

Master Unlimited Air Conditioning

Catalog Number: C31013
Exam Number: 914857
Effective Date: 03/05/09

License Information

Scope – Tests a candidate's knowledge of the design, installation, maintenance, repair, fabrication, alteration, and extension of air conditioning, refrigeration, piping vessels, warm air heating, low and high pressure boilers, ventilation systems, duct systems, insulation, and related appurtenances within a complete system unlimited in horsepower or tonnage.

Examination Outline

Open Book

100 Questions – Four-hour time limit

75 % Correct required to pass

Exam Topic	%
HARV General	25
Low and High Pressure Boilers	10
Warm Air Heating	10
Ventilation	15
Controls	15
Piping	10
Load Calculations	5
Insulation	5
Safety	5

References

The following references **are allowed** in the testing center.

1. *Code of Federal Regulations, Title 29, Part 1926 (OSHA)*, Revised July 1, 2008, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954, www.access.gpo.gov.
2. *NFPA 31 – Standard for the Installation of Oil Burning Equipment*, 2006 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.
3. *NFPA 58 – Standard for the Storage and Handling of Liquefied Petroleum Gases (LP Gas Code)*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA, 02269-9101, www.nfpa.org.
4. *Uniform Mechanical Code*, 2006, International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia Street, Ontario, CA 91761-2816, www.iapmo.org.

5. *Manual J – Residential Load Calculation*, Eighth Edition, 2002, Air Conditioning Contractors of America, 2800 Shirlington Road, Suite 300, Arlington, VA 22206, www.acca.org.
6. *Manual N – Commercial Load Calculation*, Fifth Edition, 2008, Air Conditioning Contractors of America, 2800 Shirlington Road, Suite 300, Arlington, VA 22206, www.acca.org.
7. *ACCA Duct Slide Rule*, Air Conditioning Contractors of America, 2800 Shirlington Road, Suite 300, Arlington, VA 22206, www.acca.org.
8. *Pipefitters Handbook*, Third Edition, 1967, Industrial Press, Inc., 989 Avenue of the Americas, New York, NY 10018, www.industrialpress.com.

The following references were used to create exam questions but **are not allowed** in the testing center.

1. *High Pressure Boilers*, Third Edition, 2003, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430-4600, www.go2atp.com.
2. *Low Pressure Boilers*, Third Edition, 2008, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430-4600, www.go2atp.com.
3. *Modern Refrigeration and Air Conditioning*, Eighteenth Edition, 2004, Goodheart-Willcox Company, Inc., 18604 West Creek Drive, Tinley Park, IL 60477-6243, www.g-w.com.

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