

TABLE 1. CODES AND STANDARDS—(Concluded)

SUBJECT	TITLE	SPONSOR	REFERENCE
Vacuum Pumps	A.S.H.V.E. Standard Code for Testing and Rating Return Line Low Vacuum Heating Pumps (1934).	A.S.H.V.E.	A.S.H.V.E.
Warm Air (Gravity)	Gravity Code and Manual for the Design and Installation of Gravity Warm Air Heating Systems (1945).	N.W.A.H. & A.C.A.	N.W.A.H. & A.C.A. Section No. 5
Water Heaters	N.E.M.A. Standards for Electric Water Heaters (1945).	N.E.M.A.	N.E.M.A. 45-104
Water Heaters	American Standard Approval Requirements for Gas Water Heaters (1944).	A.G.A.	A.S.A. Z21.10-1944
Water Heaters	Testing and Rating Hand-Fired Hot Water Supply Boilers (1948).	F.H.A.	B.S. CS145-47
Wiring	National Electrical Code, Standard of N.B.F.U. and N.F.P.A. (1947).	N.B.F.U. N.F.P.A.	N.B.F.U.

ABBREVIATIONS

A.C.M.A. ¹	Air Conditioning Manufacturers Association.	I.M.W.I.	Industrial Mineral Wool Institute.
A.C.R.M.A.	Air Conditioning and Refrigerating Machinery Association.	I.U.H.A.	Industrial Unit Heater Association.
A.F.A.	American Foundrymen's Association.	N.A.F.M.	National Association of Fan Manufacturers.
A.G.A.	American Gas Association.	N.B.F.U.	National Board of Fire Underwriters.
A.G.A.E.M. ²	Association of Gas Appliance and Equipment Manufacturers.	N.E.M.A.	National Electrical Manufacturers Association.
A.I.L.	Anthracite Industries Laboratory.	N.F.P.A.	National Fire Prevention Association.
A.S.A.	American Standards Association.	N.H.A.	National Housing Agency.
A.S. of A.	Acoustical Society of America.	N.R.C.	National Research Council.
A.S.H.V.E.	American Society of Heating and Ventilating Engineers.	N.W.A.H. & A.C.A.	National Warm Air Heating and Air Conditioning Association.
A.S.M.E.	American Society of Mechanical Engineers.	O.B.I. ³	Oil Burner Institute.
A.S.R.E.	American Society of Refrigerating Engineers.	O.H.I.A.	Oil Heat Institute of America.
A.S.T.M.	American Society for Testing Materials.	O.P.A.	Office of Price Administration.
B.S.	National Bureau of Standards.	P.F.M.A.	Propeller Fan Manufacturers Association.
C.M.A.	Convactor Manufacturers Association.	R.E.M.A.	Refrigeration Equipment Manufacturers Association.
F.H.A.	Federal Housing Administration.	R.M.A.	Refrigerating Machinery Association.
G.A.M.A.	Gas Appliance Manufacturers' Association.	S.A.E.	Society of Automotive Engineers.
H.I.	Hydraulic Institute.	S.B.I.	Steel Boiler Institute.
H.P. & A.C.C.N.A.	Heating, Piping and Air Conditioning Contractors National Association.	S.E.C.A.	Standard Refrigeration Compressor Association.
I.B.R.	Institute of Boiler and Radiator Manufacturers Association.	T.E.M.A.	Tubular Exchanger Manufacturers Association.
I.C.H.A.M.	Institute of Cooking and Heating Appliance Manufacturers.	U.L.	Underwriter's Laboratories.
		U.S.D.A.	United States Department of Agriculture.
		U.S.P.H.S.	United States Public Health Service.

¹Superseded 1940 by A.C.R.M.A.²Superseded 1945 by G.A.M.A.³Superseded 1942 by O.H.I.A.

SPECIFIC HEAT

TABLE 1. SPECIFIC HEAT OF SOLIDS^a

MATERIALS	TEMPERATURE F	SPECIFIC HEAT	AUTHORITY
Alloys			
Brass, Red	32	0.0899	S
Brass, Yellow	32	0.0883	S
Bronze (80Cu, 20Sn)	57-208	0.0862	S
Monel Metal	68-2370	0.127	S
Aluminum	80-212	0.212	S
Asbestos	68-208	0.195	S
Brickwork		0.195	S
Carbon (Graphite)	104-1637	0.314	H
Coal		0.278	H
Coke		0.201	H
Concrete		0.270	H
Copper	64-212	0.0928	S
Fire Clay Brick	77-1832	0.258	I
Glass			
Crown	50-122	0.161	S
Flint	50-122	0.117	S
Gold	04	0.0312	S
Gypsum		0.259	S
Ice	32	0.487	S
Ice	-40	0.434	S
Iron, Pure	32	0.1043	S
Iron, Pure	32-600	0.127	M
Iron, Cast	68-212	0.1189	H
Iron, Wrought	59-212	0.1152	H
Lead	32	0.0297	S
Nickel	32	0.1032	S
Masonry		0.2159	H
Plaster		0.2	S
Platinum	58-212	0.0319	S
Rocks			
Gneiss	63-210	0.196	S
Granite	54-212	0.192	S
Limestone	59-212	0.216	S
Marble	32-212	0.21	S
Sandstone		0.22	S
Silver	32	0.0536	S
Steel		0.1175	S
Sulphur	240-320	0.220	S
Silica Brick	77-1832	0.263	S
Tin		0.0548	S
Woods (Average)	68	0.327	S
Zinc	32	0.0913	S

TABLE 2. SPECIFIC HEAT OF LIQUIDS

LIQUID	TEMPERATURE F	SPECIFIC HEAT	AUTHORITY
Alcohol, Ethyl	32	0.548	S
Alcohol, Methyl	59-68	0.601	S
Glycerine	59-122	0.576	S
Lead (Molten)	360	0.041	H
Mercury	68	0.03325	S
Petroleum	70-136	0.511	S
Sea Water			
Sp Gr 1.0043	64	0.980	S
Sp Gr 1.0463	64	0.903	S
Water	59	1.000	S

TABLE 3. SPECIFIC HEAT OF GASES AND VAPORS

SUBSTANCE	TEMPERATURE F	SPECIFIC HEAT AT CONSTANT PRESSURE	RATIO OF SPECIFIC HEAT C_p/C_v	SPECIFIC HEAT AT CONSTANT VOLUME (COMPUTED)	AUTHORITY
Air	32-392	0.2375	1.405	0.169	S
Ammonia	80-392	0.5356	1.277	0.419	S
Carbon Dioxide	52-417	0.2169	1.3003	0.1668	S
Carbon Monoxide	79-388	0.2426	1.395	0.1736	S
Coal Gas	68-1900	0.3145			S
Flue Gas		0.24 (Approx.)			H
Hydrogen	70-212	3.41	1.419	2.402	S
Nitrogen	32-392	0.2438	1.41	0.1729	S
Oxygen	55-404	0.2175	1.3977	0.155	S
Water Vapor	212	0.421	1.305	0.322	S
Water Vapor	356	0.51			S

^aSee also The Specific Heat of Thermal Insulating Materials, by Gordon B. Wilkes and Carl O. Wood (A.S.H.V.E. TRANSACTIONS, Vol. 48, 1942, p. 493).

NOTES: When one temperature is given the true specific heat is given, otherwise the value is the mean specific heat between the given limits.

AUTHORITIES: S—Smithsonian Physical Tables, 1933; I—International Critical Tables; H—Heating, Ventilation and Air Conditioning, by L. A. Harding and A. C. Willard; M—Engineers' Handbook, by Lionel S. Marks.