

three inches = one foot
 one and one half inches = one foot
 one inch = one foot
 three quarters inch = one foot
 one half inch = one foot
 three eighths inch = one foot
 one quarter inch = one foot
 one eighth inch = one foot

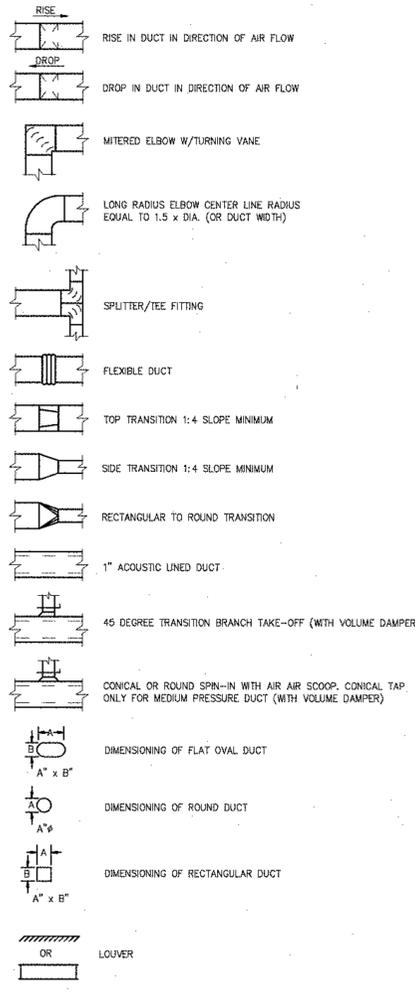
HVAC - SYMBOLS

NOTE: NOT ALL SYMBOLS INDICATED MAY APPEAR ON PROJECT DRAWING

	GAS		THERMOMETER
	REFRIGERANT LIQUID		FLANGE
	REFRIGERANT SUCTION		AIR DEVICE (SUPPLY AIR TERMINAL)
	HOT WATER SUPPLY PIPING		AIR DEVICE (RETURN, TRANSFER, OR OUTSIDE AIR TERMINAL)
	HOT WATER RETURN PIPING		AIR DEVICE (EXHAUST AIR)
	CHILLED WATER SUPPLY PIPING		VACUUM BREAKER
	CHILLED WATER RETURN PIPING		VERTICAL FIRE DAMPER WITH ACCESS DOOR OR PANEL
	A/C CONDENSATE DRAIN PIPING		HORIZONTAL FIRE DAMPER WITH ACCESS DOOR OR PANEL
	CONDENSER WATER SUPPLY PIPING		HORIZONTAL SMOKE AND FIRE DAMPER
	CONDENSER WATER RETURN PIPING		MOTORIZED DAMPER
	STEAM		VOLUME DAMPER
	CONDENSATE STEAM PIPING		BACKDRAFT DAMPER
	CONTROL WIRE		AIR MONITORING STATION
	DEMO / PIPE OR EQUIPMENT TO BE REMOVED		DUCT SMOKE DETECTOR
	EXISTING PIPE OR EQUIPMENT TO REMAIN		THERMOSTAT
	DIRECTION OF PITCH		THERMOSTAT/SENSOR
	THREE-WAY A/C VALVE		THERMOSTAT/REVERSE ACTING
	TWO-WAY A/C VALVE		HUMIDISTAT/HUMIDITY SENSOR
	GATE VALVE		WALL SWITCH - VARIABLE SPEED
	GLOBE VALVE		HOA SWITCH
	BALL VALVE		WALL SWITCH
	BUTTERFLY VALVE WITH OPERATOR		EMERGENCY BURNER SWITCH
	HOSE END DRAIN VALVE		PIPE DIMENSION / PIPE USAGE
	CHECK VALVE		UNDERCUT DOOR
	BALANCING VALVE		DOOR LOUVER/FREE AREA
	THREE-WAY MIXING VALVE		ACCESS PANEL
	TWO-WAY MIXING VALVE		AIR FLOW DIRECTION
	PRESSURE REDUCING VALVE		AIR FLOW DIRECTION HEAD
	DIFFERENTIAL PRESSURE REGULATING VALVE		PIPE CAP
	DIFFERENTIAL PRESSURE CONTROL		CONTINUATION BREAK
	DIFFERENTIAL PRESSURE TRANSMITTER		PUMP SYMBOL
	FLOW SWITCH		SOLENOID VALVE
	STATIC PRESSURE CONTROL		DRAIN VALVE
	STRAINER WITH DRAIN VALVE		FLOW METER
	RELIEF VALVE		CALIBRATED FLOW MEASURING STATION
	GAS SHUT-OFF VALVE		TEMPERATURE/PRESSURE TEST PLUG
	SOLENOID VALVE		STRAINER WITH BLOW DOWN GATE VALVE
	REFRIGERANT VALVE		TEMPERATURE SENSOR IN PIPE WELL
	STEAM TRAP		AUTOMATIC AIR VENT WITH SHUT-OFF COOK
	PIPING DROP		MANUAL AIR VENT
	PIPING DROP FROM BOTTOM		METER
	PIPING RISE		EQUIPMENT TAG
	UNION		EQUIPMENT TYPE
	BACKFLOW PREVENTER		EQUIP. NUMBER
	ANCHOR		SECTION NUMBER
	PRESSURE GAUGE		DRAWING NUMBER
	GAS REGULATOR		UNIT SERVED
	CLEANOUT FLUSH IN FLOOR		DRAWING NUMBER
	CLEANOUT IN HORIZONTAL RUN OR WALL CLEANOUT		ENLARGED FLOOR PLAN SYMBOL

TYPICAL DOUBLE LINE DUCT LEGEND

NO SCALE



HVAC - ABBREVIATIONS

AV	AUTOMATIC AIR VENT	FPM	FEET PER MINUTE
AD	ACCESS DOOR	FPS	FEET PER SECOND
AFF	ABOVE FINISH FLOOR	HC	HEATING CONTRACTOR
AFG	ABOVE FINISH GRADE	INPMD	FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT	IC	KITCHEN CONTRACTOR
AMB	AMBIENT	LAT	LEAVING AIR TEMPERATURE
APD	AIR PRESSURE DROP	LF	LINEAR FOOT
ACC	AUTOMATIC CONTROL CONTRACT	LVR	LOUVER
BMS	BUILDING MANAGEMENT SYSTEM	LWT	LEAVING WATER TEMPERATURE
BJ	BETWEEN JOIST	M	MOTORIZED DAMPER
BOD	BOTTOM OF DUCT	MAV	MANUAL AIR VENT
BOF	BOTTOM OF FOOTING	MAX	MAXIMUM
BOG	BOTTOM OF GRILL	MBH	BTU (1000's)
BOP	BOTTOM OF PIPE	MC	MECHANICAL CONTRACTOR
BOS	BOTTOM OF STEEL	MD	MANUAL DAMPER
BOT	BOTTOM	MFR	MANUFACTURER
BOW	BOTTOM OF WALL	MIN	MINIMUM
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NTS	NOT TO SCALE
BTWN	BETWEEN	OA	OUTSIDE AIR OV OUTLET VELOCITY
CAP	CAPACITY	PC	PLUMBING CONTRACTOR
CFM	CUBIC FEET PER MINUTE	PP	PUMP PRESSURE
CH	CHILLER	PRV	PRESSURE REDUCING VALVE
CO	CLEAN OUT	PSIG	POUNDS PER SQUARE INCH GAUGE
CD	CONDENSATE PUMP	RA	RETURN AIR
COP	COEFFICIENT OF PERFORMANCE	RF	RETURN FAN
CT	COOLING TOWER	RH	REHEAT
CJ	CONDENSING UNIT	RPM	REVOLUTIONS PER MINUTE
CUH	CABINET UNIT HEATER	RTU	ROOF TOP UNIT
CVR	CONNECTOR	RV	RELIEF VALVE
D	DIAMETER	S	SMOKE DAMPER
DB	DRY BULB	SA	SUPPLY AIR S
DDC	DIRECT DIGITAL CONTROL	F	SUPPLY FAN
DEMO	DEMOLISH / DEMOLITION	SC	SENSIBLE COOLING
DIA	DIAMETER	SHT	SHEET
DN	DOWN	SP	STATIC PRESSURE
DP	DEW POINT	ST	SOUND TRAP
DX	DIRECT EXPANSION	STM	STEAM
EA	EXHAUST AIR, EACH	TEMP	TEMPERATURE
EAT	ENTERING AIR TEMPERATURE	TH	TOTAL HEAT
EER	ENERGY EFFICIENCY RATIO	TC	TOTAL COOLING
EC	ELECTRICAL CONTRACTOR	TJ	THRU JOIST
EF	EXHAUST FAN	TYP	TYPICAL
EFF	EFFICIENCY	UH	UNIT HEATER
ET	EXPANSION TANK	UV	UNIT VENTILATOR
EQUIP	EQUIPMENT	VEL	VELOCITY
ERV	ENERGY RECOVERY VENTILATOR	VFD	VARIABLE FREQUENCY DRIVE
ESP	EXTERNAL STATIC PRESSURE	VTR	VENT THROUGH ROOF
EW	ENTERING WATER TEMPERATURE	WAC	WINDOW AIR CONDITIONER
EXIST	EXISTING	WB	WET BULB
F	FAN	WC	WATER COLUMN
FD	FIRE DAMPER	WHP	WATER SOURCE HEAT PUMP
FC	FLEXIBLE CONNECTION	WPD	WATER PRESSURE DROP
FCU	FAN COIL UNIT	WTR	WATER

NOTE: THE ABOVE LIST OF ABBREVIATIONS IS STANDARD. ALL ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THE DRAWINGS

HVAC - GENERAL NOTES

- COORDINATE HVAC AND PLUMBING WORK WITH ALL OTHER TRADES.
- ALL DIMENSIONS AND PIPE SIZES ARE IN INCHES, UNLESS OTHERWISE NOTED.
- INSTALL DUCTWORK IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. PRESSURE CLASSIFICATION OF DUCT WORK IS TO BE AS FOLLOWS:
 - SUPPLY 2"
 - RETURN 2"
 - EXHAUST 2"
- PROVIDE TURNING VANES IN ALL MITERED ELBOWS, OR PROVIDE ELBOWS WITH CENTER LINE RADIUS EQUAL TO 1.5 TIMES DUCT WIDTH.
- INSTALL ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
- REFLECTED CEILING PLANS FOR ANY AND ALL AREAS PREPARED BY THE ARCHITECT SHOWING THE LOCATION OF AIR INTAKES AND OUTLETS SHALL TAKE PRECEDENCE OVER THE LOCATION OF THOSE SHOWN ON THE HVAC DRAWINGS OF THIS CONTRACT SET OF DRAWINGS. THIS SUBCONTRACTOR SHALL INSTALL THE AIR INTAKES AND OUTLETS IN ANY GIVEN AREA TO AGREE WITH THE ARCHITECT'S REFLECTED CEILING PLANS.
- ALL SCHEDULED MOTOR DATA AND ELECTRICAL CHARACTERISTICS ARE MAXIMUM. WHERE EQUIPMENT IS SUPPLIED WITH TARGET MOTORS OR ELECTRICAL CHARACTERISTICS THE HC TO COORDINATE WITH THE EC AND PAY FOR ALL CHANGES AS A RESULT INCREASED CAPACITY.
- INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE WITH RESPECTIVE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL CASEWORK AND ALL EQUIPMENT - MECHANICAL CONTRACTOR MUST REVIEW THE EQUIPMENT SCHEDULES, SPECIFICATIONS, AND DRAWINGS IN ALL CONTRACT DOCUMENTS AND SUBSEQUENT SHOP DRAWINGS. PROVIDE ALL LABOR AND MATERIALS FOR A COMPLETE AND OPERABLE SYSTEM AS PART OF THE CONTRACT. FAILURE TO REVIEW DOES NOT RELIEVE THE CONTRACTOR OF FULFILLING THE CONTRACTUAL OBLIGATIONS.
- REFER TO ARCHITECTURAL DRAWINGS AND SHOP DRAWINGS FOR FINAL EXACT LOCATIONS CONNECTIONS AND FOR ALL WORK REQUIRED FOR EQUIPMENT NOT FURNISHED UNDER THIS CONTRACT.
- MECHANICAL CONTRACTOR TO FIELD MEASURE AND/OR REVIEW ALL PERTINENT DOCUMENTS TO ASSURE LAYOUTS SHOWN ON HVAC DRAWINGS ARE COMPATIBLE WITH AVAILABLE SPACE AND WORK OF OTHER TRADES, AND ARE IN DRAWINGS. ACCORDANCE WITH LAYOUTS SHOWN ON GENERAL CONTRACT ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION PRIOR TO SUBMITTING EQUIPMENT SHOP DRAWINGS.
- MECHANICAL CONTRACTOR IS CAUTIONED THAT LIMITED SPACE IS AVAILABLE IN THE CEILING CAVITY. ALL DUCTWORK MUST BE COORDINATED WITH SPACE AND EQUIPMENT. PROVIDE ALL OFFSETS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES.
- PROVIDE FLEXIBLE CONNECTIONS AT UNIT SUPPLY AND RETURN CONNECTIONS. OFFSET AND TRANSITION SUPPLY AND RETURN DUCTWORK AS REQUIRED TO AVOID STRUCTURE. PROVIDE MITERED ELBOWS WITH TURNING VANES AT BOTTOM OF SUPPLY AND RETURN DUCT DROPS.
- 4" HIGH CONCRETE HOUSEKEEPING PAD BY MECHANICAL CONTRACTOR.
- DO NOT INSTALL ANYTHING WITHIN THE EQUIPMENT TROUBLESHOOTING SPACE. COORDINATE WITH OTHER TRADES TO KEEP THIS SPACE CLEAR. COORDINATE WITH TRUSSES IN SUCH A MANNER THAT EQUIPMENT SHALL CLEAR TRUSS WORK.
- DUCTWORK TO BE INSULATED WITH FIBERGLASS FLEXIBLE BLANKET INSULATION UNLESS OTHERWISE NOTED ON DRAWING OR DETAILS. JACKETS SHALL BE NOTED ON THE DRAWINGS.
- FOR ALL BRANCH DUCT CONNECTIONS TO MAIN TRUNK, PROVIDE 45 DEGREE TRANSITION FITTING OR CONICAL TAP FOR ROUND DUCT. BUTT FITTINGS ARE NOT PERMITTED. PROVIDE MANUAL VOLUME DAMPER WITH LOCKING QUADRANT IN ALL BRANCH RUN OUTS TO GRILLES AND DIFFUSER.
- PROVIDE TURNING VANES IN ALL MITERED ELBOWS, OR PROVIDE ELBOWS WITH CENTERLINE RADIUS EQUAL TO 1.5 TIMES DUCT WIDTH.
- SLEEVE AND SEAL ALL PIPE, OR DUCT PENETRATIONS OF WALLS AND FLOORS. PACK VOID BETWEEN PIPE, OR DUCT AND SLEEVE WITH INSULATION IN NON-RATED WALLS AND FLOORS. PACK VOID BETWEEN PIPE, OR DUCT AND SLEEVE WITH INSULATION IN FIRE-RATED WALLS AND FLOORS, APPLY INTUMESCENT FIRE SAFING COMPOUND AT PENETRATION, MAINTAINING INTEGRITY AND RATING OF FIRE SEPARATION. SLEEVES THROUGH FLOORS SHALL EXTEND 2" ABOVE FLOOR, BE GROUTED INTO PLACE AND WATERPROOFED. PIPING THROUGH EXTERIOR WALLS SHALL BE SLEAVED AND SEALED WEATHER TIGHT.
- AS APPLICABLE AND AS INDICATED, PIPE DROPS ARE TO BE ON WALL, IN WALL, OR IN ENCLOSED SPACE PROVIDED BY THE GENERAL CONTRACTOR.
- CONCEALED PIPING DROPS IN WALLS OR ENCLOSED SPACES SHALL BE INSULATED WITH 1/2" THICK UN-SLIT FLEXIBLE UNICELLULAR INSULATION.
- IF, FOR ANY REASON, IT IS NECESSARY TO RUN PIPING THROUGH FINISHED AREAS IN A MANNER THAT PIPING WOULD BE VISIBLE, THE CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE AN APPROVED TYPE OF ENCLOSURE FOR CONCEALMENT, AT NO ADDITIONAL COST. CONTACT ARCHITECT IF THIS SITUATION OCCURS.
- PROVIDE OPENINGS THROUGH WALLS 1" DIAMETER LARGER THAN PIPE. SET SLEEVE AND PACK OPENING WITH FIBERGLASS TO PREVENT RUBBING OR NOISE TRANSFER.
- PROVIDE SHUT-OFF VALVE IN ALL HOT WATER SUPPLY BRANCHES AND COMBINATION SHUT-OFF AND BALANCE VALVE IN ALL HOT WATER RETURN BRANCHES. LOCATE IN ACCESSIBLE CEILING SPACE OR IF INSIDE EQUIPMENT ENCLOSURES, PROVIDE ACCESS DOOR.

CONSULTANTS:

AJH DESIGN

216 OAKWOOD AVENUE, ELMIRA HEIGHTS, NEW YORK 14903
 P.H.: (607) 737-4638 FAX: (607) 737-1277

2-24-2012

ARCHITECT/ENGINEERS:

LDC

Larson Design Group Architects Engineers Surveyors
 1000 Commerce Park Drive • Suite 201
 Williamsport, PA 17701
 PHONE 570.323.6603 TOLL FREE 877.323.6603
 FAX 570.323.6902 • www.larsondesigngroup.com

2-24-2012

Drawing Title
MECHANICAL LEGEND

Approved Project Director
CHRISTOPHER HALL

Project Title
KITCHEN RENOVATIONS

Project Number
 6944-001

Location

Drawing Number
 0-MH-1

Date
 2-24-2012

Checked
 MPN

Drawn
 DLS

Dwg. 1 of 1

Office of Construction and Facilities Management

Department of General Services