Corrosion, 370, 510
- air washers, 512
- industrial exhaust systems, 848
- pipe, 510

Cost of air conditioning, 812
- amortization, 812
- condenser water, 821
- first, 813
- fixed charges, 812
- heating, 822
- installed, 813
- insurance, 817
- maintenance, 818, 819
- owning and operating, 812
- rent, 817
- service, 818

Crack length
- used for computations, 169, 267

Crystallization
- control rate of, 831

Cylinder dryer, 853

D

Dalton's rule, 24, 65
Damper, dampers, 400, 730, 738
Darcy formula, 76
Decibel, 761
Definitions, 1
Defrosting, 638

Degree-day, 3, 375
- for cities, 380
- formula for, method, 378, 379
- operating unit, 385
- unit fuel consumption, 382

Degree of saturation, 8, 37

Dehumidification, 643, 663
- air conditioning units, 628
- air washers, 647
- coil selection, 161
- comparison of methods, 676
- control, 673
- definitions and methods, 663
- equipment, 673
  - auxiliaries, 673
  - performance, 674
- estimating loads, 650, 670
- liquid methods, 666, 672, 673
- solid methods, 671

Dehumidifying agents, 671
- sorbents, 663
  - absorbents, 666
  - adsorbents, 663

Density of air, 3, 26
Dew-point
- apparatus temperature, 54, 790
- temperature, 8, 54

Dichlorodifluoromethane, 681

Direct
- expansion coils, 147
- fired unit heater, 478, 481
- indirect heating unit, 3
- radiator, 7
- return system, 3, 467

Disc fan, 567
Distribution of air (*see Air distribution*), 717

District heating, 529
- automatic control, 540
- glossary of rate terms, 537
- meters, 535
- piping, 529
  - conduits for, 530
  - inside, 533
  - overhead distribution, 533
  - sizes, 531
  - tunnels, 532
  - types of, 531
- rates, 537
- steam requirement, 384, 537
- utilization, 539

Diverging vanes, 721
Domestic oil burners, 325
Door, doors
- coefficients of transmission, 138
- leakage, 171
- natural ventilation, 179

Down-feed
- one-pipe riser, 6
- steam heating, 6, 421, 425, 427
- system, 3

Draft, drafts, 3, 304
- available, 360
- calculations, 359
- control, 304
- factors, 364
- general equation, 360
- head, 3
- natural, 176, 362
- regulation, 304
- requirements, 365, 369
- theoretical, 359

Drawing symbols, 17
Drip, drips, 3, 442
Drum dryer, 853

Dry air, 1, 24
- composition, 24
- density, 24
- filters, 585
- specific enthalpy, 25, 26
- specific volume, 24, 26
- velocity head, 739
- volume, 26

Dry-bulb temperature, 8
Dry cooling coils, 804
Dry return, 7

Dryer, dryers
- agitated, 853
- compartment, 853
- cylinder, 853
- drum, 853
- festoon, 853
- high temperature, 862
- induction, 853
- rotary, 853
- spray, 853
- tower, 853
- tunnel, 853
- vacuum, 853

Dryer calculations, 856

Drying, 830, 850
- calculations, 856
- control, 830
  - biochemical reaction, 831
  - chemical reaction, 830
  - crystallization, 831
  - static electricity, 832
- design, 859
- estimating methods, 864
- factors influencing, 855
- general rules for, 855
  - air circulation, 856
  - humidity, 855
  - temperature, 855
- humidity, 855
- mechanism of, 852
- methods, 850
  - conduction, 851
  - convection, 851
  - estimating, 864
  - radiant heat, 850
- omissions in the cycle, 854
- radiant, 850
- systems, 850
- ventilation phase, 861

Dual duct, 801

Duct, ducts, 392, 739
- air velocities in, 400, 749, 838, 844
- approaches to outlets, 729
- attenuation, 766
- construction, 845
- construction details, 753
- design, 748
- details, 753
  - dual, 801
- elbow friction losses, 741
- friction losses, 740, 742
- heat loss coefficients, 757
- heat losses, 755
- lining, 771
- measurement of velocities, 208
- noise transmitted, 763

Duct, ducts (*continued*)
- proportioning the losses, 747
- recirculating, 392, 397, 403
- rectangular equivalents of round, 746
- resistance, 846
- side outlets, 730
- sound absorbers, 767
- symbols for drawing, 18, 19
- system design, 844

Duct sizes, 739, 747
- air velocities, 749, 838, 844
- equal friction, 750
- general rules, 747, 748
- main trunk, 750
- velocity method, 750

Dust, 3, 184, 582
- collectors, 847
- combustible, 193
- concentrations, 188
- determination, 210
- filters, 581, 847
- nature's catcher, 184
- precipitators, 585, 586

Dynamic head, 5

E

EDR (Equivalent direct radiation) 344, 346, 416, 418, 488, 489
- defined, 346, 418

Effective temperature (*see Temperature*) 8, 226
- chart, 229
- difference, 796
- index, 229

Ejector nozzles, 726
Elbow
- attenuation, 766, 767
- copper equivalents, 453
- friction losses, 453, 747, 846
- iron equivalents, 453

Electric, electrical
- boilers, 544
- control systems, 593
- heaters, 542
  - conduction, 542
  - gravity convection, 542
  - radiant, 542
- heating, 541
  - auxiliary, 547
  - calculating capacities, 548
  - central fan, 543
  - control, 547
  - definitions, 541
  - domestic water, 546
  - elements, 541
  - power problems, 549
  - resistors, 541
- hot water heating, 545, 546
- panel heating, 551
- precipitators, 585
- radiant heating, 547, 551
- resistors, 541
- unit heaters, 477, 481, 543

Electricity, static, 832
Electronic heating, 548
Emissivity, 122, 554, 561
- factors, 104

Enclosed radiator, 475

Enthalpy, 3, 61, 69
- free, 4
- specific, 4, 25

Entrance loss, 747
Entropy, 4, 25
Equipment
- arrangement, 808
- selection, 806
- vibration, 776

Equivalent evaporation, 4
Estimating fuel consumption, 375
Eupatheoscope, 211, 564

Evaporative
- condensers, 709
- cooled, unit conditioners, 629
- cooling, 663, 803

Evaporators, 712

Excess air, 301, 329, 334
Exhaust opening, 731
- measurement of velocities, 209

Exhaust systems, 835
- air flow measurement, 837
- classification of, 835
- collectors, 847
- duct construction, 845
- duct design, 844
- duct velocity, 844
- ducts for, 844
  - air velocities in, 844
  - construction, 845
  - design, 844
  - resistance, 846
- dust filters, 847
- efficiency of, 848
- hoods, 836
  - air flow, 837
  - air velocities, 837, 839
  - axial velocity formula for, 840
  - chemical laboratories, 843
  - design principles, 836
  - kitchen, 843
  - large open, 841
  - lateral exhaust, 842
  - low velocity systems, 841
  - spray booths, 842
  - velocity contours, 840, 841
- rate of flow, 838
- resistance of, 847
- suction requirements, 837
- types of fans, 849
- velocity requirements, 837

Expansion
- factor, gases, 88, 89
- of pipe, 498
- orifice plates, 90, 91
- tanks, 456
- valves, 695, 710, 711

F

Fan, fans, 401, 567
- arrangement of drives, 577
- attic, 627, 639
  - location, 639, 640
  - types, 639
- axial flow, 567
- booster, 389
- centrifugal, 567
- characteristic curves, 570
- control, 579
- designations, 576
- efficiency, 569
- furnace system, 399, 402
- motive power, 579
- noise generated, 576, 765
- performance, 567
- radial flow, 567
- selection of, 575
  - air conditioning systems, 576
  - industrial exhaust systems, 848
- speed, 568, 569, 575, 576
- system characteristics, 573
- volume control, 578

Fanning formula, 76
Festoon dryer, 853
Fever therapy, 248
- equipment for production of, 249

Film conductance, 113
- coefficient, 156, 157

Filter, filters, 399, 581
- air conditioning units, 399, 639
- dry air, 585
- dust, 581, 847
- performance 587
- testing 587
- viscous automatic, 585
- viscous impingement type, 583

Fittings, 494
- pipe allowance, 411, 453
- types of, 501

Flame, 299
Flexible mountings, 776