FM Global Guidelines and Best Practice Considerations

As a follow-up to ASCE 7 calculations, Part II provides a guide to FM Global design and construction criteria as per FM Data Sheets 1-28, 1-29, 1-49, and 1-52. The course also covers ANSI/SPRI ES-1 and portions of ANSI/SPRI RP-4.

Available as an online course. CEHs: 4

Exterior Walls Technology and Science

This two-day course provides basic exterior wall technology and terminology. The course covers a broad range of topics, including types and functions of exterior walls, psychrometrics and moisture movement, design objectives and building code requirements, wall penetrations, materials, coatings and water repellants, and sealants.

This broad course is aimed at those preparing to expand their knowledge into exterior walls and at those already practicing in this area who want to further develop their knowledge in exterior wall technology. Exterior Walls Technology and Science will also serve as a good review course for those interested in taking the Registered Exterior Wall Consultant (REWC) exam.

Available on-site or as a contract course. CEHs: 16

Masonry Wall Systems

This 1.5-day course builds upon the fundamentals presented in Exterior Walls Technology and Science. The purpose of this course is to provide an in-depth understanding of masonry wall systems as part of the building envelope system. Highlights of this program include: materials and their properties, masonry accessories, applicable design codes and standards, design and construction requirements, evaluating and repairing masonry wall problems, and maintaining masonry walls.

This in-depth course is recommended for those who have taken Exterior Walls Technology and Science and want to further expand on their knowledge of exterior wall systems. Masonry Wall Systems will also serve as a good review course for those interested in taking the Registered Exterior Wall Consultant (REWO) exam.

Available on-site or as a contract course. CEHs: 12



Stucco and Exterior Finish Cladding Systems

The Stucco and Exterior Finish Cladding Systems course builds on the fundamentals presented in Exterior Walls and Science. The purpose of the course is to provide essential information on material properties, design principles, evaluation techniques, and repair methods for stucco and Exterior Insulation and Finish Systems (EIFS). Topics covered in this course include the various codes and standards impacting the design and installation of stucco and EIFS systems, structural behavior, serviceability requirements, performance test methods, and case histories relative to stucco and EIFS assemblies.

This in-depth course is recommended for those who have taken Exterior Walls Technology and Science and want to further expand on their knowledge of exterior wall systems. Stucco and Exterior Finish Cladding Systems will also serve as a good review course for those interested in taking the Registered Exterior Wall Consultant (REWEC) exam.

Available on-site or as a contract course. CEHs: 12

Exterior Concrete Wall Systems

This two-day Exterior Concrete Wall Systems course builds upon the fundamentals presented in Exterior Walls Technology and Science. The purpose of the course is to provide an in-depth understanding of exterior concrete wall systems that serve as part of the building envelope system. This seminar provides a general overview of exterior concrete wall systems; key material properties of concrete that affect its use in building envelope systems; and evaluation, repair, and maintenance of exterior wall systems. The course includes a case study of a typical exterior concrete wall repair project.

Available on-site or as a contract course. CEHs: 16



Waterproofing

This two-day course is aimed at the practicing waterproofing consultant and those who are aspiring to become Registered Waterproofing Consultants (RWC). This course focuses on split-slab plaza deck systems, surface-applied waterproofing, and below-grade waterproofing. The course starts with a review of differences among roofing, dampproofing and waterproofing. Other topics include waterproofing materials and accessories used for various applications; design and specification; application techniques; and a thorough review of concrete used as a substrate for waterproofing, including typical concrete repair materials and techniques used for restoration of concrete slabs prior to application of waterproofing systems.

Available on-site, online, or as a contract course. CEHs: 16 (8 online)

Exterior Walls Quality Assurance

Exterior Wall Quality Assurance is a one-day course for professionals interested in performing observation to assure that exterior wall systems are installed in accordance with construction documents. The program covers diverse topics in the construction of exterior walls, and is intended for manufacturers, general contractors, quality assurance observers, and field inspectors.

Course participants will receive detailed information on the different materials and systems that may be encountered in exterior wall construction, including proper installation and a discussion of how these components interface to create a weathertight assembly. Instructors cover the fundamentals of insulation, air and water barriers, vapor retarders, and various cladding materials, including metal panels, masonry, stucco, and EIFS.

Available as an on-site course. CEHs: 8

Architectural Sheet Metal Flashing Design

The RCI Architectural Sheet Metal Flashing class is a one-day course related to architectural sheet metal flashing design, assessment, and detailing. Topics covered include material selection, attachment, joinery, expansion joint detailing, fabrication tolerances, drainage assemblies, and penetration flashings. Within sheet metal joinery, the subjects of proper soldering techniques, proper solder repair procedures, as well as application of specific metal joinery types are developed fully. The course will communicate the fundamentals and more advanced topics suitable for architects, engineers, and building envelope consulting professionals.

Available as an on-site course. CEHs: 8

Adhered Veneer & Fiber Cement Board

The Adhered Veneer and Fiber Cement Cladding course is builds on the Exterior Walls and Science course, as well as the Stucco and Exterior Finish Cladding Systems courses. This course provides information on material properties, design principles, installation techniques, evaluation methods, and repair approaches for adhered veneer and fiber cement products. Topics covered in this course include the various codes, industry standards, and proprietary reports that govern the design and installation, structural behavior and analysis, serviceability requirements, test methods, and case histories relative to adhered veneer and fiber cement cladding.

This in-depth course is recommended for those who have taken Exterior Walls Technology and Science and want to further expand on their knowledge of exterior wall systems. This course would also be of benefit to those who have taken the Stucco and Exterior Finish Cladding Systems course, as these assemblies - particularly adhered veneer - share several characteristics with stucco. The Adhered Veneer and Fiber Cement Cladding course will also serve as a good review course for those interested in taking the Registered Exterior Wall Consultant (REWC) exam.

Available as an on-site course. CEHs: 8

Litigation Support Services for Building Envelope Experts

This seminar is specifically designed for building envelope experts who provide litigation support services. It was developed by an experienced construction attorney who has litigated several building envelope-related cases, and a building envelope expert with extensive experience in litigation support. Using real case histories, the seminar will provide an overview of construction litigation process and various construction claim types. The presenters will discuss all stages of litigation, the role of an expert in various stages, how an expert can make or break a case, and the important attributes of a building envelope expert. The presenters will also cover typical challenges facing building envelope experts, ranging from document management to attribution of damages to various parties. They will also cover the “dos” and “don’ts” of testifying in various venues.

Learning points include various stages and types of typical construction claims; differences between litigation, arbitration and mediation, and how the expert’s services differ for each; typical services of a building envelope expert; managing the lawyers’ expectations of a building envelope expert; and how to testify effectively.

Available as an on-site course. CEHs: 6



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