



Lesson #3: Requirements for High Performance Attics (3 class periods)

Objectives

Students will be able to...

- Define the mandatory attic assembly requirements.
- Identify key strategies for meeting or exceeding the prescriptive HPA requirements.
- Define and illustrate a high-performance attic assembly.

Standards

LS11-12.6
RSIT 11-12.2
Technology 4.1, 4.2, 4.3,
Problem Solving and Critical Thinking 5.1, 5.2, 5.3, 5.4
Health and Safety 6.3, 6.6,
Ethics and legal responsibilities 8.1,
Leadership and Teamwork 9.1, 9.2, 9.3
Technical Knowledge and Skills 10.1, 10.2, 10.3, 10.4
Demonstration and Application 11.1

Materials

- Internet or other resource for instruction
 - Slides from the Train-the-trainer presentation
 - Link to the Energy Code Ace – 2019 Reference Ace
 - <https://energycodeace.com/content/reference-ace-2019-tool>
 - Section 150.1, Prescriptive Package Table 150.1-A
 - WISE Warehouse Video
 - Installing Knauf Insulation in an Unvented Attic - <https://youtu.be/dG8lwja9wwU>
- Table of Performance Compliance Worksheet
- Table 150.1A
<https://www.dropbox.com/sh/f5m098q15e0md7w/AADB11jecpAEFRlpm7ieXqiqa?dl=0&preview=2019+Table+150.1-A.Building+Energy+Efficiency+Standards.pdf>

Lesson Sequence

- **Lecture**
 - What are the primary purposes of high-performance attic requirements?
 - Reducing Attic temperatures
 - Improving the performance of space conditioning ducts installed in the attic
 - Reducing ceiling heat transfer to conditioned space
 - Mandatory attic assembly requirements
 - Energy Code – Section 150.0(a)
 - Prescriptive attic assembly requirements
 - Energy Code – Section 150.1(c)1A and Table 150.1-A
 - CZ 1-5, 8-16
 - CZ 6-7
 - Option B v. Option C
 - Ventilation requirements in relation to prescriptive HPA
 - Introduce individual activity
- **Individual activity**
 - Using Table 150.1-A as a reference, complete *Table of Performance Compliance Worksheet*

Assessment

Use individual activity as an informal assessment of understanding the table.
Title 24 Energy Standards Unit Test

Accommodations/Modifications

Check for understanding
One on one support
Extra time if needed
Highlight important material

Table of Performance Compliance Worksheet

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR ONE CURRICULUM

Using Table 150.1-A as a reference, complete the following table.

Climate Zone	Option B or C	Below Roof Deck Required? Yes or No	Radiant Barrier Required? Yes or No	R-value of Ceiling Insulation Required
12	B			
5	C			
8	B			
10	C			
16	C			
2	C			
6	B			
1	B			

Table-Answers

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR THREE CURRICULUM

Climate Zone	Option B or C	Below Roof Deck Required?	Radiant Barrier Required?	R-value of Ceiling Insulation Required
		Yes or No	Yes or No	
12	B	Y	N	38
5	C	N	Y	30
8	B	Y	N	38
10	C	N	Y	30
16	C	N	N	38
2	C	N	Y	38
6	B	N	Y	30
1	B	N	N	38

Title 24 Energy Standards Unit Test

Using Table 150.1-A as needed to answer the following questions.

1. Prescriptive high-performance attic (HPA) requirements assume that the attic has which of the following features?
 - a. Is vented
 - b. Is unvented
 - c. Has asphalt shingle roofing
 - d. Has above roof deck insulation

2. When installing below roof deck insulation in a vented high-performance attic, which of the following is NOT recommended?
 - a. Ceiling insulation
 - b. Attic ventilation
 - c. Recessed ceiling lights
 - d. Radiant barrier roof sheathing

3. To comply with the prescriptive high-performance attic, Option B requirements in climate zone 2, what R-value of ceiling insulation is required?
 - a. R-19
 - b. R-22
 - c. R-30
 - d. R-38

4. What is the primary purpose of the high-performance attic requirements?
 - a. Reduce attic temperature
 - b. Reduce heat transfer to conditioned space
 - c. Reduce heat transfer to ducts in attic
 - d. All of the above

5. Which of the following insulation types commonly used for below roof deck insulation in a high-performance attic?
 - a. Flexible fiberglass batts stapled under the roof deck
 - b. Loose-fill fiberglass in box-netting under the roof deck
 - c. Spray foam under the roof deck
 - d. All of the above

Title 24 Energy Standards Unit Test-Answers

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR THREE CURRICULUM

1. A

2. D

3. D

4. D

5. D