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PREFACE TO THE 28th EDITION

IN the 28th Edition of the Heating Ventilating Air Conditioning Guide for 1950, 44 pages of new text have been added to the Technical Data Section. Twelve pages were made available by condensation, revision and rearrangement leaving a net increase of 32 pages over the previous edition.

A rearrangement of chapters has been made for the purpose of facilitating reference to closely related information. In the new arrangement, 50 chapters have been grouped under the following section headings: I Fundamentals; II Human Reactions; III Heating and Cooling Loads; IV Combustion and Consumption of Fuels; V Systems and Equipment; VI Special Systems; VII Instruments and Codes.

While all chapters have been examined and revisions made to keep them up to date, certain chapters have been subjected to major revision, as noted in the following paragraphs:

Chapter 6—Physiological Principles. Following an examination of data developed in recent ASHVE research and cooperative research, the ASHVE Comfort Chart, has been revised. The text has also been changed to include reference to the information which resulted in the change of the Comfort Chart.

Chapter 7—Air Conditioning in the Prevention and Treatment of Disease. Information in the chapter has been extended by inclusion of data on effect of high temperature and humidity on individuals in hospitals, and discussion of air sanitation by means of sterilization.

Chapter 8—Air Contaminants. The accepted maximum allowable concentrations of gases, vapors, dusts, fumes and mists have been brought up to date with current practice by including the latest recommendations of the *American Standards Association* and the *American Conference of Governmental Industrial Hygienists*. Limits of flammability have also been revised. An increased number of air contaminants and the maximum allowable concentration of each are listed in the various tables.

Chapter 10—Infiltration and Ventilation. This chapter is a combination of previous chapters on Air Leakage and Natural Ventilation, plus the addition of a section on ventilation of animal shelters, showing requirements for dairy stables, sheep and swine barns, and poultry laying houses. Instructions for determining proper ventilating facilities are given.

Chapter 11—Heating Load. In addition to general changes clarifying the chapter, a section has been added on floor heat losses in basementless houses. A formula is included for computing heat loss from the perimeter of various types of typical floors in basementless houses.

Chapter 13—Fuels and Combustion. Anthracite sizing specifications have been brought up to date. The section on gas fuels has been enlarged to include typical gas analyses, and now includes a greater number of present-day gases. New fuel oil specifications, grades and calorific values are given. The number of formulas for combustion computations has been increased, and charts have been added for determining flue gas loss for manufactured and natural gas.

Chapter 15—Heating Boilers, Furnaces, Space Heaters. Rating formulas for forced warm air furnaces have been added. The section on rating and design of solid fuel space heaters has been enlarged, and this section has been brought up to date with recent developments in regard to rating and performance.

Chapter 16—Chimneys and Draft Calculations. This chapter has been largely rewritten. The information on domestic chimney performance and selection has been extended. Test data for small chimneys have been added, and new charts are provided for selection of required sizes of small chimneys. The section on chimney types and construction has been enlarged.

Chapter 19—Mechanical Warm Air Systems. Tables of bonnet and register temperature and register delivery have been revised to include latest changes made by the *NWAA&ACA*.

Chapter 21—Hot Water Heating Systems and Piping. This chapter has been brought up to date by revision of text and diagrams relating to expansion tank and relief valve connections to comply with latest ASME Boiler Code requirements. A new table showing ASME requirements for sizing of closed expansion tanks has been added.

Chapter 22—Radiators and Connectors. This chapter was revised to include only information on radiators and convectors. The section on coils has been transferred to a separate chapter on Air Heating and Cooling Coils. Tables on generally accepted ratings of column type, large tube and wall type cast-iron radiators have been added. Ratings are also given for cast-iron radiant baseboards. Convector descriptions and rating information have been coordinated with definitions and rating practice current in the industry.

Chapter 31—Air Duct Design. Two air friction charts replace the previous single chart, and cover the ranges 10-2000 cfm, and 1000-100,000 cfm. By use of two charts, greater accuracy may be obtained in determination of friction loss or selection of duct sizes. Separate large scale friction charts are included. The section on static regain method of duct