

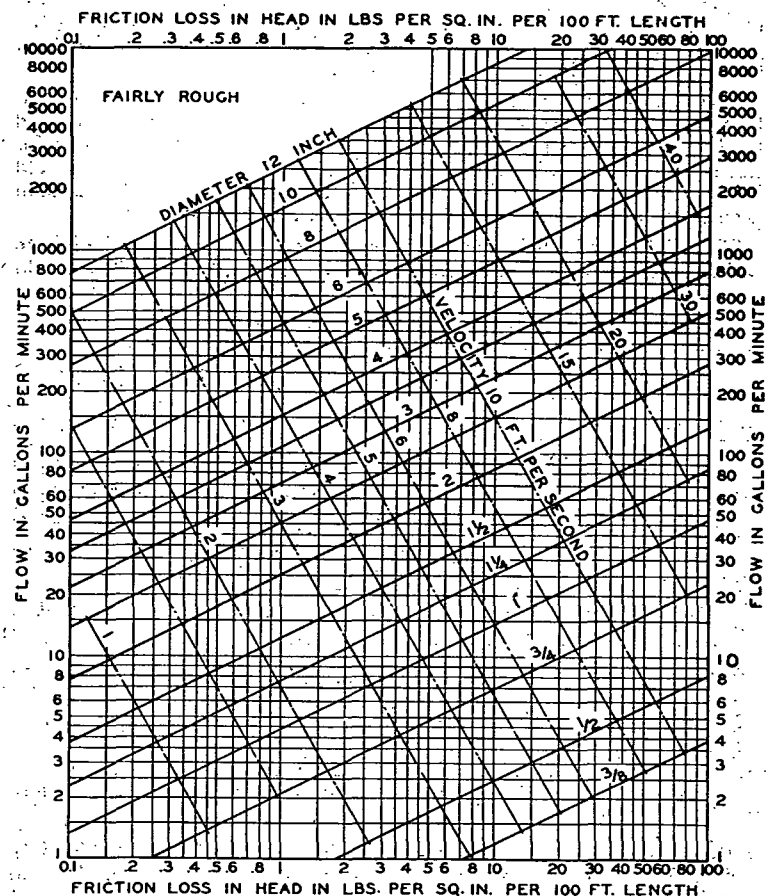


FIG. 7. FRICTION LOSS IN FAIRLY ROUGH PIPE

REFERENCES

1—Methods of Estimating Loads in Plumbing Systems, by R. B. Hunter (*National Bureau of Standards, Report BMS65, 1940*). Plumbing Manual, Report of the Subcommittee on Plumbing, Central Housing Committee on Research, Design and Construction (*National Bureau of Standards, Report BMS66, 1940*). Water-Distributing Systems for Buildings, by R. B. Hunter (*National Bureau of Standards, Report BMS79, 1941*).

BIBLIOGRAPHY

Laundry, Kitchen and Hospital Equipment, by H. C. Russell (*A.S.H.V.E. TRANSACTIONS, Vol. 35, 1929, p. 459*).
 Water Consumption, Cost and Savings, by G. C. St. Laurent (*American Hotel Association, Hotel Engineering, Vol. 1, 1940*).
 Plumbing Practice and Design, (1943) by Svend Plum (John Wiley & Sons, Inc.).

Codes and Standards

THE State Codes listed in Table 1 have been compiled from lists supplied by the various states and revised in 1945. These codes can be obtained from the state department indicated.

The Codes and Standards listed in Table 2 represent accepted practice, methods or standards prepared and accepted by the organizations indicated. They are valuable guides for the practicing engineer in determining test methods, ratings, performance requirements, and limits applying to equipment used in heating, ventilating and air conditioning. Copies can usually be obtained from the organization listed in the reference column.

TABLE 1. STATE CODES, STANDARDS OR LAWS RELATING TO THE HEATING, VENTILATING OR AIR CONDITIONING OF BUILDINGS

ALABAMA: None.
 ARIZONA: Law 56-117. Laundry—hours of labor—ventilation—penalty; Laws 65-218, 65-231, 65-235. Ventilation (with reference to mines). (Secretary of State, State House, Phoenix.)
 ARKANSAS: Installation of all boilers. Dept. of Labor Safety Code No. 6 for Industrial Sanitation in Manufacturing Establishments, 3.3 Ventilation. (Dept. of Labor, State Capitol, Little Rock.)
 CALIFORNIA: Reference to the ventilation laws may be found in the California Health and Safety Code under the following sections: Sec. 16800—Ventilation Requirements, Air Ducts; Sec. 16820-16835—Vent Shafts; Sec. 16900-16903—Gas, Appliance Vents; Sec. 17080-17083—Garages; Sec. 16233-16235, 16270-16271—Rooms; Sec. 16300-16305—Stairways. (Supervisor of Documents, 214 State Capitol, Sacramento.)
 COLORADO: State Boiler Inspection Code on high-pressure boilers—steel, all cast iron, 15 lb or over. (State Industrial Commission, State Annex Bldg., Denver.)
 State-Wide Plumbing Code—Rules and Regulations of the Division of Public Health, regarding ventilation of toilet, shower and wash rooms; vents on gas or oil-fired instantaneous water heaters; construction equipment of sanitary features in all buildings in the state, including ventilation of all plumbing fixtures. (Div. of Public Health, State Office Bldg., Denver.)
 Regulations regarding heating, ventilation and lighting. (State Coal Mine Inspector, Argonaut Hotel, Denver.)
 CONNECTICUT: School Building Code (1941); Chapter 6—Structural and Mechanical, D. Heating and Ventilation (State Dept. of Education; Div. of Instruction, Hartford.)
 Statutes: Section 2566 specifies the number of cubic feet of air for children and adults in tenement and boarding houses. Section 2584 specifies the dimensions of windows and skylights in tenement house public halls. Section 2585, and, by 443 f, specifies ventilation required for bathrooms and toilets in tenement houses. Section 2639 concerns heating of leased buildings.
 Sanitary Code: Regulations 280 and 291 concern ventilation to be provided for industrial processes. Regulation 127 concerns ventilation of all new water closet compartments. (State Dept. of Health, Hartford.)
 Labor Laws (1941): VIII. Industrial Safety, A. General, Sec. 2355—Lighting and sanitary condition of factories and round houses. IX. Industrial Health and Sanitation, Legislation, Sec. 2355—Lighting and sanitary condition of factories and round houses. (Dept. of Labor and Factory Inspection, Hartford.)
 DELAWARE: Minimum Standards for School Buildings and Sites (1931). (State Board of Education, Dover.)
 DISTRICT OF COLUMBIA: Building Code (1941), Section 505—Mechanical Ventilation; Section 702, Article 702-04—Construction of Air Conditioning Ducts. (Dept. of Printing and Binding, Govt. District of Columbia.)
 FLORIDA: School Code Law; Laws Relating to Construction Hotels, Apartment Houses, and Public Eating Places. (Secy. of State, Tallahassee.)
 GEORGIA: None.
 IDAHO: None.
 ILLINOIS: Laws Relating to Labor and Employment (1943) Health and Safety Act; Workmen's Occupational Diseases Act; Wash Rooms in Certain Employments; Work Under Compressed Air Act; Industrial Home Work. (Secy. of State, Springfield.)
 Illinois School Law, Section 15, paragraph 20 is amplified in April, 1940, Educational Press Bulletin with sections on Ventilating and Heating. (Superintendent of Public Instruction, Springfield.)
 Jurisdiction over lodging houses, boarding houses, taverns, inns and hotels, specifying the number of cu ft of air space for each person sleeping therein at the same time. (Dept. of Public Health, Springfield.)
 General Mining Laws, 14. Ventilation—Quantity of Air. (Dept. of Mines and Minerals, Springfield.)
 INDIANA: Rules and Regulations of the State Board of Health Governing the Construction, Equipment and Maintenance of Sanitary Features of Public and Parochial School Buildings (1943). (Division of Environmental Sanitation, State Board of Health, 1928 W. Michigan St., Indianapolis.)
 Rules and Regulations of the Administrative Building Council—Article VIII, Sections 19-8-1, 19-8-2 and 19-8-3 Pertaining to Ventilation of Rooms and Plumbing Fixtures.
 Sanitary Dwelling Law.
 Tourist Camp License Law. (Ind. State Board of Health, Indianapolis.)
 IOWA: Code of Iowa, Chapter 323, Requirements for Sanitation and Ventilation of Single Family and Multiple Dwellings. Code of Iowa, Chapter 73, Ventilation Requirements in Industrial Establishments Pertaining to Health and Safety; Department of Public Instruction Rules Relating to Heating and Ventilating of School Buildings. (Dept. of Health, Div. Public Health Engr. and Industrial Hygiene, Des Moines.)
 KANSAS: Statutes of Kansas: G. S. 1935, 44-636—Leaves matter to judgment of Factory Inspector in safeguarding Safety and Health of Workers in factories under jurisdiction of State Labor Commissioner. (State Labor Department, 801 Harrison, Topeka.)
 Statutes of Kansas: G. S. 1935, 49-204, 49-205, 49-216, 49-217. Ventilation of mines under jurisdiction of State Labor Commissioner.
 G. S. 1935, 36-110: Ventilation in Hotels, Lodging Houses and Restaurants. (State Hotel and Restaurant Board, State House, Topeka.)
 KENTUCKY: Statutes of Kentucky: Sections 101.010 to 101.990, relating to ventilation of tenement and apartment houses in cities of first class; Section 217.280 provides for the proper ventilation of food establishments; Sections 228.080, 228.090, 228.120, 228.140, 228.150 and 228.170, relating to heating and ventilating of dry cleaning and dyeing establishments; Sections 338.070, 338.080 and 338.090, relating to ventilation in rooms containing buffing or grinding machinery; Sections 352.070, 352.030, 352.040, 352.050, 352.080, 352.090, 352.120, 352.150, 352.190, 352.210, 352.320, 352.330, 352.340, 352.350, 352.360, 352.370, 352.380, 352.390 and 352.400; also, 352.570, 352.580, 352.590, 352.600 and 352.610 provide for the proper ventilation of mines. (Kentucky Statute Revision Commission, Frankfort.)