

Air Conditioning & Refrigeration

Industry Training Criteria

August, 2010

Air Conditioning and Refrigeration Industry

O-Net Codes 49-9031.00A, 49-9021.02
and 49-9021.01A

1. Length of Training

Program sponsors shall establish a minimum five (5) years program of not less than 7,500 hours of on-the-job training.

2. Related Supplemental Instruction

The required prescribed courses of related and supplemental instruction shall be no less than 216 hours per year. This instruction must include at a minimum the related and supplemental training processes listed in Exhibit "A"

3. On the Job Training

Skills to be learned. See Exhibit "B"

4. Competency Testing

All apprentices must pass a competency test prior to the time of their classification advancement to the next higher period. The tests shall be based on all Related and Supplemental Instruction and manipulative skills test based on laboratory assignments.

5. Completion Percentages

Program sponsors must have a 55% graduation rate of all apprentices that satisfactorily complete the program's probationary period.

6. Revisions

The schedule for revisions to the Air Conditioning and Refrigeration Industry training Criteria shall be in accordance with the Labor Code Section 212.01.

EXHIBIT “A”

Related and Supplemental Instruction Topics
For Air Conditioning & Refrigeration Industry Criteria
O-Net Codes 49-9031.00A, 49-9021.02
And 49-9021.01A

RELATED AND SUPPLEMENTAL INSTRUCTION

1. Safety, First Aid, CPR and Green Technologies
2. Thermodynamic theory, principles and practices
3. Brazing, Soldering, Welding, Installation practices, rigging and piping
4. Basic Electricity/Electronics, Motors, Electrical Controls, Direct Digital Controls, Pneumatic Controls and all other industry control systems
5. Customer Relations, Energy Auditing and LEED Awareness
6. Compressors, Chillers, Air Flow, Hydronics, Direct Expansion, Heat Loads and Heating Systems
7. System Start Up, Energy Management, Systems Troubleshooting and Maintenance
8. Green Chill Awareness for Supermarket Refrigeration
9. Awareness of new and emerging technologies, and introduction of “Green” aspects in all classes.

EXHIBIT "B"

Work Processes for
Air Conditioning & Refrigeration Industry
O-Net Codes 49-9031.00A, 49-9021.02
And 49-9021.01A

<u>WORK PROCESS</u>	<u>APPROXIMATE HOURS</u>
1. Shop work, Preventative Maintenance, Parts & Delivery	1500
2. Trouble calls & Overhauls	3400
3. Piping, Rigging, Welding, Soldering & Brazing	800
4. Controls, Start-up & Testing	<u>1800</u>
Total number of required hours for graduation	7500

CALIFORNIA APPRENTICESHIP COUNCIL
PIPE TRADES INDUSTRY

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