

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS GUIDE, 1935

	Page		Page
Convectors (continued),		Domestic supply,	
heating capacity,	498	hot water,	468, 617, 671
performance characteristics,	497	water,	599
conversion equations,	699	Doors,	
Coolers,		air leakage through,	122
surface,	182	coefficients of transmission of,	113
types of,	177	natural ventilation through,	80
unit,	234, 695	Down-feed piping systems,	506, 508, 510, 513
Cooling,	14, 19	Downward system of air distribution,	321
with central fan heating systems,	379	Draft,	
effective temperatures for,	50	available,	425, 432
equipment, design of,	188	back, diverter,	439
evaporative,	72, 155, 165, 184	calculations,	423
of fluids,	189	capacity,	425
of human body,	35	gage,	676
load,	145, 214	head,	688
with mechanical warm air systems,	155, 165, 202	intensity required,	434, 447
methods,	190	losses,	432
ponds,	50	in chimneys,	436
relative humidities for,	174, 179, 187, 190	through fuel bed,	433
towers,	188	mechanical,	425
water,	580	natural,	423
Copper pipe,		theoretical,	425
Corrosion,		towers,	192
of boilers,	419	Drain connections,	416
of industrial exhaust systems,	356	Draw-through heating units,	361
inhibitors,	597	Drawings, symbols for,	701
of pipe,	595	Dripping of steam pipes,	555
tester,	596	Dry-bulb temperature, (see Temperature, Dry-bulb)	
Costs,		Dry return,	688
comparative, of fuels,	488	Drying,	67 (see also Regain)
of district heating service,	652	of lumber,	71
of electrical heating,	673	Duct, ducts,	
of unit conditioners,	215	air,	325
Crack, window,	122	design of,	325, 330
Cyclone dust collector,	354	equal friction method,	331, 333
		velocity method,	331
D		for air distribution,	317
Dalton, law of partial pressures,	1	air velocities in,	353
Damper, dampers,		circular equivalents,	333
apparatus which operates,	242, 244, 246	construction details,	342
control,	80	design of duct systems,	330, 340, 380, 393
in duct systems,	381	humidity measurement in,	681
types of,	381	noise transmission through,	311
with unit ventilators,	228	pressure loss in,	326
Decibel,	299, 687	for recirculated air,	393
Definitions,	685	sheet metal for,	352
Degree-day,	687	sizes of,	329, 333, 347
industrial,	485	temperature loss in,	365, 391
method of estimating fuel consumption,	483	temperature measurement in,	677
records for cities,	484	velocity measurement in,	678
Dehumidification,	14, 183	Dust, /	49, 259, 688
effective temperatures for,	50	catching devices,	265
methods of,	155, 166, 202	collectors,	354
relative humidities for,	50	concentration in air,	271, 681
Dehumidifier, dehumidifiers,	166, 688	counter,	681
alumina,	169	disposal of,	267
in central air conditioning systems,	156	industrial exhaust systems,	345
in industrial air conditioning,	72	measurement of,	681
silica gel,	163	Dynamic equilibrium, Carrier's equation for,	2
types of,	74		
Density,	2, 688	E	
of air,	6	EDR, equivalent direct radiation,	694
of saturated vapor,	10	Effective temperature, (see Temperature, Effective)	
specific,	3	Elbow, elbows,	
of water,	26	design of,	380, 590
Design temperature,		equivalents,	563
dry-bulb,	147	loss of pressure in,	326
wet-bulb,	147, 189	resistance in,	354
Dew point,	688	sheet metal used in,	352
relation to relative humidity,	2, 251	welding of,	591
Diameter, circular-equivalents of rectangular		Electric, electrical,	669
ducts,	334	central fan heating systems,	595
Dichlorodifluoromethane,	175, 188	current, as corrosion agent,	673, 700
Diesel engine,	190	heat equivalents,	673
Dirt pockets,	555	heaters, capacity of,	667
Disc fans, test code for,	284	heating,	672
Distribution of air,	317 (see also Air, Distribution)	auxiliary,	671
District heating,	639	of hot water,	671
Diverter, back draft,	439	heating elements,	205, 667, 669
		with unit heaters,	228
		lamp bulbs, heat from,	139

ALPHABETICAL INDEX TO TECHNICAL DATA SECTION

	Page		Page
Eliminator plates and baffles,	183, 187	Fatigue, human,	37
Emissivity,	660	Filter, filters,	212, 267
Enclosures,		automatic,	275
concealed heaters,	497	cloth,	354
convectors,	497	design of,	212, 274
effect of,	495	dry air,	276
unit air conditioners,	210	installation of,	277
Engines,		resistance of,	379
Diesel,	190	for soups,	311
internal combustion,	189	unit type,	274
Enthalpy,	18, 689	viscous type,	352
Entropy,	23, 689	Fire walls,	
Equations, conversion,	699	Fittings,	579 (see also Connections; Pipe)
Equilibrium,		areas of,	587
dynamic,	2	flanged,	589
hygroscopic,	70	lift,	514
Equipment room, design of,	307	screwed,	587
Equivalent, equivalents,		welding,	592, 594
circular,	333	Flame, with oil burners,	464, 469
direct radiation,	138, 559, 694	Flanges, welding neck,	592, 594
elbow,	563	Floors, heat transmission through,	107
evaporation,	411, 689	Flowers, temperatures for greenhouses,	72
heat,	699	Fluid, fluids,	
of air infiltration,	128	cooling of,	189
of brake horsepower,	138	formula for flow of,	325
electrical,	673, 700	meters,	648
mechanical,	692	Foodstuffs,	
length of run,	351	regain of moisture of,	66
square feet,	492	temperatures and humidities for processing,	68
Ethylene gas, in ripening bananas,	71	Force,	689
Eupatheoscope,	663, 672, 683	Forge shops, heat given off in,	83
Evaporation,	26, 28, 72, 193	Formulae, conversion,	699
equivalent,	411, 689	Foundries, heat given off in,	83
from human body,	35, 59	Freezing,	
rate of,	26	of cooling water,	193
from water pans,	496	insulation against,	631
Evaporative cooling,	72, 155, 165, 184	Friction,	
Evaporators,	211	in chimneys,	428
Exfiltration,	119, 363, 479	coefficients,	329
Exhaust systems,	345	heads in pipes,	562
industrial,	346, 351	in heating units,	362
Expansion,		losses in ducts,	327, 329, 333
of joints,	542, 641	in water pipes,	606
of pipe,	542, 581, 641	Fuel, fuels,	443 (see also Anthracite; Coal; Coke; Gas; Lignite; Oil)
in steam piping,	541	bed, draft loss through,	433
tanks,	574	burning equipment, automatic,	457
Exposure factors,	135	comparative heating costs,	488
		requirements,	479
F		degree-day method,	483
Fan, fans,	281	method of approximation,	485
as accessory apparatus,	198, 669	saving during non-heating periods,	481
A.S.H.V.E. test code for,	284	utilization of,	479
attic,	233, 380	Fumes,	259, 689
booster, equipment,	156, 402	industrial exhaust systems,	345
brake horsepower,	187	toxicity of,	263
control of,	291	Fundamentals of heating and air conditioning,	1
for cooling,	380	Furnace, furnaces,	689
designation of,	291	design of,	376, 383, 396, 408, 451
drives, arrangement of,	292	door slot openings,	446
dynamic efficiency of,	283	efficiency of,	480
efficiency of,	283	hand-fired,	451
in electrical heaters,	669, 672	performance curves of,	397
furnaces,	375, 387	ratings of,	387
for gas-fired furnaces,	472	types of,	375, 387, 471
for industrial exhaust systems,	355	volume,	689
mechanical draft,	425	for warm air systems,	375, 396
mechanical efficiency of,	283	Furnacestat,	383
motive power of,	293, 296		
control of,	295	G	
mountings,	295	Gage, gages,	
operating characteristics,	284	draft,	676
operating velocities,	289, 290	pressure,	675
performance of,	281, 289	steam,	416
quietness of,	225	vacuum,	676
ratings of,	288	Galvanometer,	
selection of,	287, 290, 293	Garage, garages,	
static efficiency of,	283	air flow necessary in,	84
systems of heating,	359	A.S.H.V.E. ventilation code,	88
tip speeds,	289	heaters for,	473
total efficiency of,	283		
types of,	281, 285, 289, 402		
in unit conditioners,	212		
in warm air systems,	377, 386, 402		