



## **Moisture Resistant Homes**

*Course Description:* The proper design and construction of homes and other buildings has always involved attention to moisture control. While this originated with the straightforward need to keep moisture out and protect the structure from deterioration, in recent years the issue has become much more complex and occupants' expectations have risen. Moisture control now includes the challenge of managing interior moisture, including water vapor, in order to promote occupant comfort, protect indoor air quality, and prevent the development of mold.

At a time when consumers demand better performance from their homes than ever before, absolute moisture protection for houses is a most demanding goal. At the same time our understanding of more subtle issues related to the effects of moisture and proper control continues to evolve. As a result, while good moisture control ultimately rests on scientific principles, it also must be implemented by home builders and remodelers who bring a more practical orientation to the construction process. To encourage successful implementation, the recommendations in this guide have been designed to combine the latest technical knowledge with more traditional elements of judgment, experience and common sense.

*Course Hours:* 7 Hours

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## Course Outline and Learning Objectives

<b>Module</b>	<b>Learning Objectives</b>	<b>Time</b>
<i>Course Orientation</i>	1. Explain content and layout of course as well as how to complete the course to receive the certificate of completion.	2 min
<i>Acknowledgment of Orientation</i>		N/A
<i>General Knowledge</i>	2. Introduction 3. Scope and Approach 4. How to use this Knowledge	4.5 min
<i>Building Planning &amp; Design Phase Part 1</i>	5. Roof and ceiling systems 6. Roof pitch and material property evaluation a. Roof flashing b. Roof covering selection c. Roof overhangs and projections	10.3 min
<i>Review 1</i>	7. Review Overview of Building Planning & Design Phase Part 1	10 min
<i>Quiz 1</i>	8. Assessment of Building Planning & Design Phase Part 1	13 min
<i>Building Planning and Design Phase Part 2</i>	9. Bituminous adhesive taping 10. Roof ventilation design a. Insulation b. Ice dams 11. Roof drainage systems c. Gutter sizing d. Downspout sizing 12. Downspout placement 13. Wall systems 14. WRE (weather-resistant envelope)	21.8 min
<i>Review 2</i>	15. Review of Building Planning & Design Phase Part 2	10 min
<i>Quiz 2</i>	16. Assessment of Building Planning & Design Phase Part 2	22 min

<i>Building Planning and Design Phase Part 3</i>	<ul style="list-style-type: none"> <li>17. Third-party windows and doors</li> <li>18. Supplemental flashing</li> <li>19. Caulks and sealants</li> <li>20. Foundations</li> <li>21. Site planning and foundation design</li> <li>22. Creating workable site drainage plans <ul style="list-style-type: none"> <li>a. Simple screening processes for moisture and damage concerns</li> </ul> </li> <li>23. Basement foundations and basement walls <ul style="list-style-type: none"> <li>a. Waterproof exterior walls</li> <li>b. Basement insulation and finishes</li> <li>c. Semi-permeable rigid foam insulation</li> </ul> </li> </ul>	27.4 min
<i>Review 3</i>	24. Review of Building Planning & Design Phase Part 3	10 min
<i>Quiz 3</i>	25. Assessment of Building Planning & Design Phase Part 3	21 min
<i>Building Planning and Design Phase Part 4</i>	<ul style="list-style-type: none"> <li>26. Slab on grade <ul style="list-style-type: none"> <li>a. Sub-slab vapor retarders</li> <li>b. Moisture resistant finishes</li> </ul> </li> <li>27. Crawl space</li> <li>28. Vented versus non-vented ventilation strategies</li> <li>29. Wood framing</li> <li>30. Alternative foundation construction methods</li> <li>31. Water vapor control</li> <li>32. Controlling indoor humidity <ul style="list-style-type: none"> <li>a. Climate consideration</li> <li>b. Moisture testing and building protection</li> <li>c. Proper cooling equipment sizing</li> </ul> </li> </ul>	31.3 min
<i>Review 4</i>	33. Review of Building Planning & Design Phase Part 4	11 min
<i>Quiz 4</i>	34. Assessment of Building Planning & Design Phase Part 4	31 min
<i>Building Planning and Design Phase Part 5</i>	<ul style="list-style-type: none"> <li>35. Controlling air leakage <ul style="list-style-type: none"> <li>a. Impact on water vapor movement and water shedding</li> <li>b. Interior barrier systems</li> <li>c. Air barrier systems</li> <li>d. "Warm walls"</li> </ul> </li> <li>36. Vapor retarders</li> <li>37. Hot/humid climates and exterior wall systems</li> </ul>	31.7 min

	38. Cold climates and exterior wall systems	
<i>Review 5</i>	39. Review of Building Planning & Design Phase Part 5	11 min
<i>Quiz 5</i>	40. Assessment of Building Planning & Design Phase Part 5	22 min
<i>Construction Phase</i>	41. Quality management recommendations	1 min
<i>Homeowner Guide</i>	42. Moisture control background for homeowners <ul style="list-style-type: none"> <li>a. Frequent causes of moisture damage</li> </ul> 43. Moisture problems: prevention and correction <ul style="list-style-type: none"> <li>b. Kitchen</li> <li>c. Bathroom</li> <li>d. Utility room</li> <li>e. Attic</li> <li>f. Basement</li> <li>g. Laundry room</li> <li>h. Outside the home</li> <li>i. Roof</li> </ul> 44. Dealing with major water damage events 45. Dealing with natural disasters	46.1 min
<i>Review 6</i>	46. Review of Construction Phase and Homeowner Guide	11 min
<i>Quiz 6</i>	47. Assessment of Construction Phase and Homeowner Guide	11 min
<i>End of Course Survey</i>	48. Students provide feedback	8 min
<i>Next Steps</i>	49. Describe what happens now that the student has completed the course	1 min
	<b>Total Time (50 min = 1 hour)</b>	<b>368 min</b>