

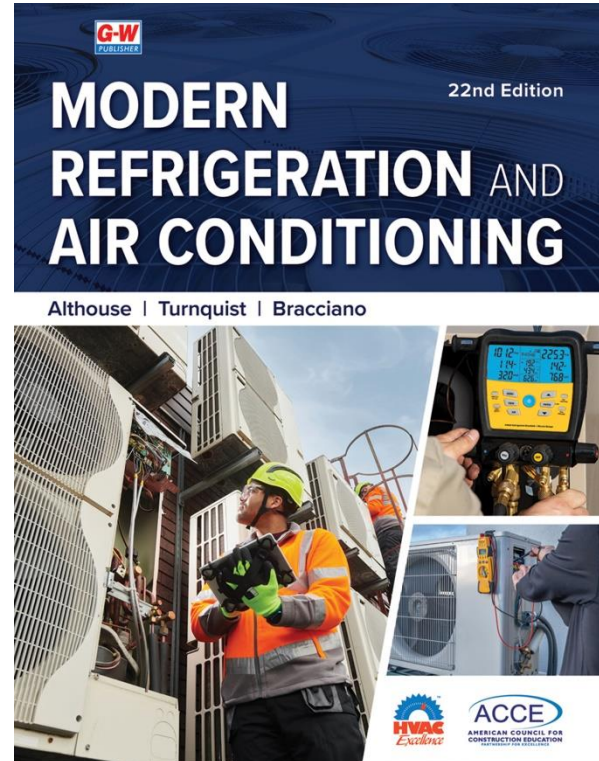


Correlation of
Modern Refrigeration and Air Conditioning, Althouse, Turnquist, Bracciano
(Goodheart-Willcox Publisher ©2025)
to
AHRI Curriculum Guide XIII. Heating Systems

Goodheart-Willcox is pleased to partner with the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and the American Council for Construction Education (ACCE) by correlating *Modern Refrigeration and Air Conditioning* to the AHRI Curriculum Guide. The following chart correlates *Modern Refrigeration and Air Conditioning* to a section of the Curriculum Guide developed by AHRI used for ACCE (formerly PAHRA) accreditation.

The chart lists the Curriculum Guide’s knowledge and task competency objectives in the left column and the corresponding chapter numbers from *Modern Refrigeration and Air Conditioning* in the right column.

For more information on the American Council for Construction Education (ACCE) and related accreditation, please visit: www.acce-hq.org



XIII.A. Forced Warm Air Systems	
Knowledge	Textbook Chapter(s)
1. Check the operation of the ignition system.	Chapters 33, 34
2. Derate or change over a gas burner.	Chapters 33, 34
3. Adjust burner flame for proper fuel/air ratio.	Chapters 33, 34
4. Check for proper temperature rise through the furnace.	Chapters 33, 34
5. Test all safety controls.	Chapters 33, 34
6. Remove, install, and adjust blower motor and/or belt.	Chapters 30, 31, 33, 34
7. Clean pilot assembly.	Chapters 33, 34

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XIII.A. Forced Warm Air Systems (continued)	
Knowledge	Textbook Chapter(s)
8. Oil motor(s) and bearings.	Chapters 19, 30, 31, 33
9. Check and adjust heat anticipator of thermostat.	Chapters 19, 33
10. Use orifice sizing charts.	Chapter 9
11. Test induced draft pressure switches.	Chapters 4, 11, 12, 17, 19, 33
12. Check all safety controls.	Chapters 3, 4, 11, 12, 19, 33
13. Check operation of sequence.	Chapters 3, 4, 11, 12, 33
XIII.B. Hydronic Systems	
Knowledge	Textbook Chapter(s)
1. Identify types of hydronic piping systems.	Chapter 38
2. Identify types of boilers.	Chapter 38
Tasks	Textbook Chapter(s)
1. Check circulator for alignment and lubrication.	Chapters 19, 38
2. Set aquastat.	Chapters 4, 11, 38
3. Check water pressure regulating valve (PRV).	Chapter 38
4. Check the zone valve operation.	Chapters 4, 38
5. Remove air from system.	Chapter 38
6. Check backflow preventer.	Chapter 38
7. Check compression/expansion tank.	Chapter 38
8. Check water temperature rise across the boiler.	Chapters 4, 38
9. Check and adjust water level in pressure tanks.	Chapters 4, 38
10. Check automatic air vent operation.	Chapters 4, 38
11. Wire multizone/multipump hydronic systems.	Chapter 38
XIII.C. Testing and Balancing Equipment	
Tasks	Textbook Chapter(s)
1. Perform pressure checks on air distribution system.	Chapters 4, 28, 30, 31, 33
2. Perform pressure checks on fuel system.	Chapters 4, 28, 33, 34
3. Perform efficiency test and adjust to recommended rate:	
a. check draft	Chapters 4, 11, 28, 33, 34
b. check smoke (if applicable)	Chapters 33, 34

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XIII.C. Testing and Balancing Equipment (continued)	
Tasks	Textbook Chapter(s)
c. check stack temp	Chapters 4, 11, 33, 34
d. check CO ₂	Chapters 4, 11, 33, 34
e. check O ₂	Chapters 4, 11, 33, 34
f. check CO	Chapters 4, 11, 33, 34
4. Perform balance method for an air distribution system.	Chapters 4, 28, 30, 31
5. Perform balance method for a hydronic system.	Chapters 4, 38
XIII.D. Humidification	
Knowledge	Textbook Chapter(s)
1. Explain the importance of humidification.	Chapters 24, 28
2. Describe different types of humidifiers.	Chapter 24
3. Explain factors affecting humidity in business and residence.	Chapter 24
Tasks	Textbook Chapter(s)
1. Select proper humidification equipment.	Chapters 24, 28, 32, 33
2. Check operation of humidification equipment.	Chapters 4, 11, 19, 24, 28, 32
3. Perform maintenance on humidification equipment.	Chapters 4, 11, 19, 24, 28, 32
4. Determine relative humidity using a psychrometer.	Chapters 4, 11, 19, 24, 28, 32
5. Determine dew point using a psychrometer.	Chapters 4, 11, 19, 24, 28, 32
XIII.E. Unitary Combination Heating and Cooling	
Knowledge	Textbook Chapter(s)
1. Describe the sequence of operation of a heating system.	Chapters 33, 34, 35
Tasks	Textbook Chapter(s)
1. Use and read various tools and instruments needed for checking and testing combination air-conditioning and heating systems.	Chapters 4, 11, 12, 18, 28, 31

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XIII. Heating Systems—page 4**

XIII.F. Oil Furnaces	
Knowledge	Textbook Chapter(s)
1. Explain and check the sequence of operation of oil stack switches.	Chapter 34
2. Explain and check the sequence of operation of electronic primary controls.	Chapter 34
3. Understand how to replace oil filters.	Chapter 34
4. Understand how to purge water from oil storage tanks.	Chapter 34
5. Understand how to oil motors.	Chapters 16, 19, 30, 31, 33, 34
Tasks	Textbook Chapter(s)
1. Replace oil nozzle and adjust electrodes.	Chapter 34
2. Perform combustion test and adjust to optimum efficiency.	Chapter 34
3. Perform safety shutdown check.	Chapter 34
4. Replace oil nozzles with proper size replacements.	Chapter 34
5. Inspect and adjust electrodes, replacing when necessary.	Chapter 34
6. Test and adjust oil pumps and couplers.	Chapter 34
XIII.G. Electric Furnaces	
Knowledge	Textbook Chapter(s)
1. Understand the use of sequencers in electric furnaces.	Chapter 35
2. Understand the effects of airflow on temperature rise.	Chapters 4, 28, 30, 33, 35
Tasks	Textbook Chapter(s)
1. Inspect heating elements and insulators.	Chapter 35
2. Test thermal fuses.	Chapters 17, 19, 35
3. Inspect all electrical connections.	Chapters 14, 16, 17, 18, 19, 35
4. Check for proper temperature.	Chapters 4, 28, 30, 33, 35
5. Oil motors.	Chapters 16, 19, 30, 31, 33, 35
6. Test sequence of operation of electric furnaces.	Chapters 4, 13, 14, 17, 19, 28, 30, 31, 35