

C-21B AIR CONDITIONING CONTRACTOR

SCOPE OF WORK

The installation, repair, service and maintenance of equipment, devices, machinery, units and related ductwork which use evaporation, refrigeration, boilers or combustion for the control of air temperatures in structures where people live, work or assemble or animals are kept.

# of Questions	Minimum Passing Score	Time Allowed
60	42	2 Hours

CONTENT OUTLINE

Subject Area	# of Items
Piping	4
Insulation	1
Hangers and Supports	3
Sound, Vibration and Seismic Control	1
Heating and Cooling Principles	3
Refrigerants and Refrigeration	4
Load Calculations	6
Testing, Adjusting and Balancing	1
Controls	3
A/C and Heat Pump Equipment	4
Furnaces and Heaters	4
Chimneys, Flues and Vents	3
Combustion Air	2
Fuel Systems	8
Ducts	6
Evaporative Cooling	3
Safety	4

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge, or general industry practices. **Except for Code books**, you can use later editions of references as they become available. For Code questions, the examination will be based **only** on the edition of the Code book that is listed.

Candidates may use a silent, nonprinting, non-programmable calculator in the examination center.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

1. *Uniform Mechanical Code*, 1997, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St,

Ontario, CA 91761 USA, 800.85.IAPMO, ISBN: 884590-77-2 www.iapmo.org

Reference material may be highlighted, underlined, and/or indexed. They must be otherwise unmarked (not written in) and may not contain additional papers (loose or attached). THESE REFERENCES WILL NOT BE AVAILABLE IN THE EXAMINATION CENTER.

The following reference materials are not allowed in the examination center:

1. *Modern Refrigeration and Air Conditioning*, Althouse, Turnquist, Bracciano, 2000, Goodheart-Willcox, ISBN: 1566377242
2. *Code of Federal Regulations* - 29 CFR Part 1926 Revised as of 2002 or later (OSHA), Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954, OR *Code of Federal Regulations* - 29 CFR Part 1926 Selections as of 2003 by PSI, (800) 733-9267, (See order form at the end of the Candidate Information Bulletin.)
3. *NFPA 54 National Fuel Gas Code*, 1999, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (617) 770-3000, www.nfpa.org
4. *HVAC Duct Construction Standards-Metal and Flexible*, (SMACNA), 4201 Lafayette Center Dr, Chantilly, VA 20151, ISBN: 999424695X
5. *Manual N*, 4th Edition, 1988, ACCA, 2800 Shirlington Rd, Ste 300, Arlington, VA 22206, (703) 575-4477, www.acca.org
6. *Evaporative Air Conditioning Handbook*, 3rd Edition, 1997, John R. Watt, Will K. Brown, Prentice Hall PTR, Fairmont Press, 700 Indian Trail, Liburn, GA 30247, ISBN: 0-88173-193-5 FP

