

ARIZONA REGISTRAR OF CONTRACTORS
C-49 INDUSTRIAL REFRIGERATION (COMMERCIAL)

SCOPE OF WORK

Installation, alteration, and repair of refrigeration equipment and systems used for processing, storage, and display of food products and other perishable commodities.

Includes commercial, industrial and manufacturing processes requiring refrigeration, excluding comfort air conditioning.

Systems may also include the following areas of work and related equipment: temperature, safety and capacity controls, thermal insulation, vibration insulation materials and devices; water treatment devices; construction and installation of walk-in refrigeration boxes, liquid fuel piping and tanks, water and gas piping from equipment to service connection; and testing and balancing of refrigeration equipment and systems.

If necessary, a new circuit may be added to the existing service panel or sub-panel. Excluded is the installation of a new service panel or sub-panel.

Examination	# of Questions	Minimum Passing Score	Time Allowed
C-49	80	70%	210 Minutes

CONTENT OUTLINE

Subject Area	# of Items
Commercial and Industrial Refrigeration	30
Controls and Motors	8
Installation, Start-up and Operation	8
Testing and Trouble Shooting	8
General Knowledge and Theory	8
Sizing and Estimating	4
Box Construction and Cases	2
Piping and Tubing including Valves	12

REFERENCE LIST

To find reference materials, you may use the link provided or search for the material online via a search engine such as Google. You may also go to PSI's online store at www.pSIONlinestore.com.

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 base your answers on later editions of references as they become available. For Code questions, the examinations 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.

The following reference material is allowed in the examination center:

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or <https://www.osha.gov/laws-regs/regulations/standardnumber/1926>

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, 3210 E Tropicana, Las Vegas, NV 89121, (800) 733-9267, www.pSIONlinestore.com

International Fuel Gas Code, 2009, International Code Council, (800) 786-4452, www.iccsafe.org **Starting 1/1/2019 the 2018 code will be used**

International Mechanical Code, 2009, International Code Council, (800) 786-4452, www.iccsafe.org **Starting 1/1/2019 the 2018 code will be used**

The following reference material is not allowed in the examination center:

Modern Refrigeration and Air Conditioning, Althouse, Turnquist, Bracciano, 19th or 20th edition, Goodheart-Willcox, www.g-w.com

Industrial Refrigeration Handbook, W.F. Stoecker, 1998.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, annotated and/or indexed prior to the examination session. However, references may not be written in during the examination session. Any candidate caught writing, highlighting, underlining and/or indexing in the references during the examination will be reported to the Arizona Registrar of Contractors. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. References may be tabbed/indexed with permanent tabs only. (permanent tabs are defined as tabs that would tear the page if removed). Temporary tabs, (defined as Post-It notes, or other tabs that may be removed without tearing the page) are not allowed and must be removed from the reference before the exam will begin. If you are downloading from the Internet, you may bring this reference into the testing center with you as long as it is bound. You can have it spiral bound or you may hole-punch it and put it in a binder.