

OREGON

Envelope Failure: A Better Weatherization Design

Series B Course Syllabus

Course #SRB0006

Course Description

Building homes that are well protected from the weather should be a priority for any building professional. The majority of problems stem from improper procedures and workmanship, but often the problem is found in the design of a home. This three hour continuing education offering will explore factors that contribute to exterior shell failure, and identify practical solutions that will preserve the integrity of the building envelope.

After completing this course participants will be able to:

- Identify the components of the building as a system, its performance requirements, and how these features must be integrated to prevent building envelope failure.
 - Describe how a properly constructed building envelope will keep out weather related moisture and stop uncontrolled movement of energy due to loss of conditioned air.
 - Outline at least one design strategy based on "best practices" for the construction of buildings in areas with relatively high humidity.
 - Summarize the options available to the consumer that may have been injured by, or suffered a financial loss by construction defects and the resultant failure of the building envelope.
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COURSE SYLLABUS

Chapter 1- Building Exterior Shell (25 minutes)

***Learning Objectives:** 1) Recognize the mistakes that frequently occur, causing building envelope failure. 2) Understand the ramifications of claims made against contractors. 3) Be able to determine what the contractor's responsibilities are.

1. Rationale
2. Primary Warranty and Insurance Claims
3. Solutions
4. Experience
5. Contractor Responsibilities
6. Insurance Availability and Affordability

Assessment

Chapter 2- Building Envelope System (20 minutes)

***Learning Objectives:** 1) Define what components make up the building envelope. 2) Understand the objectives or purpose of the building envelope. 3) Recognize and then prevent the causes behind "Building Envelope Failure".

1. Building Envelope System
2. Performance Objectives
3. Physical Components
4. Sources of Moisture Intrusion
5. Results of Failure

Assessment

Chapter 3- Foundation Construction (30 minutes)

***Learning Objectives:** 1) Recognize what causes most moisture/wet basement issues. 2) Know the minimum slope of grade around the building foundation. 3) Understand the purpose of vapor barriers under a floor slab.

1. Thermal and Moisture Protection
2. Groundwater
3. Gutters
4. Crawlspaces
5. Dampproofing and Waterproofing
6. Girders and Beams

Assessment

Chapter 4- Wall Construction (35 minutes)

***Learning Objectives:** 1) Be able to identify the major causes of high humidity in homes. 2) Understand the purpose of house wrap and how it is installed. 3) Know how to install flashings and where to caulk. 4) Know the minimum lap for fiber cement siding and how joints should be treated.

1. Wall Framing
2. Vapor Diffusion Problems
3. Recommendations
4. House Wrap and Underlayment

5. Window and Door Openings
6. Flashing and Caulking
7. Siding

Assessment

Chapter 5- Roof Construction (20 minutes)

***Learning Objectives:** 1) Be able to explain how moisture penetrates roofs and ceilings. 2) When installing valley flashing, understand the minimum lap required. 3) Know what a saddle is and when it is required. 4) Understand the requirements surrounding ice barriers.

1. Skylights
2. Moisture Penetration
3. Roof Valleys
4. Shingles and Shakes
5. Roof Sheathing
6. Repairs
7. Flashing

Assessment

Chapter 6- Window and Door Installation (15 minutes)

***Learning Objectives:** 1) Describe how to properly flash a window. 2) Understand the steps taken during preparation of a window or door opening. 3) Know why, when and where to caulk a head flashing.

1. Windows, Doors and Skylights
2. Proper Flashing
3. Door and Window Installation

Assessment

Chapter 7- Ventilation System Installation and Requirements (15 minutes)

***Learning Objectives:** 1) Define the purpose of ventilation. 2) Know the minimum amount of ventilation for crawl-spaces and attics. 3) Describe "rafter-vents", where they are located and their purpose.

1. Code
2. Attic Ventilation
3. Heating, Ventilation and Air Conditioning

Assessment

Chapter 8- Building Envelope Best Practices (10 minutes)

***Learning Objectives:** 1) Describe a "capillary break", and identify what type of material is used to create one. 2) Understand the basic principles of above grade exterior shell construction: flashings, windows, doors, siding, etc. 3) Know what a flashing "kick-out" is and where you should install one.

1. Moisture Retarding Construction
2. Capillary Breaks
3. House Wrap Installation
4. Window and Door Installation
5. Siding Installation
6. Roofing Best Practices

Assessment

Chapter 9- Consumer Remedies (20 minutes)

****Learning Objectives:*** 1) Recognize many of the frequently made consumer mistakes. 2) Be aware of preventative measures that should be taken by both the consumer and the contractor. 3) Understand contractor responsibilities, and consumer remedies.

1. Common Mistakes
2. Preventative Measures
3. Warranties
4. Complaints
5. Arbitration and Dispute Resolution

Assessment

- The Builders License Training Institute is responsible for the content of this course.

- This course is approved for three credit hours in ***CCB Residential Continuing Education: Series B***
- To have access to our online courses students must have access to a high-speed internet connection.
- Course instructors will be available by email or telephone between 9am and 5pm Eastern Standard Time. They will assist you with questions regarding course content.
- If you have any questions, please call us at **1-800-727-7104** or send an email to info@licensetobuild.com. Email responses will usually be returned promptly, but guaranteed within one business day.
- Students have six months to complete this course.
- Student policies and procedures are always available by going to www.licensetobuild.com and scrolling to the bottom of the page (See Privacy and Refund Policy).