Chapter 31—Air Duct Design. The revised chapter contains new data on friction loss in rectangular and round elbows, and on effect of vanes and splitters in elbows. Latest ASHVE research has been used in preparing the revised data.

Chapter 32—Fans. Nomenclature and designations for fan drives, direction of rotation and discharge and motor position have been revised to agree with latest practice of the fan industry.

Chapter 36—Refrigeration. The heat pump section has been revised and includes a new table showing factors affecting the use of various heat sources and sinks.

Chapter 38—Automatic Control. The section on Panel Heating Controls has been enlarged to show a description and diagrams for two types of panel heating control.

Chapter 39—Motors and Motor Control. A new section of this chapter deals with characteristics, starting, control and operation of hermetically sealed motors. Sections and charts pertaining to operation of other motors have been revised to meet current practice in the motor industry.

Chapter 43—Owning and Operating Costs. This chapter has been rewritten to bring the methods of determining cost up to date, and to emphasize considerations affecting these costs.

Chapter 48—Water Services. The design procedure for water supply piping has been rewritten. New values for per capita consumption of water are given. The method for sizing cooling water and refrigeration piping has been enlarged by the addition of new data. Average practice for sizing piping and selecting materials for cooling tower piping, is shown in a table of pipe sizes. The procedure developed by *AGA* for determining quantity and temperature of water required for restaurants is outlined.

Chapter 49—Instruments and Measurements. A description of thermal anemometers has been added.

Chapter 50—Codes and Standards. In the revision of this chapter, many new standards relating to heating, ventilating and air conditioning have been added to the former list. Latest editions of all Codes listed together with names and addresses of organizations which can supply the various standards, are indicated.

A detailed cross index to the Technical Data Section is provided.

As in previous editions, a Catalog Data Section, with an elaborate cross index, provides ready reference to products of 263 well-known manufacturers of heating, ventilating and air conditioning equipment and accessories.

The collection of data on current practice and on most recent developments in the heating, ventilating and air conditioning field, is made possible by the generous help of many ASHVE members and other engineers and scientists who give freely of their time and experience to assemble the information which appears in the Guide. Those who have been especially helpful to the Guide Committee in preparing this edition are listed below, and to them the Society extends its sincere appreciation.

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The 1951 edition of THE GUIDE is presented with confidence that its wide use by practicing engineers, students, teachers, and manufacturers will continue to promote the advancement of the arts and sciences of heating, ventilating, cooling and air conditioning.

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CONTENTS

		Page
Title Page		iii
Preface		v
Index to Technical Data		ix
SECTION I. FUNDAMENTALS		
Chapter 1.	Terminology	1
2.	Abbreviations and Symbols	11
3.	Thermodynamics	23
4.	Fluid Flow	73
5.	Heat Transfer	95
SECTION II. HUMAN REACTIONS		
Chapter 6.	Physiological Principles	117
7.	Air Conditioning in the Prevention and Treatment of Disease	137
8.	Air Contaminants	157
SECTION III. HEATING AND COOLING LOADS		
Chapter 9.	Heat Transmission Coefficients of Building Materials	173
10.	Infiltration and Ventilation	213
11.	Heating Load	233
12.	Cooling Load	257
SECTION IV. COMBUSTION AND CONSUMPTION OF FUELS		
Chapter 13.	Fuels and Combustion	317
14.	Automatic Fuel Burning Equipment	343
15.	Heating Boilers, Furnaces, Space Heaters	367
16.	Chimneys and Draft Calculations	393
17.	Estimating Fuel Consumption for Space Heating	413
SECTION V. SYSTEMS AND EQUIPMENT		
Chapter 18.	Gravity Warm Air Systems	429
19.	Forced Warm Air Systems	439
20.	Steam Heating Systems	459
21.	Hot Water Heating Systems	501
22.	Radiators and Convectors	519
23.	Panel Heating	531
24.	Unit Heaters and Unit Ventilators	545
25.	Unit Air Conditioners and Unit Air Coolers	559
26.	Pipe, Fittings, Welding	571
27.	Pipe Insulation	589
28.	District Heating	605
29.	Central Systems for Air Conditioning	615
30.	Air Distribution	631
31.	Air Duct Design	655
32.	Fans	691
33.	Air Cleaning	709
34.	Spray Apparatus	725
35.	Air Heating and Cooling Coils	751
36.	Refrigeration	775
37.	Dehumidification by Sorbent Materials	813
38.	Automatic Control	823
39.	Motors and Motor Controls	839
40.	Sound Control	865
41.	Electric Heating	887
42.	Corrosion and Water Formed Deposits, Causes and Prevention	895
43.	Owning and Operating Costs	917