

HEATING VENTILATING AIR CONDITIONING GUIDE 1940

C

Calcium chloride, 41
Caloric value, 158
 of coals, 167
 of fuel elements, 158
 of gaseous fuels, 175
 of oil, 173
Calorie, 776
Calorimeter, 159
Capacitor type motors, 672
Capillary moisture, 623
Carbon dioxide, 35, 45, 158
 air change measurement, 771
Carbon monoxide, 158
 from automobiles, 81
 from chimney gases, 81
 garage, 648
 measurement, 774
Carbon particles, 77
Carnot cycle, 435
Cast ferrous pipe, 328
Cast-iron boilers, 239
Ceiling temperature, 130

Central air conditioning systems, 377
 blow through, 378
 by-pass, 378
 classification, 377
 cooling coils, 467
 cooling load calculations, 382
 design of, 380
 example calculated, 389
 heating calculations, 381
 reheating, 380
 residential, 378
 selection of equipment, 386
 zoning, 389
Central fan heating, 707
Central fan systems, 776
 control, 654
Centrifugal compressors, 431
 fans, 515
 separators, 512
Charcoal, 38
Charles' law, 7

Chart
 air flow loudness, 538
 Bulkeley psychrometric, 26
 chimney performance, 186
 coal fuel burning rate, 226
 comfort, 61
 economical thickness of insulation, 702
 effective temperature, 63
 friction of air in pipes, 546
 fuel oil heating values, 632
 gas fuel burning rate, 228
 heat loss from bare iron pipes, 689
 heat loss from magnesia covered pipes, 690, 692, 693
 hot water friction heads, 316
 humidity, 626
 lithium chloride temperature pressure, 31
 noise reduction, 570
 oil fuel burning rate, 227
 room absorption, 539
 silica gel temperature pressure, 39
 thickness pipe insulation prevent sweating, 699
Check valves, 344
Chemical reactions, 602
Chemical vitiation of air, 45

Chimneys, 179
 boiler sizes, 191
 characteristics of, 182
 coefficient of friction, 184
 construction details, 195
 determining sizes, 187
 effect, 776
 furnace size, 191

Chimneys (continued)

for gas heating, 196
 gas temperature, 184
 performance chart, 186
 Check temperature, 54
 Cinder, cinders, 77, 83
 catchers, 514
 Circumferences of circles, 792
 City gas, (see *Gaseous fuels*)
 Climatic conditions, 132
 Cloth filters, 616

Coal

burner control, 665
 burning furnace, 364
 classification of, 166
 dustless treatment of, 173
 estimating consumption, 236
 firing of, 82
 maximum carbon dioxide values, 163
 pulverized, 172
 sizes, 170
 soot, 177
 theoretical air requirements, 161
 Coefficient of performance, 435

Coefficients of transmission, 86, 776

doors, 113
 floors and ceilings, 107
 frame construction, 104
 glass walls, 113
 masonry walls, 100
 roofs, 110
 skylights, 113
 windows, 113

Coil, coils, 459

air flow resistance, 469
 applications, 467
 arrangement, 460
 booster, 378
 capacity, 473
 construction, 460
 cooling, 462
 direct expansion, 463
 flow arrangement, 466
 heat transfer, 469
 heating, 462
 performance, 470, 474
 primary surface, 461
 reheating, 378
 secondary surface, 461
 selection, 482
 steam, 462
 water, 462

Coke

classification of, 168
 estimating consumption, 236
 firing methods for, 172
 maximum carbon dioxide values, 163
 petroleum, 168
 Coke oven gas, (see *Gaseous fuels*)
Collectors, 615

Combustion, 157

draft, 192
 drying, 627
 efficiency of stoker, 209
 gas analysis, 773
 in gas-fired units, 220
 gas constants, 631
 heat of, 159
 of gaseous fuels, 176
 of oil, 173
 with oil burner, 214
 with various stokers, 207

Comfort, 45

chart, 61
 line, 776
 zone, 776
 average, 776
 extreme, 776

ALPHABETICAL INDEX TO TECHNICAL DATA SECTION

Compartment drier, 620
Compound wound motors, 669
Compressors, 431
 centrifugal, 431
 control, 447, 667
 reciprocating, 431
 rotary, 431
 steam jet, 432
Concealed heaters, 263
Concealed radiation, 776

Condensation

in buildings, 92
 meter, 731, 735
 pumps, 230
 rate, 289
 return heating systems, 274

Condensers

air cooled, 441
 design data, 498
 evaporative, 423, 443
 water cooled, 442
Conductance, 776
 air space, 98
 with aluminum foil, 98
 with non-metallic paint, 98
 surface coefficient, 98
Conduction, 49, 776
 electric heaters, 706
 solar heat, 147

Conductivity, 776

building boards, 97
 building constructions, 98
 insulating materials, 691
 insulation blankets, 96
 loose-fill insulation, 96
 masonry materials, 94
 plastering materials, 97
 rigid insulation, 97
 roofing construction, 97
 semi-rigid insulation, 96
 woods, 99
Conductor, 776
 heat, 776
 Constant relative humidity line, 776
 Constant speed motors, 670

Control, controls

all year systems, 658
 automatic, 649
 fuel appliances, 664
 temperature, 740
 central fan systems, 654
 cooling cycle, 657
 cooling units, 661
 dew-point, 658
 direct current motor, 679
 domestic hot water supply, 666
 draft, 181
 effective temperature, 658
 of electric motors, 669
 electric systems, 652
 of electrical heating, 713
 equipment for motors, 677
 fan volume, 525
 gas burner, 664
 gas-fired units, 220
 graduated-acting, 653
 of heat losses, 715
 heating cycle, 654
 humidity, 651
 railway cars, 588
 industrial process, 668
 for mechanical furnace systems, 369
 modulating, 653
 multi-speed motor, 680
 oil burner, 217, 664
 pilot, 678
pneumatic systems, 652
 positive-acting, 652
 pressure, 651
 rate of biochemical reactions, 602
 rate of chemical reactions, 602

Controls (continued)

rate of crystallization, 603
 refrigeration equipment, 667
 of regain, 598
 of relative humidity, 657
 residential systems, 665
 roof ventilators, 643
 room, 653
 self-contained systems, 652
 single-phase motor, 682
 single thermostat, 653
 slip ring motor, 681
 sound, 561
 squirrel cage motor, 679
 stoker, 210, 665
 temperature, for railway cars, 588
 three-wire motors, 678
 two position, 652
 two-wire motor, 678
 unit heater, 661
 unit systems, 660
 unit ventilators, 662
 vacuum pump, 283
 valves, 303, 651
 vibration from machine mountings, 565
 zone, 654
Convection, 715, 776
 electric heaters, 707
Convectors, 776 (see *Gravity convectors*)
 connections, 304
 Conversion equations, 785
Coolers, 443

Cooling

of air, 443
 for air conditioning units, 413
 air processes, 429
 of brine, 443
 coils, 462
 cycle control, 657
 efficiency, 499
 evaporative, 429, 455
 load, 141
 methods, 429
 ponds, 499
 spray, 429
 surface, 429
 towers, 423, 501
 units, 424
 defrosting, 426
 ratings, 426
 types of, 425
 of water, 443
Copper
 elbow equivalents, 318
 pipe, 328
 tube sizes, 315
Corrosion, 346
 industrial exhaust systems, 617
 Cost of railway air conditioning, 592
Crystallization, 603
Cyclones, 512
 Cyclone collector, 615
 Cylinder drier, 620
 design, 630

D

Dalton's law, 1

Dairy barn ventilation, 647
Damper, dampers, 368, 542
 splitters, 368
 squeeze, 368
 volume, 368
Damper motors, 651
Decibel, 561, 776
 Deflecting vane anemometer, 769
Degree-day, 776
 base temperature, 231