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PREFACE TO THE 35th EDITION

The 35th Edition of the HEATING VENTILATING AIR CONDITIONING GUIDE, 1957, has a Technical Data Section exceeding by 72 pages the largest previous edition. The large increase is due chiefly to the completion of several GUIDE projects on which ASHAE Technical Advisory Committees and many individuals have been engaged for a number of years.

The outstanding improvements include (1) complete revision and enlargement of U-value tables for building construction, (2) a rewritten chapter on sound control, (3) a new chapter on control of the industrial environment, (4) a new presentation of the design of hot water heating systems, (5) a step by step procedure for designing ceiling and floor heating panels, (6) addition of simplified design data for forced warm air systems, (7) greater detail in description, illustrations, and design of various types of steam heating systems, (8) new tables, charts, and application instructions for pipe and industrial insulation, (9) extended text and diagrams for district heating, (10) extension of refrigerant data and information on absorption systems, (11) enlarged discussion of corrosion causes and prevention, and (12) new information on residential summer air conditioning. There are 115 new illustrations and many new tables to aid the student and designer.

A more detailed explanation of the above changes and others is as follows:

Chapter 8—Air Contaminants. Maximum allowable concentrations for toxic gases, mists, and dusts were corrected to values adopted by the *American Conference of Governmental Industrial Hygienists* in 1956. Many new values were added.

Chapter 9—Heat Transmission Coefficients of Building Materials. An entirely new set of U-value tables prepared by the ASHAE Technical Advisory Committee on Insulation contains several times the previous number of constructions for which U-values can be picked directly. Each of these tables also contains an illustration with accompanying calculation of one U-value in the table and an explanation of the conversion of the U-value to correspond with changes in construction.

Chapter 19—Warm Air Heating Systems. The former chapters on gravity and forced circulation systems have been combined in one chapter with emphasis on forced systems. Simplified methods of design are presented for perimeter systems of the loop, radial, and extended plenum types. The design, selection, and performance of outlets, inlets, and the duct systems are discussed in detail to show the latest practice of the *National Warm Air Heating and Air Conditioning Association*.

Chapter 20—Steam Heating Systems. Twenty-five new illustrations are used to show current practice in piping and unit connections. Special emphasis is given to proper piping for the Hartford return connection. New diagrams show vacuum pump connections and construction of lift fittings. The revision of this chapter is the result of suggestions made by members of the ASHAE Technical Advisory Committee on Hot Water and Steam Heating and of the work of several other engineers.

Chapter 21—Hot Water Heating Systems. This chapter was rewritten by members of the ASHAE Technical Advisory Committee on Hot Water and Steam Heating, and other Society members. In a greatly enlarged chapter, detailed instructions are given for design of forced circulation systems using two-pipe reversed return, one-pipe, and series-loop piping arrangements. Extensive treatment is given to expansion tank selection and to the effect of tank location, point of tank connection, and pump location on tank pressure. Methods of temperature control are considered.

Chapter 23—Panel Heating. The panel heating section has been enlarged and rewritten to show step by step procedures for designing floor and ceiling panels. New data and design charts have been added to facilitate design.

Chapter 27—Pipe and Industrial Insulation. This chapter was enlarged by the ASHAE Technical Advisory Committee on Insulation which introduced new tables and charts showing heat loss from bare and insulated pipe. New charts for 85 per cent magnesia covering can be used with a table of pipe covering factors to determine heat transfer of other types of insulation. The examples for calculating required thickness of insulation have been amplified. The chart for determining the economical thickness of insulation has been revised. Information on application of insulation has been extended.

Chapter 28—District Heating. This chapter has been largely rewritten to show current recommendations and practice of the *National District Heating Association*. New illustrations have been made to show types of conduits, piping arrangements and connections.

Chapter 32—Fans. The table showing good operating velocities and tip speeds has been extended to include data for present higher static pressure systems.

Chapter 36—Refrigeration. Illustrations of a centrifugal condensing unit and a lithium bromide water absorption system together with a performance chart for the