



Alternative Homes Course Guide

Course Objective:

This course prepares contractors to build and repair alternative residential homes. This includes manufactured, modular, tiny, and log homes. Students will evaluate the main construction features of alternative homes including: the building envelope; floor, wall and roofing systems; and foundations. Additionally, students will identify typical defects related to moisture, utilities, and fire safety. This 2 hour continuing education course teaches students how to build and repair alternative residential homes and will help contractors to provide their clients a residence that is specific to their needs.

Learning Objectives:

At the end of this course, inspection professionals will be able to:

1. Differentiate between manufactured, modular, tiny, and log homes.
2. Identify the main construction features of alternative homes.
3. Evaluate the condition of an existing alternative home's foundation.
4. Identify common defects such as moisture-related problems, issues with utilities, and fire safety preparedness.
5. Discuss the various aspects of building and repairing manufactured, modular, tiny, and log homes.

Narrative of the Substantive Information:

To begin the course, the instructor will discuss the specific features that distinguish the four types of alternative homes that are covered in this course: manufactured, tiny, modular, and log homes. The instructor will then proceed to lecture on each type of alternative home individually, beginning with manufactured homes.

The instructor will provide students with a definition of manufactured home, including a discussion on the difference between a 'manufactured home' and a 'mobile home'. The instructor will then move on to introduce guidelines that surround manufactured homes that are provided by HUD on Certification Labels as well as data plates that contain maps of the U.S. in order to inform the owner of the Wind Zone, Snow Load, and Roof Load of the home. Next, the instructor will move into a deep discussion of the main construction features of manufactured homes. This will include the construction of: envelope, floors, walls, interior, roof, chassis, integrated support system, and mechanical service systems. After the lecture on main construction features, the focus will move to foundation systems that can be used to support a manufactured home. This will transition into the discussion of leveling systems that ensure the home is stable against external forces such as high winds and earthquakes. In relation to leveling systems, the instructor will also need to discuss crawl spaces, skirting, ductwork, and ventilation. The instructor will then wrap up the discussion of manufactured homes by presenting common defects related to: structure, moisture, plumbing, and fuel storage and delivery.

This brings the instructor to the second alternative home covered in this course: Tiny Homes. This section will also begin with a definition of a tiny home and include allowances made by the IRC and NFPA for tiny homes. The instructor will then present the class with the minimum allowed dimensions for the following spaces in a tiny home: ceiling heights; rooms that are not a bathroom, closet, utility area, or loft; toilet clearances; lofts; stairways and ladders; sleeping areas; and egress windows. The instructor will then move on to discuss the requirements for Tiny Homes on Wheels. This section is important for the safety and welfare of everyone sharing the roadways with a vehicle pulling a tiny home. Afterward, the instructor will discuss the importance of preparing the Tiny Home (especially if it is to be relocated frequently) for high altitudes, heavy snow loads, high winds, and sufficient moisture protection. Finally, the instructor will discuss site guidelines including straps and anchors.



The instructor will now begin the last portion of this course: modular and log homes. This section will be a quick overview that briefly presents the advantages of modular homes as well as their limitations. The instructor will also cover the different types of foundations that are available for modular homes. Next, the presentation will shift to log homes and the design requirements that were published in the 2012 ICC. This section will quickly cover fire-resistance, energy conservation, roofing, settling, and storm water management.

This will conclude the presentation, and the instructor will take a few minutes to let students ask questions and facilitate a group discussion.

Timed Outline

1. Introduction 2 min
 - a. Manufactured, modular, tiny, and log homes
2. Module 1: Manufactured Homes 1 min
 - a. Characteristics of manufactured homes 1 min
 - b. Manufactured vs. modular homes 1 min
 - c. What are manufactured homes? 1 min
 - i. Building guidelines
 - d. What is a mobile home? 2 min
 - i. Fire and structural
 - ii. Special considerations
 - iii. Typical defects
 - e. Why are manufactured homes constructed differently? 1 min
 - f. HUD 1 min
 - g. Labeling 2 min
 - i. Certification label
 - ii. Data plate
 - h. Main Construction Features 8 min
 - i. Envelope construction
 - ii. Floor construction
 - iii. Wall construction
 - iv. Interior construction
 - v. Roof construction
 - vi. The chassis
 1. Components
 2. Types
 3. Traditional chassis
 - vii. Integrated support system
 - viii. Floor system components
 - ix. Wall system components
 - x. Roof/Ceiling components
 - xi. Windows and doors components
 - xii. Mechanical service systems

i. Foundation Types	5 min
i. Typical Foundation Systems	
ii. Strengthening Foundations	
iii. Perimeter Wall Foundations	
iv. Pier Height	
j. Leveling Systems	6 min
i. Tie downs	
ii. Anchors	
iii. Stabilizer plates	
iv. Concrete anchors	
v. Roof tie-down straps	
vi. Insurance Inspection Form	
k. Manufacturing Home Skirting	3 min
i. Benefits to skirting	
ii. Mandatory skirting	
l. Crawlspace Precautions	5 min
i. PPE	
ii. Tongue and axle	
iii. Belly wrap	
iv. Crawlspace clearances	
v. Ductwork	
vi. Environmental damage	
vii. Moisture barriers	
viii. Grading	
ix. Crawlspace inspection	
m. Doublewides	1 min
n. Utility Connections	1 min
i. Electrical service pole	
o. Ventilation	1 min
p. Fire Safety Priorities	1 min
q. Structural Defects	1 min
r. Moisture-Related Defects	2 min
i. Environmental moisture issues	
ii. HVAC moisture issues	
s. Plumbing	1 min
t. Fuel Delivery and Storage	1 min
u. Water Heaters	1 min
v. Freeze Protection	1 min
w. Storm Water Management	1 min

x. Mold	1 min
3. Module 2: Tiny Homes	
a. DIY Tiny Homes	1 min
b. What is a Tiny Home?	1 min
c. Tiny Home allowances	1 min
d. Ceiling heights	1 min
e. Minimum room sizes	1 min
f. Toilet minimum clearances	1 min
g. Lofts	2 min
i. Stairways and ladders to lofts	
h. Fire safety	1 min
i. Sleeping areas	1 min
j. Egress windows	1 min
k. Smoke, CO2, and gas detectors	1 min
l. Tiny Homes on Wheels (THOWs)	6 min
i. THOWs vs. manufactured homes and RVs	
ii. Department of Transportation	
iii. Trailers for THOWs	
iv. Floor Insulation	
v. Floor Moisture Barrier	
vi. The Building Envelope	
vii. Insulation	
viii. Glazed Openings	
ix. High Altitude Windows	
x. Tempered Glass Requirements	
m. Structural	2 min
i. Traditional vs Advanced Framing	
ii. Framing Fasteners	
iii. SIPs	
iv. Positive Attachment	
v. Materials Not Recommended	
n. Roofing	2 min
i. Roof Sheathing	
ii. Heavy Snow Loads	
iii. Drip Edge	
o. Electrical Service	2 min
i. Grounding	
ii. Outlets	
iii. GFCI and AFCI locations	

iv. Electrical lighting	
p. Humidity Control	2 min
i. HVAC Recommendations	
ii. Hyper Heat Pumps	
iii. Ventilation	
q. Fuel Storage and Delivery	1 min
r. Plumbing	2 min
i. HepVo Vents	
ii. Composting/Incinerating Toilets	
s. Heating	2 min
t. Site Guidelines	2 min
i. Ground Attachments	
ii. Strap Guidelines	
iii. Anchors	
4. Module 3: Modular Homes	
a. Modular/Prefab Standards	1 min
b. Transportation Limits	1 min
c. Limited Materials	1 min
d. Foundations	3 min
i. ICF Foundation Walls	
ii. Concrete Block Wall	
iii. Basements	
iv. Piers and Beam	
v. Positive Attachment	
5. Module 4: Log Homes	
a. Compliance	1 min
b. Non-log portions	1 min
c. ICC400	1 min
d. Log Grading	1 min
e. Fire-resistance	1 min
f. Energy conservation	1 min
g. Settling	1 min
h. Roof overhang	1 min
i. Inspecting log homes	1 min
j. Storm water management	1 min
6. Q&A and Group Discussion	

Total Course Time: 100 min



Instructional Methods/Aids to Be Employed

The instructor will use the following instructional methods and aids:

1. Lecture with PowerPoint Presentation (The PowerPoint Presentation has been included as a PDF.)
2. Review Questions with Group Discussion (Questions presented throughout the PowerPoint Presentation. Questions are included in the PDF.)
3. Question and Answer Session at the end of the lecture.

Teaching tools to be used for delivery

The instructor will use the following teaching tools:

1. PowerPoint Presentation
2. Laptop, Projector, and Screen
3. Microphone and Audio Equipment