

HVAC LEGEND

SYMBOL	DESCRIPTION
	WRAPPED DUCTWORK, FIRST FIGURE IS SIDE SHOWN. DIMENSIONS IN BRACKETS ARE CLEAR INSIDE. SEE INSULATION SCH. FOR THICKNESS.
	LINED DUCTWORK, FIRST FIGURE IS SIDE SHOWN. DIMENSIONS IN PARENTHESES ARE CLEAR INSIDE. 27/12 ARE OUTSIDE DIMENSIONS.
	ROUND SPIRAL DUCT.
	EXISTING DUCTWORK TO REMAIN.
	DUCT SECTION POSITIVE PRESSURE FIRST FIGURE IS TOP.
	DUCT SECTION NEGATIVE PRESSURE. FIRST FIGURE IS TOP.
	DUCT SECTION NATURAL FLOW. FIRST FIGURE IS TOP.
	FLEXIBLE DUCTWORK
	EXISTING FLEXIBLE DUCTWORK.
	SPIN-IN FITTING WITH DAMPER.
	FIRE DAMPER IN HORIZONTAL DUCT, PROVIDE W/SLEEVE AND ACCESS DOOR.
	FIRE DAMPER IN VERTICAL DUCT.
	RADIATION DAMPER.
	COMBINATION FIRE/SMOKE DAMPER W/SLEEVE AND ACCESS DOOR.
	SMOKE DAMPER
	1 HOUR RATED WALL.
	THERMOSTAT RTU-1 CONTROLLED EQUIPMENT. MOUNT @ 48" AFF FOR ADA FORWARD REACH. MOUNT @ 54" AFF FOR ADA SIDE REACH.
	REMOTE SENSOR.
	CONNECTION TO EXISTING DUCTWORK OR PIPING SEE CONNECTION LEGEND FOR DESCRIPTION.
	DUCT MOUNTED SMOKE DETECTOR. 1 - FIRE ALARM SYSTEM ZONE 1. SEE NOTES FOR MECH/ELEC RESPONSIBILITIES.
	DUCT MOUNTED ACCESS DOOR.
	24"x12" LAY-IN PERFORATED RETURN PANEL.
	24"x24" LAY-IN PERFORATED RETURN PANEL.
	24"x24" LAY-IN PERFORATED RETURN PANEL W/INSULATED BOOT.
	NEW CEILING MOUNTED SUPPLY DIFFUSER.
	NEW CEILING MOUNTED FIRE RATED DIFFUSER ASSEMBLY CONSISTING OF DIFFUSER, RADIATION DAMPER AND RADIATION BLANKET.
	EXISTING CEILING MOUNTED SUPPLY TO REMAIN.
	RELOCATED CEILING MOUNTED SUPPLY.
	NEW LINEAR SLOT CEILING DIFFUSER.
	DOOR UNDERCUT TO BE USED FOR AIR TRANSFER. UNDERCUT TO BE 1" U.O.N.
	BASEBOARD HEATER.

DUCTWORK INSULATION SCHEDULE

TABLE NOTES:

- INSULATION IS NOT REQUIRED (UNLESS OTHERWISE NOTED) ON THE FOLLOWING DUCTS IN COMMERCIAL APPLICATIONS:
 - NOT USED.
 - DUCTS LOCATED IN THE CONDITIONED SPACE.
 - RETURN DUCTS LOCATED IN RETURN PLENUMS.
 - SUPPLY DUCTS IF TEMPERATURE DIFFERENCE BETWEEN THE INSIDE AND OUTSIDE OF DUCT DOES NOT EXCEED 15°F.
 - WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY AND SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED SPACE BY A MINIMUM OF R-8 INSULATION.
- IT IS BELFAF ENGINEERING'S INTERPRETATION THAT A SUPPLY DUCT IS CONSIDERED TO BE WITHIN A CONDITIONED SPACE WHEN LOCATED IN A RETURN AIR PLENUM IF THE PLENUM IS INSULATED FROM THE EXTERIOR &/OR UNCONDITIONED SPACE(S) BY MIN. R-8 INSULATION. (2003 IECC, 803.2.8)
- IF TABLE AND PLANS CONFLICT, THE MORE STRINGENT SHALL APPLY.

APPLICATION	DUCT LOCATION	DUCT SERVICE	INSULATION MIN. R-VALUE	NOM. INSULATION THICKNESS**
COMMERCIAL	EXPOSED TO WEATHER ON THE EXTERIOR OF THE BUILDING.	SUPPLY & RETURN	8	WRAP: NOT ALLOWED LINER: 2"
	IN UNCONDITIONED ATTICS, BASEMENTS, CRAWL SPACES, GARAGES, & OTHER UNCONDITIONED SPACES.	SUPPLY, RETURN, EXHAUST	5	WRAP: 3" LINER: 1-1/2"

* - INSULATING OF RETURN DUCTWORK IN RESIDENTIAL BASEMENTS NOT REQUIRED.
** - ACTUAL INSULATION THICKNESS MAY VARY BY MANUFACTURER. THICKNESS LISTED IN TABLE & DESIGN BASED ON OWENS CORNING, AEROMAT DUCT LINER & OWENS CORNING, SOTTR ALL-SERVICE FIBER GLASS DUCT WRAP.

HVAC PLAN CODE/SYMBOL LEGEND

	GRILLE, REGISTER, AND/OR DIFFUSER IDENTIFICATION. PLAN CODE - CD-1, NECK SIZE - 12/12", CFM THRU DEVICE - 800.
	EXISTING AIR DEVICE TO BE REBALANCED TO 800 CFM.
	RELOCATED AIR DEVICE TO BE REBALANCED TO 800 CFM.
	VAV BOX IDENTIFICATION. PLAN CODE - II, NECK SIZE - 12/12, DESIGN CFM - 800.
	VAV BOX IDENTIFICATION, PLAN CODE - VAV-1.
	BASEBOARD HEATER IDENTIFICATION, PLAN CODE - BB-1, LENGTH - 6 FT.

* UNLESS OTHERWISE NOTED ALL DUCT RUNOUTS ARE THE SAME SIZE AS THE DEVICE NECK SIZE.

ABBREVIATION LEGEND

AFC - ABOVE FINISH CEILING
AFF - ABOVE FINISH FLOOR
ARCH. - ARCHITECT
BFC - BELOW FINISH CEILING
BFF - BELOW FINISH FLOOR
BOD - BOTTOM OF DUCT
BOE - BOTTOM OF EQUIPMENT
CA - COMBUSTION AIR
CKT - CIRCUIT
CLG - COOLING OR CEILING, DEPENDING ON CONTEXT
DN - DOWN
DV - DRYER VENT
DX - DIRECT EXPANSION (OF REFRIGERANT)
EA - EXHAUST AIR
EA - EACH
E.C. - ELECTRICAL CONTRACTOR
EER - ENERGY EFFICIENCY RATIO
FZV - FIRE ZONE VALVE
G.C. - GENERAL CONTRACTOR
H.C. - HVAC CONTRACTOR
HTG - HEATING
ID - INSIDE DIMENSIONS
MA - MAKE-UP AIR
MAX - MAXIMUM
M.C. - MECHANICAL CONTRACTOR
MIN - MINIMUM
NO. - NUMBER
OA - OUTSIDE AIR (NOT CONDITIONED)
P.C. - PLUMBING CONTRACTOR
PH - PHASE
PRESS. - PRESSURE
RA - RETURN AIR
REQ'D - REQUIRED
SA - SUPPLY AIR
SEER - SEASONAL ENERGY EFFICIENCY RATIO
SHC - SENSIBLE HEAT CAPACITY
SP - STATIC PRESSURE
TA - TRANSFER AIR
TDH - TOTAL DYNAMIC HEAD PRESSURE
THC - TOTAL HEAT CAPACITY
TP - TOTAL PRESSURE
TYP. - TYPICAL
U.O.N. - UNLESS OTHERWISE NOTED
VA - VENTILATION AIR
WT - WEIGHT

DDC CONTROLS SEQUENCE OF OPERATION (PER SECTION 15985 CU STANDARDS)

CABINET UNIT HEATER

- THE CABINET UNIT HEATER SHALL BE SEQUENCED WITH ASSOCIATED VAV BOX
- HEATING WITH THE CABINET HEATER AND COOLING WITH THE VAV BOX SHALL NOT OCCUR SIMULTANEOUSLY
- FOR HEATING SYSTEMS THE SPACE THERMOSTAT SHALL MODULATE THE CONTROL VALVE AND CYCLE THE UNIT FAN TO MAINTAIN SPACE TEMPERATURE AT SETPOINT OF 68° F.

VAV BOX

- A SPACE THERMOSTAT VARIES THE AIRFLOW FROM MAXIMUM TO MINIMUM TO MAINTAIN SPACE TEMPERATURE SETPOINT. SET MINIMUM AND MAXIMUM CFM AS SHOWN ON THE DRAWINGS. THE ACTUATOR SHALL FAIL IN POSITION (NO SPRING RETURN).

TEMPERATURE CONTROLS SPECIFICATIONS

- CONTRACTOR SHALL COMPLY WITH UNIVERSITY OF COLORADO STANDARDS, SECTION 15950 FOR THE INSTALLATION OF TEMPERATURE CONTROLS.
- ANDOVER-CONTROLS SHALL BE SUPPLIED FOR DDC APPLICATIONS WHICH INCLUDES THE CONTROL FOR THE (2)VAV BOXES AND (3)HYDRONIC CABINET HEATERS.
- THE VAV BOXES AND CABINET HEATERS SHALL BE CONTROLLED IN ACCORDANCE WITH SECTION 15985 OF UNIVERSITY OF COLORADO STANDARDS.
- ALL DAMPER AND VALVE ACTUATORS SHALL BE ELECTRIC.
- CONTRACTOR SHALL INTERFACE WITH CONTROLS FURNISHED WITH EQUIPMENT. PROVIDE ADDITIONAL CONTROL DEVICES, INTERLOCK RELAYS AND SIGNAL CONDITIONERS WHEN NECESSARY TO ACCOMPLISH SPECIFIED SEQUENCES.
- CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING A COMPLETE FUNCTIONAL CONTROL SYSTEM PER THE CONSTRUCTION DOCUMENTS AND UNIVERSITY OF COLORADO STANDARDS.

UNITS LEGEND

LF - LINEAR FEET
SF - SQUARE FEET
CF - CUBIC FEET
CFM - CUBIC FEET PER MINUTE
GPM - GALLONS PER MINUTE
GPH - GALLONS PER HOUR
GAL - GALLONS
FPM - FEET PER MINUTE
BTU/HR - BRITISH THERMAL UNITS PER HOUR
MBH - BTU/HR X 1000
IN WG - INCHES OF WATER GAUGE PRESSURE
FT WG - FEET OF WATER GAUGE PRESSURE
PSI - POUNDS PER SQUARE INCH
LB - POUNDS
V - VOLTS
A - AMPS
W - WATTS
KW - KILOWATTS
HP - HORSE POWER
HZ - HERTZ
RPM - REVOLUTIONS PER MINUTE

HVAC, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTOR COORDINATION SCHEDULE

CATEGORY	DESCRIPTION OF WORK	FURNISHED BY	MOUNTED BY	WIRED BY	NOTES
LOCATING EXISTING UTILITIES	EXTERIOR	G.C.			
	INTERIOR	P.C. AND E.C.			EACH TRADE RESPONSIBLE FOR LOCATING THEIR RESPECTIVE SYSTEMS.
TEMPORARY UTILITIES	TEMPORARY HEAT	G.C.			
	TEMPORARY ELECTRICAL SERVICE	E.C.	E.C.	E.C.	
	WATER AND TOILET AND FACILITIES	G.C.			
CONCRETE	M/E EQUIPMENT PADS, HOUSEKEEPING PADS, CONCRETE SAWING, PATCHING, CORE DRILLING, AND REPAIR.	G.C.			
EXCAVATION	EXCAVATION, BACKFILL, AND CONCRETE OR ASPHALT PAVING FOR UTILITIES OR OTHER M/E EQUIPMENT.	G.C.			
	STRUCTURAL FRAMING FOR SUPPORT.	G.C.			G.C. ALSO TO PROVIDE FRAMING FOR PENETRATIONS.
HVAC ROOF TOP EQUIPMENT, FIELD BUILT ROOF CURBS/PLATFORMS, AND DUCT CURBS.	FIELD BUILT EQUIPMENT PLATFORMS AND DUCT CURBS, TOP MINIMUM 9" ABOVE FINISHED ROOF.	G.C.			G.C. TO CONSTRUCT PLATFORM/CURB FROM 2X10'S AS REQ'D AND CAP WITH 3/4" PLYWOOD AND 40# COATED FELT.
	FLASHING OVER THE TOP OF PLATFORMS AND DUCT CURBS.	H.C.			H.C. TO PROVIDE 26 GA. G.S. METAL TOP EXTENDING 3" DOWN SIDES. ALL JOINTS SOLDERED WATERTIGHT.
FOR ALL ROOF CONSTRUCTION EXCEPT METAL ROOFS.	ROOFING REPAIR AND/OR SEALING OF ROOFING SYSTEM	G.C.			
	STRUCTURAL FRAMING FOR SUPPORT.	G.C.			G.C. ALSO TO PROVIDE FRAMING FOR PENETRATIONS.
HVAC ROOF TOP EQUIPMENT, FIELD BUILT ROOF CURBS/PLATFORMS, AND DUCT CURBS.	EQUIPMENT CURBS, PLATFORMS, AND DUCT CURBS.	G.C.			G.C. TO OBTAIN ROOF CURBS FROM BUILDING MANUFACTURER ON NEW CONSTRUCTION PROJECTS.
	FLASHING OVER THE TOP OF PLATFORMS AND DUCT CURBS.	H.C.			H.C. TO PROVIDE 26 GA. G.S. METAL TOP EXTENDING 3" DOWN SIDES. ALL JOINTS SOLDERED WATERTIGHT.
METAL ROOFS ONLY.	ROOFING REPAIR AND/OR SEALING OF ROOFING SYSTEM	G.C.			
	STRUCTURAL FRAMING FOR SUPPORT.	G.C.			
MECH/ELEC EQUIPMENT AND FIXTURE MOUNTING	HANGERS, MOUNTING HARDWARE, ANCHORS, PIPING STANDS, AND EQUIPMENT LEGS.	H.C. P.C. E.C.	H.C. P.C. E.C.		EACH TRADE RESPONSIBLE FOR MOUNTING THEIR RESPECTIVE EQUIPMENT.
	PIPE AND ROUND DUCT/VENT ROOFJACKS.	H.C. P.C. E.C.	H.C. P.C. E.C.		G.C. TO PROVIDE ROOFJACKS AND FLASHING ON METAL ROOF SYSTEMS.
ROOFING AND ROOF PENETRATIONS	PITCH PANS FOR EQUIPMENT LEGS OR PIPE STANDS.	H.C. P.C. E.C.	H.C. P.C. E.C.		EACH TRADE RESPONSIBLE FOR PITCH PANS REQ'D FOR THEIR EQUIPMENT.
	DRAIN, OVERFLOW SCUPPERS, AND GUTTERS.	G.C.			
	ROOFING REPAIR AND/OR SEALING OF ROOFING SYSTEM	G.C.			
PATCH/REPAIR	PATCHING AND REPAIRING OF EXISTING CONSTRUCTION.	G.C.			
PAINTING	EQUIPMENT, DUCTS, PIPES, LOUVERS, AND ETC.	G.C.			
ACCESS DOORS	FOR M/E EQUIPMENT REQUIRING ACCESS.	H.C. P.C. E.C.	G.C.		EACH TRADE TO FURNISH ACCESS DOORS AS REQ'D FOR THEIR EQUIP.
FIRE RATED CHASES	FOR GREASE DUCTS, FLUES, DUCTS, AND ETC.	G.C.			
ELECTRICAL	CONTROL TRANSFORMERS FOR HVAC EQUIPMENT	H.C.	E.C.	E.C.	
	HVAC CONTROL WIRING 48 VOLTS AND LESS.	H.C.		H.C.	
	HVAC CONTROL WIRING GREATER THAN 48 VOLTS.	E.C.		E.C.	
	HVAC EQUIP. INTERLOCK WIRING HIGH AND LOW VOLTAGE.	E.C.		E.C.	
	CONDUIT FOR ALL WIRING.	E.C.	E.C.		
	DISCONNECT SWITCHES.	E.C.	E.C.	E.C.	
DUCT MOUNTED SMOKE DETECTORS	MOTOR STARTERS TO INCLUDE THERMAL OVERLOADS.	H.C. AND P.C.	E.C.	E.C.	EACH TRADE TO FURNISH STARTERS AS REQ'D FOR THEIR EQUIP.
	INTERFACED WITH BUILDING FIRE ALARM SYSTEM.	F.A.C OR E.C.	H.C.	F.A.C OR E.C.	H.C. TO PROVIDE ACTUAL DUCT SIZE MEASUREMENTS.
DUCT MOUNTED SMOKE DETECTORS	IN BUILDING W/O FIRE ALARM/DETECTION SYSTEM.	H.C.	H.C.	E.C.	
	INTERLOCKS W/HVAC SYSTEM FANS.			E.C.	

ABBREVIATIONS: E.C.-ELECTRICAL CONTRACTOR, F.A.C.-FIRE ALARM CONTRACTOR, G.C.-GENERAL CONTRACTOR, H.C.-HVAC CONTRACTOR, M/E-MECHANICAL/ELECTRICAL, P.C.-PLUMBING CONTRACTOR

HEAT TRANSFER PIPING SCHEDULE

LESS THAN 160 PSI/250° F

LOCATION	SERVICE	PIPE	FITTINGS	REMARKS
ABOVE GROUND	WATER HEATING CHILLED WATER CONDENSER WATER	BLACK STEEL SCHEDULE 40, ASTM A-53	WELDED OR 150# SCREWED OR 150# STEEL FLANGED OR GROOVED LOCK (CHILLED OR COND WATER ONLY)	PIPING EXPOSED TO WEATHER SHALL BE PAINTED OR GALVANIZED.
		TYPE "L" HARD DRAWN COPPER	WROUGHT COPPER	95/5 SOLDER ABOVE 30 PSIG 50/50 SOLDER < 30 PSIG
	PRESSURE RELIEF DRAIN PAN PIPING	TYPE "M" OR DWV COPPER	WROUGHT COPPER	50/50 SOLDER

COMMERCIAL PIPING INSULATION SCHEDULE

SERVICE	NOMINAL PIPE DIAMETER	
	1-1/2" & SMALLER	2" & LARGER
STEAM	1-1/2"	3"
HOT WATER	1"	2"
CHILLED WATER, BRINE, & REFRIGERANT**	1"	1-1/2"

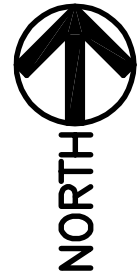
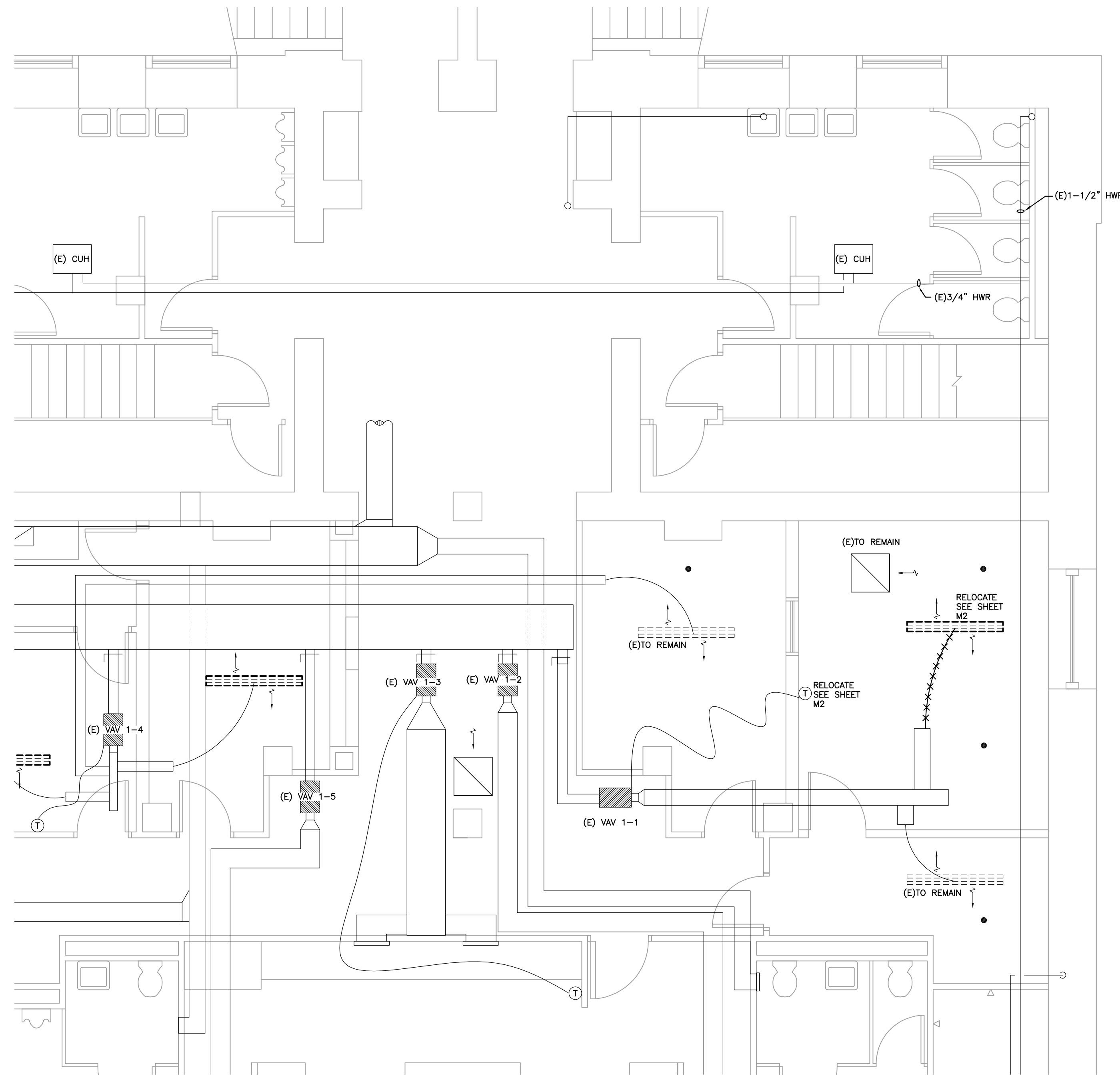
THICKNESS OF INSULATION (INCHES)*

NOTES:

- * - BASED ON INSULATION HAVING CONDUCTIVITY (k-VALUE) NOT EXCEEDING 0.27 BTU PER INCH/HR/°F.
- ** - INSULATION EXPOSED TO WEATHER SHALL BE JACKETED WITH .016" THICK ALUMINUM.
- INSULATION ON COLD PIPES SHALL HAVE A VAPOR BARRIER APPLIED INCLUDING ALL JOINTS AND TERMINATIONS.

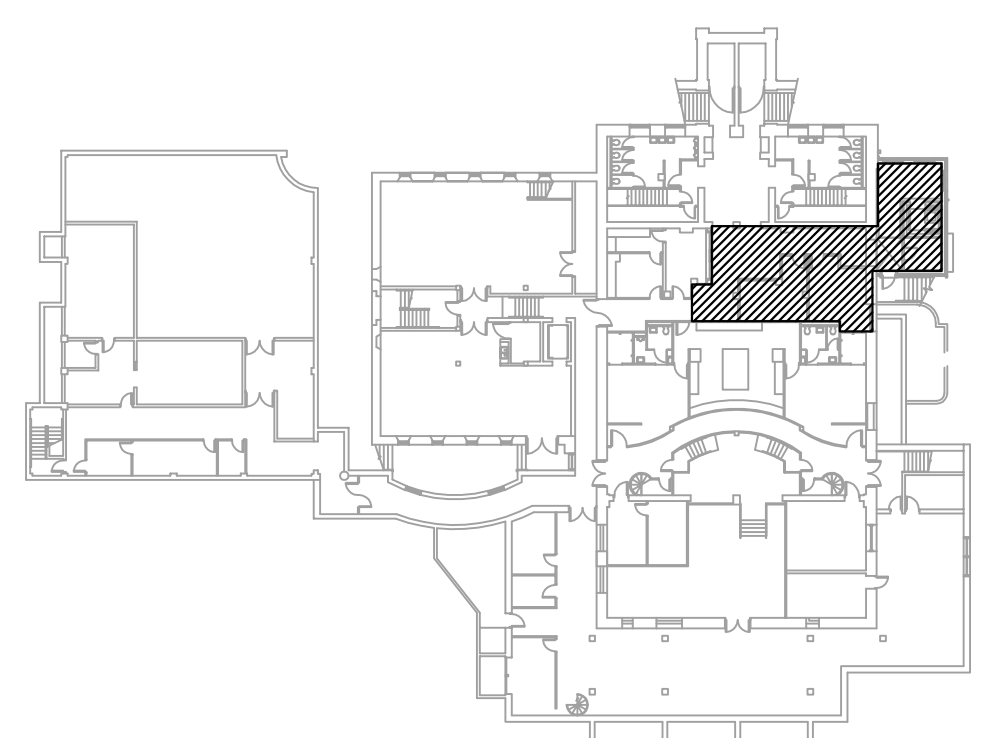
INSULATION NOT REQUIRED ON:

- RUNOUT PIPING NOT EXCEEDING 4'-0" IN LENGTH & 1" NOMINAL DIAMETER BETWEEN THE CONTROL VALVE AND THE HVAC COIL.
- PIPING THAT CONVEYS FLUIDS THAT HAVE A DESIGN OPERATING TEMPERATURE RANGE BETWEEN 55°F & 105°F.
- PIPING THAT CONVEYS FLUIDS THAT HAVE NOT BEEN HEATED OR COOLED THROUGH THE USE OF FOSSIL FUELS OR ELECTRIC POWER.



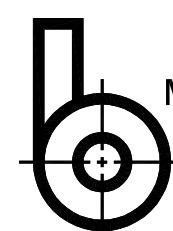
LOWER LEVEL DEMOLITION PLAN

SCALE 1/4" = 1'-0"



LOWER LEVEL KEY PLAN

SCALE NONE

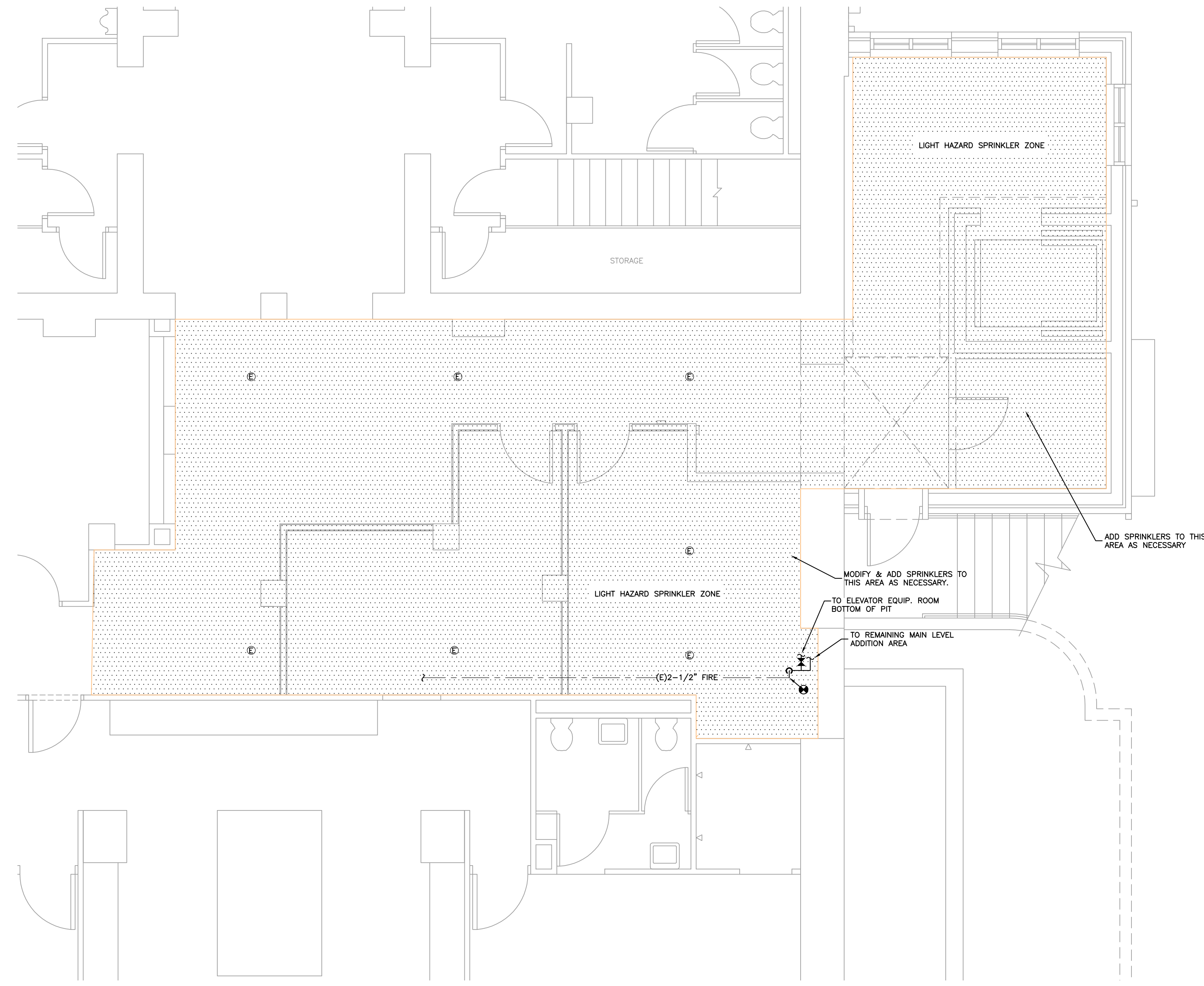
ENGINEERING BY:

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University Theater ADA Elevator Addition
 University of Colorado | Boulder, Colorado
 ucb project number: **PR002750**

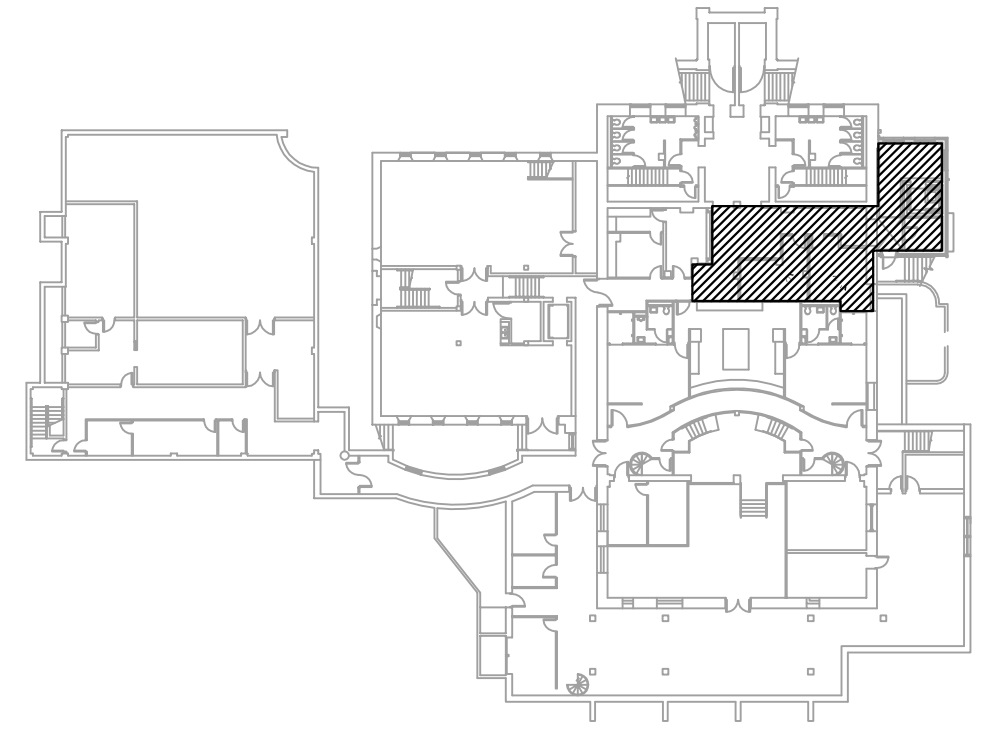
ISSUED FOR	DATE
FOR CONSTRUCTION	8.28.09

PROJECT NO. **080320** DATE **8.28.09**
 SHEET TITLE
HVAC DEMOLITION PLAN
 SHEET NO. **M1**

S:\Engineering\2009\University Theater ADA Improvements (CU Elevator) 08102



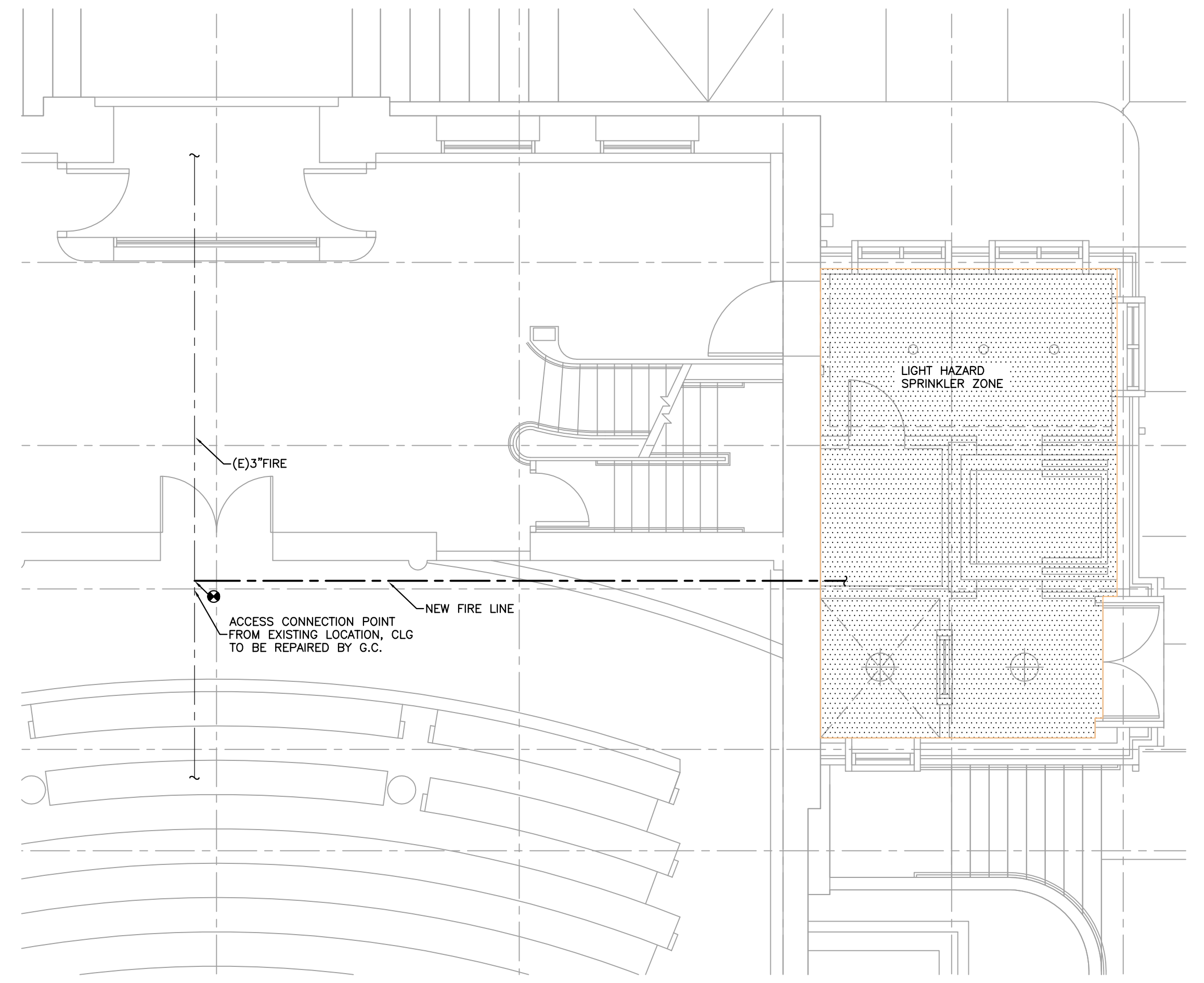
LOWER LEVEL FIRE SPRINKLER PLAN
SCALE 1/4" = 1'-0"



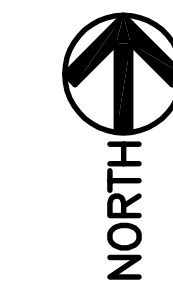
LOWER LEVEL KEY PLAN
SCALE NONE



SYMBOLS LEGEND:
 (E) - EXISTING SPRINKLER HEAD
 [Dotted Area] - LIGHT HAZARD OCCUPANCY

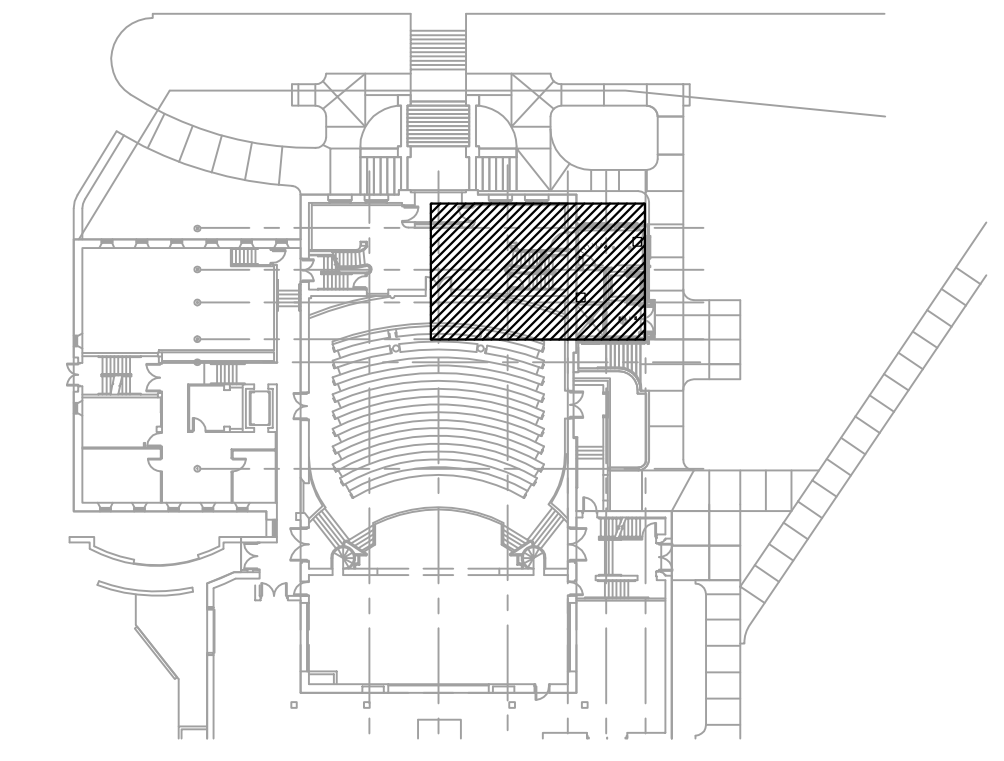


PARTIAL MAIN LEVEL FIRE SPRINKLER PLAN
SCALE 3/16" = 1'-0"



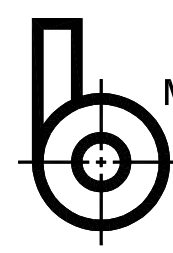
**UNIVERSITY OF COLORADO STANDARDS,
FIRE SPRINKLER SPECIFICATIONS:**

- A. CONTRACTOR SHALL COMPLY WITH THE UNIVERSITY OF COLORADO STANDARDS, SECTION 15300, FOR THE INSTALLATION OF FIRE SPRINKLERS.
- B. FULL SIZE OR 8.5 X 11 SPRINKLER SHOP DRAWINGS ARE ACCEPTABLE. SUBMIT SHOP DRAWINGS PER UCB REQUIREMENTS.
- C. HYDRAULIC CALCULATIONS ARE NOT REQUIRED FOR THIS PROJECT. CONTACTOR SHALL USE THE PIPE SCHEDULE METHOD OF NFPA-13.
- D. PER THE UCB STANDARDS, PIPING 2-1/2" AND SMALLER SHALL BE SCHEDULE 40 STEEL OR OTHER APPROVED STEEL PIPING WITH A THREADED CORROSION RESISTANCE OF 1.0 OR GREATER.
- E. NO HEXAGONAL BUSHINGS ARE ALLOWED.
- F. CONTRACTOR TO CONTACT AND SCHEDULE INSPECTIONS AS REQUIRED BY THE UCB STANDARDS.
- G. THE SPRINKLER SHOP DRAWINGS DO NOT NEED TO INCLUDE A CROSS-SECTION OF THE AREA PROVIDED THE CONTRACTOR WILL CORRECT ANY VIOLATIONS TO THE REQUIREMENTS OF NFPA-13 THAT ARE DISCOVERED DURING CONSTRUCTION.
- H. ALL NEW SPRINKLERS SHALL MATCH THE EXISTING SPRINKLERS IN SIMILAR AREAS OF THE BUILDING WITH REGARD TO TYPE AND MODEL. FOR OLDER EXISTING SYSTEMS WHERE THIS REQUIREMENT CANNOT BE MET, ALL SPRINKLERS IN EACH ROOM SHALL BE REPLACED WITH THE SAME TYPE AND MODEL.
- I. THE INSTALLATION OF SPRINKLER SYSTEMS IN THE ELEVATOR MACHINE ROOM AND SHAFT SHALL COMPLY WITH THE REQUIREMENTS OF ANSI-17.1, UCB STANDARD 15300, AND AHJ.
- J. THE REQUIREMENTS AND RESPONSIBILITIES OF THE ENGINEER AS NOTED IN UCB STANDARD 15300 SHALL ALSO APPLY TO THE DESIGN/BUILD FIRE PROTECTION CONTRACTOR FOR THIS PROJECT.



MAIN LEVEL KEY PLAN
SCALE NONE



ENGINEERING BY:

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ISSUED FOR	DATE
FOR CONSTRUCTION	8.28.09

PROJECT NO.	DATE
080320	8.28.09

SHEET TITLE
SPRINKLER PLAN
 SHEET NO.
M3

LOUVER SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NO.	DESCRIPTION	OVERALL SIZE W/H (IN)*	SERVICE	AIR FLOW RATE (CFM)	MIN. FREE AREA (SF)**	ACTUAL FREE AREA (SF)*	MAX. PRESS. DROP † (IN WG)	DAMPER TYPE	VOLT	PH	AMP*	PLAN CODE(S) OF EQUIP. TO INTERLOCK WITH	NOTES
LV-1	GREENHECK	ESD-603	6" STATIONARY DRAINABLE BLADE	21/12	EXHAUST	425 CFM	-	1.02	0.1	-	-	-	-	-	1

DAMPER TYPES:
 BF - BUTTERFLY M - MOTORIZED
 OB - OPPOSED BLADE G - GRAVITY
 PB - PARALLEL BLADE

* - MANUFACTURER & MODEL SPECIFIC INFORMATION, MAY VARY WITH SUBSTITUTIONS.
 ** - AS DICTATED BY COMB. AIR REQUIREMENTS, MAX. AIR VELOCITY, &/OR MODEL'S WATER PENETRATION VELOCITY.
 † - INCLUDING LOUVER & DAMPER

NOTES: PROVIDE WITH INSECT SCREEN W/ 0.011 DIA. MESH ALUMINUM.

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE

PLAN CODE	DESCRIPTION (NECK SIZE & AIRFLOW AS NOTED ON PLANS)	SERVICE	MATERIAL OF CONST.	AIR FLOW PATTERN	MOUNTING	DAMPER TYPE †	FINISH	MANUFACTURER MAKE/MODEL#	REMARKS
TG-1	45° DEFLECTION BAR GRILLE, 3/4" SPACING	TRANSFER	STEEL	N/A	SURFACE	-	WHITE	PRICE 530	
SD-1	ADJUSTABLE DOUBLE DEFLECTION SIDE WALL DIFFUSER	SUPPLY	STEEL	4 WAY	SURFACE	OB	WHITE	PRICE 520	
R-1	24/24 PERFORATED CEILING GRILLE	RETURN	STEEL	N/A	LAY-IN	-	WHITE	PRICE PDDR	
LS-1	2 SLOT LINEAR SLOT DIFFUSER, 4' LENGTH, 1" SLOTS	SUPPLY	STEEL	N/A	SURFACE	OB	WHITE	PRICE TBD 4100	

† DAMPER TYPES: B.F. - BUTTERFLY, O.B. - OPPOSED BLADE, P.B. - PARALLEL BLADE

FAN SCHEDULE

PLAN CODE	DESCRIPTION	FAN TYPE	DRIVE TYPE	ALT CFM	STD. S.P. IN. W.G.	FAN RPM	GENERATED SOUND	ELECTRICAL			UNIT WT #	MANUFACTURER	MODEL NUMBER AND/OR CATALOG NUMBER	LIST OF FEATURES. (SEE LEGEND BELOW)	PLAN CODE(S) OF EQUIP. TO INTERLOCK WITH	NOTES
								HP OR WATTS	VOLT	PH*						
EF-1	EXHAUST FAN	FC	DIRECT	425	.25	1070	5.5 SONES	224 W	115	1	35	GREENHECK	SPA510	1	STAT	A

FAN TYPE LEGEND:
 BI - BACKWARD INCLINED
 FC - FORWARD CURVED
 P - PROPELLER
 RB - RADIAL BLADE
 VA - VANE AXIAL

GENERAL REQUIREMENTS:
 - SUPPLY ALL 3Ø FAN MOTORS W/MAGNETIC CONTACT STARTERS.
 - SUPPLY ALL 1Ø FAN MOTORS W/INTERNAL DISCONNECTING MEANS & AUTO-RESET THERMAL PROTECTION.
 - SUPPLY ALL BELT DRIVE FAN MOTORS W/ADJUSTABLE PITCH SHEAVES.

FEATURES:
 1 - GRAVITY BACKDRAFT DAMPER
 2 - MOTORIZED BACKDRAFT DAMPER
 3 - ROOF CAP
 4 - WALL CAP
 5 - FACTORY CURB
 6 - FACTORY VENTILATED CURB
 7 - SPRING MOUNT ISOLATORS
 8 - RUBBER MOUNT ISOLATORS
 9 - IN-LINE ADAPTER PLATE
 10 - GREASE TROUGH
 11 - THREADED GREASE DRAIN CONNECTION
 12 - OSHA GUARD
 13 - INSULATED CABINET
 14 - MOTOR WEATHER HOOD
 15 - LONG WALL HOUSING
 16 - SHORT WALL HOUSING
 17 - CLOSURE ANGLES
 19 - SPEED CONTROLLER
 20 - OTHER

NOTES: A. INTERLOCK FAN TO A COOLING ONLY THERMOSTAT ON WALL.

VARIABLE AIR VOLUME TERMINAL SCHEDULE

PLAN CODE	MANUF.	MODEL NUMBER	DESCRIPTION	UNIT CONTROLS		AIR VALVE				FEATURES AND OPTIONS SEE LEGEND BELOW	NOTES
				TYPE	PRESSURE DEPENDENT/INDEPENDENT	INLET SIZE	SP @ MAX. DESIGN	MIN CFM	MAX CFM		
VAV-A,B	CARRIER	35E	SINGLE DUCT	DDC	INDEPENDENT	8"	0.3	0	520		

ABBREVIATIONS:
 N/A - NOT APPLICABLE
 NA - NOT AVAILABLE FROM MFG. INFO.
 MIN - MINIMUM ALLOWABLE VALUE
 MAX - MAXIMUM ALLOWABLE VALUE
 SP - STATIC PRESSURE

UNIT CONTROL TYPES:
 AC - ANALOG
 DDC - DIRECT DIGITAL
 PC - PNEUMATIC
 VTC - VARIABLE VOLUME & TEMPERATURE

FEATURES AND OPTIONAL EQUIPMENT LEGEND:
 1 - MULTIPLE OUTLET PLENUM (SEE DWGS FOR CONFIGURATION)
 2 - SOUND ATTENUATOR
 3 - 22 GA. CASING WITH 1/2" INSULATION
 4 - OTHER

NOTES:

PLUMBING FIXTURE SCHEDULE

PLAN CODE	DESCRIPTION	MAKE/MODEL#	RIM MTG. HT. (AFF)	FAUCET OR FLUSH VALVE		ACCESSORIES		WATER		WASTE SIZES		NOTES
				DESCRIPTION	MAKE/MODEL#	DESCRIPTION	MAKE/MODEL#	ROUGH-IN		P-TRAP		
								COLD	HOT			
SP-1 (FUTURE)	SUBMERSIBLE COMMERCIAL SUMP PUMP. OIL SMART SYSTEM. CAST IRON. 4/10 HP, 115 V, 1Ø, 53 GPM @ 15' TOTAL HEAD. AUTOMATIC OPERATION W/AUTO RESET THERMAL OVERLOAD PROTECT.	ZOELLER N152 940-0006										

ELECTRIC UNIT HEATER SCHEDULE

PLAN CODE	MANUFACTURER MODEL NUMBER	DESCRIPTION	KW	(BTU/HR)	S.L. CFM	ELECTRICAL			UNIT WT #	STANDARD FEATURES SEE LEGEND BELOW	OPTIONAL FEATURES SEE LEGEND BELOW	NOTES
						VOLT	PH	AMPS				
EUH-1	BERKO HUAA 320	ELECTRIC UNIT HEATER	3	10,240	350	208	1	14.5	24	3		

FEATURES LEGEND:
 1 - SURFACE MTG. ENCLOSURE
 2 - RECESS MTG. ENCLOSURE
 3 - UNIT MTD. T-STAT
 4 - REMOTE T-STAT
 5 - PNEUMATIC/ELECTRIC SWITCH
 6 - 208/240V PRIMARY TRANSFORMER/24V SEC. & 24V HOLDING COIL RELAY
 7 - 277V PRIMARY TRANSFORMER/24V SEC. & 24V HOLDING COIL RELAY
 8 - TRIM RING
 9 - BUILT-IN FAN DELAY
 10 - AUTO. THERM. PROTECTION
 11 - FIELD CONV. TO 3.8 KW
 12 - FIELD CONV. TO 3.0 KW
 13 - FIELD CONV. TO 2.5 KW
 14 - FIELD CONV. TO 2.0 KW

NOTES:

HYDRONIC CABINET UNIT HEATER SCHEDULE

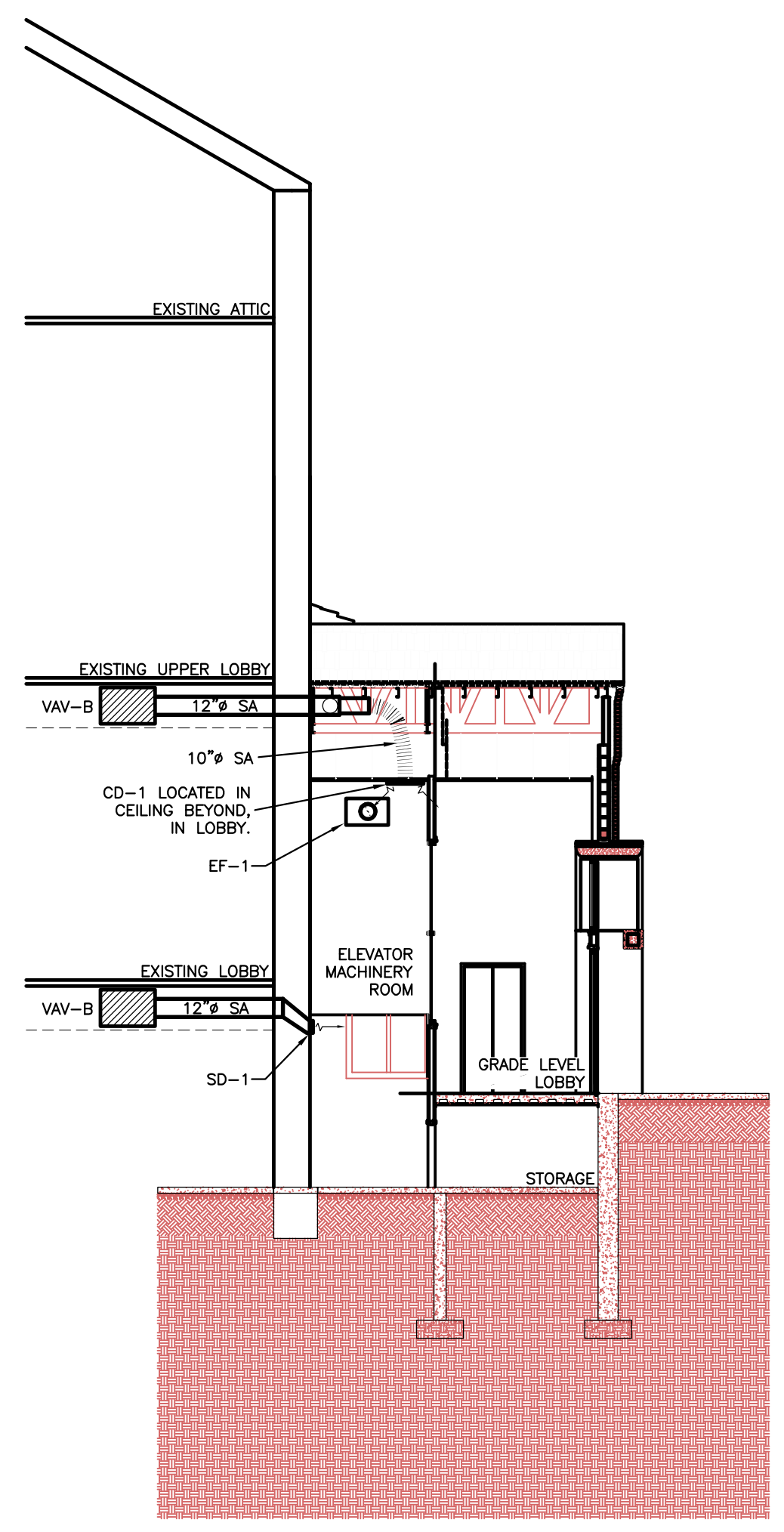
PLAN CODE	MANUFACTURER MODEL NUMBER	HEATING SECTION				FAN SECTION		ELECTRICAL			UNIT WT #	LIST OF FEATURES AND OPTIONAL EQUIPMENT. (SEE LEGEND BELOW)	NOTES	
		MIN OUTPUT (BTU/HR)	WATER FLOW RATE (GPM)	AVE. WATER TEMP. (°F)	COIL PD FT. WG.	ALT CFM	DRIVE TYPE	HP	VOLT	PH				MAX FUSE AMPS
CUH-1	STERLING FS03	22,800	2.3	180		270	DIRECT	1/15	115	1	0.8	115	1,3,6,7,8	
CUH-2	STERLING FS03	35,400	3.5	180		270	DIRECT	1/15	115	1	0.8	115	1,3,6,7,8	
CUH-3	STERLING RW04	46,300	4.6	180		430	DIRECT	1/15	115	1	1.4	115	1,3,6,7	

U.O.N. UNITS ARE: GRAVITY VENTED, ALUMINIZED HEAT EXCHANGER AND BURNERS, 1 STAGE REDUNDANT GAS VALVE, 24 V CONTROL XFMR, AGA FOR INDOOR.

ABBREVIATIONS:
 MIN - MINIMUM REQUIRED VALUE
 NOM - NOMINAL
 CENT - CENTRIFUGAL FAN
 PROP - PROPELLER FAN

FEATURES AND OPTIONAL EQUIPMENT LEGEND:
 1 - TOTALLY ENCLOSED MOTOR.
 2 - PROGRAMMABLE T-STAT.
 3 - VERTICAL LOUVERS.
 4 - 30° DOWNTURN NOZZLE.
 5 - 60° DOWNTURN NOZZLE.
 6 - INTERNAL DISCONNECT SWITCH
 7 - SURFACE MOUNTED
 8 - SLOPE TOP
 9 -
 10 -
 11 -
 12 -
 13 -
 14 -

NOTES:



SECTION OF ADDITION LOOKING NORTH
 SCALE 1/8" = 1'-0"

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University Theater ADA Elevator Addition
 University of Colorado | Boulder, Colorado
 ucbl project number: **PR002750**

ISSUED FOR	DATE
FOR CONSTRUCTION	8.28.09

PROJECT NO.	DATE
080320	8.28.09
ISSUED FOR	DETAILS
SHRIT NO.	

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