ABBREVIATIONS

A	ACC	AIR COOLED CONDENSER
	ACD	AUTOMATIC CONTROL DAMPER
	ACU	AIR CONDITIONING UNIT
	AFF	ABOVE FINISHED FLOOR
	AFCV	AIR FLOW CONTROL VALVE
	AFF	ABOVE FINISHED FLOOR
	AHU	AIR HANDLING UNIT
	ALT	ALTERNATE
	AMB	AMBIENT
	ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
	APPROX	APPROXIMATE
	ARCH	ARCHITECTURAL
	ATC	AIR SWITCH TEMPERATURE CONTROL
	AVG	AVERAGE
	ASHAE	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
B	BAS	BUILDING AUTOMATION SYSTEM
	BAR	BRAKE HORSEPOWER
	BTU	BRITISH THERMAL UNIT
	BTUH	BRITISH THERMAL UNITS/HOUR
C		
	CA	COMBUSTION AIR
	CAP	CAPACITY
	CFM	CUBIC FEET PER MINUTE
	CHR	CHILLED WATER RETURN
	CHS	CHILLED WATER SUPPLY
	CMPD	COMPRESSOR
	COND	CONDENSER
	CP	CONDENSATE PUMP
	CT	COOLING TOWER
	CU	COPPER
	CU FT	CUBIC FEET
	CUH	CABINET UNIT HEATER
	CW IN	CONDENSER WATER IN
	CV	CENTRIFUGAL VALVE FLOW
	CONN	CONNECTION
	DN	DOWN
	DWG	DRAWING
	CW	COLD WATER (DOMESTIC)
	CV	CONSTANT VOLUME
D	D	DRAIN
	DB	DRY BULB
	DEG	DEGREE
	DDC	DIRECT DIGITAL CONTROL
	DIA	DIAMETER
	DISCH	DISCHARGE
	DIFF	DIFFUSER
	DL	DYNAMIC INSERTION LOSS
	DWT	DRY WELL TEMPERATURE
	DN	DOWN
	Δ PL	TOTAL DIFFERENTIAL PRESSURE
	DWG	DRAWING
E	E	EXHAUST AIR DEVICE
	EA	EACH OR EXHAUST AIR
	EAT	ENTERING AIR TEMPERATURE
	EC	ELECTRICAL CONTRACTOR
	ET	EXPANSION TAN
	EF	EXHAUST FAN
	EL	ELEVATION
	ENT	ENTERING
	ESP	EXTERNAL STATIC PRESSURE
	ET	EXPANSION TANK
	ETR	EXISTING TO REMAIN
	EWT	ENTERING WATER TEMPER
	EWT	ENTERING WATER TEMPERATURE
	EXP	EXPANSION
	EDB	ENTERING DRY BULB TEMPERATURE
	EWB	ENTERING WET BULB TEMPERATURE
	EXIST	EXISTING
	EX	EXHAUST
	EXT	EXTERIOR
F	F	FILTER
	FA	FIRE DAMPER
	FLA	FULL LOAD AMPS
	FPM	FEET PER MINUTE
	FPS	FEET PER SECOND
	FT	FOOT OR FEET
	FTR	FLOOR TO THERMOSTATIC TRAP
	FTR	FIN TUBE RADIATION
	FT	FINAL FILTER
	FTR	FIN TUBE
	FT	FLOOR TANK
	°F	DEGREE FAHRENHEIT
G	GA	GAUGE
	GAL	GALLON
	GC	GENERAL CONTRACTOR
	GPH	GALLON PER HOUR
	GPM	GALLON PER MINUTE
H	HD	HEAD
	HGT	HEIGHT
	HP	HORSEPOWER
	HP	HEAT PUMP
	HPS	HIGH PRESSURE STEAM RETURN
	HPS	HIGH PRESSURE STEAM SUPPLY
	HR	HOUR
	HUH	HORIZONTAL UNIT HEATER
	HWR	HOT WATER RETURN
	HWS	HOT WATER SUPPLY
	HX	HEAT EXCHANGER
	HZ	FREQUENCY
	HVAC	HEATING, VENTILATING AND AIR CONDITIONING
I	ID	INSIDE DIAMETER
	IN	INCH
	IN. W.G.	INCHES — WATER GAUGE
	IPS	INTERNATIONAL PIPE STANDARD
K	KW	KILOWATT
	KWH	KILOWATT PER HOUR
L	LAT	LEAVING AIR TEMPERATURE
	LBS/HR	POUNDS PER HOUR
	LBS	POUNDS
	LH	LATENT HEAT
	LT	LIGHT OR LIGHT
	LHG	LATENT HEAT GAIN
	LPS	LOW PRESSURE STEAM RETURN
	LPS	LOW PRESSURE STEAM SUPPLY
	LWT	LEAVING WATER TEMPERATURE
	LPSH	LOW PRESSURE STEAM SUPPLY TO HUMIDIFIERS
	LDB	LEAVING DRY BULB TEMPERATURE
	LWB	LEAVING WET BULB TEMPERATURE
	LRA	LOCKED ROTOR AMPS
M	MAX	MAXIMUM
	MBH	BTU PER HOUR (THOUSAND)
	MFGR	MANUFACTURER
	MH	MAN HOLE
	MPH	MILES PER HOUR
	MPS	MEDIUM PRESSURE STEAM RETURN
	MPS	MEDIUM PRESSURE STEAM SUPPLY
	MTR	MOTOR HORSEPOWER
N	N.C.	NOISE CRITERIA
	NC	NORMALLY CLOSED
	NO	NOT IN CONTRACT
	NO.	NUMBER
	NO	NORMALLY OPEN
	NTS	NOT TO SCALE
	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
O	OA	OUTSIDE AIR
	OD	OUTSIDE DIAMETER
	OC	ON CENTER
	OPER	OPERATING
P	P	PUMP
	PCF	PLUMBING CONTRACTOR
	PD	PRESSURE DROP
	PT	PROPELLER TYPE
	PH	PHASE
	PPM	PARTS PER MILLION
	PRESS	PRESSURE
	PRESS	PRESSURE REDUCING VALVE
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
	PSIA	PSI ABSOLUTE
	PSIG	PSI GAUGE
	PF	PRE-FILTER
Q	QTY	QUANTITY
R	R	RETURN AIR DEVICE
	RA	RETURN AIR
	RECIRC	RECIRCULATE
	REF	REFRIGERANT
	RH	RELATIVE HUMIDITY
	RH	RIGHT HAND
	RPM	REVOLUTIONS PER MINUTE
	RPM	REVOLUTIONS PER MINUTE
	RTU	ROOF TOP UNIT
	RL	REFRIGERANT LIQUID
	RG	REFRIGERANT DISCHARGE
	RAT	RETURN AIR FAN
	RLT	RETURN LAIR
	RLC	RECOMMENDED LOAD AMPS
	RLA	NUMBER
	RPMG	REFRIGERATOR
	RM	ROOM
S	S	SUPPLY AIR DEVICE
	SA	SUPPLY AIR
	SCFM	CFM STANDARD CONDITIONS
	SD	SMOKE DAMPER
	SEC	SECOND
	SHG	SENSIBLE
	SH	STEAM HUMIDIFIER
	SH	SENSIBLE HEAT
	SP	STATIC PRESSURE
	SP	STATIC PRESSURE (INCHES OF WATER)
	SPEC	SPECIFICATION
	SQ	SQUARE
	STD	STANDARD
	STM	STEAM
	SUCT	SUCTION
	SS	STAINLESS STEEL
	SP	SPACE TEMP
	SA	SOUND ATTENUATOR
	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
T	T	TRANSFER AIR DEVICE
	TB	TERMINAL BOX
	TD	TEMPERATURE DIFFERENCE
	TEMP	TEMPERATURE
	TOT	TOTAL
	TSTAT	THERMOSTAT
	TYP	TYPICAL
U	U	HEAT TRANSFER COEFFICIENT
	UH	UNIT HEATER
	UEG	UNIFIED STEAM GENERATOR
V	V	VOLTS
	VAC	VACUUM
	VD	VOLUME DAMPER
	VEL	VELOCITY
	VVAS	VARIABLE TEMPERATURE HOT WATER SUPPLY
	VHWR	VARIABLE TEMPERATURE HOT WATER RETURN
	VOL	VOLUME
	VEL	VELOCITY
W	W	WATT
	WDH	WIDTH
	WC	WET COIL
	WB	WET BULB
	WG	WATER GAUGE
	WR	WATER RETURN
	WS	WATER SUPPLY
	WT	WEIGHT
	WTR	WATER

DRAWING LIST

H001	HVAC LEGEND
H1SB	HVAC SUB-BASEMENT PLAN DEMOLITION
H1GC	HVAC GROUND FLOOR PLAN DEMOLITION
H2SB	HVAC SUB-BASEMENT PLAN DUCTWORK
H2GB	HVAC BASEMENT FLOOR PLAN DUCTWORK
H2GC	HVAC GROUND FLOOR PLAN DUCTWORK
H2G2	HVAC SECOND FLOOR PLAN DUCTWORK
H2G3	HVAC THIRD FLOOR PLAN DUCTWORK
H2G4	HVAC FOURTH FLOOR PLAN DUCTWORK
H2G5	HVAC ELEVATOR MACHINE ROOM /PENTHOUSE ROOF PLAN
H2G6	HVAC ROOF PLAN
H3SB	HVAC SUB-BASEMENT PLAN PIPING
H3GB	HVAC BASEMENT FLOOR PLAN PIPING
H3GC	HVAC GROUND FLOOR PLAN PIPING
H3G2	HVAC SECOND FLOOR PLAN PIPING
H3G3	HVAC THIRD FLOOR PLAN PIPING
H3G4	HVAC FOURTH FLOOR PLAN PIPING
H4GC	HVAC FIFTH FLOOR MECHANICAL ROOM PLAN DUCTWORK
H4G1	HVAC FIFTH FLOOR MECHANICAL ROOM PLAN PIPING
H4G2	HVAC SWIFT PLANS
H4G3	HVAC L.L. BEAN BLDG SUB-BASEMENT MECHANICAL ROOM PLAN DEMOLITION
H4G4	HVAC L.L. BEAN BLDG SUB-BASEMENT MECHANICAL ROOM PLAN DUCTWORK
H4G5	HVAC L.L. BEAN BLDG SUB-BASEMENT MECHANICAL ROOM PLAN PIPING
H4G6	HVAC FIFTH FLOOR MECHANICAL ROOM SECTIONS
H4G7	HVAC FIFTH FLOOR MECHANICAL ROOM SECTIONS
H5G0	HVAC AIR DISTRIBUTION RISER DIAGRAM
H5G1	HVAC AIR SYSTEMS CONTROL SEQUENCES
H5G3	HVAC HOT WATER SCHEMATIC AND SEQUENCE OF OPERATIONS
H5G3	HVAC CHILLED WATER SCHEMATIC
H5G4	HVAC CLEAN STEAM SCHEMATIC AND SEQUENCE OF OPERATIONS
H5G5	HVAC STEAM SCHEMATIC AND SEQUENCE OF OPERATIONS
H5G6	HVAC SYSTEMS SEQUENCE OF OPERATIONS
H5G7	HVAC SYSTEMS SEQUENCE OF OPERATIONS
H6G0	HVAC DETAILS
H6G1	HVAC DETAILS
H6G2	HVAC DETAILS
H6G3	HVAC DETAILS
H6G4	HVAC DETAILS
H6G5	HVAC AIR HANDLING UNIT-AHU-1 AND 4 DETAILS
H6G6	HVAC AIR HANDLING UNIT-AHU-2 AND 3 DETAILS
H6G7	HVAC AIR HANDLING UNIT-AHU-5 DETAILS
H7G0	HVAC AIR HANDLING UNITS SCHEDULES
H7G1	HVAC SCHEDULES
H7G2	HVAC SCHEDULES
H7G3	HVAC SCHEDULES
MEP-1	MEP SCHEDULE

SHEET METAL LEGEND

DUCTWORK

- RECTANGULAR SUPPLY AIR DUCT TURN TOWARDS
- RECTANGULAR SUPPLY AIR DUCT TURN AWAY
- ROUND SUPPLY AIR DUCT TURN TOWARDS
- ROUND SUPPLY AIR DUCT TURN AWAY
- OVAL SUPPLY AIR DUCT TURN TOWARDS
- OVAL SUPPLY AIR DUCT TURN AWAY
- RETURN/EXHAUST AIR DUCT TURN TOWARDS
- RETURN/EXHAUST AIR DUCT TURN AWAY
- W×H — RECTANGULAR DUCT W=WIDTH H=HEIGHT
- X"ø — ROUND DUCT X"ø=DIAMETER
- DN — DUCT OFFSET DOWN
- UP — DUCT OFFSET UP
- LINED DUCTWORK
- FLEXIBLE DUCTWORK

FITTINGS

- 90 DEGREE ELBOW WITH VANES
- 90 DEGREE ELBOW WITHOUT VANES
- 90 DEGREE ROUND ELBOW
- 45 DEGREE ELBOW WITH VANES
- 45 DEGREE ELBOW WITHOUT VANES
- 45 DEGREE ROUND ELBOW
- DUCT SECTION (SUPPLY)
- DUCT SECTION (RETURN)
- DUCT SECTION (EXHAUST)

AIR TERMINALS

- SUPPLY DIFFUSER
- RETURN GRILLE
- EXHAUST GRILLE
- SIDEWALL SUPPLY GRILLE
- SIDEWALL RETURN/EXHAUST GRILLE
- LINEAR SUPPLY DIFFUSER
- LINEAR RETURN GRILLE

EQUIPMENT

- TERMINAL BOX WITH REHEAT COIL
- UNIT HEATER
- REHEAT COIL
- FILTER
- ACCESS DOOR
- INLINE FAN
- ROOF EXHAUST FAN
- ROOF VENT

SINGLE LINE

- WYE BRANCH TAKE-OFF
- RADIUS DUCT ELBOW
- WYE DOVETAIL
- DN — DUCT OFFSET DOWN
- UP — DUCT OFFSET UP
- SIDEWALL SUPPLY GRILLE
- SIDEWALL RETURN GRILLE

DAMPERS

- FSD — DUCT MOUNTED SMOKE DETECTOR
- ACD — AIR CONTROL DAMPER
- AFS — AIR FLOW STATION
- FS — FLOW SWITCH
- SP — STATIC PRESSURE SENSOR
- S — SMOKE DAMPER
- SD/FD — COMBINATION SMOKE FIRE DAMPER
- SD — SMOKE DAMPER
- FD — FIRE DAMPER
- VD — VOLUME DAMPER

PIPING SYMBOL LEGEND

- OPEN STRAIGHT GATE VALE
- OPEN ANGLED GATE VALVE
- O.S.& Y. GATE VALVE
- NEEDLE VALVE
- OPEN BALL VALVE
- OPEN STRAIGHT GLOBE VALVE
- OPEN ANGLED GLOBE VALVE
- 2-WAY AUTOMATIC CONTROL VALVE (PNEUMATIC)
- 3-WAY AUTOMATIC CONTROL VALVE (PNEUMATIC)
- MOTOR OPERATED 2-WAY VALVE
- MOTOR OPERATED 3-WAY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REDUCING VALVE
- CHECK VALVE
- CHECK VALVE
- OPEN PLUG VALVE
- BUTTERFLY VALVE (TYPE 1)
- PRESSURE RELIEF VALVE
- PRESSURE RELIEF VALVE
- SAFETY VALVE
- COMBINATION BALANCING/FLOW MEASURING DEVICE
- BALL VALVE WITH HOSE CONNECTION, CAP AND CHAIN
- GATE VALVE WITH HOSE CONNECTION, CAP AND CHAIN
- QUICK CLOSING VALVE 1
- QUICK CLOSING VALVE 2
- FLOAT VALVE
- DIAPHRAGM VALVE
- LOCK SHEILD VALVE
- DRAIN VALVE
- SELF CONTAINED
- EXTERNAL
- DIFFERENTIAL
- BALL & SHUT CHECK VALVE
- SWING GATE CHECK VALVE
- SPRING CHECK VALVE
- ANGLED CHECK VALVE
- OPEN THREE WAY VALVE
- OPEN FOUR WAY VALVE
- GATE VALVE W/ HOSE CONNECTION
- ANGLED GATE VALVE W/ HOSE CONNECTION
- GLOBE VALVE W/ HOSE CONNECTION
- ANGLED GLOBE VALVE W/ HOSE CONNECTION
- STRAINER
- STRAINER
- THERMOSTATIC TRAP
- INVERTED BUCKET TRAP
- FLOAT AND THERMOSTATIC TRAP
- UNION
- REDUCER
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- THERMOMETER
- PRESSURE GAUGE
- FLOW SWITCH
- PIPE GUIDES
- PIPE ANCHOR
- CO — CONDENSATE DRAIN LINE W/CLEANOUT
- AUTOMATIC FLOW CONTROL VALVE
- PRESSURE TEMPERATURE MEASUREMENT PORT
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- HUMIDIFIER
- PIPE TURN TOWARDS
- PIPE TURN AWAY
- CAPPED PIPE

PIPING LEGEND

- HVS — HOT WATER SUPPLY PIPING
- HVR — HOT WATER RETURN PIPING
- VS — WATER SUPPLY PIPING
- VR — WATER RETURN PIPING
- VHWS — VARIABLE TEMPERATURE HOT WATER SUPPLY PIPING
- VHWR — VARIABLE TEMPERATURE HOT WATER RETURN PIPING
- CHVS — CHILLED WATER SUPPLY PIPING
- CHVR — CHILLED WATER RETURN PIPING
- CVS — CONDENSER WATER SUPPLY PIPING
- CVR — CONDENSER WATER RETURN PIPING
- LPS — LOW PRESSURE STEAM SUPPLY PIPING
- LPR — LOW PRESSURE STEAM RETURN PIPING
- MPS — MEDIUM PRESSURE STEAM SUPPLY PIPING
- MPR — MEDIUM PRESSURE STEAM RETURN PIPING
- HPS — HIGH PRESSURE STEAM SUPPLY PIPING
- HPR — HIGH PRESSURE STEAM RETURN PIPING
- PD — PUMP DISCHARGE PIPING
- D — CONDENSATE DRAIN PIPING
- FOS — FUEL OIL SUPPLY PIPING
- FOR — FUEL OIL RETURN PIPING
- FOV — FUEL OIL VENT LINE
- FOG — FUEL OIL GAUGE LINE
- FOF — FUEL OIL FILL LINE
- V — ATMOSPHERIC VENT
- DOMESTIC COLD WATER (MAKE-UP)
- PITCH PIPE-DIRECTION OF ARROW
- RG — REFRIGERANT DISCHARGE
- RL — REFRIGERANT LIQUID
- LPSH — LOW PRESSURE STEAM TO HUMIDIFIERS

SYMBOLS LEGEND

- DRAWING NUMBER / SHEET NUMBER — DETAIL DESIGNATION
- DRAWING NUMBER / SHEET NUMBER — SECTION DESIGNATION
- CONNECT TO EXISTING
- POINT BETWEEN EXISTING TO BE REMOVED AND EXISTING TO REMAIN
- UNIT ABBREVIATION / EQUIPMENT DESIGNATION / UNIT NUMBER
- DEMOLITION PLAN KEYED NOTE
- NEW PLAN KEYED NOTE
- EQUIPMENT TYPE DESIGNATION
- REVISION DESIGNATION
- FLOW DIRECTION
- EXISTING EQUIPMENT
- EXISTING EQUIPMENT TO BE REMOVED
- THERMOSTAT
- HUMIDISTAT
- SWITCH
- ROOM PRESSURIZATION MONITOR

GENERAL NOTES

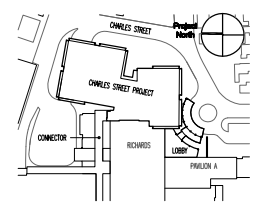
1. EXACT LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES TO BE DETERMINED BY ARCHITECTURAL REFLECTED CEILING PLAN.
2. DIMENSIONS SHOWN FOR ALL DUCTS ARE NET INSIDE DIMENSIONS.
3. COORDINATE ALL CEILING, WALL AND FLOOR PENETRATION WITH OPENING ON ARCHITECTURAL AND STRUCTURAL DRAWINGS.
4. PROVIDE INSTRUMENT TEST HOLES ON DUCTWORK WHEREVER VOLUME DAMPERS ARE INDICATED.
5. ALL WORK UNDER THIS SECTION SHALL BE COORDINATED WITH ALL TRADES BEFORE ANY INSTALLATION.
6. ALL SUPPLEMENTAL STEEL CONNECTIONS TO MAIN STRUCTURE FOR SUPPORT OF HVAC EQUIPMENT SHALL BE BY THE HVAC CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
7. ALL OPENINGS IN BEAMS AND ROOF SHALL BE APPROVED BY THE GENERAL CONTRACTOR AND STRUCTURAL ENGINEER.
8. EXACT LOCATION OF THERMOSTAT TO BE COORDINATED WITH FINAL LOCATION OF WALL MOUNTED ARCHITECTURAL AND ELECTRICAL EQUIPMENT.
9. INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRE PIPING TO BE ABOVE.
10. HVAC SUBCONTRACTOR SHALL PROVIDE FOR ALL SHEETMETAL AND PIPING TRANSITIONS TO COILS AND OTHER HVAC EQUIPMENT.
11. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED PUBLISHED LITERATURE.
12. ALL EXPOSED EQUIPMENT (CABINET HEATERS, UNIT HEATERS, etc.) SHALL HAVE COLORS SELECTED BY THE ARCHITECT, UNLESS NOTED OTHERWISE.
13. ALL THERMOSTATS INSTALLED IN AREAS EXCEPT PRIVATE OFFICES SHALL HAVE HEAVY DUTY TAMPERPROOF GUARDS.
14. EXACT ELEVATIONS FOR SIDE WALL REGISTERS AND GRILLES SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION.
15. REFER TO HVAC DETAIL SHEET(S) FOR TYPICAL DUCTWORK, PIPING AND EQUIPMENT DETAILS.
16. ALL LOUVERS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR.
17. HVAC SUBCONTRACTOR SHALL BE RESPONSIBLE FOR BLANKING OFF ALL INACTIVE PORTIONS OF LOUVERS UTILIZED FOR INTAKE OR EXHAUST FOR HVAC EQUIPMENT.

General Notes:

MARK	ISSUE DATE	DESCRIPTION
PERMIT	09/24/04	PERMIT SET – NOT FOR CONSTRUCTION

FOR PERMIT ONLY
NOT FOR CONSTRUCTION

Issue Log



Key Plan

TRO
ARCHITECTURE
PLANNING
ENGINEERING
INTERIOR DESIGN
The Richie Organization
50 Kilsyth Street
Boston, MA 02125-2124
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Maine Medical Center
Charles Street Project
Portland, Maine
MMC Project No. 21841

Drawing Title
HVAC LEGEND

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Commission No.	4673	Date Issued	
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