MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	ABC	ABOVE CEILING
	AF	ABOVE FLOOR
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AC	AIR CONDITIONING
	APD	AIR PRESSURE DROP, INCHES WATER COLUMN
	BDD	[COUNTER BALANCED] BACK DRAFT DAMPER
	BFP	BACKFLOW PREVENTER
	BF	BELOW FLOOR
	BHP	BRAKE HORSEPOWER
	BTU(H)	BRITISH THERMAL UNITS (PER HOUR)
	CLG	CEILING
	CLR	CLEAR
— CD —	CD	CONDENSATE DRAIN LINE
	CONC	CONCRETE
	COND	CONDENSER
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CFM	CUBIC FEET OF AIR FLOW PER MINUTE
°F		DEGREES FAHRENHEIT
	DIA	DIAMETER
	ΔP	DIFFERENTIAL PRESSURE SENSOR, PIPE MOUNTED
	DL	DOOR LOUVER
	DN	DOWN
	DR	DRAIN
	(D)	DROP
	DB	DRY BULB (DEGREES FAHRENHEIT)
	DTR	DUCT THRU ROOF
	ELEC.	ELECTRIC, ELECTRICAL
	EDB	ENTERING DRY BULB
	EW	ENTERING WATER
	EWT	ENTERING WATER TEMPERATURE
	EWB	ENTERING WET BULB
	EA	EXHAUST AIR
	EAD	EXHAUST AIR DAMPER
	(E), EXIST.	EXISTING
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
	FD	FIRE DAMPER
	FS	FIRE/SMOKE DAMPER
	FC	FLEXIBLE OR FLEXIBLE CONNECTION
	FLR	FLOOR
		FLOW IN DIRECTION OF ARROW
	FA	FROM ABOVE
	FB	FROM BELOW
	FLA	FULL LOAD AMPS
	GPH	GALLONS PER HOUR
	GPM	GALLONS PER MINUTE
	GALV	GALVANIZED
	GSM	GALVANIZED SHEET METAL
	GA	GAUGE
	GYP. BD.	GYPSUM BOARD
	HTG	HEATING
	HP	HORSEPOWER
	HR	HOUR
	IN. WC., IN. WG.	INCHES WATER GAGE, INCHES WATER COLUMN
	KW	KILOWATTS
	KWH	KILOWATT HOUR
	LDB	LEAVING DRY BULB IN DEGREES FAHRENHEIT
	LWB	LEAVING WET BULB IN DEGREES FAHRENHEIT
	LRA	LOCKED ROTOR AMPERES
	MAV	MANUAL AIR VENT
	MAD, MD	MANUAL AIR DAMPER
	MFR	MANUFACTURER
	MAX	MAXIMUM
	MOCP	MAXIMUM OVER CURRENT PROTECTION
	MBH	THOUSANDS OF BRITISH THERMAL UNITS
	MIN	MINIMUM
	MCC	MOTOR CONTROL CENTER
	OC	ON CENTER
	OA	OUTSIDE AIR
	OAD	OUTSIDE AIR DAMPER
	OH	OVERHEAD
	PH	PHASE
	POC	POINT OF CONNECTION
	LB, LBS	POUND, POUNDS
	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
	PD	PRESSURE DROP
	PG	PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE

MECHANICAL LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
— RS —	RS	REFRIGERANT SUCTION PIPING
— RL —	RL	REFRIGERANT LIQUID PIPING
	RA	RETURN AIR
	RAD	RETURN AIR DAMPER
	RPM	REVOLUTIONS PER MINUTE
	(R)	RISE
		RISER DOWN (ELBOW)
		RISER UP (ELBOW)
	RLA	RUNNING LOAD AMPERES
		SEISMIC EXPANSION JOINT
	SM	SHEET METAL
SD	SD	SMOKE DAMPER
SD	SKD	SMOKE DETECTOR
	SQFT, FT^2	SQUARE FEET
	SQIN, IN^2	SQUARE INCHES
	SP	STATIC PRESSURE
	SPD	STATIC PRESSURE DROP
SP	SP	STATIC PRESSURE SENSOR (DUCT AND SPACE)
	SA	SUPPLY AIR
	SF	SUPPLY FAN
	TCV	TEMPERATURE CONTROL VALVE
	TCP	TEMPERATURE CONTROL PANEL
Tx	T	TEMPERATURE SENSOR, "X" INDICATES DEVICE CONTROLLED
	TA	TO ABOVE
	TB	TO BELOW
	TP	TOTAL PRESSURE
	TSP	TOTAL STATIC PRESSURE
	TYP	TYPICAL
	UG	UNDERGROUND
	UF	UNDER FLOOR
	UON	UNLESS OTHERWISE NOTED
	VLV	VALVE
	WPD	WATER PRESSURE DROP
	W	WATTS
	WT	WEIGHT
	WB	WET BULB
	WMS	WIRE MESH SCREEN
	WP	WORKING PRESSURE
— CHWS —	CHWS	CHILLED WATER SUPPLY PIPING
— CHWR —	CHWR	CHILLED WATER RETURN PIPING
— HWS —	HWS	HOT WATER SUPPLY PIPING
— HWR —	HWR	HOT WATER RETURN PIPING
— CD —	CD, D	CONDENSATE DRAIN , DRAIN
	TR	DUCT TRANSITION, LARGE TO SMALL
	AV, TCV	VALVE WITH MOTOR/ACTUATOR
	AV, TCV	BUTTERFLY VALVE WITH MOTOR/ACTUATOR
	CBV	CALIBRATED BALANCE VALVE
	ANV	ANGLE VALVE
	BFP	BACKFLOW PREVENTER
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
	CKV	CHECK VALVE
	CP	CIRCULATING PUMP
	GV	BALL VALVE
	GLV.	GLOBE VALVE
	GCK	GAGE COCK
	HV	HAND VALVE
	PRV	PRESSURE REDUCING VALVE
OR	RV or P&TRV	RELIEF VALVE OR PRESSURE & TEMPERATURE RELIEF VALVE
	TCV	TEMPERATURE CONTROL VALVE (2-WAY)
	TCV	TEMPERATURE CONTROL VALVE (3-WAY)
	FMS	FLOW MEASURING STATION
		VALVE IN RISER (TYPE AS INDICATED OR NOTED)
		FLOW IN DIRECTION OF ARROW
		PITCH DOWN IN DIRECTION OF FLOW
	UN	UNION
	FL	FLANGE
		EXISTING TO BE REMOVED
	EXP LP	EXPANSION LOOP
		PIPE ANCHOR
		PIPE GUIDE

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED ON PLANS.

DUCT LEGEND

SINGLE LINE SYMBOL	DOUBLE LINE SYMBOL	DESCRIPTION
24x12	24x12	RECTANGULAR DUCT – WIDTH x DEPTH (PLAN VIEW) DEPTH x WIDTH (SECTION VIEW)
26x14L	26x14L	ACOUSTICALLY LINED RECTANGULAR DUCT–DIMENSIONS ARE OUTSIDE DIMENSION
		MANUAL AIR DAMPER
R OR D	RISE OR DROP	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
	OR	RECTANGULAR TO RECTANGULAR TRANSITION, MAX. SLOPE OF 1:3 RECTANGULAR TO ROUND TRANSITION, MAX. SLOPE OF 1:3
	W, R, R/W = 1.5	ELBOW, RECTANGULAR, SMOOTH RADIUS, WITHOUT TURNING VANES
		SQUARE/RECTANGULAR DUCT ELBOW WITH TURNING VANES
		CONVERGING OR DIVERGING TEE, 45° ENTRY, RECTANGULAR MAIN AND BRANCH. WHEN REDUCING MAIN, SIDE OF TAKE OFF OR ENTRY BRANCH TO BE FLAT, OTHER SIDES MAX. SLOPE OF 1:3
ROUND DUCT		ROUND DUCT TAKE OFF FROM RECTANGULAR VIA SMOOTH CONVERGING BELL MOUTH
		RECTANGULAR DUCT TEE MAD'S ON THE 2 BRANCHES, THROAT SIZED FOR EQUAL PRESSURE DROP
		RECTANGULAR DUCT SPLIT MAD'S, THROAT SIZED FOR EQUAL PRESSURE DROP
		3-WAY RECTANGULAR SPLIT WITH TWO TRANSITIONAL ELBOWS AND TRANSITIONING MAIN. DOWNSTREAM MAD'S ON THE TREE BRANCHES. THROATS SIZED FOR EQUAL PRESSURE DROP.
		FOR CONCEALED DUCT: DROP TO DIFFUSER SHALL BE FULL SIZE OF DIFFUSER NECK. FOR EXPOSED DUCT: DROP SHALL BE FULL SIZE OF OD DIFFUSER FRAME, FLANGE FOR MOUNTING DIFFUSER TURNED IN. AIR EXTRACTOR AND EQUALIZER GRID AT CONNECTION TO MAIN.
		SUPPLY AIR, SUPPLY AIR DUCT IN SECTION, SUPPLY DROP
		RETURN AIR, RETURN AND OUTSIDE AIR DUCT IN SECTION, RETURN AIR DROP
		EXHAUST AIR, EXHAUST AIR DUCT IN SECTION, EXHAUST AIR DROP
		FLEXIBLE DUCT (ROUND)
		FLEXIBLE DUCT (FABRIC)
MAD, 18"ø, 10"ø, 12"ø		45° REDUCING LATERAL FITTING
MAD, 18"ø, 12"ø, 10"ø		90° REDUCING TEE FITTING

SHEET INDEX

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES AND INDUSTRY STANDARDS.
2. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH WALLS & ROOFS WITH ARCHITECTURAL DRAWINGS AND STRUCTURAL COMPONENTS PRIOR TO COMMENCING WORK.
3. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK AND PIPING ON THE JOB PRIOR TO FABRICATION AND INSTALLATION WITH ARCHITECTURAL, STRUCTURAL, PLUMBING, AND ELECTRICAL. NOT ALL RISES AND DROPS ARE SHOWN. PROVIDE AS REQUIRED TO ACCOMMODATE STRUCTURE AND EXISTING CONDITIONS. HOLD ALL PIPING AS HIGH AS POSSIBLE UNLESS OTHERWISE INDICATED.
4. PROVIDE AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DIFFUSER/REGISTER OR FROM A SINGLE RETURN OR EXHAUST REGISTER/GRILLE.
5. ALL WORK SHOWN IS NEW UNLESS NOTED OTHERWISE. CAREFULLY COORDINATE CONNECTION OF NEW WORK TO EXISTING WORK.
6. FIELD VERIFY LOCATIONS OF ALL EXISTING DUCTWORK, PIPING, EQUIPMENT, ETC PRIOR TO START OF WORK. ADJUST NEW WORK AS NECESSARY TO COMPENSATE FOR VARIATIONS IN LOCATIONS OF EXISTING.
7. PENETRATIONS OF RATED FIRE ASSEMBLIES SHALL BE FIRESTOPPED. FIRE-STOPPING SHALL BE OF AN APPROVED MATERIAL AS PRESCRIBED BY THE STATE FIRE MARSHAL.
8. INFORMATION PERTAINING TO EXISTING CONDITIONS AND SYSTEMS IS BASED ON REVIEW OF AVAILABLE RECORD DRAWINGS AND CURSORY REVIEW OF FACILITY. CONTRACTOR SHALL VISIT SITE PRIOR TO COMMENCING WORK TO BECOME THOROUGHLY FAMILIAR WITH EXISTING CONDITIONS AND SYSTEMS. MODIFY NEW WORK TO SUIT EXISTING CONDITIONS. DOCUMENT EXISTING SYSTEMS AND MODIFICATIONS TO NEW WORK REQUIRED, IF ANY, WITH SHOP DRAWING SUBMISSION.
9. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES.
10. ACCESS PANELS SHALL BE PROVIDED AS NECESSARY TO PROPERLY ACCESS THE MECHANICAL SYSTEMS INCLUDING VALVES, EQUIPMENT AND DAMPERS. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
11. SUPPORTS, ANCHORAGE AND RESTRAINTS FOR ALL PIPING, DUCTWORK AND EQUIPMENT SHALL BE AN OSHPD PRE-APPROVED SYSTEM SUCH AS ISAT, MASON OR EQUAL. SYSTEM SHALL HAVE A CURRENT OPA NUMBER AND SHALL MEET THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
12. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 8' MAXIMUM LENGTH.
13. WHERE INLET DUCT DIAMETER & DIFFUSER NECK SIZE ARE THE SAME (I.E. 9"ø & 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMMODATE THE ROUND DUCT CONNECTION.
14. THERMOSTAT TO BE INSTALLED AT 46" ABOVE FINISHED FLOOR (TOP OF THERMOSTAT), DO NOT INSTALL THERMOSTAT OVER CASEWORK OR SHELVING OVER 24" IN DEPTH & 34" IN HEIGHT.

PIPING, DUCTWORK & ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.8, 13.6.7, 13.6.5.6, AND SECTION 1616A.1.23 THROUGH 1616A.1.26.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS (OPA #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2013 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13 AND 26.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE ATTACHEMENT OF THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTION SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

TABLE OF BRANCH DUCT (SA, RA, EA) SIZES TO INDIVIDUAL DIFFUSERS, GRILLES, & REGISTERS

CFM	DUCT SIZE (INCHES) ① ROUND	SQUARE	RECTANGULAR	MIN. AREA (SQ. IN.) ②	REMARKS ③④
0-210	8ø	8x8	8x6	48	8x8 MIN ON RA & EA
211-380	10ø	10x10	10x8	80	
381-600	12ø	12x12	12x10, 16x8	120	
601-900	14ø	14x14	14x12, 16x10, 20x8	160	
901-1300	16ø	16x16	16x14, 18x12, 22x10	220	
1301-1800	18ø	18x18	18x16, 20x14, 22x12	264	
1801-2400	20ø	20x20	22x16, 24x14, 30x12	340	

NOTES:

① SIZE OF BRANCH DUCT IF SHOWN ON PLANS OR FROM ABOVE TABLE IS NOT THE INLET SIZE TO DIFFUSER, GRILLE OR REGISTER. PROVIDE PLENUM BOX PER 5/M5.1. SEE NOTE ③

② MINIMUM DUCT AREA TO BE USED FOR ALTERNATE DUCT SIZES (DIFFERENT THAN THIS TABLE) WHEN REQUESTED BY CONTRACTOR FOR SA, RA, AND EA.

③ SEE 5/M5.1 FOR PLENUM BOX AT DIFF/REG/GRILLE AND FOR DETAIL OF DUCT BRANCH CONNECTION TO OUTLET (AND INLET) PLENUMS AT DIFF/REG/GRILLE.

④ ALL DUCT SIZES SHALL BE SHOWN CLEARLY ON THE CONTRACTOR'S SUBMITTAL DRAWINGS. SHOW SIZE OF EACH DUCT ON THE PLANS AT EACH DUCT LOCATION.

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.

consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca. 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number: 20842.00

file name:

drawn by: checked by:

date: MAY 16, 2016

Rev.	date:	description:
	12/5/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC LEGEND, SCHEDULES & NOTES

drawing no:
M0.1
drawing of

AIR HANDLER SCHEDULE

UNIT	SERVES	"TEMTROL" MODEL	LOCATED	SUPPLY FAN CFM	SUPPLY FAN TSP/ESP IN.WG.	SUPPLY FAN HP	RETURN CFM CFM	RETURN CFM TSP/ESP IN.WG.	RETURN CFM HP
(E) AHU 5A.1	(E) SECTOR 5A	"TEMTROL" WF-RDHRE14	OUTDOOR	6,650	4.5 / 2.0	2@ 5 HP	5,850	1.75 / 1.45	3
(E) AHU 6.1	(E) SECTOR 6 (ALSO SECTOR 3 OUT OF SCOPE)	"TEMTROL" ITF-RDHRE22	OUTDOOR	–	– / –	15	–	– / –	7.5
(E) AHU 8	(E) SECTOR 5B (ALSO SECTOR 13 OUT OF SCOPE)	"TEMTROL"	OUTDOOR	–	– / –	4@ 6.5 HP	–	– / –	4@ 5 HP

UNIT	CHILLED WATER COIL ROWS	FPI	EDB °F	EWB °F	LDB °F	SENS. LOAD (MBH)	TOTAL LOAD (MBH)	GPM	EWT °F	LWT °F	AIR ΔP IN.WG.	WATER ΔP FT.HEAD	TCV TYPE	TCV CV
(E) AHU 5A.1	4	12	85	64	51	227	236	49	45	55	0.29	4.97	3–WAY	–
(E) AHU 6.1	6	10	84	66	52	366	457	91	45	55	0.77	12.4	2–WAY	–
(E) AHU 8	–	–	–	–	–	–	–	132	–	–	–	–	3–WAY	27.3

UNIT	HOT WATER COIL ROWS	FPI	EDB °F	LOAD (MBH)	GPM	EWT °F	LWT °F	AIR ΔP IN.WC.	WATER ΔP FT.HEAD	TCV TYPE	TCV CV	MIN. OA CFM	UNIT WT. LBS.	REMARKS
(E) AHU 5A.1	1	7	54	208	20	160	140	0.03	2.92	3–WAY	–	2,660	6,850	1, 2,
(E) AHU 6.1	1	6	56	202	10	160	120	0.06	3.95	2–WAY	–	2,500	9,720	3, 5
(E) AHU 8	1	8	35	645	66	–	–	–	–	3–WAY	38	5,000	16,950	4, 5

NOTES:

1. BALANCE AIR HANDLING UNIT SUPPLY AIR TO VALUE INDICATED.
2. EXISTING OUTSIDE AIR FLOW SETPOINT OF 2660 CFM IS OK AS IS. VERIFY DURING AIR BALANCE.
3. MAINTAIN THE SAME SUPPLY & RETURN AIRFLOW TO SECTOR 3 (FIRST FLOOR) WHICH IS OUTSIDE THE SCOPE OF WORK. BALANCE SECTOR 6 SUPPLY & RETURN AIRFLOW TO WHAT IS SHOWN ON FLOOR PLAN.
4. MAINTAIN THE SAME SUPPLY & RETURN AIRFLOW TO SECTOR 13 (THIRD FLOOR) WHICH IS OUTSIDE THE SCOPE OF WORK. BALANCE SECTOR 5B SUPPLY & RETURN AIRFLOW TO WHAT IS SHOWN ON FLOOR PLAN.
5. BALANCE AIR HANDLING UNIT OUTSIDE AIR TO VALUE INDICATED. THE CALCULATED OA VALUE INDICATED INCORPORATES ALL AREAS SERVED BY THIS AHU INCLUDING THOSE SPACES OUTSIDE THE SCOPE OF WORK.

SPLIT SYSTEM AC UNIT SCHEDULE

UNIT	LOCATION	"MITSUBISHI" MODEL NO. (INDOOR UNIT)	CFM	MCA	FLA	VOLT/PH	OPER. WT. (LBS.)	MOUNTING DETAIL	UNIT	"MITSUBISHI" MODEL NO. (OUTDOOR UNIT)	TOTAL COOLING CAPACITY (MBH)	REFRIGERANT LINE SIZE	COMPRESSOR RLA	COMPRESSOR LRA	MCA	FAN FLA	VOLT/PH	SEER	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
SAC 5A.1	SECTOR 5A 241 DATA	MS-A12WA	425	1.2	0.95	120/1	30	6 / M5.1	SCU 5A.1	MU-A12WA	12	1/4" RL 1/2" RS	10.82	56	16	0.93	120/1	13.0	100	7 / M5.1	– / M6.1	1, 2, 3

NOTES:
1. PROVIDE WITH 1" FILTERS.
2. INSTALL REFRIGERANT PIPING PER MFR INSTALLATION INSTRUCTIONS.
3. PROVIDE FACTORY CONDENSATE PUMP.

DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	TITUS	PRICE	METALAIR	KRUEGER
CD	MODULAR CORE SURFACE MOUNT PERFORATED CEILING DIFFUSER FLAT FRAME	PMC – BORDER TYPE 1C	PDMC–FRAME1	7950–1	6400 FRAME 22
CR, CE	CEILING RETURN WITH 1/2"x1/2"x1" EGG CRATE CORE, SURFACE MOUNT	MODEL 50 F – BORDER TYPE 1	80	CC5D	EGC–5
CRL, CEL	CEILING RETURN WITH 1/2"x1/2"x1" EGG CRATE CORE, IN 24x24 PANEL FOR T–BAR CEILING	MODEL 50 F – BORDER TYPE 3	80 – TBP	CC5D–TBD	EGC–5TB
S S	DOUBLE DEFLECTION SUPPLY GRILLE WITH VERTICAL FRONT BARS, 3/4" SPACING	300 RS	520 S	V 4004 S	880 V
R & E *	RETURN OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS.	350 RL	530L	SRH	S 80 H

NOTES:
1. ALL SYMBOLS NOTED MAY NOT BE USED. REFER TO PLANS FOR SIZE AND QUANTITY.
2. ALL SUPPLY AIR DIFFUSERS ARE 4 WAY BLOW UNLESS SHOWN OTHERWISE.
3. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER.
4. COORDINATE DIFFUSER TYPE WITH REFLECTED CEILING PLAN.
5. OPPOSED BLADE DAMPERS ARE NOT REQUIRED AT DIFFUSERS, REGISTERS OR GRILLES.
6. PROVIDE MANUAL AIR DAMPERS AT EACH BRANCH DUCT TO A SINGLE DIFFUSER, REGISTER OR GRILLE.
7. FOR MOUNTING SEE 5/M5.1.

TERMINAL UNIT SCHEDULE

UNIT	AREA SERVED	"TITUS" ESV SERIES	MAX CFM	MIN CFM	DISCHARGE CONN SIZE	TOTAL AIR PRESSURE DROP	NC DISCHARGE	NC RADIATED	2-ROW REHEAT COIL MBH	GPM	PD (FT H_2O)	VALVE
VAV 5A.1	SECTOR 5A	16	2000	750	24x18	0.35	< 20	22	32	2.0	0.3	2–WAY
VAV 5A.2	SECTOR 5A	10	800	800	14x13	0.35	21	27	35	2.0	0.3	2–WAY
VAV 5A.3	SECTOR 5A	6	300	150	12x8	0.34	20	23	6	0.5	0.1	2–WAY
VAV 5A.4	SECTOR 5A	4	150	75	12x8	0.26	25	27	3	0.5	0.1	2–WAY
VAV 5A.5	SECTOR 5A	4	150	75	12x8	0.26	25	27	3	0.5	0.1	2–WAY
VAV 5A.6	SECTOR 5A	16	2000	750	24x18	0.35	< 20	22	32	2.0	0.3	2–WAY
VAV 5A.7	SECTOR 5A	4	150	75	12x8	0.26	25	27	3	0.5	0.1	2–WAY
VAV 5A.8	SECTOR 5A	6	300	150	12x8	0.34	20	23	6	0.5	0.1	2–WAY
VAV 5A.9	SECTOR 5A	10	800	650	14x13	0.35	21	27	28	1.5	0.5	3–WAY
VAV 5B.1	SECTOR 5B	10	1000	720	14x13	0.55	23	28	31	2.0	0.3	2–WAY
VAV 5B.2	SECTOR 5B	10	800	800	14x13	0.35	21	27	35	2.0	0.3	2–WAY
VAV 5B.3	SECTOR 5B	5	200	100	12x8	0.55	< 20	< 20	4	0.5	0.1	2–WAY
VAV 5B.4	SECTOR 5B	6	300	150	12x8	0.34	20	23	6	0.5	0.1	2–WAY
VAV 5B.5	SECTOR 5B	10	1000	660	14x13	0.55	23	28	28	1.5	0.5	2–WAY
VAV 5B.6	SECTOR 5B	6	300	150	12x8	0.34	20	23	6	0.5	0.1	2–WAY
VAV 5B.7	SECTOR 5B	10	1000	675	14x13	0.55	23	28	29	1.5	0.5	2–WAY
VAV 5B.8	SECTOR 5B	6	300	150	12x8	0.34	20	23	6	0.5	0.1	2–WAY
VAV 5B.9	SECTOR 5B	10	1000	675	14x13	0.55	23	28	29	1.5	0.5	3–WAY
VAV 6.1	SECTOR 6	8	600	450	12x10	0.45	25	25	19	1.0	0.3	2–WAY
VAV 6.2	SECTOR 6	8	600	375	12x10	0.45	25	25	16	1.0	0.3	2–WAY

NOTES:

PROVIDE BOX W/DAMPER AND LINKAGE AND AVERAGING VELOCITY SENSOR. FOR CONTROLS SEE SHEET M6.1. HW ΔT = 40°F , 180°F EWT , 140°F LWT, FOR BOX MOUNTING SEE 4/M5.1. FOR HW COIL PIPING SEE 1/M5.1 & 2/M5.1. TERMINAL UNITS HAVE BEEN SELECTED WITH 1.0" INLET STATIC PRESSURE FOR NOISE CRITERIA DATA.

PROVIDE 3–WAY TEMPERATURE CONTROL VALVES AS NOTED ON SCHEDULE AT END OF RUNS AND DISTANT BOXES, 2–WAY VALVES ALL OTHER TERMINAL BOX COILS. VAV REHEAT COIL MBH's CALCULATED AT MINIMUM CFM. ALL CAV AND VAV COILS SHALL BE 2 ROWS, 8 FPI MINIMUM

WEIGHTS:

SIZE 6 = 70 LBS SIZE 8 = 75 LBS SIZE 12 = 105 LBS SIZE 16 = 145 LBS
SIZE 7 = 75 LBS SIZE 10 = 90 LBS SIZE 14 = 120 LBS

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419
architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.
consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca. 94612
ph: (510) 622-3101
agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number : 20842.00
file name:
drawn by: checked by:
date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC SCHEDULES

drawing no.:
M0.2
drawing of

QC	
INI	%

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 1 of 4)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

A. MECHANICAL COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2013 Nonresidential Manual
Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Form/Worksheet #	Title
☒	☐	NRCC-MCH-01-E (Part 1 of 3)	Certificate of Compliance, Declaration. Required on plans for all submittals.
☒	☐	NRCC-MCH-01-E (Part 2 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-02A to 11A). Required on plans for all submittals.
☐	☒	NRCC-MCH-01-E (Part 3 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-12A to 18A). Required on plans where applicable.
☒	☐	NRCC-MCH-02-E (Part 1 of 2)	Mechanical Dry Equipment Summary is required for all submittals with Central Air Systems. It is optional on plans.
☐	☒	NRCC-MCH-02-E (Part 2 of 2)	Mechanical Wet Equipment Summary is required for all submittals with chilled water, hot water or condenser water systems. It is optional on plans.
☒	☐	NRCC-MCH-03-E	Mechanical Ventilation and Reheat is required for all submittals with multiple zone heating and cooling systems. It is optional on plans.
☐	☒	NRCC-MCH-07-E (Part 1 of 2)	Power Consumption of Fans. Required on plans where applicable
☐	☒	NRCC-MCH-07-E (Part 2 of 2)	Power Consumption of Fans, Declaration. Required on plans where applicable

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 2 of 4)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

B. MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Test Performed By:

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible.

Enforcement Agency:
Plancheck – The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked.
Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-02A	MCH-03A	MCH-04A	MCH-05A	MCH-06A	MCH-07A	MCH-08A	MCH-09A	MCH-10A	MCH-11A
Equipment Requiring Testing or Verification	# of Units	Outdoor Air	Single Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Control Ventilation (DCV)	Supply Fan VAV	Valve Leakage Test	Supply Water Temp. Reset	Hydronic System Variable Flow Control	Automatic Demand Shed Control
SAC-1 / SCU-1	1	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	(Page 4 of 4)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mark Neeley	Documentation Author Signature: [signature]
Company: Capital Engineering Consultants, Inc	Signature Date: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Tom Duval	Responsible Designer Signature:
Company : Capital Engineering Consultants, Inc	Date Signed: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	License: M22836
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

STATE OF CALIFORNIA
HVAC SYSTEM REQUIREMENTS
CEC-NRCC-MCH-02-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-02-E
HVAC Dry System Requirements	(Page 1 of 3)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

A. Equipment Tags and System Description[1]	SAC-1 / SCU-1			
MANDATORY MEASURES	***T-24 Sections***	***Reference to the Requirements in the Contract Documents[2]***		
Heating Equipment Efficiency[3]	110.1 or 110.2(a)	N/A		
Cooling Equipment Efficiency[3]	110.1 or 110.2(a)	M0.2		
HVAC or Heat Pump Thermostats	110.2(b), 110.2(c)	M6.1		
Furnace Standby Loss Control	110.2(d)	N/A		
Low leakage AHUs	110.2(f)	N/A		
Ventilation[4]	120.1(b)	N/A		
Demand Control Ventilation[5]	120.1(c)4	N/A		
Occupant Sensor Ventilation Control[6]	120.1(c)5, 120.2(e)3	N/A		
Shutoff and Reset Controls[7]	120.2(e)	N/A		
Outdoor Air and Exhaust Damper Control	120.2(f)	N/A		
Isolation Zones	120.2(g)	N/A		
Automatic Demand Shed Controls	120.2(h)	N/A		
Economizer FDD	120.2(i)	N/A		
Duct Insulation	120.4	N/A		
PRESCRIPTIVE MEASURES				
Equipment is sized in conformance with 140.4 (a & b)	140.4(a & b)	(Y)/N	Y/N	Y/N
Supply Fan Pressure Control	140.4(c)	N/A		
Simultaneous Heat/Cool[8]	140.4(d)	N/A		
Economizer	140.4(e)	N/A		
Heat and Cool Air Supply Reset	140.4(f)	N/A		
Electric Resistance Heating[9]	140.4(g)	N/A		
Duct Leakage Sealing and Testing.[10]	140.4(l)	N/A		

Notes:
1. *Provide equipment tags (e.g. AHU 1 to 10) and system description (e.g. Single Duct VAV reheat) as appropriate. Multiple units with common requirements can be grouped together.*
2. *Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.*
3. *The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. Where appliance standards apply (110.1), identify where equipment is required to be listed per Title 20 1601 et seq.*
4. *Identify where the ventilation requirements are documented for each central HVAC system. Include references to both central unit schedules and sequences of operation. If one or more space is naturally ventilated identify where this is documented in the plans and specifications. Multiple zone central air systems must also provide a MCH-03-E form.*
5. *If one or more space has demand controlled ventilation identify where it is specified including the sensor specifications and the sequence of operation.*
6. *If one or more space has occupant sensor ventilation control identify where it is specified including the sensor specifications and the sequence of operation*
7. *If the system is DDC identify the sequences for the system start/stop, optimal start, setback (if required) and setup (if required). For all systems identify the specification for the thermostats and time clocks (if applicable).*
8. *Identify where the heating, cooling and deadband airflows are scheduled for this system. Include a reference to the specification of the zone controls. Provide a MCH-03-E form.*
9. *Enter N/A if there is no electric heating. If the system has electric heating indicate which exception to 140.4(g) applies.*
10. *If duct leakage sealing and testing is required, a MCH-04-A form must be submitted.*

STATE OF CALIFORNIA
HVAC SYSTEM REQUIREMENTS
CEC-NRCC-MCH-02-E (Revised 06/14) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-02-E
HVAC Wet System Requirements	(Page 3 of 3)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mark Neeley	Documentation Author Signature: [signature]
Company: Capital Engineering Consultants, Inc	Signature Date: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Tom Duval	Responsible Designer Signature:
Company : Capital Engineering Consultants, Inc	Date Signed: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	License: M22836
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

STATE OF CALIFORNIA
MECHANICAL VENTILATION AND REHEAT
CEC-NRCC-MCH-03-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-03-E
Mechanical Ventilation & Reheat	(Page 1 of 2)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

ACTUAL DESIGN INFO (FROM EQUIPMENT SCHEDULES, ETC)						AREA BASIS			OCCUPANCY BASIS			MINIMUM		VAV Reheated Primary Air CFM			VAV Deadband Primary Air CFM		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
ZONE/ SYSTEM/ VAV BOX TAG	DESIGN PRIMARY COOLING AIRFLOW (CFM)	DESIGN PRIMARY DEAD-BAND AIRFLOW (CFM)	DESIGN PRIMARY HEATING AIRFLOW (CFM)	CNTRL TYPE DDC (Y/N)	TRANSFER AIRFLOW (CFM)	CONDI-TIONED AREA (ft^2)	MIN CFM PER AREA	MIN CFM BY AREA	NUM. OF PEOPLE	CFM PER PERSON	MIN CFM BY OCCU-PANT	REQ'D VENT AIRFLOW (MAX OF I OR L) (CFM)	COM-PLIES	PRIMARY COOLING AIR (50% DDC, 30% NON-DDC) (CFM)	MAXIMUM REHEAT CFM (MAX OF M OR O)	COM-PLIES?	(20% DDC, N/A NON-DDC) (CFM)	(larger of M or R, N/A for NON-DDC) (CFM)	COM-PLIES
5A.1	2000	750	750	Y		1378	0.15	207	48	15	720	720	Y	1000	1000	Y			
5A.2	800	800	800	Y		512	0.15	77	0	15	0	77	Y	400	800	Y			
5A.3	300	150	150	Y		147	0.15	22	1	15	15	22	Y	150	150	Y			
5A.4	150	75	75	Y		69	0.15	10	1	15	15	15	Y	N/A	N/A	Y			
5A.5	150	75	75	Y		69	0.15	10	1	15	15	15	Y	N/A	N/A	Y			
5A.6	2000	750	750	Y		1279	0.15	192	48	15	720	720	Y	1000	1000	Y			
5A.7	150	75	75	Y		69	0.15	10	1	15	15	15	Y	N/A	N/A	Y			
5A.8	300	150	150	Y		138	0.15	21	2	15	30	30	Y	150	150	Y			
5A.9	800	650	650	Y		827	0.15	124	43	15	645	645	Y	400	650	Y			
5B.1	1000	720	720	Y		966	0.15	145	48	15	720	720	Y	500	720	Y			
5B.2	800	800	800	Y		595	0.15	89	0	15	0	89	Y	400	800	Y			

Yellow shaded cells require user input. Remaining cells are protected and automatic
- B. The largest amount of primary air supplied by the terminal unit when it's operating in the cooling mode.
- C. The smallest amount of primary air supplied by the terminal unit in the deadband mode.
- D. The largest amount of primary air supplied by the terminal unit when it's operating in the heating mode.
- E. A terminal unit can be controlled with DDC controls, or non-DDC controls. Each control category has different reheat limitations in code.
- F. Transfer Air must be provided where Required Ventilation Airflow (Column M) is greater than the Design Primary Deadband Airflow (Column C).
- H. Minimum ventilation rate per Section §120.1. Table 120.1-A.
- J. Based on number of fixed seats where applicable or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
- M. Required Ventilation Airflow (Req'd Ventilation Airflow) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column I or L)
- N. This column identifies whether or not the Design Primary Deadband Airflow complies or not. It compares the value in column M to the value in column C and column F.
- O. Design Primary Cooling Airflow * 0.50 for DDC, Design Primary Cooling Airflow * 0.30 for Non-DDC. If the Design Primary Cooling Airflow is less than 300 cfm, then this is not applicable.
- P. Maximum of Column M and Column O. If the Design Primary Cooling Airflow is 300 cfm or less, then this is not applicable.
- Q. This column identifies whether or not the Design Primary Reheat Airflow at the zone level, complies or not. It compares the value in column P to the value in column D.
- R. Design Primary Cooling Airflow * 0.20 for DDC. Not applicable for Non-DDC zones or zones where Design Primary Cooling Airflow is 300 cfm or less.
- S. Maximum of Column M and Column R. Not applicable if the Design Primary Cooling Airflow is 300 cfm or less.
- T. This column identifies whether or not the Design Primary Deadband Airflow at the zone level, complies or not. It compares the value in column S to the value in column C.

STATE OF CALIFORNIA
MECHANICAL VENTILATION AND REHEAT
CEC-NRCC-MCH-03-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-03-E
Mechanical Ventilation & Reheat	(Page 1 of 2)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

ACTUAL DESIGN INFO (FROM EQUIPMENT SCHEDULES, ETC)						AREA BASIS			OCCUPANCY BASIS			MINIMUM		VAV Reheated Primary Air CFM			VAV Deadband Primary Air CFM		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
ZONE/ SYSTEM/ VAV BOX TAG	DESIGN PRIMARY COOLING AIRFLOW (CFM)	DESIGN PRIMARY DEAD-BAND AIRFLOW (CFM)	DESIGN PRIMARY HEATING AIRFLOW (CFM)	CNTRL TYPE DDC (Y/N)	TRANSFER AIRFLOW (CFM)	CONDI-TIONED AREA (ft^2)	MIN CFM PER AREA	MIN CFM BY AREA	NUM. OF PEOPLE	CFM PER PERSON	MIN CFM BY OCCU-PANT	REQ'D VENT AIRFLOW (MAX OF I OR L) (CFM)	COM-PLIES	PRIMARY COOLING AIR (50% DDC, 30% NON-DDC) (CFM)	MAXIMUM REHEAT CFM (MAX OF M OR O)	COM-PLIES?	(20% DDC, N/A NON-DDC) (CFM)	(larger of M or R, N/A for NON-DDC) (CFM)	COM-PLIES
5B.3	200	100	100	Y		86	0.15	13	1	15	15	15	Y	N/A	N/A	Y			
5B.4	300	150	150	Y		150	0.15	23	2	15	30	30	Y	150	150	Y			
5B.5	1000	660	660	Y		861	0.15	129	44	15	660	660	Y	500	660	Y			
5B.6	300	150	150	Y		149	0.15	22	7	15	105	105	Y	150	150	Y			
5B.7	1000	675	675	Y		911	0.15	137	45	15	675	675	Y	500	675	Y			
5B.8	300	150	150	Y		136	0.15	20	2	15	30	30	Y	150	150	Y			
5B.9	1000	675	675	Y		875	0.15	131	45	15	675	675	Y	500	675	Y			
6.1	600	450	450	Y		589	0.15	88	28	15	420	420	Y	300	450	Y			
6.2	600	375	375	Y		574	0.15	86	25	15	375	375	Y	300	375	Y			

Yellow shaded cells require user input. Remaining cells are protected and automatic
- B. The largest amount of primary air supplied by the terminal unit when it's operating in the cooling mode.
- C. The smallest amount of primary air supplied by the terminal unit in the deadband mode.
- D. The largest amount of primary air supplied by the terminal unit when it's operating in the heating mode.
- E. A terminal unit can be controlled with DDC controls, or non-DDC controls. Each control category has different reheat limitations in code.
- F. Transfer Air must be provided where Required Ventilation Airflow (Column M) is greater than the Design Primary Deadband Airflow (Column C).
- H. Minimum ventilation rate per Section §120.1. Table 120.1-A.
- J. Based on number of fixed seats where applicable or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
- M. Required Ventilation Airflow (Req'd Ventilation Airflow) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column I or L)
- N. This column identifies whether or not the Design Primary Deadband Airflow complies or not. It compares the value in column M to the value in column C and column F.
- O. Design Primary Cooling Airflow * 0.50 for DDC, Design Primary Cooling Airflow * 0.30 for Non-DDC. If the Design Primary Cooling Airflow is less than 300 cfm, then this is not applicable.
- P. Maximum of Column M and Column O. If the Design Primary Cooling Airflow is 300 cfm or less, then this is not applicable.
- Q. This column identifies whether or not the Design Primary Reheat Airflow at the zone level, complies or not. It compares the value in column P to the value in column D.
- R. Design Primary Cooling Airflow * 0.20 for DDC. Not applicable for Non-DDC zones or zones where Design Primary Cooling Airflow is 300 cfm or less.
- S. Maximum of Column M and Column R. Not applicable if the Design Primary Cooling Airflow is 300 cfm or less.
- T. This column identifies whether or not the Design Primary Deadband Airflow at the zone level, complies or not. It compares the value in column S to the value in column C.

STATE OF CALIFORNIA
MECHANICAL VENTILATION AND REHEAT
CEC-NRCC-MCH-03-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-03-E
Mechanical Ventilation & Reheat	(Page 2 of 2)
Project Name: Los Medanos College - Level 2 Remodel	Date Prepared: 12/15/2015

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mark Neeley	Documentation Author Signature: [signature]
Company: Capital Engineering Consultants, Inc	Signature Date: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Tom Duval	Responsible Designer Signature:
Company : Capital Engineering Consultants, Inc	Date Signed: 12/15/2015
Address: 11020 Sun Center Drive, Ste 100	License: M22836
City/State/Zip: Rancho Cordova, CA 95670	Phone: (916) 851-3500

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER — THOMAS ALAN DUVAL — No. 22836 — Exp. 9/30/2016 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - MN/MJR — PM - DESIGN TEAM
150225.00 — PROJECT NO.

consultant

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
FILE # 7-C1
APPL # 01-115396
AC [signature] FLS [signature] SS R.O.
DATE JUL 28 2016

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca., 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL SECTORS 5A, 5B & 6 COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number :	20842.00
file name:	
drawn by:	checked by:
date:	MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
TITLE-24

drawing no.:
M0.3
drawing of

RFI # 143

COMFORT SPECIALISTS

Martinez Sheet Metal, Inc.

REQUEST FOR INFORMATION

REF #

Date: 7/25/2017

From: Martinez Sheet Metal

To: W A Thomas

Subject: Duct Modification

Facility Pittsburg

D.C.A.

Project Name LMC Sector 5A

Date Information Required ASAP

Priority Routine ____ Expedite ____ Urgent XXXX

Category

- [ ] Information not shown on contract documents
- [ ] Interpretation of contract documents
- [ ] Conflict in contract documents
- [X] Coordination problem
- [ ] Possible code conflict
- [ ] Other

Contract Drawing Ref.:

Shop Drawing Ref.:

Specification Ref.:

Possible Cost Impact [ ] Yes [X] No

Possible Time Impact [ ] Yes [X] No

Job Site PU

Job Site Fax

COMMENTS: Do to existing conditions could we relocate the ductwork as noted in red and reuse the exiting 10" ductwork to the men's restroom?

RESPONSE:

Answered by: _____ ***Date:*** _____

RFI # 143 / M1.0

RFI # 143

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
006 CIP

Printed 07/25/2017, Page 1 of 1

HVAC Ductwork in Restrooms 230 & 231

Submitted : 07/25/2017
Submitted To: Critical Solutions, Inc.,W A Thomas
Status: Pending
Priority: High
Due Date: 07/25/2017
Pending On User: Felix Canari
Pending On Org: tBP/Architecture, Inc.

Created By: W A Thomas, Jim Smith
Created: 07/25/2017

The due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 06/29/2017

Request:
Reference is made to the attached Martinez Sheet Metal RFI dated 7/25/2017. Can the ductwork shown in red be relocated and the 10" existing ductwork to the men's restroom be reused?

Suggestion:

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References

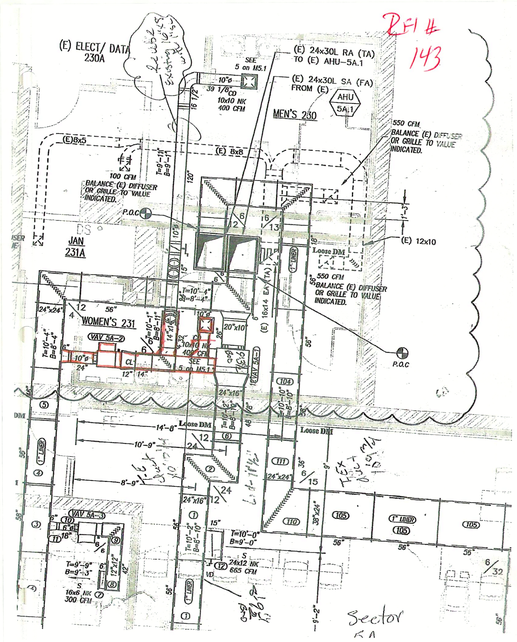
Drawing M1.0	Published

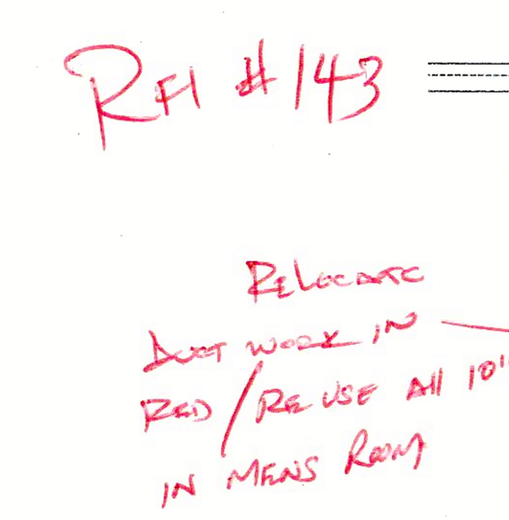
Files

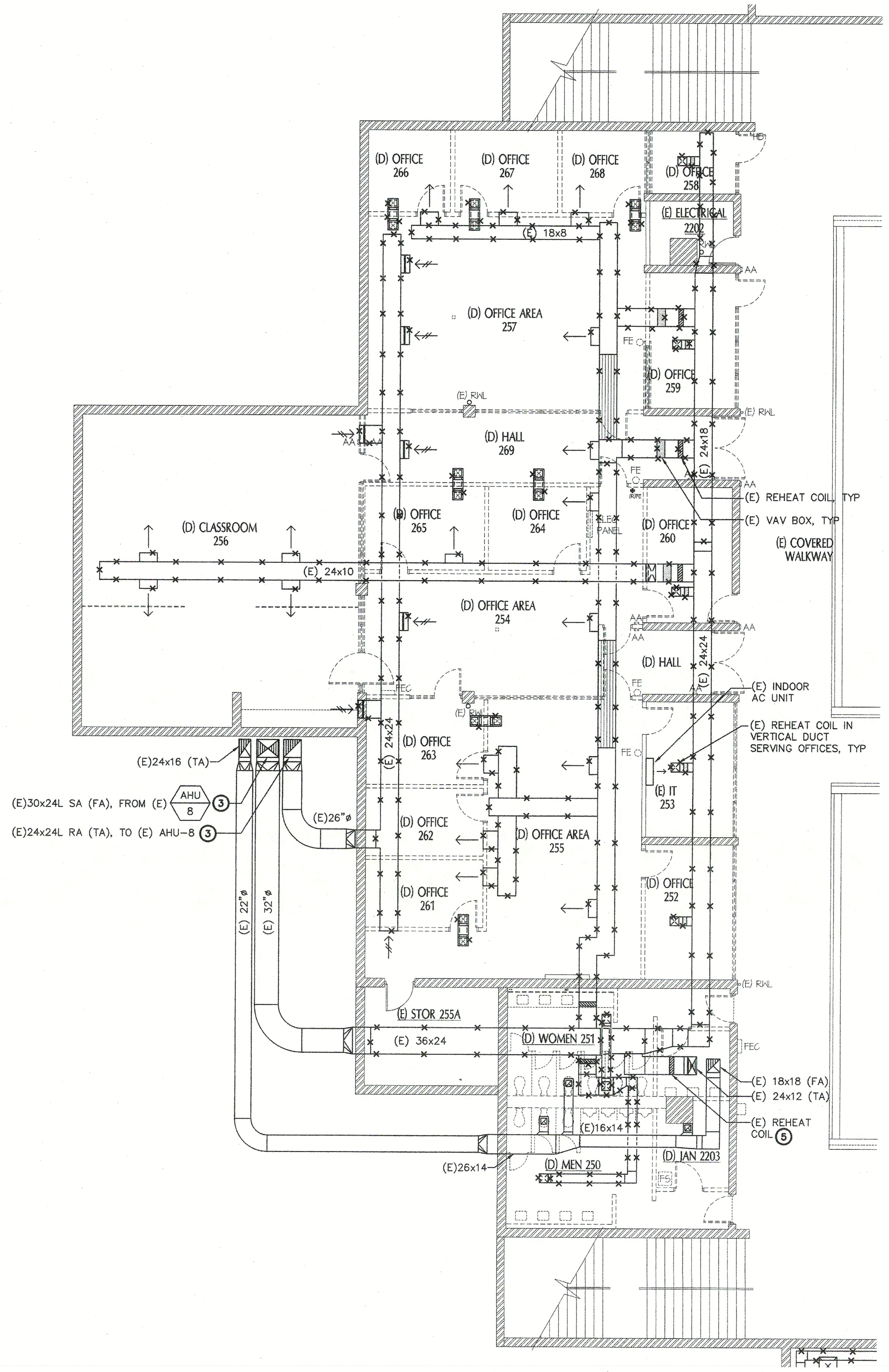
MSM RFI #142.pdf	613.71 KB

We do not take exception to the coordinated duct location and reuse of existing ductwork proposed by the contractor.

Bob Barcelon, CECI 7/27/17







HVAC DEMO FLOOR PLAN - SECTOR 5B

1 M1.0

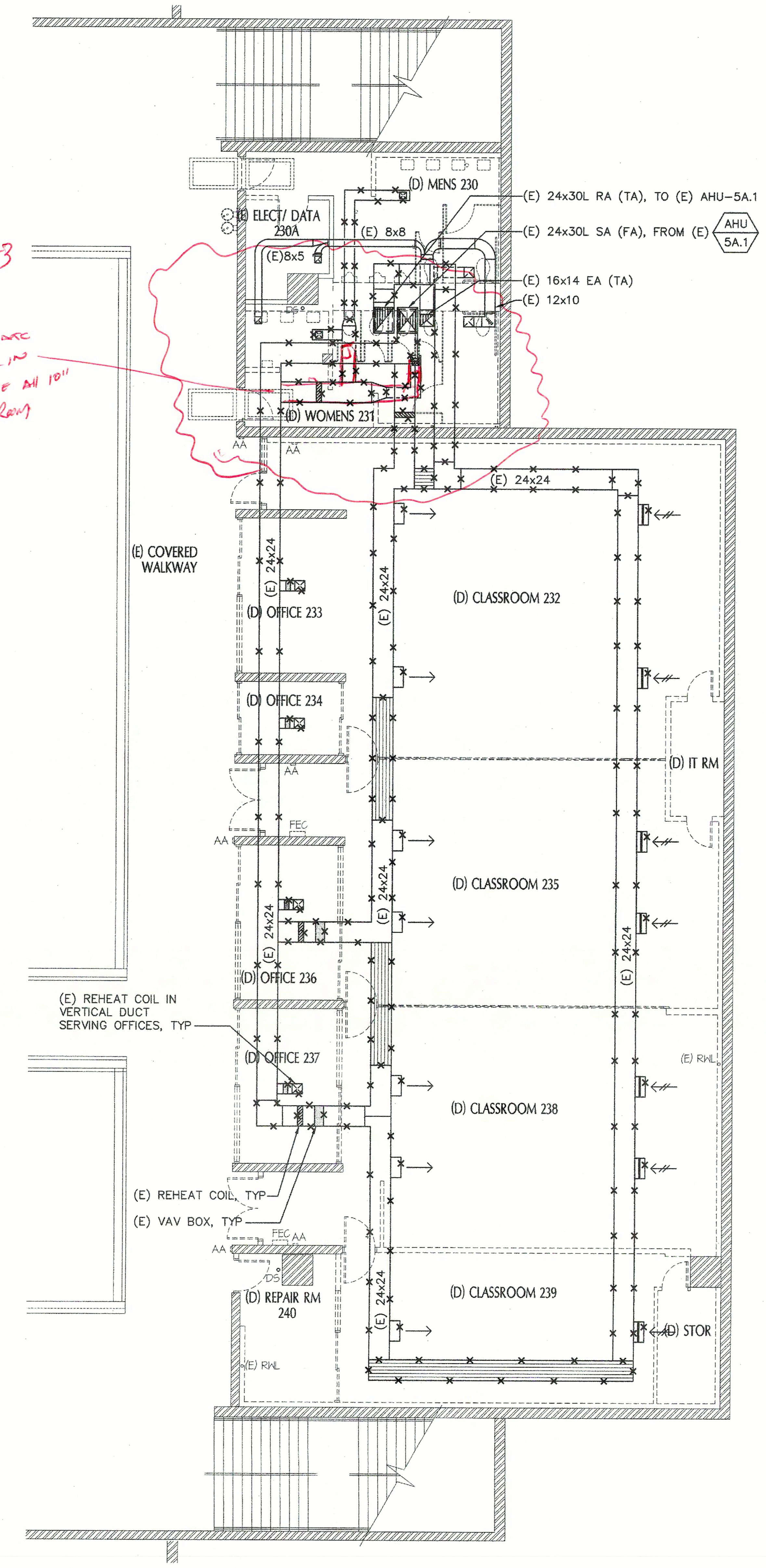
SCALE : 1/8" = 1'-0"

SHEET NOTES:

1. REMOVE (E) REHEAT COIL AND PREPARE TO REPLACE WITH NEW LENGTH OF DUCT.
2. EXISTING DUCT MAIN SERVES OTHER SPACES ADJACENT TO THE REMODEL AREA. SCHEDULE WORK THAT AFFECTS ADJACENT SPACES WITH THE OWNER PRIOR.
3. (E) AHU-8 ALSO SERVES SECTOR 13 ON THE THIRD FLOOR ABOVE. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.
4. (E) AHU-6.1 ALSO SERVES SECTOR 3 ON THE FIRST FLOOR BELOW. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.
5. (E) REHEAT COIL SERVES THIRD FLOOR BATHROOM CORE ABOVE, TO REMAIN.

SHUTDOWN SCHEDULING NOTE:

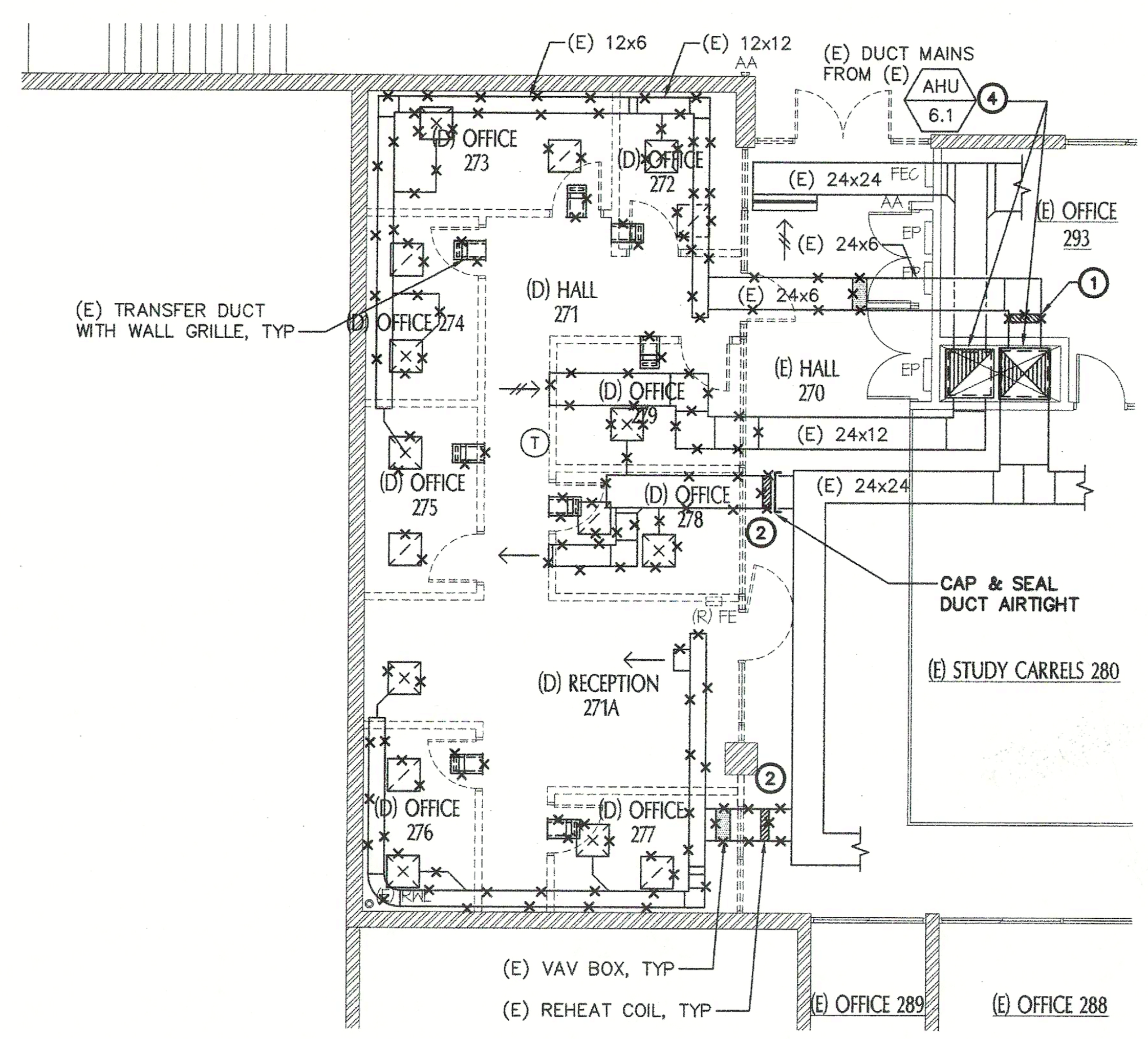
THE DEMOLITION OF THE EXISTING DUCT SYSTEMS AFFECTS OTHER OCCUPIED AREAS WITHIN THE BUILDING. DURING CONSTRUCTION, NO MECHANICAL HEATING OR COOLING WILL BE AVAILABLE TO THE ADJACENT SPACES SERVED BY THE SAME SYSTEM. THE CONTRACTOR SHALL NEGOTIATE THE DURATION AND SPECIFIC TIME AND DATE OF ANY SYSTEM SHUTDOWN WITH THE DISTRICT. THE DISTRICT WILL NOTIFY ALL BUILDING USERS WHEN THIS WILL OCCUR. NOTIFY MAINTENANCE DEPARTMENT TWO WEEKS IN ADVANCE OF ANY MECHANICAL SYSTEM REDUCTION OR SHUTDOWN.



HVAC DEMO FLOOR PLAN - SECTOR 5A

2 M1.0

SCALE : 1/8" = 1'-0"



HVAC DEMO FLOOR PLAN - SECTOR 6

3 M1.0

SCALE : 1/8" = 1'-0"

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.

consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca. 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number : 20842.00

file name:

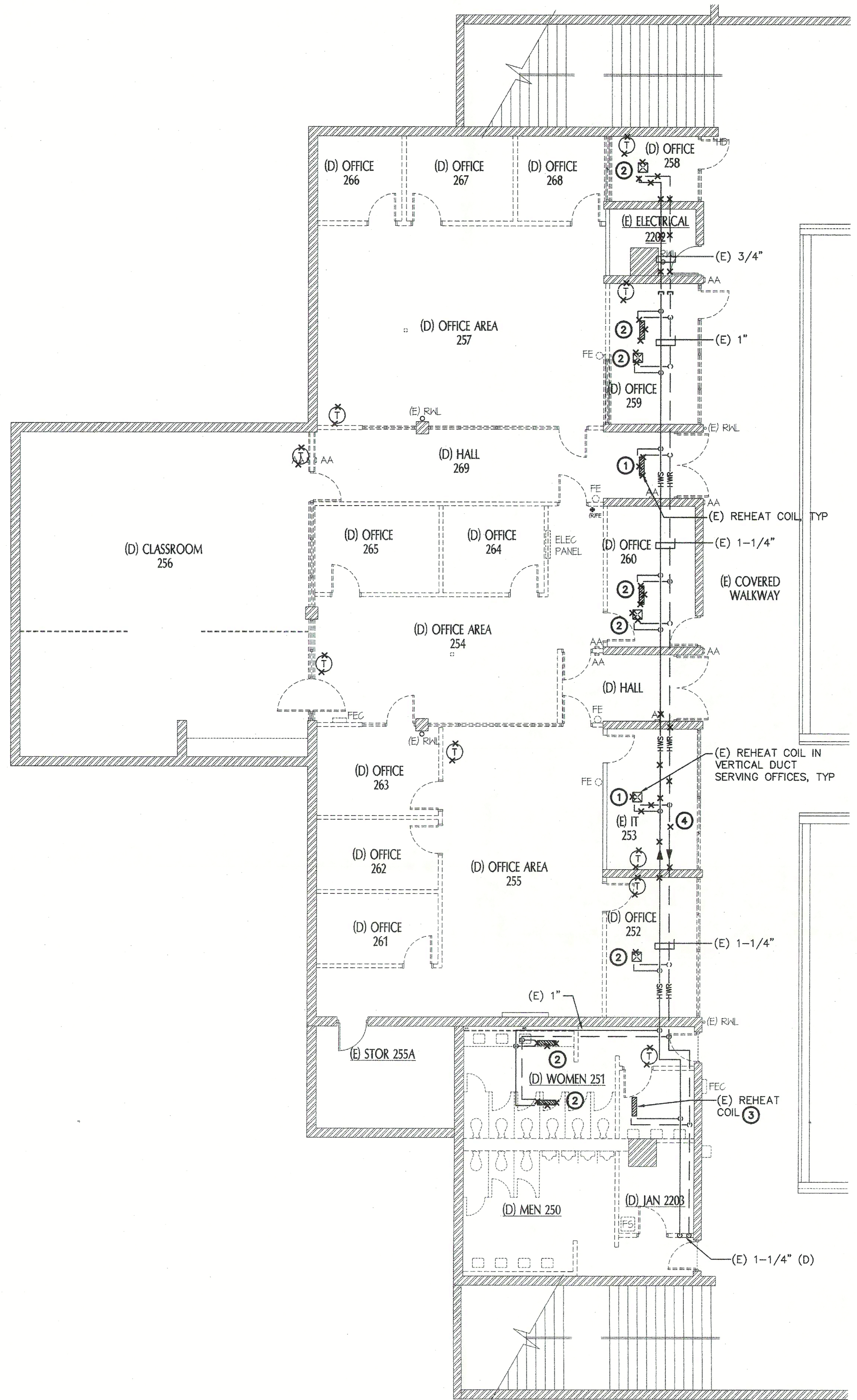
drawn by: checked by:

date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC DEMO FLOOR PLAN

drawing no.:
M1.0
drawing of



HVAC DEMO PIPING PLAN - SECTOR 5B 1 M1.0

SCALE : 1/8" = 1'-0"

N

GENERAL NOTES:

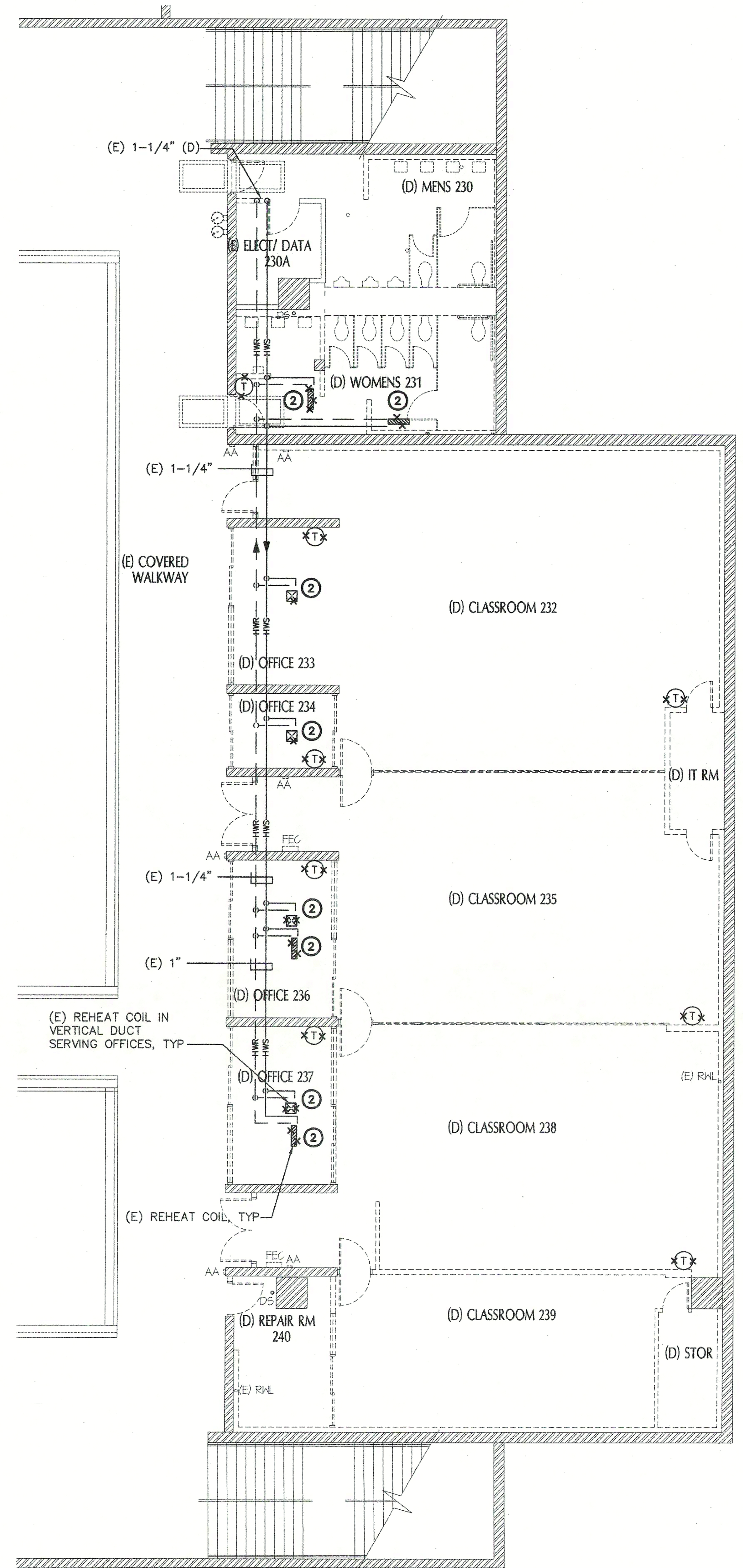
1. REMOVE INSULATION FROM ALL (E) HYDRONIC PIPING WITHIN SECTORS 5A, 5B & 6. PREPARE (E) PIPING FOR INSTALLATION OF NEW INSULATION & JACKET.

SHEET NOTES:

1. REMOVE (E) REHEAT COIL AND CAP (E) BRANCH PIPING.
2. REMOVE (E) REHEAT COIL. PREPARE (E) HOT WATER PIPING FOR RECONNECTION TO NEW VAV BOX WITH REHEAT.
3. (E) REHEAT COIL & PIPING SHALL REMAIN.
4. REMOVE (E) HYDRONIC MAINS FROM IT ROOM.

SHUTDOWN SCHEDULING NOTE:

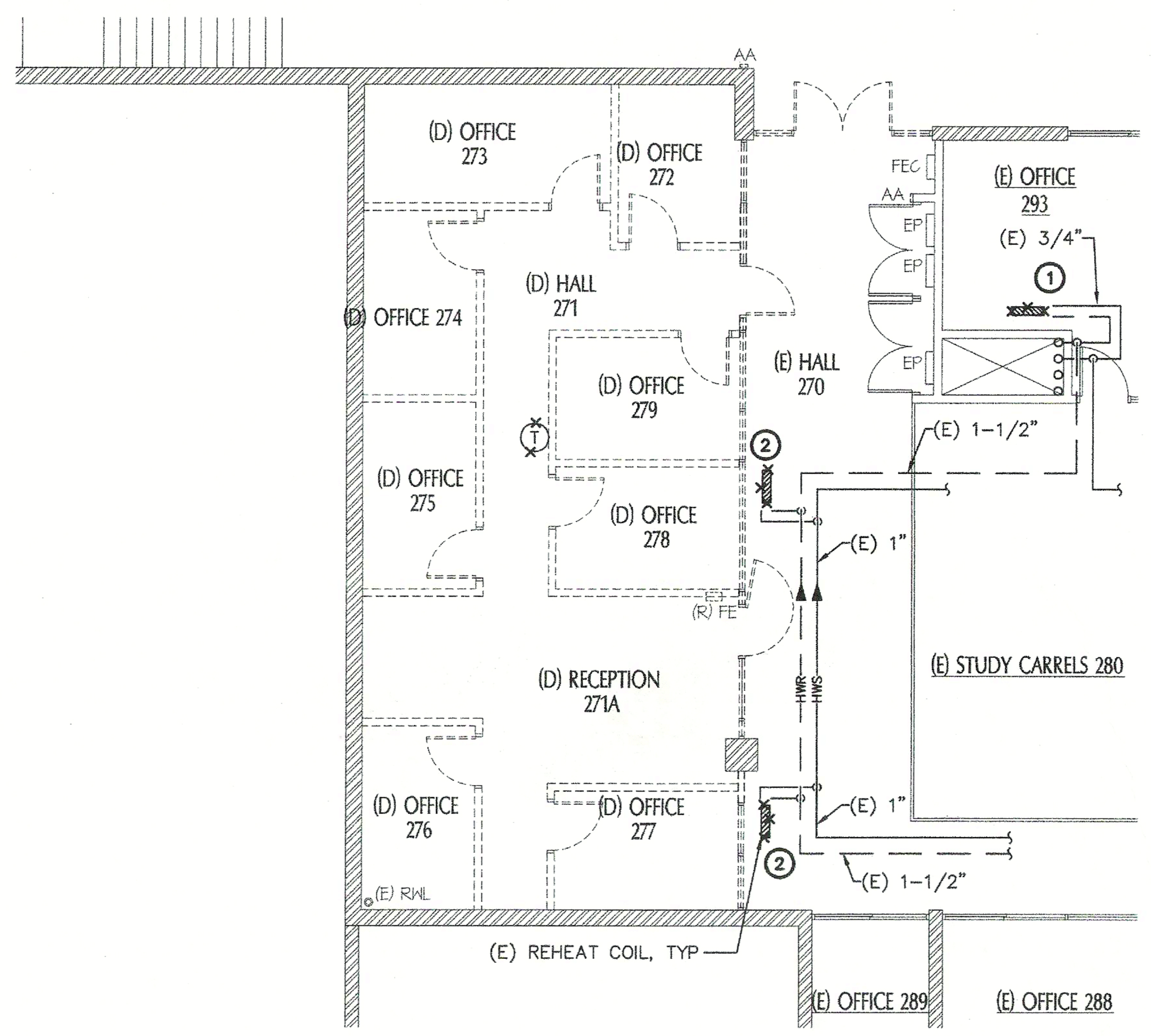
THE DEMOLITION OF THE EXISTING PIPING SYSTEMS MAY AFFECT OTHER OCCUPIED AREAS WITHIN THE BUILDING. DURING CONSTRUCTION, NO MECHANICAL HEATING OR COOLING WILL BE AVAILABLE TO THE ADJACENT SPACES SERVED BY THE SAME SYSTEM. THE CONTRACTOR SHALL NEGOTIATE THE DURATION AND SPECIFIC TIME AND DATE OF ANY SYSTEM SHUTDOWN WITH THE DISTRICT. THE DISTRICT WILL NOTIFY ALL BUILDING USERS WHEN THIS WILL OCCUR. NOTIFY MAINTENANCE DEPARTMENT TWO WEEKS IN ADVANCE OF ANY MECHANICAL SYSTEM REDUCTION OR SHUTDOWN.



HVAC DEMO PIPING PLAN - SECTOR 5A 2 M1.0

SCALE : 1/8" = 1'-0"

N



HVAC DEMO PIPING PLAN - SECTOR 6 3 M1.0

SCALE : 1/8" = 1'-0"

N

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

consultant

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP # 01-115396

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca., 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number :	20842.00
file name:	
drawn by:	checked by:
date:	MAY 16, 2016

Rev:	date:	description:
	12/5/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC DEMO PIPING PLAN

drawing no:
M1.1
drawing of

RFI #160 2/2020

RFI # 160

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

HVAC HW Connection for Sector 5A

Submitted : 08/23/2017
Submitted To: Critical Solutions, Inc.,W A Thomas
Status: Pending
Priority: Critical
Due Date: 08/28/2017
Pending On Org: tBP/Architecture, Inc.

Created By: W A Thomas, Jim Smith
Created: 08/23/2017

The due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 08/25/2017

Request:
Reference is made to HVAC Piping plan 2/M2.0 on M2.1. The point of connection to the existing how water piping is shown in room 230. After extensive investigation, it appears that the existing piping at this location is not active and has been disconnected at a point further down the line. capped pipes were located and believed to have been done with the new Student Services project. Please indicate how we are to proceed.

Suggestion:

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References

Drawing M2.1	Published

Files
Images continued on next page.

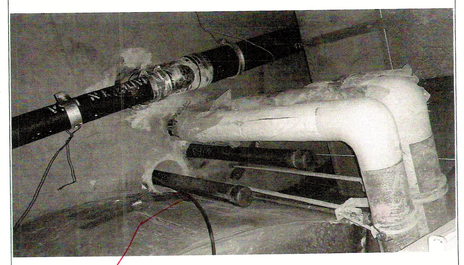
Per telecon with Danny Dozier with Martinez Sheetmetal this morning there are live 1 1/4" HW lines coming down from the roof with isolation valves at the roof and terminating in Womens 231 with caps. Contractor to tie into the HW piping in Womens 231 to provide HW supply and return in Sector 5A. Demo abandoned existing piping to avoid any confusion in the future.

Bob Barcelon, CECI 8/25/17

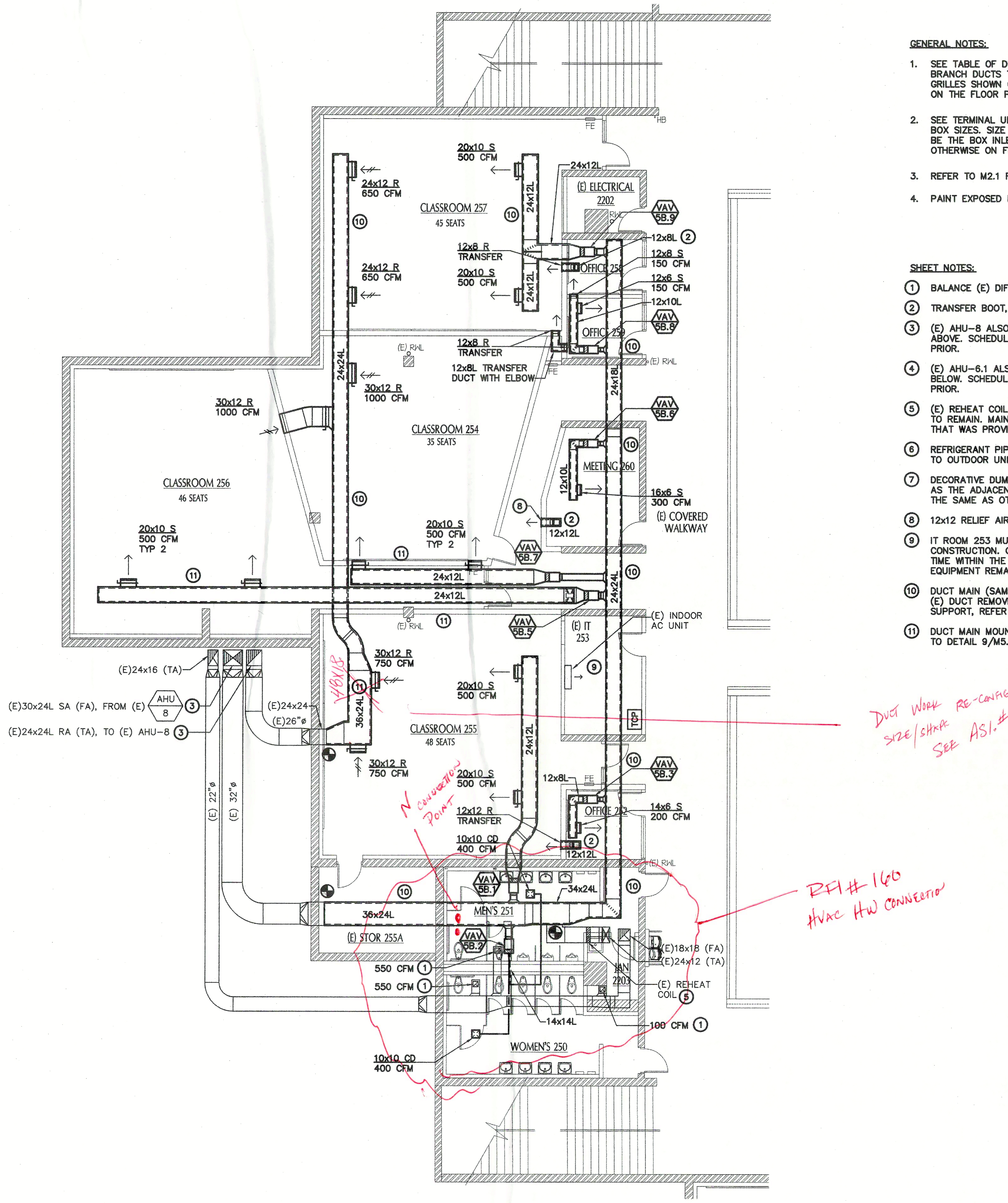
RFI # 160

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

RFI #160



CE17073 Sector 5A HW picture #03.jpg



HVAC FLOOR PLAN - SECTOR 5B

SCALE : 1/8" = 1'-0"

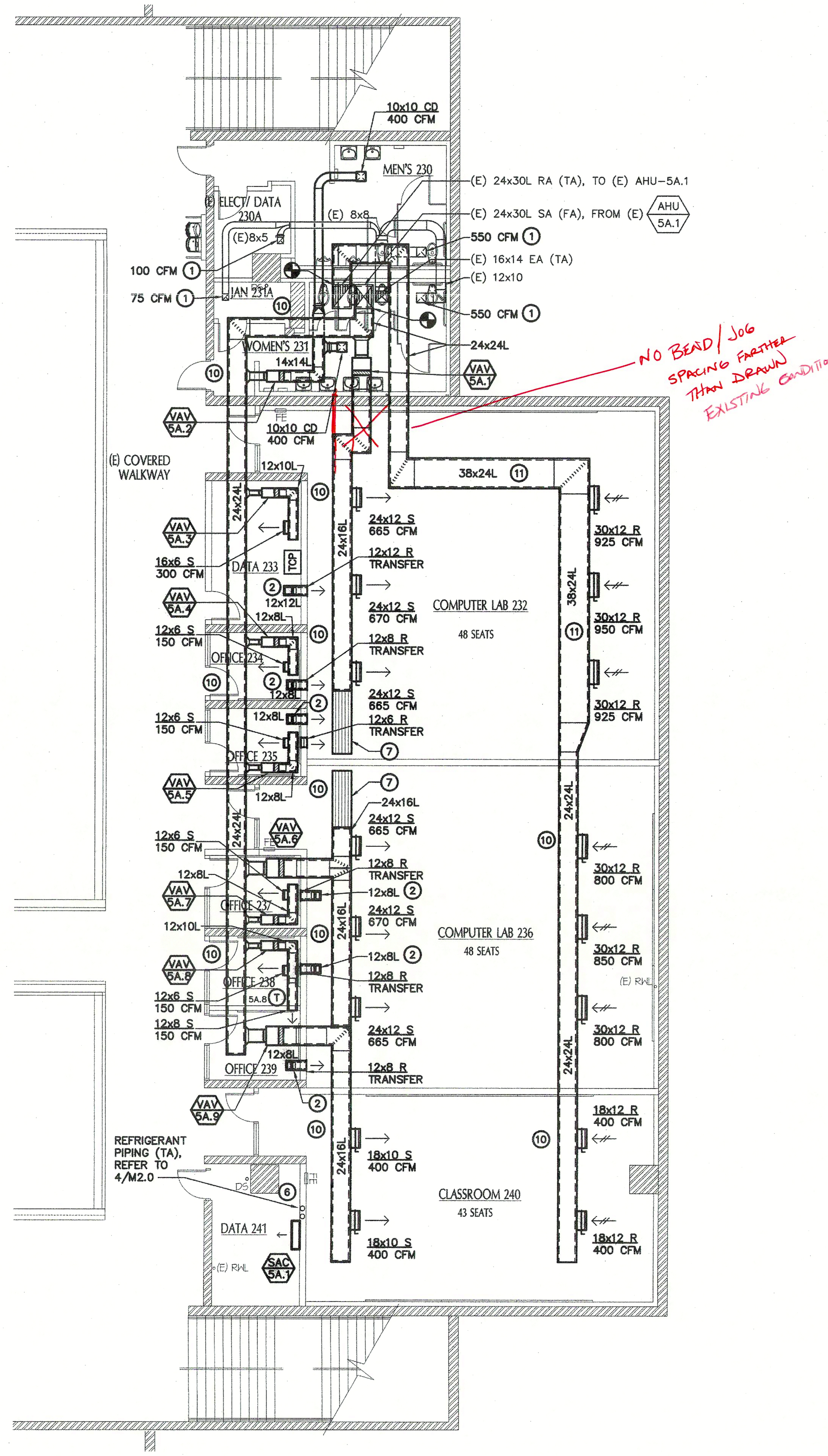
1 / M2.0

GENERAL NOTES:

1. SEE TABLE OF DUCT SIZES ON SHEET M0.1 FOR SIZE OF BRANCH DUCTS TO INDIVIDUAL DIFFUSERS, REGISTERS & GRILLES SHOWN ON PLAN UNLESS THE DUCT SIZE IS SHOWN ON THE FLOOR PLAN.
2. SEE TERMINAL UNIT SCHEDULE ON SHEET M0.2 FOR VAV BOX SIZES. SIZE OF DUCT SHOWN TO TERMINAL UNIT SHALL BE THE BOX INLET SIZE AS SCHEDULED UNLESS NOTED OTHERWISE ON FLOOR PLAN.
3. REFER TO M2.1 FOR THERMOSTAT LOCATIONS.
4. PAINT EXPOSED DUCT. REFER TO ARCHITECTURAL DRAWINGS.

SHEET NOTES:

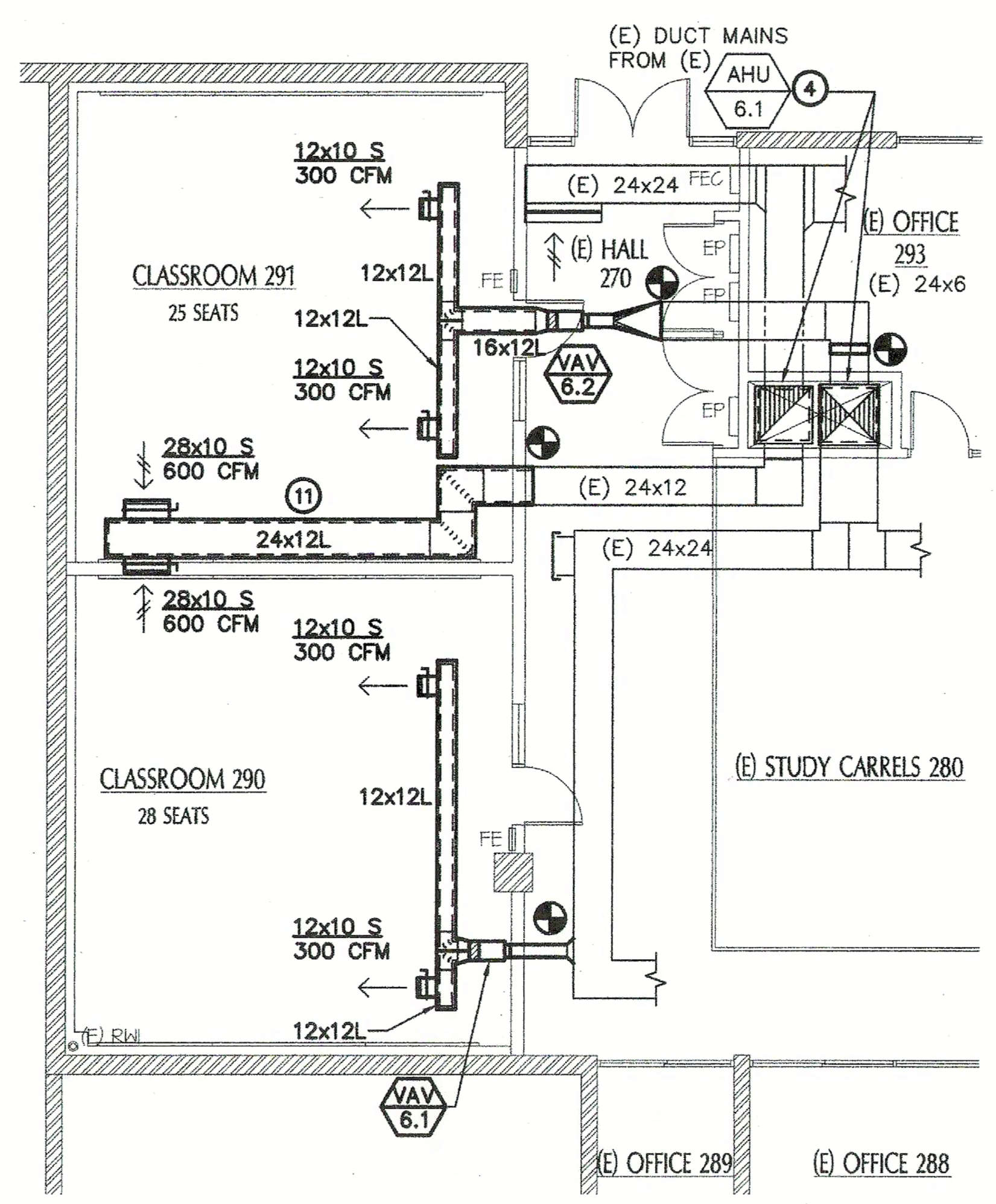
1. BALANCE (E) DIFFUSER OR GRILLE TO VALUE INDICATED.
2. TRANSFER BOOT, SEE DETAIL 10/M5.1.
3. (E) AHU-8 ALSO SERVES SECTOR 13 ON THE THIRD FLOOR ABOVE. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.
4. (E) AHU-6.1 ALSO SERVES SECTOR 3 ON THE FIRST FLOOR BELOW. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.
5. (E) REHEAT COIL THAT SERVES THIRD FLOOR BATHROOM CORE TO REMAIN. MAINTAIN THE SAME AIRFLOW TO THE SPACE THAT WAS PROVIDED PRIOR TO CONSTRUCTION.
6. REFRIGERANT PIPING, REFER TO SCHEDULE FOR SIZES. ROUTE TO OUTDOOR UNIT SCU-5A.1.
7. DECORATIVE DUMMY DUCT SECTION. SIZE SHALL BE THE SAME AS THE ADJACENT DUCT. SUPPORTS AND BRACING SHALL BE THE SAME AS OTHER DUCTS.
8. 12x12 RELIEF AIR LOUVER.
9. IT ROOM 253 MUST REMAIN FULLY OPERATIONAL THROUGHOUT CONSTRUCTION. CAREFULLY COORDINATE CONSTRUCTION WORK TIME WITHIN THE ROOM WITH DISTRICT. ENSURE THAT EQUIPMENT REMAINS UNDISTURBED DURING WORK.
10. DUCT MAIN (SAME SIZE OR SMALLER THAN THE (E) DUCT REMOVED) MOUNTED TO (E) SUPPORT, REFER TO DETAIL 8/M5.1.
11. DUCT MAIN MOUNTED TO NEW SUPPORT, REFER TO DETAIL 9/M5.1.



HVAC FLOOR PLAN - SECTOR 5A

SCALE : 1/8" = 1'-0"

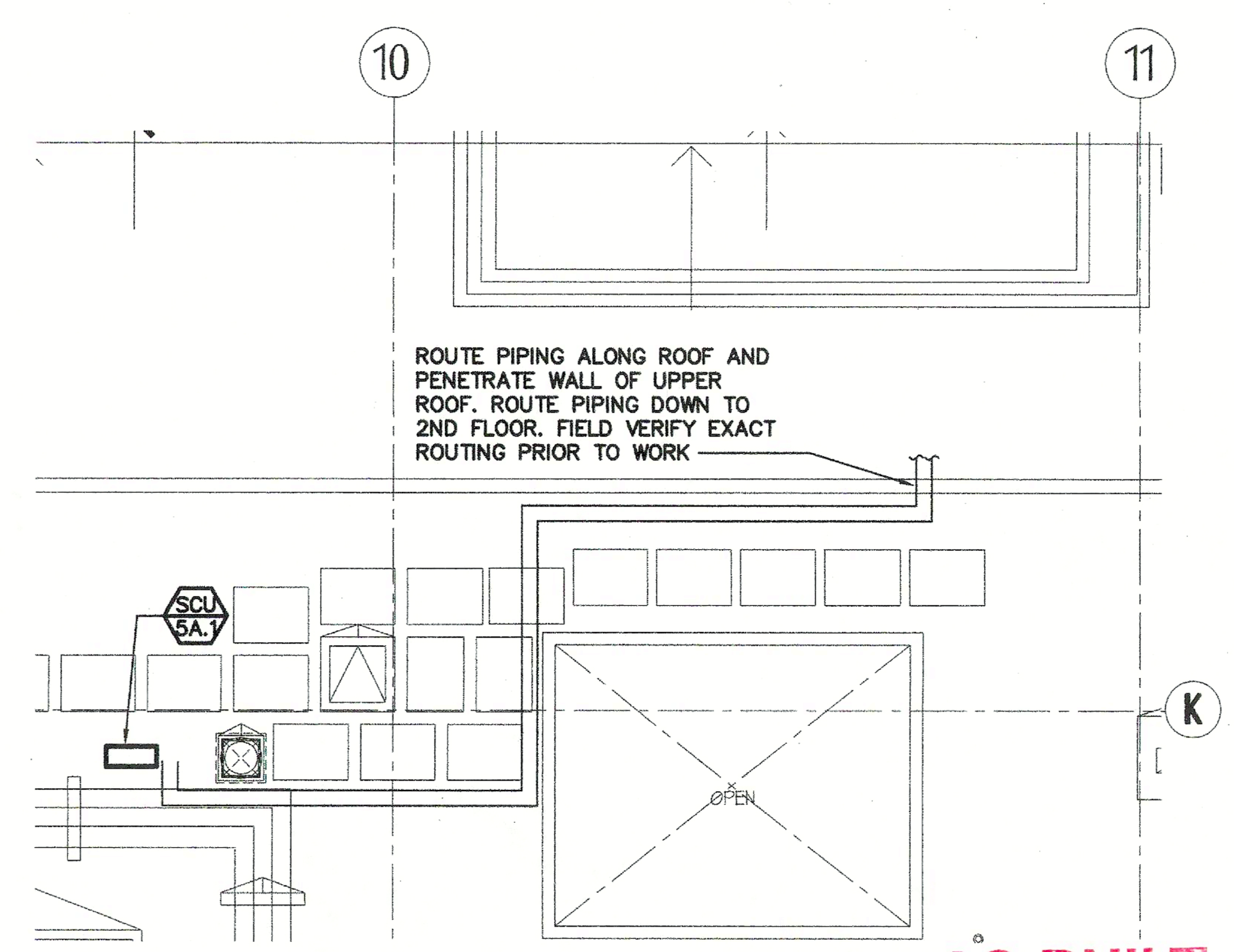
2 / M2.0



HVAC FLOOR PLAN - SECTOR 6

SCALE : 1/8" = 1'-0"

3 / M2.0



AS-BUILT

HVAC ROOF PLAN SECTOR 5A

SCALE : 1/8" = 1'-0"

4 / M2.0

tBP
architecture
planning
interiors
management

tBP/Architecture
1000 Burnett Avenue Suite 320
Concord, CA 94520
ph: 925.246.6419 fx: 925.246.6495

architect

DATE SIGNED: 07/15/2016

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

TD - MN/MJR — PM - DESIGN TEAM
150225.00 — PROJECT NO.

consultant

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
FILE # 7-C1
APPL # 01-115396
AC ___ FLS ___ SS ___
DATE JUL 2 8 2016

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca., 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL SECTORS 5A, 5B & 6 COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number : 20842.00

file name:

drawn by: checked by:

date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

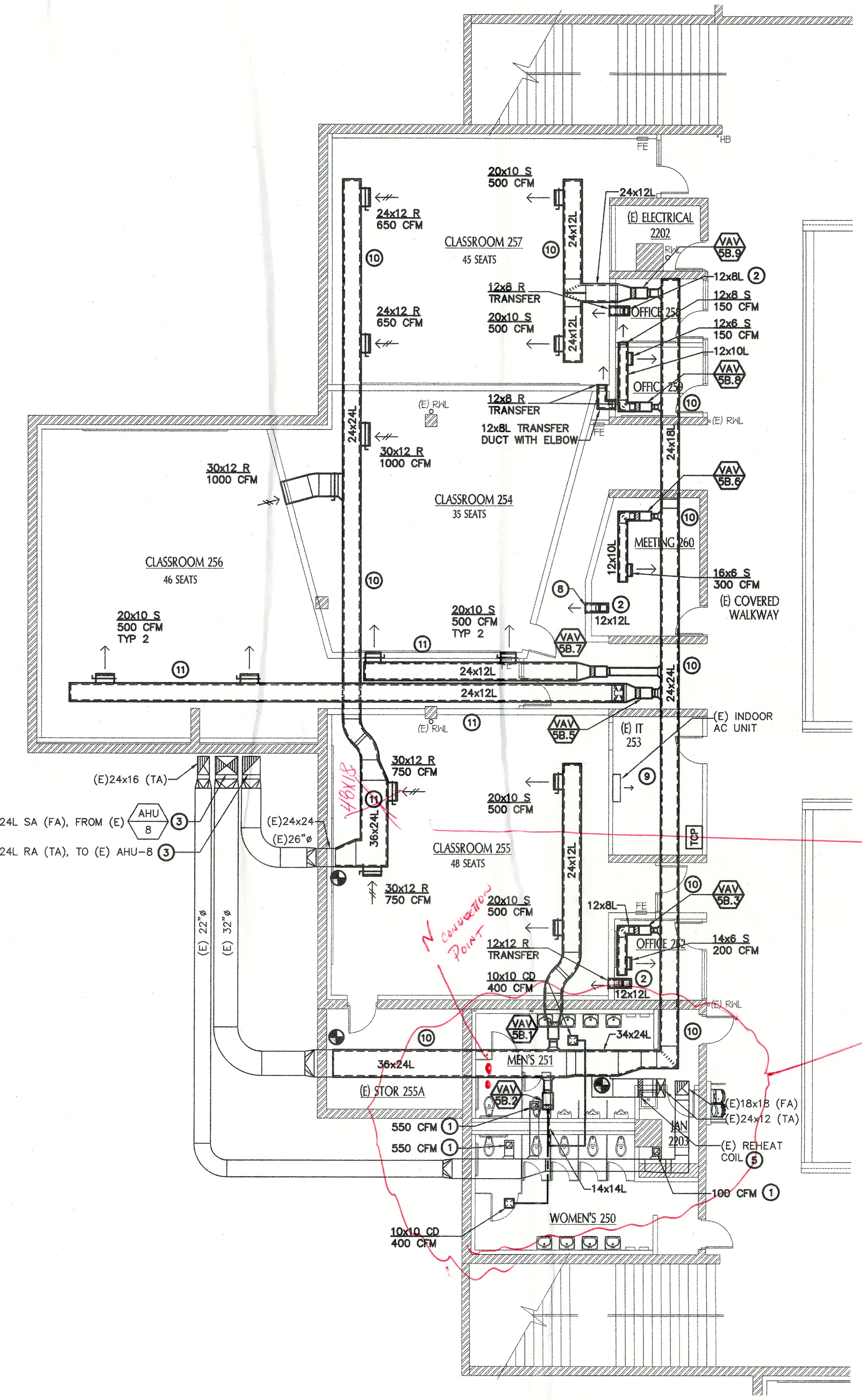
drawing title:

HVAC FLOOR PLAN

drawing no.:

M2.0

drawing of



HVAC FLOOR PLAN - SECTOR 5B

SCALE : 1/8" = 1'-0"

1 / M2.0

GENERAL NOTES:

1. SEE TABLE OF DUCT SIZES ON SHEET M0.1 FOR SIZE OF BRANCH DUCTS TO INDIVIDUAL DIFFUSERS, REGISTERS & GRILLES SHOWN ON PLAN UNLESS THE DUCT SIZE IS SHOWN ON THE FLOOR PLAN.
2. SEE TERMINAL UNIT SCHEDULE ON SHEET M0.2 FOR VAV BOX SIZES. SIZE OF DUCT SHOWN TO TERMINAL UNIT SHALL BE THE BOX INLET SIZE AS SCHEDULED UNLESS NOTED OTHERWISE ON FLOOR PLAN.
3. REFER TO M2.1 FOR THERMOSTAT LOCATIONS.
4. PAINT EXPOSED DUCT. REFER TO ARCHITECTURAL DRAWINGS.

SHEET NOTES:

(1) BALANCE (E) DIFFUSER OR GRILLE TO VALUE INDICATED.

(2) TRANSFER BOOT, SEE DETAIL 10/M5.1.

(3) (E) AHU–8 ALSO SERVES SECTOR 13 ON THE THIRD FLOOR ABOVE. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.

(4) (E) AHU–6.1 ALSO SERVES SECTOR 3 ON THE FIRST FLOOR BELOW. SCHEDULE AC UNIT SHUTDOWN WITH THE OWNER PRIOR.

(5) (E) REHEAT COIL THAT SERVES THIRD FLOOR BATHROOM CORE TO REMAIN. MAINTAIN THE SAME AIRFLOW TO THE SPACE THAT WAS PROVIDED PRIOR TO CONSTRUCTION.

(6) REFRIGERANT PIPING, REFER TO SCHEDULE FOR SIZES. ROUTE TO OUTDOOR UNIT SCU–5A.1.

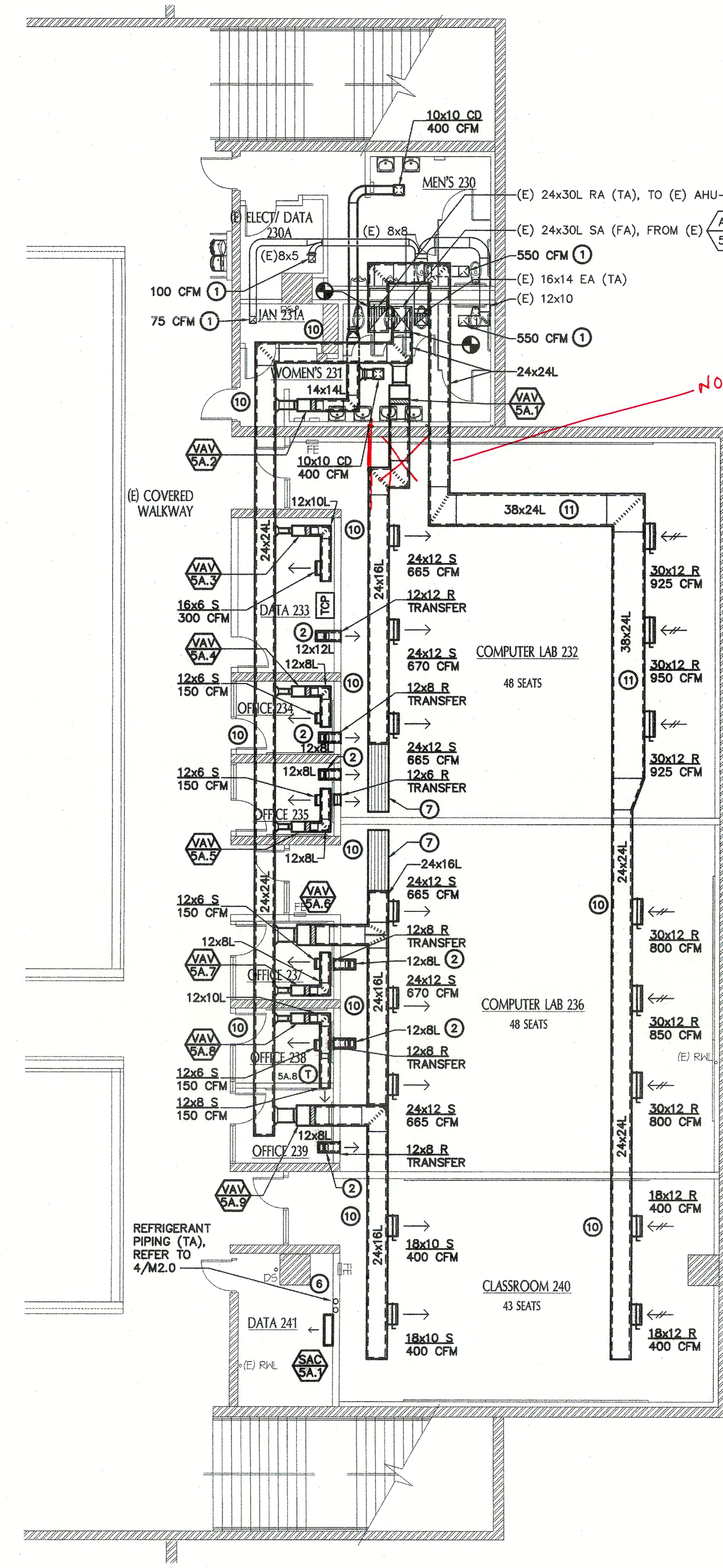
(7) DECORATIVE DUMMY DUCT SECTION. SIZE SHALL BE THE SAME AS THE ADJACENT DUCT. SUPPORTS AND BRACING SHALL BE THE SAME AS OTHER DUCTS.

(8) 12x12 RELIEF AIR LOUVER.

(9) IT ROOM 253 MUST REMAIN FULLY OPERATIONAL THROUGHOUT CONSTRUCTION. CAREFULLY COORDINATE CONSTRUCTION WORK TIME WITHIN THE ROOM WITH DISTRICT. ENSURE THAT EQUIPMENT REMAINS UNDISTURBED DURING WORK.

(10) DUCT MAIN (SAME SIZE OR SMALLER THAN THE (E) DUCT REMOVED) MOUNTED TO (E) SUPPORT, REFER TO DETAIL 8/M5.1.

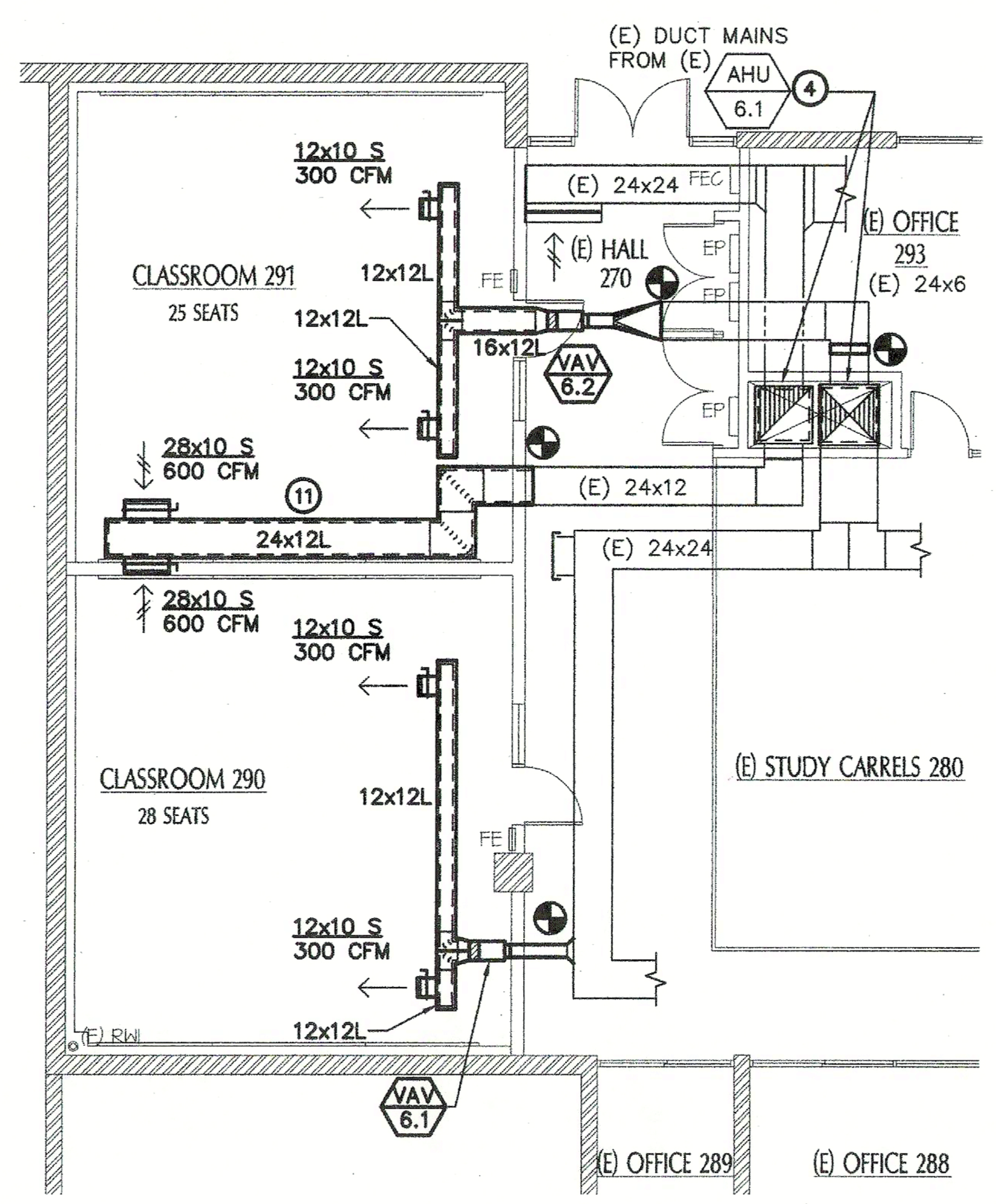
(11) DUCT MAIN MOUNTED TO NEW SUPPORT, REFER TO DETAIL 9/M5.1.



HVAC FLOOR PLAN - SECTOR 5A

SCALE : 1/8" = 1'-0"

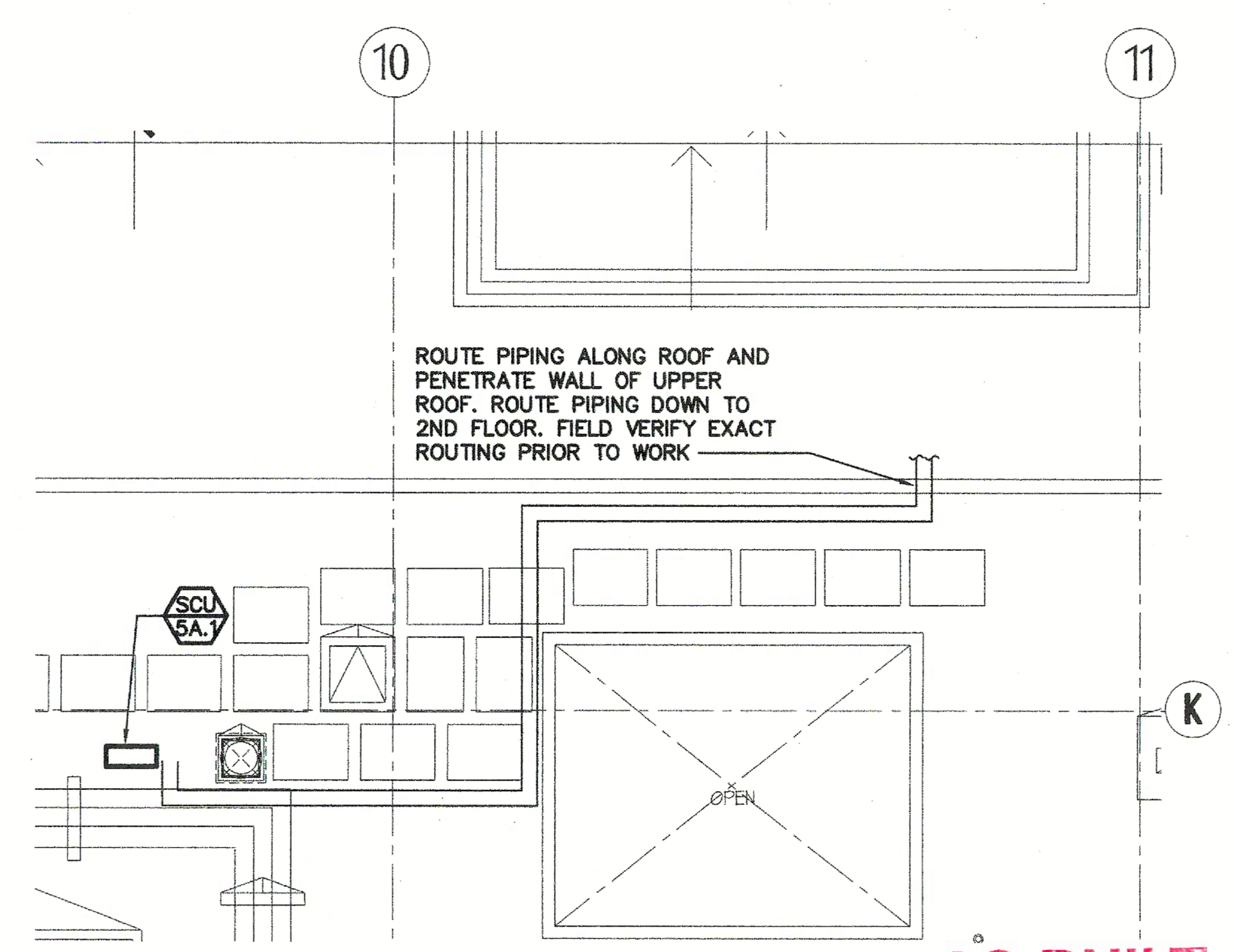
2 / M2.0



HVAC FLOOR PLAN - SECTOR 6

SCALE : 1/8" = 1'-0"

3 / M2.0



HVAC ROOF PLAN SECTOR 5A

SCALE : 1/8" = 1'-0"

4 / M2.0

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1000 Burnett Avenue Suite 320
Concord, CA 94520
ph: 925.246.6419 fx: 925.246.6495

architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD – MN/MR 150225.00
PM – DESIGN TEAM PROJECT NO.

consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca. 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number :	20842.00	
file name:		
drawn by:	checked by:	
date:	MAY 16, 2016	
Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:

HVAC FLOOR PLAN

drawing no.:

M2.0

drawing of

M2.0

RFI # 90

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 04/28/2017, Page 1 of 1

Reroute newly routed water lines

Submitted :	04/26/2017
Submitted To:	Critical Solutions, Inc.,Stefan Johnson,W A Thomas
Revision Date:	
Status:	Pending
Priority:	Critical
Due Date:	04/26/2017
Pending On User:	Stefan Johnson
Pending On Org:	Critical Solutions, Inc., tBP /Architecture, Inc.

Created By: W A Thomas, Mike Gutierrez
Created: 04/26/2017

The due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 04/26/2017

Request:
Door 255 is a floor to ceiling window system. Detail 1/M2.1 has water lines being changed to copper and rerouted around the existing SB data room. The route chosen interfere's with the new systems storefront transom. How are we to procede?

Suggestion:
Reroute waterlines as detailed in attached drawing.

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References

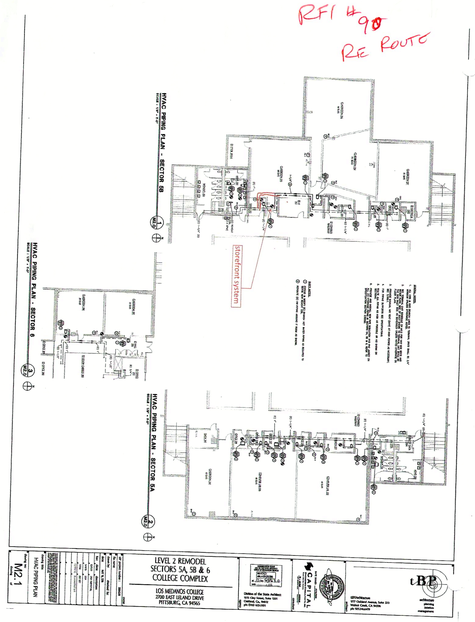
Drawing M2.1	Published

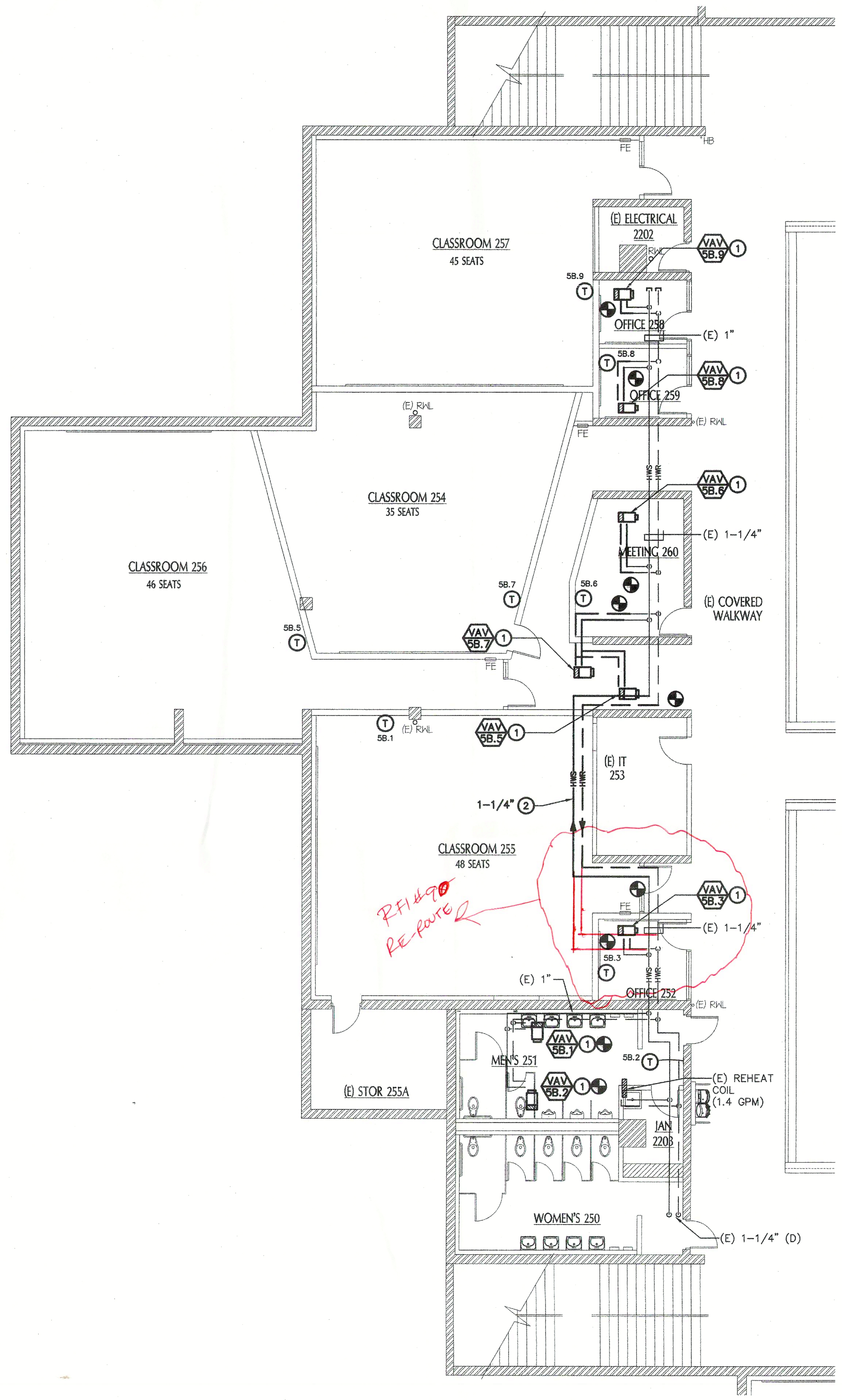
Files

M2.1.pdf	721.05 KB
2.1 (1).pdf	723.49 KB

We do not take exception to the coordination proposed by the contractor to avoid an interference with the storefront transom. Bob Barcelon, CECI 5/1/17

RFI # 90
RE ROUTE





HVAC PIPING PLAN - SECTOR 5B

1 / M2.0

SCALE : 1/8" = 1'-0"

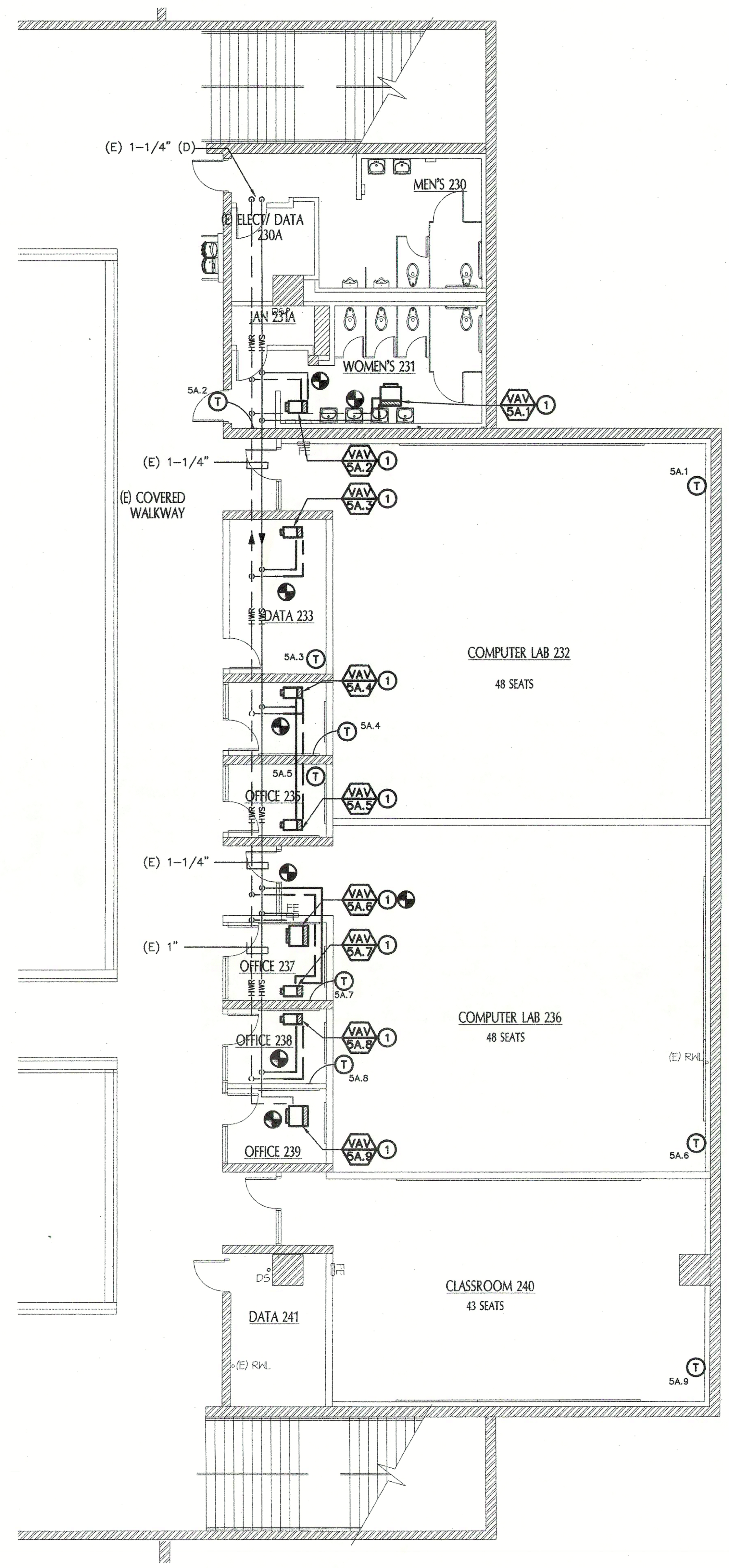
GENERAL NOTES:

1. ALL HWS & HWR BRANCH LINES TO TERMINAL UNITS SHALL BE 3/4" MINIMUM UNLESS OTHERWISE NOTED.
2. SEE TERMINAL UNIT SCHEDULE ON M0.2 FOR VAV BOX SIZES AND WATER FLOW. SIZE OF DUCT SHOWN TO TERMINAL UNIT SHALL BE THE BOX INLET SIZE AS SCHEDULED UNLESS NOTED OTHERWISE ON FLOOR PLAN.
3. PROVIDE MANUAL AIR VENT (MAV) AT HIGH POINTS AS NECESSARY, SEE 3/M5.1.
4. FOR PIPING SUPPORTS SEE SPECIFICATIONS.
5. ROUTE ALL PIPING AS HIGH AS POSSIBLE OR AS SHOWN ON SECTIONS.
6. PROVIDE AND INSTALL NEW PIPE INSULATION AND PVC JACKET ON ALL (E) HYDRONIC PIPING IN SECTORS 5A, 5B & 6. REFER TO SPECIFICATION SECTION 230050.

SHEET NOTES:

(1) EXTEND & MODIFY (E) BRANCH HOT WATER PIPING AS REQUIRED TO SERVE NEW REHEAT COIL.

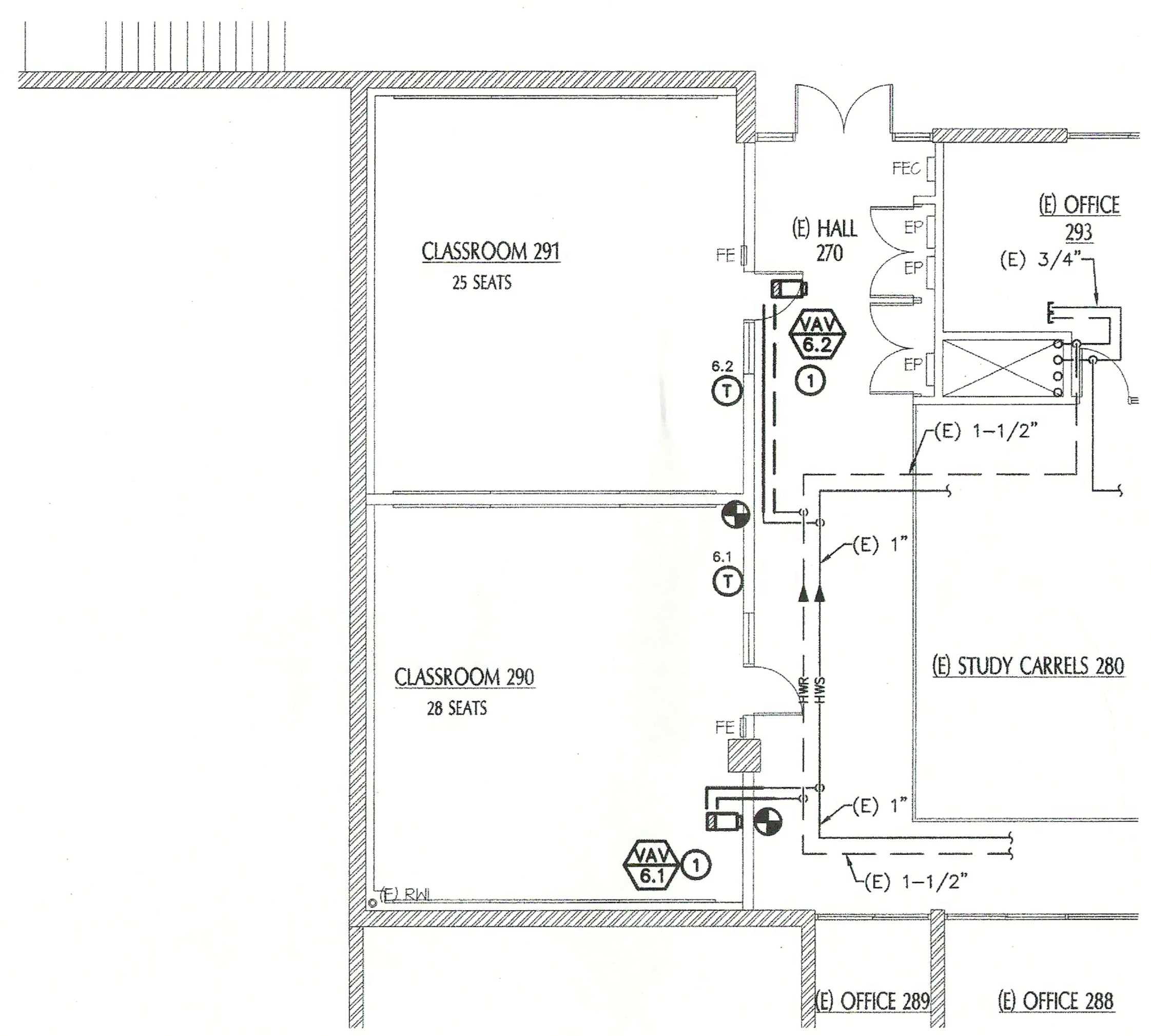
(2) REROUTE (E) HW PIPING AROUND IT ROOM AS SHOWN.



HVAC PIPING PLAN - SECTOR 5A

2 / M2.0

SCALE : 1/8" = 1'-0"



HVAC PIPING PLAN - SECTOR 6

3 / M2.0

SCALE : 1/8" = 1'-0"

AS-BUILT

tBP
architecture
planning
interiors
management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER
THOMAS ALAN DUVAL
No. 22836
Exp. 9/30/2016
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 07/15/2016

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

TD - MN/MJR — PM - DESIGN TEAM
150225.00 — PROJECT NO.

consultant

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
FILE # 7-C1
APPL # 01-115396
AC ___ FLS ___ SS R.O.
DATE JUL 18 2016

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca, 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number : 20842.00

file name:

drawn by: checked by:

date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:

HVAC PIPING PLAN

drawing no.:

M2.1

drawing of

RFI #152

RFI # 152 Response # 2

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 08/18/2017, Page 1 of 1

Subject: W A Thomas Response to RFI # 152
Submitted : 08/18/2017
Status: Pending
Created By: W A Thomas, Jim Smith
Type: Supplement

Response:
There are approximately 6 locations where the seismic brace detail for the HVAC VAV boxes will not work, they are too close to a wall. This typically occurs in the smaller offices in Sectors 5A and 5B. Martinez Sheet Metal is proposing to attached the boxes to the adjacent wall with Unistrut, similar to the installation shown in the attached picture. This picture is in room 252.

Is this acceptable?

References
Drawing M5.1 Published

Files
RFI# 152.1 MSM Photo Bracing.jpg 101.34 KB

No exception taken, with the proposed seismic bracing. All unit boxes shall still have all vertical supports.

Gokhan Akalan BASE DESIGN 8/18/17
Felix Canari tBP/Arch. 8/18/17

RFI #95

RFI # 95

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 05/03/2017, Page 1 of 2

Mechanical support anchors

Submitted : 05/03/2017
Submitted To: Critical Solutions, Inc.,Stefan Johnson,W A Thomas
Revision Date:
Status: Pending
Priority: Critical
Due Date: 05/03/2017
Pending On User: Felix Canari
Pending On Org: tBP/Architecture, Inc.

Created By: W A Thomas, Mike Gutierrez
Created: 05/03/2017

The due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 05/03/2017

Request:
Detail 8/M5.1 shows the Hilti KB-TZ anchors installed inward from the vertical support. The Existing support anchors are centered on the concrete beam above with a stud/ coupler connection (see attached photos. The existing support studs will need to be ground flush to make room. Question: what is the minimum distance needed between new and old anchors? please advise. URGENT

Suggestion:

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References
Drawing M5.1 Published

6" should be enough.

Gokhan Akalan, S.E. 5/3/17

RFI #153

COMFORT (MSM) SPECIALISTS **Martinez Sheet Metal, Inc.**

REQUEST FOR INFORMATION

REF # _____ Facility Pittsburg
Date: 8/3/2017 D.C.A. _____
From: Martinez Sheet Metal Project Name LMC Sectors 5 & 6
To: W.A. Thomas Date Information Required ASAP
Priority Routine _____ Expedite _____ Urgent XXXX
Subject: Seismic supports
Category
Contract Drawing Ref.: _____
Shop Drawing Ref.: _____
Specification Ref.: _____
Possible Cost Impact ☐ Yes ☐ No
Possible Time Impact ☐ Yes ☐ No
Job Site PU _____
Job Site Fax _____

- [X] Information not shown on contract documents
- [ ] Interpretation of contract documents
- [ ] Conflict in contract documents
- [ ] Coordination problem
- [ ] Possible code conflict
- [ ] Other

COMMENTS: We need to know how we are to seismic the VAV boxes where they are extremely close the the walls and cannot be seismiced as noted on the drawings and specifications? Attached are pictures.

RESPONSE:

Answered by: _____ *Date:* _____

RFI #110 4/M5.1

RFI # 110

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 05/22/2017, Page 1 of 1

HVAC VAV Box Bracing Detail

Submitted : 05/22/2017
Submitted To: Critical Solutions, Inc.,W A Thomas
Status: Pending
Priority: Medium
Due Date: 05/24/2017
Pending On User: Felix Canari
Pending On Org: tBP/Architecture, Inc.

Created By: W A Thomas, Jim Smith
Created: 05/22/2017

The due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 05/24/2017

Request:
Please refer to attached Martinez Sheet Metal RFI # 04 dated 5/22/2017. Please clarify required angle clip shown in detail 4/M5.1

Suggestion:

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References
Drawing M5.1 Published

Files
MSM Hanger RFI#4 052217.pdf 420.89 KB

Response:
Use 3"x3"x1/4"x 0'x6" angle.

Bob Barcelon, CECI 5/23/17

RFI #152

RFI # 152 Response # 1

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 08/04/2017, Page 1 of 1

Subject: tBP/Architecture, Inc. Response to RFI # 152
Submitted : 08/03/2017
Status: Pending
Created By: tBP/Architecture, Inc., Felix Canari
Type: Final

Response:
Bracing may be installed to wall or deck per 14/A7.3 (see attached marked up photo)

tBP/Architecture
Phil Newsom Architect
Exec VP
8/3/17

Files
Pages from MSM RFI_ 0X 080317.pdf 172.48 KB

RFI #152

DUCT SUPPORT: REFER TO SMACNA "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE"

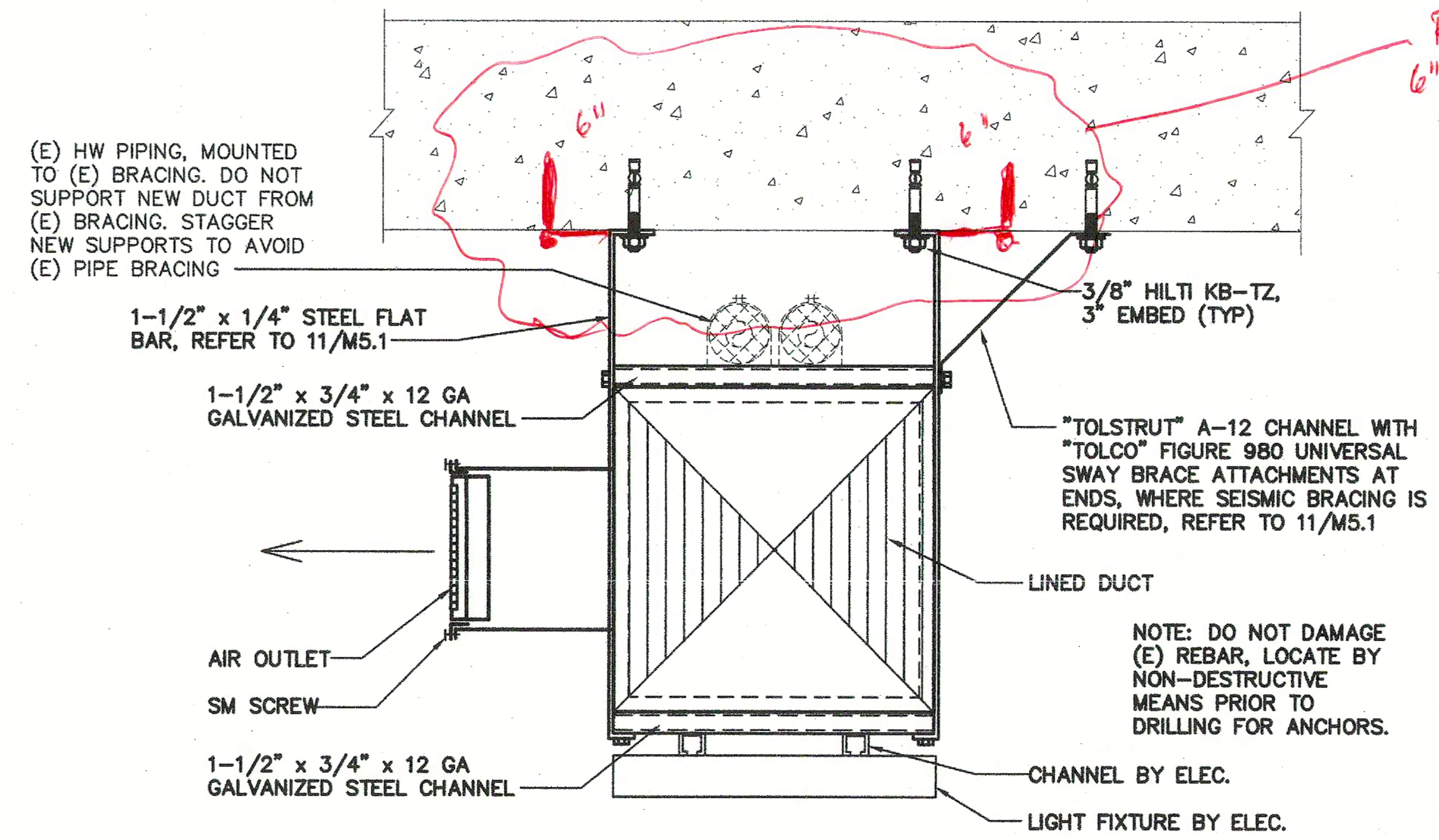
DUCT SUPPORT SPACING = 10 FT

SEISMIC BRACING: REFER TO OPA-2123-10

MAXIMUM BRACE SPACING = 40 FT FOR TRANSFERSE BRACING AND 80 FT FOR LONGITUDINAL SPACING.

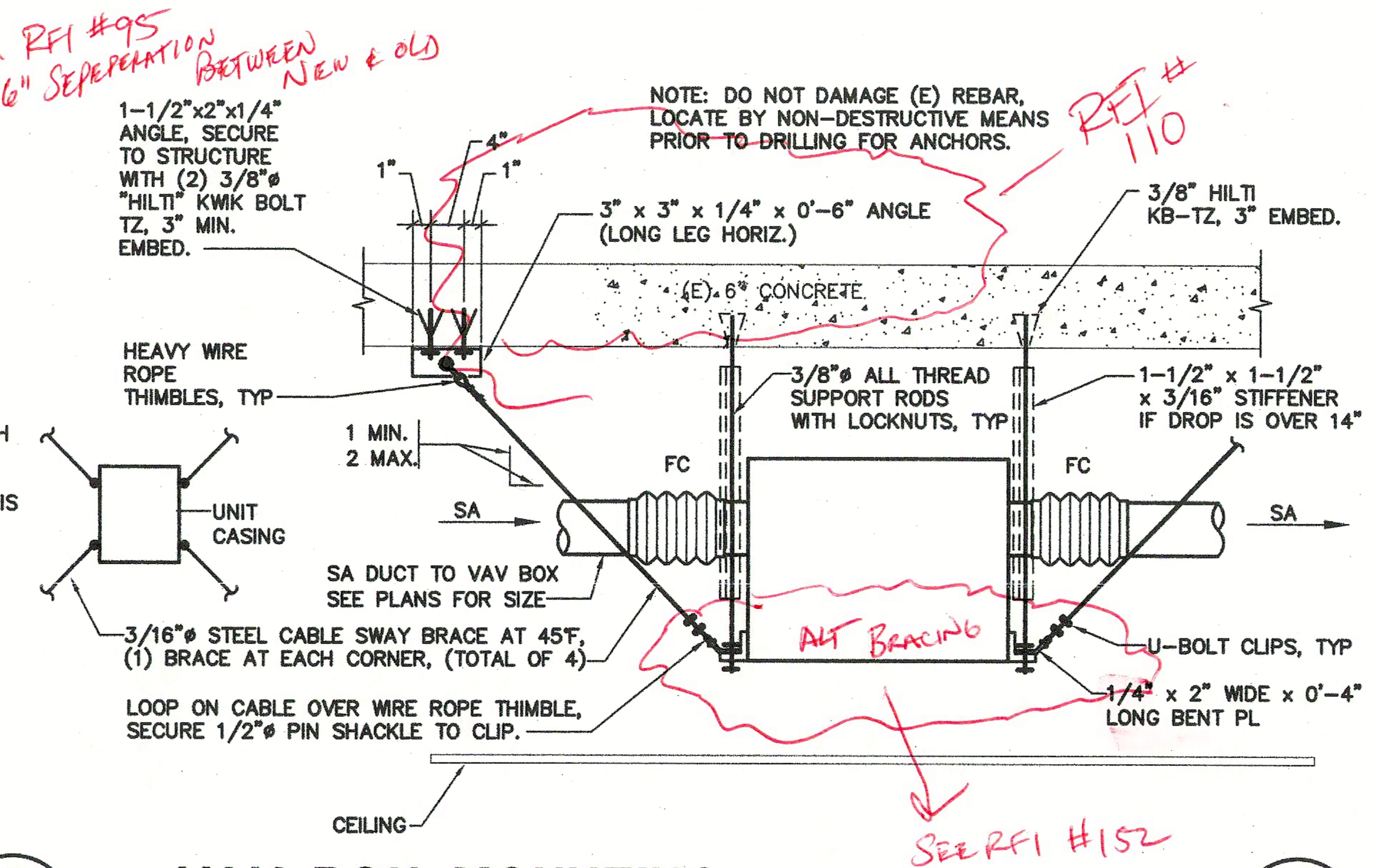
DUCT SUPPORT & BRACING SPACING (11/M5.1)

SCALE : NONE



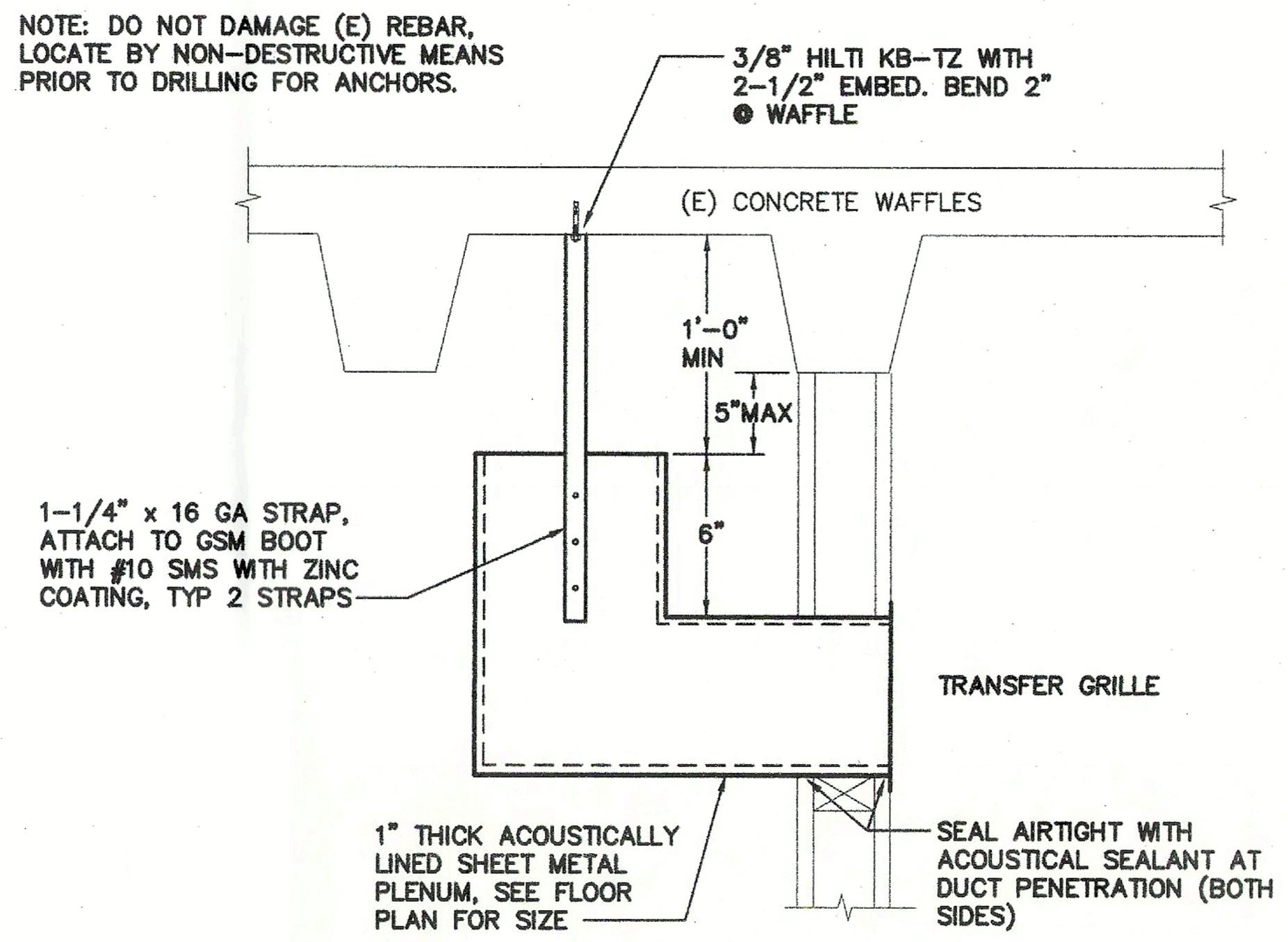
EXPOSED DUCT & PIPE MOUNTING (8/M5.1)

SCALE : NONE



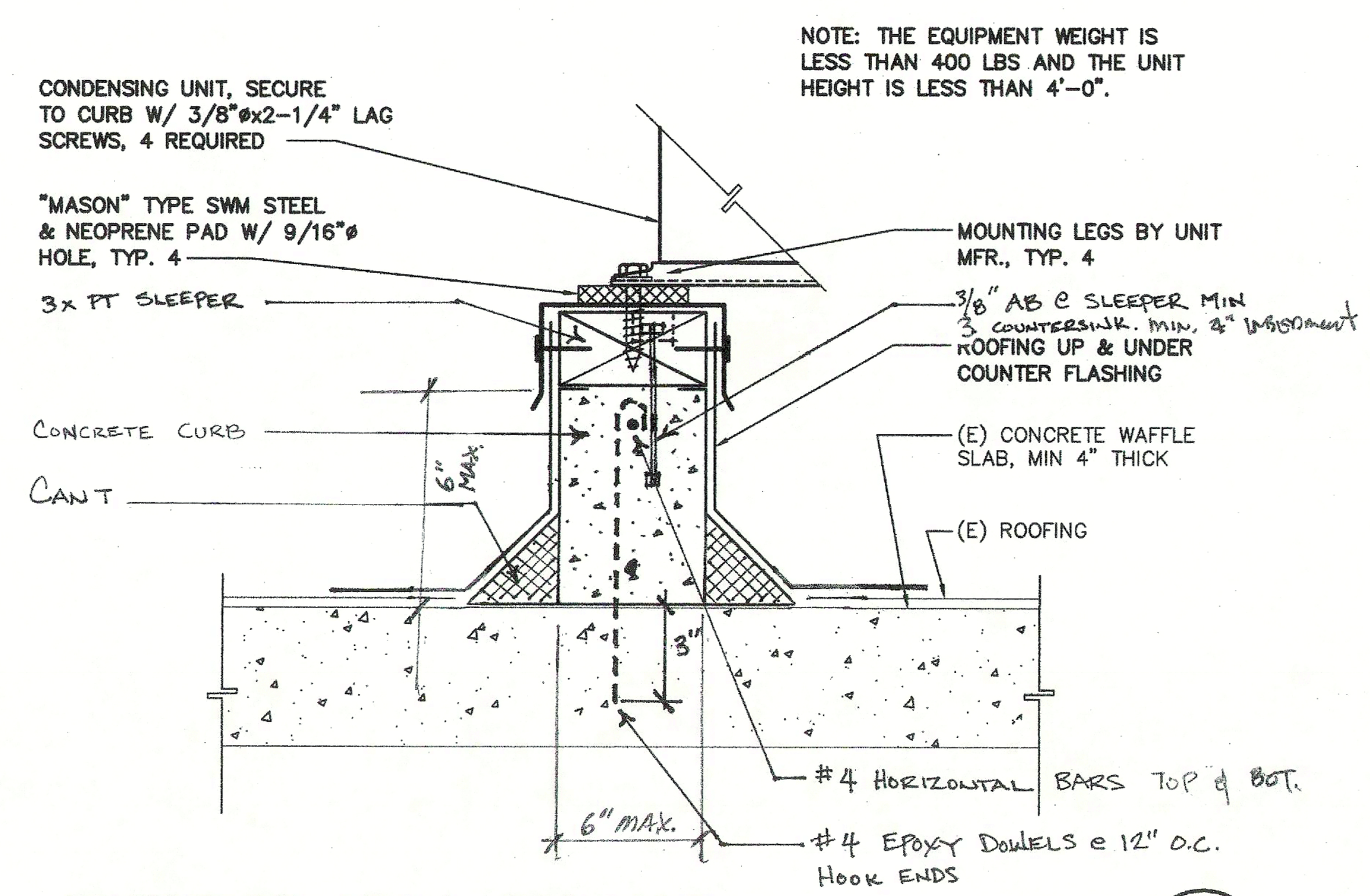
VAV BOX MOUNTING (4/M5.1)

SCALE : NONE



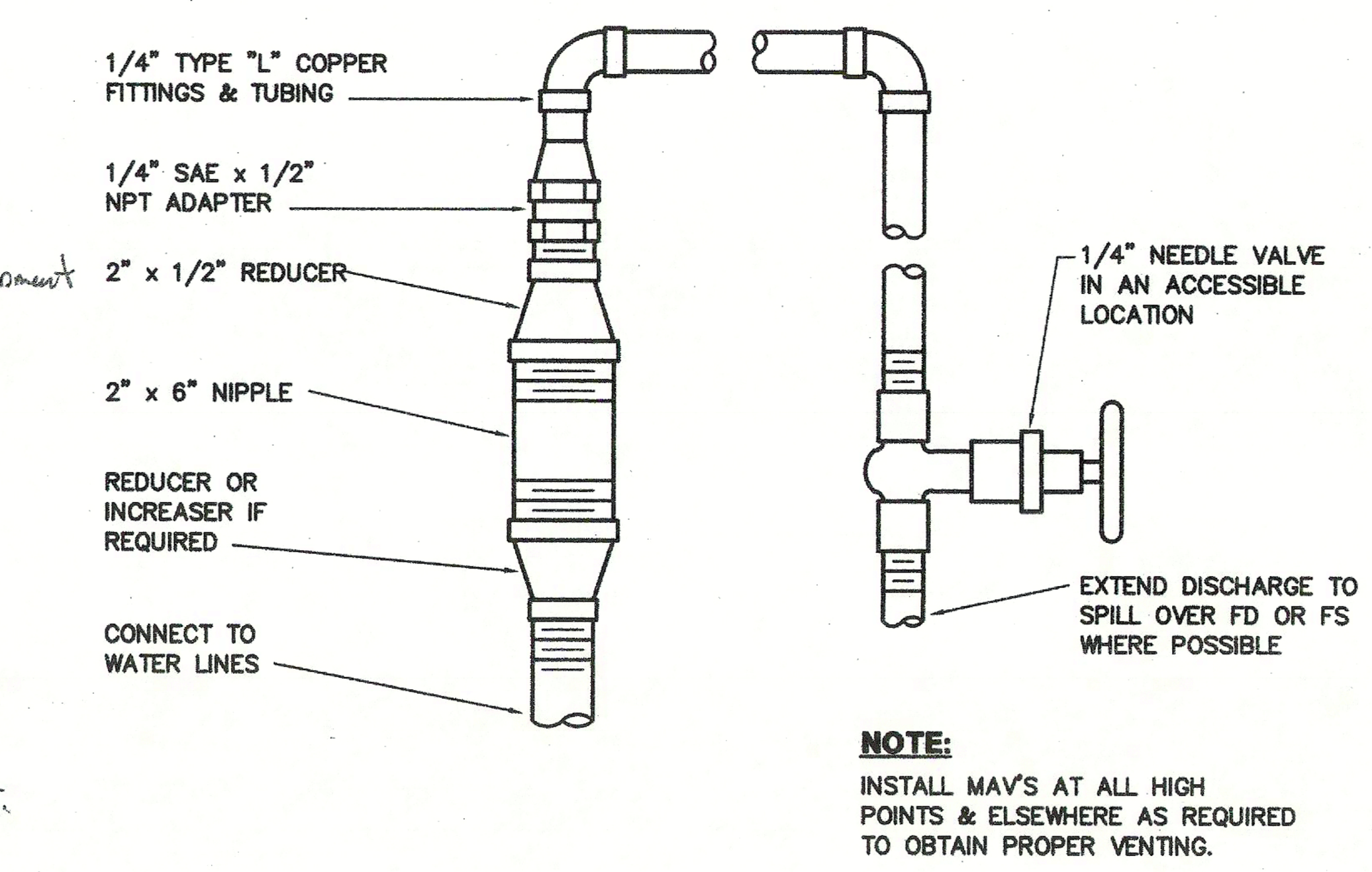
ACOUSTIC TRANSFER AIR BOOT (10/M5.1)

SCALE : NONE



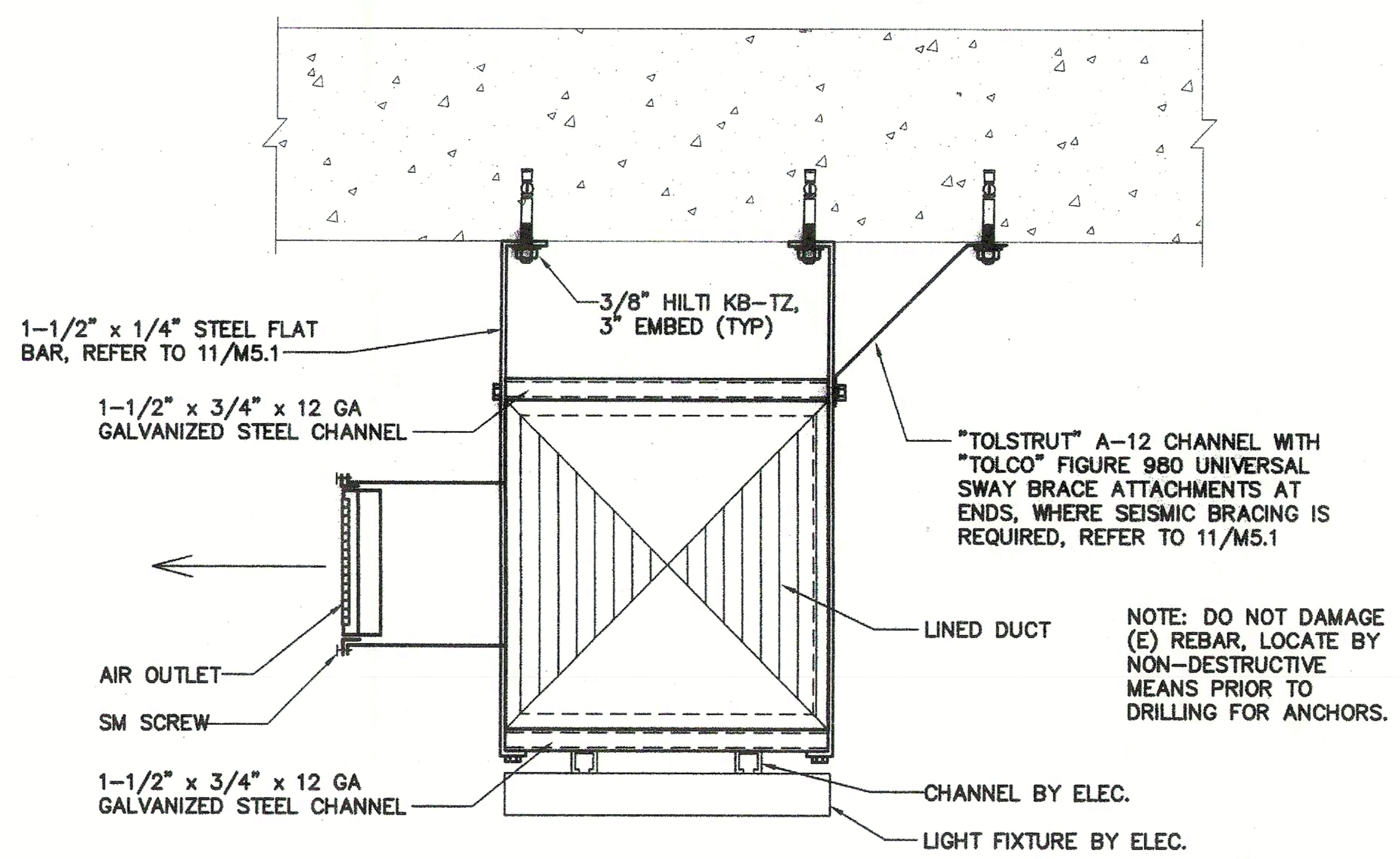
OUTDOOR UNIT MOUNTING (7/M5.1)

SCALE : NONE



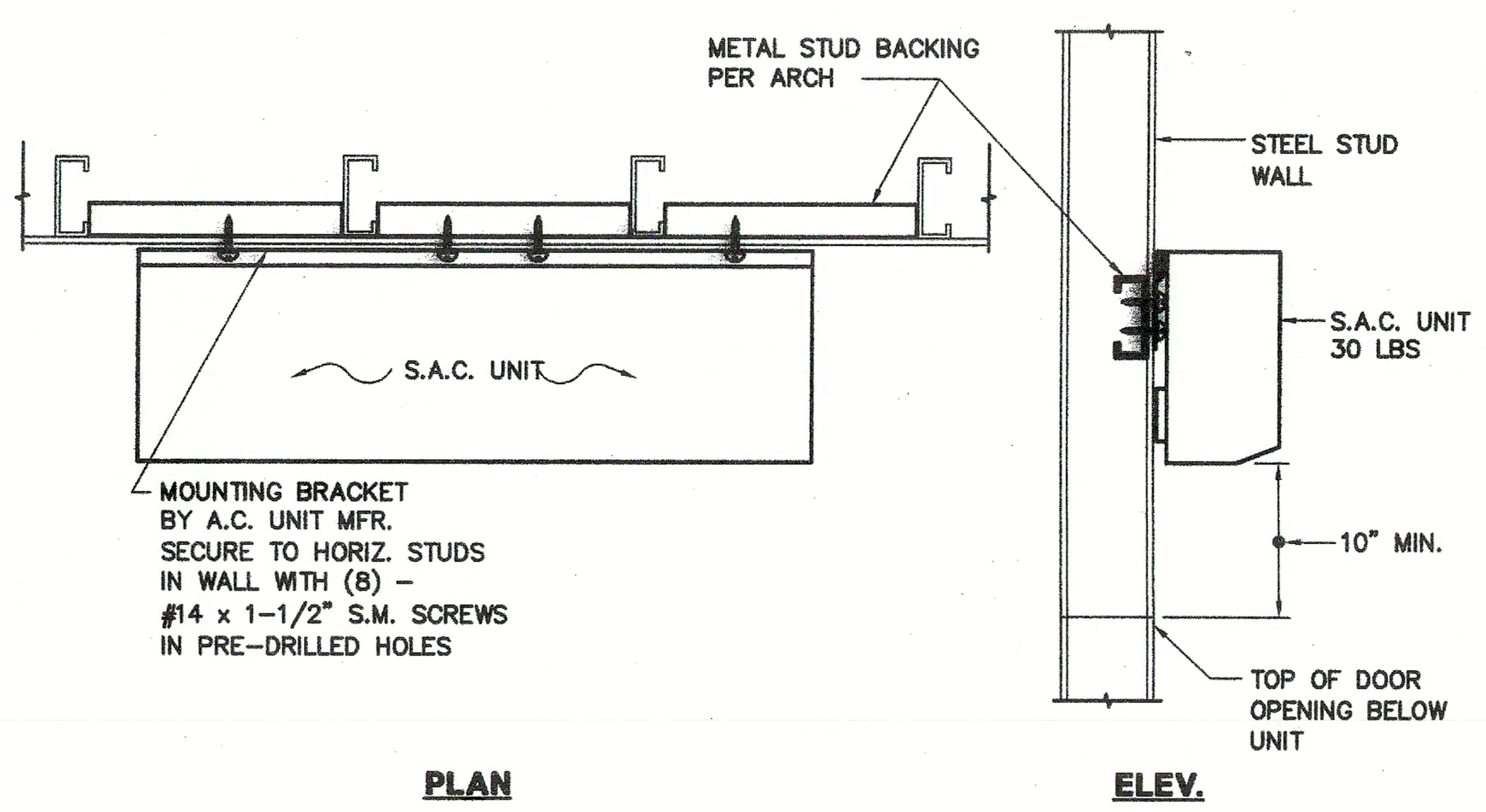
MANUAL AIR VENT (MAV) DETAIL (3/M5.1)

SCALE : NONE



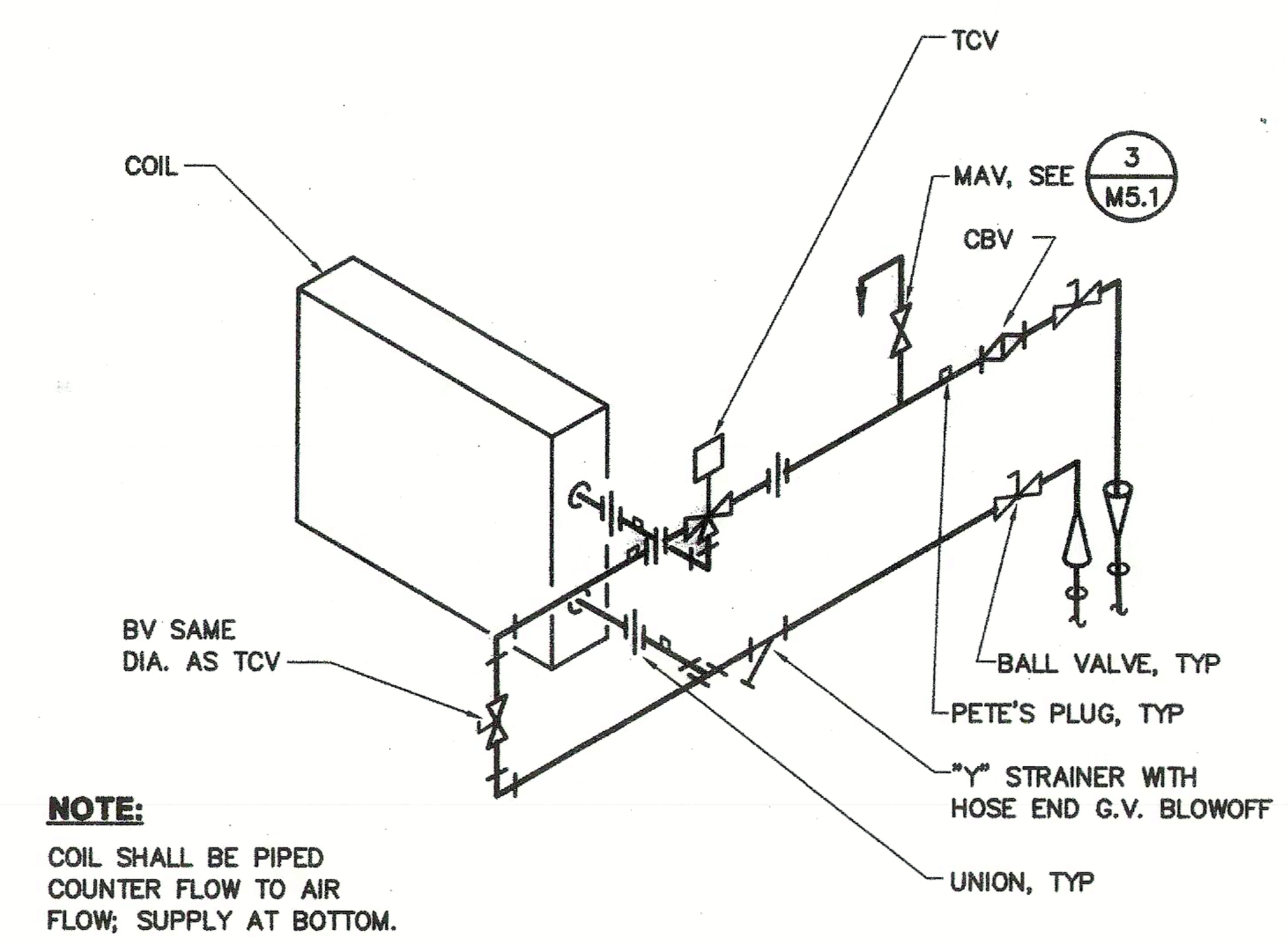
EXPOSED DUCT MOUNTING (9/M5.1)

SCALE : NONE



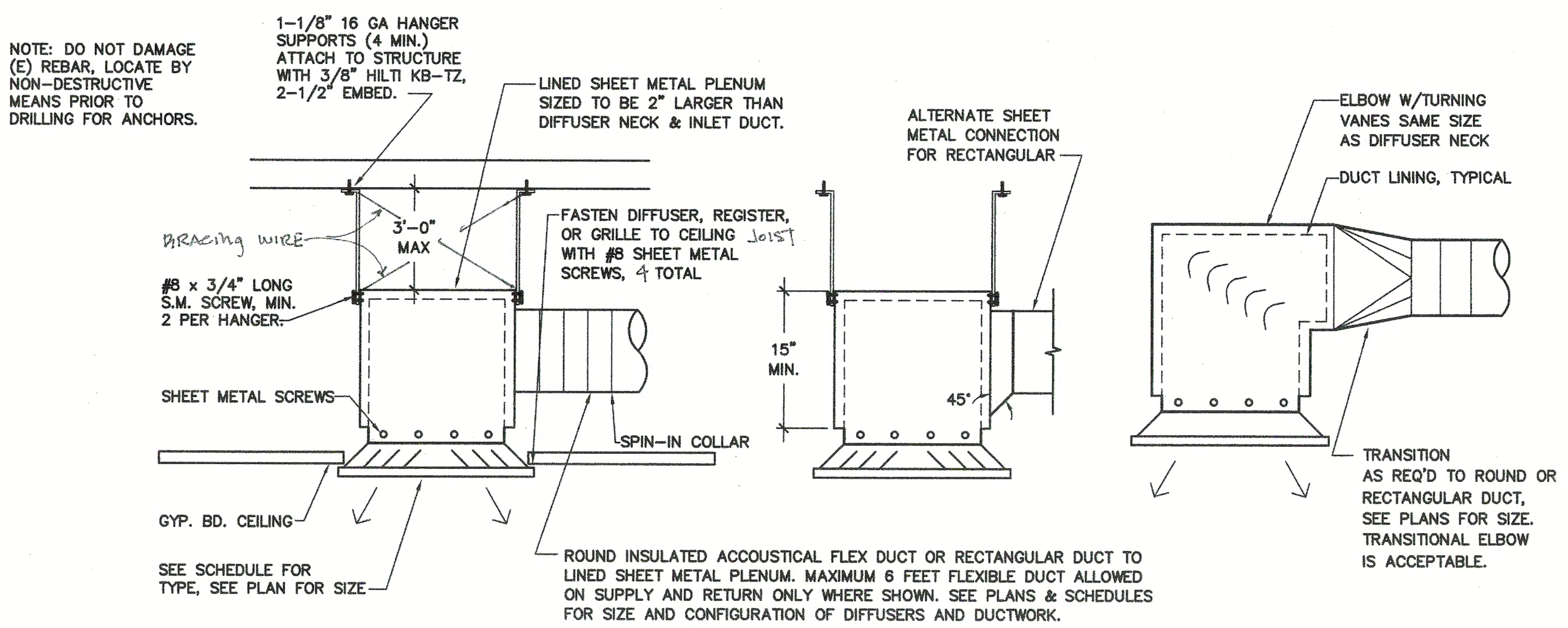
INDOOR UNIT MOUNTING (6/M5.1)

SCALE : NONE



HW COIL PIPING DETAIL (3-WAY) (2/M5.1)

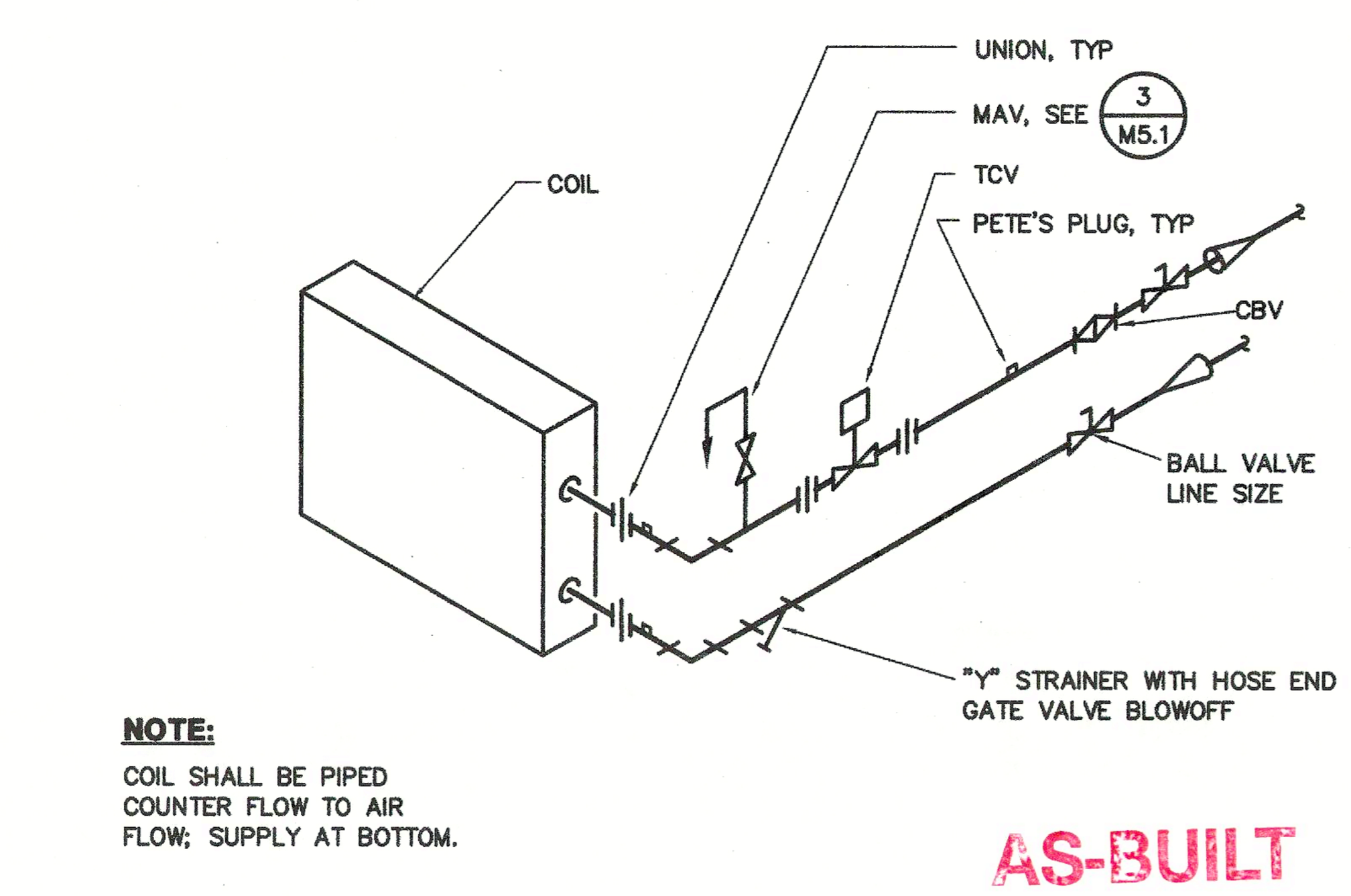
SCALE : NONE



NOTE: FLEXIBLE DUCTWORK IS NOT ALLOWED TO ANY EXHAUST AIR REGISTER OR GRILLE. FLEX DUCT IS NOT ALLOWED ON ANY TYPE OF DIFFUSER, REGISTER, OR GRILLE IN EXPOSED AREAS WITHOUT CEILINGS.

RETURN, EXHAUST & SUPPLY REGISTER DETAIL (5/M5.1)

SCALE : NONE



AS-BUILT

HW COIL PIPING DETAIL (2-WAY) (1/M5.1)

SCALE : NONE

tBP/Architecture
1000 Burnett Avenue Suite 320
Concord, CA 94520
ph: 925.246.6419 fx: 925.246.6495
architect

DATE SIGNED: 07/15/2016
CAPITAL ENGINEERING CONSULTANTS, INC.
consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca. 94612
ph: (510) 622-3101
agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number : 20842.00
file name:
drawn by: checked by:
date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/16/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC DETAILS

drawing no:
M5.1
drawing of

M6.1

RFI # 79

L-640 College Complex Remodel
2006 CIP/ LMC - Los Medanos College
2006 CIP

Printed 04/11/2017, Page 1 of 1

HVAC - Existing Control Network

Submitted : 04/11/2017
Submitted To: Critical Solutions, Inc.,W A Thomas
Status: Pending
Priority: Medium
Due Date: 04/14/2017
Pending On User: Felix Canari
Pending On Org: tBP/Architecture, Inc.

Created By: W A Thomas, Jim Smith
Created: 04/11/2017

,he due date will automatically be set at 14 calendar days from submission. Use the Requested Response Date field to request a different turnaround time.
Requested Response Date: 04/14/2017

Request:
Please review and respond to attached EMCOR RFI# 003 dated 4/10/2017

Suggestion:

Note to Contractor: This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.

References
Drawing M6.1 — Published

Files
L640 RFI #079 EMCOR E Controller.pdf — 42.28 KB

RFI.79

EMCOR Services
Mesa Energy Systems

24051 AMADOR STREET • HAYWARD, CA 94544 • PH (510) 670-1690 • FAX (510) 670-1698

REQUEST FOR INFORMATION

Project: LMC L640 College Complex
Contractor: EMCOR Mesa Energy Systems
Project Address: 2700 East Leland Drive
Pittsburg, CA 94565

Originator: Bill DeWitt, Network

Possible cost impact: [X] Yes [ ] No
Possible schedule impact: [X] Yes [ ] No

Date:	04/10/2017
GC #:	
MESA RFI #:	003
MESA Job #:	D1641420
Requested date of response:	ASAP
Specifications Sections:	
Drawing Reference:	N/A

Request: Existing Network does not support design

Upon field investigation it was discovered that there is no existing building network controller in rm IT-253 as shown on M6.1. As a result surface mounted conduit would be required from the new VAV controllers to the new building controller in Data Rm 241 and throughout the floors on the exterior. In discussion with Ruse Holt the Facilities Manager, surface mounted conduit was not desired. As an alternative we recommend the addition of 1 new Building Controller (BCx) to be located in the IT 253 and 1 new BCx controller IT Closet adjacent to Office 293 as well as the original location in rm 241

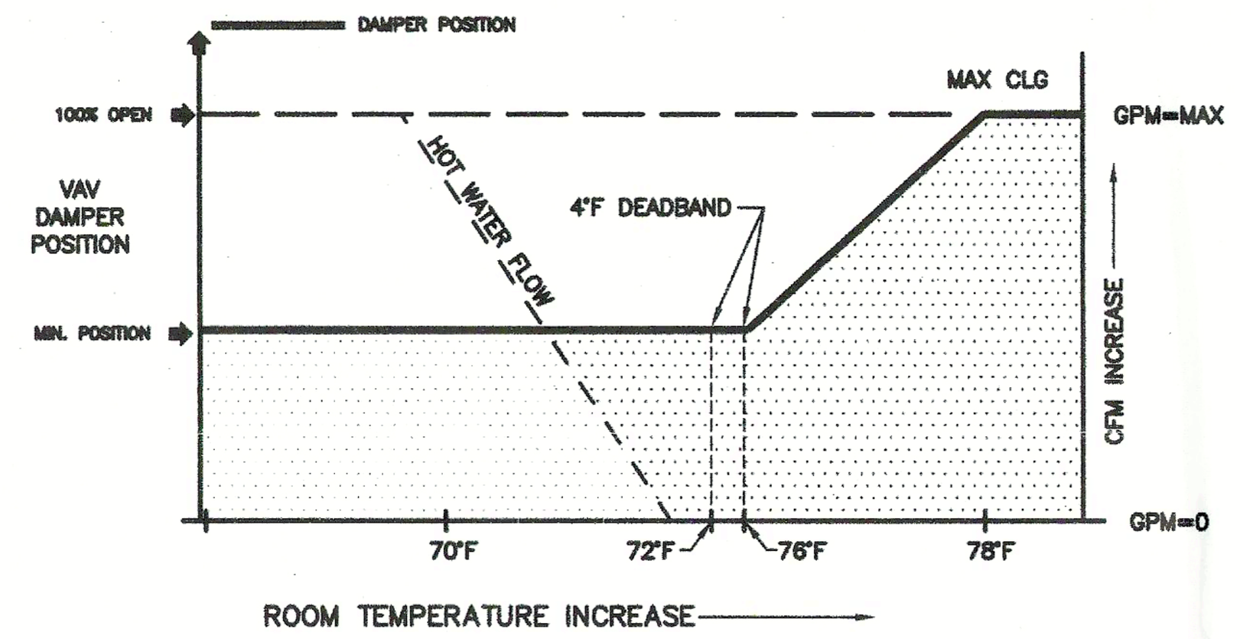
Respondent:
Issued by:
Attachments:

Date:

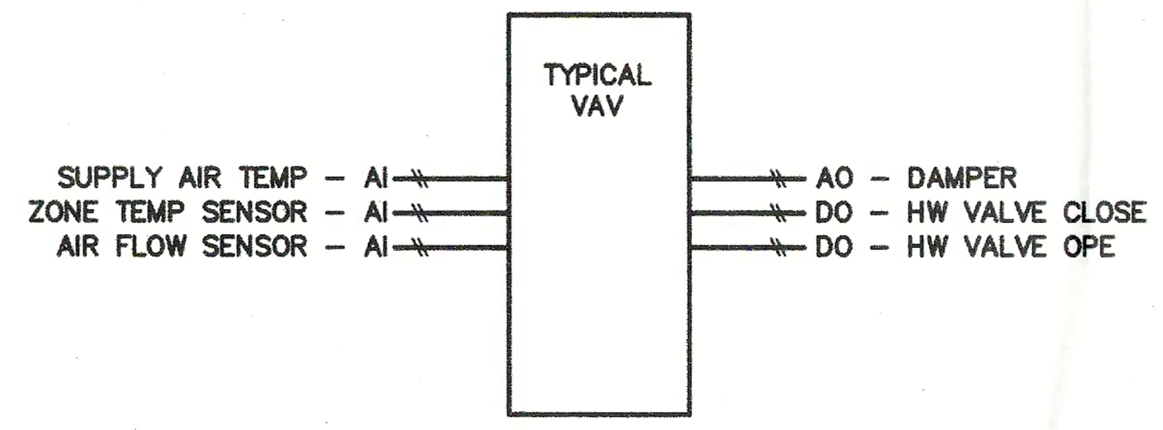
We do not take exception if this option meets the expectation and the approval of the owner.

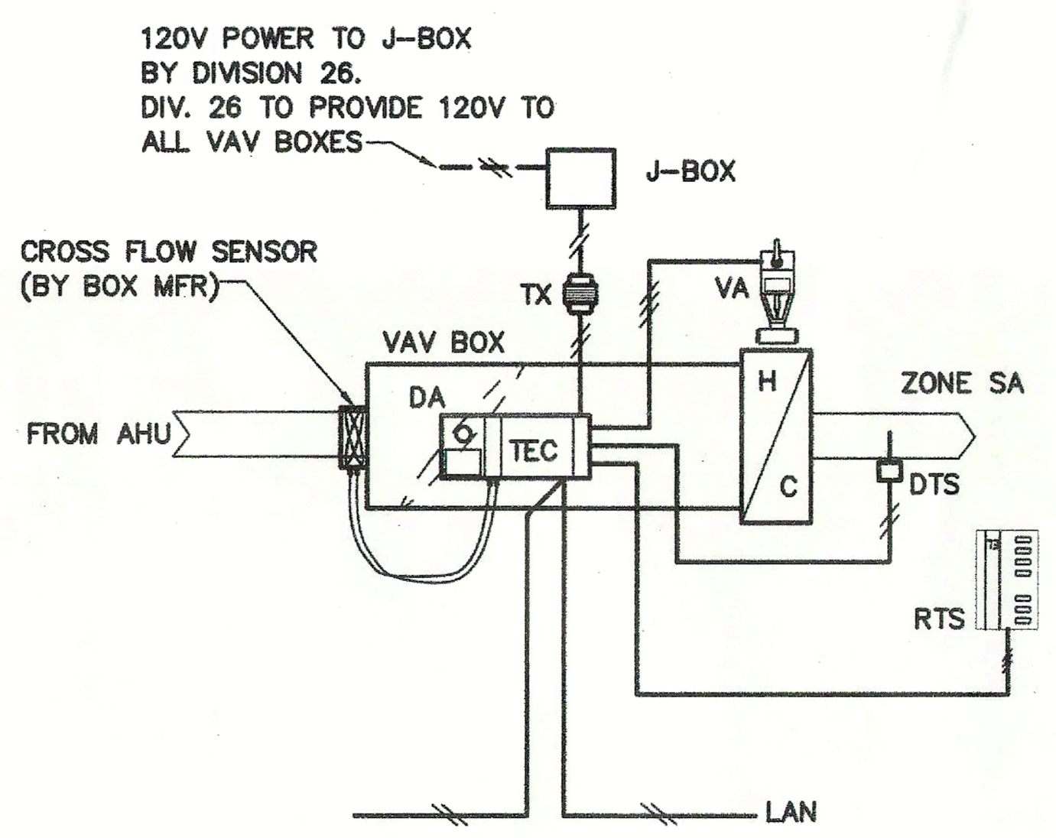
Bob Barcelon, CECI 4/28/17

Proceed with new controllers.
Rob Mohr, CSI 4/28/17



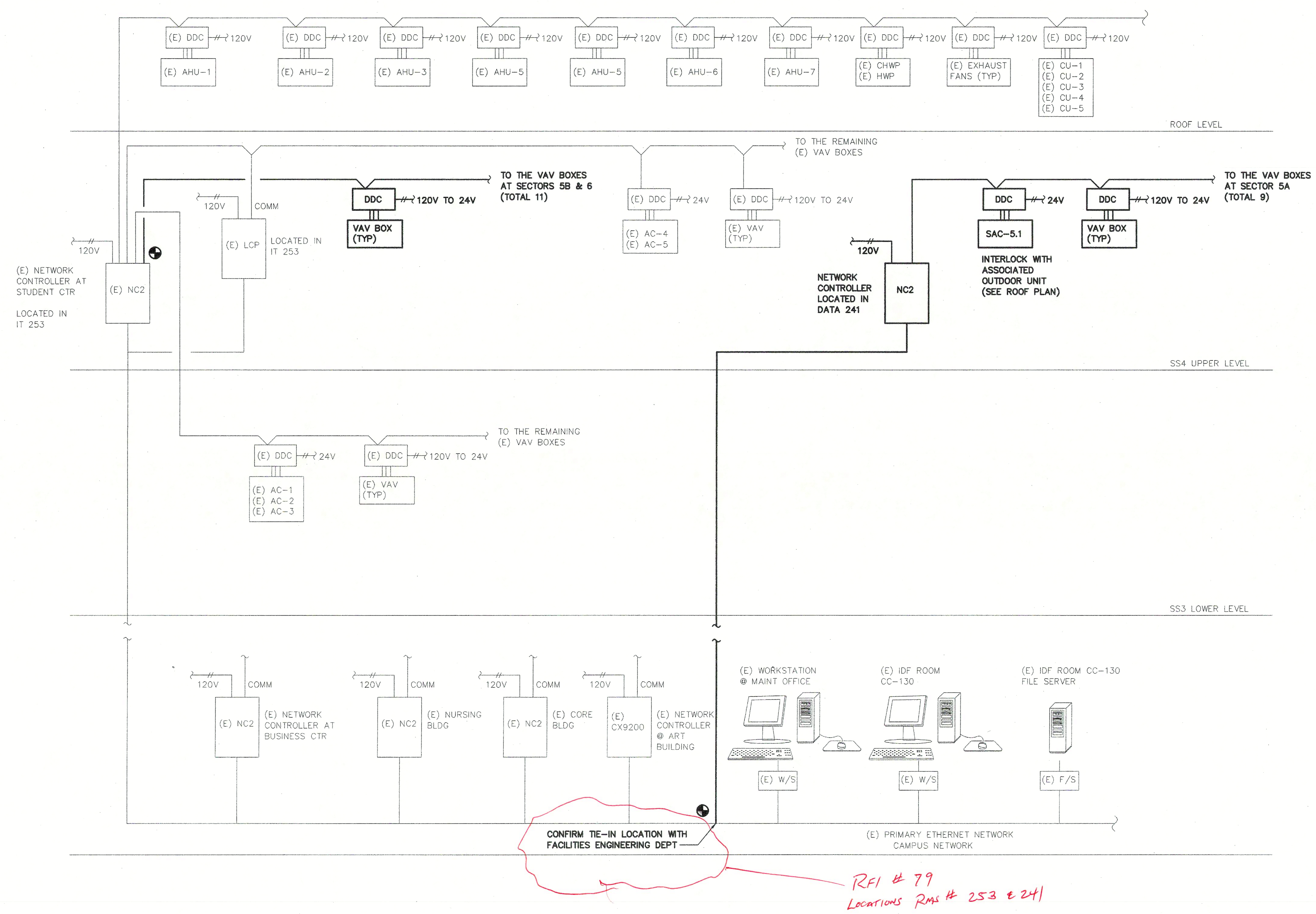
VAV BOX WITH REHEAT TEMPERATURE CONTROL





VAV BOX WITH REHEAT CONTROL DIAGRAM

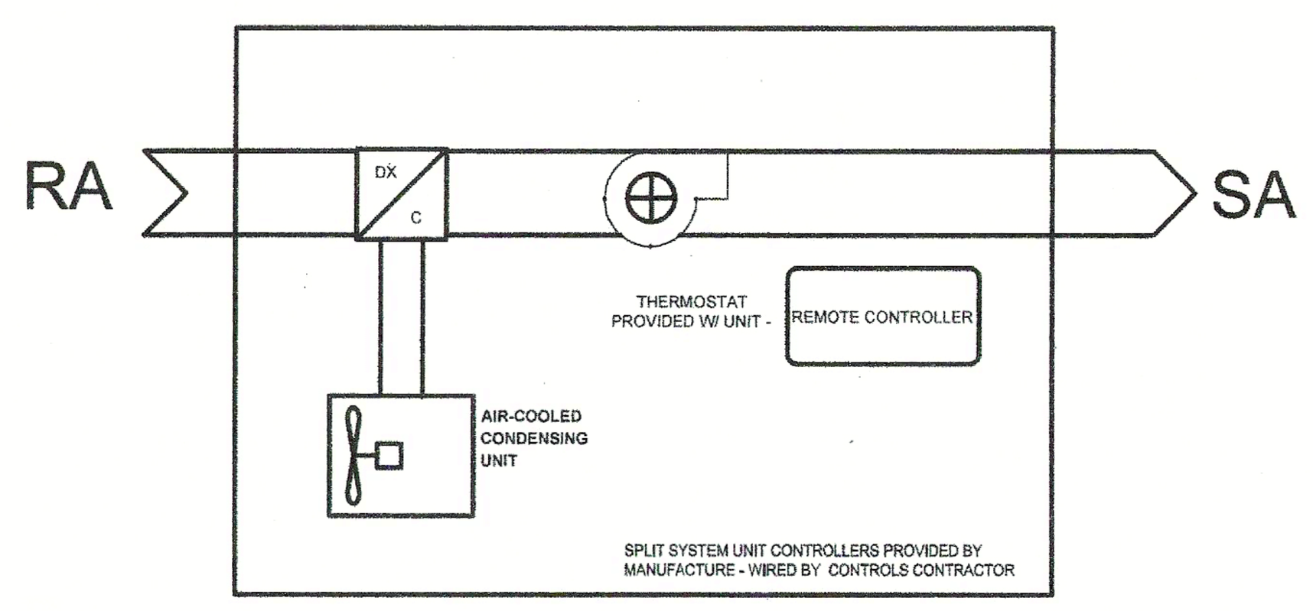
NOTES:
1. SEE SCHEDULES AND PLANS FOR QUANITIES AND LOCATIONS
2. MOUNT PLENUM RATED VAV CONTROLLER ONTO VAV BOX
3. PROVIDE ISOLATION TRANSFORMER FOR EACH VAV CONTROLLER



ENERGY MANAGEMENT SYSTEM ARCHITECTURE

CAMPUS NETWORK (ANDOVER INFINET FAMILY)

NOTES:
1. PROVIDE QUANTITY OF CONTROLLERS FOR EQUIPMENT AS NECESSARY, REFER TO SEQUENCE OF OPERATION AND DRAWINGS FOR PROGRAMMING AND POINT COUNT.
2. SUBMITTAL DRAWINGS MUST BE PROVIDED WHICH SHOW PLAN LOCATIONS OF ALL TEMPERATURE CONTROL PANELS, SYSTEM COMPUTER, AND SENSORS (TEMP, PRESSURE, ETC.).



SEQUENCE OF OPERATION

PROGRAM CONTROL: BY REMOTE CONTROLLER. AC UNIT SHALL ENGAGE ANY TIME THE TEMPERATURE IN THE SPACE EXCEEDS 75F (ADJ.). SYSTEM WILL BE PROGRAMMED SO THAT WHEN TEMPERATURE IN THE SPACE EXCEEDS SETPOINT, THE AC UNIT WILL TURN ON IN ORDER TO SATISFY SETPOINT.

SPLIT SYSTEM AC UNIT

AS-BUILT

tBP architecture planning interiors management

tBP/Architecture
1777 Oakland Avenue, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

DATE SIGNED: 07/15/2016

CAPITAL ENGINEERING CONSULTANTS, INC.

consultant

Division of the State Architect
1515 Clay Street, Suite 1201
Oakland, Ca., 94612
ph: (510) 622-3101

agency

LEVEL 2 REMODEL
SECTORS 5A, 5B & 6
COLLEGE COMPLEX

LOS MEDANOS COLLEGE
2700 EAST LELAND DRIVE
PITTSBURG, CA 94565

owner

tBP project number: 20842.00

file name:

drawn by: checked by:

date: MAY 16, 2016

Rev:	date:	description:
	12/15/15	DSA SUBMITTAL
	5/6/16	DSA
	7/1/16	BID SET
	12/09/16	Revised Bid Set

drawing title:
HVAC CONTROLS

drawing no:
M6.1

drawing of