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PREFACE TO THE 38th EDITION

The HEATING VENTILATING AIR CONDITIONING GUIDE, 1960 contains a Technical Data Section of 792 pages and therefore, is the largest in a series which has now reached 38 editions. The increase in new technical text is considerably greater than the 24 pages added because space for new text was obtained in many places throughout the book by condensation and revision of previous text.

The previous grouping of chapters in twelve sections has been retained as follows: I—Fundamentals, II—Environment, Comfort, and Physiological Principles, III—Heating and Cooling Loads, IV—Room Heating and Cooling Methods and Equipment, V—Air Systems and Equipment, VI—Steam and Water Systems and Equipment, VII—Heat Generating Methods and Equipment, VIII—Refrigeration, Spray Apparatus, and Sorbents, IX—Controls, Instruments, and Motors, X—Specific Applications, XI—Industrial Systems, and XII—General.

Some of the outstanding improvements to be found in this edition include (1) a rewritten chapter on thermodynamics to facilitate explanation and solution of problems dealing with control of environment in occupied spaces, (2) extensive revision of text and improvement of illustrations in the chapter on sound control, (3) new data on restaurant hot water requirements and method of sizing storage tanks, coils, and heaters, (4) a new section dealing with fundamentals, detection, and elimination of odors, (5) extension of winter design temperatures to 9 Alaskan cities, (6) new data on equivalent duct lengths for sheet metal fittings, (7) additional information on heat gain of insulated cold pipe and on loss from tarnished copper tube, (8) a new chart and table for selection of chimney sizes for automatically fired boilers, (9) revised data on treatment of water for prevention of corrosion and scale, (10) maximum allowable concentration of air contaminants adjusted to values adopted by the ACGIH in 1959, (11) many new illustrations of automatic control arrangements for air-conditioning systems, (12) a rewritten chapter on residential air conditioning, (13) rating data for steel boilers, packaged units, and furnaces revised to meet recent changes in rating methods, (14) new data on operating controls for oil burners, and (15) a new table of flow capacities of gas piping.

The significant changes in the various chapters are as follows:

Chapter 3—Thermodynamics. The text was rewritten to improve the presentation for students of air conditioning and to facilitate solution of problems dealing with control of environmental conditions by means of circulated treated air. Many new illustrations and new problems were added. The Goff and Gratch tables on thermodynamic properties of moist air and those on water were retained with the same completeness as in the previous edition.

Chapter 7—Air Contaminants. The tables of maximum allowable contaminants were brought up to date with the 1959 recommendations of the American Conference of Governmental Industrial Hygienists. A new enlarged section on odors and odor control was added.

Chapter 9—Heat Transmission Coefficients of Building Materials. A new method was presented for calculating overall

U-Values for building constructions which include high-conductivity members.

Chapter 12—Heating Load. Temperature design data were added for 9 cities in Alaska as prepared from U. S. Weather Bureau records.

Chapter 14—Radiators, Convectors, Baseboard and Finned-Tube Units. Rating method information was brought into conformity with latest standards used by manufacturers.

Chapter 17—Electric Heating. Several sections referring to use of electric heaters were revised.

Chapter 18—Warm Air Heating Systems. The entire chapter was reviewed to permit changes in application resulting from NWAH&ACA experience. New diagrams were added to show duct length equivalent of fittings and intakes. Precautions for starting up perimeter systems were added.

Chapter 19—Central Systems for Air Conditioning. The section on Zoning and Zone Control was rewritten. Diagrams and text for high-pressure systems as well as for the dual-duct systems were improved.

Chapter 25—Sound Control. As a result of a critical review by the Society's Research Advisory Committee on Sound Control this chapter was revised extensively and eight illustrations were improved.

Chapter 28—Steam Heating Systems. Eight illustrations were improved as a result of review by the Research Advisory Committee on Hot Water and Steam Heating and others. Precautions were added with regard to piping for blast heaters.

Chapter 31—Pipe, Fittings, Welding. Some extensions were made in the table on applications of pipe, tube, and fittings.

Chapter 32—Industrial Insulation. Revised tables were provided to show heat gain of insulated cold pipe and also heat loss of tarnished copper tube.

Chapter 33—Fuels and Combustion. A new table was added to show characteristics of natural gas distributed in various large cities. The text dealing with gaseous fuels was brought up to date.

Chapter 34—Automatic Fuel-Burning Equipment. A new section on operating controls for commercial and industrial as well as domestic oil burners was provided. Flow capacities of gas piping are shown in a new table. Extensive revisions were made in the text.

Chapter 35—Heating Boilers, Furnaces, Space Heaters. Most recent methods of rating boilers and packaged units by SBI, IBE, and ABAI standards were inserted together with tabulated ratings. Suggestions were improved for cleaning, and maintenance of boilers and systems. The portion of the chapter dealing with warm air furnaces was rewritten with new discussion of ratings, heat exchangers, equipment, components, and controls.

Chapter 36—Chimneys and Draft Calculations. A new chart and table were added for selection of chimney size for automatically fired, intermittently operated heating and process boilers. A section on gas appliance venting was added to bring information in agreement with latest practice of GAMA and NFPA.

Chapter 38—Refrigeration. A section was added on control of absorption refrigeration systems.

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