Designation: F856 – 97 (Reapproved 2022)

An American National Standard

Standard Practice for Mechanical Symbols, Shipboard—Heating, Ventilation, and Air Conditioning (HVAC)[1]

This standard is issued under the fixed designation F856; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This practice covers symbols used on heating, ventilation, and air conditioning (HVAC) detailed engineering drawings.

1.2 These symbols may be useful on contract and preliminary design drawings.

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Significance and Use

2.1 When symbolic representation is required for an item not covered in this standard, the character of the symbol shall be adequately identified and shall be subject to one interpretation only. If necessary, a note shall be attached to the symbol for further clarity.

2.2 Symbolic representation does not require exact or scale layouts of the actual system. Therefore, the symbols may be used in all views of the system layout.

3. Abbreviations

3.1 The abbreviations (for use only in this practice) are defined as follows:

AF = axial fan
AFD = automatic fire damper with manual override
BD = balance damper
CC = cooling coil
CCW = counter clockwise
CE = convection heater, electric
CF = centrifugal fan
CS = convection heater, steam
CW = clockwise
EH = turret heater, electric
EP = duct preheater, electric
ER = duct reheater, electric
EU = electric unit heater
F = filter
FA = flame arrester
FCA = fan coil assembly
FCU = fan coil unit
G = grille
GC = gravity cooling coil
H = humidistat, humidifier
L = louver
M = motor
MFD = manual fire damper
NE = natural exhaust
NS = natural supply
R = return air
RO = remote operated
SFD = solenoid fire damper
SP = preheater, steam
SR = reheater, steam
SU = steam unit heater
T = thermostat
TE = tempered air, electric
TS = tempered air, steam
U = undercut
UC = unit cooler
V = volume, volumetric
VC = volume control

4. Illustrations

4.1 Illustrations for HVAC symbols are given in Figs. 1-4.

5. Keywords

5.1 air conditioning; design symbols; engineering symbols; heating; HVAC; marine; ship; symbols; ventilation

[1] This practice is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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AIR FLOW DUCTS				AIR FLOW DUCTS	
NO	TITLE	SYMBOL	NO	TITLE	SYMBOL
1	SUPPLY DUCT		11	DUCT - UP AND DOWN	
2	EXHAUST DUCT		12	DUCT - UP AND DOWN WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)	
3	AIR CONDITIONING DUCT		13	TRUNK UP	
4	RETURN AIR DUCT	R	14	TRUNK UP WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)	
5	WATERTIGHT OR CLASS "A" CONSTRUCTION DUCT (SEE NOTE 1)		15	TRUNK DOWN	
6	FLEXIBLE CONNECTION		16	TRUNK DOWN WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)	
7	DUCT UP		17	TRUNK UP AND DOWN	
8	DUCT UP WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)		18	TRUNK UP AND DOWN WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)	
9	DUCT DOWN				
10	DUCT DOWN WATERTIGHT OR CLASS "A" CONSTRUCTION (SEE NOTE 1)				

NOTE 1—"Class A" is in reference to bulkhead classification as described in the Code of Federal Regulations, Title 46, Section 92.07–5. (Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, http://www.access.gpo.gov.)

FIG. 1 HVAC Symbols for Air Flow Ducts