

**Correlation of**  
**Modern Refrigeration and Air Conditioning, by Althouse, Turnquist, Bracciano**  
**(Goodheart-Willcox Publisher ©2021)**  
**to**  
**AHRI Curriculum Guide: XV. Air Handling**

The following chart correlates the *Modern Refrigeration and Air Conditioning* textbook (©2021) to a section of the Curriculum Guide developed by Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and used for PAHRA accreditation.

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

For more information on the Partnership for Air-Conditioning, Heating, Refrigeration Accreditation (PAHRA) and related accreditation, please visit: [www.pahrahvacr.org](http://www.pahrahvacr.org)



<b>XV.A. Air Flow Principles/Duct Design</b>	
<b>Tasks</b>	<b>Textbook Chapter(s)</b>
1. Draw layout of return and supply runs.	Chapter 29
2. Calculate equivalent length of trunk and branch ducts.	Chapter 29
3. Calculate total effective length of duct runs.	Chapter 29
4. Calculate total available static pressure.	Chapter 29
5. Size trunk and branch ducts by equal friction method.	Chapter 29
6. Use duct calculator to find duct size, velocity, cfm, and friction loss.	Chapter 29
7. Calculate airflow factors for heating and cooling.	Chapters 27, 29, 30
8. Size registers, grilles, and diffusers.	Chapter 29
9. Fabricate fittings.	
10. Fabricate a “HAND” Pittsburgh.	
11. Fabricate “HAND” slips and drives.	
12. Identify and use all basic handheld sheet metal tools.	Chapters 7, 29, 30
13. Identify and use all basic handheld tools for duct board.	Chapters 7, 29, 30

**Correlation of *Modern Refrigeration and Air Conditioning* to AHRI Curriculum Guide:  
XV. Air Handling—page 2**

<b>XV.B. Mechanical and Electronic Filtration</b>	
<b>Knowledge</b>	<b>Textbook Chapter(s)</b>
1. Identify types of mechanical filters:	
a. disposable	Chapter 28
b. permanent foam, mesh, and fiber	Chapter 28
c. high efficiency	Chapter 28
d. HEPA	Chapter 28
e. electrostatic	Chapter 28
2. Describe operation of electronic air cleaners.	Chapter 28
<b>Tasks</b>	<b>Textbook Chapter(s)</b>
1. Install air cleaner system into existing ductwork.	Chapter 28
2. Remove and clear prefilter and cells:	
a. check ionizer wires	Chapters 28, 30
b. test power pack	Chapters 28, 30
<b>XV.C. Fans/Blowers</b>	
<b>Knowledge</b>	<b>Textbook Chapter(s)</b>
1. Identify different types of fans/blowers:	
a. centrifugal	Chapters 29, 38
b. axial	Chapters 29, 38
2. Determine the proper direction of rotation.	Chapters 29, 38
3. Explain the difference between tubeaxial and vaneaxial.	
4. Identify the types of centrifugal fans/blowers:	
a. forward curved	Chapters 29, 38
b. backward curved	Chapters 29, 38
c. air foil	Chapters 29, 38
d. radial tip	Chapters 29, 38
<b>Tasks</b>	<b>Textbook Chapter(s)</b>
1. Check for proper rotation.	Chapters 29, 38
2. Interpret the fans/blowers curve.	Chapters 29, 38
3. Select the fans/blowers via the curve.	Chapters 29, 38
4. Check fans/blowers performance via curves.	Chapters 29, 38
5. Check amp draws.	Chapters 13, 15, 16, 18, 29, 30, 38