Refrigeration Design Bibliography and References


The stated purpose of Standard 15 is to specify the safe design, construction, installation, and operation of refrigeration systems. Standard 15 articulates the required “safeguards for life, limb, health, and property and prescribes safety requirements” by means of the (a.) “design, construction, test, installation, operation, and inspection of mechanical and absorption refrigeration systems including heat pump systems used in stationary applications,” (b) “modifications including replacement of parts or components if they are not identical in function and capacity,” and, (c.) “substitutions of refrigerant having a different number designation.”

ANSI/ASHRAE Standard 34-2010 -- Designation and Classification of Refrigerants 2010


The theory associated with refrigeration cycles, fluid flow, heat transfer, mass transfer, and psychrometrics are presented along with useful tables of data. Refrigerants are reviewed and their thermophysical properties are given. Secondary coolants and their thermophysical properties are provided.


Reference material for the design and operation of refrigeration systems consisting of: refrigeration system practices, food storage and equipment, food refrigeration, and distribution of chilled and frozen food. The heat gains that contribute to the refrigeration load for a facility are presented. Industrial refrigeration applications in addition to food and low-temperature applications are also presented.


This ASHRAE guide, while focusing on human comfort applications, also presents useful information on building operations and management along with selected building applications such as fire and smoke management.


The general components section of this ASHRAE guide includes: compressors, condensers, cooling towers, liquid coolers, liquid-chilling systems, centrifugal pumps, motors, motor
controls, variable speed drives, pipes, tubes, fittings, valves, heat exchangers, and air-to-air energy recovery, and air-handling equipment.


This important code rules for designing, constructing, and inspecting boilers and pressure vessels ensuring safe operation and mechanical integrity.


Suggested approaches, methods, and procedures to improve the energy efficiency of industrial refrigeration systems. Specific topics addressed are: electrical energy efficiency, system considerations, life-cycle costing, no energy benefits such as labor costs, and energy management.


This text begins with simulations of food product cooling and freezing, thawing, dynamic behavior of industrial refrigeration systems, and simulation of refrigeration components and complete systems.


This is a self-study text available from ASHRAE presenting the subject of refrigeration, including industrial refrigeration, to newcomers. The reader of this text is assumed to have some technical background, but not necessarily in refrigeration. Homework problems are available at the end of each chapter the solutions of which may be requested from ASHRAE after students submit their own solutions.


A guide written to assist designers of refrigeration systems for compliance to ANSI/ASHRAE Standard 15. While some updates to Standard 15 have been incorporated since the 2001 edition, much of the information is current with the present Standard 15.

Guide to Effective Warehouse Design, Maintenance, and Modernization


A general practice reference giving storage requirements for fresh fruits, vegetables, cut flowers, and other horticultural crops. Product quality, relative humidity, respiration rates, and some refrigeration information are discussed.


An important resource for the handling and storage requirements for perishable food products and other items.


A review of the applications, production, thermophysical properties, toxicity, and regulations that is pertinent to ammonia as a refrigerant.


This guide focuses on ammonia industrial refrigeration systems beginning with information for sizing of pipes and then proceeds to pipe installation, evaporator piping, condenser piping, machinery room piping, pressure and relief valve sizing, welding procedures, and insulation of refrigeration systems. Also covered are applicable codes and standards.


A design guide only considering the use of CO2 for industrial refrigeration applications where the thermophysical properties of CO2, system design configurations and details, system safety, pipe sizing, heat exchangers, compressors, lubricants, evaporators, and defrost methods are presented.


The planning, design, insulation, operation, and safety of refrigerated warehouses are presented in this text originating from Western Europe.


A review of the postharvest technologies appropriate for fresh fruits, vegetables, and ornamentals. Postharvest handling systems are also covered.


Introduction to industrial refrigeration as it is applied in Western Europe including: thermodynamics, refrigeration system components, load calculations, and plant maintenance among several other items.


This book covers all aspects of industrial refrigeration beginning with the basic vapor-compression cycle. It discusses all the major components of a refrigeration system, refrigerants, safety, codes, energy conservation, refrigeration loads, lubrication, and controls among other topics. This book is the best comprehensive treatment on industrial refrigeration.


Refrigeration Maintenance Recommended References


ASHRAE Standards:


IIAR Bulletins:

Bulletin 107 - Guidelines for: Suggested Safety and Operating Procedures when Making Refrigeration Plant Tie-Ins


Bulletin 110 - Guidelines for: Start-Up, Inspection and Maintenance of Ammonia Mechanical Refrigerating Systems

Bulletin 111 - Guidelines for: Ammonia Machinery Room Ventilation

Bulletin 112 - Guidelines for: Ammonia Machinery Room Design

Bulletin 114 - Guidelines for: Identification of Ammonia Refrigeration Piping and System Components

ANSI/IIAR Standards - American National Standard for Equipment, Design & Installation of Ammonia Mechanical Refrigerating Systems:

ANSI/IIAR 1-2012

ANSI/IIAR Standard 2-2008 (Addendum A)

ANSI/IIAR 3-2005


Refrigerating Engineers & Technicians Association (RETA) Training Materials:


