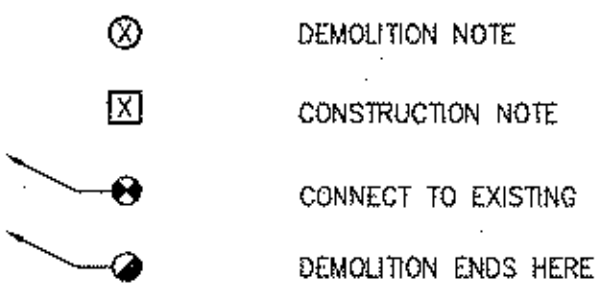
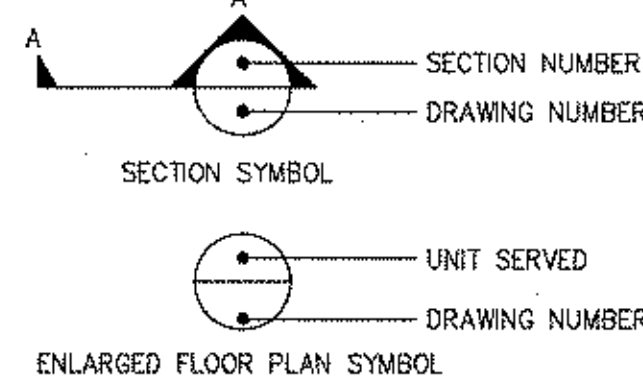
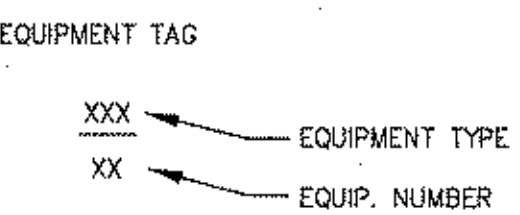
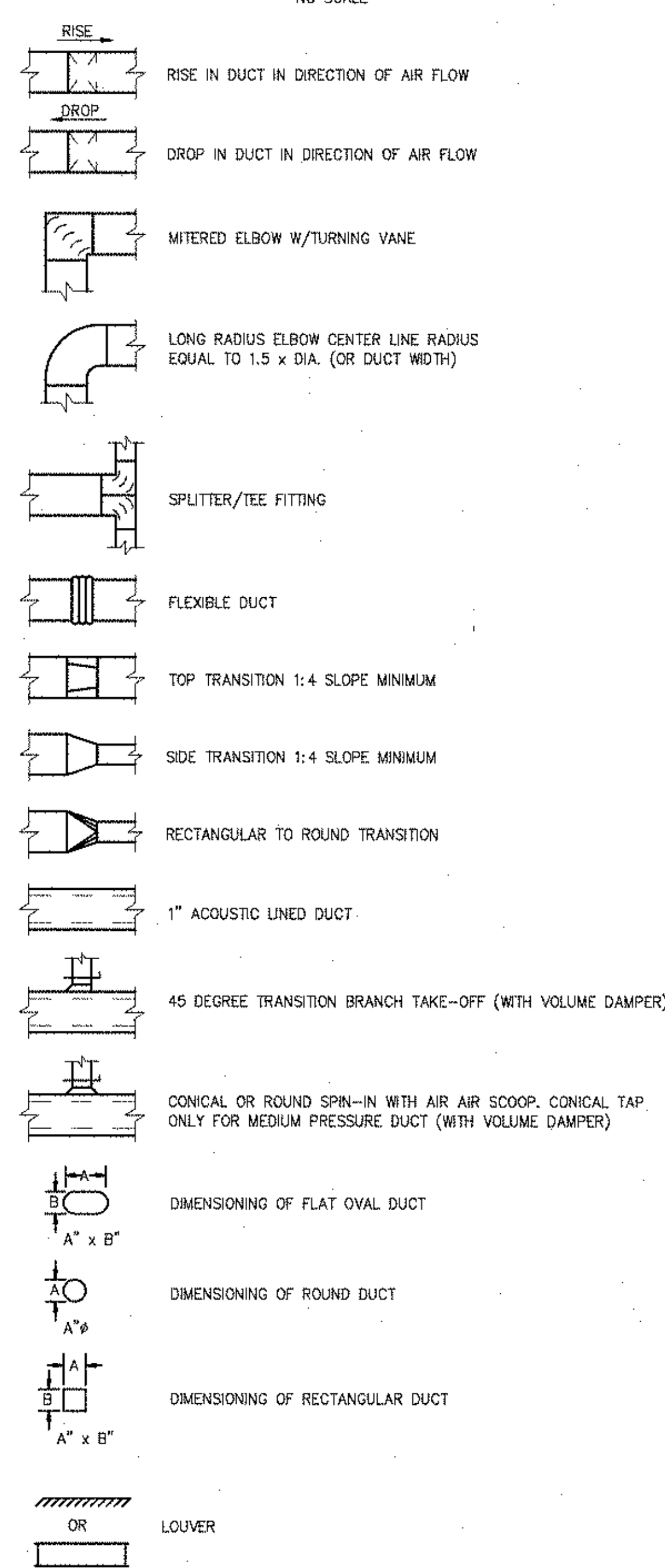


HVAC - SYMBOLS	
NOTE: NOT ALL SYMBOLS INDICATED MAY APPEAR ON PROJECT DRAWING	
	GAS
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	HOT WATER SUPPLY PIPING
	HOT WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	A/C CONDENSATE DRAIN PIPING
	CONDENSER WATER SUPPLY PIPING
	CONDENSER WATER RETURN PIPING
	STEAM
	CONDENSATE STEAM PIPING
	CONTROL WIRE
	DEMO / PIPE OR EQUIPMENT TO BE REMOVED
	EXISTING PIPE OR EQUIPMENT TO REMAIN
	DIRECTION OF PITCH
	THREE-WAY A/C VALVE
	TWO-WAY A/C VALVE
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE WITH OPERATOR
	HOSE END DRAIN VALVE
	CHECK VALVE
	BALANCING VALVE
	THREE-WAY MIXING VALVE
	TWO-WAY MIXING VALVE
	PRESSURE REDUCING VALVE
	DIFFERENTIAL PRESSURE REGULATING VALVE
	DIFFERENTIAL PRESSURE CONTROL
	DIFFERENTIAL PRESSURE TRANSMITTER
	FLOW SWITCH
	STATIC PRESSURE CONTROL
	STRAINER WITH DRAIN VALVE
	RELIEF VALVE
	GAS SHUT-OFF VALVE
	SOLENOID VALVE
	REFRIGERANT VALVE
	STEAM TRAP
	PIPING DROP
	PIPING DROP FROM BOTTOM
	PIPING RISE
	UNION
	BACKFLOW PREVENTER
	ANCHOR
	PRESSURE GAUGE
	GAS REGULATOR
	CLEANOUT FLUSH IN FLOOR
	CLEANOUT IN HORIZONTAL RUN OR WALL CLEANOUT
	THERMOMETER
	FLANGE
	AIR DEVICE (SUPPLY AIR TERMINAL)
	AIR DEVICE (RETURN, TRANSFER, OR OUTSIDE AIR TERMINAL)
	AIR DEVICE (EXHAUST AIR)
	VACUUM BREAKER
	VERTICAL FIRE DAMPER WITH ACCESS DOOR OR PANEL
	HORIZONTAL FIRE DAMPER WITH ACCESS DOOR OR PANEL
	HORIZONTAL SMOKE AND FIRE DAMPER
	MOTORIZED DAMPER
	VOLUME DAMPER
	BACKDRAFT DAMPER
	AIR MONITORING STATION
	DUCT SMOKE DETECTOR
	THERMOSTAT
	THERMOSTAT/SENSOR
	THERMOSTAT/REVERSE ACTING
	HUMIDISTAT/HUMIDITY SENSOR
	WALL SWITCH-VARIABLE SPEED
	HDA SWITCH
	WALL SWITCH
	EMERGENCY BURNER SWITCH
	PIPE DIMENSION / PIPE USAGE
	UNDERCUT DOOR
	DOOR LOUVER/FREE AREA
	ACCESS PANEL
	AIR FLOW DIRECTION
	AIR FLOW DIRECTION HEAD
	PIPE CAP
	CONTINUATION BREAK
	PUMP SYMBOL
	SOLENOID VALVE
	DRAIN VALVE
	FLOW METER
	CALIBRATED FLOW MEASURING STATION
	TEMPERATURE/PRESSURE TEST PLUG
	STRAINER WITH BLOW DOWN GATE VALVE
	TEMPERATURE SENSOR IN PIPE WELL
	AUTOMATIC AIR VENT WITH SHUT-OFF COCK
	MANUAL AIR VENT
	METER
	DISTANCE FROM FLOOR TO BOTTOM OF OBJECT

TYPICAL DOUBLE LINE DUCT LEGEND



HVAC - ABBREVIATIONS

AV	AUTOMATIC AIR VENT	FPM	FEET PER MINUTE
AD	ACCESS DOOR	FPS	FEET PER SECOND
AF	ABOVE FINISH FLOOR	HC	HEATING CONTRACTOR
AFG	ABOVE FINISH GRADE	INWD	FLOW MEASURING DEVICE
AHG	AIR HANDLING UNIT	KC	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
BOT	BOTTOM OF FOOTING	MAX	MAXIMUM
BOP	BOTTOM OF PIPE	MBH	BTU (1000's)
BOS	BOTTOM OF STEEL	MC	MECHANICAL CONTRACTOR
BOW	BOTTOM OF WALL	MD	MANUAL DAMPER
BTU	BRITISH THERMAL UNIT	MFR	MANUFACTURER
BTUH	BRITISH THERMAL UNIT PER HOUR	MIN	MINIMUM
BTWN	BETWEEN	NC	NOT IN CONTRACT
CAP	CAPACITY	NTS	NOT TO SCALE
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR OR OUTLET VELOCITY
CH	CHILLER	PC	PLUMBING CONTRACTOR
CO	CLEAN OUT	PP	PUMP PRESSURE
CO2	CONDENSATE PUMP	PRV	PRESSURE REDUCING VALVE
COP	COEFFICIENT OF PERFORMANCE	PSIG	POUNDS PER SQUARE INCH GAUGE
CT	COOLING TOWER	RA	RETURN AIR
CJ	CONDENSING UNIT	RF	RETURN FAN
CUH	CABINET UNIT HEATER	RH	REHEAT
CVR	CONVECTOR	RP	REVOLUTIONS PER MINUTE
D	DRY BULB	RTU	ROOF TOP UNIT
DDC	DIRECT DIGITAL CONTROL	RV	RELIEF VALVE
DEMO	DEMOLISH / DEMOLITION	S	SMOKE DAMPER
DIA	DIAMETER	SA	SUPPLY AIR S
DN	DOWN	F	SUPPLY FAN
DP	DEW POINT	SC	SENSIBLE COOLING
DX	DIRECT EXPANSION	SP	STATIC PRESSURE
EA	EXHAUST AIR, EACH	ST	SOUND TRAP
EAT	ENTERING AIR TEMPERATURE	STM	STEAM
EER	ENERGY EFFICIENCY RATIO	TEMP	TEMPERATURE
EC	ELECTRICAL CONTRACTOR	TH	TOTAL HEAT
EF	EXHAUST FAN	TO	TOTAL COOLING
EFF	EFFICIENCY	TJ	THRU JOIST
ET	EXPANSION TANK	TYP	TYPICAL
EQUIP	EQUIPMENT	UH	UNIT HEATER
ERV	ENERGY RECOVERY VENTILATOR	UV	UNIT VENTILATOR
ESP	EXTERNAL STATIC PRESSURE	VEL	VELOCITY
EW	ENTERING WATER TEMPERATURE	VFD	VARIABLE FREQUENCY DRIVE
EXIST	EXISTING	VIR	VENT THROUGH ROOF
F	FAN	WAC	WINDOW AIR CONDITIONER
FD	FIRE DAMPER	WB	WET BULB
FC	FLEXIBLE CONNECTION	WC	WATER COLUMN
FCU	FAN COIL UNIT	WHP	WATER SOURCE HEAT PUMP
		WPD	WATER PRESSURE DROP
		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 DIFFUSERS.
- 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 SLEEVED 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.

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Drawing Title

MECHANICAL LEGEND
 Approved Project Director
CHRISTOPHER HALL

Project Title

KITCHEN RENOVATIONS
 Date: 2-24-2012
 Checked: MPN
 Drawn: DLS

Project Number

6944-001
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 Dwg. 1 of 1

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