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 PREFACE TO THE 29th EDITION

THE largest Technical Data Section to date will be found in the Heating Ventilating and Air Conditioning Guide 1951. Twenty-four pages were added to the Technical Data Section, but an even greater quantity of new material was added in space saved by concentration and condensation of previous technical text.

The arrangement of chapters remains the same as in the preceding edition. Chapters are grouped in sections under the headings, I Fundamentals, II Human Reactions, III Heating and Cooling Loads, IV Combustion and Consumption of Fuels, V Systems and Equipment, VI Special Systems and VII Instruments and Codes.

While the entire book has been examined to bring the Technical Data in agreement with current practice, the reader will be especially interested in the changes made in the following chapters:

Chapter 2—Abbreviations and Symbols. The latest graphical symbols adopted to date by the ASA are shown for use on drawings for heating, ventilating and air conditioning systems.

Chapter 3—Thermodynamics. The authoritative data of Goff and Gratch on properties of moist air from -160 to $+200$ F, and water from -160 to $+212$ F, are included in tables and have been used as the data from which a new ASHVE Psychrometric Chart has been prepared. A large print of the new Chart, in two colors to facilitate its use, is included on the inside of back cover. Numerous illustrations and problems are given to show how the Psychrometric Chart is used in solving air conditioning problems. The chapter has been rewritten to simplify the presentation of the thermodynamics of air.

Chapter 4—Fluid Flow. In revision of this chapter, special attention has been given to establishing flow formulas and analyses on a sound basis, with respect to both thermodynamic and dynamic principles. A fundamental approach to the solution of flow problems is indicated, and the relations of familiar formulas to the background principles upon which they have been established, are shown.

Chapter 5—Heat Transfer. In this greatly enlarged chapter a section has been added to provide concise summaries of available methods of analysis for transient and periodic heat transfer problems. A new table shows convenient formulas for determining approximate unit conductances for convection for several flow systems. Another new table and charts show solutions for net radiation transfer problems. Many new examples are used to illustrate the solution of general heat transfer problems.

Chapter 7—Air Conditioning in the Prevention and Treatment of Disease. New material has been added in discussions of: health and safety in bomb shelters and enclosures, atmospheric pollution, and air disinfection of occupied spaces.

Chapter 9—Heat Transmission Coefficients of Building Materials. A section on conductivity of soils, including a chart for determining their conductivities, has been added. Revised heat loss coefficients for doors, windows and glass block are shown in new tables based on data obtained from ASHVE research. The section on moisture transfer has been revised.

Chapter 11—Heating Load. Heat loss computations have been coordinated with the changes made in Chapter 9. A method of estimating heat loss from floors on ground, has been added. New factors for heat loss from basement floors and walls are given.

Chapter 12—Cooling Load. In this enlarged chapter new data on solar heat gain are given, and many new tables have been added to simplify computation of the heat gain. New tables include the latest data on heat transfer through glass and glass block walls as obtained from ASHVE research. Illustrative examples are used to explain the use of tabulated data.

Chapter 14—Automatic Fuel Burning Equipment. The section on gas fired heating equipment has been revised as necessary to keep the presentation up to date and in accordance with accepted nomenclature and specifications of the gas industry.

Chapter 16—Chimneys and Draft Calculations. The sections pertaining to low height chimneys have been revised and clarified.

Chapter 19—Forced Warm Air Systems. Descriptions and suggestions for design of warm air ceiling panel systems and warm air perimeter systems, have been added in the general improvement of this chapter in order to keep the information presented in accord with the latest work and recommendations of the NWAH & ACA.

Chapter 21—Hot Water Heating Systems. In revision of this chapter a new chart was added showing friction loss in copper tubing.

Chapter 23—Panel Heating. This chapter has been rewritten to simplify practical design of panel systems. New illustrations show construction used for imbedded pipes and ducts. Panel design has been simplified by use of new charts for determining panel output, panel input, and unheated mean radiant temperature. The method of design is illustrated by examples.