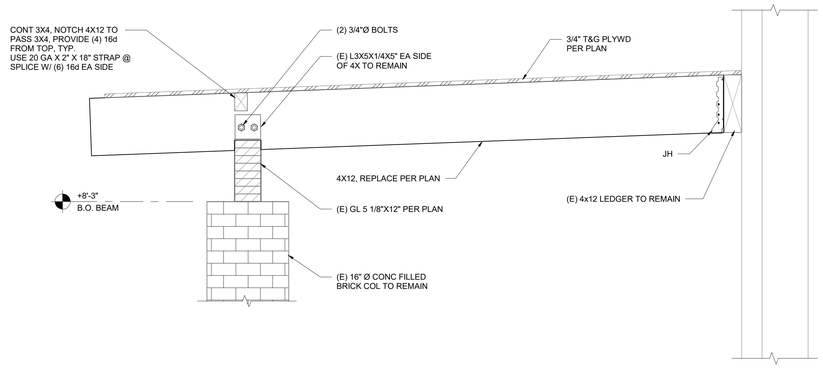
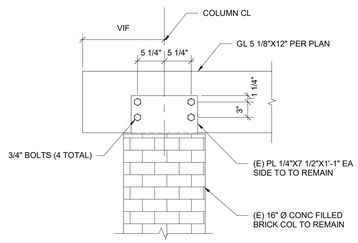


13 DETAIL
1" = 1'-0"



14 DETAIL
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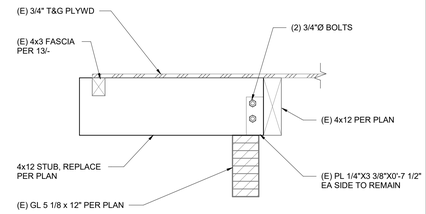

10 DETAIL
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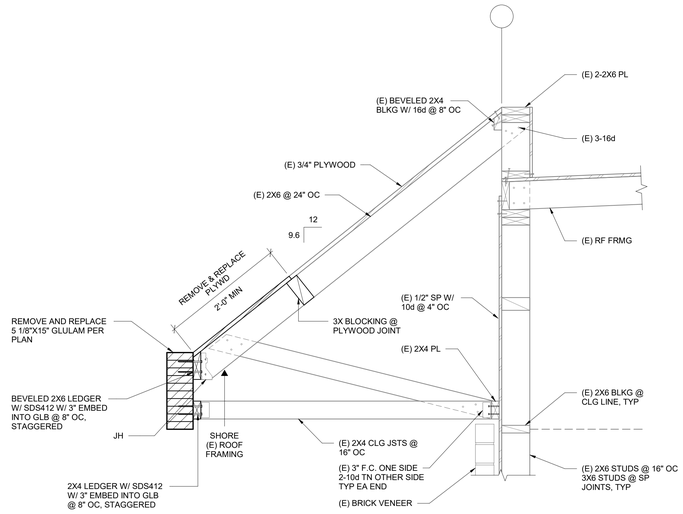
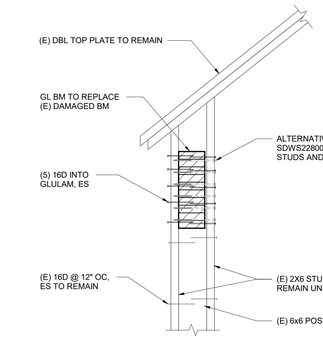


6 DETAIL
1" = 1'-0"



15 DETAIL
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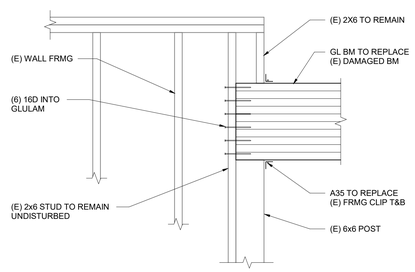
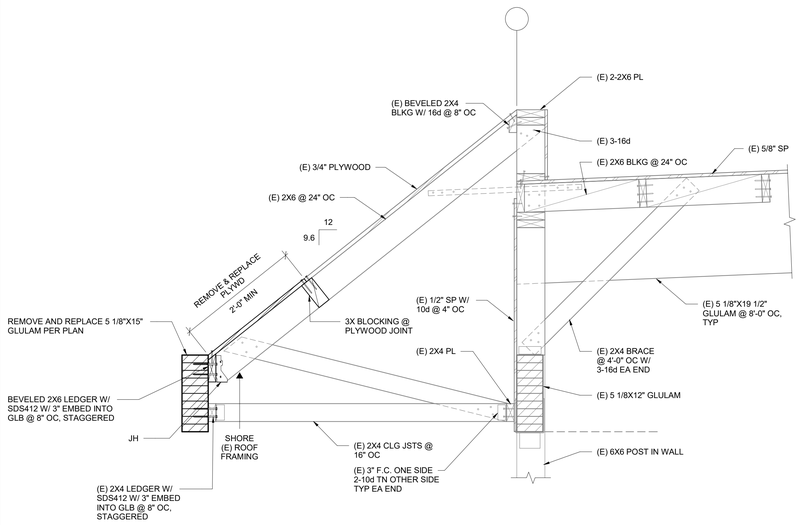


11 DETAIL
1" = 1'-0"



8 DETAIL
1" = 1'-0"

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DE Job Number: C3A85002.01

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

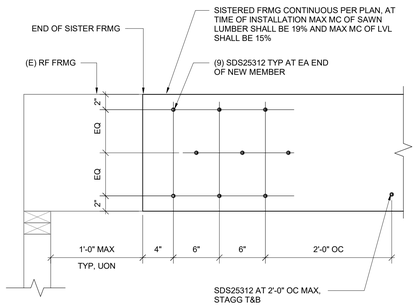
Drawing Title
SECTIONS AND DETAILS

Drawn By: RS
Checked By: JS

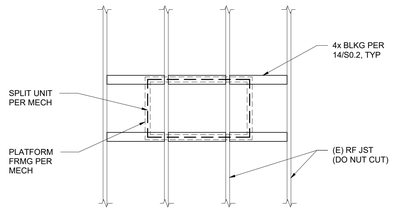
NO.	DATE	ISSUE

Project No.: 23-145
©Date: 1/19/24

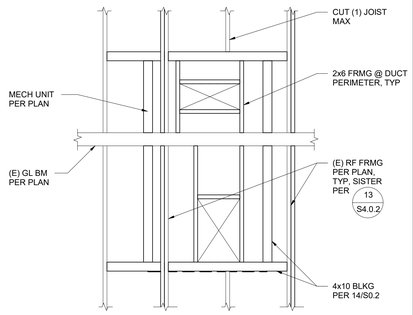
DRAWING NO.
S4.0.1



13 SISTERED JOIST TO (E) JOIST
1 1/2" = 1'-0"



9 DETAIL
1/2" = 1'-0"



10 DETAIL
1/2" = 1'-0"

FOUNDATION PLAN LEGEND & NOTES

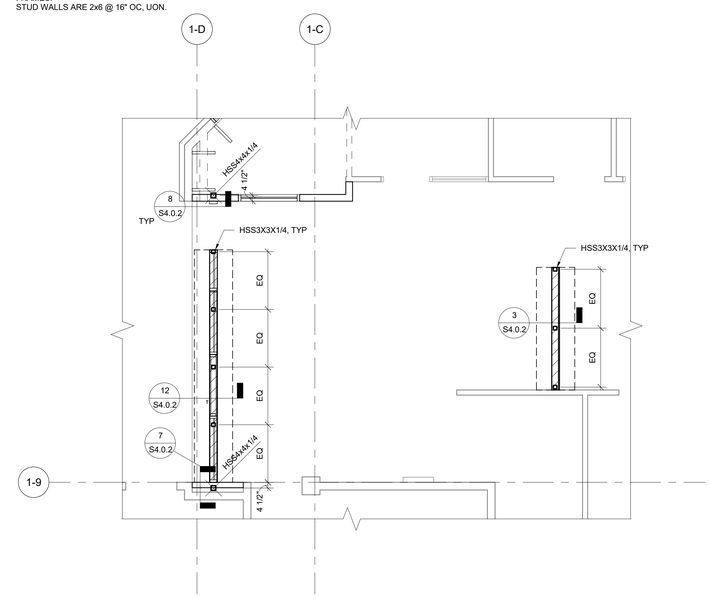
(E) NON-STRUCTURAL PARTITIONS

NEW NON-STRUCTURAL PARTITION INFILL PER 1 / S0.2

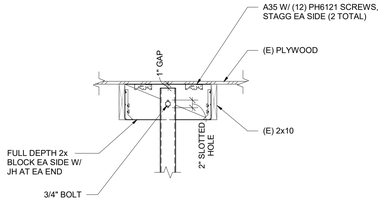
PARTIAL-HEIGHT PARTITION W/ THICKENED SLAB PER3 / S4.0.2

NOTES:

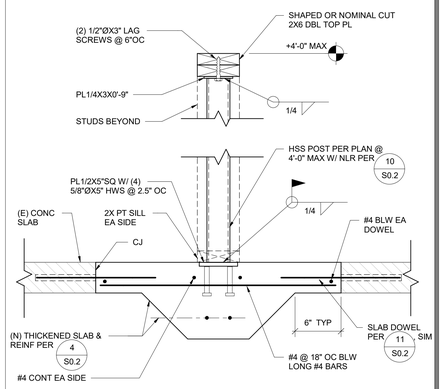
1. (E) 4" CONC SOG W/ 6X6/10X10 WWF, VIF.
2. VERIFY AND COORDINATE ALL DIMENSIONS AND ELEVATIONS WITH ARCH.
3. SEE ARCH FOR SPECIAL DETAILS @ THRESHOLDS & METAL FRAMES.
4. STUD WALLS ARE 2x6 @ 16" OC, UON.



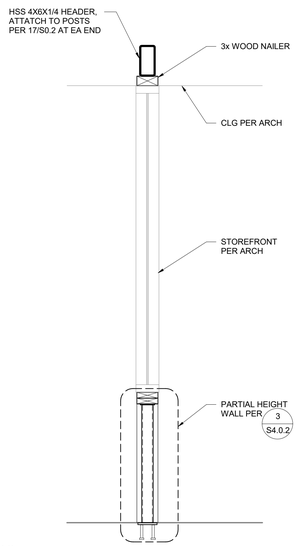
A PARTIAL FOUNDATION PLAN - ADMINISTRATION
1/4" = 1'-0"



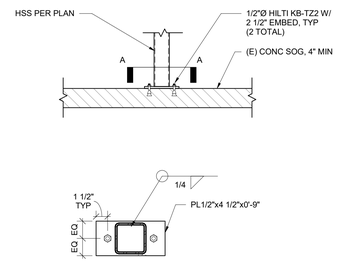
7 TOP OF HSS POST
3/4" = 1'-0"



3 DETAIL
1 1/2" = 1'-0"

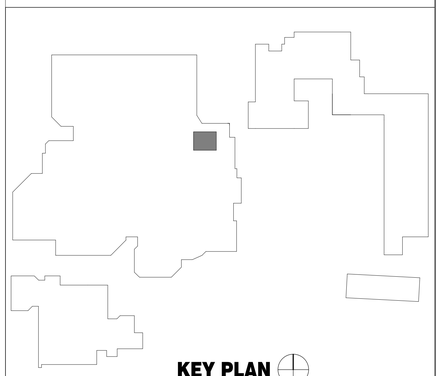


12 DETAIL
3/4" = 1'-0"



A-A

8 DETAIL
3/4" = 1'-0"



KEY PLAN

JK ARCHITECTURE ENGINEERING
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www.degenkolb.com
DE Job Number: C3A85002.01

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
PARTIAL PLAN AND DETAILS

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No. 23-145
©Date 1/19/24

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S4.0.2

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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, 1" THICK INTERNAL LINER, DIMENSIONS ARE OUTSIDE
28x16L2	28x16L2	ACOUSTICALLY LINED RECTANGULAR DUCT, 2" THICK INTERNAL LINER, DIMENSIONS ARE OUTSIDE
		MANUAL AIR DAMPER
R OR D	RISE OR DROP	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
OR		RECTANGULAR TO RECTANGULAR TRANSISTION , 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
		CONICAL DUCT TAKE OFF FROM RECTANGULAR VIA SPIN-IN W/DAMPER AND SCOOP
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 MOUNITING 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"∅, 10"∅, 12"∅, 12"∅	45° REDUCING LATERAL FITTING
MAD	18"∅, 10"∅, 18"∅, 10"∅, 12"∅	90° REDUCING TEE FITTING

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	ABC	ABOVE CEILING
	AF	ABOVE FLOOR
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
AD	AD , AP	ACCESS DOOR , ACCESS PANEL
	AC	AIR CONDITIONING
	APD	AIR PRESSURE DROP, INCHES WATER COLUMN
	AB	ANCHOR BOLT
	BV	BALL VALVE
	BDD	BACK DRAFT DAMPER
	BF	BELOW FLOOR
	BHP	BRAKE HORSE POWER
	BTU(H)	BRITISH THERMAL UNITS (PER HOUR)
BPT	BPT	BYPASS TIMER
CO2	CO2	CARBON DIOXIDE (CO2) SENSOR, INSTALLED AT +66" AFF OR TEMPERATURE SENSOR)
	CC	CENTER TO CENTER
	CLG	CEILING
	CEF	CEILING EXHAUST FAN (TO TOP OF DEVICE, EXCEPT WHEN INTEGRAL TO T-STAT
	CLR	CLEAR
	CONC	CONCRETE
CD	CD	CONDENSATE DRAIN
	COND	CONDENSER
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CONTR	CONTRACTOR
	CFM	CUBIC FEET OF AIR FLOW PER MINUTE
	DPR	DAMPER
°F		DEGREES FAHRENHEIT
–	DIA	DIAMETER , PHASE
	DL	DOOR LOUVER
	DN	DOWN
	DR	DRAIN
	DB	DRY BULB (DEGREES FAHRENHEIT)
		ECCENTRIC REDUCER
	EP	ELECTRICAL PANEL
	EL	ELEVATION
	ENT	ENTERING
	EDB	ENTERING DRY BULB
	EA	EXHAUST AIR
	EAD	EXHAUST AIR DAMPER
	EF	EXHAUST FAN
	(E), EXIST	EXISTING
	(E)	EXISTING TO BE REMOVED
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
	FIN	FINISH
F	FD	FIRE DAMPER
FS	FS	FIRE/SMOKE DAMPER
	FC	FLEXIBLE CONNECTION
	FLR	FLOOR
	FA	FROM ABOVE
	FB	FROM BELOW
	FLA	FULL LOAD AMPS
	GCK	GAGE COCK
	GALV	GALVANIZED
	GI	GALVANIZED IRON
	GA	GAUGE
	HTG	HEATING
H X	H	HUMIDISTAT, "X" INDICATES SYSTEM CONTROLLED
	IE	INVERT ELEVATION
	KW	KILOWATTS

MECHANICAL LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	KWH	KILOWATT HOUR
	LDB	LEAVING DRY BULB IN DEGREES FAHRENHEIT
	LWB	LEAVING WET BULB IN DEGREES FAHRENHEIT
	LRA	LOCKED ROTOR AMPERES
	LVR	LOUVER
	MFR	MANUFACTURER
	MAX	MAXIMUM
	MIN	MINIMUM
	MCC	MOTOR CONTROL CENTER
M	MCD	MOTORIZED CONTROL DAMPER
	(N)	NEW
OCC	OCC	OCCUPANCY SENSOR
	OC	ON CENTER
	OA	OUTSIDE AIR
	OAD	OUTSIDE AIR DAMPER
	OD	OUTSIDE DIAMETER
	OV	OUTLET VELOCITY
	OH	OVERHEAD
	POC	POINT OF CONNECTION
	LBS	POUNDS
	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
	PD	PRESSURE DROP
	PG	PRESSURE GAUGE
	PCR	PUMPED CONDENSATE RETURN
RG	RG	REFRIGERANT GAS PIPING
RS	RS	REFRIGERANT SUCTION PIPING
RL	RL	REFRIGERANT LIQUID PIPING
	RA	RETURN AIR
	RAD	RETURN AIR DAMPER
	RPM	REVOLUTIONS PER MINUTE
	RLA	RUNNING LOAD AMPERES
	SB	SECURITY BARS
	SM	SHEET METAL
SD	SD	SMOKE DAMPER
SD	SKD	SMOKE DETECTOR
	SD	SPLITTER DAMPER
	SQFT	SQUARE FEET
	SQIN	SQUARE INCHES
	SP	STATIC PRESSURE
	SPD	STATIC PRESSURE DROP
	SA	SUPPLY AIR
	SF	SUPPLY FAN
	TCP	TEMPERATURE CONTROL PANEL
	TCV	TEMPERATURE CONTROL VALVE
TS X		TEMPERATURE SENSOR, "X" INDICATES SYSTEM CONTROLLED, INSTALLED AT +46" AFF (TO TOP OF DEVICE)
		THERMOMETER
T X	T	THERMOSTAT, "X" INDICATES SYSTEM CONTROLLED, INSTALLED AT +46" AFF (TO TOP OF DEVICE)
	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
	TA	TO ABOVE
	TB	TO BELOW
	TP	TOTAL PRESSURE
	TSP	TOTAL STATIC PRESSURE
	TYP	TYPICAL
	UG	UNDERGROUND
	UCD	UNDER CUT DOOR
	UON	UNLESS OTHERWISE NOTED
		UNION
	VLV	VALVE
	WPD	WATER PRESSURE DROP
	W	WATTS
	WT	WEIGHT
	WB	WET BULB
	WMS	WIRE MESH SCREEN
	WP	WORKING PRESSURE

PIPING AND DUCTWORK AND SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☒ MD☒ PP☐ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM #) # 0043-13.

CALIFORNIA ENERGY CODE - ACCEPTANCE TESTING

1. THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

   LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

   MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

   ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ ARCHITECT OF RECORD OR THE OWNER'S AGENT.

   A LISTING OF CERTIFIED ATT CAN BE FOUND AT HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE

   THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

   PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

JK ARCHITECTURE ENGINEERING
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WWW.JKAEDESIGN.COM

SEAL

REGISTERED PROFESSIONAL ENGINEER
KEVIN D. STOLL
M 33498
Exp. 9/30/24
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
MECHANICAL LEGEND & NOTES

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No. 23-145
Date
Issue Date 11/08/2023

DRAWING NO.
M0.0.1

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INI	%

AIR CONDITIONING UNIT SCHEDULE

UNIT	SERVES	UNIT SQ.FT. & OSA CFM SQ. FT.	MIN. O.A. (CFM)	"MANUFACTURER"	MODEL NUMBER	SERIAL NUMBER	NOM. TONS	CFM	MIN. O.A. (CFM)	RA CFM	ESP (IN. W.G.)	DX COOLING: LOW CFM (66%)	DX COOLING: SENSIBLE CAPACITY (MBH)	DX COOLING: TOTAL CAPACITY (MBH)	DX COOLING: EVAP. EDB (°F)	DX COOLING: EVAP. EWB (°F)	GAS HEATING: INPUT (MBH)	GAS HEATING: OUTPUT (MBH)	GAS HEATING: HX EDB (°F)	AC UNIT ELECTRICAL DATA: VOLT/PH	SUPPLY FAN BHP	SUPPLY FAN FLA	COMPRESSOR QTY	COMPRESSOR RLA	COMPRESSOR LRA	COND. FAN QTY	COND. FAN FLA	COMB. FAN FLA	MCA	MOCP	PWR. EXH. ECON. ELECTRICAL DATA: VOLT/PH	EXHAUST FAN HP	EXHAUST FAN FLA	MCA	MOCP	EFFICIENCY COOLING: SEER	EER	IEER	HEATING: AFUE	TE	OPERATING WEIGHT (LBS.): AC UNIT EXIST	PWR. EXH. ECON.	ROOF CURB	TRANS. CURB	TOTAL WEIGHT (E) / (N)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
AC 17	BOYS LOCKER G9	1280*0.50	640	"GREENHECK"	16X-110-H12-DB	14268659 151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250	200	NA	460/3	2.0	NA	NA	NA	NA	NA	NA	NA	5.4	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3500	1 / M5.01	2 / M6.01	1 2 3 4 5 6 7 8 9 10 11 12 13 14
				"AAON"	RN-008-3	NA	8	2270	640	1630	0.95	1500	63.0	83.9	84.5	68.1	150	120	56.8	460/3	1.76	3.4	1	13	NA	1	3.4	0.7	25	35	460/3	1	2.1	NA	NA	NA	12.5	NA	NA	NA	1281	NA	175	NA	1456			
AC 18	GIRLS LOCKER G6	1585*0.50	795	"GREENHECK"	16X-110-H12-DB	14268659 151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	460/3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3500	1 / M5.01	2 / M6.01	1 2 3 4 5 6 7 8 9 10 11 12 13 14
				"AAON"	RN-010-3	NA	10	2670	720	1950	0.95	1765	79.4	103.2	84.3	67.3	150	120	62.9	460/3	2.27	4.8	1	17	NA	1	3.6	0.7	33	45	460/3	1	3.4	NA	NA	NA	11.9	NA	NA	NA	1418	NA	175	NA	1593			

NOTES:

1. UNITS SELECTED AT 104 F DB / 73 F WB SUMMER AMBIENT, 30 F DB WINTER AMBIENT AIR TEMPERATURES. COOLING CAPACITIES SCHEDULED ARE NET SENSIBLE & NET TOTAL CAPACITIES.
2. PROVIDE UNIT WITH CONDENSER COIL GUARDS, HINGED ACCESS DOORS, AND 2" THICK MERV 13 DISPOSABLE PLEATED MEDIA FILTER(S). THE ESP SCHEDULED ABOVE INCLUDES AIR PRESSURE DROP THRU FILTER(S).
3. PROVIDE "MICROMETL" STRUCTURALLY CALC'D 36" TALL STANDARD ROOF CURB.
4. LOW SPEED SUPPLY FAN SETTING SHALL BE LOCKED OUT, UNIT SHALL OPERATE AS SINGLE ZONE CONSTANT VOLUME AT ALL TIMES. CONTRACTOR SHALL COORDINATE WITH AC UNIT FACTORY REP TO ACCOMPLISH SINGLE ZONE CONSTANT VOLUME OPERATION.
5. PROVIDE HVAC CONTROLS SYSTEM WITH DEDICATED ROOM OCCUPANCY SENSOR(S) FOR OCCUPANCY SENSOR VENTILATION CONTROL, PER 2022 CA ENERGY CODE (TITLE-24) FOR MULTI-USE ASSEMBLY ROOMS. SEE CONTROLS FOR SEQUENCE OF OPERATION.
6. LOWER OUTSIDE AIR POSITION INDICATED IS BASED ON 0.15 CFM/SQ.FT., ALLOWABLE FOR CO2 DEMAND CONTROL VENTILATION SYSTEMS AT MINIMUM OCCUPANCY. UPPER OUTSIDE AIR POSITION INDICATED IS BASED ON 15 CFM/OCCUPANT WHEN SPACE IS AT MAXIMUM OCCUPANCY, UNLESS SYSTEM IS IN ECONOMIZER MODE. SEE CONTROLS FOR SEQUENCE OF OPERATION. FOR THESE UNITS WITH DEMAND CONTROL VENTILATION, ENTERING TEMPERATURES SCHEDULED REPRESENT CONDITIONS AT UPPER OSA POSITION.
7. FOR UNITS WITH NOM. COOLING CAPACITY OF 6 TONS AND LARGER, PROVIDE UNIT WITH FACTORY INSTALLED VFD ON SUPPLY FAN AND MINIMUM 2-STAGES OF MECHANICAL COOLING CAPACITY. SEE SCHEDULE FOR LOW SUPPLY AIRFLOW CFM (66%). SEE CONTROLS FOR SEQUENCE OF OPERATION.
8. PROVIDE UNIT WITH FACTORY 100% MODULATING POWER EXHAUST ECONOMIZER WITH VFD, DIFFERENTIAL PRESSURE TRANSDUCER, ROOM PRESSURE TUBING, AND DAMPER ACTUATORS. PROVIDE UNIT WITH FACTORY DIGITAL SCROLL OR INVERTER DRIVEN COMPRESSOR(S), STAINLESS STEEL HEAT EXCHANGER & 0-10VDC MODULATING NATURAL GAS VALVE. NOTE THAT FACTORY MODULATING POWER EXHAUST ECONOMIZER SHALL BE FACTORY WIRED TO RECEIVE IT'S POWER FROM THE AC UNIT, A SEPARATE POWER CONNECTION TO THE MODULATING POWER EXHAUST ECONOMIZER IS NOT REQUIRED. SCHEDULED AC UNIT MCA & MOCP INCLUDE MODULATING POWER EXHAUST ECONOMIZER LOAD.
9. PROVIDE UNIT WITH "CANFAB" FLUE EXTENSION KIT, INSTALLED PER MFR'S INSTALLATION INSTRUCTIONS. (FOR TRANE UNITS)
10. EXISTING DUCT SYSTEMS CONNECTED TO THIS AC UNIT SHALL BE SEALED AND LEAK TESTED TO A LEAKAGE RATE NOT TO EXCEED 15% OF FULL FAN FLOW. REFER TO SPEC SECTION 23 80 00, PART 3 FOR DUCTWORK SEALING AND LEAK TESTING REQUIREMENTS.
11. EXISTING DUCTWORK THAT IS BEING RE-USED SHALL BE THOROUGHLY CLEANED PER SPEC SECTION 23 01 30.52.
12. INSTALL DUCT SMOKE DETECTOR IN SUPPLY AIR DUCT FOR AUTOMATIC SHUTDOWN OF HVAC SYSTEM UPON SENSING SMOKE. PROVIDED, POWERED & INTERLOCKED WITH FIRE ALARM SYSTEM BY DIV. 28, INSTALLED & CONNECTED TO AC UNIT BY DIV. 23.
13. R-410A REFRIGERANT (SAFETY GROUP A1, LOW-PROBABILITY SYSTEM).
14. UNITS SHALL BE INTERLOCKED WITH EXISTING LOCKER ROOM AND TOILET ROOM EXHAUST FANS IN EACH LOCKER ROOM SPACE FOR CONTINUOUS OPERATION OF EXHAUST FANS.

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OUTSIDE AIR FAN SCHEDULE

UNIT	LOCATION	"S&P" MODEL NO.	CFM	SP (IN. W.G.)	DUTY	STYLE	VOLT/PH	AMPS/ WATTS	OPER. WT. (LBS.)	CONTROL DIAGRAM	INTERLOCK	NOTES
OAF G1	OFFICE G10	RF8-120EC	50	0.02	OUTSIDE AIR	INLINE	120/1	0.23/ 13.9	11	3 / M6.0.2	SHPI/G1	1 2
OAF G2	OFFICE G7	RF8-120EC	50	0.02	OUTSIDE AIR	INLINE	120/1	0.23/ 13.9	11	3 / M6.0.2	SHPI/G2	1 2

NOTES:
1. INTERLOCK WITH ASSOCIATED SPLIT SYSTEM.
2. PROVIDE WITH MERV 13 FILTERS.

SPLIT SYSTEM HP UNIT SCHEDULE

UNIT	LOCATION	"TRANE" "MANUFACTURER" MODEL	CFM	BOOSTER HEATER (kW)	FAN FLA	MCA	VOLT/PH	OPER. WT. (LBS.)	MOUNTING DETAIL	UNIT	"MANUFACTURER" MODEL NO. INDOOR UNIT	TOTAL COOLING CAPACITY (MBH)	TOTAL HEATING CAPACITY (MBH)	COMPRESSOR RLA	COMPRESSOR LRA	MCA	MOCP	FAN FLA	VOLT/PH	SEER2	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
SHPI G1	OFFICE G120	TPKA0A0181LA10A	265	NA	0.19	1.0	208/3	28	5 / M5.0.1	SHPO G1	"TRANE" TRUZA0181KA70NA	18.0	22.0	NA	NA	11.0	28	0.5	208/3	20.2	100	4 / M5.0.1	1 / M6.0.1	1,2,3,5,6,7
SHPI G2	OFFICE G7	TPKA0A0241KA80A	635	NA	0.265	1.0	208/3	50	5 / M5.0.1	SHPO G2	"TRANE" TRUZA0241HA70NA	24.0	28.0	NA	NA	19.0	26	0.4	208/3	21.3	155	4 / M5.0.1	1 / M6.0.1	1,2,3,5,6,7
SHPI S1	STORAGE/ IT 01A-S0AU	TPKA0A0241KA80A	635	NA	0.265	1.0	208/3	50	5 / M5.0.1	SHPO S1	"TRANE" TRUZA0241HA70NA	24.0	28.0	NA	NA	19.0	26	0.4	208/3	21.3	155	4 / M5.0.1	1 / M6.0.1	1,2,3,4,5,6,7

NOTES:
1. PROVIDE WITH FACTORY WASHABLE FILTERS.
2. PROVIDE ALL INDOOR UNITS WITH THERMOSTAT, HARD WIRED, WALL MOUNTED.
3. INDOOR FAN COIL POWERED BY CONDENSING UNIT, REFER TO MRF'S INSTALLATION DATA.
4. UNIT SHALL OPERATE WHEN TEMPERATURES REACH A SPACE TEMPERATURE OF 80°F.
5. PROVIDE HEATING MODE LOCKOUT VIA FACTORY DIP SWITCH.
6. PROVIDE WITH 'GOBI' CONDENSATE PUMP, 2 GPM @ 20 FT./HD WITH GRAVITY HORIZONTAL, 16 WATTS, 120V, 1 PHASE, 60 HZ., ALARM RELAY 5 AMPS, 30 VDC, 250 VAC BREAK ON FAULT. SECURE PUMP BACK PLATE TO BLOCKING IN WALL WITH (3) - 3/16"∅ X 2" WOOD SCREWS AND PLACE PUMP ON THE MOUNTING POSTS.
7. R-410A REFRIGERANT (SAFETY GROUP A1, HIGH-PROBABILITY SYSTEM).

OPM DETAIL REFERENCES FOR OPTION 2 SCHEDULE

UPPER ATTACHMENT - HANGER ATTACHMENT TO WOOD JOIST

1. PROVIDE SUPPORT AND SEISMIC BRACING PER OPM #0043-13 PAGES M4.10, N4.10, N4.13.

UPPER ANGLE CLIP ATTACHMENT TO CONCRETE SLAB, BEAM OR WALL WITH (1) HILTI KB-TZ CONCRETE ANCHOR

1. PROVIDE SUPPORT AND SEISMIC BRACING PER OPM #0043-13 PAGES M8.20 THRU M8.22.

UPPER SEISMIC BRACKET ATTACHMENT TO CONCRETE SLAB, BEAM OR WALL WITH (1) HILTI KB-TZ CONCRETE ANCHOR

1. PROVIDE SUPPORT AND SEISMIC BRACING PER OPM #0043-13 PAGES N1.20 THRU N1.23, N1.70N1.71, N1.72, N1.73, N2.20 THRU N2.25.1,

LOWER DUCT GREATER THAN 6 SQFT CROSS SECTIONAL AREA.

FOR RECTANGULAR DUCTWORK GREATER THAN 6 SQ FT CROSS SECTIONAL AREA AND ROUND DUCTWORK GREATER THAN 26" DIAMETER. PROVIDE SUPPORT AND SEISMIC BRACING PER OPM #0043-13 PAGES D4.10 THRU D4.12, D6.10 THRU D6.12.

FOR PIPING SEISMIC SUPPORT BRACING PER OPM #0043-13 PAGES F1.10 THRU F1.12, F2.10 THRU F2.12, F3.11, F4.10 THRU F4.12.

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES AND INDUSTRY STANDARDS.
2. VERIFY EXACT LOCATION OF ALL (E) EQUIPMENT, DUCTWORK, DIFFUSERS, REGISTERS AND GRILLES. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN (E) SYSTEMS AND DRAWINGS.
3. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH ROOF, FLOORS AND WALLS WITH ARCHITECTURAL STRUCTURAL SYSTEMS PRIOR TO COMMENCING WORK.
4. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK WITH ARCHITECTURAL PLANS, STRUCTURE AND EQUIPMENT PRIOR TO COMMENCING WORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES.
6. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DUFFUSER.
7. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 5' MAXIMUM LENGTH.
8. ALL DUCTWORK, CEILING DIFFUSERS/REGISTERS/GRILLES, EQUIPMENT, PIPING ETC., ARE NEW U.O.N. (SHOWN HEAVY). (E) DUCTWORK, PIPING ETC. IS SHOWN LIGHT. SEE LEGEND.
9. (E) DUCTWORK AND ITEMS TO BE REMOVED ARE SHOWN CROSSED ("X") OUT, SEE LEGEND, COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
10. WHERE INLET DUCT DIAMETER AND DIFFUSER NECK SIZE ARE THE SAME (I.E. 9"∅ & 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMODATE THE ROUND DUCT CONNECTION.
11. THERMOSTATS AND ROOM TEMPERATURE SENSORS SHALL BE INSTALLED AT 46" ABOVE FINISHED FLOOR (TO TOP OF DEVICE). DO NOT INSTALL THERMOSTATS AND ROOM TEMPERATURE SENSORS ABOVE CASEWORK, SHELVING OR OTHER OBSTRUCTIONS OVER 24" IN DEPTH AND 34" IN HEIGHT.

DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	KRUEGER	METALAIRE	NAILOR	TITUS	TUTTLE & BAILEY
CD	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER BEVEL FRAME 3/4" DROP	1240 FRAME 21 - 1 1/4"	9000-2	7500-S	MCD BORDER TYPE 6	SQD-SB
CD-2	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER FLAT FRAME	1240 FRAME 22	9000-1	7500-B	MCD BORDER TYPE 1	SQD-SF
CDL	MODULAR CORE LAY-IN CEILING DIFFUSER FOR T-BAR CEILING 24x24 PANEL	1240 FRAME 23	9000-6P	7500-L	MCD BORDER TYPE 3	SQD-LT
CR, CT, CE	CEILING RETURN, TRANSFER OR EXHAUST WITH " EGG CRATE CORE SURFACE MOUNT	EGC-5	CC5D	61 EC-S	MODEL 50 F BORDER TYPE 1	CRE500-SF
CRL, CTL, CEL	CEILING RETURN, TRANSFER OR EXHAUST WITH 1/2" EGG CRATE CORE IN 24x24 PANEL FOR T-BAR CEILING	EGC-5TB	CC5D-TBD	61 EC-L	MODEL 50 F BORDER TYPE 3	CRE500-LT
S *	SIDEWALL DOUBLE DEFLECTION SUPPLY GRILLE WITH VERTICAL FRONT BARS, 3/4" SPACING	880 V	V 4004 S	61 DV	300 RS	T54
R, T, E *	CEILING OR SIDEWALL RETURN, TRANSFER OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS.	S 80 H	SRH	7145 H	350 RL	T70D
RH & EH	HEAVY DUTY RETURN OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS	S 480 H	HDRH	6145 HD	33 RL	T115H-40
TFL	"ACCUTHERM" THERMA-FUSER ST-HC THERMALLY POWERED VAV DIFFUSER, FOR 24x24 LAY-IN T-BAR CEILING.	N/A	N/A	N/A	N/A	N/A
LCD	RECTANGULAR LOUVERED FACE SUPPLY CEILING DIFFUSER, SURFACE MOUNT.	--	--	--	TDC BORDER TYPE 1	--

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 ARCHITECTURAL 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.

* ALUMINUM REGISTERS FOR SHOWERS AND DAMP AREAS

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REGISTERED PROFESSIONAL ENGINEER KEVIN D. STILLSON M 33498 Exp. 9/30/24 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering

RANCHO CORDOVA, CALIFORNIA

MM/ RL — PM - DESIGN TEAM

230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL SCHEULE AND NOTES

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CL 03A-J001
STOR. 03A-S001
RR 03A-T001
RR 03A-T002
STORAGE 03A-S004
CLASSROOM 03A-31
CLASSROOM 03A-33
HALLWAY 03A-H002
HALL 03A-H001
CLASSROOM 03A-32
UTILITY
AUDITORIUM 03A-U001
HALL 03A-H004
EQUIP 03A-K001
CLASSROOM 03A-34
CLASSROOM 03A-35
CLASSROOM 03A-36
STOR. 031-M001
STAGE 03A-U002
STOR. 03A-S002
STOR. 03A-H003

CLASSROOM 01B-14
CLASSROOM 01B-13
CLASSROOM 01B-11
CLASSROOM 01B-10
CLASSROOM 01B-07
CLASSROOM 01B-06
CLASSROOM 01B-05
CLASSROOM 01B-15
STOR. S01B
CLASSROOM 01B-09
HALLWAY 01B-H04B
CLASSROOM 01B-04
CLASSROOM 01B-12
CLASSROOM 01B-08
CLASSROOM 01B-03
JAN. J01B
CLASSROOM 01B-17
CLASSROOM 01B-16
CLASSROOM I01B
CLASSROOM 01B-01
CLASSROOM 01B-02
BLDG. 1 AREA A
1 M2.0.1
1 M2.0.3
BLDG. 1 AREA C
OFFICE 01B-C007
OFFICE 01B-C006
OFFICE 01B-C005
ADMINISTRATION 01B-C008
PRINCIPAL'S OFFICE 01B-C004
VP OFFICE 01B-C002
NURSE 01B-C001
JAN. 01A-J027
RR 01A-T005
STOR. / IT 01A-S0AU
CLASSROOM 01A-O027
OFFICE 01B-C009
LIBRARY 01B-L001
STOR. 01A-S0CL
STAFF ROOM 01A-26
RR 01A-T017
BLDG. 1 AREA B
1 M2.0.2
1 M3.0.2
RR 01A-T016
JAN. 01A-J002
SCULLERY 01A-K002
STORAGE 01A-I001
RR 01A-T015
STOR. 01A-S015
OFFICE 01A-C006
WALK-IN COOLER 01A-K004
KITCHEN 01A-K001
MECH 01A-Z027
SNACK BAR 01A-K003
CAFETERIA 01A-L011
STAGE 01A-23
STOR. S030
OFFICE C024
OFFICE C025
CLASSROOM 01A-24
CLASSROOM O025
PRACTICE RM Z024
PRACTICE RM Z026
PRACTICE RM Z025
COUNS 01A-C003
COUNS 01A-C002
COUNS 01A-005
HALLWAY 01B-H01B
WAITING 01A-C000
COUNS 01A-C004
COOKING 01A-18
STOR. 01A-S001
WOMENS 01A-T003
GIRLS RR 01A-T001
JAN. J03B
BOYS RR 01A-T-002
OFFICE 01A-C001
ART 01A-O019
MENS 01A-T004
CLASSROOM 01A-20
WOODSHOP 01A-22
STOR. 01A-S028
HALL 01A-H001
STOR. 01A-S010
STOR. 01A-S011
CLASSROOM 01A-21

GIRLS RR 03B-S002
STOR. 03B-J001
JAN 03B-J002
BOYS RR 03B-S001
RR 03B-T001
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HALLWAY 03B-H010
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CLASSROOM 03B-42
CLASSROOM 03B-45
STOR. 03B-S003
BOYS RR 03B-T005
GIRLS RR 03B-T004
CLASSROOM B3
CLASSROOM B2
CLASSROOM B1

BOY'S RR G14
HALL G13
JAN. G15
UTILITY G16
STOR. 03A-S005
BOY'S LOCKER ROOM G9
OFFICE G10
STOR. G11
RR G12
GYMNASIUM G1
LOBBY G2
HALL G4
GIRL'S RR G5
EQUIP. STORAGE G3
GIRL'S LOCKER ROOM G6
OFFICE G7
RR G8
GYMNASIUM 1 M1.0.6 1 M2.0.6 1 M3.0.6

MECHANICAL OVERALL FLOOR PLAN

SCALE : 1/16" = 1'-0"

1 M0.1.1

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REGISTERED PROFESSIONAL ENGINEER — KEVIN D. STICKEL — M 33498 — Exp. 9/30/24 — MECHANICAL — STATE OF CALIFORNIA

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CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

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MECHANICAL OVERALL FLOOR PLAN

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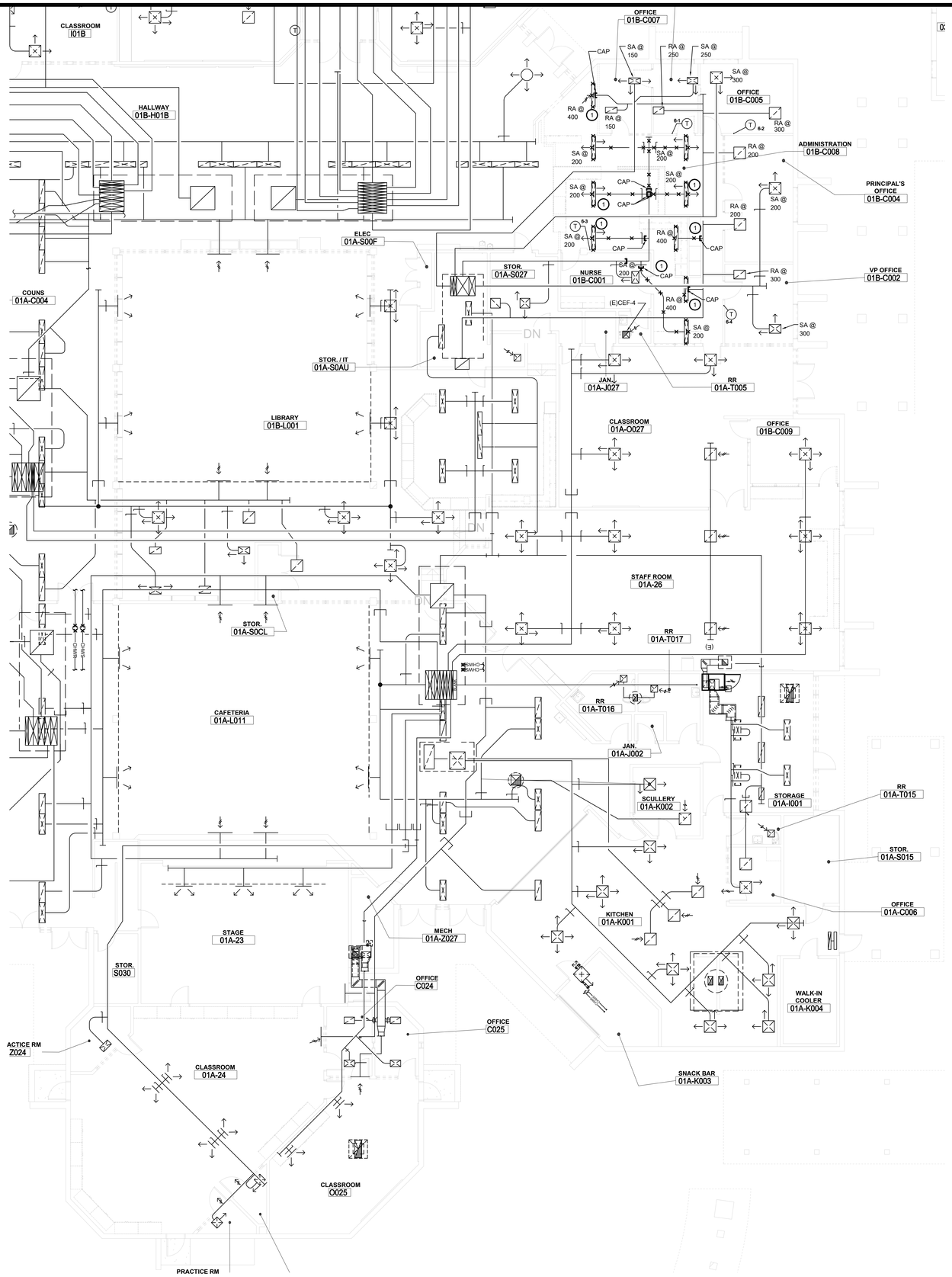
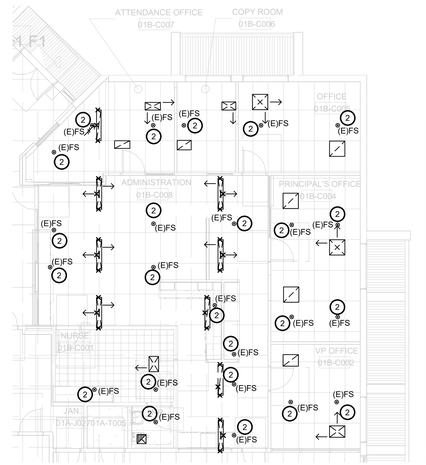


MECHANICAL DEMOLITION FLOOR PLAN - BLDG 1 AREA B

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

1 M1.0.2



FIRE SPRINKLER HEAD FLOOR PLAN - BLDG 1 AREA B

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

2 M1.0.2

GENERAL NOTES

1. FIRE SPRINKLER HEADS ARE TO REMAIN AND ARE ON THE PLANS FOR COORDINATION OF EXISTING AND NEW WALLS AND EXISTING AND NEW GRILLES.

SHEET NOTES:

1. REMOVE GRILLE AND PREPARE FOR CONNECTION OF NEW DUCTWORK AND NEW GRILLE. FOR NEW WORK SEE 1/M2.0.2.
2. (E) FIRE SPRINKLER HEAD (FS) TO REMAIN.

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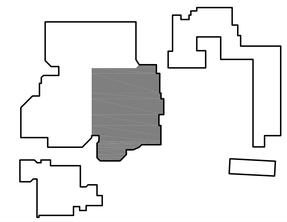

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CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
MECHANICAL DEMOLITION FLOOR PLAN - BLDG 1 AREA B

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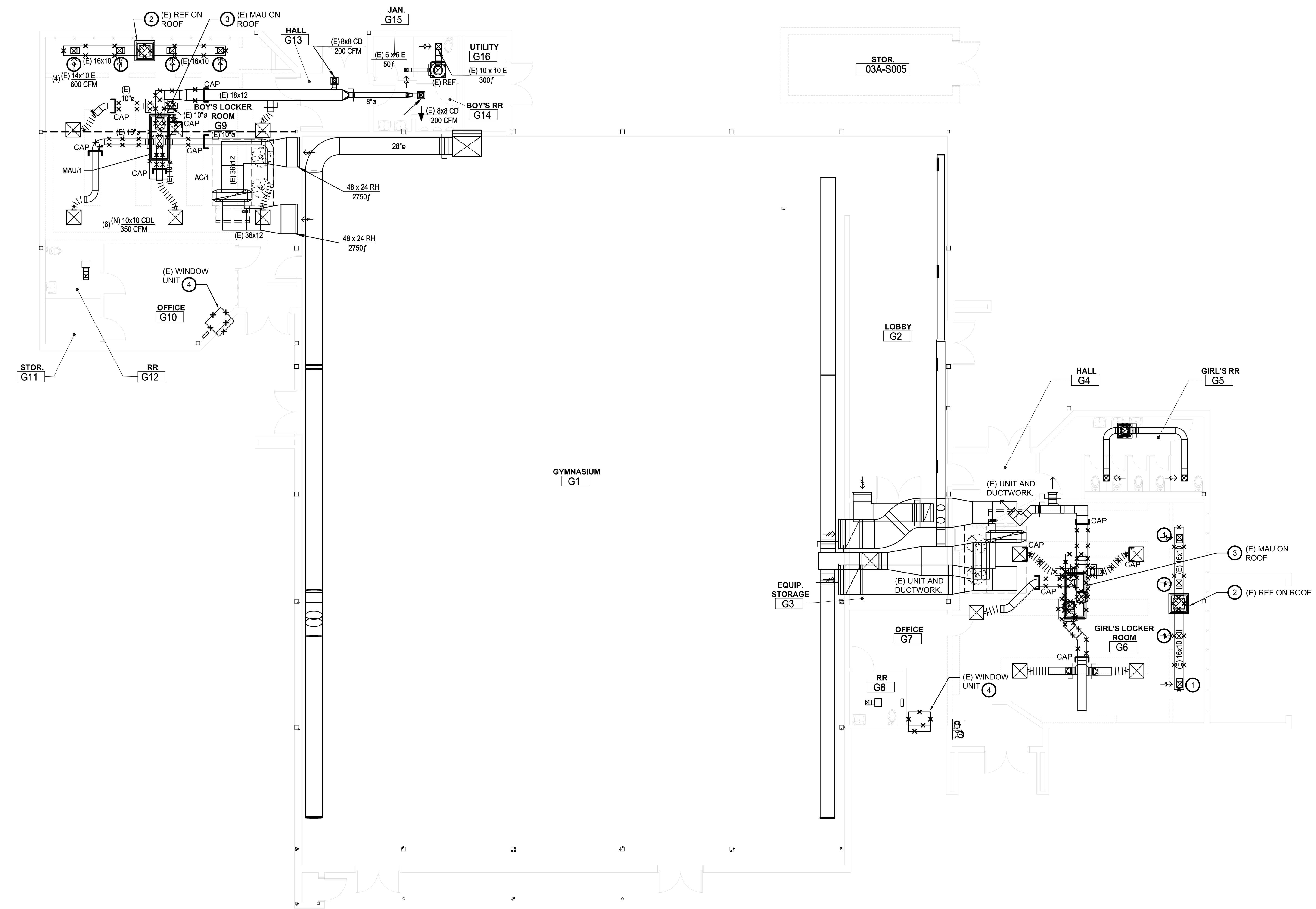


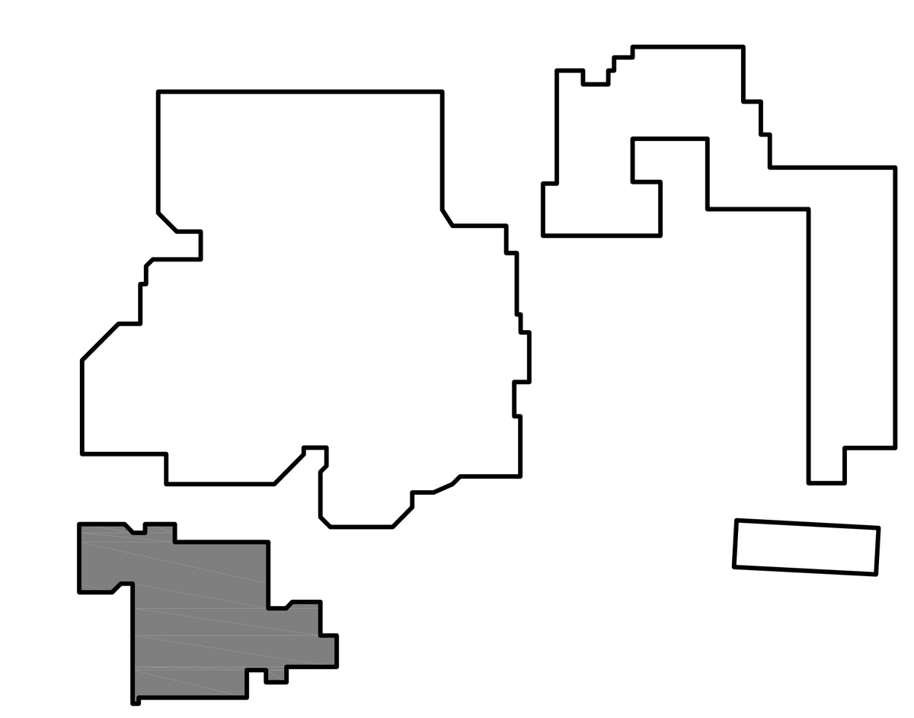
SHEET NOTES:

1. REMOVE GRILLE AND DUCTWORK BACK TO REF ON ROOF.
2. EXHAUST FAN AND CURB TO BE REMOVED.
3. (E) MAU ON ROOF, DISCONNECT MAU FROM DUCTWORK BELOW ROOF DECK. PREPARE FOR RECONNECTION TO NEW MAU ON ROOF.
4. REMOVE WINDOW AC UNIT AND INFILL WINDOW WALL OPENING TO MATCH SURROUNDING SURFACES. PATCH AND PAINT TO MATCH SURROUNDING SURFACES.

MECHANICAL DEMOLITION FLOOR PLAN - GYMNASIUM

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

1 / M1.0.6



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Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title: MECHANICAL DEMOLITION FLOOR PLAN - GYMNASIUM

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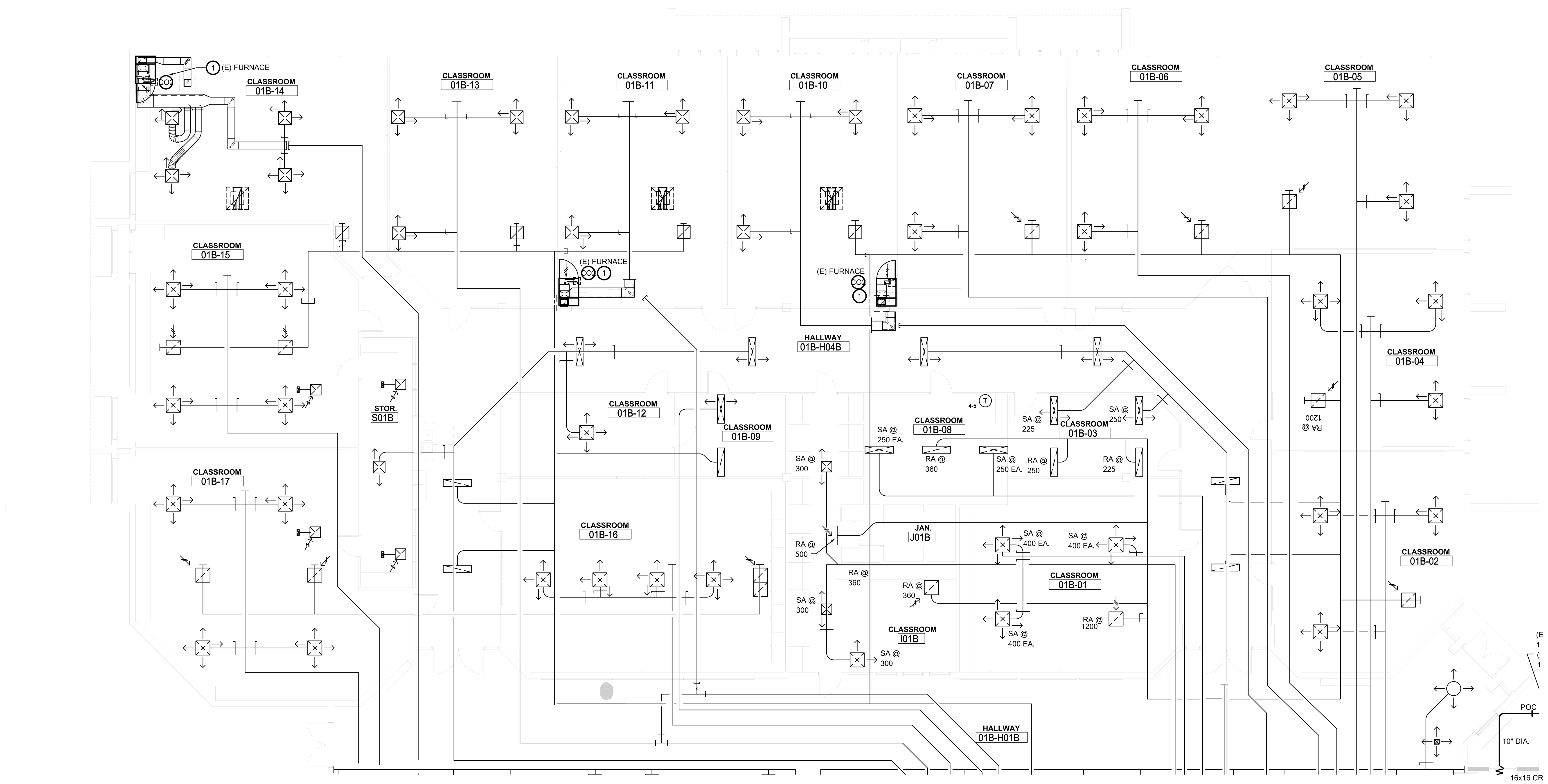
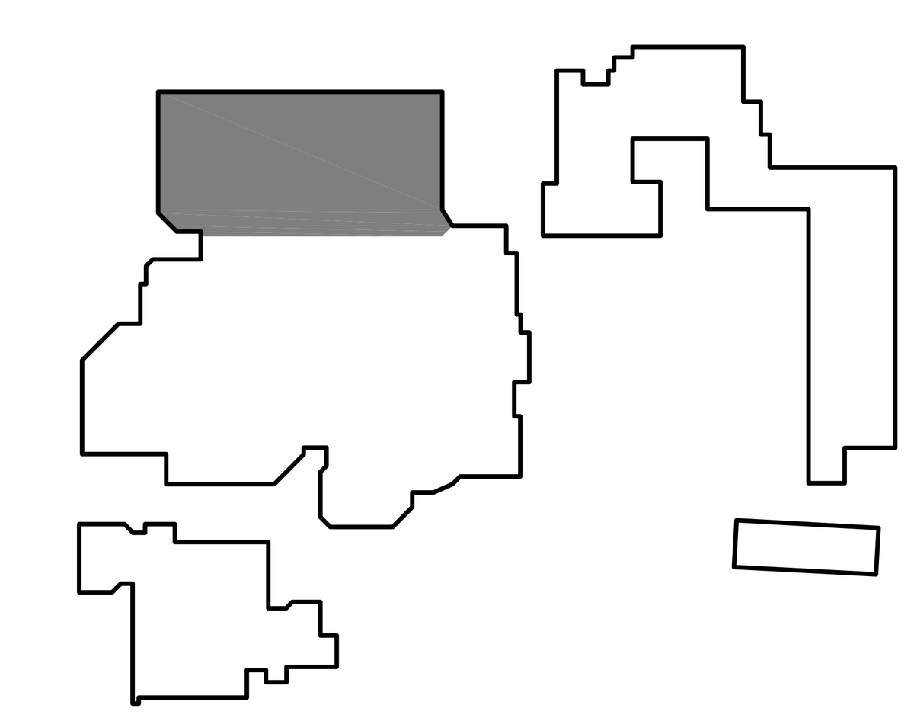


MECHANICAL FLOOR PLAN - BLDG 1 AREA A (1 / M2.0.1)

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

SHEET NOTES:

1. PROVIDE CO2 CONTROL INTERFACE FOR THE EXISTING SPLIT FURNACE UNIT.



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REGISTERED PROFESSIONAL ENGINEER — KEVIN D. STILLMAN — M 33498 — Exp. 9/30/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering

RANCHO CORDOVA, CALIFORNIA

MM/ RL	230701.00
PM - DESIGN TEAM	PROJECT NO.

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title

MECHANICAL FLOOR PLAN - BLDG 1 AREA A

NO.	DATE	ISSUE

Drawn By: Author

Checked By: Checker

Project No.: 23-145

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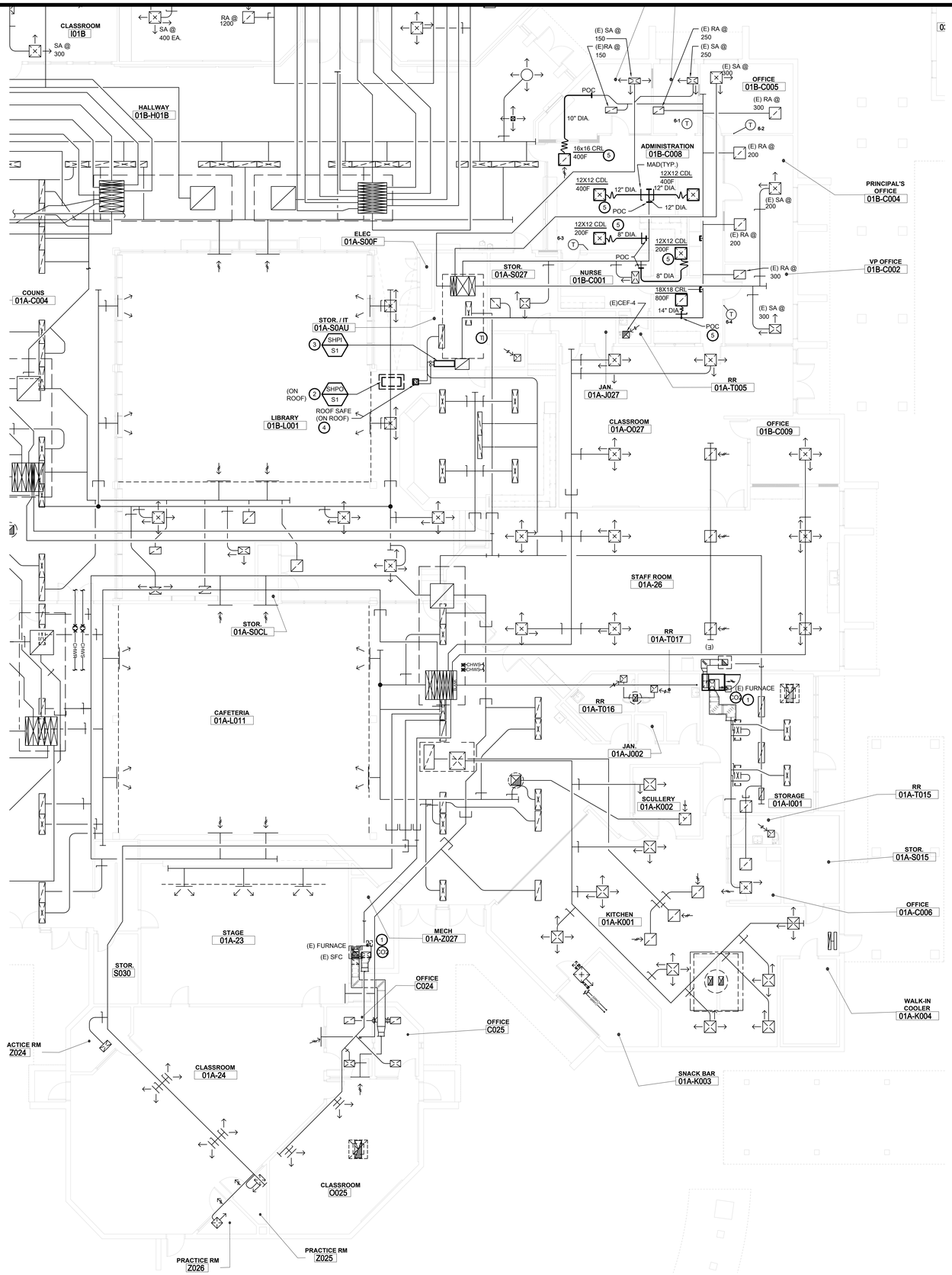


MECHANICAL FLOOR PLAN - BLDG 1 AREA B

1 / M2.0.2

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

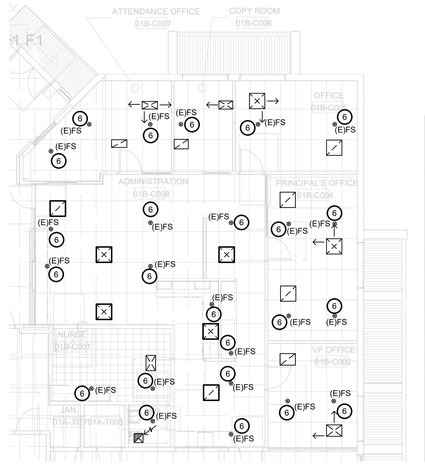
N

GENERAL NOTES

1. AIR BALANCE IS ONLY REQUIRED ON THE SYSTEMS NOTED WITH (E) OR NEW CFM'S AT THE GRILLES. ALL OTHER SPACES DO NOT REQUIRE AIR BALANCE.
2. FIRE SPRINKLER HEADS ARE ON THE PLANS FOR COORDINATION OF NEW WALLS AND GRILLES.

SHEET NOTES:

1. PROVIDE CO2 CONTROL INTERFACE FOR THE EXISTING SPLIT FURNACE UNIT.
2. SHPO-G1 AND SHPO-G2. FOR MOUNTING DETAIL SEE 4M5.0.1.
3. SHPI-G1 AND SHPI-G2. FOR MOUNTING DETAIL SEE 5M5.0.1.
4. ROOF SAFE ON ROOF. FOR MOUNTING DETAIL SEE 6M5.0.1.
5. CONNECT NEW DUCTWORK AND CONNECT TO NEW GRILLE WITH FLEXIBLE DUCTWORK. COORDINATE DUCT ROUTING WITH FINAL LOCATION WITHIN CEILING.
6. (E) FIRE SPRINKLER HEAD (FS).

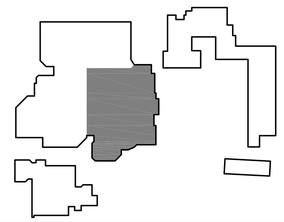


FIRE SPRINKLER HEAD FLOOR PLAN - BLDG 1 AREA B

2 / M2.0.2

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

N



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RANCHO CORDOVA, CALIFORNIA

MM/ RL — PM - DESIGN TEAM

230701.00 — PROJECT NO.

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title: MECHANICAL FLOOR PLAN - BLDG 1 AREA B

Drawn By: Author

Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145

Date: Issue Date 11/08/2023

DRAWING NO.: M2.0.2

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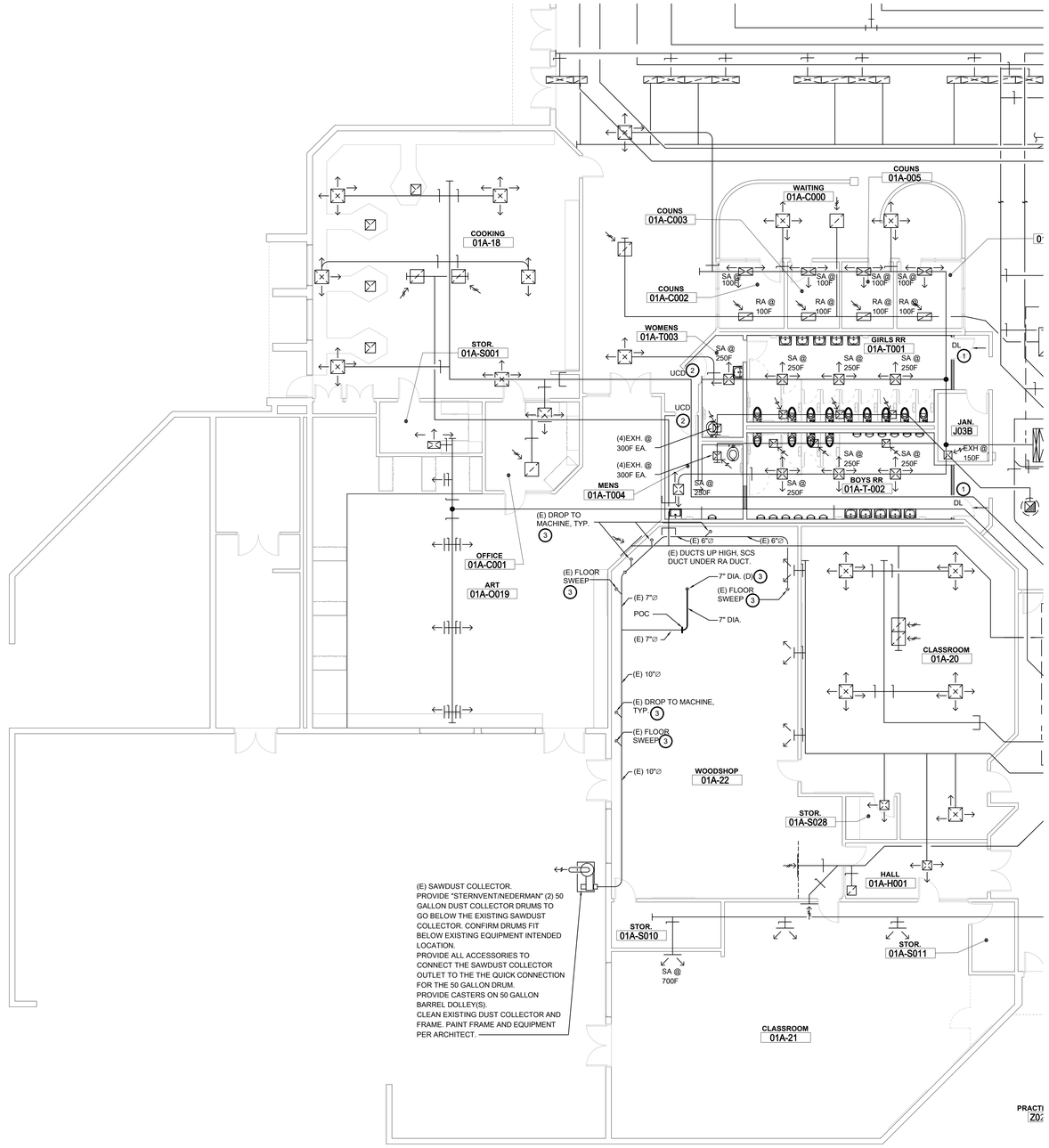

MECHANICAL FLOOR PLAN - BLDG 1 AREA C

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

1 M2.0.3

N

SHEET NOTES:

1. DOOR LOUVER, MIN. 0.4 SQ. FT. FREE AREA. REFER TO ARCHITECTURAL PLANS FOR LOUVER DETAILS.
2. UNDER CUT DOOR 0.5", COORDINATE WITH ARCHITECTURAL PLANS.
3. PROVIDE METAL BLAST GATE AND QUICK CONNECT FOR 6"X5' LONG CLEAR REINFORCED ANTI STATIC URETHANE FLEX-HOSE AND FLEXIBLE DUCT DISCONNECT AT EACH DROP. CONFIRM SIZE WITH EXISTING DUCT AND MATCH SIZE.

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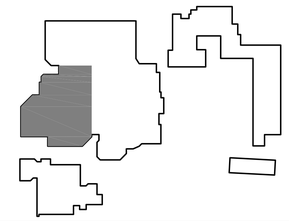

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REGISTERED PROFESSIONAL ENGINEER
KEVIN D. STOCK
M 33498
Exp. 9/30/24
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA

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Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL FLOOR PLAN - BLDG 1 AREA C

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
Issue Date 11/08/2023

DRAWING NO.
M2.0.3

XREF REF.: \M2.0.1

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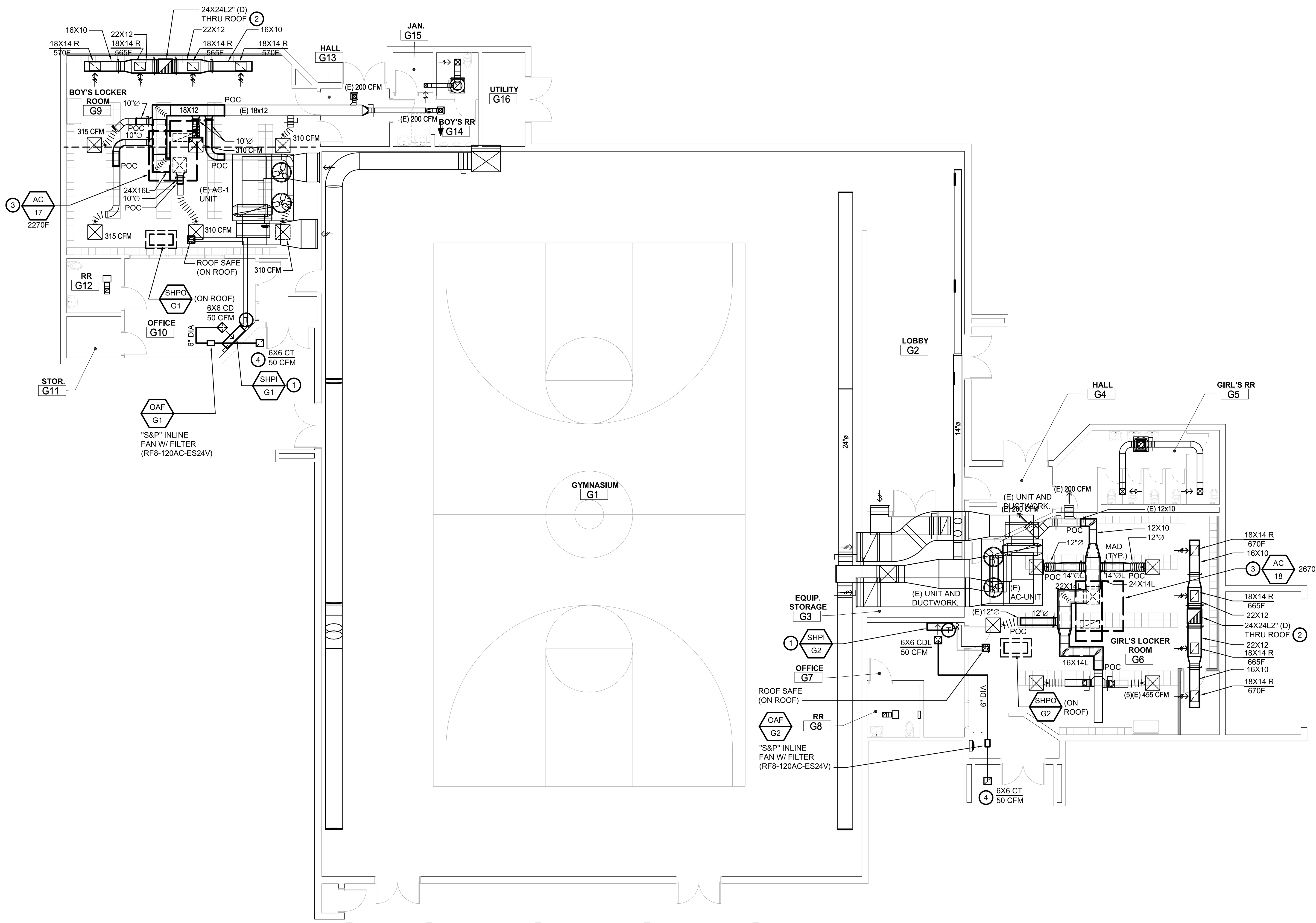


GENERAL NOTES

1. FOR DUCT SUPPORT SEE 9/M5.0.1.

SHEET NOTES:

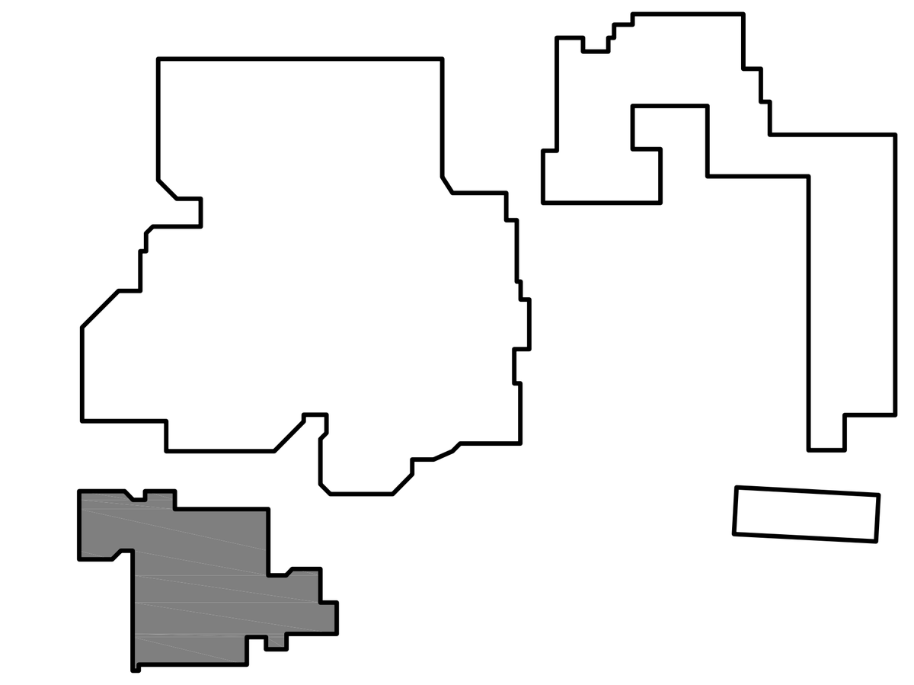
1. SHPI-G1 AND SHPI-G2. FOR MOUNTING DETAIL SEE 5/M5.0.1.
2. REMOVE REF AND CURB. (N) 24X24L2" DUCT THRU ROOF.
3. AC-17 AND AC-18 ON ROOF. REFER TO M3.0.6 FOR WORK. FOR MOUNTING DETAIL SEE 1, 2/M5.0.1.
4. OUTSIDE AIR WALL LOUVER, MIN. .012 SQ. FT. FREE AREA. REFER TO ARCHITECTURAL PLANS FOR LOUVER DETAILS.
5. SHPO-G1 AND SHPO-G2. FOR MOUNTING DETAIL SEE 4/M5.0.1.

MECHANICAL FLOOR PLAN - GYMNASIUM

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

1
M2.0.6

N



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SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title

MECHANICAL FLOOR PLAN - GYMNASIUM

NO.	DATE	ISSUE

Drawn By: Author

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M2.0.6

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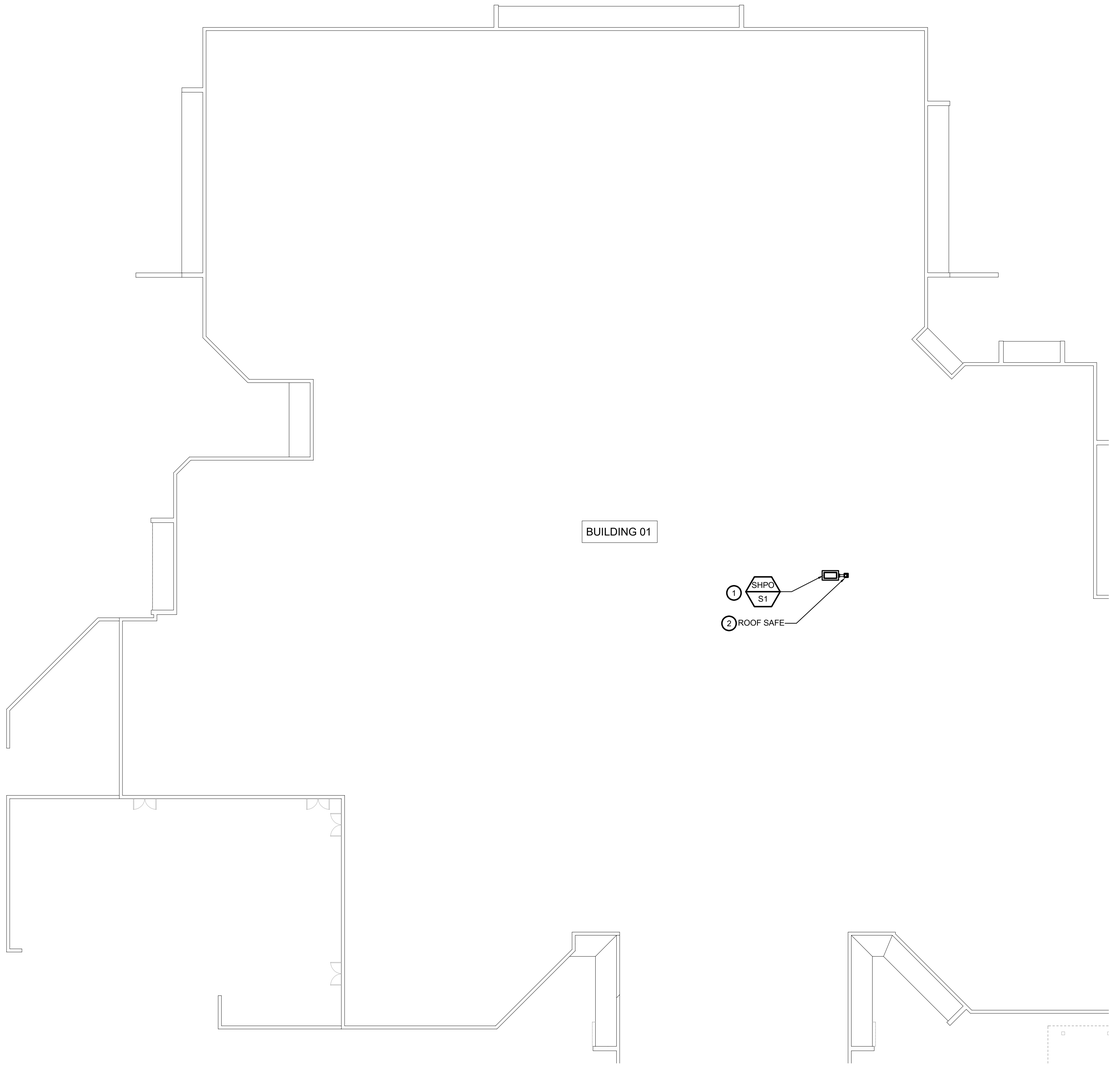

SHEET NOTES:

1. SHPO-G1 AND SHPO-G2. FOR MOUNTING DETAIL SEE 4M5.0.1.
2. ROOF SAFE ON ROOF. FOR MOUNTING DETAIL SEE 6M5.0.1.

MECHANICAL ROOF PLAN - BLDG 1 AREA B

SCALE : 1/16" = 1'-0"

1 / M3.0.2

N

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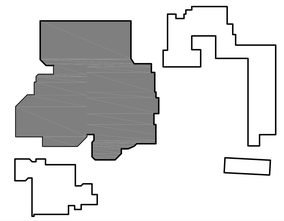

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STATE OF CALIFORNIA

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CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
MECHANICAL
ROOF PLAN - BLDG 1 AREA B

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
Date: Issue Date 11/08/2023

DRAWING NO.
M3.0.2

XREF REF.: \M2.0.1

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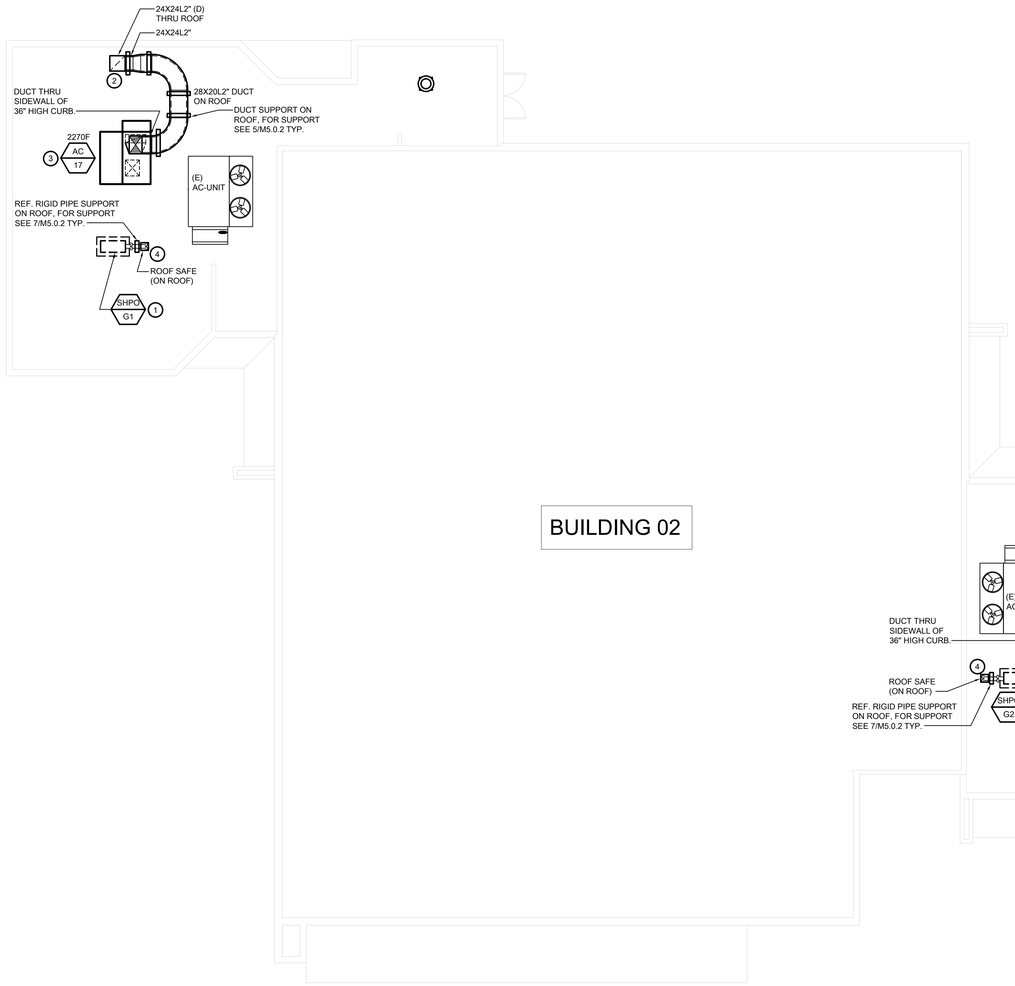

GENERAL NOTES

1. COORDINATE NEW ROOF MOUNTED DUCTWORK WITH EXISTING UNIT CLEARANCE REQUIREMENTS.

SHEET NOTES:

1. SHPO-G1 AND SHPO-G2. FOR MOUNTING DETAIL SEE 4M5.0.1.
2. RELIEF HOOD, PROVIDE NEW MOTORIZED BACK DRAFT DAMPER IN UNIT CURB.
3. AC-17 AND AC-18 ON ROOF. REFER TO M3.0.6 FOR WORK. FOR MOUNTING DETAIL SEE 1, 2/M5.0.1.
4. ROOF SAFE ON ROOF. FOR MOUNTING DETAIL SEE 6/M5.0.1.

MECHANICAL ROOF PLAN - GYMNASIUM

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

1 / M3.0.6

N

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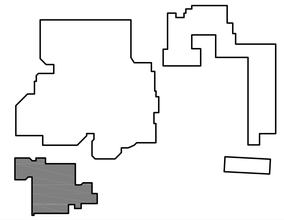

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Exp. 9/30/24
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DATE SIGNED: 01/19/2024

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230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL
ROOF PLAN - GYMNASIUM

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
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Issue Date 11/08/2023

DRAWING NO.
M3.0.6

XREF REF.: \M2.0.1

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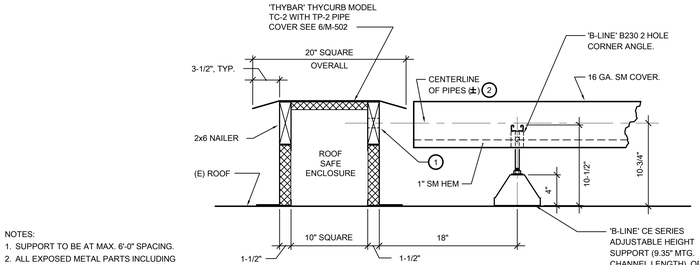


NOTES:
1. SUPPORT TO BE AT MAX. 6'-0" SPACING.
2. ALL EXPOSED METAL PARTS INCLUDING SHEET METAL COVER SHALL BE PRIMED AND PAINTED TO MATCH ROOF SURFACE.
3. FOR ALL ROOF SAFE ANCHORAGE DETAILS SEE 6/M-5.0.1.

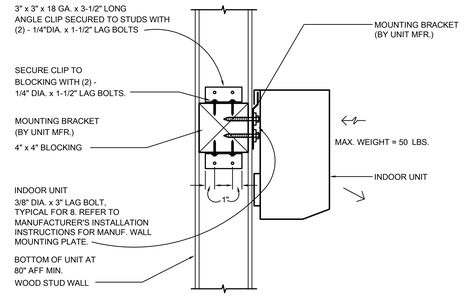
1 DRILL 2x6 FOR PIPES, 1/8" (±) LARGER THAN OD. SEAL PIPE PENETRATIONS WITH SEALANT, SPACE PIPES OVER 10" WIDTH

2 SINGLE SET = 1 RL, 1 RS, 1 CONTROL CONDUIT

PIPE ON ROOF MOUNTING

SCALE : NONE

8 / M5.0.1

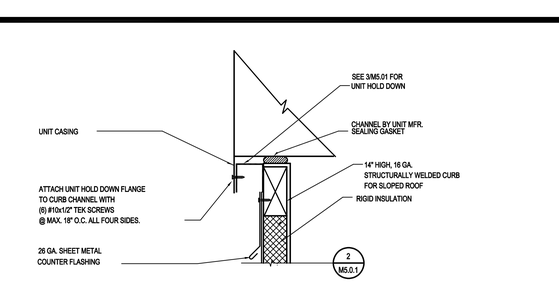


SHPI MOUNTING AT WOOD STUD WALL

INDOOR SPLIT SYSTEM MOUNTING

SCALE : NONE

5 / M5.0.1

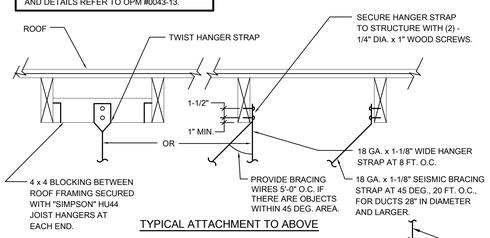


AC UNIT TO CURB MOUNTING DETAIL

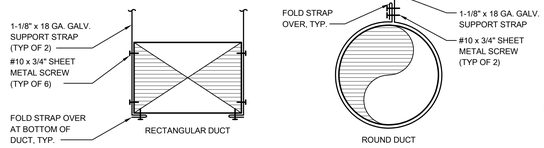
SCALE : NONE

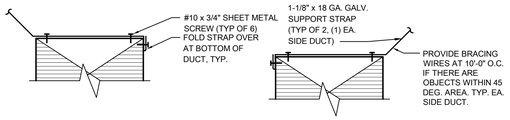
1 / M5.0.1

NOTE: THIS DETAIL IS FOR ANGLE SUPPORT ONLY. FOR SEISMIC BRACING REQUIREMENTS AND DETAILS REFER TO OPM #0043-13.



TYPICAL ATTACHMENT TO ABOVE



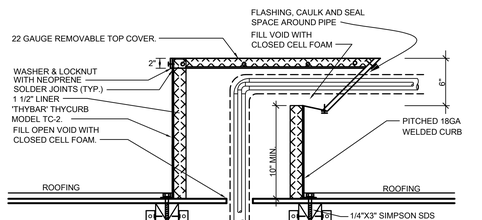


NOTE: SUPPORT STRAP SPACING SHALL BE MAX. 8'-0" O.C.

TYPICAL CONCEALED DUCT SUPPORT

SCALE : NONE

9 / M5.01

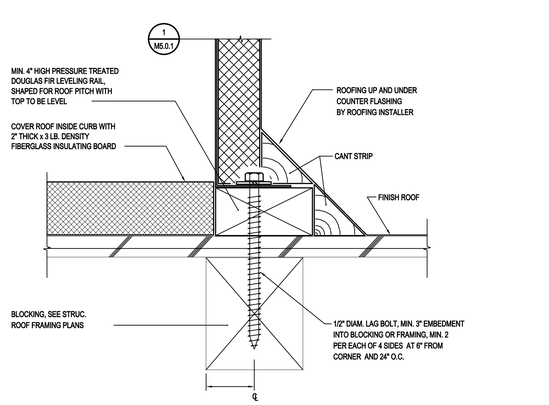


NOTES:
1. ROOF SAFE IS 22 GAUGE.

PIPE THRU ROOF SAFE DETAIL - WOOD

SCALE : NONE

6 / M5.0.1

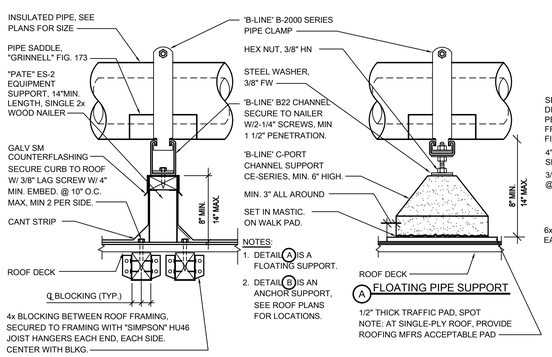


CURB TO ROOF MOUNTING DETAIL

SCALE : NONE

2 / M5.0.1

STEEL PIPE, NOMINAL SIZE OF PIPE (IN.)	SPACING OF SUPPORTS (FT.)	NOMINAL SIZE OF TUBING SMOOTH-WALL (IN. O.D.)	SPACING OF SUPPORTS (FT.)
1/2	6	1/2	4
3/4 OR 1	8	5/8 OR 3/4	6
1 1/4 OR LARGER (HORZ.)	10	7/8 OR 1 (HORZ.)	8
1 1/4 OR LARGER (VERT.)	EVERY FLOOR LEVEL	1 OR LAGER (VERT.)	EVERY FLOOR LEVEL

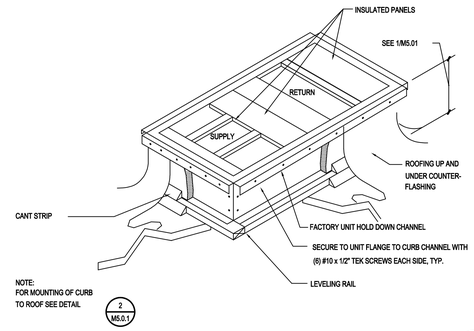


B RIGID PIPE SUPPORT
AT ALL CHANGES IN DIRECTION AND AT 30'-0" MAX SPACING, MIN. 2 PER RUN.
COORDINATE ROUTING OF ROOF MOUNTED PIPING AND CONDUITS TO ROUTE ON SAME SUPPORT.

PIPE ON ROOF MOUNTING DETAIL

SCALE : NONE

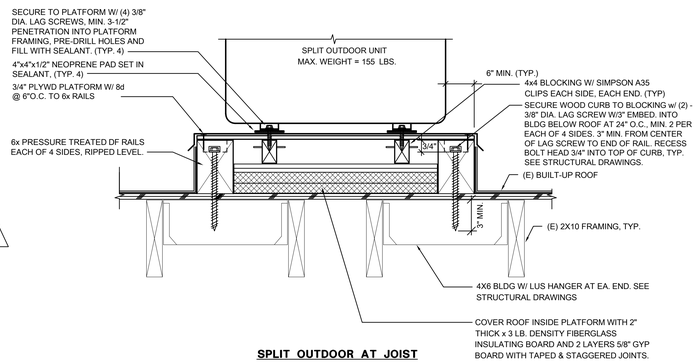
7 / M5.0.1



AC - UNIT "HOLD DOWN"

SCALE : NONE

3 / M5.0.1



SPLIT OUTDOOR AT JOIST

OUTDOOR SPLIT UNIT MOUNTING

SCALE : NONE

4 / M5.0.1

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DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ PL — PM - DESIGN TEAM
23070100 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
MECHANICAL DETAILS

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
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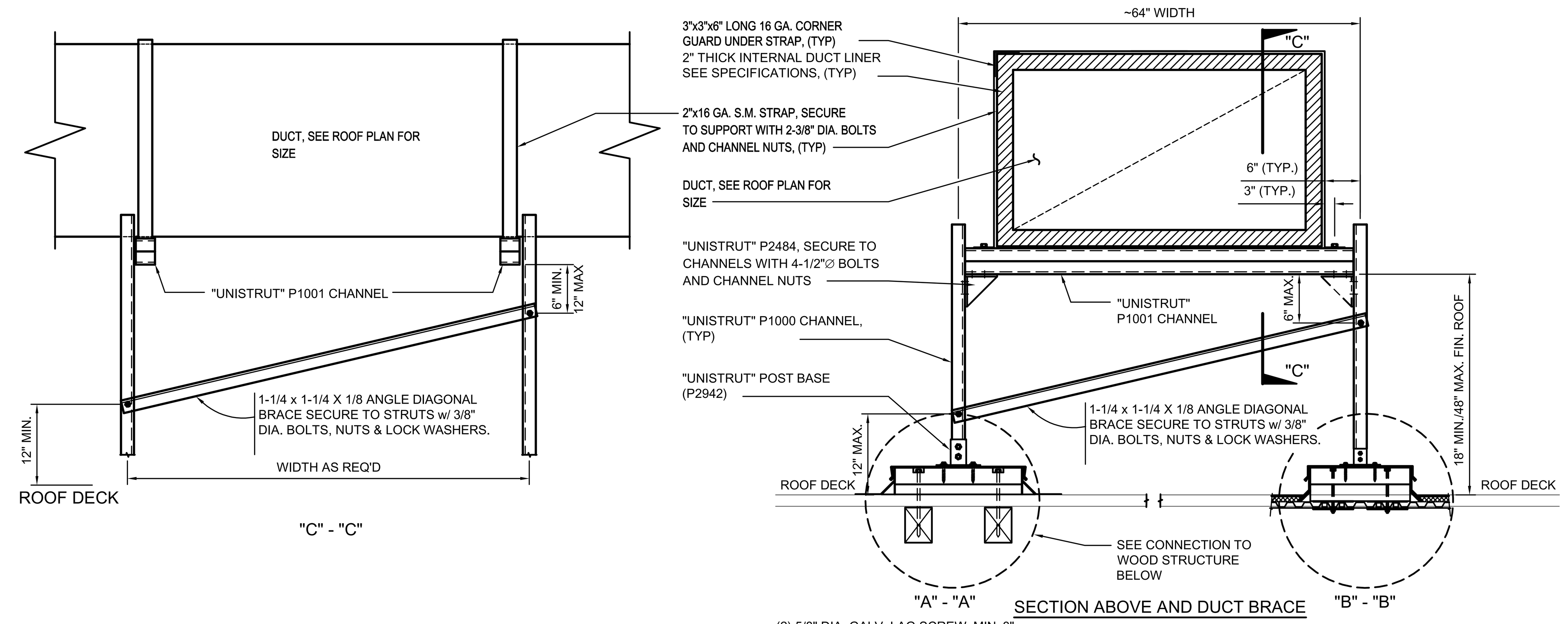
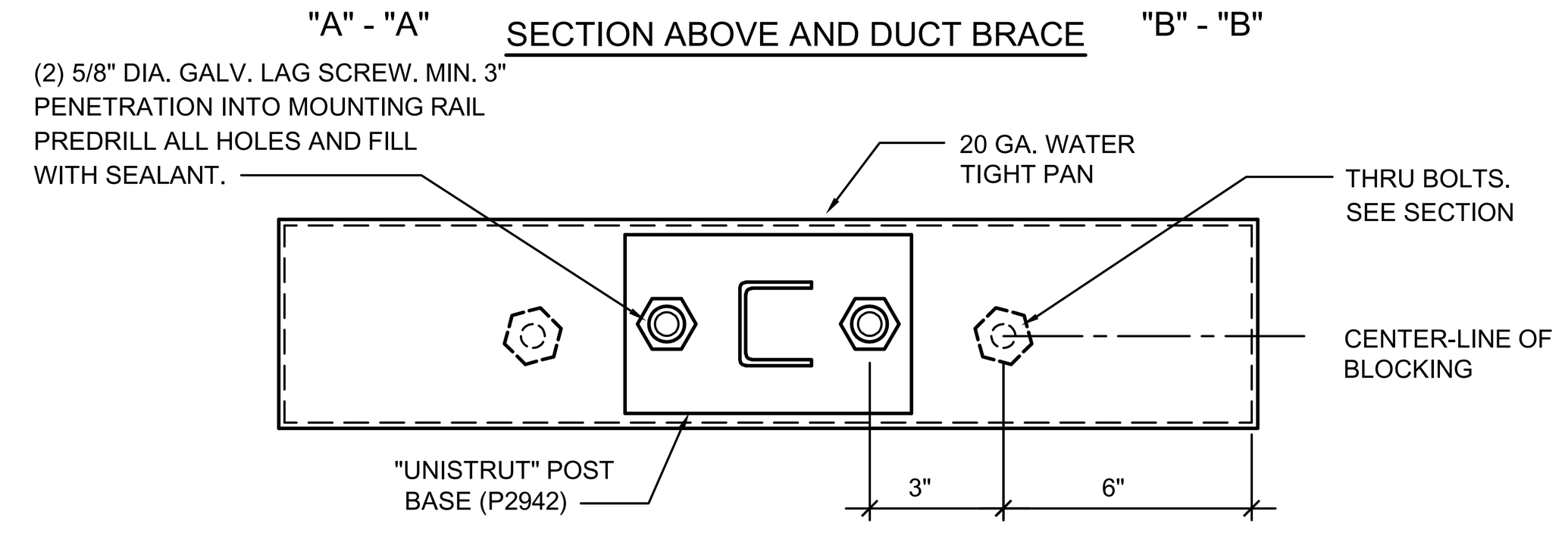
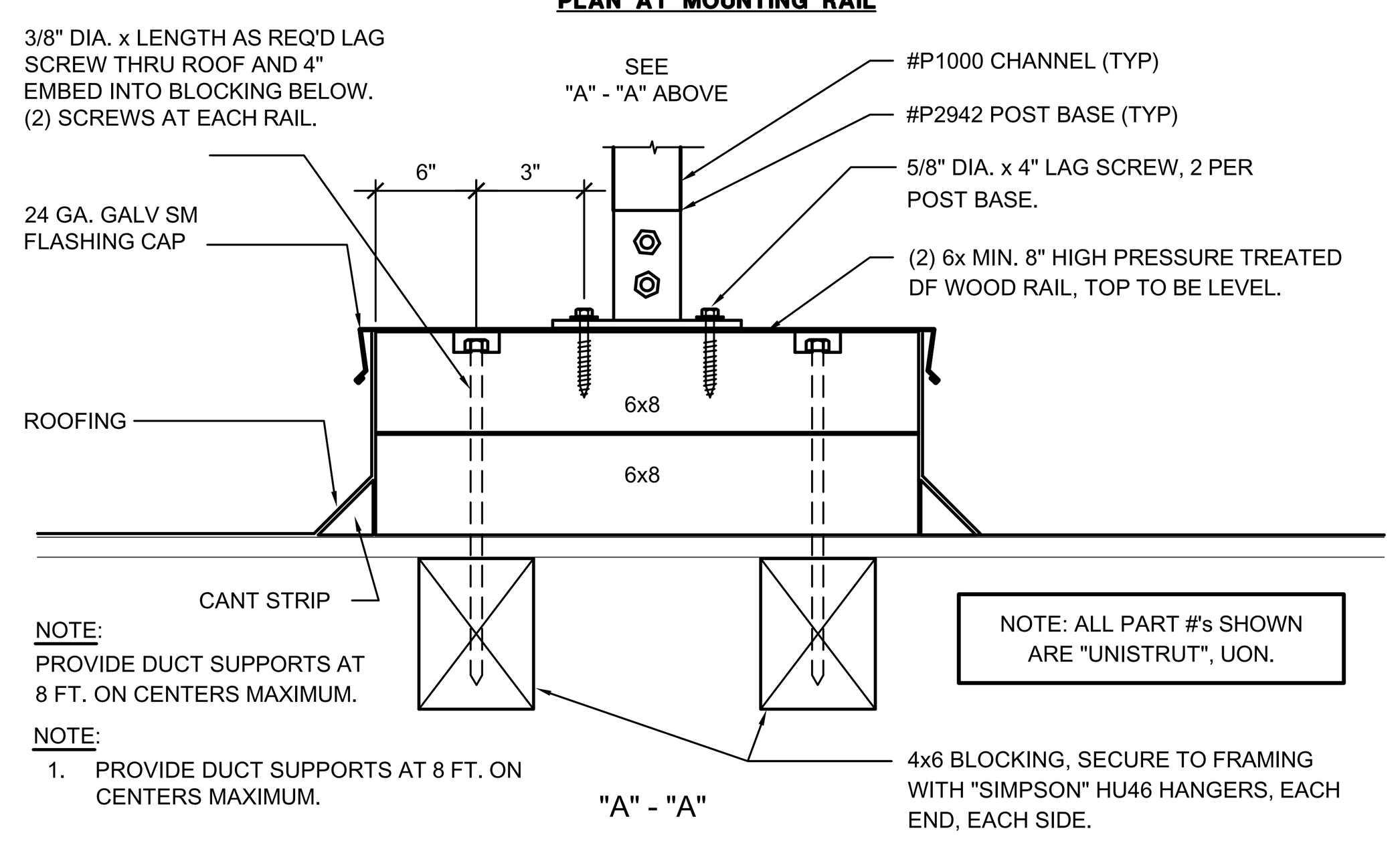




PLAN AT MOUNTING RAIL



NOTE: ALL PART #'s SHOWN ARE "UNISTRUT", UON.

NOTE:
PROVIDE DUCT SUPPORTS AT 8 FT. ON CENTERS MAXIMUM.

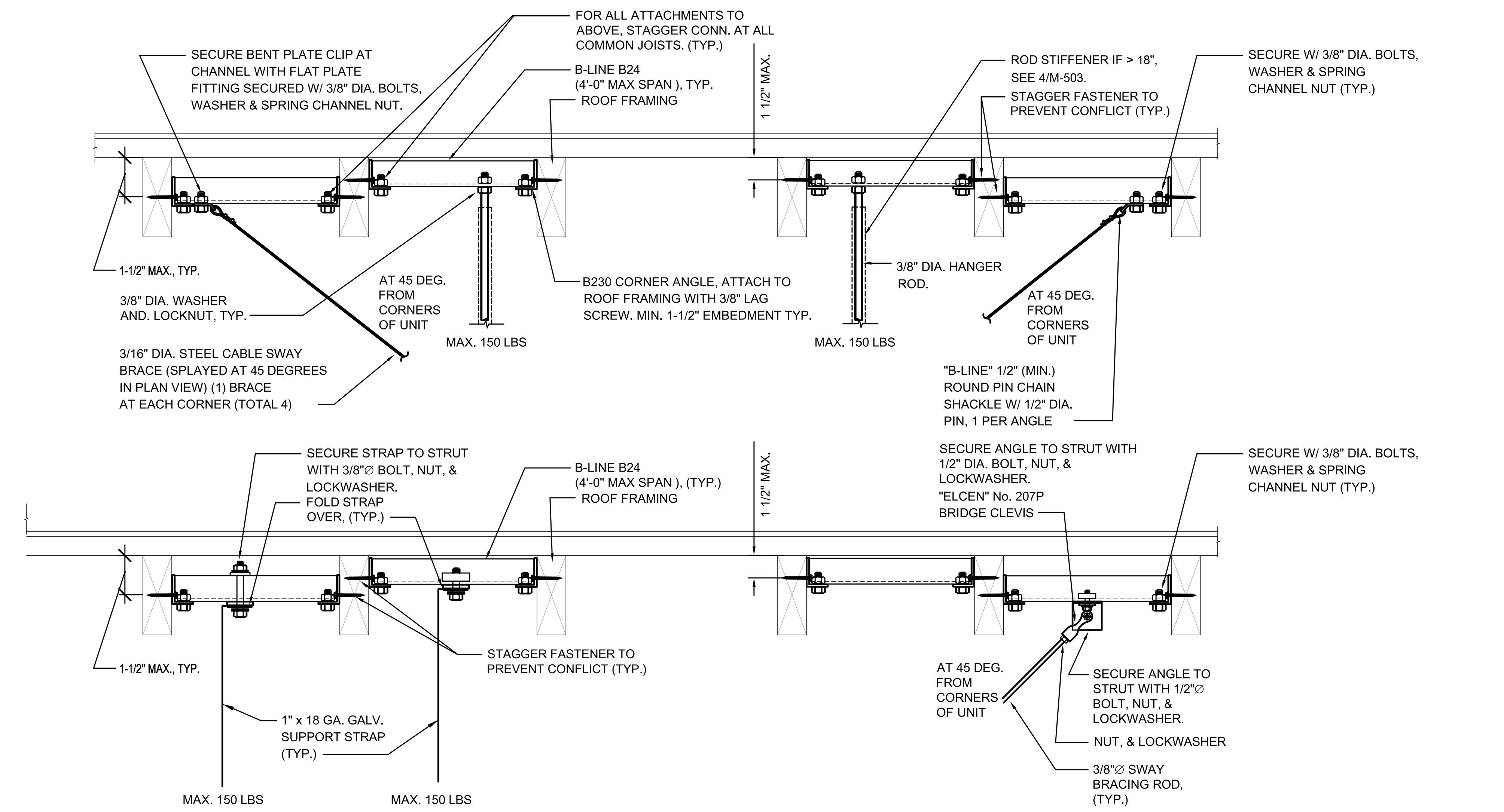
NOTE:
1. PROVIDE DUCT SUPPORTS AT 8 FT. ON CENTERS MAXIMUM.

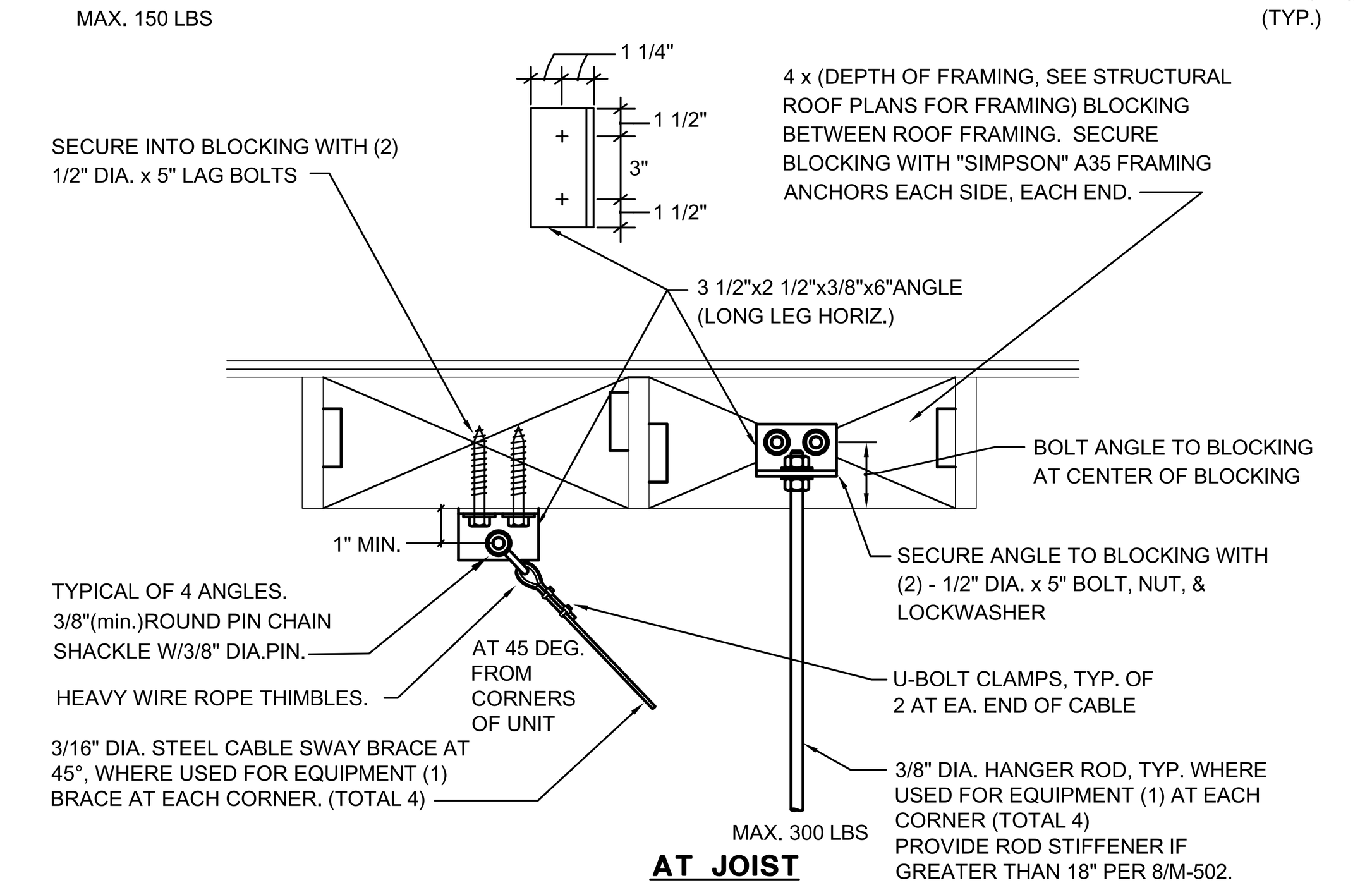
PLYWOOD DECK STRUCTURE

NOTE:
1. PROVIDE DUCT SUPPORTS AT 8 FT. ON CENTERS MAXIMUM.
2. MOUNTING RAIL TO BE ROTATED AS REQUIRED FOR PLATE AT BOTTOM OF METAL DECK TO SPAN ACROSS FLUTES.
3. PE MOUNTING SIMILAR, COORDINATE STRAP LOCATION WITH EQUIPMENT ACCESS REQUIREMENTS.

NOTE: ALL PART #'s SHOWN ARE "UNISTRUT", UON.

DUCT/ PE ON ROOF MOUNTING DETAIL 5 M5.0.2
SCALE : NONE



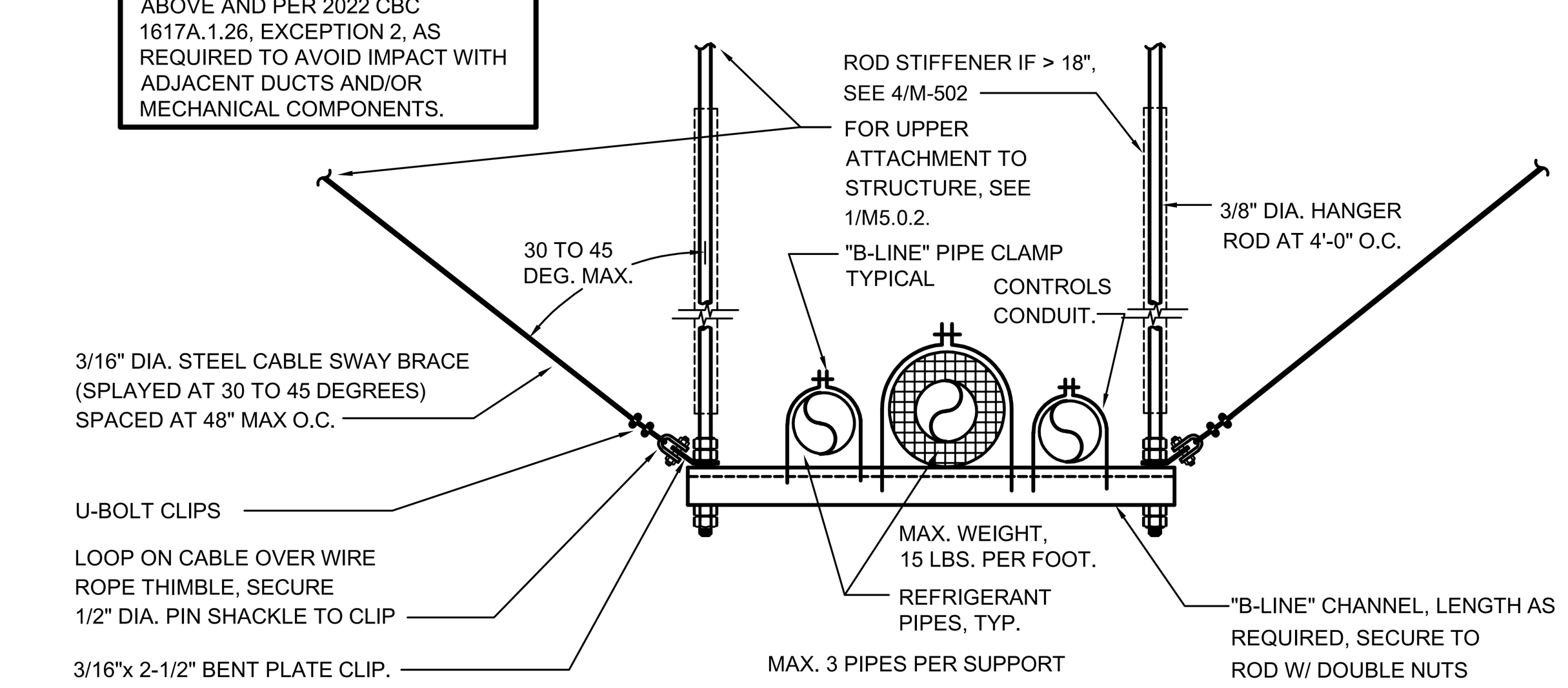


NOTE: PROVIDE BRACING AS NOTED ABOVE AND PER 2022 CBC 1617A.1.25, EXCEPTION 2 FOR DUCTWORK OR 1617A.1.26, EXCEPTION 2 FOR PIPING, AS REQUIRED TO AVOID IMPACT WITH ADJACENT DUCTS AND/OR MECHANICAL COMPONENTS.

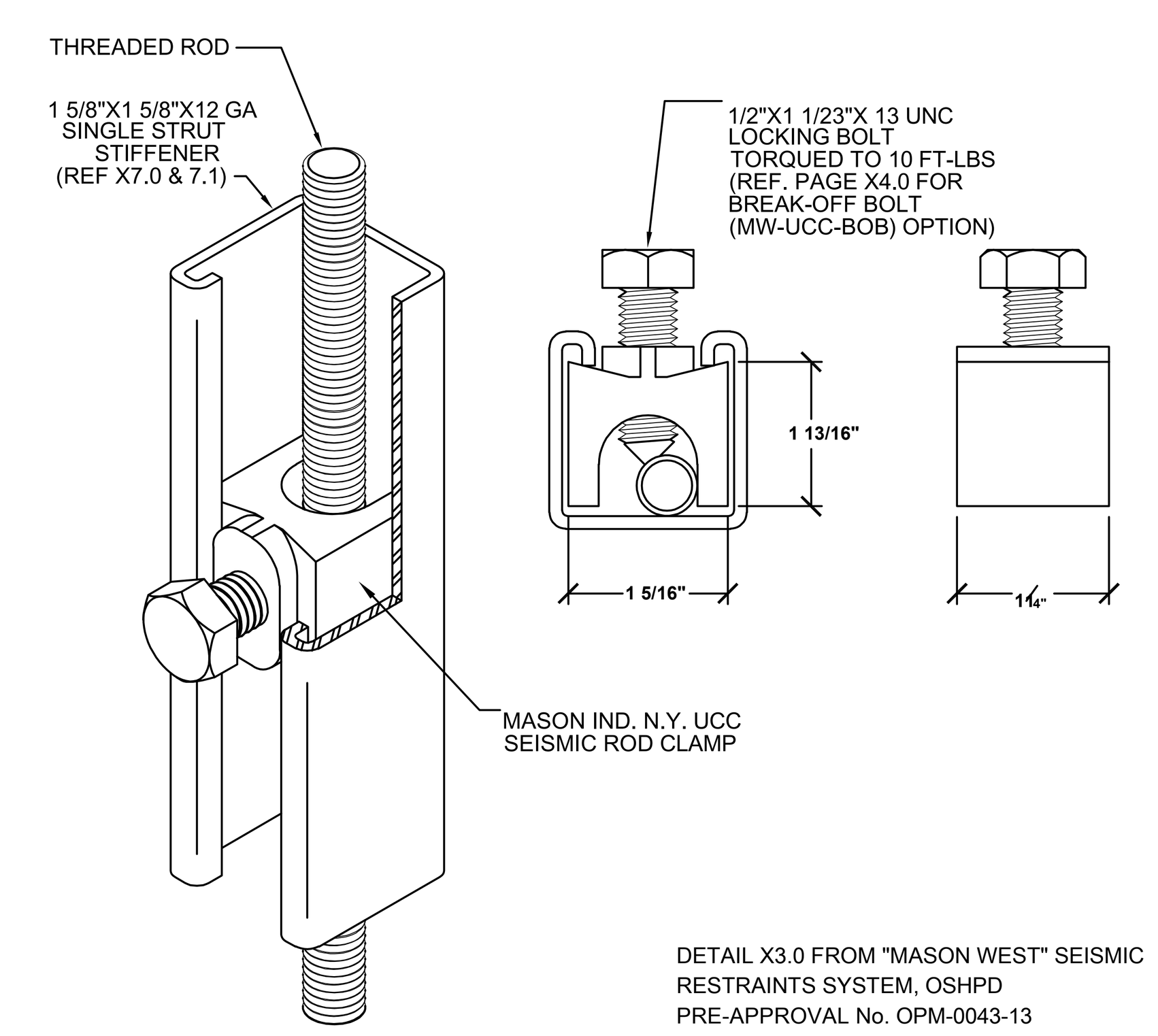
NOTE:
SEE DRAWINGS FOR NUMBER AND SIZE OF PIPES.

UPPER ATTACHMENT AT WOOD STRUCTURE 1 M5.0.2
SCALE : NONE

NOTE: PROVIDE BRACING AS NOTED ABOVE AND PER 2022 CBC 1617A.1.26, EXCEPTION 2, AS REQUIRED TO AVOID IMPACT WITH ADJACENT DUCTS AND/OR MECHANICAL COMPONENTS.



REFRIGERANT PIPING SUPPORT 2 M5.0.2
SCALE : NONE

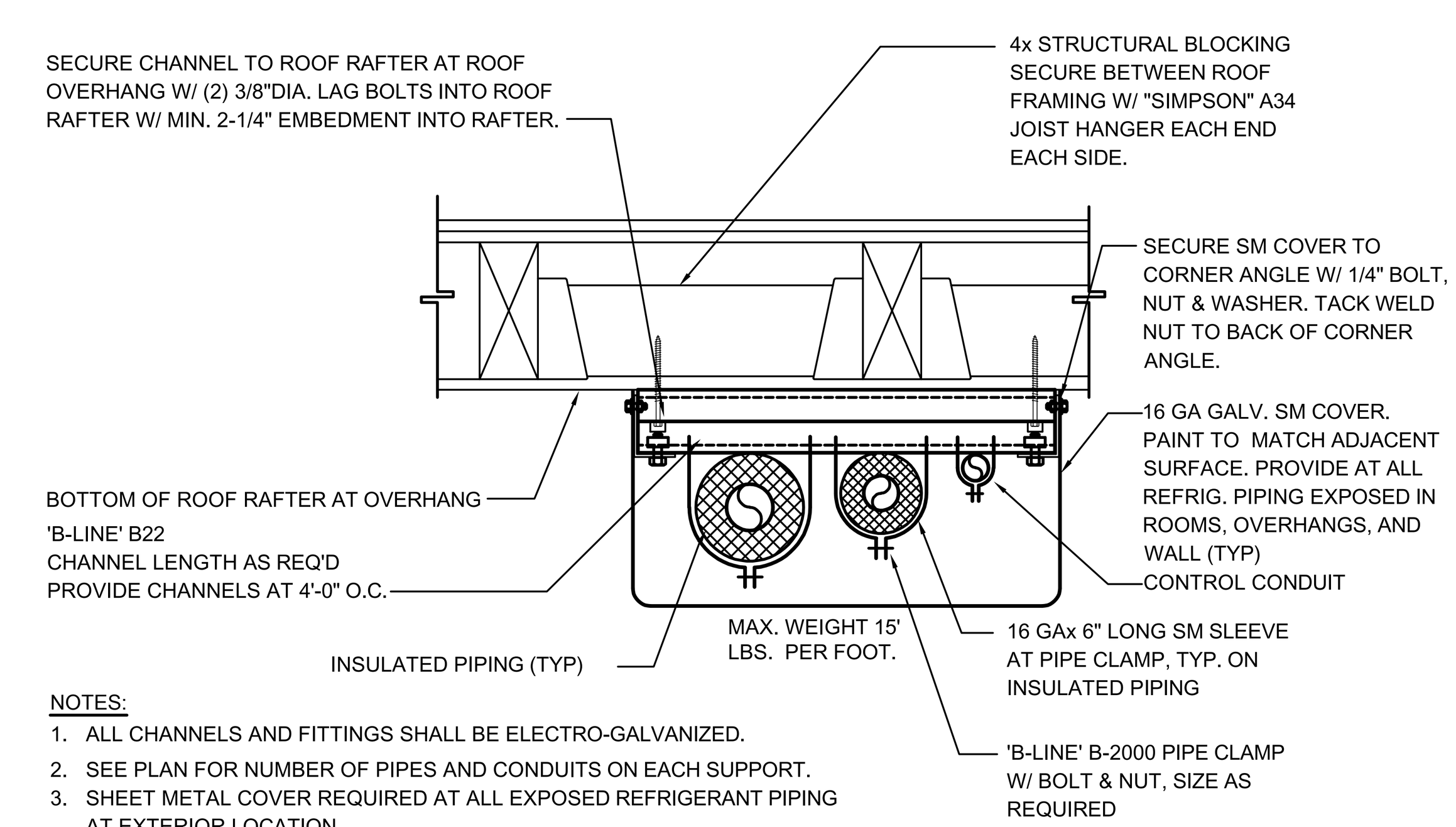


DETAIL X3.0 FROM "MASON WEST" SEISMIC RESTRAINTS SYSTEM, OSHPD PRE-APPROVAL No. OPM-0043-13

TYPE UCC WITH STEEL STRUT ASSEMBLY RATINGS (ASD)

ROD SIZE (INCHES)	MAX COMPRESSIVE FORCE (LBS)	MAXIMUM STRUT STIFFENER LENGTH (INCHES)	MAX UCC SPACING (INCHES)	MAXIMUM UNBRACED LENGTH (INCHES)
3/8	440	156	28	18
1/2	735	156	38	25
5/8	1155	156	48	31
3/4	1700	156	57	37
3/4	3130	84	42	27

ROD STIFFENER DETAIL 4 M5.0.2
SCALE : NONE



NOTES:
1. ALL CHANNELS AND FITTINGS SHALL BE ELECTRO-GALVANIZED.
2. SEE PLAN FOR NUMBER OF PIPES AND CONDUITS ON EACH SUPPORT.
3. SHEET METAL COVER REQUIRED AT ALL EXPOSED REFRIGERANT PIPING AT EXTERIOR LOCATION

PIPE AT WALL/CLG. 3 M5.0.2
SCALE : NONE

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DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/RL 230701.00
PM - DESIGN TEAM PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL DETAILS

NO.	DATE	ISSUE

Drawn By Author
Checked By Checker
Project No. 23-145
Date
Issue Date 11/08/2023
DRAWING NO.
M5.0.2

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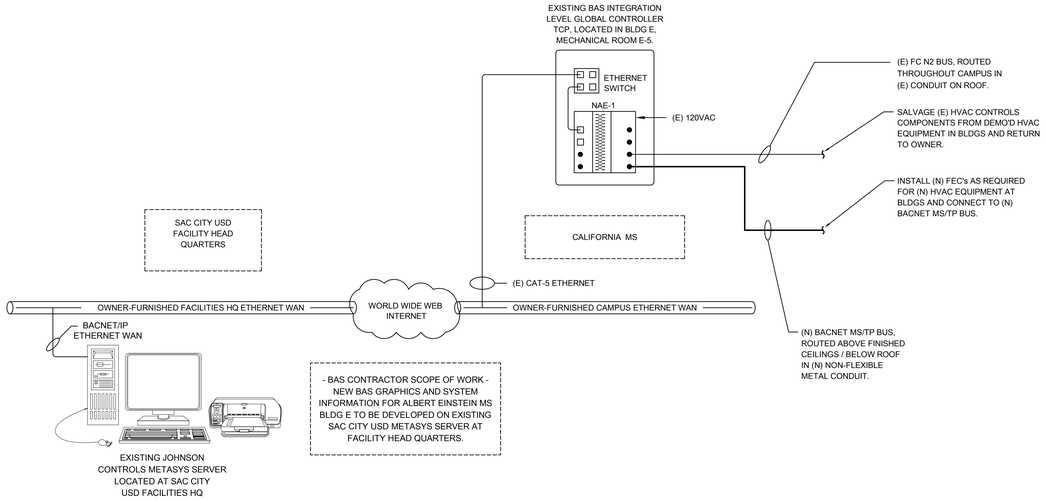


EXISTING SYSTEM ARCHITECTURE

SCALE : NONE

1 M6.0.1

Single Zone Constant Volume Packaged AC Unit with Economizer & FDD, Duct Smoke Detector, Modulating Power Exhaust & Demand Control Ventilation.

Sequence of Operation

1. System Overview:
   a. AC Unit factory certified technician shall wire the supply fan for constant volume (single supply fan speed) operation, prior to unit start-up.
   b. Each AC unit will be directly controlled by its own dedicated EMS (Energy Management System) unitary controller.
   c. EMS unitary controller will be connected to a wall mounted electronic zone temperature sensor (Johnson Controls #NSB8BTN140-0, warmer/cooler interface, white color), and a wall mounted CO2 sensor (Veris #CWE, white color).
   d. Electronic zone temperature sensor shall include:
      - Digital pushbuttons for warmer/cooler setpoint control.
      - Digital pushbutton for "after-hours" override timer control, with user adjustable duration. The after-hours duration shall have the ability to be limited from the EMS front-end.

2. Scheduling (adjustable):
   a. Scheduled occupied and unoccupied hours shall be programmed thru the EMS Operator Workstation/Graphical User Interface. Occupant manual override to provide after-hours system operation shall occur at the local zone temperature sensor. Duration of manual override shall be programmed thru the EMS Operator Workstation/Graphical User Interface (4 hours max.).
   b. Scheduled pre-occupancy purge: Monday thru Friday, 6:30am thru 7:29am.
   c. Scheduled occupied hours: Monday thru Friday, 7:30am thru 3:00pm.
   d. Scheduled unoccupied hours: Monday thru Friday, 3:01pm thru 6:29am, and all-day Saturday and Sunday.
   e. Programmed manual override duration: 1 hour.

3. Room Temperature Setpoints (adjustable):
   a. Room temperature setpoints for scheduled occupied and unoccupied hours shall be programmed thru the EMS Operator Workstation/Graphical User Interface. Occupant override of room temperature setpoint shall occur at the local zone temperature sensor, and shall be limited to 3 degF higher/lower than programmed setpoints.
   b. Occupied room heating setpoint: 66 degF.
   c. Unoccupied room heating setpoint: 50 degF.
   d. Occupied room cooling setpoint: 76 degF.
   e. Unoccupied room cooling setpoint: 90 degF.

4. Unit Supply Fan Operation:
   a. When the zone is in Occupied Mode or in After-Hours Mode, the fan shall run continuously.
   b. During the Unoccupied Mode as determined by EMS time schedule, the unit fan cycles with demand and the temperature is controlled by the unoccupied space temperature heating and cooling setpoints.

5. Minimum Outdoor Air Ventilation:
   a. During Occupied Mode or After-Hours Mode, the economizer damper shall be commanded by the EMS unitary controller to maintain positions which satisfy the Minimum Outdoor Air ventilation requirements for the zone. TAB and EMS contractors shall work in concert to determine the minimum outside air damper position settings, as scheduled in the Air Conditioning Unit Schedule on sheet M002:
      - Lower OSA cfm.
      - Upper OSA cfm.
   b. The outside air damper shall be commanded fully closed by the EMS unitary controller whenever the AC Unit is off.

6. Demand Control Ventilation (adjustable):
   a. EMS unitary controller will be connected to a wall mounted CO2 sensor to monitor zone CO2 concentration during occupied hours and manual override (after hours) operation. When zone CO2 level is below 1000 ppm, outside air damper shall be set to "Lower Min." position, as scheduled in Air Conditioning Unit Schedule on sheet M002. When zone CO2 level exceeds 1000 ppm, outside air damper shall be set up "Upper Min." position, as scheduled. Outside air damper shall remain at "Upper Min." position until CO2 level has dropped below 900 ppm, and will then return to "Lower Min." position.

7. Automatic Demand Reduction Controls:
   a. EMS shall be programmed with the capability to implement centralized demand shed for all non-critical zones upon call for Automatic Demand Reduction. Critical zones shall not be impacted by demand shed conservation measures.
   b. Critical zones served by this system:
      - None.

8. Pre-Occupancy Purge:
   a. The EMS shall schedule the zone to be in Occupied Mode one hour prior to the actual time of anticipated occupancy, to provide design ventilation rates during this one-hour period.

9. Heating Operation:
   a. The EMS unitary controller compares the room heating setpoint with the room temperature and determines a need-heating control signal.
   b. On a call for heating, the economizer shall be commanded to Min. CFM setpoint and the staged gas valve shall be enabled to maintain room heating setpoint.
   c. Mechanical cooling to be locked out during heating mode.

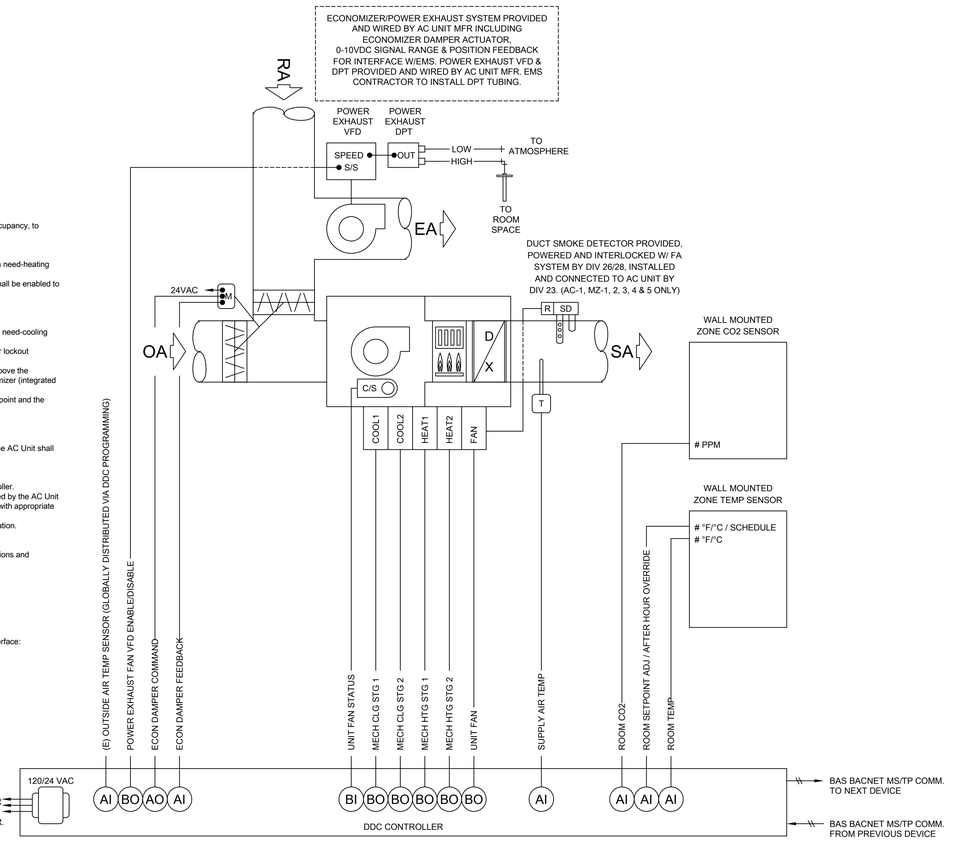
10. Cooling Operation:
    a. The EMS unitary controller compares the room cooling setpoint with the room temperature and determines a need-cooling control signal.
    b. On a call for cooling, the economizer shall be enabled (if the outside air temperature is below the economizer lockout temperature of 75 degF) to provide free cooling for as long as possible.
    c. If the economizer cannot maintain the room cooling setpoint, or if the outside air temperature is equal to or above the economizer lockout temperature of 75 degF, the compressor shall be enabled in conjunction with the economizer (integrated cooling) to maintain room cooling setpoint.
    d. If the room cooling setpoint still cannot be maintained, the economizer shall be commanded to Min. CFM setpoint and the staged dx compressor shall be enabled (mechanical cooling) to maintain room cooling setpoint.
    e. Heating to be locked out during cooling mode.

11. Duct Smoke Detector/Automatic Shut-Off (AC-E3 & AC-E4 only):
    a. When particles of combustion are detected in the supply air stream by the AC Unit duct smoke detector, the AC Unit shall shut down via hardwire interlock.

12. Modulating Power Exhaust:
    a. Power Exhaust fan VFD shall be enabled/disabled with respective AC Unit scheduling via EMS unitary controller.
    b. All other Power Exhaust fan operations shall be controlled by separate non-EMS external devices as provided by the AC Unit Manufacturer. EMS contractor shall install all differential pressure transmitter tubing, and terminate in room with appropriate pressure pickup fitting at ceiling.
    c. Commission Power Exhaust to maintain a space pressure of 0.01" to 0.03" positive during all modes of operation.

13. Economizer Fault Detection & Diagnostics (FDD):
    a. The EMS unitary controller shall monitor the following economizer actuator Fault Detection Diagnostic conditions and broadcast/display results via EMS network:
       - Temperature Sensor Failure/Fault.
       - Economizer not economizing when enabled.
       - Economizer economizing when disabled.
       - Economizer damper modulation failure.
       - Excess outdoor air.

14. Monitoring:
    a. The following conditions shall be monitored and displayed at EMS Operator Workstation/ Graphical User Interface:
       - Supply air temperature.
       - Room temperature.
       - Room CO2 concentration (ppm).
       - Outside air temperature (via existing campus OSA sensor).
       - Current mode (heating/cooling/fan).
       - Current command status of fan, economizer, compressor and gas valve.
       - Run time meters on fan, compressor, and heat.
       - Supply fan status via current switch.
       - Economizer actuator feedback status.



AC UNIT CONTROL DIAGRAM

SCALE : NONE

2 M6.0.1

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REGISTERED PROFESSIONAL ENGINEER — M 33498 — Exp. 6/30/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ PL — PM - DESIGN TEAM

230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
MECHANICAL CONTROLS

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No. 23-145
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Issue Date 11/08/2023

DRAWING NO.
M6.0.1

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Separate CO2 Sensor, no display: ZN-CO2

CO2 VENTILATION:

FOR EXISTING METASYS CONTROLLED HVAC UNITS IN BUILDINGS F (6 TOTAL), BUILDING H (5 TOTAL) AND BUILDING G (2 TOTAL). THE BMS CONTRACTOR WILL PROVIDE AND NEW SA BUS CO2 SENSOR AND MOUNT IT ADJACENT TO THE EXISTING TEMPERATURE SENSOR.

WHERE THE BMS HAS EXISTING CONTROL OF THE OSA/ECONOMIZER DAMPER:

THE BMS WILL UTILIZE A ZONE CO2 SENSOR TO MONITOR SPACE CO2 VALUE. THE BMS WILL ALARM IF THE ZONE CO2 VALUE EVER RISES ABOVE 1,000 PPM. AFTER ALARMING, THE BMS WILL MODULATE THE OSA DAMPER OPEN 100% UNTIL THE ZONE CO2 SET POINT FALLS BELOW THE SET POINT OF 1,000 PPM AT WHICH POINT THE OSA DAMPER WILL REVERT BACK TO ITS DEFAULT POSITION. THIS SOO WILL BE APPLICABLE IF ANY OF THE CONNECTED SYSTEMS IS ABOVE SET POINT.

WHEN THE BMS DOES NOT HAVE EXISTING CONTROL OF THE OSA/ECONOMIZER DAMPER:

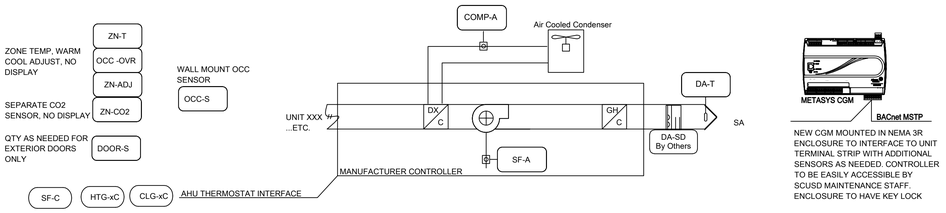
THE BMS WILL UTILIZE A ZONE CO2 SENSOR TO MONITOR SPACE CO2 VALUE. THE BMS WILL ALARM IF THE ZONE CO2 VALUE EVER RISES ABOVE 1,000 PPM.

ADD ALTERNATE:
FOR UNITS THAT DO NOT HAVE OSA/ECONOMIZER DAMPERS CONTROLLED BY THE BMS - PLEASE PROVIDE AN ADD ALTERNATE PRICE TO PROVIDE T24 COMPLIANT FDD CONTROL OF THE ECONOMIZER

(E) UNIT CO2 MONITORING

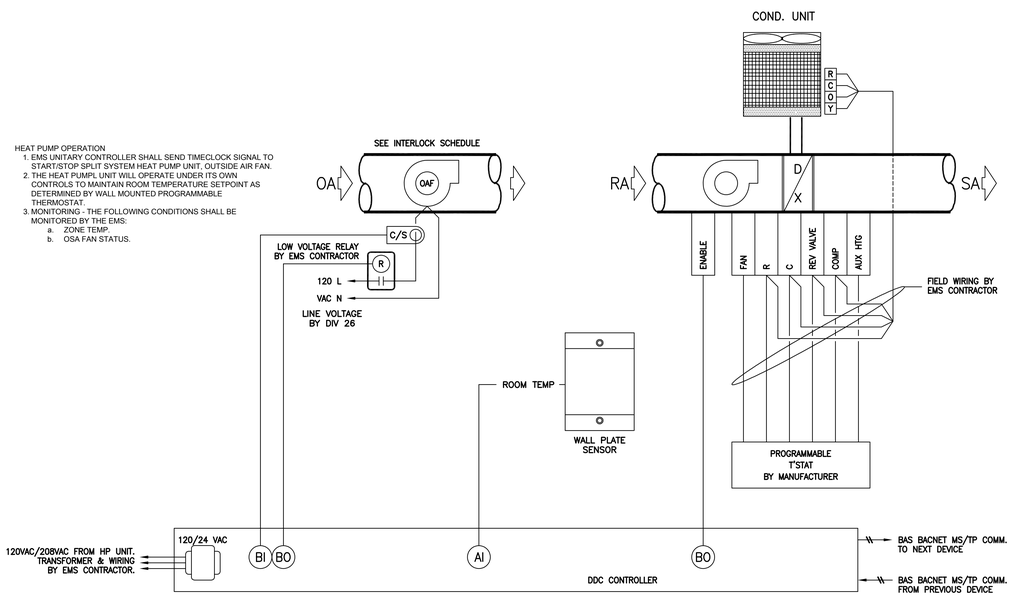
2 M6.0.2

SCALE : NONE



NEW CGM MOUNTED IN NEMA 3R ENCLOSURE TO INTERFACE TO UNIT TERMINAL STRIP WITH ADDITIONAL SENSORS AS NEEDED. CONTROLLER TO BE EASILY ACCESSIBLE BY SCUSD MAINTENANCE STAFF. ENCLOSURE TO HAVE KEY LOCK

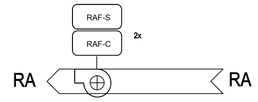
HEAT PUMP OPERATION
1. EMS UNITARY CONTROLLER SHALL SEND TIMECLOCK SIGNAL TO START/STOP SPLIT SYSTEM HEAT PUMP UNIT, OUTSIDE AIR FAN.
2. THE HEAT PUMPL UNIT WILL OPERATE UNDER ITS OWN CONTROLS TO MAINTAIN ROOM TEMPERATURE SETPOINT AS DETERMINED BY WALL MOUNTED PROGRAMMABLE THERMOSTAT.
3. MONITORING - THE FOLLOWING CONDITIONS SHALL BE MONITORED BY THE EMS:
   a. ZONE TEMP.
   b. OSA FAN STATUS.

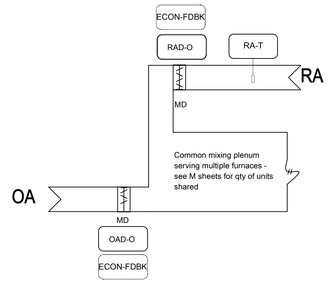


SPLIT SYSTEM HEAT PUMP UNIT W/OSA FAN

3 M6.0.2

SCALE : NONE





SUPPLY FAN CONTROL:
THE SUPPLY FAN (SF-C) WILL BE STARTED BASED ON OCCUPANCY SCHEDULE. WHEN THE SUPPLY FAN STATUS (SF-S) INDICATES THE FAN STARTED, THE CONTROL SEQUENCE WILL BE ENABLED. UPON A LOSS OF AIRFLOW (SF-S), THE SUPPLY FAN WILL ATTEMPT TO AUTOMATICALLY RESTART UNTIL POSITIVE STATUS IS RECEIVED. THE BMS WILL GENERATE ALARM IF THE SUPPLY FAN STATUS DOES NOT MATCH ITS COMMAND AFTER THREE FAILED ATTEMPTS.

RETURN FAN CONTROL:
THERE ARE 2X RETURN FANS FOR THIS SYSTEM. THE RETURN FANS WILL BE INTERLOCKED TO THE OPERATION OF THE SUPPLY FANS AND OPERATE ANY TIME THE SUPPLY FAN IS RUNNING.

OCCUPIED MODE:
THE OCCUPANCY MODE WILL BE CONTROLLED VIA A NETWORK INPUT (OCC-SCHEDULE). THE OCCUPANCY MODE CAN ALSO BE OVERRIDDEN BY A NETWORK INPUT (OCC-OVERRIDE). A TEMPORARY OCCUPANCY BUTTON (ZN-TOCC) ON THE ZONE SENSOR WILL PLACE THE UNIT IN OCCUPIED MODE FOR AN ADJUSTABLE TIME. WHEN OCCUPIED THE FAN WILL RUN CONTINUOUSLY.

UNOCCUPIED MODE:
THE UNIT WILL CYCLE TO MAINTAIN UNOCCUPIED ZONE SETPOINTS (CLGUNOCC-SP & HTGUNOCC-SP) DURING UNOCCUPIED PERIODS. THE SUPPLY FAN WILL ONLY BE ENABLED WHEN THERE IS AN ASSOCIATED CALL FOR COOLING OR HEATING.

ECONOMIZER CONTROL:
THE BMS CONTRACTOR SHALL PROVIDE THE TITLE 24 FDD ECONOMIZER CONTROL OF THE COMMON PLENUM WITH ASSOCIATED SENSORS AND ACTUATORS FOR A FUNCTIONAL SYSTEM. THIS INCLUDES GLOBAL OUTSIDE AIR TEMP (OA-T), RETURN AIR TEMP (RA-T), DISCHARGE AIR TEMP (DA-T) AND A DAMPER ACTUATOR/COMMAND (RAD-O AND OAD-O) AND DAMPER ACTUATOR FEEDBACK (ECON-FDBK) FOR TYPICAL DRY BULB CONTROL. THE BMS WILL GENERATE THE FAULTS AS PER THE T24 CODE AND DISPLAY THEM AS AN ALARM AT THE OWS. THE FAULTS ARE TO BE 1. AIR TEMPERATURE SENSOR FAILURE/FAULT 2. NOT ECONOMIZING WHEN IT SHOULD 3. ECONOMIZING WHEN IT SHOULD NOT 4. DAMPERS NOT MODULATING 5. EXCESS OUTDOOR AIR

COOLING COIL:
THE COOLING COIL (CLGX-C) WILL BE STAGED IN SEQUENCE TO MAINTAIN THE TEMPERATURE SETPOINT INITIALLY SET AT 76 AND VARIABLE AT THE ZONE FROM 73-79.

GAS HEAT OR HEAT PUMP COIL:
THE REVERSING VALVE (REV-C) OR GAS COMMAND (HTG-C) WILL BE STAGED IN SEQUENCE TO MAINTAIN THE TEMPERATURE SETPOINT INITIALLY SET AT 66 AND VARIABLE AT THE ZONE FROM 63-69.

UNIT PROTECTION:
DISCHARGE AIR SMOKE DETECTOR (DA-SD) - DISABLES THE FAN(S) VIA A HARD WIRED SHUTDOWN CIRCUIT. SMOKE DETECTOR PROVIDED BY DIV 26 - INTERLOCKED TO CONTROLLER BY DIV 23

OCCUPIED STANDBY:
THE BMS SYSTEM SHALL MONITOR A WALL MOUNTED ZONE OCCUPANCY SENSOR (ZN-OCC). WHEN IN OCCUPIED MODE - IF THE OCC SENSORS GOES DORMANT FOR A PERIOD OF 5 MINUTES THE BSM WILL AUTOMATICALLY SET UP THE OPERATING COOLING TEMPERATURE SET POINT BY 2F AND SETBACK THE OPERATING HEATING TEMPERATURE SET POINT BY 2F. ONCE OCCUPANCY IS DETECTED THE UNIT WILL REVERT BACK TO ITS OCCUPIED SETPOINTS. THE FAN WILL REMAIN ENABLED DURING OCCUPIED STANDBY TO PROVIDE VENTILATION AIR TO THE SPACE.

CO2 VENTILLATION:
THE BMS WILL UTILIZE A ZONE CO2 SENSOR TO MONITOR SPACE CO2 VALUE. THE BMS WILL ALARM IF THE ZONE CO2 VALUE EVER RISES ABOVE 1,000 PPM. AFTER ALARMING, THE BMS WILL MODULATE THE OSA DAMPER FOR THE COMMON PLENUM OPEN 10% EVERY 5 MIN UNTIL THE ZONE CO2 SET POINT FALLS BELOW THE SET POINT OF 1,000 PPM AT WHICH POINT THE OSA DAMPER WILL REVERT BACK TO ITS DEFAULT POSITION. THIS SOO WILL BE APPLICABLE IF ANY OF THE CONNECTED SYSTEMS IS ABOVE SET POINT.

LOAD SHED PROGRAM:
THE AC UNIT WILL BE PART OF THE UTILITY LOAD SHED PROGRAM. WHENEVER THE UTILITY COMPANY SENDS THE NETWORK LEVEL COMMAND TO SHED LOAD, THE BMS WILL RESET THE ZONE COOLING SET POINT UP BY 2F WHILE MAINTAINING THE SAME RANGE FOR WARM COOL ADJUST. THIS LOAD SHED EVENT WILL CONTINUE UNTIL THE UTILITY RELEASES THE LOAD SHED EVENT COMMAND. WHEN THE UTILITY RELEASES THE LOAD SHED EVENT, THE BMS WILL RANDOMNLY SELECT 10% OF THE UNITS AND REVERT IT BACK TO THE NORMAL OCCUPIED SET POINTS. THIS WILL OCCUR EVERY 3 MIN UNTIL 100% OF THE UNITS ARE BACK AT THE NORMAL SET POINT.

DOOR STATUS MONITORING:
THE BMS WILL MONITOR THE EXTERIOR DOORS (SEE DRAWING). WHENEVER A SINGLE DOOR IS OPEN FOR 5 MIN THE BMS WILL DISABLE MECHANICAL COOLING AND HEATING RUNNING ONLY THE FAN. WHEN THE DOOR IS CLOSED, MECHANICAL COOLING AND HEATING SHALL IMMEDIATELY RETURN.

VIRUS MODE:
VIA THE USER INTERFACE, THE BMS WILL BE ABLE TO SEND A GLOBAL COMMAND TO ALL CONTROLLED ECONOMIZER DAMPER ACTUATORS AND SUPPLY FANS. IN THIS MODE THE ECONOMIZER ACTUATOR IS TO STROKE 100% OPEN TO INTRODUCE THE MAXIMUM AMOUNT OF OSA. THE SUPPLY FAN WILL BE COMMANDED ON 24/7 REGLARDLESS OF OCCUPANCY SCHEDULE. TEMPERATURE CONTROL WILL REMAIN PER THE OCCUPIED/UNOCCUPIED SETPOINTS ABOVE AND EXISTING SCHEDULE. THE VIRUS MODE WILL TAKE SECONDARY PRIORITY TO SMOKE MODE.

SMOKE MODE:
VIA THE USER INTERFACE, THE BMS WILL BE ABLE TO SEND A GLOBAL COMMAND TO ALL CONTROLLED ECONOMIZER/OSA DAMPER ACTUATORS TO STROKE 100% CLOSED AND REMOVE OSA. DURING WHAT WOULD BE CONSIDERED NORMAL OCCUPANCY, THE BMS WILL CHANGE THE SYSTEM TO GO UNOCCUPIED AND CHANGE THE UNOCCUPIED COOLING TEMPERATURE SETPOINT TO A FIXED VALUE AT 74F, THE OCCUPIED HEATING SETPOINT WILL REMAIN THE SAME AT 66F. (THIS THEN GETS THE FAN TO ENABLE/DISABLE WITH A CALL FOR HEATING AND COOLING VS BEING ENABLED DURING SCHEDULED OCCUPANCY). DURING WHAT WOULD BE CONSIDERED NORMALLY UNOCCUPIED, THE SETPOINTS WILL REMAIN THE SAME. THIS SOO WILL REMAIN ACTIVE AS LONG AS THE GLOBAL COMMAND IS ACTIVE AND WILL TAKE PRIORITY OVER VIRUS MODE.

HEATING/COOLING MANUAL PID LOOP CONTROL:
JCI WILL DISABLE AUTOMATIC PID LOOP TUNING AND STAGE COOLING/HEATING PER THE FOLLOWING LOGIC. WHEN THE PID LOOP REACHES A 5% COOLING OR HEATING DEMAND THEN STAGE ONE OF COOLING OR HEATING WILL BE ENABLED. WHEN THE PID LOOP REACHES A 95% DEMAND THEN STAGE TWO WILL BE ENABLED. WHEN THE PID LOOP DROPS BELOW 95% THE SECOND STAGE WILL BE DISABLED AND WHEN IT DROPS BELOW 5% THE FIRST STAGE WILL BE DISABLED. THE MANUFACTURES UNIT CONTROLLER WILL ENSURE MINIMUM RUN TIMES ARE MET FOR HEATING AND COOLING.

OPTIMIZED START/STOP:
JCI WILL LEVERAGE THE JCI STANDARD OPTIMIZED START/STOP LOGIC BLOCK TO PROVIDE MICRO-ADJUSTMENTS TO THE UNIT ENABLE COMMAND IN THE MORNING AND DISABLE IN THE EVENING. LEVERAGING GLOBAL OUTSIDE AIR TEMP, ZONE TEMP, ZONE SET POINT AND SCHEDULE THE BMS WILL ENABLE/DISABLE UNIT AT DIFFERENT TIMES EACH DAY TO HIT THE SETPOINTS WHEN THE SCHEDULE SWITCHES FROM OCCUPIED TO UNOCCUPIED OR VISA VERSA.

OCCUPANCY OVERRIDE BUTTON:
DURING UNOCCUPIED HOURS, THE USER IN THE SPACE CAN HIT A OVERRIDE BUTTON ON THE LOCAL THERMOSTAT. THIS WILL PUT THE UNIT INTO ITS OCCUPIED SOO FOR A USER DEFINED AMOUNT OF TIME, INITIALLY SET FOR 1 HOUR. IN THE EVENT THAT SINGLE UNIT IS OVERRIDDEN ON DURING SCHEDULED UNOCCUPIED MODE, THIS WILL ENABLE ALL THE SUPPLY FANS ON THE UNITS CONNECTED TO THE COMMON PLENUM (3 CLUSTER GROUPS). THE OVERRIDDEN UNIT WILL CONTROL OF THE OCCUPIED TEMPERATURE SETPOINTS WHILE THE UNOCCUPIED UNITS, ALTHOUGH THE FAN IS ON, WILL CONTROL FOR THE UNOCCUPIED TEMPERATURE SET POINTS.

ALARMS
THE BMS SYSTEM SHALL GENERATE AN ALARM IF:
-THE ZONE TEMPERATURE IS 6 DEGREES AWAY FROM SET POINT.
-THE FAN COMMAND DOES NOT MATCH ITS STATUS
-THE COOLING COMMAND DOES NOT MATCH ITS STATUS

ADDITIONAL POINTS MONITORED BY THE FMS:
SUPPLY FAN AMPERAGE (SF-A)
DISCHARGE AIR TEMPERATURE (DA-T)
COMPRESSOR AMPERAGE (COMP-A)
ZONE CO2 (ZN-CO2)
ZONE OCCUPANCY (ZN-OCC)

SPLIT SYSTEM GAS FURNACE

1 M6.0.2

SCALE : NONE

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DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA

MM/ RL	230701.00
PM - DESIGN TEAM	PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL CONTROLS

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No. 23-145
Date: Issue Date 11/08/2023

DRAWING NO.
M6.0.2

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STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.		
Project Name: California MS Campus Renewal-Gym	**Report Page:**	**(Page 1 of 21)**
Project Address: 1600 Vallejo Way	**Date Prepared:**	11/3/2023

A. GENERAL INFORMATION

01	Project Location (city)	Sacramento, CA 95818	04	Total Conditioned Floor Area	3409
02	Climate Zone	12	05	Total Unconditioned Floor Area	31
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

● Office ★ Support Areas ★ All Other Occupancies

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01		02		03	
Air System(s)		Wet System Components		Dry System Components	
☒	Heating Air System	☐	Water Economizer	☒	Air Economizer
☒	Cooling Air System	☐	Pumps	☐	Electric Resistance Heat
	Mechanical Controls	☐	System Piping	☒	Fan Systems
☒	Mechanical Controls (existing to remain, altered or new)	☐	Cooling Towers	☒	Ductwork (existing to remain, altered or new)
		☐	Chillers	☒	Ventilation
		☐	Boilers	☐	Zonal Systems/ Terminal Boxes

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: California MS Campus Renewal-Gym	**Report Page:**	**(Page 2 of 21)**
	Date Prepared:	11/3/2023

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4i	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	*Compliance Results*
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND		COMPLIES
Mandatory Measures Compliance (See Table Q for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
AC-17	1	Single zone	New/ Addition		☐
SHPI-G1	1	Single zone	New/ Addition		☐
AC-18	1	Single zone	New/ Addition		☐
SHPI-G2	1	Single zone	New/ Addition		☐

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (Includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
				Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]		Cooling Output[2,3]		Load Calculations[3,4]		
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
AC-17	Furnace + AC	AC, air cooled, single pkg + warm-air central furnace, gas-fired	Yes	120	120	0	88.8	72	103.87	90.86
SHPI-G1	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	15.27	22	0	15.48	13.5	30.1	28.75
AC-18	Furnace + AC	AC, air cooled, single pkg + warm-air central furnace, gas-fired	Yes	120	120	0	109.14	90	126.65	105
SHPI-G2	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	19.43	28	0	19.67	18	17.7	16.97

[1]FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(b) and 170.2(c)1. Healthcare facilities are exempted.
[2]It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
[4] Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
		Heating Mode				Cooling Mode		
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
AC-17	>=65,000 and <135,000		AFUE	0.8	0.81	EER IEER	11.0 14.6	12.5 12.9
SHPI-G1	<65,000		HSPF2	7.5	9	SEER2	14.3	20.2
AC-18	>=65,000 and <135,000		AFUE	0.8	0.81	EER IEER	11.0 14.6	12.5 12.9
SHPI-G2	<65,000		HSPF2	7.5	9	SEER2	14.3	20.2

G. PUMPS

This section does not apply to this project.

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H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	AC-17	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,270	Site Elevation	84	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11
Fan Name or Item Tag	Fan Type	Qty	Component			Airflow through Component (%)		Water Gauge (w.g)	Allowance Component Allowance	Allowance Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method			Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away			2,270			527		Manufacturer provided				1.38
			MERV 13-16 Filter upstream of thermal conditioning equipment			2,270			316						
			Gas heat			2,270			132						
			Hydronic/DX cooling coil or heat pump coil			2,270			316						
			Economizer Return Damper			2,270			104						
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)							Fan System Allowance (kW)[3]	1.39		Fan System Electrical Output (kW)		1.38

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	SHPI-G1	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	265	Site Elevation	84	Economizer	NA: <=33 kBtu/h cooling
01	02	03	04			05		06	07	08	09			10	11
Fan Name or Item Tag	Fan Type	Qty	Component			Airflow through Component (%)		Water Gauge (w.g)	Allowance Component Allowance	Allowance Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method			Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away			265			61		Manufacturer provided				0.14
			MERV 13-16 Filter upstream of thermal conditioning equipment			265			37						
			Hydronic/DX cooling coil or heat pump coil			265			37						
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)							Fan System Allowance (kW)[3]	1		Fan System Electrical Output (kW)		0.14

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	AC-18	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,670	Site Elevation	84	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11
Fan Name or Item Tag	Fan Type	Qty	Component			Airflow through Component (%)		Water Gauge (w.g)	Allowance Component Allowance	Allowance Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method			Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away			2,670			619		Manufacturer provided				1.64
			MERV 13-16 Filter upstream of thermal conditioning equipment			2,670			371						
			Gas heat			2,670			155						
			Hydronic/DX cooling coil or heat pump coil			2,670			371						
			Economizer Return Damper			2,670			123						
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)							Fan System Allowance (kW)[3]	1.64		Fan System Electrical Output (kW)		1.64

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	SHPI-G2	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	635	Site Elevation	84	Economizer	NA: <=33 kBtu/h cooling
01	02	03	04			05		06	07	08	09			10	11
Fan Name or Item Tag	Fan Type	Qty	Component			Airflow through Component (%)		Water Gauge (w.g)	Allowance Component Allowance	Allowance Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method			Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away			635			147		Manufacturer provided				0.15
			MERV 13-16 Filter upstream of thermal conditioning equipment			635			88						
			Hydronic/DX cooling coil or heat pump coil			635			88						
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)							Fan System Allowance (kW)[3]	1		Fan System Electrical Output (kW)		0.15

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35
[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
[3] Fan system allowance includes fan system base allowance.
[4] Filter pressure loss can only be counted once per fan system.
[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..

H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

01	02	03	04	05	06	07	08	09	10	11

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H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(q) & 170.2(c)4O	Exhaust Air Heat Recovery 140.4(s) & 170.2(c)4O	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass

Fan Energy Index (FEI)

01	02	03
Name or Item Tag	FEI Exception	FEI
AC-17	Embedded Fan <5HP or <4.1kW	
SHPI-G1	Embedded Fan <5HP or <4.1kW	
AC-18	Embedded Fan <5HP or <4.1kW	
SHPI-G2	Embedded Fan <5HP or <4.1kW	

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I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4I, or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2	Shut-Off Controls 120.2(e) & 160.3(a)2D	Isolation Zone Controls 120.2(g) & 160.3(a)2F	Demand Response 110.12 120.2(b) & 160.3(a)2B	Supply Air Temp. Reset 140.4(f) & 170.2(c)4D	Window Interlocks per 140.4(n) & 170.2(c)4D
AC-17	Single zone	<= 25,000 ft²	EMCS	EMCS	NA: Serves < 25k ft²	EMCS	Included	NA: Alteration Project
SHPI-G1	Single zone	<= 25,000 ft²	EMCS	EMCS	NA: Serves < 25k ft²	EMCS	Included	NA: Alteration Project
AC-18	Single zone	<= 25,000 ft²	EMCS	EMCS	NA: Serves < 25k ft²	EMCS	Included	NA: Alteration Project
SHPI-G2	Single zone	<= 25,000 ft²	EMCS	EMCS	NA: Serves < 25k ft²	EMCS	Included	NA: Alteration Project

[1]FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(n)3B 140.4(g) and 140.4(q) for all nonresidential and hotel/motel and dt24refnolink/160.2, 160.3(a)3D, 170.2(q)4N, 170.2(q)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☐	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☒	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
	☐	
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.

Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems

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J. VENTILATION AND INDOOR AIR QUALITY

04		05			06		07	
System Name	AC-17	System Design OA CFM Airflow[1]		634	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[1]	Provided
08	09	10	11	12	13	14	15	16
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[1] & 160.2(c)3				Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[1] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower heads/ toilets	# of people[1]	Required Min OA CFM	Required Min CFM	Provided per Design CFM	
G9 Boys Locker Room	Locker room (athletic facility)	1009			0	504.5	0	DCV: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G14 Boys RR	Toilet, public	117			0	0	0	DCV: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G13 Hall	Corridor	76			11.4	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G16 Utility	All others	78			11.7	0	0	DCV: Provided per §120.1(d)4
								Occ Sensor: NA: Not required space type
17	Total System Required Min OA CFM				23	18	Ventilation for this System Complies?	Yes

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J. VENTILATION AND INDOOR AIR QUALITY

04		05			06		07	
System Name	SHPI-G1	System Design OA CFM Airflow[1]		50	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[1]	Provided
08	09	10	11	12	13	14	15	16
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[1] & 160.2(c)3				Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[1] 160.2(c)5D 160.2(c)5E	
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower heads/ toilets	# of people[1]	Required Min OA CFM	Required Min CFM	Provided per Design CFM	
G10 Office	Office space	235			35.2	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G12 RR	Toilet, public	57			0	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G11 Storage	Corridor	44			6.6	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
17	Total System Required Min OA CFM				42	18	Ventilation for this System Complies?	Yes

04		05			06		07	
System Name	AC-18	System Design OA CFM Airflow[1]		717	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[1]	Provided
08	09	10	11	12	13	14	15	16

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DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL T24 DOCUMENTATION

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
Date: Issue Date 11/08/2023
DRAWING NO.: **M7.0.1**

23-145 California Middle School Renewal_ARCH_detached.rvt
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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3				Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM	
GS Girls RR	Toilet, public	230			0	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G4 Hall	Corridor	99			14.8	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G3 Equip Storage	Corridor	191			28.6	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G6 Girls Locker Room	Locker room (athletic facility)	1065			0	532.5	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
17	Total System Required Min OA CFM				44	18	Ventilation for this System Complies?	Yes

04	05			06	07
System Name	SHPI-G2	System Design OA CFM Airflow[1]	31	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2] Provided
08	09	10	11	12	13	14	15	16

J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3				Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM	
G7 Office	Office space	153			23	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
G8 RR	Toilet, public	55			0	0	0	DCV: NA: Not required per §120.1(d)3
								Occ Sensor: NA: Not required space type
17	Total System Required Min OA CFM				23	18	Ventilation for this System Complies?	Yes

[1] *FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*
[2] *Air filtration requirements apply to the following three system types per 120.1(c)14: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*
[3] *Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*
[4] *See Standards Tables 120.1-A and 120.1-B.*
[5] *For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.*
[6] *120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft² or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).*

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	AC-17	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No
		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18		All ductwork is an extension of an existing duct system
19		Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-8	Duct Insulation R-value
22		
23		

The answers to the questions below apply to the following duct systems:	SHPI-G1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18		All ductwork is an extension of an existing duct system
19		Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-8	Duct Insulation R-value
22		
23		

The answers to the questions below apply to the following duct systems:	AC-18	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18		All ductwork is an extension of an existing duct system
19		Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-8	Duct Insulation R-value
22		
23		

The answers to the questions below apply to the following duct systems:	SHPI-G2	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft² of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18		All ductwork is an extension of an existing duct system
19		Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-8	Duct Insulation R-value
22		
23		

M. COOLING TOWERS

This section does not apply to this project.

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title
NRCI-MCH-01-E - Must be submitted for all buildings

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	AC-17 ; SHPI G1; AC-18; SHPI G2;
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to 'Yes'. If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	SHPI G1; SHPI G2;
NRCA-MCH-05-A - Air Economizer Controls	AC-17 ; AC-18;
NRCA-MCH-06-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to 120.1(c)3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO_2) concentration setpoints.	AC-17 ;
NRCA-MCH-07-A Supply Fan Variable Flow Controls	AC-17 ; AC-18;
NRCA-MCH-11-A Automatic Demand Shed Controls	AC-17 ; SHPI G1; AC-18; SHPI G2;
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	AC-17 ; AC-18;
NRCA-MCH-18-A Energy Management Control Systems	AC-17 ; SHPI G1; AC-18; SHPI G2;

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

		01	02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes	Plan sheet or construction document location	M-Sheets

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Aaron Wintersmith	Documentation Author Signature:
Company: Capital Engineering Consultants Inc.	Signature Date:
Address: 11020 Sun Center Dr #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.

Responsible Designer Name: Kevin Stillman	Responsible Designer Signature:
Company: Capital Engineering Consultants, Inc	Date Signed: 2023-11-03
Address: 11020 Sun Center Dr., Suite 100	License: M 33498
City/State/Zip: Rancho Cordova CA 95670	Phone: 916-851-3500

JK ARCHITECTURE ENGINEERING
AUBURN | TAHOE CITY | RENO | SAN JOSE
WWW.JKAEDESIGN.COM

SEAL
REGISTERED PROFESSIONAL ENGINEER KEVIN D. STILLMAN M 33498 Exp. 9/30/24 MECHANICAL STATE OF CALIFORNIA
DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
MECHANICAL T24 DOCUMENTATION

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No. 23-145
Date: Issue Date 11/08/2023
DRAWING NO.
M7.0.2

23-145 California Middle School Renewal_ARCH_detached.rvt
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PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABC	ABOVE CEILING
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AF , BF	ABOVE FLOOR , BELOW FLOOR
LV	AD , AP	ACCESS DOOR , ACCESS PANEL
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
or		BRANCH - SIDE CONNECTION
	BFV	BUTTERFLY VALVE
	CBV	CALIBRATED BALANCE VALVE
	COP	CAP ON END OF PIPE
	CKV	CHECK VALVE
	CP	CIRCULATING PUMP
	CW	COLD WATER
	CWD	COLD WATER DROP
	CWR	COLD WATER RISE
CD	CD	CONDENSATE DRAIN LINE
CO CO	CO	CLEANOUT
	(E)	EXISTING TO BE REMOVED
FU		FIXTURE UNIT
	FC	FLEXIBLE CONNECTOR
Ø	CO	CLEANOUT
Ø	FD	FLOOR DRAIN
	FS	FLOOR SINK
		FLOW IN DIRECTION OF ARROW
FV , FT		FLUSH VALVE , FLUSH TANK
(FA) , (TA)		FROM ABOVE , TO ABOVE
(FB) , (TB)		FROM BELOW , TO BELOW
	GCK	GAGE COCK
	GSCK , PC	GAS COCK , PLUG COCK
	G	GAS - LOW PRESSURE
	GV	GATE VALVE
	GV	GREASE VENT
	GPM	GALLONS PER MINUTE
	GLV	GLOBE VALVE
Ø	CO	CLEANOUT
	HB	HOSE BIBB

PLUMBING LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	HW	HOT WATER PIPING
	HWR	HOT WATER PIPING RISE
	HWRET	HOT WATER RETURN
	HWRET(R)	HOT WATER RETURN RISE
	HWRET(D)	HOT WATER RETURN DROP
	(N) , (E)	NEW , EXISTING
	(NTS)	NOT TO SCALE
OF	OF	OVERFLOW RAINWATER LEADER
	OFD	OVERFLOW DRAIN
	AN	PIPE ANCHOR
	POC	POINT OF CONNECTION
P & TRV	P & TRV	PRESSURE & TEMPERATURE RELIEF VALVE PIPING
	PRV	PRESSURE REDUCING VALVE
RWL	RWL	RAINWATER LEADER
	RET	RETURN
	RE , IE	RIM ELEVATION , INVERT ELEVATION
	(R) , (D)	RISE , DROP
		RISER DOWN (ELBOW)
		RISER UP (ELBOW)
	R , D	RISE OR DROP
	RD	ROOF DRAIN
	S, W	SOIL, WASTE OR SANITARY SEWER ABOVE FLOOR
	S, W	SOIL, WASTE OR SANITARY SEWER BELOW FLOOR
		SOLENOID VALVE WITH MOTOR ACTUATOR
SD	SD	STORM DRAIN
	TP	TRAP PRIMER
TP		TRAP PRIMER PIPING
	TYP	TYPICAL
	UN	UNION OR FLANGE
	VB	VALVE IN VALVE BOX (VALVE TYPE SYMBOL AS REQUIRED FOR VALVE TYPE USED)
	V	VENT PIPING
V , VR , VTR		VENT , VENT RISER , VENT THRU ROOF
	WCO	WALL CLEANOUT
	WHA	WATER HAMMER ARRESTER

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☒ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☒ E☐ OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM #) # 0043-13.

CALIFORNIA ENERGY CODE ACCEPTANCE TESTING

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT:
HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE
THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

PLUMBING GENERAL NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS AND EXACT LOCATIONS OF PLUMBING FIXTURES.
2. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO TRENCHING OR INSTALLING PIPING AND ASSOCIATED ITEMS.
3. COORDINATE LOCATION OF PIPING WITH OTHER TRADES ON THIS PROJECT.
4. CONCEAL ALL PIPING IN WALL FURRING, PARTITIONS, ETC., EXCEPT AT MECHANICAL ROOMS.
5. PROVIDE BALL VALVES ON WATER PIPE BRANCHES TO EQUIPMENT AND PLUMBING FIXTURES. PROVIDE ACCESS PANELS WHEN LOCATED IN FURRED SPACES OR ABOVE NON-REMOVABLE CEILINGS. ALL VALVES SHALL BE FULL LINE SIZE.
6. SEAL ALL PIPE PENETRATIONS THRU FLOORS WATERTIGHT.
7. PROVIDE GAS SHUT-OFF VALVE, UNION AND DIRT LEG AT EACH GAS CONNECTION TO MECHANICAL EQUIPMENT.
8. DOMESTIC HOT WATER HEATERS SHALL BE SEISMICALLY SECURED TO BUILDING STRUCTURE WITH ADEQUATE STRUCTURAL SUPPORT WITH ANCHOR BOLTS.
9. PRIOR TO ANY SOLENOID VALVE, QUICK CLOSING VALVE, ETC. PROVIDE AND INSTALL SHOCK ABSORBER OF REQUIRED SIZE.
10. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE-STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL OF THE ENFORCING AGENCY.
11. PENETRATION OF PIPES, CONDUIT, ETC., IN WALLS AND/OR FLOORS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE STATE FIRE MARSHAL.
12. OFFSET VENTS THRU ROOF 10 FEET MINIMUM FROM AIR INTAKES AND 4 FEET FROM OUTSIDE WALLS.
13. CONDENSATE DRAIN LINE CONNECTIONS TO MECHANICAL UNITS SHALL INCLUDE MINIMUM 4" DEEP "P" TRAP AND CLEANOUTS AT ALL OFFSETS.
14. ALL MECHANICAL UNITS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY. SEE "M" SHEETS.
15. OFFSET ALL RISERS AND DROPS TO AVOID PENETRATIONS AT TOP PLATES.
16. FIELD VERIFY EXACT SIZES, LOCATIONS AND ELEVATIONS OF ALL PIPING CONNECTIONS, OTHER WORK, ETC., PRIOR TO TRENCHING OR INSTALLING OF ANY NEW WORK.
17. BUILDING SEWER, WATER AND STORM DRAIN RUN APPROXIMATELY 5' MIN. FROM BUILDING, SECTION 22 10 00 APPLIES TO UTILITIES IN THE BUILDING, UNDER THE BUILDING AND TO 5' OUTSIDE THE BUILDING, BEYOND THE 5' OUTSIDE OF THE BUILDING SECTION 02700 GOVERNS.
18. **ALL FLOOR MOUNTED FIXTURES, CLEAN OUTS & FLOOR DRAINS TO BE FLUSH MOUNTED WITH 2% MAX. SLOPE.**
19. ALL FLOOR DRAINS LOCATED IN CERAMIC TILE SHALL HAVE A SQUARE TOP.
20. CONCRETE ANCHORS SHALL BE HILTI, KWIK BOLT KB1 3/8" DIA. WITH 2-1/2" MIN. EMBEDMENT. ANCHORS SHALL BE TESTED PER IR 26-6, INTERPRETATIVE REGULATION FOR EXPANSION ANCHORS IN HARDENED CONCRETE. ANCHOR TEST LOAD IS 968 LBS. TENSION.
21. BUILDING SEWER, WATER AND STORM DRAIN RUN APPROXIMATELY 5' MIN. FROM BUILDING, SECTION 22 10 00 APPLIES TO UTILITIES IN THE BUILDING, UNDER THE BUILDING AND TO 5' OUTSIDE THE BUILDING, BEYOND THE 5' OUTSIDE OF THE BUILDING SECTION 02700 GOVERNS.
22. PROVIDE AND INSTALL 20 GAGE GALV. SHT. MTL. OVERFLOW PAN UNDER ENTIRE UNIT AND COIL. PAN SHALL EXTEND A MIN. OF 6" PAST ALL SIDES OF UNIT AND COIL. SIDES SHALL EXTEND UP TWO INCHES AND SHALL HAVE EDGES TURNED UNDER. ALL SEAMS SHALL BE CONTINUOUSLY WELDED. PROVIDE ¾"x142" DRAIN OUTLET IN SIDE OF PAN. SLOPE PAN BACK TO OUTLET. NOTE: SECONDARY DRAIN FROM FURNACE COOLING COIL SHALL DISCHARGE TO OVERFLOW DRAIN PAN.

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SEAL

REGISTERED PROFESSIONAL ENGINEER — M 33498 — Exp. 9/30/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
PLUMBING LEGEND & NOTES

Drawn By: Author
Checked By: Checker

NO.	DATE	ISSUE

Project No.: 23-145
Date: Issue Date 11/08/2023

DRAWING NO.
P0.0.1

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PLUMBING FIXTURE SPECIFICATION & CONNECTION SCHEDULE

ADA	SYMBOL	FIXTURE	FIXTURE MANUFACTURER AND MODEL No.	FAUCET OR VALVE MANUFACTURER AND MODEL No.	TRIM MANUFACTURER AND MODEL No.	REMARKS	VENT	WASTE		COLD WATER		HOT WATER	
								BRANCH	OUTLET	BRANCH	OUTLET	BRANCH	OUTLET
	WC-1	**WATER CLOSET** WALL MOUNTED FLUSH VALVE STD/ACCESSIBLE	"KOHLER" KINGSTON 1.28, NO. K84325-SS-0, WALL HUNG, VITREOUS CHINA, ELONGATED, SIPHON JET ACTION, 1-1/2" TOP SPUD. 1.28 GPF	"SLOAN" ROYAL 111-1.28SG, ADA COMPLIANT, 1.28 GPF (MANUAL)	SEAT: "CHURCH" MODEL 295SSCT OR "BEMIS" MODEL 1955SSCT. PROVIDE WITH SELF- SUSTAINING CONCEALED CHECK HINGES, ONE PIECE STAINLESS STEEL POST HINGES, WHITE COLOR. CARRIER: "JAY R. SMITH" 100 OR 200 SERIES OR 500# RATED "ZURN" Z1201 AND Z1202 SERIES PROVIDE REAR SUPPORT LUG AND ANCHOR FOOT ASSEMBLY.	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. WHERE USED FOR CBC ACCESSIBLE WATER CLOSETS, THE FLUSH VALVE HANDLE SHALL BE MOUNTED ON THE WIDE SIDE OF THE WATER CLOSET ENCLOSURE.	2"	4"	4"	1-1/4"	1"	--	--
	WC-2	**WATER CLOSET** FLOOR MOUNTED FLUSH VALVE ACCESSIBLE	"KOHLER" HIGHCLIFF NO. K-96057-SS, FLOOR MOUNTED, ELONGATED, SIPHON JET ACTION 1-1/2" TOP SPUD, 16-7/8" RIM HEIGHT. 1.28 GPF ANTIMICROBIAL	"SLOAN" ROYAL 111-1.28SG, ADA COMPLIANT, 1.28 GPF (MANUAL)	SEAT: "CHURCH" MODEL 295SSCT OR "BEMIS" MODEL 1955SSCT. PROVIDE WITH SELF- SUSTAINING CONCEALED CHECK HINGES, ONE PIECE STAINLESS STEEL POST HINGES, WHITE COLOR.	WHERE USED FOR CBC ACCESSIBLE WATER CLOSETS, THE FLUSH VALVE HANDLE SHALL BE MOUNTED ON THE WIDE SIDE OF THE WATER CLOSET ENCLOSURE.	2"	4"	4"	1-1/4"	1"	--	--
	UR-1	**URINAL** WALL MOUNTED FLUSH VALVE ACCESSIBLE	"KOHLER" BARDON 1/8 GPF NO. K-4991-ET WALL HUNG, VITREOUS CHINA, SIPHON JET ACTION. 3/4" TOP SPUD, 2" THREADED OUTLET. .125 GPF WEIGHT = 51 LBS.	"SLOAN" ROYAL 186-0.125-SG, 0.125 GPF (MANUAL)	CARRIER: "JAY R. SMITH" 637 SERIES OR "ZURN" Z1222	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS.	1-1/2"	2"	2"	1"	3/4"	--	--
	L-1	**LAVATORY** WALL MOUNTED COLD WATER ONLY STD/ACCESSIBLE	"KOHLER" KINGSTON NO. K-2005 WALL HUNG, VITREOUS CHINA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS, FRONT OVERFLOW, CONCEALED ARM RECESS, 4" CENTERS, 21-1/4" x 18-1/8" D SHAPED BOWL.	"CHICAGO" 857-E2805-665PSHAB TAPERED HANDLE FAUCET, PUSH-BUTTON TYPE, MODEL E2805 VANDAL RESISTANT ECONO-FLO SPRAY OUTLET, 0.5 GPM FLOW RESTRICTOR. ADA COMPLIANT	ADA COMPLIANT. LAVATORY GRID DRAIN WITH 1-1/4" OFFSET TAILPIECE, INTEGRAL PERFORATED GRID NO. 7723.018, CHROME FINISH. MOUNT P-TRAP FLUSH TO WALL. CARRIER: "JAY R. SMITH" 0700 OR ZURN Z1231	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE CONCEALED ARMS AND FLOOR SUPPORT, WITH FEET OF SUPPORT SECURELY ANCHORED TO FLOOR. IN ADDITION ANCHOR TOP OF SUPPORT TO WALL CONSTRUCTION.	1-1/2"	2"	1-1/2"	3/4"	1/2"	-	-
	L-2	**LAVATORY** WALL MOUNTED HOT AND COLD WATER STD/ACCESSIBLE	"KOHLER" KINGSTON NO. K-2005 WALL HUNG, VITREOUS CHINA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS, FRONT OVERFLOW, CONCEALED ARM RECESS, 4" CENTERS, 21-1/4" x 18-1/8" D SHAPED BOWL.	"CHICAGO" 3600-E2805AB FAUCET, PUSH LEVER WITH AERATOR WITH 0.5 GPM FLOW RATE. WITH VANDAL RESISTANT ECONO-FLO SPRAY OUTLET. WITH IPS CONNECTIONS, ADA COMPLIANT.	ADA COMPLIANT. LAVATORY GRID DRAIN WITH 1-1/4" OFFSET TAILPIECE, INTEGRAL PERFORATED GRID NO. 7723.018, CHROME FINISH. MOUNT P-TRAP FLUSH TO WALL. CARRIER: "JAY R. SMITH" 0700 OR ZURN Z1231	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE CONCEALED ARMS AND FLOOR SUPPORT, WITH FEET OF SUPPORT SECURELY ANCHORED TO FLOOR. IN ADDITION ANCHOR TOP OF SUPPORT TO WALL CONSTRUCTION.	1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	S-1	**SINK** COUNTER MOUNTED HOT AND COLD WATER ADMIN/CONF./NURSE	"ELKAY" MODEL LRADQ2219-65-BP, 19" FRONT TO BACK, 22" WIDE x 6-1/2" DEPTH OVERALL. 18 GAUGE STAINLESS STEEL, LEDGE BACK WITH SELF-RIM. PROVIDE SINGLE FAUCET HOLE. PROVIDE REAR DRAIN LOCATION. PROVIDE FACTORY ADHERED VANDAL RESISTANT BACKING PLATE AT FAUCET, AND SLOT AT FAUCET FOR VANDAL RESISTANT PINS.	"CHICAGO" ECAST MODEL 50-E35VPABCP GOOSENECK FAUCET, 1.5 GPM VANDAL RESISTANT LAMINAR FLOW AERATOR AND RIGID/SWING FAUCET. PROVIDE VANDAL RESISTANT PIN IN FAUCET, ARRANGED TO MATE WITH SLOT IN SINK.	"ELKAY" MODEL LKAD35, OFFSET CRUMB CUP STRAINER WITH REMOVABLE BASKET AND P-TRAP. INSTALL P-TRAP FLUSH TO WALL.		1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	BF-1	**BOTTLE FILLER** WALL MOUNTED STD/ACCESSIBLE	"HAWS" 2000S, DURABLE ABS PLASTIC AND 16 GAUGE, TYPE 304 SS WITH SATIN FINISH. ELECTRIC SENSOR, WALL MOUNTED. MOUNTING FRAME FOR IN-WALL INSTALLATION. 110 V, 60 HZ, AND 0.1 AMP DRAW WHEN IN USE.	INTEGRAL	WITHOUT P-TRAP, PROVIDE TRAP IN WALL.	SUPPORT SYSTEM: MOUNTING FRAME FOR IN-WALL INSTALLATION. SET AT HEIGHT INDICATED ON ARCH DRAWINGS.	1-1/2"	2"	1-1/2"	3/4"	1/2"	-	-
	FS	**FLOOR SINK**	KITCHEN - ZURN MODEL Z-1751-KC, OR EQUAL, 12 INCH x 12 INCH x 8 INCH DEEP, 14 GA. TYPE 304 STAINLESS STEEL WITH HALF GRATE, SEDIMENT BUCKET, PROVIDE FUSION JOINT P-TRAP TO MATCH PIPING SYSTEM. OTHER APPROVED EQUAL MANUFACTURERS INCLUDE: JAY R. SMITH, WATTS & MIFAB.	PROVIDE SEEPAGE PAN AND CLAMPING COLLAR.		COORDINATE & PROVIDE GRATES AS **REQUIRED PER KITCHEN DRAWINGS**	3"	3"	3"	-	-	-	-

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MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
PLUMBING FIXTURE SCHEDULE

NO.	DATE	ISSUE

Drawn By: Author
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Project No.: 23-145
Date: Issue Date 11/08/2023
DRAWING NO.
P0.0.2

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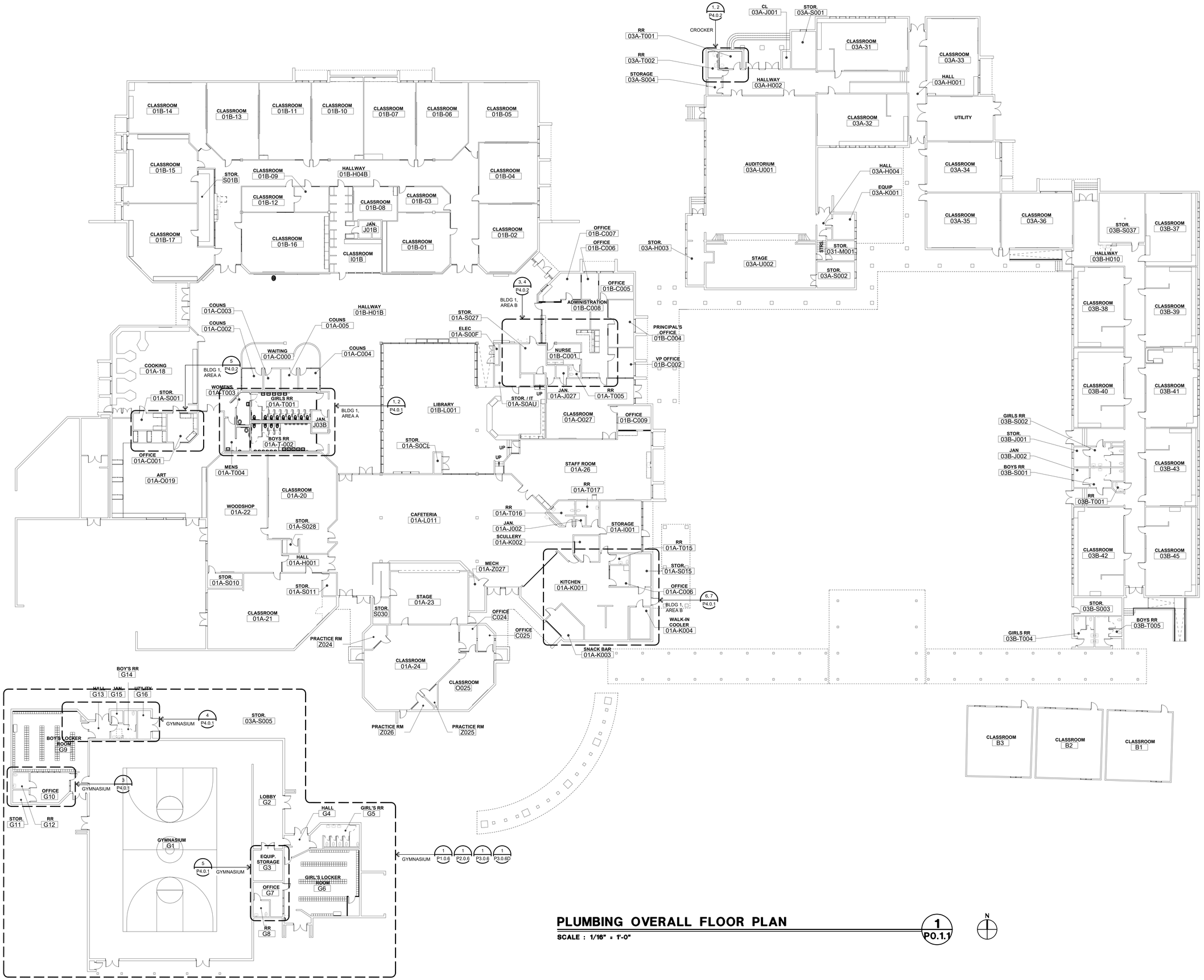

PLUMBING OVERALL FLOOR PLAN

SCALE : 1/16" = 1'-0"

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Drawing Title
PLUMBING OVERALL FLOOR PLAN

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Project No.: 23-145
Date: Issue Date 11/08/2023

DRAWING NO.
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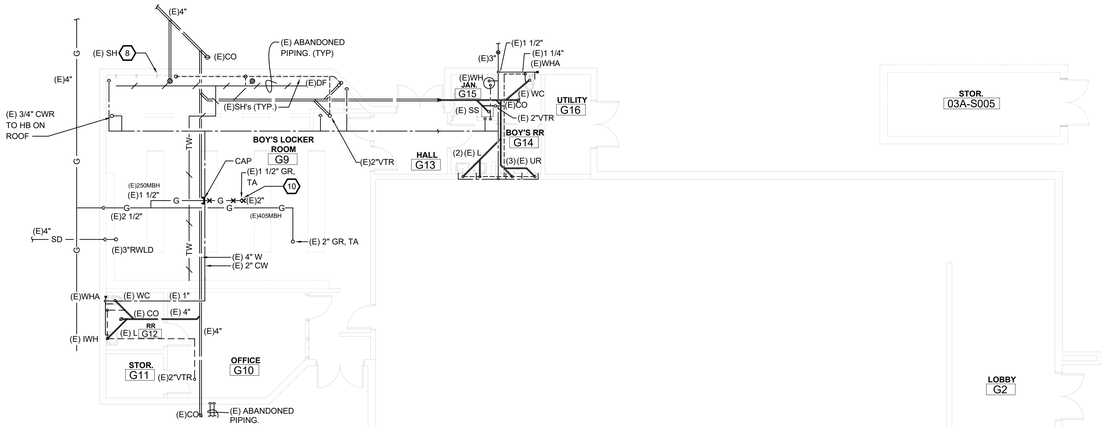

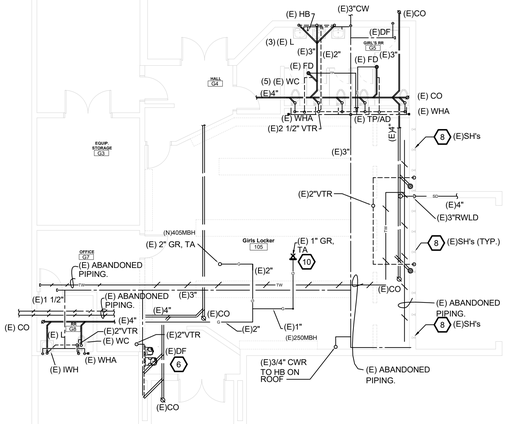

PLUMBING DEMOLITION PLAN - GYMNASIUM

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

1 P1.0.6

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DEMOLITION GENERAL NOTES:

1. NOT ALL NOTES MAY APPLY TO EACH SHEET.

DEMOLITION SHEET NOTES:

1. REMOVE WATER CLOSET (WC), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
2. REMOVE URINAL (UR), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
3. REMOVE LAVATORY (L) AND WALL CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE(S) AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE(S).
4. REMOVE LAVATORY (L) AND WALL CARRIER. CUT AND CAP WASTE TO BEHIND ARCHITECTURAL SURFACES. CUT AND CAP VENT, AND HW AND CW TO BRANCH TAKE OFF ABOVE CEILING.
5. REMOVE SERVICE SINK (SS). DISCONNECT WASTE, VENT AND WATER PIPING. PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE.
6. REMOVE SHOWER, SHOWER HEAD, TRIM AND PIPING COMPONENTS BACK TO BRANCH TAKE OFF.
7. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. PREPARE FOR NEW SINK AND FOR RECONNECTION TO PIPING SERVICES.
8. REMOVE SHOWER HEAD AND CAP PIPING AT BRANCH TAKE OFF.
   REMOVE SHOWER VALVE AND CAP PIPING AT BRANCH TAKE OFF.
   PATCH ARCHITECTURAL SURFACE(S) PER THE ARCHITECTURAL PLANS.
   CAP WASTE PIPING BELOW FINISHED FLOOR.
9. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. CAP PIPING AT BRANCH TAKE OFF AND TO BEHIND ARCHITECTURAL SURFACES.
10. DISCONNECT GAS TO BELOW ROOF DECK AND PREPARE FOR RECONNECTION. DISCONNECT AND REMOVE CONDENSATE PIPING AS NOTED AND PREPARE FOR CONNECTION TO NEW EQUIPMENT.
11. REMOVE URINAL (UR) AND FIXTURE CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO BRANCH TAKE OFF.
12. DISCONNECT AND CAP FOR FUTURE CONNECTION OF THE PIPING SERVICES TO EQUIPMENT.
13. REMOVE FLOOR SINK. DISCONNECT WASTE, VENT, TRAP PRIMER FROM FLOOR SINK.

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Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
PLUMBING DEMOLITION PLAN - GYMNASIUM

NO.	DATE	ISSUE

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Project No.: 23-145
Date: Issue Date 11/08/2023
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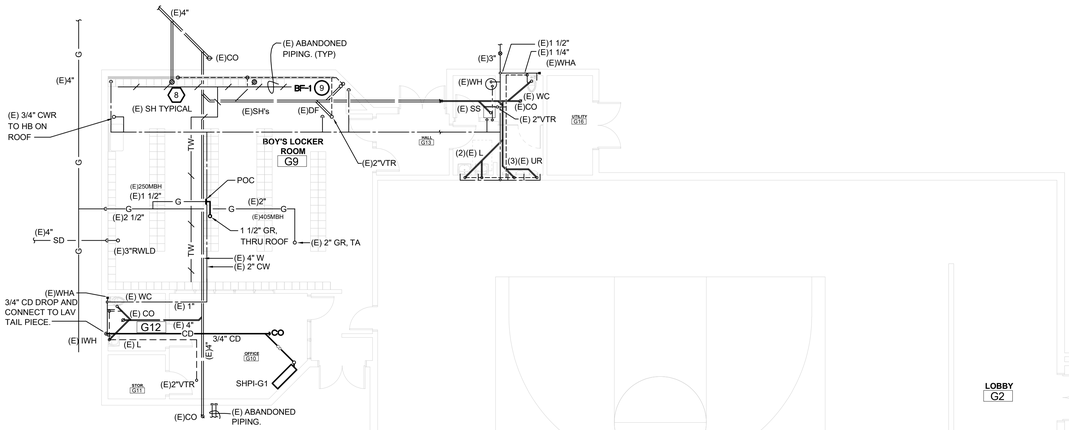

PLUMBING FLOOR PLAN - GYMNASIUM

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

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P2.0.6

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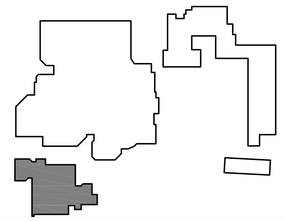

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CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
PLUMBING
FLOOR PLAN - GYMNASIUM

NO.	DATE	ISSUE

Drawn By: Author
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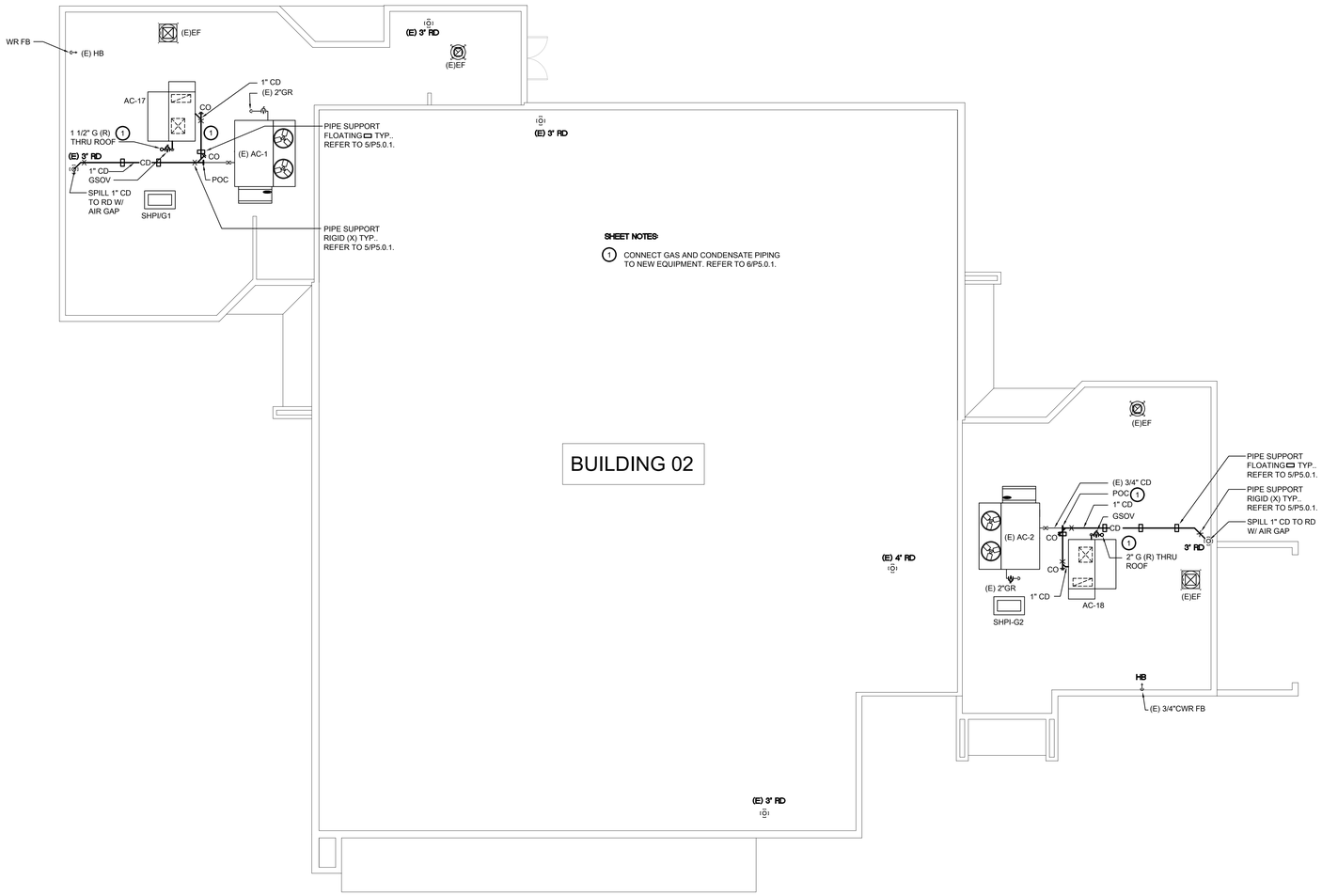
Date: Issue Date 11/08/2023
DRAWING NO.
P2.0.6



PLUMBING ROOF PLAN - GYMNASIUM

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

1 / P3.0.6

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PLUMBING
ROOF PLAN - GYMNASIUM

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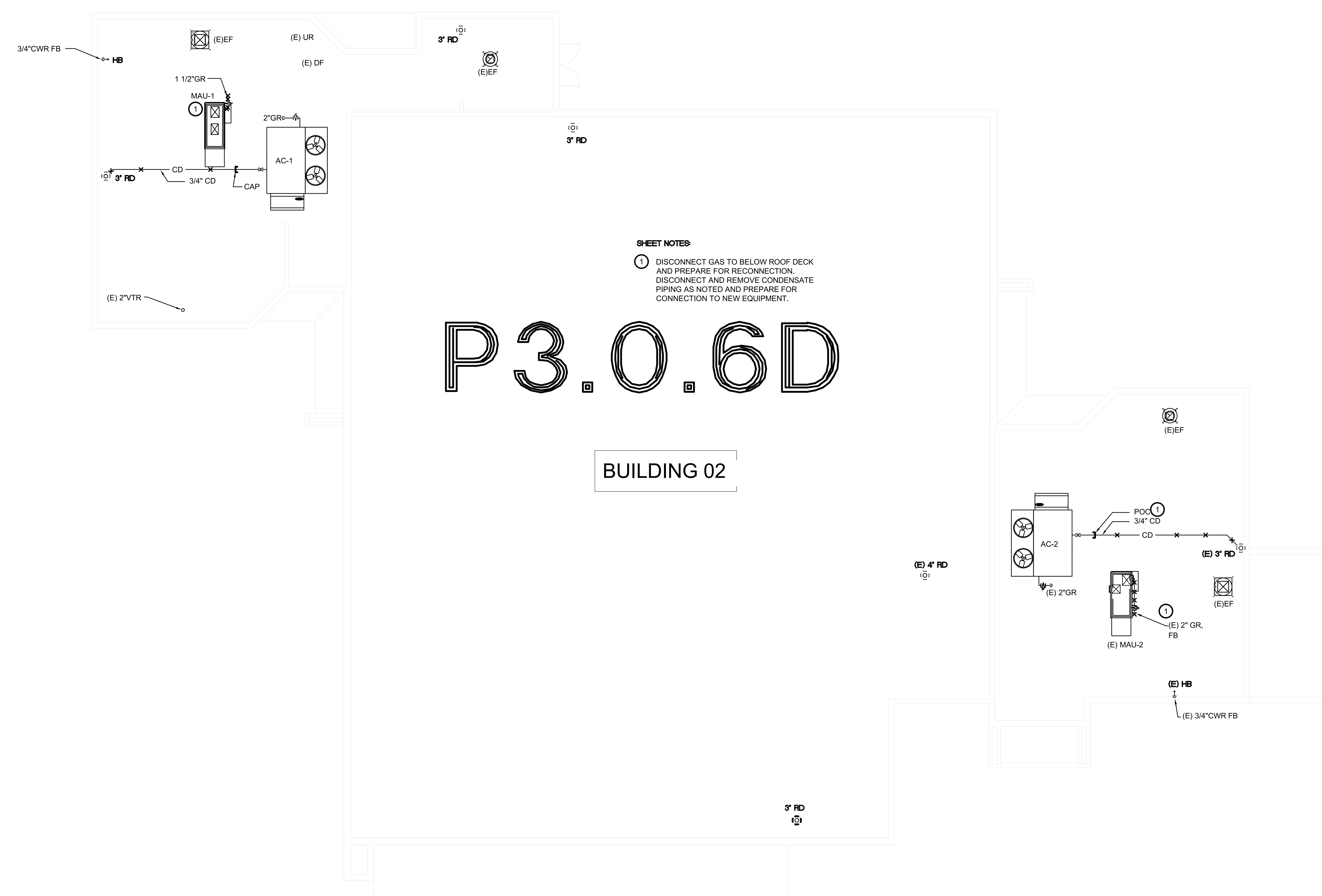

SHEET NOTES:

1. DISCONNECT GAS TO BELOW ROOF DECK AND PREPARE FOR RECONNECTION. DISCONNECT AND REMOVE CONDENSATE PIPING AS NOTED AND PREPARE FOR CONNECTION TO NEW EQUIPMENT.

PLUMBING DEMO ROOF PLAN - GYMNASIUM

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

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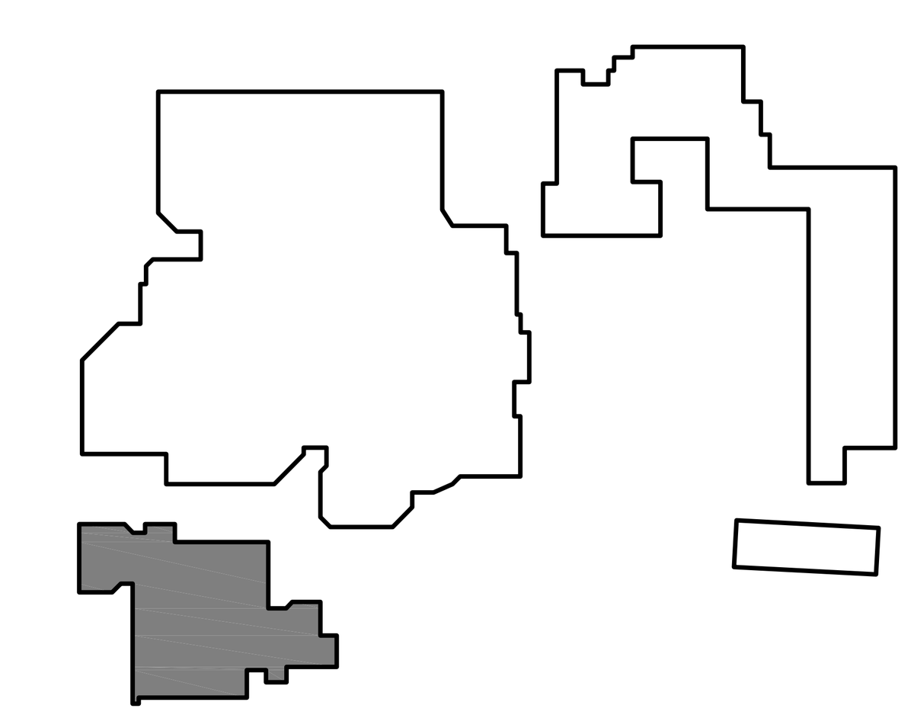

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PM - DESIGN TEAM PROJECT NO.

Project

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title

PLUMBING DEMO ROOF PLAN - GYMNASIUM

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Project No.: 23-145

Date: Issue Date 11/08/2023

NO.	DATE	ISSUE

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P3.0.6D

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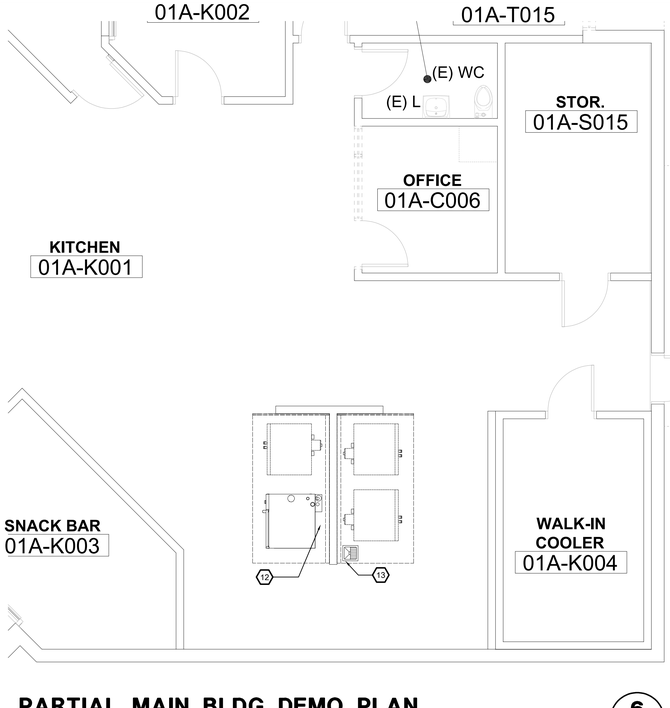
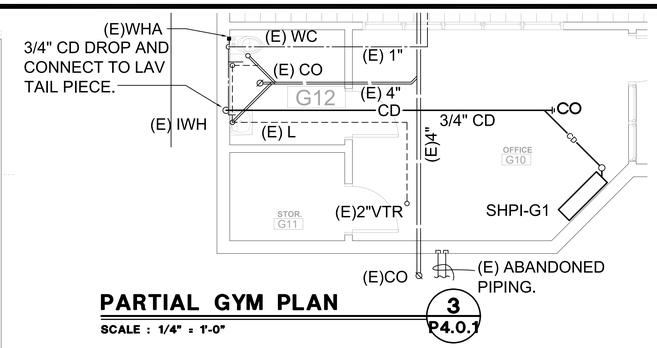


PARTIAL MAIN BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

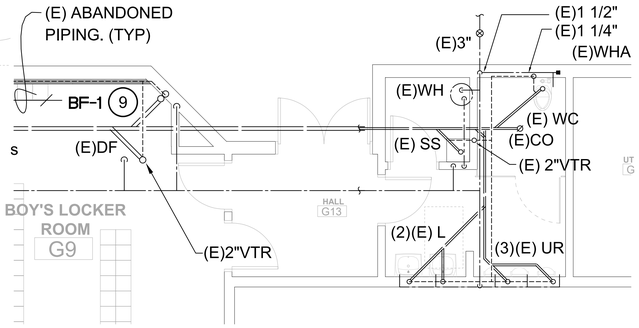
6 P4.0.1



PARTIAL GYM PLAN

SCALE : 1/4" = 1'-0"

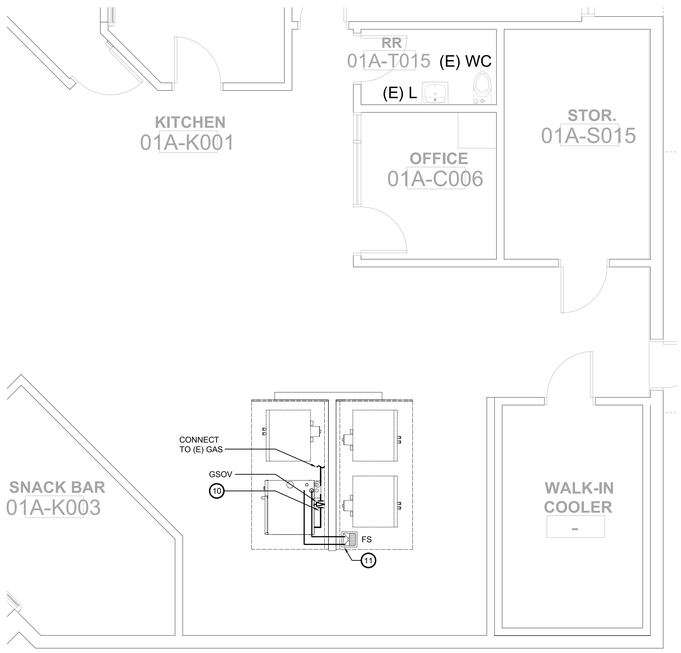
3 P4.0.1



PARTIAL GYM PLAN

SCALE : 1/4" = 1'-0"

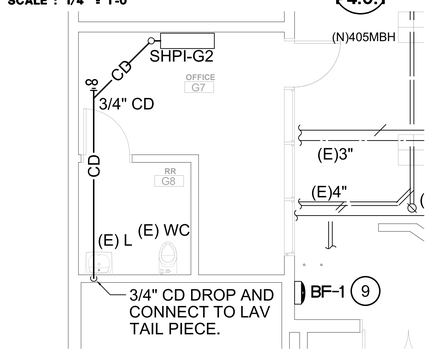
4 P4.0.1



PARTIAL MAIN BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

7 P4.0.1



PARTIAL GYM PLAN

SCALE : 1/4" = 1'-0"

5 P4.0.1

DEMOLITION GENERAL NOTES:

1. NOT ALL NOTES MAY APPLY TO EACH SHEET.

DEMOLITION SHEET NOTES:

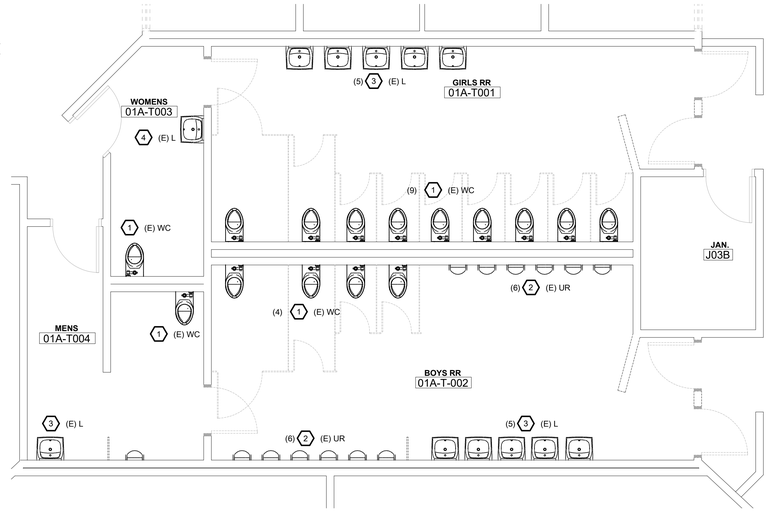
1. REMOVE WATER CLOSET (WC), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
2. REMOVE URINAL (UR), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
3. REMOVE LAVATORY (L) AND WALL CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE(S) AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE(S).
4. REMOVE LAVATORY (L) AND WALL CARRIER. CUT AND CAP WASTE TO BEHIND ARCHITECTURAL SURFACES. CUT AND CAP VENT, AND HW AND CW TO BRANCH TAKE OFF ABOVE CEILING.
5. REMOVE SERVICE SINK (SS). DISCONNECT WASTE, VENT AND WATER PIPING. PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE.
6. REMOVE SHOWER, SHOWER HEAD, TRIM AND PIPING COMPONENTS BACK TO BRANCH TAKE OFF.
7. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. PREPARE FOR NEW SINK AND FOR RECONNECTION TO PIPING SERVICES.
8. REMOVE SHOWER HEAD AND CAP PIPING AT BRANCH TAKE OFF.
   REMOVE SHOWER VALVE AND CAP PIPING AT BRANCH TAKE OFF.
   PATCH ARCHITECTURAL SURFACE(S) PER THE ARCHITECTURAL PLANS.
   CAP WASTE PIPING BELOW FINISHED FLOOR.
9. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. CAP PIPING AT BRANCH TAKE OFF AND TO BEHIND ARCHITECTURAL SURFACES.
10. DISCONNECT GAS TO BELOW ROOF DECK AND PREPARE FOR RECONNECTION. DISCONNECT AND REMOVE CONDENSATE PIPING AS NOTED AND PREPARE FOR CONNECTION TO NEW EQUIPMENT.
11. REMOVE URINAL (UR) AND FIXTURE CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO BRANCH TAKE OFF.
12. DISCONNECT AND CAP FOR FUTURE CONNECTION OF THE PIPING SERVICES TO EQUIPMENT.
13. REMOVE FLOOR SINK. DISCONNECT WASTE, VENT, TRAP PRIMER FROM FLOOR SINK.

GENERAL NOTES:

1. NOT ALL NOTES MAY APPLY TO EACH SHEET.
2. PROVIDE WATER CLOSET (WC) WASTE FITTING OFFSET KIT AS REQUIRED FOR NEW WATER CLOSET LOCATION.
3. COORDINATE WITH ARCHITECTURAL PLANS FOR ALL FIXTURE HEIGHTS REQUIRED.
4. ALL PIPING SHALL BE BEHIND ARCHITECTURAL SURFACES.
5. EXTEND WASTE, VENT AND WATER (WITH INDIVIDUAL SOV TO EACH FIXTURE) TO NEW FIXTURE LOCATION AS REQUIRED.
6. RETURN FIXTURE(S) DURING DEMOLITION WHICH ARE IN LIKE NEW CONDITION TO THE OWNER.
7. INFORM ARCHITECT OF ANY PIPING SYSTEMS PROBLEMS.
8. PROVIDE NEW ESCUTCHEON PLATES WHERE MISSING OR DAMAGED.

SHEET NOTES:

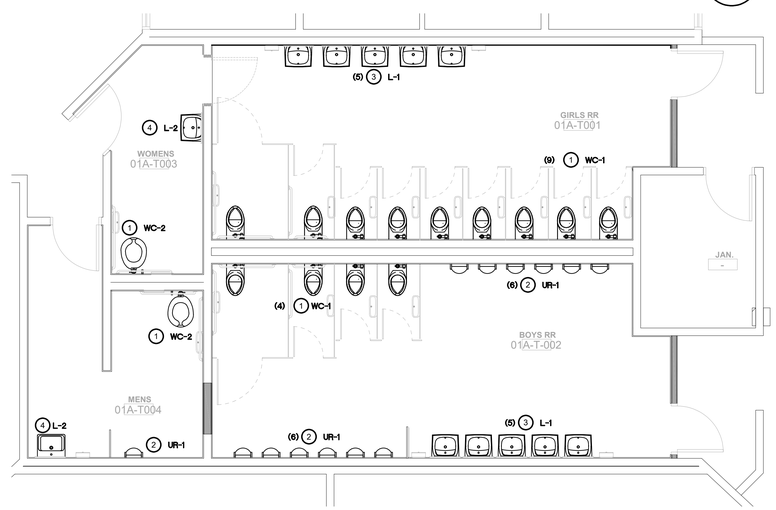
1. PROVIDE WATER CLOSET (WC). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE NEW STOP VALVE AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE.
2. PROVIDE URINAL (UR). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE STOP VALVE AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE.
3. PROVIDE LAVATORY (L) AND WALL CARRIER. RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE NEW STOP VALVE(S), RISERS AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE(S).
4. PROVIDE LAVATORY (L) AND WALL CARRIER. RECONNECT WASTE, VENT AND T & CW WATER PIPING. PROVIDE NEW STOP VALVE(S), RISERS AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE(S).
5. PROVIDE SERVICE SINK (SS). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE PIPING FOR RECONNECTION TO NEW FIXTURE.
6. PROVIDE DRINKING FOUNTAIN (DF) AND WALL CARRIER. RECONNECT WASTE, VENT AND WATER PIPING.
7. PROVIDE SINK (S). RECONNECT SINK TO EXISTING SERVICES.
8. PROVIDE SINK (S). CONNECT SINK TO EXISTING SERVICES.
9. PROVIDE BOTTLE FILLER (BF). CONNECT WASTE, VENT AND WATER PIPING. PROVIDE PIPING FOR RECONNECTION TO NEW FIXTURE. ALL PIPING SHALL BE BEHIND ARCHITECTURAL SURFACES.
10. CONNECT 3/4" GAS WITH GSOV AND (2) 2" WASTE TO THE BOTTOM OF THE COMBI OVEN AND SPILL TO THE NEW FLOOR SINK (FS) WITH AIR GAP.
11. NEW FLOOR SINK. CONNECT WASTE, VENT, AND TRAP PRIMER. LOCATE THE FS PER FOOD SERVICE DRAWING FS2.1.
12. 3/4" PUMPED CONDENSATE TO JANITOR 01A-JO27 MOP SINK.



PARTIAL MAIN BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

1 P4.0.1



PARTIAL MAIN BLDG PLAN

SCALE : 1/4" = 1'-0"

2 P4.0.1

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Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
PLUMBING PARTIAL FLOOR PLANS - BUILDING 1 & GYM

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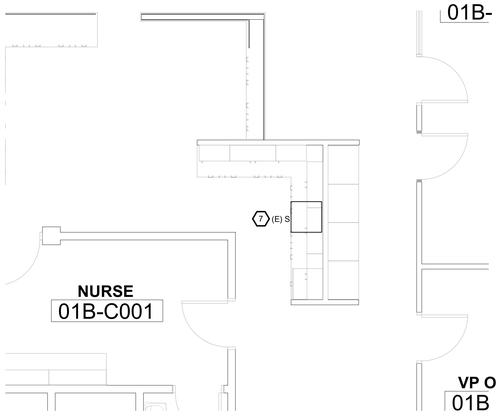
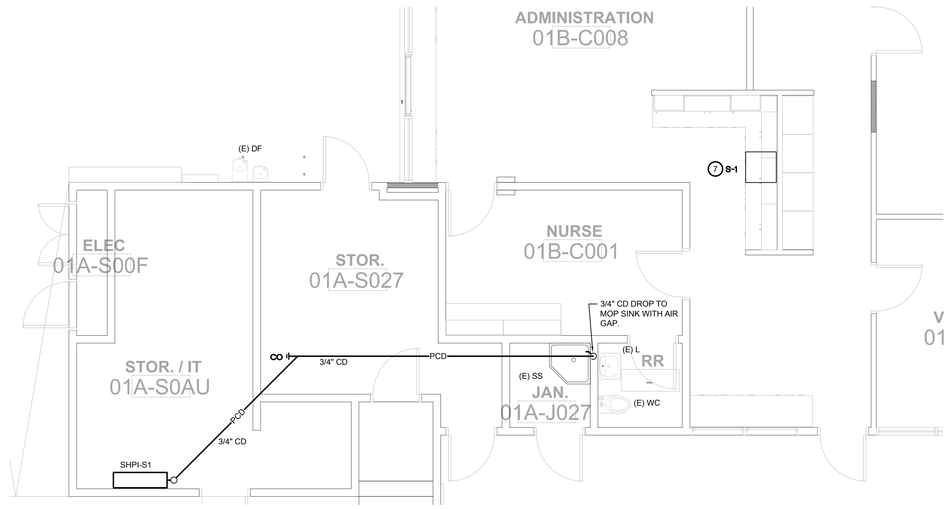


PARTIAL MAIN BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

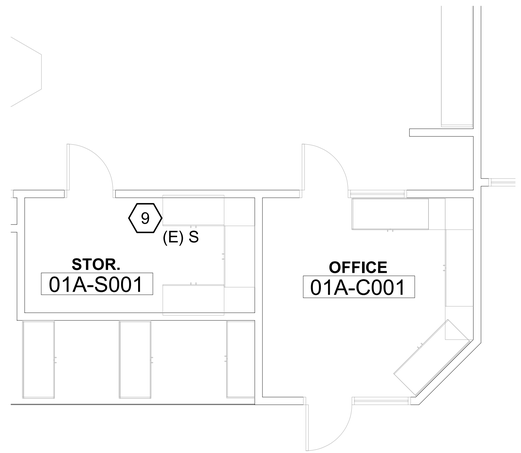
3 / P4.0.2



PARTIAL MAIN BLDG PLAN

SCALE : 1/4" = 1'-0"

4 / P4.0.2



PARTIAL MAIN BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

5 / P4.0.2

DEMOLITION GENERAL NOTES:

1. NOT ALL NOTES MAY APPLY TO EACH SHEET.

DEMOLITION SHEET NOTES:

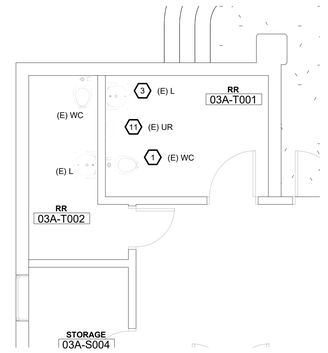
1. REMOVE WATER CLOSET (WC), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
2. REMOVE URINAL (UR), FIXTURE CARRIER TO REMAIN. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE.
3. REMOVE LAVATORY (L) AND WALL CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO WALL. REMOVE STOP VALVE(S) AND PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE AND NEW STOP VALVE(S).
4. REMOVE LAVATORY (L) AND WALL CARRIER. CUT AND CAP WASTE TO BEHIND ARCHITECTURAL SURFACES. CUT AND CAP VENT, AND HW AND CW TO BRANCH TAKE OFF ABOVE CEILING.
5. REMOVE SERVICE SINK (SS). DISCONNECT WASTE, VENT AND WATER PIPING. PREPARE PIPING FOR RECONNECTION TO NEW FIXTURE.
6. REMOVE SHOWER, SHOWER HEAD, TRIM AND PIPING COMPONENTS BACK TO BRANCH TAKE OFF.
7. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. PREPARE FOR NEW SINK AND FOR RECONNECTION TO PIPING SERVICES.
8. REMOVE SHOWER HEAD AND CAP PIPING AT BRANCH TAKE OFF.
   REMOVE SHOWER VALVE AND CAP PIPING AT BRANCH TAKE OFF.
   PATCH ARCHITECTURAL SURFACE(S) PER THE ARCHITECTURAL PLANS.
   CAP WASTE PIPING BELOW FINISHED FLOOR.
9. REMOVE SINK (S). DISCONNECT SINK FROM WASTE, VENT, CW, HW SYSTEM. CAP PIPING AT BRANCH TAKE OFF AND TO BEHIND ARCHITECTURAL SURFACES.
10. DISCONNECT GAS TO BELOW ROOF DECK AND PREPARE FOR RECONNECTION. DISCONNECT AND REMOVE CONDENSATE PIPING AS NOTED AND PREPARE FOR CONNECTION TO NEW EQUIPMENT.
11. REMOVE URINAL (UR) AND FIXTURE CARRIER. DISCONNECT WASTE, VENT AND WATER PIPING BACK TO BRANCH TAKE OFF.
12. DISCONNECT AND CAP FOR FUTURE CONNECTION OF THE PIPING SERVICES TO EQUIPMENT.
13. REMOVE FLOOR SINK. DISCONNECT WASTE, VENT, TRAP PRIMER FROM FLOOR SINK.

GENERAL NOTES:

1. NOT ALL NOTES MAY APPLY TO EACH SHEET.
2. PROVIDE WATER CLOSET (WC) WASTE FITTING OFFSET KIT AS REQUIRED FOR NEW WATER CLOSET LOCATION.
3. COORDINATE WITH ARCHITECTURAL PLANS FOR ALL FIXTURE HEIGHTS REQUIRED.
4. ALL PIPING SHALL BE BEHIND ARCHITECTURAL SURFACES.
5. EXTEND WASTE, VENT AND WATER (WITH INDIVIDUAL SOV TO EACH FIXTURE) TO NEW FIXTURE LOCATION AS REQUIRED.
6. RETURN FIXTURE(S) DURING DEMOLITION WHICH ARE IN LIKE NEW CONDITION TO THE OWNER.
7. INFORM ARCHITECT OF ANY PIPING SYSTEMS PROBLEMS.
8. PROVIDE NEW ESCUTCHEON PLATES WHERE MISSING OR DAMAGED.

SHEET NOTES:

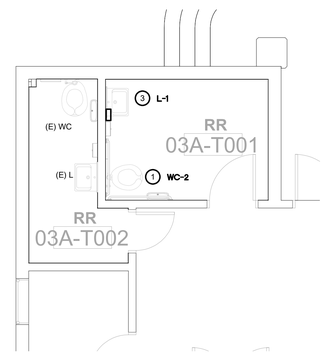
1. PROVIDE WATER CLOSET (WC). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE NEW STOP VALVE AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE.
2. PROVIDE URINAL (UR). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE STOP VALVE AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE.
3. PROVIDE LAVATORY (L) AND WALL CARRIER. RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE NEW STOP VALVE(S), RISERS AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE(S).
4. PROVIDE LAVATORY (L) AND WALL CARRIER. RECONNECT WASTE, VENT AND T & CW WATER PIPING. PROVIDE NEW STOP VALVE(S), RISERS AND CONNECT TO NEW FIXTURE AND NEW STOP VALVE(S).
5. PROVIDE SERVICE SINK (SS). RECONNECT WASTE, VENT AND WATER PIPING. PROVIDE PIPING FOR RECONNECTION TO NEW FIXTURE.
6. PROVIDE DRINKING FOUNTAIN (DF) AND WALL CARRIER. RECONNECT WASTE, VENT AND WATER PIPING.
7. PROVIDE SINK (S). RECONNECT SINK TO EXISTING SERVICES.
8. PROVIDE SINK (S). CONNECT SINK TO EXISTING SERVICES.
9. PROVIDE BOTTLE FILLER (BF). CONNECT WASTE, VENT AND WATER PIPING. PROVIDE PIPING FOR RECONNECTION TO NEW FIXTURE. ALL PIPING SHALL BE BEHIND ARCHITECTURAL SURFACES.
10. CONNECT 3/4" GAS WITH GSOV AND (2) 2" WASTE TO THE BOTTOM OF THE COMBI OVEN AND SPILL TO THE NEW FLOOR SINK (FS) WITH AIR GAP.
11. NEW FLOOR SINK. CONNECT WASTE, VENT, AND TRAP PRIMER. LOCATE THE FS PER FOOD SERVICE DRAWING FS2.1.
12. 3/4" PUMPED CONDENSATE TO JANITOR 01A-J027 MOP SINK.



PARTIAL CROCKER BLDG DEMO PLAN

SCALE : 1/4" = 1'-0"

1 / P4.0.2



PARTIAL CROCKER BLDG PLAN

SCALE : 1/4" = 1'-0"

2 / P4.0.2

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REGISTERED PROFESSIONAL ENGINEER — M 33498 — Ce 9/30/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL — PM - DESIGN TEAM
230701.00 — PROJECT NO.

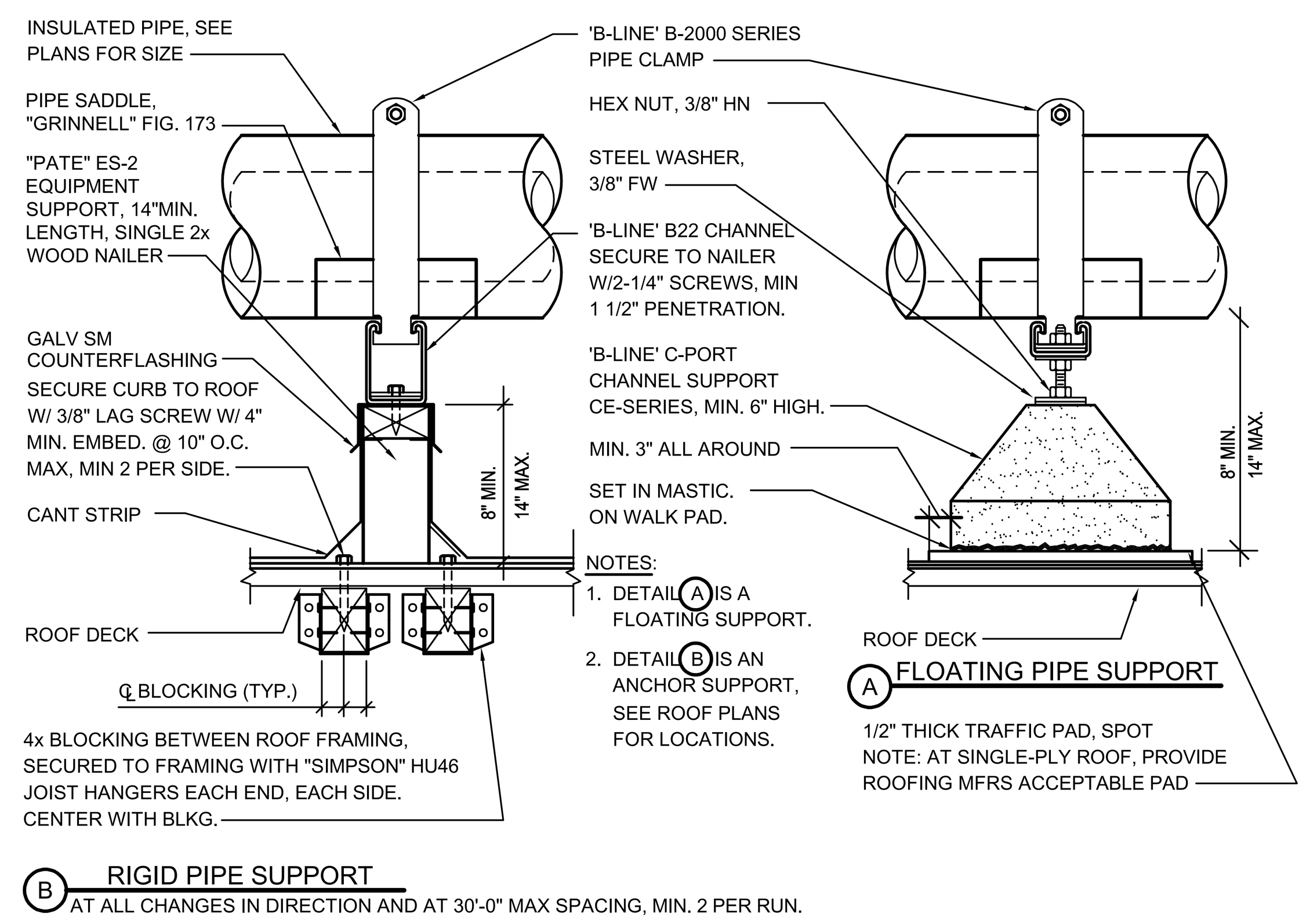
Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL
CAMPUS RENEWAL

Drawing Title
PLUMBING PARTIAL FLOOR PLANS - BUILDING 3

NO.	DATE	ISSUE

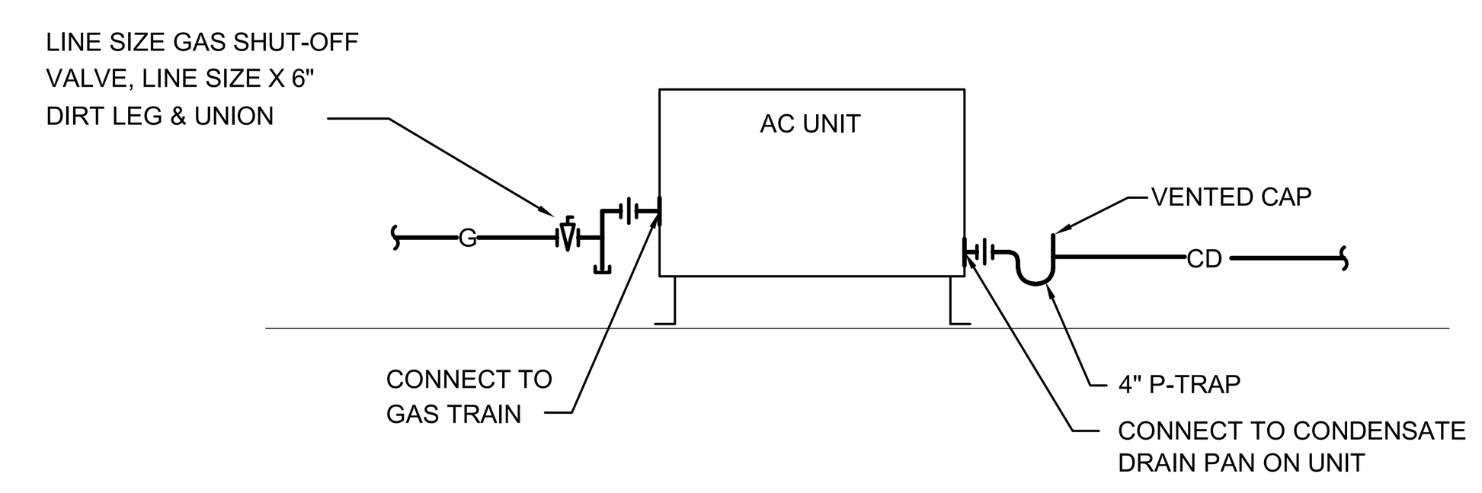
Drawn By: Author
Checked By: Checker
Project No.: 23-145
©Date
Issue Date 11/08/2023
DRAWING NO.
P4.0.2

STEEL PIPE, NOMINAL SIZE OF PIPE (IN.)	SPACING OF SUPPORTS (FT.)	NOMINAL SIZE OF TUBING SMOOTH-WALL (IN. O.D.)	SPACING OF SUPPORTS (FT.)
1/2	6	1/2	4
3/4 OR 1	8	5/8 OR 3/4	6
1 1/4 OR LARGER (HORZ.)	10	7/8 OR 1 (HORZ.)	8
1 1/4 OR LARGER (VERT.)	EVERY FLOOR LEVEL	1 OR LAGER (VERT.)	EVERY FLOOR LEVEL



COORDINATE ROUTING OF ROOF MOUNTED PIPING AND CONDUITS TO ROUTE ON SAME SUPPORT.

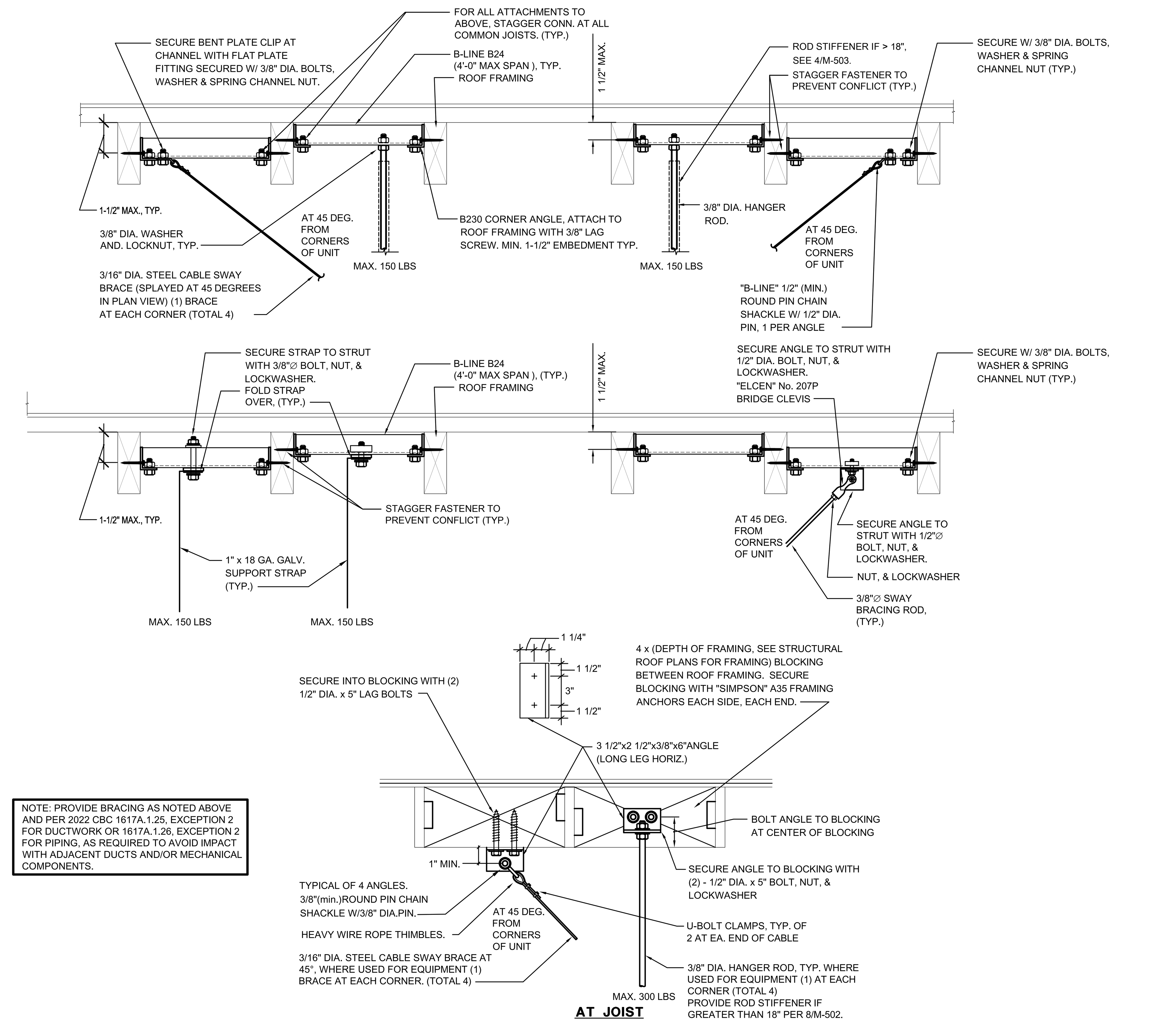
PIPE ON ROOF MOUNTING DETAIL 5 P5.0.1
SCALE : NONE



COORDINATE POINTS OF CONNECTION WITH AC UNIT SPECIFIED

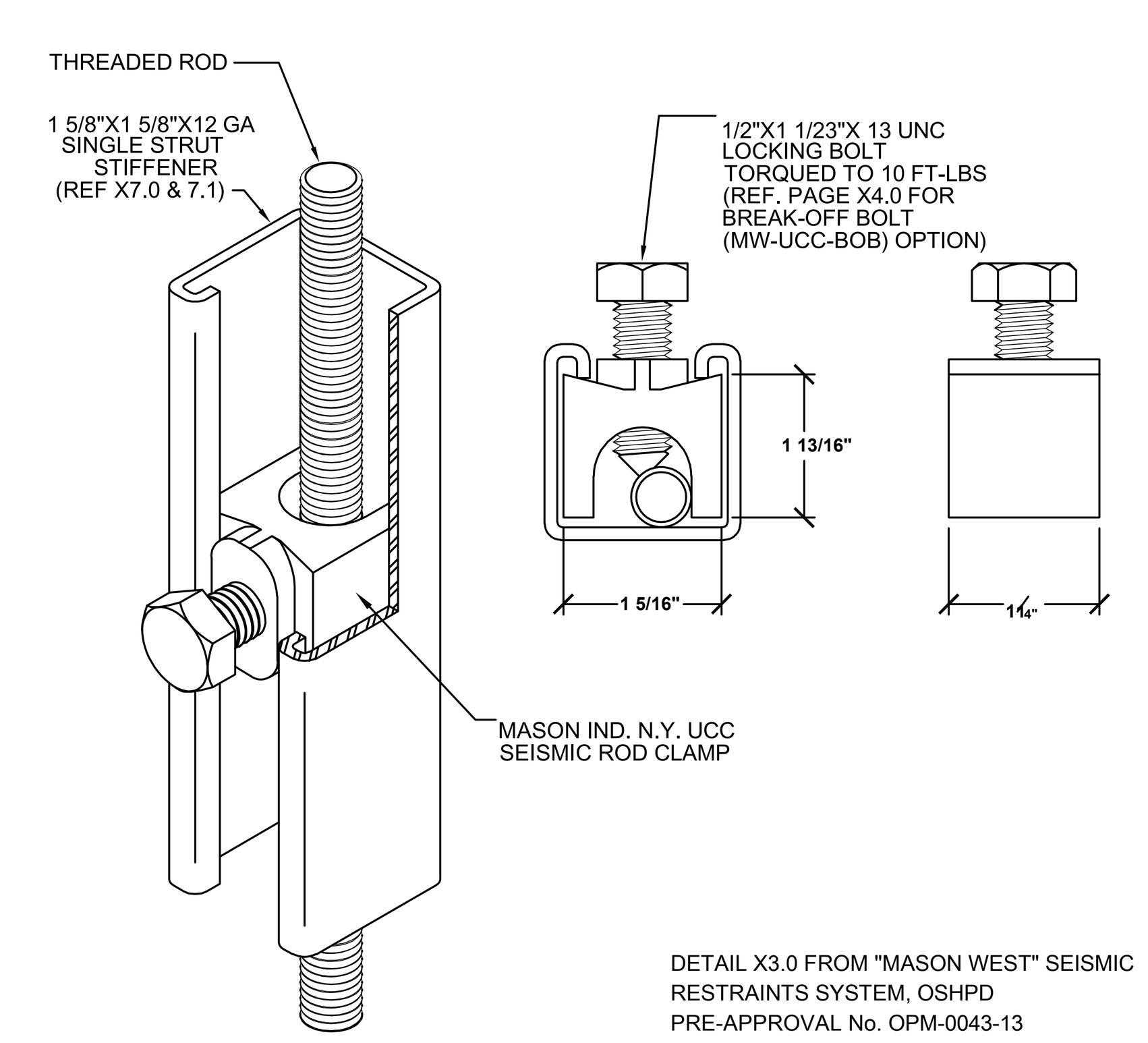
NOTE: PROVIDE FLEXIBLE CONNECTIONS ON GAS AND CONDENSATE PIPING WHERE UNIT IS MOUNTED ON A SPRING CURB.

AC UNIT PIPING DIAGRAM 6 P5.0.1
SCALE : NONE



NOTE:
SEE DRAWINGS FOR NUMBER AND SIZE OF PIPES.

UPPER ATTACHMENT AT WOOD STRUCTURE 1 P5.0.1
SCALE : NONE



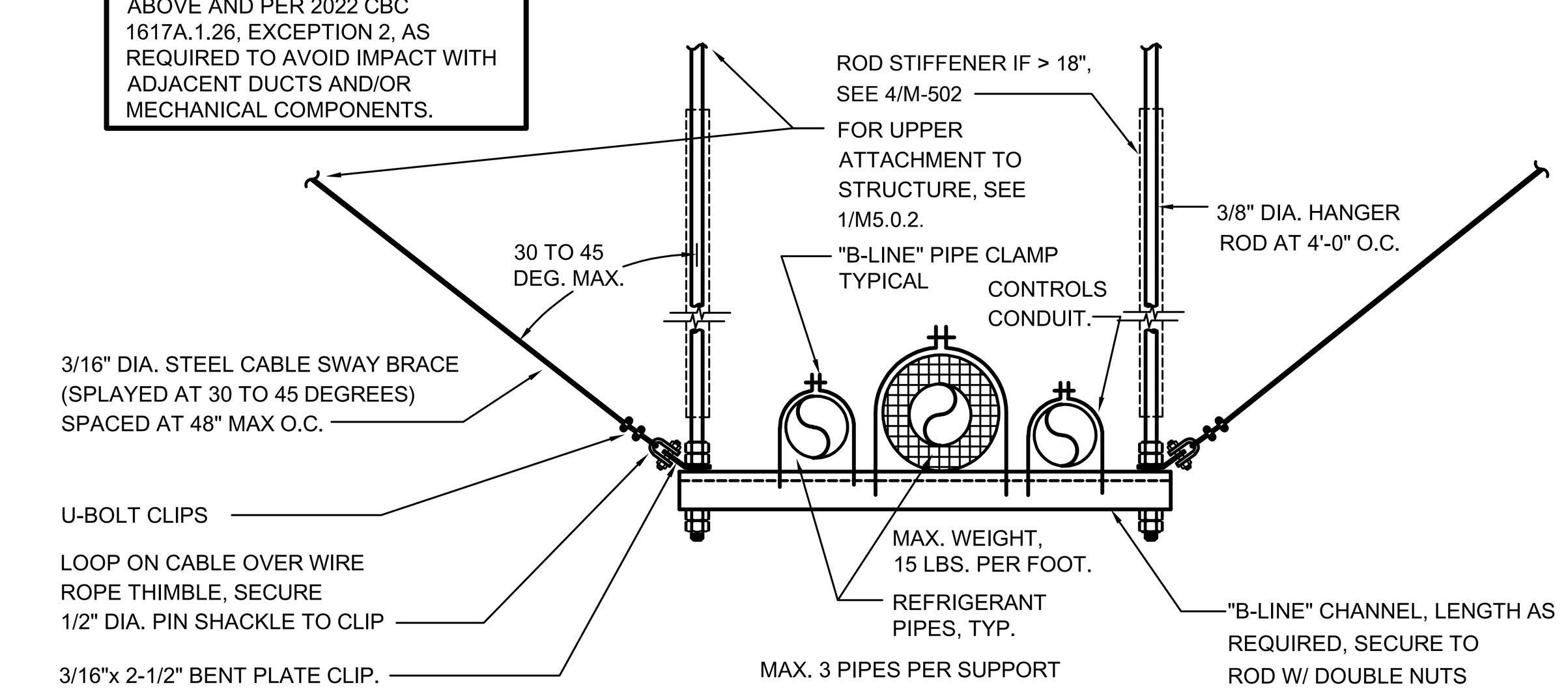
DETAIL X3.0 FROM "MASON WEST" SEISMIC RESTRAINTS SYSTEM, OSHPD PRE-APPROVAL No. OPM-0043-13

TYPE UCC WITH STEEL STRUT ASSEMBLY RATINGS (ASD)

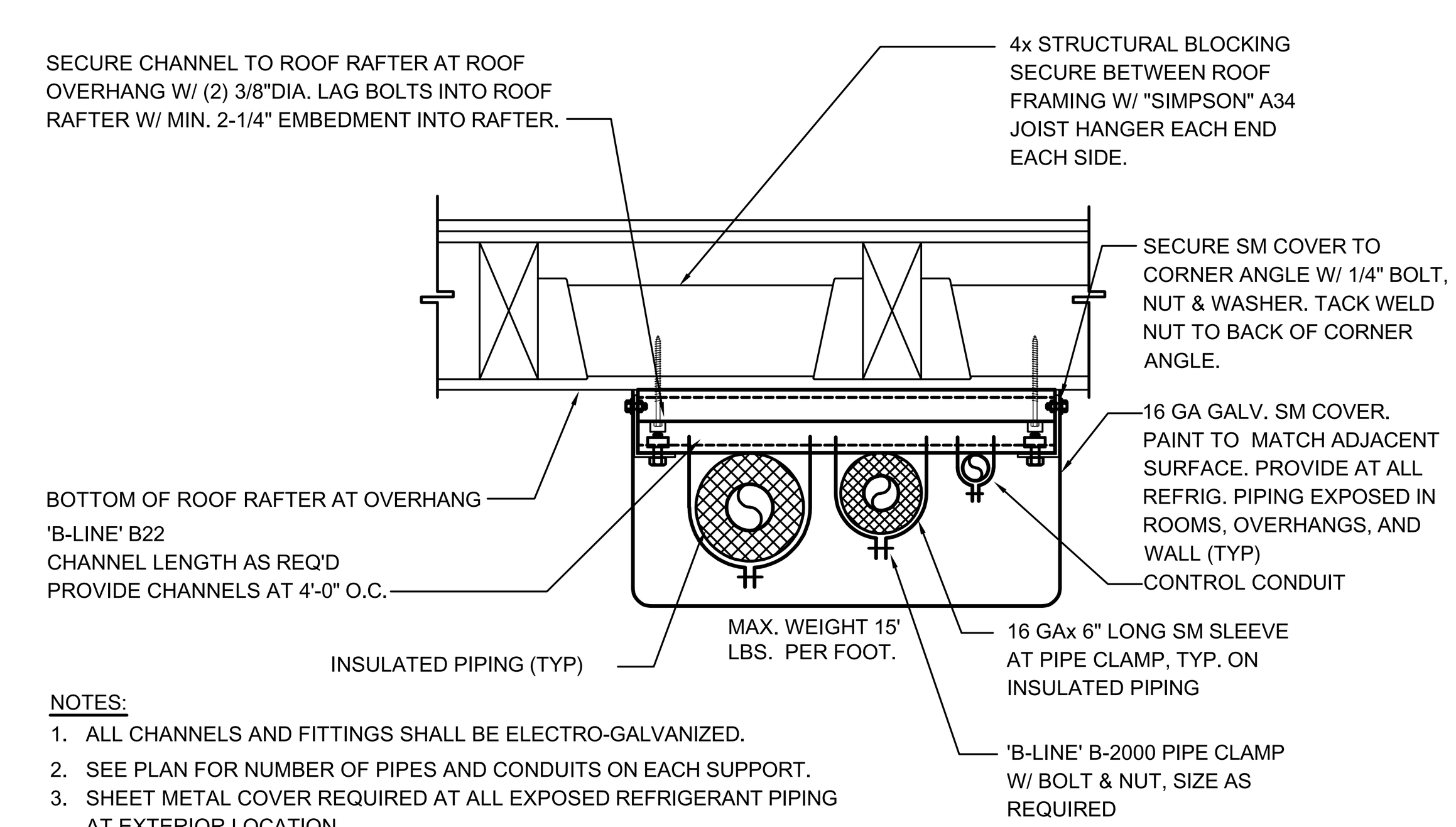
ROD SIZE (INCHES)	MAX COMPRESSIVE FORCE (LBS)	MAXIMUM STRUT STIFFENER LENGTH (INCHES)	MAX UCC SPACING (INCHES)	MAXIMUM UNBRACED LENGTH (INCHES)
3/8	440	156	28	18
1/2	735	156	38	25
5/8	1155	156	48	31
3/4	1700	156	57	37
3/4	3130	84	42	27

ROD STIFFENER DETAIL 4 P5.0.1
SCALE : NONE

NOTE: PROVIDE BRACING AS NOTED ABOVE AND PER 2022 CBC 1617A.1.26, EXCEPTION 2, AS REQUIRED TO AVOID IMPACT WITH ADJACENT DUCTS AND/OR MECHANICAL COMPONENTS.



REFRIGERANT PIPING SUPPORT 2 P5.0.1
SCALE : NONE



NOTES:
1. ALL CHANNELS AND FITTINGS SHALL BE ELECTRO-GALVANIZED.
2. SEE PLAN FOR NUMBER OF PIPES AND CONDUITS ON EACH SUPPORT.
3. SHEET METAL COVER REQUIRED AT ALL EXPOSED REFRIGERANT PIPING AT EXTERIOR LOCATION

PIPE AT WALL/CLG. 3 P5.0.1
SCALE : NONE

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SEAL
DATE SIGNED: 01/19/2024

capital engineering
RANCHO CORDOVA, CALIFORNIA
MM/ RL 230701.00
PM - DESIGN TEAM PROJECT NO.

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
PLUMBING DETAILS

Drawn By Author
Checked By Checker
Project No. 23-145
Date
Issue Date 11/08/2023

NO. DATE ISSUE

DRAWING NO.
P5.0.1

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SYMBOLS LIST

SOME OF THESE SYMBOLS SHOWN MAY NOT BE USED ON THIS PROJECT

POWER DISTRIBUTION

Symbol	Description
	SWITCHGEAR, SWITCHBOARD, DISTRIBUTION BOARD, SUBSTATION OR MOTOR CONTROL CENTER, FLOOR MOUNTED ON CONCRETE HOUSEKEEPING PAD WHERE INDICATED ON DRAWINGS. DOUBLE LINE INDICATES FRONT FACE OF GEAR.
	DISTRIBUTION BOARD, SURFACE MOUNTED ON WALL.
	PANELBOARD, 277/480V, SURFACE MOUNTED ON WALL.
	PANELBOARD, 277/480V, FLUSH MOUNTED IN WALL.
	PANELBOARD, 120/208V, SURFACE MOUNTED ON WALL.
	PANELBOARD, 120/208V, FLUSH MOUNTED IN WALL.
	DRY-TYPE STEP-DOWN TRANSFORMER, FLOOR MOUNTED 480-120/208V 3Ø, UON. DOUBLE LINE INDICATES FRONT FACE OF TRANSFORMER.
	ELECTRIC MOTOR, NIEC. MAKE POWER CONNECTIONS ONLY AS NOTED ON PLANS.
F	EXHAUST FAN MOTOR, SINGLE PHASE, NIEC. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED, FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER WITH INTEGRAL DISCONNECT ADJACENT TO FAN WITH 2 #12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
V	INDOOR FAN POWERED VAV BOX MOTOR, SINGLE PHASE, NIEC. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED, FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER WITH INTEGRAL DISCONNECT ADJACENT TO VAV BOX WITH 2 # 12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
D 2	MOTOR OPERATED FIRE/SMOKE DAMPER 'FSD', NIEC. SYMBOL DENOTES INTERFACE FOR POWER CONNECTIONS WITH LOCAL DISCONNECT MEANS. ADJACENT NUMBER INDICATES QUANTITY OF ACTUATORS PER FSD, EACH REQUIRING A POWER CONNECTION, IF MORE THAN 1. FOR FIRE ALARM REQUIREMENTS AT FSD, REFER TO FIRE ALARM SYMBOLS.
	COMBINATION EXHAUST FAN AND DOWNLIGHT, CEILING MOUNTED. FAN AND LIGHT SHALL BE CONTROLLED SEPARATELY.
P	PULLBOX OR HANDHOLE, SIZE AND TYPE AS NOTED ON PLANS.
A AF	SAFETY DISCONNECT SWITCH, 3 POLE, UON. ADJACENT NUMBER INDICATES FUSE SIZE WHEN APPLICABLE. LABELING CONVENTION AS FOLLOWS: A: 30A, NON-FUSED — AF: 30A, FUSED B: 60A, NON-FUSED — BF: 60A, FUSED C: 100A, NON-FUSED — CF: 100A, FUSED D: 200A, NON-FUSED — DF: 200A, FUSED E: 400A, NON-FUSED — EF: 400A, FUSED F: 600A, NON-FUSED — FF: 600A, FUSED G: 800A, NON-FUSED — GF: 800A, FUSED
1 1	MAGNETIC MOTOR STARTER WITH INTEGRAL OVERCURRENT PROTECTION. ADJACENT NUMBER INDICATES NEMA SIZE OF STARTER. "HANDLE" DENOTES INTEGRAL DISCONNECT.
VFD	VARIABLE FREQUENCY DRIVE FURNISHED UNDER ANOTHER DIVISION. INSTALL VFD AND PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION. "HANDLE" DENOTES INTEGRAL DISCONNECT.
ECM	ELECTRONICALLY COMMUTATED MOTOR CONTROLLER FURNISHED UNDER ANOTHER DIVISION. INSTALL ECM AND PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION. "HANDLE" DENOTES INTEGRAL DISCONNECT.
	PACKAGE MOTOR CONTROLLER OR STARTER FURNISHED AND INSTALLED UNDER ANOTHER DIVISION WITH EQUIPMENT CONTROLLED. PROVIDE SINGLE-POINT POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
	DRIVEN GROUND ROD.
	DRIVEN GROUND ROD IN GROUND WELL WITH COVER.
	ELECTRICAL VEHICLE CHARGING STATION, WALL MOUNTED.
	ELECTRICAL VEHICLE CHARGING STATION, PEDESTAL MOUNTED.
	CABLE TO BUS TERMINATION LUGS.
	BOLTED PRESSURE OR HIGH PRESSURE CONTACT OR FUSED SWITCHES.
	GROUP MOUNTED MOLDED CASE CIRCUIT BREAKER.
	INDIVIDUALLY FIXED MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
	INDIVIDUALLY DRAW-OUT MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
52	MEDIUM-VOLTAGE, INDIVIDUALLY DRAW-OUT MOUNTED VACUUM CIRCUIT BREAKER.
	MEDIUM-VOLTAGE LOAD INTERRUPTER SWITCH, FUSED TYPE.
	MEDIUM-VOLTAGE LOAD INTERRUPTER SWITCH, NON-FUSED TYPE.
G	GROUND FAULT RELAY INTEGRAL WITH CIRCUIT BREAKER.
EO	ELECTRICALLY OPERATED CIRCUIT BREAKER, INTEGRAL.
ST	SHUNT-TRIP INTEGRAL WITH OVERCURRENT PROTECTION DEVICES.
K 1	KIRK-KEY INTERLOCK INTEGRAL WITH OVERCURRENT PROTECTION DEVICES. ADJACENT NUMBER CORRESPONDS WITH DEVICE INTERLOCK.
M	PRIVATE METER, MOUNTED INTEGRAL WITH OVERCURRENT PROTECTION OR SEPARATE WITHIN SWITCHGEAR.
M	UTILITY METER, MOUNTED IN UTILITY METER SECTION OF SWITCHGEAR OR SWITCHBOARDS.
M	PRIVATE METER, MOUNTED IN SEPARATE ENCLOSURE FROM SWITCHGEAR OR SWITCHBOARDS.
GFR	GROUND FAULT RELAY WITH SHUNT TRIP.
GFA	GROUND FAULT ALARM, NO SHUNT TRIP.
	TRANSFORMER.
	CONNECTION TO GROUND.
	CURRENT TRANSFORMERS.
	POTENTIAL TRANSFORMERS.
	AUTOMATIC OR MANUAL TRANSFER SWITCH.
	AUTOMATIC TRANSFER & BY-PASS ISOLATION SWITCH.
G	EMERGENCY GENERATOR.
	BATTERIES.
	NEUTRAL SERVICE DISCONNECT LINK.
SPD	SURGE PROTECTION DEVICE, 'SPD'.
C	CONTROL CONTACTOR.
	NORMALLY OPEN CONTACT.
	NORMALLY CLOSED CONTACT.
DMU	DIGITAL METERING UNIT.
GND	GROUND BUS AS SHOWN ON SINGLE LINE DIAGRAMS.
	GROUND BUS AS SHOWN ON PLAN VIEWS.
NEU	NEUTRAL BUS.
V	CONCRETE VAULT, IN-GRADE, FOR EXTERIOR APPLICATIONS. SIZE AND TYPE AS NOTED ON THE PLANS.
M	CONCRETE MANHOLE, IN-GRADE, FOR EXTERIOR APPLICATIONS. SIZE AND TYPE AS NOTED ON THE PLANS.

LINESTYLES

Symbol	Description
	EXISTING TO REMAIN
	EXISTING TO BE REMOVED (R) OR RELOCATED (RR)
	NEW CONSTRUCTION
	FUTURE CONSTRUCTION

WIRING DEVICES

Symbol	Description
	JUNCTION BOX, WALL MOUNTED, +18" UON.
	JUNCTION BOX, MOUNTED IN FLUSH FLOOR BOX.
J	JUNCTION BOX, MOUNTED FLUSH IN CEILING.
	JUNCTION BOX, SURFACE OR PENDANT MOUNTED TO BOTTOM OF STRUCTURE IN ACCESSIBLE CEILING SPACE OR EXPOSED IN OPEN CEILING AREAS.
	JUNCTION BOX, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
	SINGLE-PLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON. LETTERING ADJACENT TO THE DEVICE ON THE PLANS INDICATE THE FOLLOWING FOR THOSE RECEPTACLES. A: ARC FAULT CURRENT INTERRUPTER (AFCI) G: GROUND FAULT CURRENT INTERRUPTER (GFCI) IG: ISOLATED GROUND TR: TAMPER RESISTANT U: INTEGRAL USB PORTS WP: WEATHER-RESISTANT, GROUND FAULT CURRENT INTERRUPTER (GFCI) WITH WEATHERPROOF "IN USE" COVER
	DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED OVER COUNTER, 6" ABOVE BACK SPLASH UON, BUT NO HIGHER THAN ADA REQUIREMENTS.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, SPLIT-WIRED, WALL MOUNTED, +18" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, ON BACK-UP POWER SYSTEM, WALL MOUNTED, +18" UON.
	DUPLEX, OR DOUBLE DUPLEX, CONVENIENCE RECEPTACLE DEVICE, CONTROLLED PER T24, WALL MOUNTED, +18" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, HORIZONTALLY WALL MOUNTED, +18" UON.
	SPECIALTY OUTLET DEVICE, NEMA CONFIGURATION TYPE AS NOTED ON PLANS, WALL MOUNTED, +18" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
	DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
	COMBINATION POWER/TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
	DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
	COMBINATION POWER/TELECOMMUNICATION DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
	DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
	DUPLEX CONVENIENCE RECEPTACLE DEVICE, CORD OR REEL HUNG FROM STRUCTURE ABOVE. TYPE AS NOTED ON PLANS.
	ELECTRIFIED FURNITURE PARTITION POWER FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVER PLATE WITH KO TO ACCEPT FURNITURE WHIP.
	ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING WITH KO'S OR THREADED HUB IN COVER TO ACCEPT FURNITURE WHIPS
	ELECTRIFIED FURNITURE PARTITION POWER FEED, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING WITH KO OR THREADED HUB IN COVER TO ACCEPT FURNITURE WHIP.
	POWER/TELECOMMUNICATION POLE, MOUNTED TO EXTEND FROM FLOOR TO CEILING. TYPE AS NOTED ON PLANS.
S^{T}	SINGLE-POLE, MANUAL DISCONNECT SWITCH WITH THERMAL OVERLOAD ELEMENT, MOUNTED ADJACENT TO MOTOR.
S^{MS}	SINGLE-POLE, FRACTIONAL HORESPOWER MOTOR STARTER/DISCONNECT SWITCH, MOUNTED ADJACENT TO MOTOR.
S^{F}	SWITCH FURNISHED UNDER ANOTHER DIVISION, BUT INSTALLED AND WIRED UNDER THIS DIVISION, WALL MOUNTED, +42" UON.
T	LINE-VOLTAGE THERMOSTAT, NIEC, WALL MOUNTED +48" UON. INSTALLED AND WIRED BY ELECTRICAL.
	CONTROL STATION, WALL MOUNTED, +42" UON.

CONVENTIONS

Symbol	Description
1	NUMBERED NOTE, APPLIES TO ALL DRAWINGS.
1	NUMBERED SHEET NOTE, APPLIES TO DRAWING CONTAINING NOTES ONLY.
1	OVERCURRENT PROTECTIVE DEVICE NUMBER IDENTIFICATION TAG. REFERS TO LOCATION OF PROTECTIVE OR CONTROL DEVICE WITHIN SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC.
EQ ##	EQUIPMENT IDENTIFICATION TAG: ITEM FURNISHED AND INSTALLED UNDER ANOTHER DIVISION AND WIRED UNDER THIS DIVISION.
2004	FEEDER TAG. REFER TO FEEDER SCHEDULE.
1 / E-801	DETAIL REFERENCE: DETAIL DESIGNATION SHEET NUMBER
2 - F3	LUMINAIRE IDENTIFICATION TAG: FIXTURE TYPE QUANTITY

LIGHTING

Symbol	Description
	LUMINAIRE, RECESSED IN CEILING.
	LUMINAIRE, SURFACE MOUNTED.
	SUSPENDED LINEAR LUMINAIRE. SUSPENSION POINTS ARE GRAPHIC ONLY AND DO NOT REPRESENT ACTUAL LOCATION OR QUANTITY.
	LUMINAIRE, WALL MOUNTED.
	STRIP LUMINAIRE, SURFACE OR PENDANT MOUNTED.
	STRIP LUMINAIRE, SURFACE MOUNTED IN ARCHITECTURAL CEILING COVE.
	STRIP LUMINAIRE, SURFACE MOUNTED VERTICALLY ON WALL OR IN COVE.
	ROUND DOWNLIGHT LUMINAIRE, RECESSED IN CEILING.
	SQUARE DOWNLIGHT LUMINAIRE, RECESSED IN CEILING.
	DOWNLIGHT/INDUSTRIAL LUMINAIRE, SURFACE OR PENDANT MOUNTED.
	DIRECTIONAL LUMINAIRE, RECESSED IN CEILING.
	DIRECTIONAL LUMINAIRE, SURFACE OR PENDANT MOUNTED.
	LINEAR, MULTI-HEAD, ADJUSTABLE ACCENT LUMINAIRES, RECESSED IN CEILING.
	LINEAR WALLWASH LUMINAIRE, RECESSED IN CEILING.
	LINEAR WALLWASH LUMINAIRE, SURFACE OR PENDANT MOUNTED.
	SCONCE LUMINAIRE, WALL MOUNTED.
	LED TAPE STRIP TYPE LUMINAIRE, MOUNTED LOOSE OR IN CHANNEL.
	DECORATIVE LUMINAIRE, PENDANT MOUNTED.
X	LINEAR TRACK SYSTEM WITH PLUG-IN ADJUSTABLE LUMINAIRE HEADS. TRACK SHALL BE EITHER RECESSED, SURFACE OR PENDANT MOUNTED TO CEILING AS NOTED IN LUMINAIRE SCHEDULE. 'X' NEXT TO JUNCTION BOX REPRESENTS INTEGRAL CURRENT LIMITER TRIP RATING.
	EXIT SIGN LUMINAIRE, CEILING OR WALL MOUNTED WITH DIRECTIONAL ARROWS AS NOTED ON PLANS. WORD 'EXIT' TO BE LOCATED IN SHADED FACE(S).
	COMBO EXIT SIGN AND EGRESS LUMINAIRE, CEILING OR WALL MOUNTED WITH ARROWS AS NOTED ON PLANS OR IN LUMINAIRE SCHEDULE.
	EMERGENCY SELF-POWERED BATTERY PACK WITH LUMINAIRE HEADS AS NOTED ON PLANS OR IN LUMINAIRE SCHEDULE.
	SHADING OF ANY LUMINAIRE INDICATES CRITICAL/STANDBY LIGHTING.
	HALF SHADING OF ANY LUMINAIRE INDICATES EMERGENCY/EGRESS LIGHTING.
	SINGLE-HEAD AREA LUMINAIRE WITH BRACKET ARM AND POLE, MOUNTED TO CONCRETE BASE.
	TWO-HEAD AREA LUMINAIRE WITH BRACKET ARMS AND POLE, MOUNTED TO CONCRETE BASE.
	SINGLE-HEAD AREA POST-TOP LUMINAIRE WITH POLE, MOUNTED TO CONCRETE BASE.
	AREA LUMINAIRE, SURFACE OR RECESSED MOUNTED TO WALL.
	LUMINAIRE BOLLARD, MOUNTED TO CONCRETE BASE.
	GROUNDWELL LUMINAIRE MOUNTED FLUSH IN FINISHED GRADE.
	FLOODLIGHT LUMINAIRE, STANCHION MOUNTED ABOVE GRADE.
	LINEAR SIGN-LIGHT LUMINAIRE, STANCHION MOUNTED ABOVE GRADE.
	STEPLIGHT LUMINAIRE, WALL MOUNTED.
	MULTIPLE LUMINAIRES MOUNTED ON COMMON POLE.
	F.A.A OBSTRUCTION LUMINAIRE.

LINE VOLTAGE LIGHTING CONTROL

Symbol	Description
S	SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
S^{3}	THREE-WAY SWITCH, WALL MOUNTED, +42" UON.
S^{4}	FOUR-WAY SWITCH, WALL MOUNTED, +42" UON.
S^{K}	SINGLE-POLE, SINGLE-THROW SWITCH, KEY-OPERATED, WALL MOUNTED, +42" UON.
S^{P}	SINGLE-POLE, SINGLE-THROW SWITCH, WITH PILOT LIGHT, WALL MOUNTED, +42" UON.
S^{D}	WALLBOX DIMMER SWITCH, +42" UON. SIZED PER CONNECTED LOAD ON PLANS AND FURNISHED FOR LAMP SOURCE SERVED. PROVIDED FOR DERATING WHEN INSTALLED GANGED LOCATIONS.
S^{TC}	SINGLE-POLE, TIMER CONTROLLED SWITCH, WALL MOUNTED, +42" UON.
S^{EP}	SINGLE-POLE, SINGLE-THROW SWITCH, EXPLOSION PROOF, WALL MOUNTED, +42" UON.
S^{V}	LINE VOLTAGE SINGLE RELAY VACANCY SENSOR, WALL MOUNTED, +42" UON.
S^{WP}	SINGLE-POLE, SINGLE-THROW SWITCH WITH WEATHERPROOF COVER, WALL MOUNTED, +42" UON.
S^{H}	SINGLE-POLE SWITCH WITH AUTOMATIC HUMIDITY CONTROL, WALL MOUNTED, +42" UON.
S^{M}	DUAL LEVEL OCCUPANCY SENSOR SWITCH, WALL MOUNTED, +42" UON.
S^{M1}	SINGLE LEVEL OCCUPANCY SENSOR SWITCH, WALL MOUNTED, +42" UON.
S^{DM}	COMBINATION OCCUPANCY SENSOR AND DIMMER SWITCH, WALL MOUNTED, +42" UON.
OS	OCCUPANCY SENSOR FOR AREA COVERAGE, CEILING MOUNTED.
PC	PHOTOELECTRIC CELL SENSOR, CEILING MOUNTED.
ETD	EGRESS LIGHTING TRANSFER DEVICE.
924	BYPASS DEVICE FOR CONTROLLED EMERGENCY LIGHTING.

RACEWAYS

Symbol	Description
	CONDUIT RUN EXPOSED ON WALL OR CEILING.
	CONDUIT RUN CONCEALED IN SLAB, UNDER SLAB OR UNDERGROUND.
	CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
	CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET. HOMERUN CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT TURNED UP, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT TURNED DOWN, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT CAPPED OR STUBBED WITH INSULATED BUSHINGS, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT SLEEVE, WITH INSULATING BUSHINGS.
	FLEXIBLE METALLIC CONDUIT, EQUIPMENT CONNECTION.
	CROSSMARKS ON BRANCH CIRCUIT CONDUIT RUNS INDICATE THE QUANTITY OF CONDUCTORS AS FOLLOWS (GROUND CONDUCTORS ARE NOT NOTED, BUT SHOULD BE INCLUDED IN EVERY CONDUIT WITH POWER CONDUCTORS): 1. NO CROSSMARKS INDICATES TWO #12 AWG CONDUCTORS, UON. 2. THREE TO SIX CROSSMARKS INDICATES THE QUANTITY OF #12 AWG CONDUCTORS, UON. 3. SEVEN OR MORE CROSSMARKS INDICATES THE QUANTITY OF #10 AWG CONDUCTORS, UON.
	SURFACE RACEWAY; TYPE, DEVICE SPACING AND MOUNTING AS NOTED ON PLANS.
	CABLE TRAYS/RUNWAYS, REFER TO PLANS AND/OR SPECS FOR SIZE AND MOUNTING.

TELECOMMUNICATIONS

Symbol	Description
	TELECOMMUNICATION DEVICE, WALL MOUNTED, +18" UON.
	TELECOMMUNICATION DEVICE, WALL MOUNTED, 6" ABOVE BACK SPLASH UON, BUT NO HIGHER THAN ADA REQUIREMENTS.
W	TELEPHONE DEVICE, WALL MOUNTED, +42" UON.
	TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX.
	TELECOMMUNICATION DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
	TELECOMMUNICATION DEVICE, CEILING MOUNTED.
	COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
	COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTINGS. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
	ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVERPLATE WITH 1.25" KO AND GROMMET.
	ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FLUSH FLOOR BOX WITH KO'S IN COVERS TO ACCEPT FURNITURE WHIPS. TELECOMMUNICATIONS WHIP SHALL BE 1.25" MINIMUM.
	ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEEDS, MOUNTED IN FIRE-RATED POKE-THRU THRU FLOOR FITTING WITH 1.25" KO'S IN COVER TO ACCEPT FURNITURE WHIPS.
WAP	WIRELESS ACCESS POINT, WALL MOUNTED, 8" BELOW FINISHED CEILING, UON.
WAP	WIRELESS ACCESS POINT, CEILING MOUNTED.
#D/#V	QUANTITY OF DATA AND/OR VOICE TELECOMMUNICATIONS DEVICES.
EL	TELECOMMUNICATION DEVICE, WALL MOUNTED, +18" UON, FOR ELEVATOR USE IN ELEVATOR MACHINE/CONTROLLER ROOM.
EM	TELECOMMUNICATION DEVICE, FOR EMERGENCY PHONES, MOUNTED AS NOTED ON PLANS.

AUDIO/VISUAL

Symbol	Description
PA	PA LOUDSPEAKER, WALL MOUNTED, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER. 25V, 70V, 100V, OR IP AS INDICATED ON DRAWINGS AND SPECS.
PA	PA LOUDSPEAKER, CEILING MOUNTED IN FLUSH BACK BOX. 25V, 70V, 100V OR IP AS INDICATED ON DRAWINGS AND SPECS.
SP	AV PROGRAM SPEAKER, WALL MOUNTED.
SP	AV PROGRAM SPEAKER, CEILING OR STRUCTURE MOUNTED.
IP	AUDIO AND VIDEO INTERFACE PLATE, WALL MOUNTED, +18" UON OR AS OTHERWISE NOTED.
IP	AUDIO AND VIDEO INTERFACE PLATE, MOUNTED IN FLUSH FLOOR BOX.
AV	AUDIO AND VIDEO CABLE DISPLAY PLATE, WALL MOUNTED, 4 11/16" BOX WITH 1 1/4" CONDUIT TO ACCESSIBLE CEILING. HEIGHT AS NOTED.
AV	AUDIO AND VIDEO CABLE AT PROJECTOR THROUGH SUPPORT, DIRECT CONNECT TO PROJECTOR.
TD	FLAT PANEL DISPLAY, WALL MOUNTED AFF AS NOTED.
SD	SIGNAGE DISPLAY, WALL MOUNTED AFF AS NOTED.
PR	PROJECTOR WITH PROJECTOR MOUNT, 1.5"-2" NPT COLUMN AND CEILING SUPPORT HARDWARE.
CP	AUDIO AND VIDEO CONTROL PANEL, FLUSH WALL MOUNTED AT 42" UON IN BACKBOX
CP	AUDIO AND VIDEO CONTROL PANEL, MOUNTED ON DESKTOP IN SURFACE BOX.
CP	AUDIO AND VIDEO CONTROL PANEL, RACK MOUNTED.
C	VIDEO CONFERENCING CAMERA, WALL MOUNTED @ 84"UON.
C	VIDEO CONFERENCING CAMERA, CEILING MOUNTED IN CAMERA DOME.
	PROJECTION SCREEN, SIZE AND TYPE AS NOTED.
PS	PROJECTION SCREEN 3 WAY POWER SWITCH, WALL MOUNTED, +42" UON.
V	VOLUME CONTROLLER, WALL MOUNTED, +42" UON.
MJ	MICROPHONE JACK, WALL MOUNTED, +18" UON.
MJ	MICROPHONE JACK, MOUNTED IN FLUSH FLOOR BOX.
I M	INTERCOM STATION, WALL MOUNTED, +42" UON. 'M' DENOTES MASTER STATION.
I M	INTERCOM STATION, MOUNTED ON DESK. 'M' DENOTES MASTER STATION.
	INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED, 12" BELOW CEILING OR + 96" AFF, WHICHEVER IS LOWER.
PA	COMBINATION LOUDSPEAKER/INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED IN COMBINATION BACK BOX, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
	TELEVISION JACK, WALL MOUNTED +18" UON OR AS NOTED.
	TELEVISION JACK, MOUNTED IN FLUSH FLOOR BOX.
RS	ROOM SCHEDULING PANEL

DIGITAL LIGHTING CONTROLS

Symbol	Description
D	SINGLE ZONE DIMMER SWITCH WITH ON/OFF/DIM CAPABILITIES, WALL MOUNTED, +42" UON.
S	SINGLE ZONE SWITCH WITH ON/OFF CAPABILITIES, WALL MOUNTED, +42" UON.
SC	SCENE OR MULTI-ZONE CONTROLLER WITH ON/OFF/DIM CAPABILITIES ZONE, WALL MOUNTED, +42" UON.
M	LIGHTING CONTROL OCCUPANCY SENSOR WITH DIMMING, WALL MOUNTED, +42" UON.
M1	LIGHTING CONTROL OCCUPANCY SENSOR WITH SINGLE LEVEL SWITCHING, WALL MOUNTED, +42" UON.
DS	DAYLIGHT HARVESTING SENSOR, CEILING MOUNTED.
M	OCCUPANCY SENSOR, CEILING MOUNTED FOR AREA COVERAGE.
PLC	PLUG LOAD CONTROLLER, UL LISTED FOR CONTROLLING RECEPTACLES, 20A RATED.
RMD / RMS	REMOTE DIMMING OR SWITCHING MODULE, NUMBER OF RELAYS CONTROLLED AS INDICATED ON THE PLAN. MAY CONSIST OF ONE DEVICE WITH MULTIPLE RELAYS, OR MORE THAN ONE SINGLE-RELAY DEVICE. DEVICE SHALL BE LOCATED CONCEALED IN AN EASILY ACCESSIBLE SPACE.
HVAC	HVAC INTERFACE DEVICE; ROOM HVAC TO SHUT DOWN WHEN ROOM IS VACANT.
NET	NETWORK INTERFACE, QUANTITY OF COMPONENTS, OR INTEGRATION OF THIS FEATURE INTO OTHER DEVICES, MAY VARY BY MANUFACTURER.
LCP	LIGHTING CONTROL PANEL.

ABBREVIATIONS

A	AMPERES	KO	CONDUIT KNOCKOUT
AFI	ARC FAULT CIRCUIT INTERRUPTER	LCP	LIGHTING CONTROL PANEL
AF	AMPERE OVERCURRENT FRAME SIZE (WHEN APPLIED TO CIRCUIT BREAKERS) OR AMPERE FUSE SIZE (WHEN APPLIED TO FUSES)	MBGB	MAIN BUILDING GROUND BUS
		MCB	MAIN CIRCUIT BREAKER
		MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MDF	MAIN DISTRIBUTION FRAME
AIC	ASYMMETRIC INTERRUPTING CURRENT	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTC	EMPTY CONDUIT
AT	AMPERE OVERCURRENT TRIP (WHEN APPLIED TO CIRCUIT BREAKERS)	MTS	MANUAL TRANSFER SWITCH
AV	AUDIO / VIDEO	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED
BAS	BUILDING AUTOMATION SYSTEM	NF	NON-FUSED
BPS	BOLTED PRESSURE CONTACT SWITCH	NIEC	NOT IN ELECTRICAL CONTRACT
C	CONDUIT	NL	NIGHT LIGHT, UNSWITCHED
CCTV	CLOSED CIRCUIT TELEVISION	NO	NORMALLY OPEN
CEC	CALIFORNIA ELECTRICAL CODE	NTS	NOT TO SCALE
CL	CURRENT LIMITING CIRCUIT BREAKER OR FUSE	OC	ON CENTER
		OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CP	CIRCULATION PUMP	PA	PUBLIC ADDRESS
CT	CURRENT TRANSFORMER	PDZ	PRIMARY DAYLIGHT ZONE
CU	COPPER	PNL	PANEL
DF	DRINKING FOUNTAIN	PQM	POWER QUALITY METER
(E)	EXISTING TO REMAIN	PT	POTENTIAL TRANSFORMER
EC	ELECTRICAL CONTRACTOR	PVC	POLYVINYL CHLORIDE
EF	EXHAUST FAN	(R)	EXISTING TO BE REMOVED
EP	EXPLOSION PROOF	(RR)	REMOVE AND RELOCATE
EPO	EMERGENCY POWER OFF	SAD	SEE ARCHITECTURAL DRAWINGS
EMT	ELECTRICAL METALLIC TUBING	TC	TIME CLOCK
EWH	ELECTRIC WATER HEATER	TP	TWISTED-PAIR
F	FUSED	SDZ	SECONDARY DAYLIGHT ZONE
(F)	FUTURE	SPD	SURGE PROTECTION DEVICE
FACP	FIRE ALARM CONTROL PANEL	TX	TRANSFORMER
FFCP	FIREMAN'S FAN CONTROL PANEL	TYP	TYPICAL
FLA	FULL LOAD AMPERES	UON	UNLESS OTHERWISE NOTED
FMC	FLEXIBLE METAL CONDUIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
FSD	FIRE/SMOKE DAMPER	V	VOLTS
FRAP	FIREMAN'S REMOTE ANNUNCIATOR PANEL	VA	VOLTS-AMPS
G	GROUND	VFD	VARIABLE FREQUENCY DRIVE
GB	GROUND BUS	VM	VENDING MACHINE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	WAP	WIRELESS ACCESS POINT
GND	GROUND	WP	WEATHERPROOF
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL	2SP	TWO SPEED
GRC	GALVANIZED RIGID CONDUIT	1Ø	1-PHASE
HNC	HOME NETWORK CABINET	3Ø	3-PHASE
HPC	HIGH PRESSURE CONTACT SWITCH	1P	1-POLE
IDF	INTERMEDIATE DISTRIBUTION FRAME	2P	2-POLE
IG	ISOLATED GROUND	3P	3-POLE
INV	INVERTER	3W	3-WIRE
IMC	INTERMEDIATE METAL CONDUIT	4W	4-WIRE

APPLIANCES

DO	DOUBLE OVEN	MW	MICROWAVE
DW	DISHWASHER	RF	REFRIGERATOR
ED	ELECTRIC DRYER	RH	RANGE HOOD
EO	ELECTRIC OVEN/RANGE	UR	UNDERCOUNTER REFRIGERATOR
GD	GARBAGE DISPOSER	WC	WINE COOLER
GR	GAS RANGE	WM	WASHING MACHINE

ELECTRICAL SHEET INDEX

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Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
SYMBOLS, ABBREVIATIONS, & SHEET INDEX

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PROJECT GENERAL NOTES

1. ELECTRICAL SCOPE SHALL COMPLY WITH THE LATEST ADOPTED EDITIONS OF THE CALIFORNIA ELECTRIC CODE (CEC), CALIFORNIA BUILDING CODE (CBC), CALIFORNIA FIRE CODE (CFC), CALIFORNIA MECHANICAL CODE (CMC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 72) AND THE CALIFORNIA ENERGY CODE.
2. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING THE PROJECT AND SHALL INCLUDE IN THEIR BID THE NECESSARY COSTS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS, AND ALL APPLICABLE CODES.
3. DRAWINGS INDICATE GENERAL ARRANGEMENT OF ELECTRICAL SYSTEMS AND WORK. FOLLOW THE DRAWINGS IN LAYING OUT WORK AND VERIFY EXACT LOCATIONS WITH ARCHITECTURAL FLOOR PLAN AND RCP DRAWINGS. ALSO, CHECK DRAWINGS OF OTHER TRADES TO VERIFY LOCATIONS OF EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AND COORDINATE SPACE CONDITIONS WITH THEIR INSTALLATION. FINAL LOCATIONS SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
4. NOT EVERY ELECTRICAL RACEWAY, BOX, CONDUCTOR, ETC., FOR A COMPLETE ELECTRICAL INSTALLATION, IS SHOWN ON THESE DRAWINGS. THIS IS DONE FOR CLARITY PURPOSES AND EASE OF INTERPRETING DRAWINGS. PROVIDE ALL ADDITIONAL ITEMS REQUIRED TO MAKE THE ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.
5. WORK PERFORMED UNDER THIS CONTRACT SHALL CONFORM TO THESE DRAWINGS AND SHALL ALSO COMPLY WITH THE ELECTRICAL SPECIFICATIONS. IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT OF THE REQUIREMENTS SHALL TAKE PRECEDENT.
6. ALL NEW ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE UNDERWRITER'S LABORATORIES (UL) LISTED OR ELECTRICAL TESTING LABORATORIES (ETL) LISTED AND BEAR THEIR LABELS.
7. ALL ELECTRICAL MATERIALS SHALL BE NEW AND UNUSED, AND THE SAME MANUFACTURER OF LIKE EQUIPMENT AND/OR SYSTEMS.
8. CONTRACTOR SHALL REMOVE ALL LEFTOVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH AND DEBRIS RESULTING FROM THEIR WORK.
9. MINIMUM CONDUIT TRADE SIZE FOR EXTERIOR APPLICATIONS SHALL BE 1.0", UNLESS OTHERWISE NOTED.
10. ALL UNDERGROUND BRANCH CIRCUIT CONDUITS SHALL HAVE A MINIMUM COVER OF 18", UNLESS OTHERWISE NOTED. INSTALL A WARNING/MARKER TAPE 6" OVER THE CONDUITS.
11. ALL UNDERGROUND CONDUITS ORIGINATING FROM BUILDING EXTERIOR AND TERMINATING IN ELECTRICAL EQUIPMENT WITHIN THE BUILDING INTERIOR SHALL BE SEALED AT BOTH ENDS AFTER CONDUCTORS ARE INSTALLED, TO PREVENT MOISTURE FROM COMING IN CONTACT WITH LIVE PARTS.
12. SITE PULLBOXES FOR BRANCH CIRCUITING SHALL BE SIZED TO CODE MINIMUM REQUIREMENTS.
13. CONTRACTOR SHALL DISCONNECT AND REMOVE ALL EQUIPMENT, DEVICES, LUMINAIRES, AND RACEWAYS DENOTED TO BE DEMOLISHED ON THESE DRAWINGS. LEGALLY DISPOSE OF ALL MATERIALS THAT THE OWNER DOES NOT WANT.
14. FURNISH, INSTALL, AND CONNECT A CODE SIZED INSULATED OR BARE COPPER GROUND CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDER CONDUITS.
15. ALL EQUIPMENT CONNECTED BY PERMANENT WIRING METHODS SHALL BE GROUNDED.
16. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED TO PREVENT VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST OUTLET OR DEVICE. THE MAXIMUM VOLTAGE DROP ALLOWED ON COMBINED FEEDERS AND BRANCH CIRCUITS SHALL NOT EXCEED 5% TO THE FARTHEST OUTLET OR DEVICE.
17. ALL CONDUCTORS ON THIS PROJECT SHALL BE STRANDED COPPER.
18. MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIDINATES, I.E. HANDLE TIES OR MULTIPOLE CIRCUIT BREAKERS.
19. ALL MULTIWIRE BRANCH CIRCUITS SHOWN WITH THREE (3) CONSECUTIVE PHASE CONDUCTORS (e.g., 1,3,5 OR 4,6,8), NONE SHARING THE SAME PHASE, SHALL INCLUDE A DEDICATED NEUTRAL CONDUCTOR -THREE (3) HOTS AND ONE (1) NEUTRAL. CIRCUITING OUT OF PHASE ORDER (e.g., 1,5,7 OR 4,6,10) WILL REQUIRE AN ADDITIONAL NEUTRAL CONDUCTOR, - TWO (2) HOTS AND ONE (1) NEUTRAL PLUS ONE (1) HOT AND ONE (1) NEUTRAL.
20. ALL BRANCH CIRCUITING SHALL BE INSTALLED IN CONDUIT. USE OF MC TYPE CABLE IS PROHIBITED, EXCEPT WHERE USE OF MC CABLE WOULD ALLOW CONTRACTOR TO 'FISH' TO NEW RECEPTACLE IN EXISTING WALL, ELIMINATING THE NEED FOR SURFACE RACEWAY.
21. MINIMUM CONDUIT TRADE SIZE FOR INTERIOR APPLICATIONS SHALL BE 0.75", UNLESS OTHERWISE NOTED.
22. CONDUIT ROUTING ON DRAWINGS IS ESSENTIALLY DIAGRAMMATIC. CONTRACTOR SHALL LAYOUT RUNS TO SUIT FIELD CONDITIONS, LIMITING BENDS AND BOXES, AND SHALL COORDINATE INSTALLATION WITH WORK OF OTHER TRADES.
23. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE-RATED WALLS OR FLOORS SHALL BE UL LISTED ASSEMBLIES THAT PROTECTS THE RATED ASSEMBLY. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL RATED WALLS AND FLOORS AS APPLICABLE.

PROJECT GENERAL NOTES (cont.)

24. ALL CONNECTIONS TO MECHANICAL AND PLUMBING EQUIPMENT SHALL BE MADE WITH A MINIMUM OF 36" SEALTIGHT FLEXIBLE METAL CONDUIT TO PREVENT SOUND AND VIBRATION TRANSMISSION TO THE STRUCTURE.
25. DRAWINGS INDICATE JUNCTION BOXES WITH CONDUIT/CONDUCTOR HOMERUNS FOR BRANCH CIRCUITING, AS WELL AS CIRCUIT NUMBERING ADJACENT TO EQUIPMENT, DEVICES, LUMINAIRES AND BOXES SERVED. THEY DO NOT INCLUDE CONNECTIONS BETWEEN DEVICES AND/OR LUMINAIRES. CONTRACTOR SHALL PROVIDE ALL RACEWAY AND CONDUCTOR CONNECTIONS BETWEEN THE DEVICES, LUMINAIRES, AND JUNCTION BOXES AS REQUIRED AND COORDINATED WITH FIELD CONDITIONS AND OTHER TRADES.
26. IN HARD-LID (GYPSUM BOARD) CEILING SPACES, ARRANGE CONDUIT AND CIRCUITING INSTALLATION TO AVOID AND/OR LIMIT THE USE OF JUNCTION BOXES IN OR ABOVE CEILINGS. USE OF JUNCTION BOXES ABOVE CEILINGS SHALL BE LIMITED TO LOCATIONS ACCESSIBLE FROM ACCESS PANELS.
27. ALL JUNCTION AND PULL BOXES SHALL BE SIZED PER CODE TO ACCOMMODATE NUMBER OF CONDUITS AND/OR CONDUCTORS ROUTED TO AND FROM BOXES.
28. INSTALLATION OF EXPOSED CONDUIT IS PUBLIC SPACES IS PROHIBITED WITHOUT SPECIAL PERMISSION.
29. RACEWAYS ROUTED IN EXPOSED CEILING AREAS SHALL BE RUN PARALLEL AND AT RIGHT ANGLES TO WALLS WITHIN SPACES.
30. PROVIDE A PULL WIRE/TAPE IN ALL EMPTY CONDUIT RUNS OVER 15' IN LENGTH.
31. NO PIPING, DUCTWORK, OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE ALLOWED WITHIN THE DEDICATED SPACE ABOVE ELECTRICAL EQUIPMENT.
32. REQUIRED ELECTRICAL EQUIPMENT WORKING SPACE DEPTH SHALL NOT BE LESS THAN THAT INDICATED IN CEC TABLE 110.26(A)(1). THE WIDTH OF THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT SHALL BE THE WIDTH OF THE EQUIPMENT OR 30", WHICHEVER IS GREATER. THIS REQUIREMENT ALSO APPLIES TO DISCONNECT SWITCHES.
33. CONTRACTOR SHALL PROVIDE ARC FLASH LABELS FOR ALL ELECTRICAL EQUIPMENT WITHIN THE SCOPE OF THIS PROJECT. THESE LABELS SHALL BE GENERATED BY THE CONTRACTOR FROM THE POWER SYSTEM STUDY AND SUBMITTED WITH THE POWER SYSTEM STUDY SUBMITTAL FOR ENGINEER'S REVIEW. THIS INCLUDES ALL FIELD MARKING OF AIC VALUES ON ALL BOARDS PER THE CEC.
34. PROVIDE ENGRAVED NAMEPLATES FOR ALL ELECTRICAL PANELBOARDS, SWITCHBOARDS, SWITCHGEAR, TRANSFORMERS, AND DISCONNECT SWITCHES, AS DESCRIBED IN THE SPECIFICATIONS.
35. CONTRACTOR SHALL ENSURE THAT THE ELECTRICAL EQUIPMENT PROVIDED UNDER THEIR CONTRACTOR WILL FIT WITHIN THE ELECTRICAL ROOMS AND SPACES PROVIDED IN THE BID DOCUMENTS, WHETHER PROVIDED BY THE SPECIFIED EQUIPMENT MANUFACTURER OR NOT. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED IF CONTRACTOR NEEDS TO ADJUST EQUIPMENT PACKAGE TO OBTAIN REDUCED DIMENISONS.
36. OVERCURRENT PROTECTION SHOWN ON DRAWINGS FOR ALL MOTOR TYPE LOADS ARE BASED ON DOCUMENTS PROVIDED PRIOR TO BID. CONTRACTOR SHALL REVIEW EQUIPMENT SUBMITTALS AND SHOP DRAWINGS FOR HVAC, PLUMBING, ETC. TO CONFIRM SIZES HAVE NOT CHANGED AND MAKE ADJUSTMENTS IF THEY HAVE.
37. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE WEATHERPROOF (NEMA 3R RATED, MINIMUM) AND LISTED FOR EXTERIOR APPLICATIONS.
38. WIRING SPACE IN PANELBOARDS, DISTRIBUTION BOARDS, SWITCHBOARDS, AND SWITCHGEAR SHALL BE DEDICATED TO CONDUCTORS TERMINATED IN THAT ENCLOSURE AND SHALL NOT BE USED AS PULL AND/OR SPLICE BOXES FOR CONDUCTORS THAT TERMINATE IN OTHER ENCLOSURES.
39. ALL CIRCUIT BREAKERS SERVING THE FIRE ALARM CONTROL PANEL AND FIRE ALARM SYSTEM COMPONENTS SHALL HAVE LOCKABLE HANDLES AND SHALL BE RED IN COLOR, FOR EASE IN IDENTIFICATION.
40. PROVIDE PROTECTION FROM PHYSICAL DAMAGE FOR ALL ELECTRICAL EQUIPMENT, LUMINAIRES, WIRING DEVICES, ETC., DURING THE CONSTRUCTION OF THE PROJECT.
41. MOUNTING HEIGHTS OF ALL WIRING DEVICES ARE DIMENSIONED TO THE CENTER OF THE DEVICE, UNLESS OTHERWISE NOTED.
42. PROVIDE INDIVIDUAL GFCI TYPE RECEPTACLES AT EACH LOCATION SHOWN ON DRAWINGS. DO NOT APPLY THE FEED-THROUGH METHOD OF PROTECTING A NON-GFCI RECEPTACLE DOWNSTREAM OF A GFCI RECEPTACLE.
43. PROVIDE GFCI TYPE RECEPTACLES WITH WEATHERPROOF "WHILE-IN-USE" COVERPLATES WITHIN 25' OF ALL EXTERIOR HVAC AND PLUMBING EQUIPMENT.
44. WHERE RECEPTACLES ARE LOCATED OUTSIDE OR IN WET/DAMP LOCATIONS, PROVIDE WEATHERPROOF WHILE-IN-USE COVERPLATES.
45. ALL WIRING DEVICES AND JUNCTION BOX COVERS SHALL HAVE TYPE-ON-TAPE LABELS INDICATING THE PANELBOARD AND CIRCUIT NUMBER(S) SERVING EACH DEVICE.
46. CONTRACTOR SHALL SIZE ALL JUNCTION AND PULL BOXES PER THE MINIMUM CODE REQUIREMENTS OF CEC ARTICLE 314, UNLESS OTHERWISE NOTED ON DRAWINGS.
47. CONTRACTOR SHALL COORDINATE WITH DEMOLITION SCOPE FOR OTHER TRADES, MECHANICAL AND PLUBMING IN PARTICULAR, AND REMOVE ALL ASSOCIATED ELECTRICAL INFRASTRUCTURE ASSOCIATED WITH EQUIPMENT TO BE REMOVED, INCLUDING ELECTRICAL CONNECTIONS, DISCONNECTS, CONDUIT AND WIRE, ETC.

Branch Panel: (E) PANEL LN2

Location: ELEC 01A-S00F **Served From** DS **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: SURFACE **Volts:** 120/208 **Wires** 4 **Main Type:** MCB **Main Rating:** 100 A

LC	Load Served	Amp	P	#	A (kVA)		B (kVA)		C (kVA)		#	P	Amp	Load Served	LC
R	(E) CAFETERIA RECPTACLES	20 A	1	1	0.90	0.72					2	1	20 A	(E) RECEPTACLES	R
R	(E) MAIN AREA / CORRIDOR	20 A	1	3			1.08	0.72			4	1	20 A	(E) RECEPTACLES	R
R	(E) MAIN AREA / CORRIDOR	20 A	1	5					0.90	0.90	6	1	20 A	(E) RECEPTACLES	R
R	RECEPTACLE	20 A	1	7	1.08	0.36					8	1	20 A	(E) RECEPTACLES	R
R	RECEPTACLE	20 A	1	9			0.90	0.72			10	1	20 A	(E) RECEPTACLES	R
R	RECEPTACLE	20 A	1	11					0.36	0.90	12	1	20 A	(E) RECEPTACLES	R
R	RECEPTACLE	20 A	1	13	0.18	0.18					14	1	20 A	(N) DEDICATED MDF RM RECP.	R
R	RECEPTACLE	20 A	1	15			0.18	0.18			16	1	20 A	(N) DEDICATED MDF RM RECP.	R
R	RECEPTACLE	20 A	1	17					0.54		18				
				19							20				
--	(E) SPARE	20 A	1	21			0.00	1.08			22	1	20 A	(E) RECEPTACLES	R
--	(E) SPARE	20 A	1	23					0.00	0.18	24	1	20 A	(E) RECEPTACLES	R
--	(E) SPARE	20 A	1	25	0.00						26				
--	(E) SPARE	20 A	1	27			0.00	0.00			28	1	20 A	(E) SPARE	--
--	(E) SPARE	20 A	1	29					0.00	0.00	30	1	20 A	(E) SPARE	--
--	(E) SPARE	20 A	1	31	0.00	0.00					32	1	20 A	(E) SPARE	--
--	(E) SPARE	20 A	1	33			0.00	0.00			34	1	20 A	(E) SPARE	--
--	(E) SPARE	20 A	1	35					0.00	0.00	36	1	20 A	(E) SPARE	--
--	space	--	1	37	--	--					38	1	--	space	--
--	space	--	1	39			--	--			40	1	--	space	--
--	space	--	1	41					--	--	42	1	--	space	--
				Total Load:	3.42 kVA		4.86		3.78						
				Total Amps:	29 A		40.96 A		31.96 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Receptacle	12.06 kVA	91.46%	11.03 kVA	Connected Load:	12.06 kVA
				Connected Amps:	33.48 A
				Code Demand Load:	11.03 kVA
				Code Demand Amps:	30.62 A

Notes:

Branch Panel: (E) PANEL K2

Location: KITCHEN 01A-K001 **Served From** LS2 **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 100 A
Mounting: RECESSED **Volts:** 120/208 **Wires** 4 **Main Type:** MCB **Main Rating:** 100 A

LC	Load Served	Amp	P	#	A (kVA)		B (kVA)		C (kVA)		#	P	Amp	Load Served	LC
M	(E) HOOD CONTROL PANEL	15 A	1	1	0.00	0.00					2	2	15 A	(E) FREEZER K-1	z
R	(E) REFRID K-3	15 A	1	3			0.18	0.00			4				
R	(E) PROOF BOX K-4	15 A	1	5					0.18	0.00	6	2	15 A	(E)	z
z	(E) MIXER K-7	20 A	1	7	0.00	0.00					8				
z	(E) SLICER K-14	20 A	1	9			0.00	0.00			10	2	15 A	Other	z
z	(E) STEAMER K-17	15 A	1	11					0.00	0.00	12				
R	(E) REFRIG. K-3	15 A	1	13	0.18	0.00					14	2	20 A	Other	z
z	(E) MIXER K-8	20 A	2	15			0.00	0.00			16				
				17					0.00	0.00	18	2	20 A	Other	z
z	(E) COUNTER FD1	20 A	2	19	0.00	0.00					20				
				21			0.00	0.00			22	2	20 A	Other	z
R	(E) OVEN K-11	20 A	1	23					0.18	0.00	24				
R	(E) OVEN K-11	20 A	1	25	0.18	0.00					26	2	20 A	Other	z
R	(E) OVEN K-9	20 A	1	27			0.18	0.00			28				
R	(E) OVEN K-9	20 A	1	29					0.18	0.00	30	1	15 A	(E) EU	M
--	SPARE	20 A	1	31	0.00	0.00					32	1	20 A	SPARE	--
--	SPARE	20 A	1	33			0.00	0.00			34	1	20 A	SPARE	--
--	SPARE	20 A	1	35					0.00	0.00	36	1	20 A	SPARE	--
R	(N) COMBI OVEN	15 A	2	37	0.39	0.39					38	2	15 A	(N) COMBI OVEN	R
				39			0.39	0.39			40				
--	SHUNT TRIP {1}	--	1	41					--	--	42	1	--	SHUNT TRIP {1}	--
				Total Load:	1.13 kVA		1.13		0.54						
				Total Amps:	10 A		10.17 A		4.5 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Motor	0 kVA	0.00%	0 kVA	Connected Load:	2.80 kVA
Other	0 kVA	0.00%	0 kVA	Connected Amps:	7.77 A
Receptacle	2.8 kVA	100.00%	2.8 kVA	Code Demand Load:	2.8 kVA
				Code Demand Amps:	7.77 A

Notes:
{1} PROVIDE INTERFACE WITH FIRE SUPPRESSION SYSTEM.

Branch Panel: (E) PANEL HG

Location: UTILITY G16 **Served From** MSA **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: SURFACE **Volts:** 277/480 **Wires** 4 **Main Type:** MCB **Main Rating:** 225 A

LC	Load Served	Amp	P	#	A		B		C		#	P	Amp	Load Served	LC
L	(E) GYM LIGHTING	20 A	1	1	1.20	0.52					2	3	15 A	(E) GIRLS LOCKER ROOM HVAC MAU	M
L	(E) GYM LIGHTING	20 A	1	3			1.20	0.52			4				
L	(E) GYM LIGHTING	20 A	1	5					1.20	0.52	6				
L	(E) ENTRY LIGHTING	20 A	1	7	1.20	3.46					8	3	80 A	(E) AC-2	M
L	(E) BOYS LOCKER ROOM LTG	20 A	1	9			1.20	3.46			10				
L	(E) BOYS OFFICE LIGHTING	20 A	1	11					1.20	3.46	12				
L	(E) GIRLS LOCKER ROOM LTG	20 A	1	13	1.20	3.46					14	3	80 A	(E) AC-1	M
L	(E) GIRLS OFFICE LIGHITNG	20 A	1	15			1.20	3.46			16				
M	(E) ROOF EXHAUST FAN (REF-3)	20 A	3	17					0.69	3.46	18				
				19	0.69	0.52					20	3	15 A	(E) BOYS LOCKER ROOM HVAC MAU	M
				21			0.69	0.52			22				
M	(E) ROOF EXHAUST FAN (REF-4)	20 A	3	23					0.69	0.52	24				
				25	0.69	16.89					26	3	100 A	(E) PANEL LG (VIA T-TG)	M; z; L; R
				27			0.69	15.94			28				
--	(E) SPARE	20 A	1	29					0.00	17.44	30				
--	(E) SPARE	20 A	1	31	0.00	0.90					32	1	15 A	(E) EMERGENCY LTG RELAY	L
--	(E) SPARE	20 A	1	33			0.00	0.90			34	1	15 A	(E) LIGHTING RELAY	L
--	(E) SPARE	20 A	1	35					0.00	0.00	36	1	15 A	(E) SPARE	--
M	(E) MOTOR DRIVEN DOOR	0 A	3	37	0.69	1.04					38	3	30 A	(E) IRRIGATION SPRINKLER PUMP	M
				39			0.69	1.04			40				
				41					0.69	1.04	42				
M	(N) AC-17	35 A	3	43	2.08	--					44	1	--	(E) space	--
				45			2.08	--			46	1	--	(E) space	--
				47					2.08	--	48	1	--	(E) space	--
M	(N) AC-18	45 A	3	49	2.52	--					50	1	--	(E) space	--
				51			2.52	--			52	1	--	(E) space	--
				53					2.52	--	54	1	--	(E) space	--
				Total Load:	37.06 kVA		36.10		35.50						
				Total Amps:	134 A		130.67 A		128.17 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Motor	47.79 kVA	105.43%	50.38 kVA	Connected Load:	108.66 kVA
Lighting	18.6 kVA	125.00%	23.25 kVA	Connected Amps:	130.7 A
Receptacle	42.28 kVA	61.83%	26.14 kVA	Code Demand Load:	99.77 kVA
				Code Demand Amps:	120 A

Notes:

Branch Panel: (N) PANEL B

Location: STAGE 03A-U002 **Served From** MSC **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: RECESSED **Volts:** 120/208 **Wires** 4 **Main Type:** MCB **Main Rating:** 200 A

LC	Load Served	Amp	P	#	A		B		C		#	P	Amp	Load Served	LC
--	(E) LOAD {1}	--	1	1	--	--					2	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	3			--	--			4	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	5					--	--	6	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	7	--	--					8	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	9			--	--			10	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	11					--	--	12	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	13	--	--					14	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	15			--	--			16	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	17					--	--	18	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	19	--	--					20	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	21			--	--			22	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	23					--	--	24	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	25	--	--					26	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	27			--	--			28	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	29					--	--	30	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	31	--	--					32	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	33			--	--			34	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	35					--	--	36	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	37	--	--					38	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	39			--	--			40	1	--	(E) LOAD {1}	--
--	(E) LOAD {1}	--	1	41					--	--	42	1	--	(E) LOAD {1}	--
z	(N) DMX	20 A	1	43	0.36	0.00					44	1	20 A	SPARE	--
R	(N) STAGE LTG	20 A	1	45			0.18	0.00			46	1	20 A	SPARE	--
R	(N) STAGE LTG	20 A	1	47					0.18	0.00	48	1	20 A	SPARE	--
R	(N) STAGE LTG	20 A	1	49	0.18	0.00					50	1	20 A	SPARE	--
R	(N) STAGE LTG	20 A	1	51			0.18	0.00			52	1	20 A	SPARE	--
z	(N) DMX CONTROL STATION	20 A	1	53					0.18	0.00	54	1	20 A	SPARE	--
R	(N) STAGE RECEPTACLES	20 A	1	55	0.72	0.00					56	1	20 A	SPARE	--
L	(N) BACK OF HOUSE STG LTG	20 A	1	57			0.28	0.00			58	1	20 A	SPARE	--
--	SPARE	20 A	1	59					0.00	0.00	60	1	20 A	SPARE	--
--	SPARE	20 A	1	61	0.00	0.00					62	1	20 A	SPARE	--
--	SPARE	20 A	1	63			0.00	0.00			64	1	20 A	SPARE	--
--	SPARE	20 A	1	65					0.00	0.00	66	1	20 A	SPARE	--
--	SPARE	20 A	1	67	0.00	0.00					68	1	20 A	SPARE	--
--	SPARE	20 A	1	69			0.00	0.00			70	1	20 A	SPARE	--
--	SPARE	20 A	1	71					0.00	0.00	72	1	20 A	SPARE	--
				Total Load:	1.26 kVA		0.64		0.36						
				Total Amps:	11 A		5.73 A		3 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Other	0.54 kVA	100.00%	0.54 kVA	Connected Load:	2.26 kVA
Lighting	0.28 kVA	125.00%	0.36 kVA	Connected Amps:	6.28 A
Receptacle	1.44 kVA	100.00%	1.44 kVA	Code Demand Load:	2.34 kVA
				Code Demand Amps:	6.48 A

Notes:
{1} RECONNECT EXISTING LOAD. CONTRACTOR TO VERIFY CONFIGURATION OF EXISTING BREAKERS ON SITE PRIOR TO ORDERING GEAR.

Branch Panel: (E) PANEL CL1

Location: UTILITY 03A-B001 **Served From** MSC **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: SURFACE **Volts:** 120/208 **Wires** 4 **Main Type:** MLO **Main Rating:** NA

LC	Load Served	Amp	P	#	A (kVA)		B (kVA)		C (kVA)		#	P	Amp	Load Served	LC
R	(E) COMPUTER RECP, RM 206	20 A	1	1	1.34	1.40					2	2	30 A	(E) HANDICAP CHAIRLIFT	R
R	(E) COMPUTER RECP, RM 206	20 A	1	3			0.98	1.40			4				
R	(E) COMPUTER RECP, RM 206	20 A	1	5					1.16	0.00	6	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 205	20 A	1	7	0.80	0.00					8	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 205	20 A	1	9			1.34	0.00			10	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 205	20 A	1	11					0.98	0.00	12	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 204	20 A	1	13	0.80	0.00					14	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 204	20 A	1	15			1.16	0.00			16	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 204	20 A	1	17					0.80	0.00	18	1	20 A	SPARE	--
R	(E) COMPUTER RECP, RM 202	20 A	1	19	1.16	2.40					20	1	30 A	{1}IWH-1 RR 03A-T001	z
R	(E) COMPUTER RECP, RM 202	20 A	1	21			0.80	--			22	1	--	space	--
R	(E) COMPUTER RECP, RM 202	20 A	1	23					0.80	--	24	1	--	space	--
R	(E) COMPUTER RECP, RM 223	20 A	1	25	1.56	--					26	1	--	space	--
R	(E) COMPUTER RECP, RM 223	20 A	1	27			0.80	--			28	1	--	space	--
R	(E) COMPUTER RECP, RM 223	20 A	1	29					1.60	--	30	1	--	space	--
R	(E) COMPUTER RECP, RM 224	20 A	1	31	1.20	--					32	1	--	space	--
R	(E) COMPUTER RECP, RM 224	20 A	1	33			2.00	--			34	1	--	space	--
R	(E) COMPUTER RECP, RM 224	20 A	1	35					1.20	--	36	1	--	space	--
--	(E) SPARE	20 A	1	37	0.00	--					38	1	--	space	--
--	(E) SPARE	20 A	1	39			0.00	--			40	1	--	space	--
--	(E) SPARE	20 A	1	41					0.00	--	42	1	--	space	--
				Total Load:	10.66 kVA		8.48		6.54						
				Total Amps:	91 A		73.15 A		54.5 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Other	2.4 kVA	100.00%	2.4 kVA	Connected Load:	25.68 kVA
Receptacle	23.28 kVA	71.48%	16.64 kVA	Connected Amps:	71.28 A
				Code Demand Load:	19.04 kVA
				Code Demand Amps:	52.85 A

Notes:
{1} PROVIDE BREAKER LOCKOUT DEVICE

GENERAL SHEET NOTES

A. BREAKER FOR FIRE ALARM CONTROL PANEL AND OTHER FIRE ALARM DEVICES SHALL COMPLY WITH NFPA 72 § 10.6.5.2
1. PROVICE DEDICATED CIRCUIT.
2. PROVIDE LOCKOUT DEVICE AT BREAKER.
3. PROVIDE BREAKER WITH RED TRIP HANDLE.
4. IDENTIFY FIRE ALARM DEVICES CLEARLY ON PANEL DIRECTORY.
5. ALL PANELS ARE PROVIDED WITH KEY AND LOCK FOR ACCESS ONLY TO AUTHORIZED PERSONAL.
6. PROVIDE NAMEPLATE AT FIRE ALARM CONTROL PANEL INDICATING LOCATION SERVICING THE FACP AND ROOM NUMBER WHERE PANEL IS LOCATED.

B. PER CEC 210.4(B), PROVIDE HANDLE TIE ATTACHMENT FOR SIMULTANEOUS DISCONNECT OF ALL MULTI-WIRE BRANCH CIRCUITS.

Branch Panel: (N) PANEL WS

Location: WOODSHOP 01A-22 **Served From** DS **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: RECESSED **Volts:** 120/208 **Wires** 4 **Main Type:** MCB{1} **Main Rating:** 175 A

LC	Load Served	Amp	P	#	A		B		C		#	P	Amp	Load Served	LC
z	(E) DRILL PRESS	15 A	3	1	0.00	0.36					2	1	20 A	(E) RECEPTACLE	R
				3			0.00	0.36			4	1	20 A	(E) RECEPTACLE	R
				5					0.00	0.36	6	1	20 A	(E) RECEPTACLE	R
z	(E) GRINDER	15 A	3	7	0.00	0.00					8	3	30 A	(E) SURFACER	z
				9			0.00	0.00			10				
				11					0.00	0.00	12				
z	(E) DISC SANDER	15 A	3	13	0.00	0.00					14	3	15 A	(E) SCROLL SAW	z
				15			0.00	0.00			16				
				17					0.00	0.00	18				
z	(E) TABLE SAW	30 A	3	19	0.00	0.00					20	3	15 A	(E) BAND SAW	z
				21			0.00	0.00			22				
				23					0.00	0.00	24				
z	(E) LATHE	15 A	3	25	0.00	0.00					26	3	15 A	(E) JOINTER	z
				27			0.00	0.00			28				
				29					0.00	0.00	30				
--	SPARE	30 A	1	31	0.00	0.00					32	1	20 A	SPARE	--
--	SPARE	30 A	1	33			0.00	0.00			34	1	20 A	SPARE	--
--	SPARE	30 A	1	35					0.00	0.00	36	1	20 A	SPARE	--
--	SPARE	30 A	1	37	0.00	0.00					38	1	20 A	SPARE	--
--	space	--	1	39			--	--			40	1	--	space	--
--	space	--	1	41					--	--	42	1	--	space	--
R	(N) WOODSHOP REC.	20 A	1	43	0.90	0.90					44	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	45			0.90	0.90			46	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	47					0.90	0.90	48	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	49	0.90	0.90					50	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	51			0.90	0.90			52	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	53					0.90	0.90	54	1	20 A	(N) WOODSHOP REC.	R
R	(N) WOODSHOP REC.	20 A	1	55	0.90	0.90					56	1	20 A	(N) WOODSHOP REC. REEL	R
R	(N) WOODSHOP REC.	20 A	1	57			1.80	0.90			58	1	20 A	(N) WOODSHOP REC. REEL	R
R	(N) WOODSHOP REC.	20 A	1	59					1.80	0.90	60	1	20 A	(N) EXTERIOR REC.	R
--	SPARE	20 A	1	61	0.00	0.00					62	1	20 A	SPARE	--
--	SPARE	20 A	1	63			0.00	0.00			64	1	20 A	SPARE	--
--	SPARE	20 A	1	65					0.00	0.00	66	1	20 A	SPARE	--
--	SPARE	20 A	1	67	0.00	0.00					68	1	20 A	SPARE	--
--	SPARE	20 A	1	69			0.00	0.00			70	1	20 A	SPARE	--
--	SPARE	20 A	1	71					0.00	0.00	72	1	20 A	SPARE	--
				Total Load:	5.76 kVA		6.66		6.66						
				Total Amps:	48 A		56.65 A		56.65 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Other	0 kVA	0.00%	0 kVA	Connected Load:	19.08 kVA
Receptacle	19.08 kVA	76.21%	14.54 kVA	Connected Amps:	52.96 A
				Code Demand Load:	14.54 kVA
				Code Demand Amps:	40.36 A

Notes:
{1} SHUNT TRIP MAIN CIRCUIT BREAKER

Branch Panel: (E) PANEL LG

Location: UTILITY G16 **Served From** T-TG (VIA... **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 100 A
Mounting: SURFACE **Volts:** 120/208 **Wires** 4 **Main Type:** MCB **Main Rating:** 100 A

LC	Load Served	Amp	P	#	A		B		C		#	P	Amp	Load Served	LC
R	(E) REC AND FLOODLIGHT	20 A	1	1	1.20	0.90					2	2	30 A	(E) WAC-2	R
R	(E) RECEPTACLES	20 A	1	3			1.20	0.90			4				
R	(E) FIRE ALARM	20 A	1	5					1.20	0.90	6	1	15 A	(E) CEF-6	R
R	(E) RECEPTACLES	20 A	1	7	1.20	0.90					8	1	15 A	(E) CEF-5	R
L	(E) BOYS LOCKER ROOM LTG	20 A	1	9			1.20	0.90			10	2	30 A	(E) WAC-1	R
L	(E) BOYS OFFICE LIGHTING	20 A	1	11					1.20	0.90	12				
L	(E) GIRLS LOCKER ROOM LTG	20 A	1	13	1.20	1.20					14	1	20 A	(E) EWH AND REF-5 (BOYS RR)	R
L	(E) GIRLS OFFICE LIGHTING	20 A	1	15			1.20	0.90			16	1	15 A	(E) BOYS HOT WATER HEATER	R
L	(E) LTG CONTACTOR PNL LCG	20 A	1	17					1.20	1.20	18	1	20 A	(E) REF -8	R
R	(E) LCP-3B AND TIMECLOCK	20 A	1	19	1.20	1.20					20	1	20 A	(E) REF-7	R
R	(E) USE UNKNOWN	20 A	1	21			1.20	0.90			22	1	15 A	(E) REF-1 (GIRLS RR)	R
L	(E) LIGHTING	20 A	1	23					1.20	1.20	24	1	20 A	(E) EHW	R
--	(E) SPARE	20 A	3	25	0.00	1.20					26	1	20 A	(E) SCOREBOARD/SHOTCLOCK	R
				27			0.00	1.20			28	1	20 A	(E) HWCP-2	R
				29					0.00	1.20	30	1	20 A	(E) GWH-2	R
R	(E) FUTURE "SSR"	20 A	1	31	1.20	1.20					32	1	20 A	(E) FSR BELL	R
R	(E) COMPUTER RECEPTACLES	20 A	1	33			1.20	1.20			34	1	20 A	(E) TEMP CONTROL PANEL	R
R	(E) RECEPTACLES	20 A	1	35					1.20	1.20	36	1	20 A	(E) HAND DRYER	R
R	(E) COMPUTER RECEPTACLES	20 A	1	37	1.20	1.20					38	1	20 A	Receptacle	R
--	(E) SPARE	20 A	1	39			0.00	1.20			40	1	20 A	Receptacle	R
--	(E) SPARE	20 A	1	41					0.00	1.20	42	1	20 A	Receptacle	R
R	BLEACHERS	20 A	3	43	0.69	0.06					44	1	20 A	(N) OAF G1,G2	M
				45			0.69	0.00			46	1	20 A	(E) SPARE	--
				47					0.69	0.90	48	2	30 A	(E) GYM CONTROL CENTER	R
M	(N) SHPI/SHPO G1 OFFICE G10	20 A	3	49	0.08	0.90					50				
				51			0.08	1.80			52	1	30 A	(E) IWH-1	R
				53					0.08	1.80	54	1	30 A	(E) IWH-2	R
M	(N) SHPI/SHPO G2 OFFICE G7	25 A	3	55	0.08	0.08					56	3	25 A	(N) SHPI/SHPO S1 RM 01A-S0AU	M
				57			0.08	0.08			58				
				59					0.08	0.08	60				
				Total Load:	16.89 kVA		15.94		17.44						
				Total Amps:	142 A		132.79 A		146.52 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Motor	0.79 kVA	105.73%	0.83 kVA	Connected Load:	50.26 kVA
Lighting	7.2 kVA	125.00%	9 kVA	Connected Amps:	139.51 A
Receptacle	42.28 kVA	61.83%	26.14 kVA	Code Demand Load:	35.97 kVA
				Code Demand Amps:	99.84 A

Notes:

Branch Panel: (E) PANEL CE

Location: CONSUMER ED. 01A-18 **Served From** DS **Phases** 3 **A.I.C. Rating:** 10K **Bus Rating** 225 A
Mounting: RECESSED **Volts:** 120/208 **Wires** 4 **Main Type:** MCB **Main Rating:** 225 A

LC	Load Served	Amp	P	#	A (kVA)		B (kVA)		C (kVA)		#	P	Amp	Load Served	LC
M	(E) HEF-3	15 A	1	1	0.00	0.18					2	1	20 A	(E) POWER POLES	R
M	(E) HEF-2	15 A	1	3			0.00	0.18			4	1	20 A	(E) POWER POLES	R
M	(E) HEF-4	15 A	1	5					0.00	0.18	6	1	20 A	(E) POWER POLES	R
M	(E) HEF-5	15 A	1	7	0.00	0.18					8	1	20 A	(E) POWER POLES	R
R	(E) RECEPTACLE	20 A	1	9			0.72	0.18			10	1	20 A	(E) RECEPTACLE	R
R	(E) RECEPTACLE	20 A	1	11					0.72	0.18	12	1	20 A	(E) RECEPTACLE	R
z	(E) DISPOSAL	20 A	1	13	0.00	0.18					14	1	20 A	(E) RECEPTACLE	R
R	(E) DRYER	60 A	2	15			0.09	0.00			16	2	60 A	(E) RANGE	z
				17					0.09	0.00	18				
z	{1} (N) HAND DRYER	20 A	1	19	1.45	0.00					20	2	60 A	(E) RANGE	z
z	{1} (N) HAND DRYER	20 A	1	21			1.45	0.00			22				
z	{1} (N) HAND DRYER	20 A	1	23					1.45	0.00	24	2	60 A	(E) RANGE	z
z	{1} (N) HAND DRYER	20 A	1	25	1.45	0.00					26				
--	space	--	1	27			--	--			28	1	--	space	--
--	space	--	1	29					--	--	30	1	--	space	--
--	space	--	1	31	--	--					32	1	--	space	--
--	space	--	1	33			--	--			34	1	--	space	--
				Total Load:	3.44 kVA		2.62		2.62						
				Total Amps:	29 A		21.83 A		21.83 A						

Load Classification	Conn. Load	Demand Factor	Code Demand	Panel Totals	
Motor	0 kVA	0.00%	0 kVA	Connected Load:	8.68 kVA
Other	5.8 kVA	100.00%	5.8 kVA	Connected Amps:	24.09 A
Receptacle	2.88 kVA	100.00%	2.88 kVA	Code Demand Load:	8.68 kVA
				Code Demand Amps:	24.09 A

Notes:
{1} PROVIDE BREAKER LOCKOUT DEVICE {2}

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NOTES AND PANEL SCHEDULES

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MECHANICAL EQUIPMENT COORDINATION SCHEDULE

GENERAL NOTES:
A. REFER TO FEEDER SCHEDULE FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
B. WHERE FEEDERS ARE INSTALLED IN AMBIENT TEMPERATURES ABOVE 30 DEGREES C (86 DEGREES F) APPLY CORRECTION FACTORS PER CEC 310.15(B)(2).
C. CONTRACTOR SHALL FIELD VERIFY NAMEPLATE MCA AND MOCP RATINGS OF SUBMITTED/INSTALLED EQUIPMENT AND REPORT DISCREPANCIES TO THE ENGINEER.
DISCONNECT TYPES: SM = MOTOR RATED SWITCH, F = FUSED, NF = NON-FUSED
REMARKS:
1. POWERED THROUGH OUTDOOR UNIT. REFER TO MANUFACTURER'S WIRING INSTRUCTIONS.
2. PROVIDED WITH CONDENSATE PUMP, FED FROM RESPECTIVE UNIT. EXTEND WIRE AND CONDUIT AS NECESSARY.
3.
4.

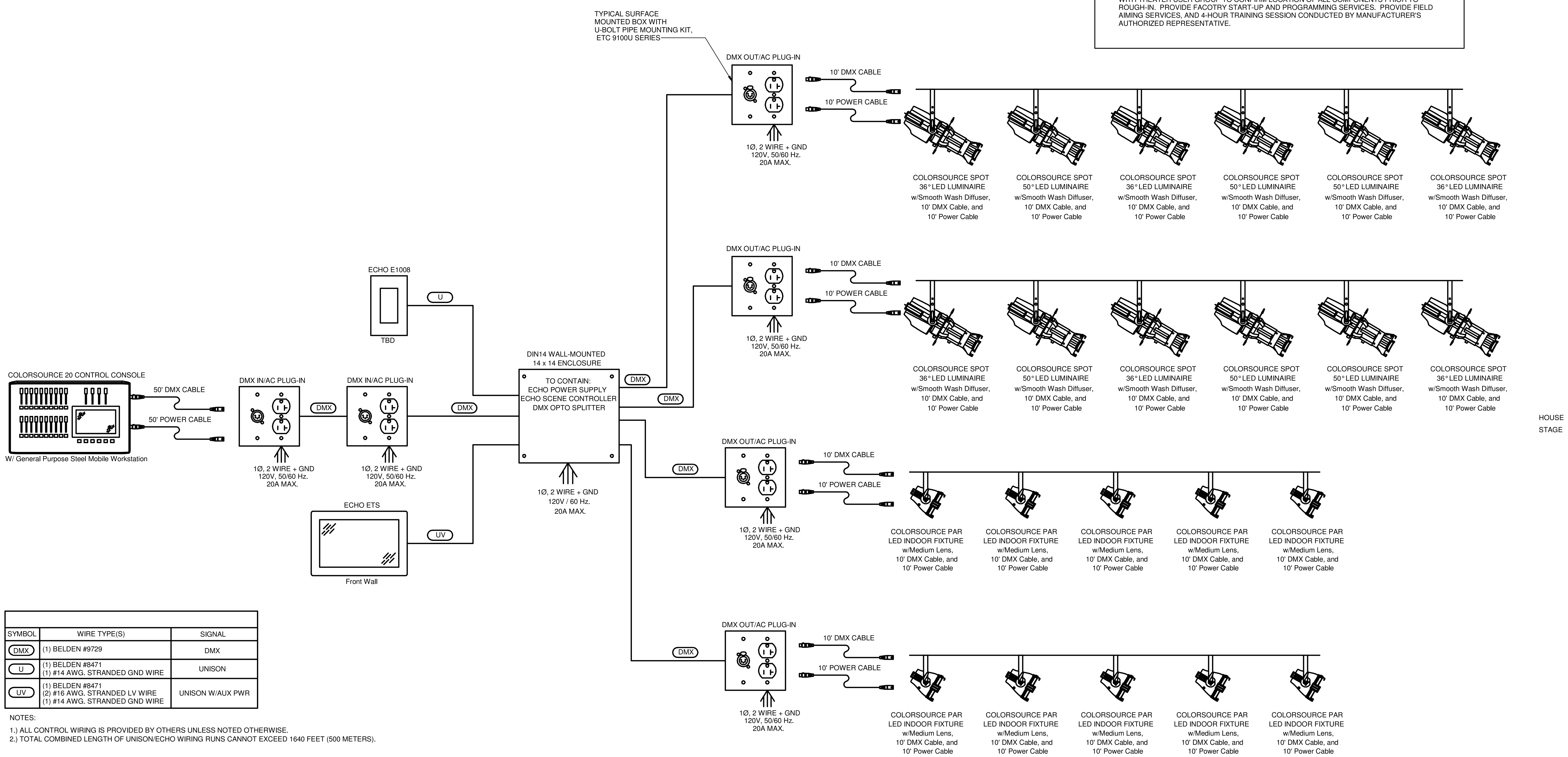
		ELECTRICAL DATA						DISCONNECT				STARTER			VFD				
EQUIP TAG	DESCRIPTION	VOLTAGE	PH	MOCP	MCA	FLA	kVA	RATING	TYPE	FUSE	DIVISION (FURN/INST)	NEMA SIZE	COMBO DISC	DIVISION (FURN/INST)	COMBO DISC	DIVISION (FURN/INST)	PANEL - CKT NUMBER	FEEDER SIZE	REMARKS
AC-17	CONDENSING UNIT	480 V	3	35 A	25 A	7.5 A	6.23 kVA	60 A	F	35 AF	-	-		-		-	HG-43,45,47	303	
AC-18	CONDENSING UNIT	480 V	3	45 A	33 A	9.1 A	7.56 kVA	60 A	F	45 AF	-	-		-		-	HG-49,51,53	403	
OAF-G1	OUTSIDE AIR FAN	120 V	1	15 A	0.29 A	0.23 A	0.03 kVA	20 A	F	15 AF	-	-		-		-	LG-44	202	
OAF-G2	OUTSIDE AIR FAN	120 V	1	15 A	0.29 A	0.23 A	0.03 kVA	20 A	F	15 AF	-	-		-		-	LG-44	202	
SHPI-G1	INDOOR HEAT PUMP	208 V	3	15 A	1 A	0.19 A	0.07 kVA	20 A	F	15 AF	-	-		-		-	LG-49,51,53	203	1
SHPI-G2	INDOOR HEAT PUMP	208 V	3	15 A	1 A	0.27 A	0.1 kVA	20 A	F	15 AF	-	-		-		-	LG-55,57,59	203	1
SHPI-S1	INDOOR HEAT PUMP	208 V	3	15 A	1 A	0.27 A	0.1 kVA	20 A	F	15 AF	-	-		-		-	LG-56,58,60	203	1
SHPO-G1	OUTDOOR HEAT PUMP	208 V	3	28 A	11 A	0.5 A	0.18 kVA	30 A	F	30 AF	-	-		-		-	LG-49,51,53	203	2
SHPO-G2	OUTDOOR HEAT PUMP	208 V	3	26 A	19 A	0.4 A	0.14 kVA	30 A	F	30 AF	-	-		-		-	LG-55,57,59	203	2
SHPO-S1	OUTDOOR HEAT PUMP	208 V	3	26 A	19 A	0.4 A	0.14 kVA	30 A	F	30 AF	-	-		-		-	LG-56,58,60	203	2

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER CATALOG NUMBER	DESCRIPTION	LIGHT SOURCE	DRIVER, TRANSFORMER	WATTAGE	VOLTAGE	WEIGHT
F1	LITHONIA AFF-OEL-(FINISH TBD)-UVOLT-LTP-SDRT-WT OR APPROVED EQUAL	ARCHITECTURAL EMERGENCY LIGHT, DIE CAST HOUSING WITH POWDER COAT FINISH (COLOR TBD BY ARCH), LED OPTICS AND MAINTENANCE-FREE LITHIUM IRON PHOSPHATE BATTERY.	LED 635 LUMEN 4000K	LED DRIVER	0 W	UNIV	3.5#
F2	LITHONIA RSXF1-P1-40K-AWFD-MVOLT-AAWB-NLTAIR2-PIRHN-(FINISH TBD) OR APPROVED EQUAL	LED FLOODLIGHT, DIE-CAST ALUMINUM HOUSING WITH POWDER COAT FINISH (COLOR TBD BY ARCH), ACRYLIC REFRACTIVE LENS WITH AREA WIDE-FLOOD OPTICS, AND ADJUSTABLE TILT ARM. PROVIDE WITH INTEGRAL OCCPANCY AMBIENT SENSOR AND PROGRAM TO TURN OFF WHEN NO MOTION IS DETECTED.	LED ~7,318 LUMEN 4000K 70 CRI > 100,000 HR L92	0-10V DIMMING LED DRIVER	51 W	UNIV	25#
F3	LITHONIA CLX-L96-10000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-NLTAIR2RES7 OR APPROVED EQUAL	NOMINAL 8' LONG SURFACE MOUNTED COMPACT LINEAR LED FIXTURE, WITH STEEL HOUSING WITH BLACK FINISH, AND RUGGED FROSTED CONTOURED ACRYLIC LENS. PROVIDE WITH INTEGRAL MOTION/DAYLIGHT SENSOR COMPATIBLE WITH THE SPECIFIED WIRELESS LIGHTING CONTROL SYSTEM. U.O.N.	LED ~10,000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	71 W	UNIV	14#

GENERAL SHEET NOTES

A. PROVIDE A STAGE LIGHTING SYSTEM, CONSISTING OF COLOR-CHANGING SPOTLIGHTS AND PAR LIGHTS, DMX CONTROLS, TOUCH-SCREEN AND PUSHBUTTON CONTROL STATIONS, CONTROL CONSOLE, AND ALL ASSOCIATED CONDUIT, BOXES, CABLING, RECEPTACLES, ETC. COORDINATE WITH THEATER USER GROUP TO CONFIRM LOCATION OF ALL COMPONENTS PRIOR TO ROUGH-IN. PROVIDE FACOTRY START-UP AND PROGRAMMING SERVICES. PROVIDE FIELD AIMING SERVICES, AND 4-HOUR TRAINING SESSION CONDUCTED BY MANUFACTURER'S AUTHORIZED REPRESENTATIVE.



SYMBOL	WIRE TYPE(S)	SIGNAL
DMX	(1) BELDEN #9729	DMX
U	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	UNISON
UV	(1) BELDEN #8471 (2) #16 AWG. STRANDED LV WIRE (1) #14 AWG. STRANDED GND WIRE	UNISON W/AUX PWR

NOTES:
1.) ALL CONTROL WIRING IS PROVIDED BY OTHERS UNLESS NOTED OTHERWISE.
2.) TOTAL COMBINED LENGTH OF UNISON/ECHO WIRING RUNS CANNOT EXCEED 1640 FEET (500 METERS).

1 STAGE LIGHTING WIRING DIAGRAM
SCALE:NTS

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NUMBERED SHEET NOTES

1. PROVIDE NEW POWER BRANCH CIRCUIT TO MARQUEE SIGN; PROVIDE 3-#8 & #10G IN 1"C. ROUTED UNDERGROUND TO NEW 20A/2 BREAKER WITH LOCKING HARDWARE IN PANEL LN1. COORDINATE UNDERGROUND ROUTING AND METHOD OF NEW CONDUITS ENTERING THE BUILDING WITH LOW VOLTAGE SYSTEMS.
2. PROVIDE POWER CONNECTION TO MOTORIZED GATE CONTROLLER. CONTRACTOR SHALL PROVIDE INFRASTRUCTURE FOR ALL CONTROL WIRING; COORDINATE WITH APPROVED SHOP DRAWINGS AND PROVIDE 0.75"C FOR CONTROL WIRING TO CONTROLLER, PHOTO-EYES, ETC.
3. PROVIDE 1.0"C FOR BRANCH CIRCUIT CONDUCTORS TO EXISTING ELECTRICAL PANEL. PROVIDE NEW 20A/2-POLE BREAKER IN AVAILABLE SPACE. COORDINATE ROUTING OF BRANCH CIRCUIT IN THE FIELD.

GENERAL SHEET NOTES

A. CALL U.S.A. PRIOR TO UNDERGROUND WORK, 1-800-227-2600.

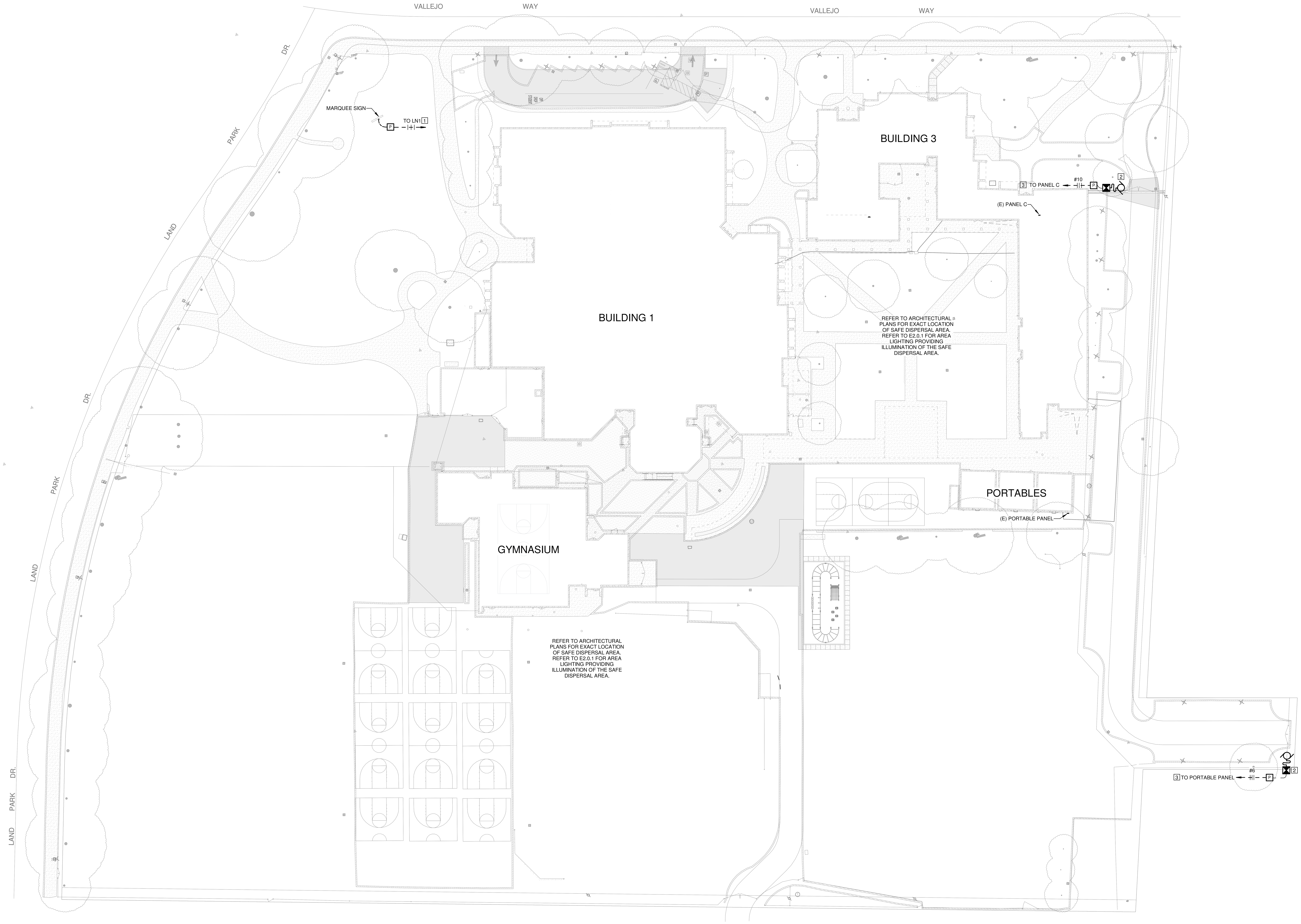
B. HANDHOLE LOCATIONS ARE DIAGRAMMATIC AND NOT DIMENSIONED. LOCATE NEW HANDHOLES IN CLOSEST LANDSCAPED AREA WHEREVER POSSIBLE, COORDINATE WITH LANDSCAPE ARCHITECT AND LOW VOLTAGE PLANS. PROVIDE WITH STEEL TRAFFIC RATED LID IN ANY AREA SUBJECT TO VEHICULAR TRAFFIC.

C. HANDHOLES/PULLBOXES SHALL BE N16 OR LARGER AS REQUIRED BY CEC 314.28. LID SHALL BE ENGRAVED "POWER", U.O.N.

D. REFER TO DETAIL 4/E6.1.1 FOR TYPICAL HANDHOLE/PULLBOX INSTALLATION.

E. PROVIDE A 6-INCH WIDE UNDERGROUND WARNING TAPE ABOVE ALL NEW UNDERGROUND CONDUITS/CABLES. INSTALL AT 12-INCHES ABOVE THE CONDUITS/CABLES. PROVIDE 'RED' TAPE FOR POWER APPLICATIONS.

F. CONTRACTOR SHALL COORDINATE WITH ALL EXISTING UTILITIES PRIOR TO NEW WORK. REFER TO CIVIL PLANS AND COORDINATE WITH OWNER'S REPRESENTATIVE.



1 ELECTRICAL SITE PLAN
SCALE: 1/32" = 1'-0"

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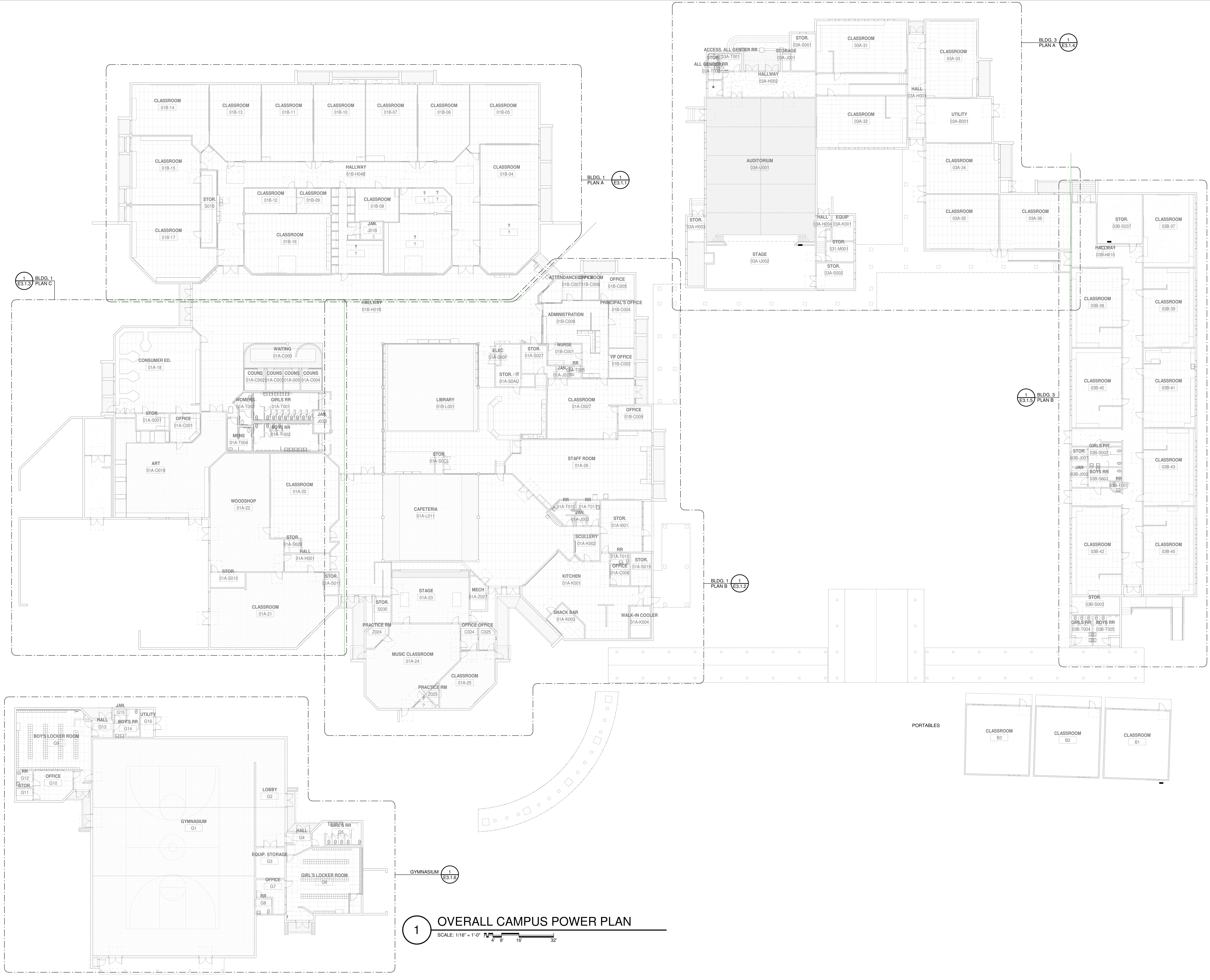

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OVERALL CAMPUS POWER PLAN

SCALE: 1/16" = 1'-0" 0 4' 8' 16' 32'

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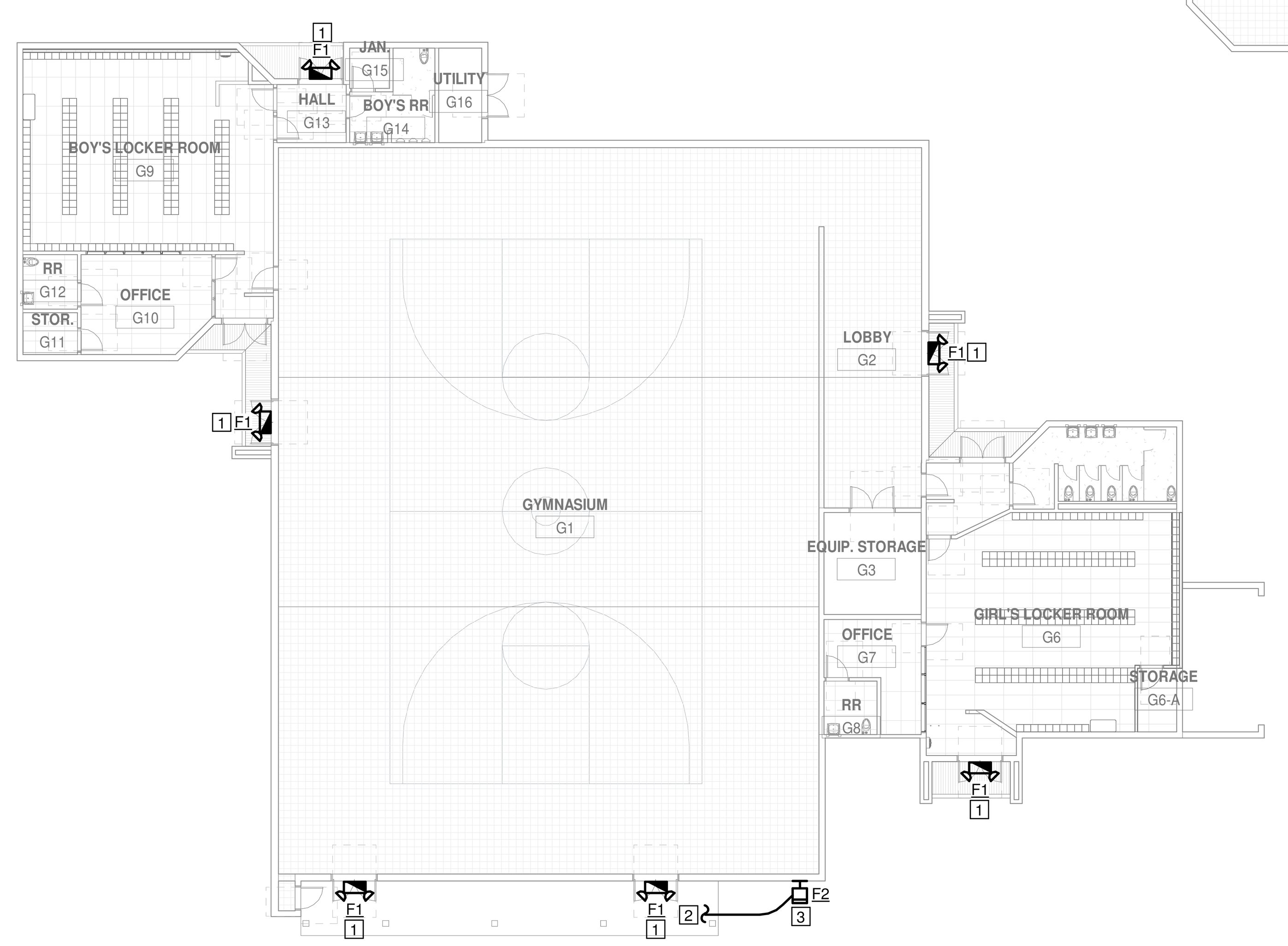

REFER TO ARCHITECTURAL PLANS FOR SAFE DISPERSAL AREA SOUTH OF HERE

1 OVERALL CAMPUS LIGHTING PLAN

SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

A. ALL EXISTING INTERIOR AND EXTERIOR LIGHTING AND LIGHTING CONTROLS ARE TO REMAIN, AS CONNECTED. SCOPE OF WORK IS LIMITED TO CODE REQUIRED EMERGENCY ILLUMINATION AT EXTERIOR EGRESS LANDINGS, AND ILLUMINATION OF THE SAFE DISPERSAL AREAS. REFER TO ARCHITECTURAL CODE ANALYSIS PLAN FOR LOCATION OF THE SAFE DISPERSAL AREAS.

B. EXSTING LIGHTING AND LIGHTING CONTROL DEVICES TO BE REMOVED TO ACCOMMODATE DEMOLITION OF EXISTING WALL AND CEILING FINISHES. EXISTING ROUGH-IN TO REMAIN AS INSTALLED. RE-INSTALL LIGHTING AND LIGHTING CONTROL DEVICES AT EXISTING LOCATIONS.

NUMBERED SHEET NOTES

1. PROVIDE NEW 'NORMALLY OFF' EMERGENCY LIGHT AT EXTERIOR EGRESS LANDING. INSTALL WALL MOUNTED ABOVE THE CEILING LINE, OR IN CANOPY WHERE FULL HEIGHT GLASS PREVENTS WALL MOUNTING. EXTEND UNSWITCHED LIGHTING CIRCUIT FROM EXIT LIGHT INSIDE OF BUILDING.
2. CONNECT TO EXISTING CONTROLLED EXTERIOR LIGHTING CIRCUIT. ASSUME NEAREST POINT OF CONNECTION IS NO LESS THAN 50' AWAY. PROVIDE #10 WIRE IN .075"C.
3. INSTALL NEW FLOODLIGHT, APPROX +20' ABOVE GRADE, AND CONNECT TO EXISTING EXTERIOR LIGHTING CIRCUIT. AIM AT THE SAFE DISPERSAL AREA.

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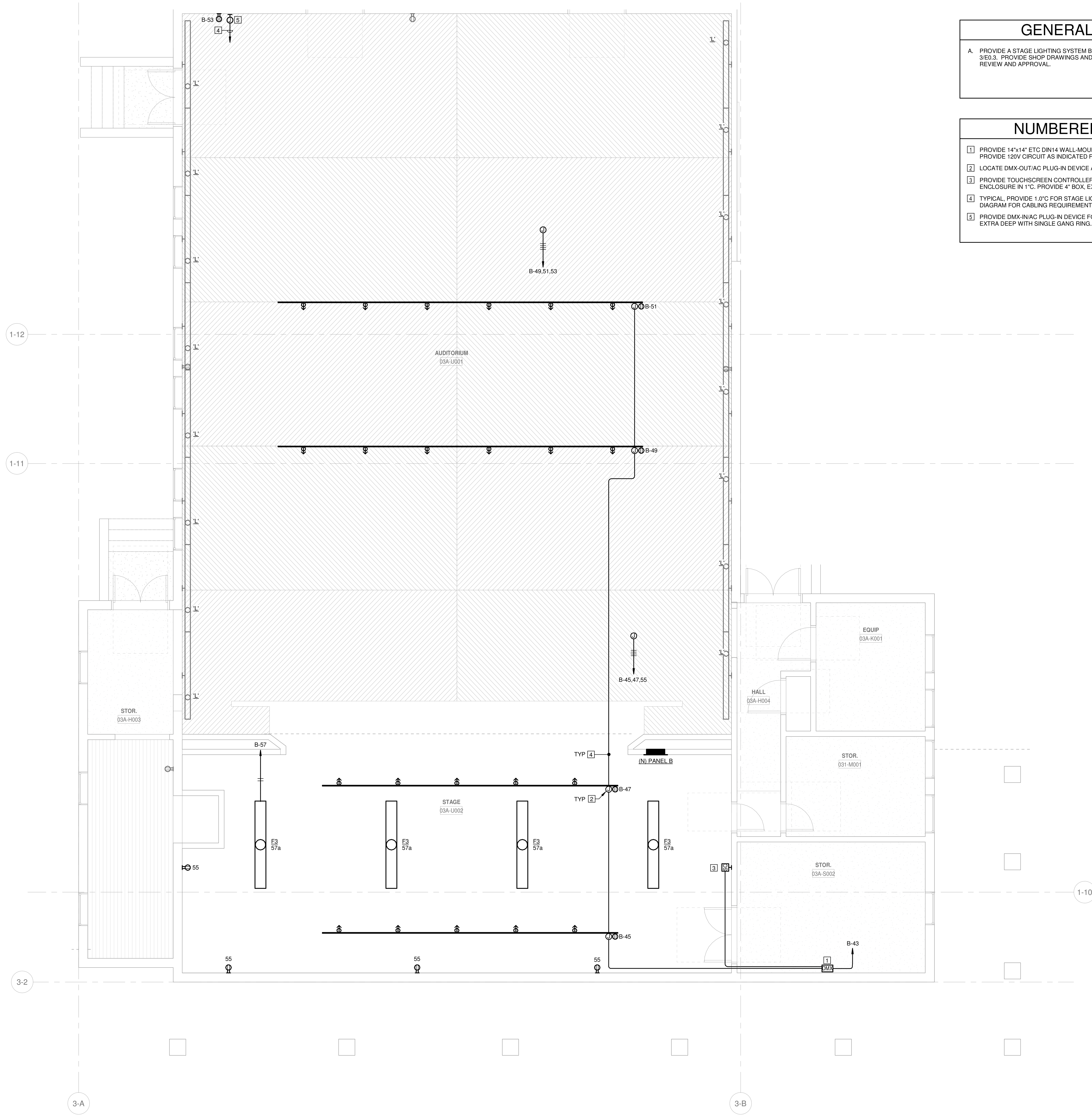

1 BUILDING 3 LIGHTING AND POWER PLAN - ENLARGED STAGE AREA

SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

A. PROVIDE A STAGE LIGHTING SYSTEM BY ETC AS SHOWN ON THE PLANS, AND ON DIAGRAM 3/E0.3. PROVIDE SHOP DRAWINGS AND CUT SHEETS FOR ALL SYSTEM COMPONENTS FOR REVIEW AND APPROVAL.

NUMBERED SHEET NOTES

1. PROVIDE 14"x14" ETC DIN14 WALL-MOUNTED ENCLOSURE FOR STAGE LIGHTING EQUIPMENT. PROVIDE 120V CIRCUIT AS INDICATED FOR POWER SUPPLY.
2. LOCATE DMX-OUT/AC PLUG-IN DEVICE AT LIGHT PIPE FOR CONNECTION TO STAGE LIGHTING
3. PROVIDE TOUCHSCREEN CONTROLLER (ECHO ETS), ROUTE CONTROL CABLING BACK TO DIN14 ENCLOSURE IN 1"C. PROVIDE 4" BOX, EXTRA DEEP WITH SINGLE GANG RING
4. TYPICAL, PROVIDE 1.0"C FOR STAGE LIGHTING CONTROLS CABLING. REFER TO WIRING DIAGRAM FOR CABLING REQUIREMENTS
5. PROVIDE DMX-IN/AC PLUG-IN DEVICE FOR CONTROL CONSOLE, +18"A.F.F. PROVIDE 4" BOX, EXTRA DEEP WITH SINGLE GANG RING.

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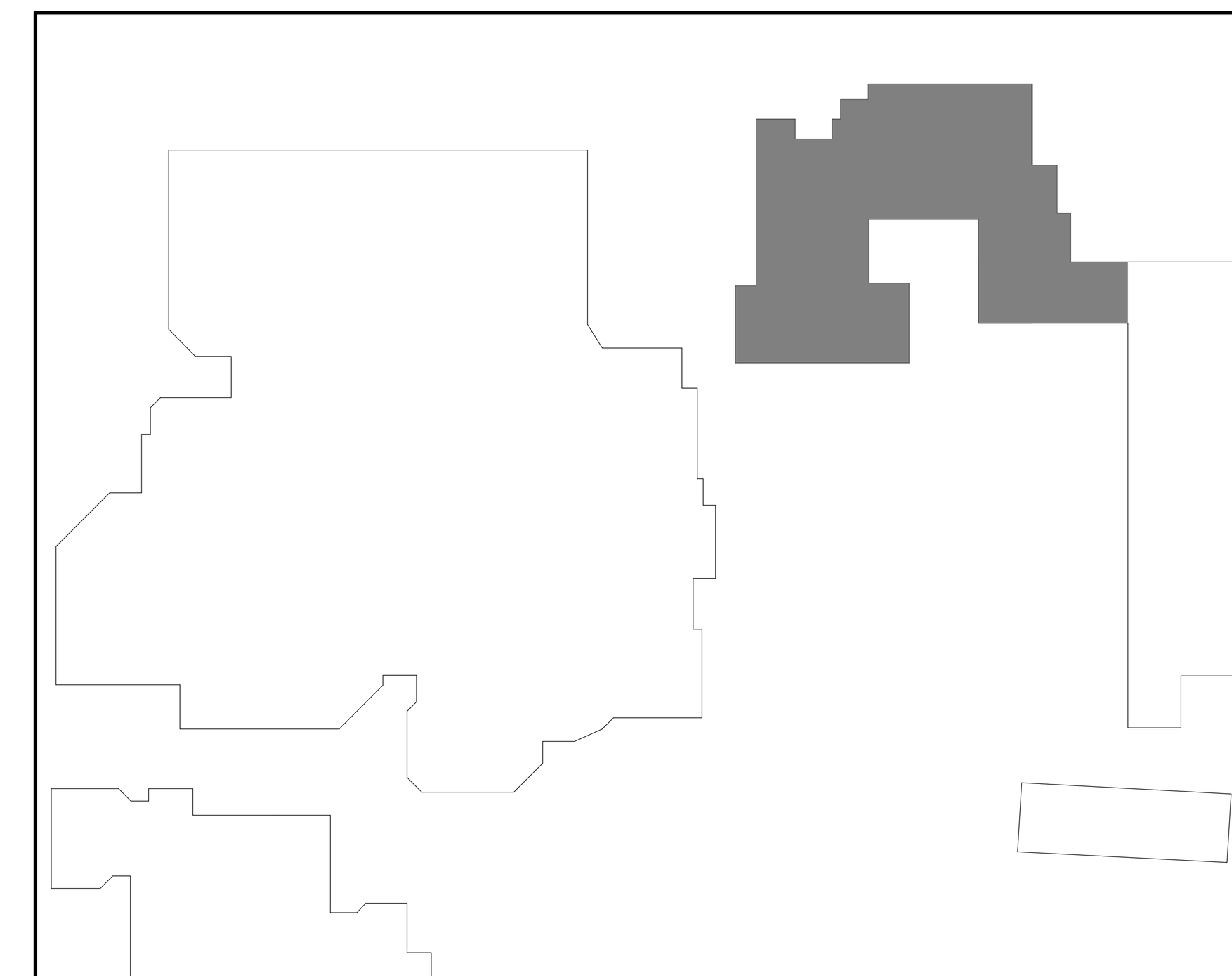
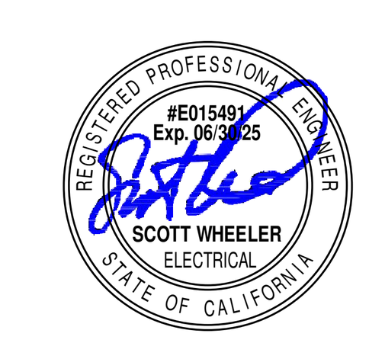


KEY PLAN

SEAL



Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
BUILDING 3 LIGHTING AND POWER PLAN - ENLARGED STAGE AREA

NO.	DATE	ISSUE

Drawn By: SF
Checked By: DM
Project No.: 23-074
©Date: 11/3/2023
DRAWING NO.
E2.1.1

GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

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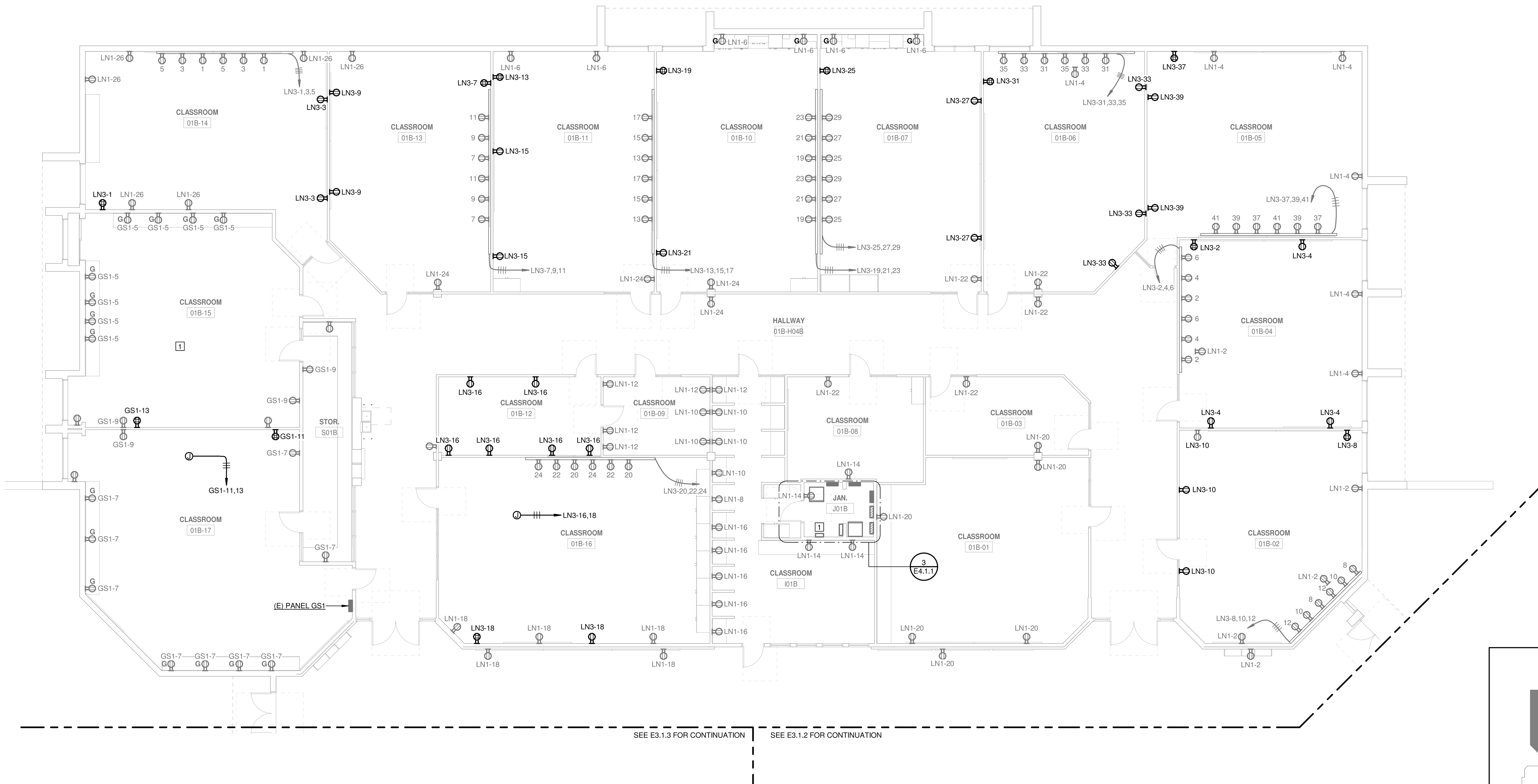
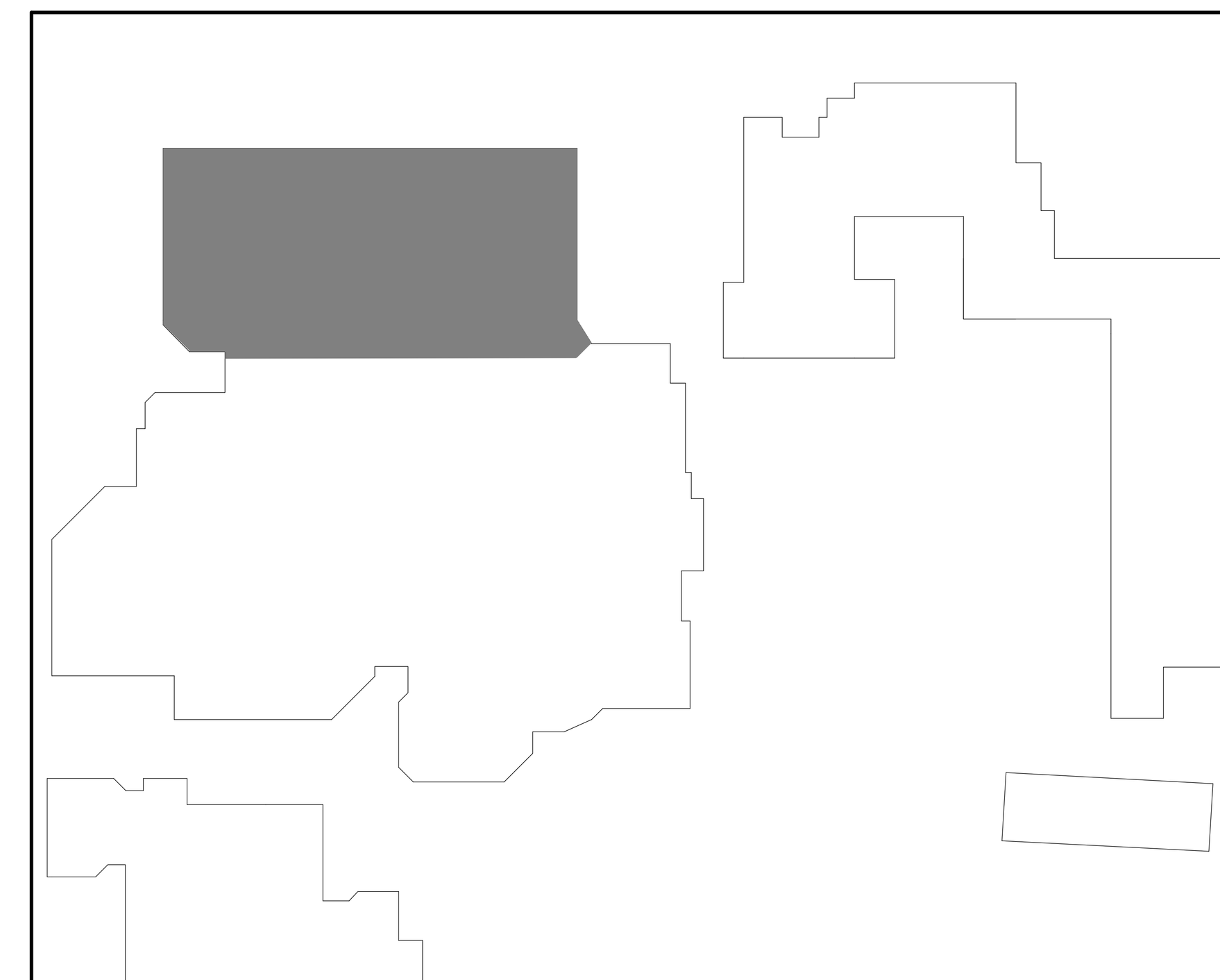


SEE E3.1.3 FOR CONTINUATION
SEE E3.1.2 FOR CONTINUATION

1 BUILDING 1 POWER PLAN - AREA A

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

0' 2' 4' 8' 16'



KEY PLAN

SEAL

SCOTT WHEELER
#E015491
Exp. 06/30/25
ELECTRICAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
BUILDING 1 POWER PLAN - AREA A

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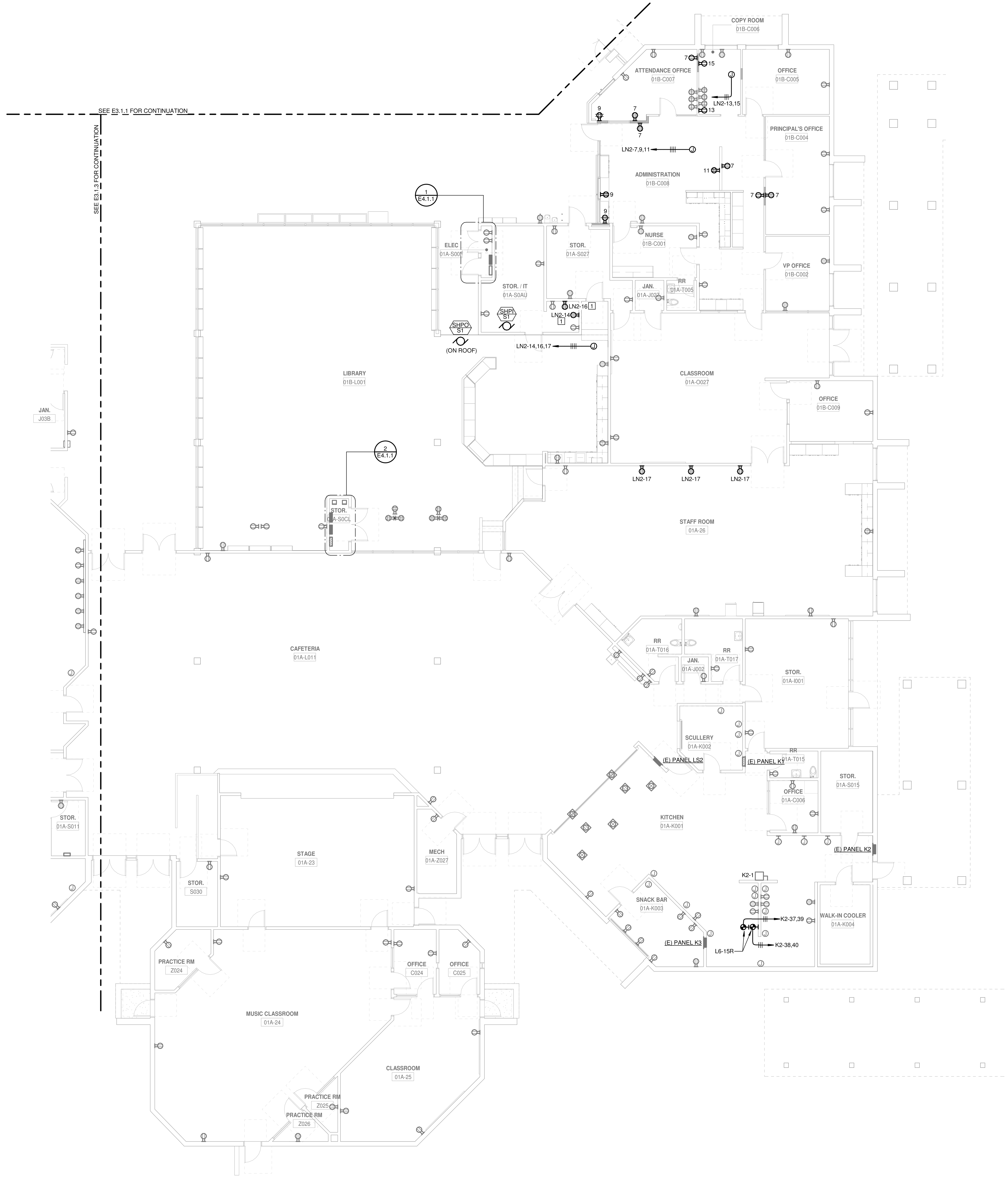
NO.	DATE	ISSUE

GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

NUMBERED SHEET NOTES

1 DEDICATED OUTLET FOR DATA EQUIPMENT. COORDINATE WITH TECHNOLOGY FOR PLACEMENT.



1 BUILDING 1 POWER PLAN - AREA B

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

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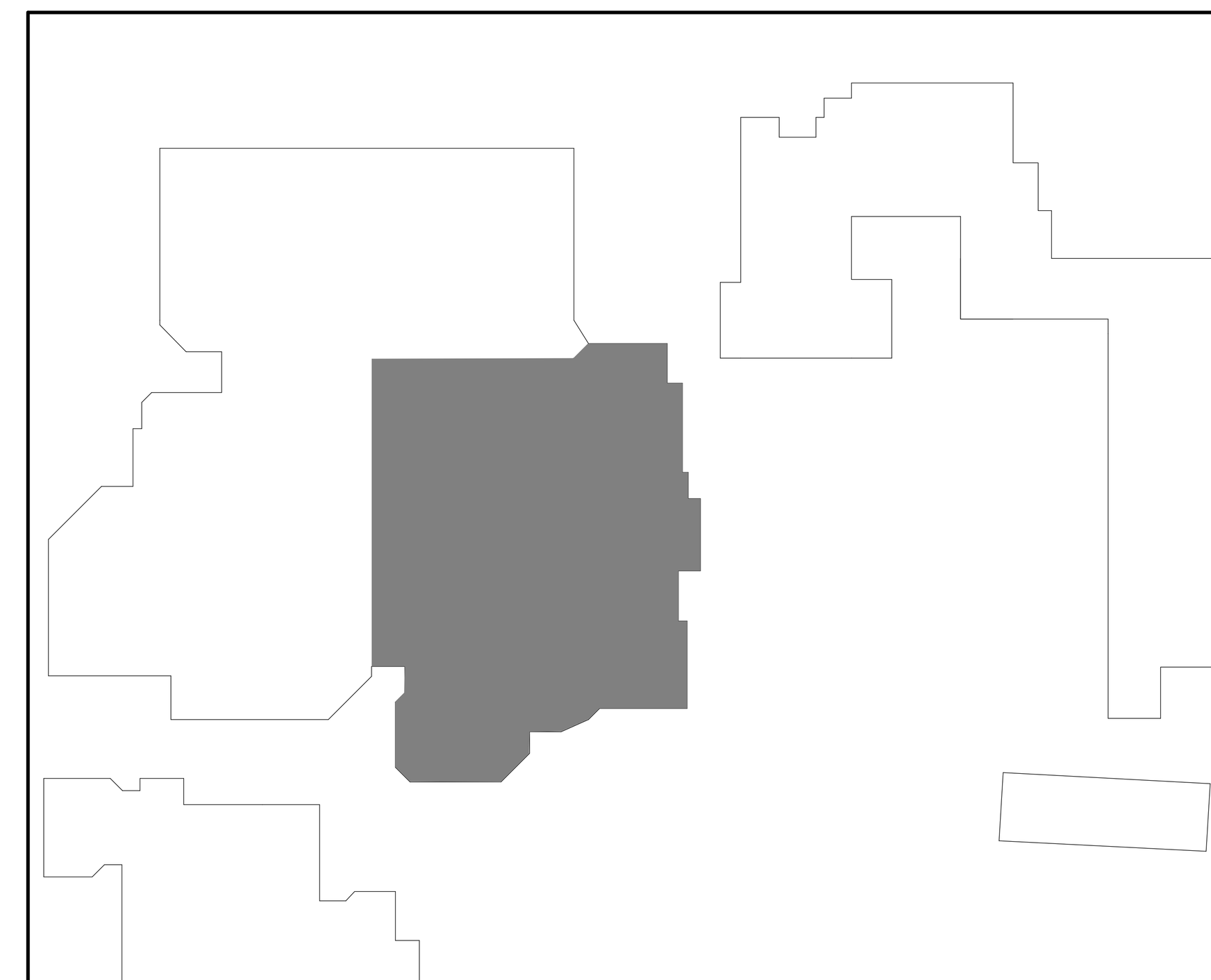

KEY PLAN

SEAL

REGISTERED PROFESSIONAL ENGINEER #E015491 Exp. 06/30/25 SCOTT WHEELER ELECTRICAL STATE OF CALIFORNIA

Project

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title

BUILDING 1 POWER PLAN - AREA B

NO.	DATE	ISSUE

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Project No. 23-074

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DRAWING NO.

E3.1.2

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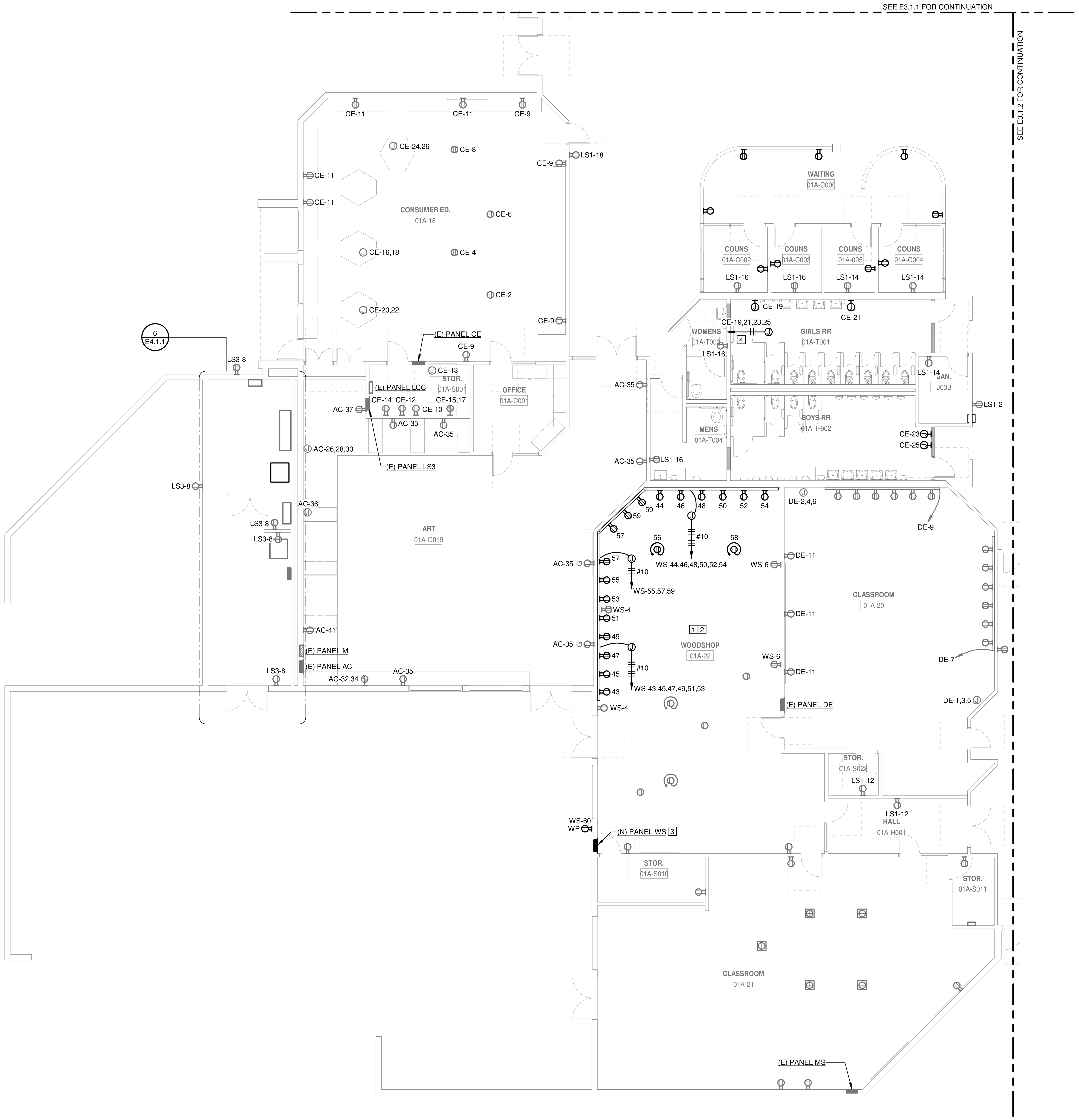
GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

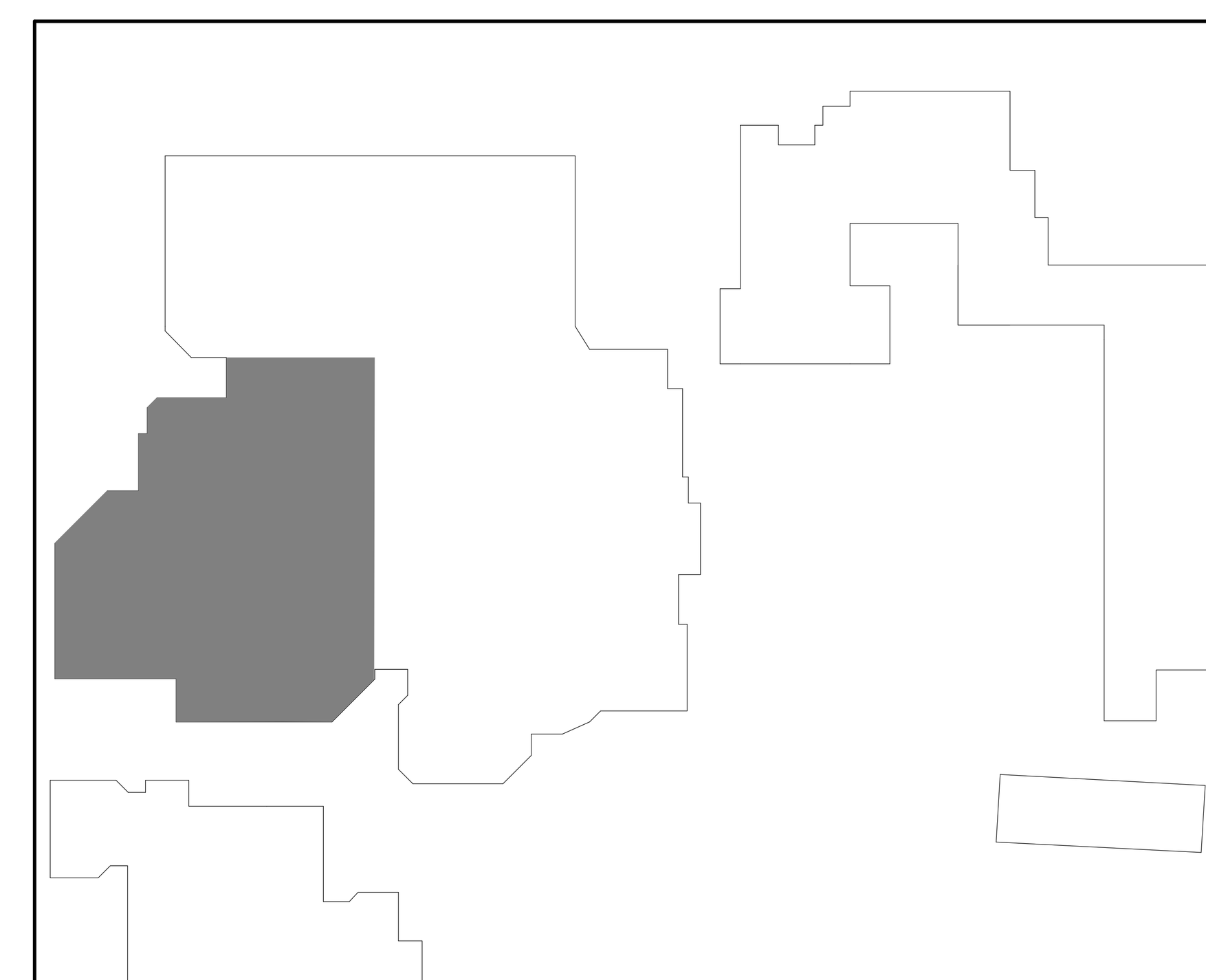
NUMBERED SHEET NOTES

1. REPLACE EXISITNG PANEL WITH NEW AT EXISTING LOCATION, RECONNECT EXISTING FEEDER CONDUCTORS AND ALL BRANCH CIRCUIT CONDUCTORS. REFER TO 2/E5.1.1 POWER ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AND USER GROUP TO COORDINATE NEW OUTLET LOCATIONS, CORD REEL LOCATIONS, RECEPTACLE CONFIGURATIONS, AND NEW BREAKER REQUIREMENTS AT THE WOODSHOP PRIOR TO INSTALLATION.
3. REPLACE EXISTING RECESSED PANELBOARD WITH NEW AT EXISTING LOCATION. MAKE UP EXISTING WIRING ROUTED THROUGH EXISTING UNUSED CONTACTOR. RECONNECT EXISTING FEEDER AND ALL EXISTING BRANCH CIRCUITS. RECONNECT SHUNT TRIP CONTROL WIRING. REFER TO POWER PLAN AND PANEL SCHEDULE FOR NEW WORK.
4. CONTRACTOR TO CONFIRM AVAILABLE BREAKER SPACE IN PANEL LS3. FOR BID PURPOSES, ASSUME NEW 20A/1-POLE BREAKER FOR EACH CIRCUIT. IF BREAKER SPACE IS NOT AVAILABLE IN PANEL LS3, CONFIRM AVAILABILITY IN PANEL CE, DE OR PANEL LS1, AND REVISE HOME RUN.



1 BUILDING 1 POWER PLAN - AREA C

SCALE: 1/8" = 1'-0"   2' 4' 8' 16'



KEY PLAN

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SCOTT WHEELER — ELECTRICAL — STATE OF CALIFORNIA

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT — CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title: BUILDING 1 POWER PLAN - AREA C

NO.	DATE	ISSUE

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GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

NUMBERED SHEET NOTES

1. REPLACE EXISTING RECESSED PANELBOARD WITH NEW AT EXISTING LOCATION. MAKE UP EXISTING WIRING ROUTED THROUGH EXISTING UNUSED CONTACTOR. RECONNECT EXISTING FEEDER AND ALL EXISTING BRANCH CIRCUITS. REFER TO STAGE LIGHTING PLANS AND PANEL SCHEDULE FOR NEW WORK AND ADDITIONAL REQUIREMENTS.

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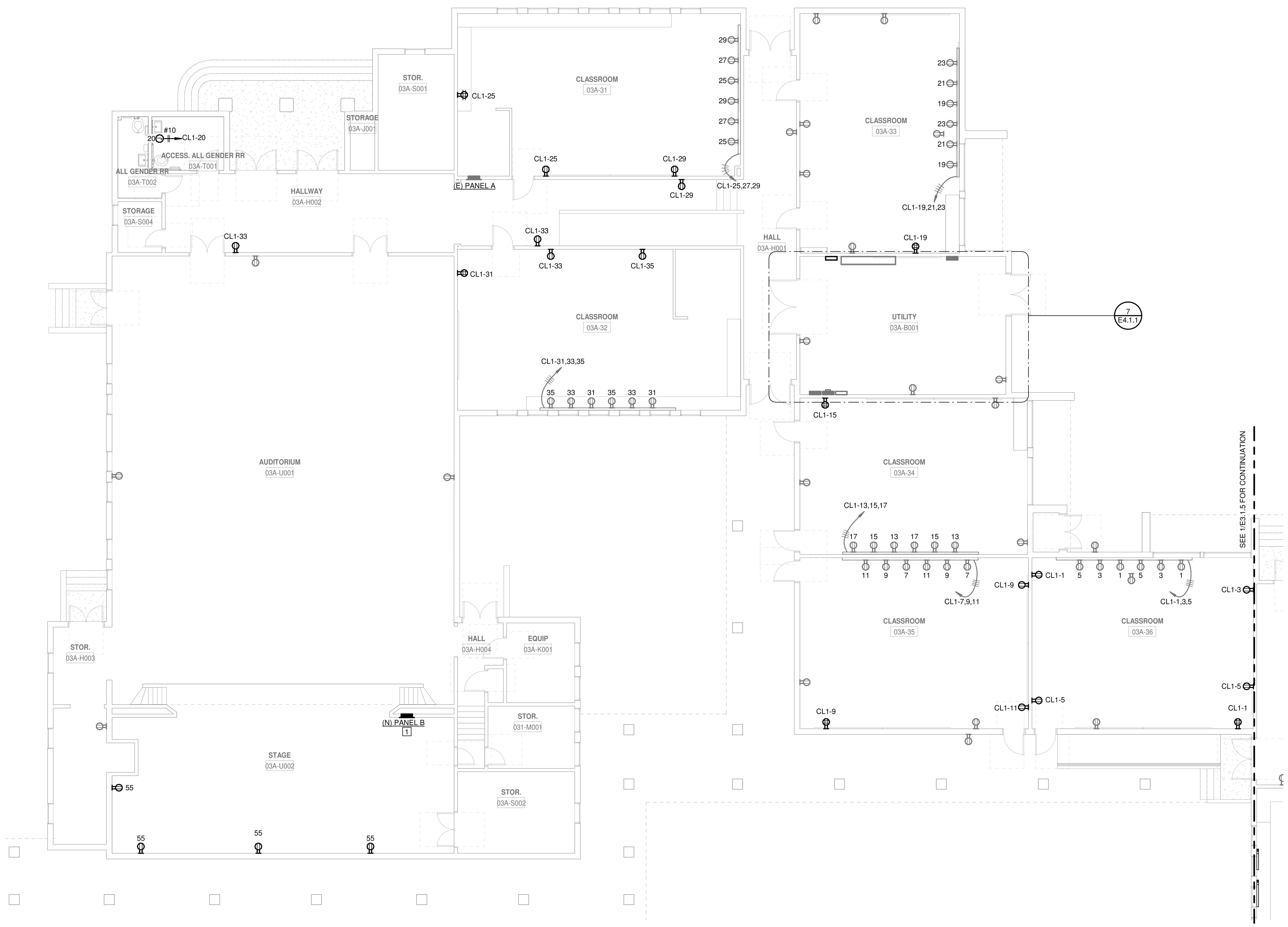
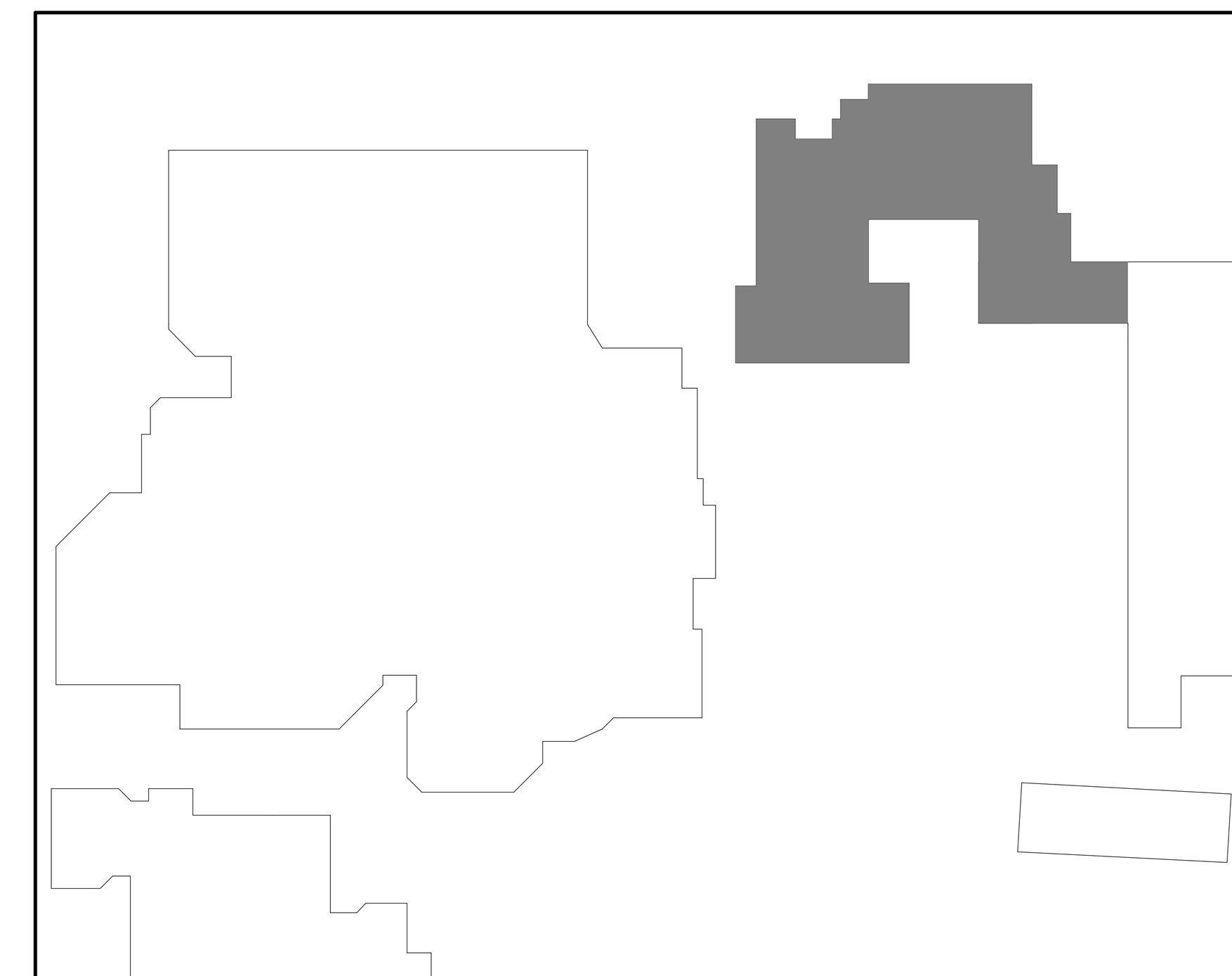


1 BUILDING 3 POWER PLAN - AREA A
SCALE: 1/8" = 1'-0"



KEY PLAN

SEAL

SCOTT WHEELER
ELECTRICAL
STATE OF CALIFORNIA

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
BUILDING 3 POWER PLAN - AREA A

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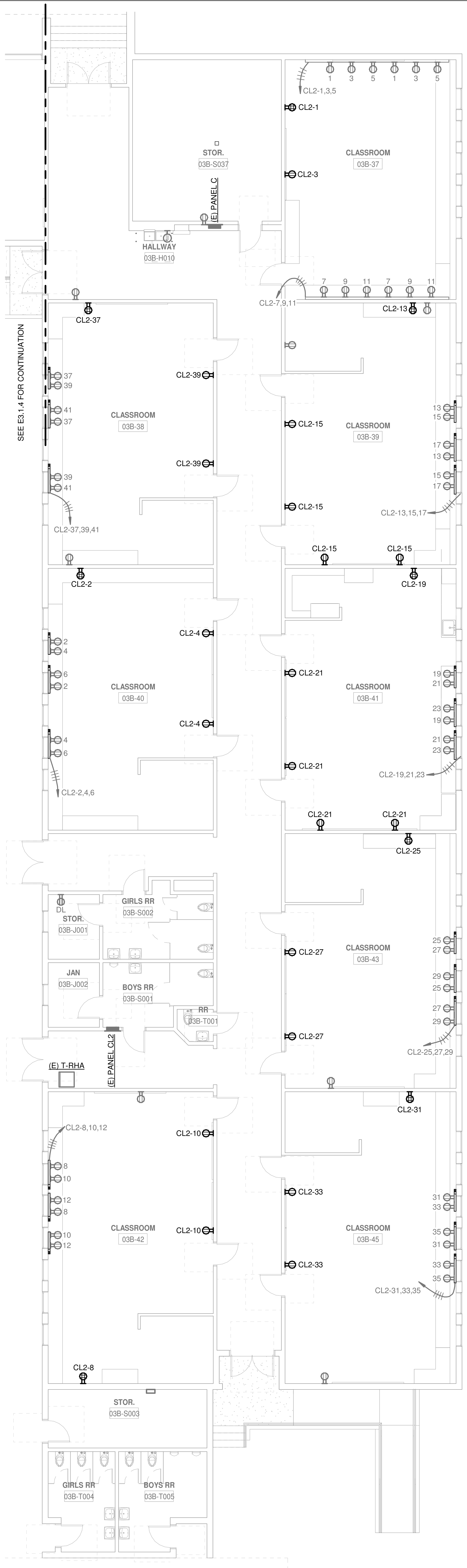

1 BUILDING 3 POWER PLAN - AREA B

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

GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

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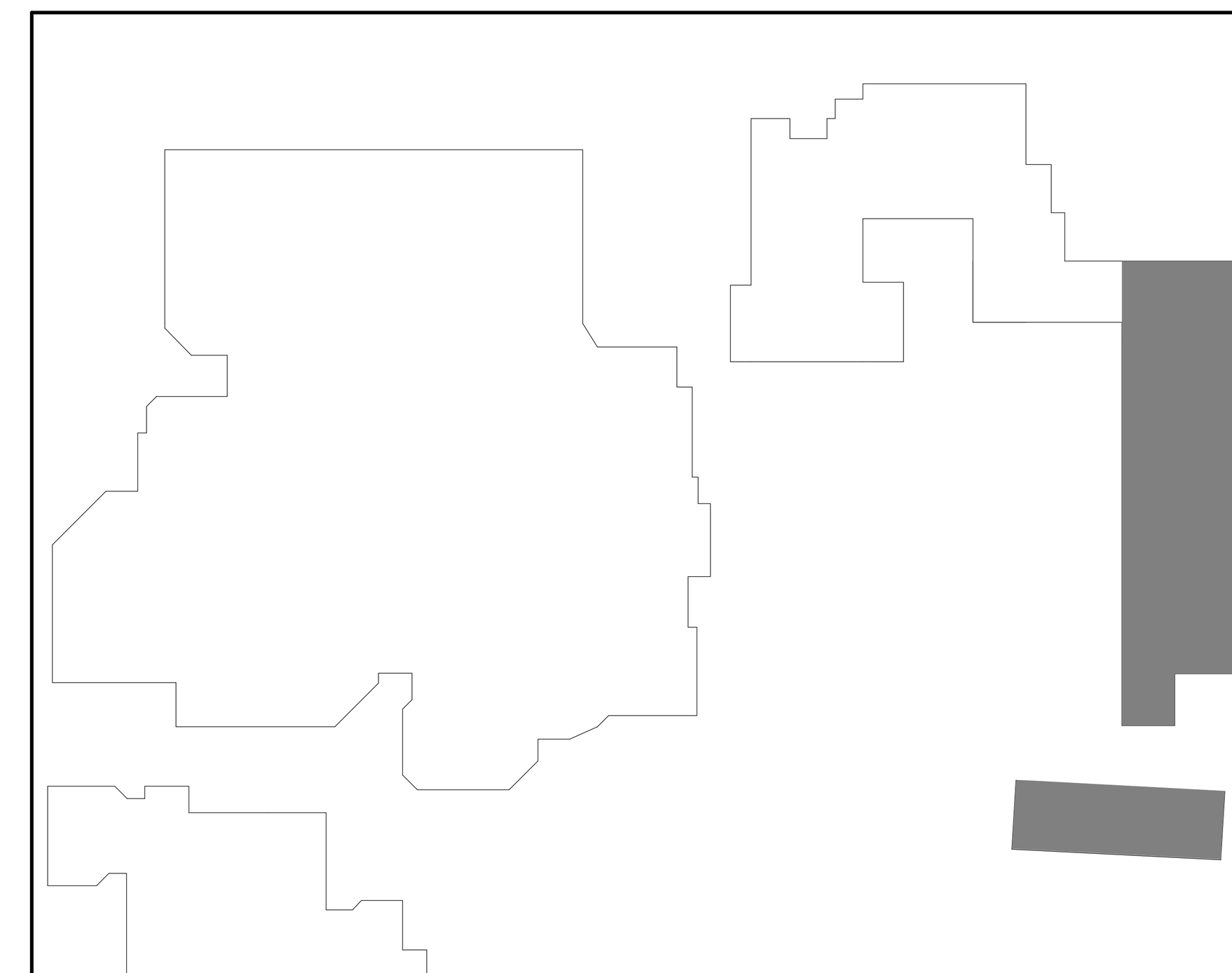

KEY PLAN

SEAL

REGISTERED PROFESSIONAL ENGINEER #E015491 Exp. 06/30/25 SCOTT WHEELER ELECTRICAL STATE OF CALIFORNIA

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
BUILDING 3 POWER PLAN - AREA B

NO.	DATE	ISSUE

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E3.1.5

GENERAL SHEET NOTES

A. DEVICES SHOWN AS BOLD ARE NEW DEVICES AND REQUIRE NEW ROUGH-IN. USE OF MC CABLE IS ACCEPTABLE TO AVOID SURFACE RACEWAY; WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH TELECOMMUNICATIONS PLANS AND USE DUAL CHANNEL RACEWAY WHERE APPLICABLE. COORDINATE WITH TELECOMMUNICATIONS PLANS TO ENSURE A 120V RECEPTACLE IS INSTALLED ADJACENT TO DATA WORKSTATION OUTLETS.

B. ALL ROOFTOP EQUIPMENT AND CONNECTIONS SHALL BE NEMA 3R WEATHER TIGHT.

C. REFER TO MECHANICAL AND PLUMBING PLANS FOR EQUIPMENT ELECTRICAL REQUIREMENTS, REFER TO FINAL APPROVED MECHANICAL AND PLUMBING SHOP DRAWINGS TO VERIFY CONNECTION REQUIREMENTS PRIOR TO INSTALLATION. REFER TO E0.2 FOR EQUIPMENT COORDINATION SCHEDULE.

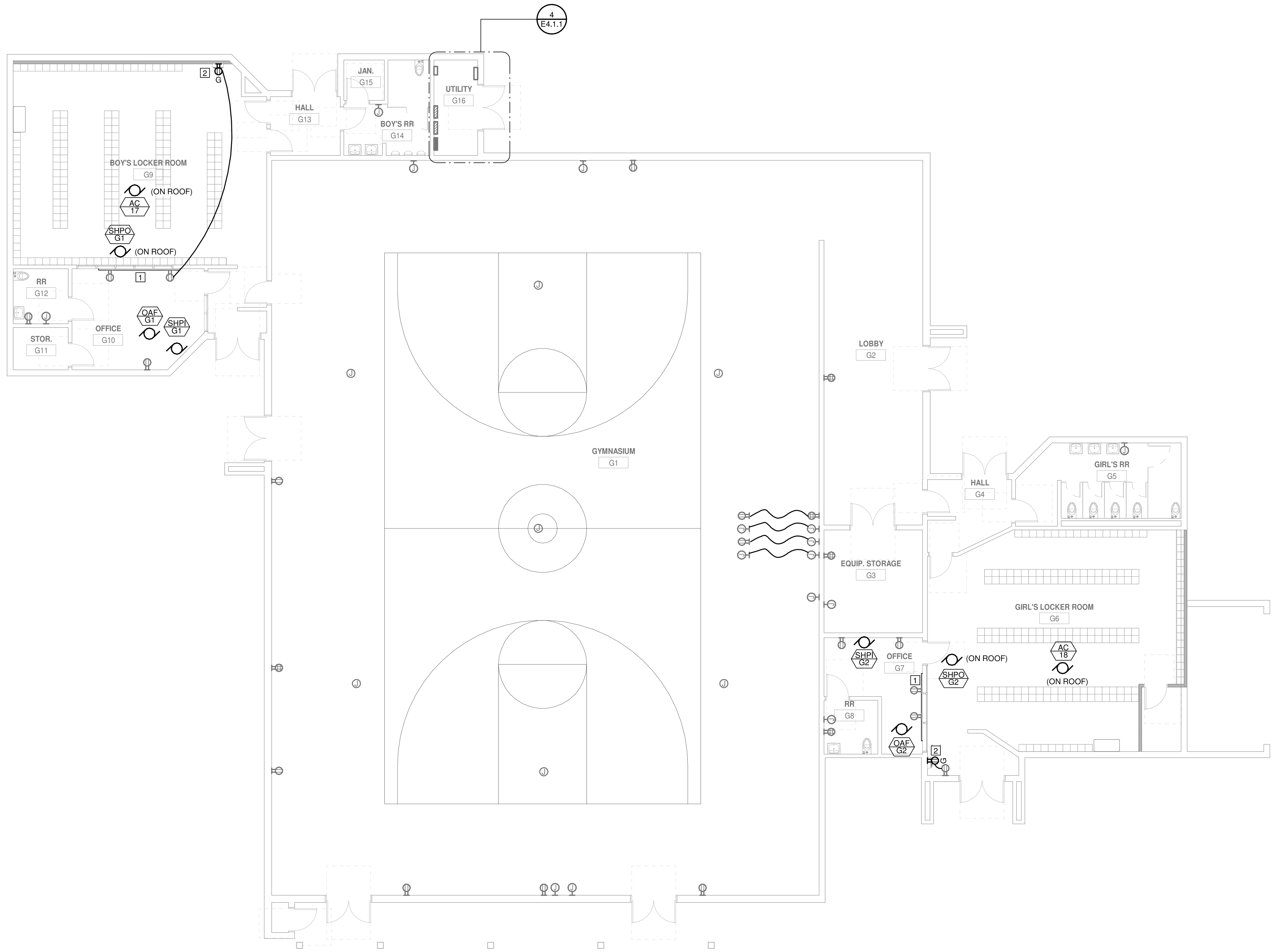
D. EXTERIOR WEATHERPROOF RECEPTACLES SHALL BE PROVIDED WITH WEATHER RESISTANT GFCI RECEPTACLES AND CAST, LOCKABLE WHILE IN USE COVERS. ATTACH TO HVAC EQUIPMENT ENCLOSURE WHERE PRACTICAL.

E. MAKE CONDUIT PENETRATIONS INSIDE EQUIPMENT ROOF CURB WHERE POSSIBLE. MINIMIZE THE NUMBER OF PENETRATIONS OF THE ROOF ASSEMBLY.

NUMBERED SHEET NOTES

1. REMOVE EXISTING SURFACE RACEWAY AND ALL OTHER DEVICES FROM THIS WALL TO ACCOMMODATE DEMOLITION. EXISTING POWER AND TELECOMMUNICATIONS INFRASTRUCTURE TO REMAIN. REINSTALL AND RECONNECT SURFACE RACEWAY AFTER NEW WINDOWS AND WALL FINISH IS INSTALLED.

2. EXTEND EXISTING CIRCUIT TO NEW BOTTLE FILLER STATION.



1 GYMNASIUM POWER PLAN

SCALE: 1/8" = 1'-0"   0' 2' 4' 8' 16'

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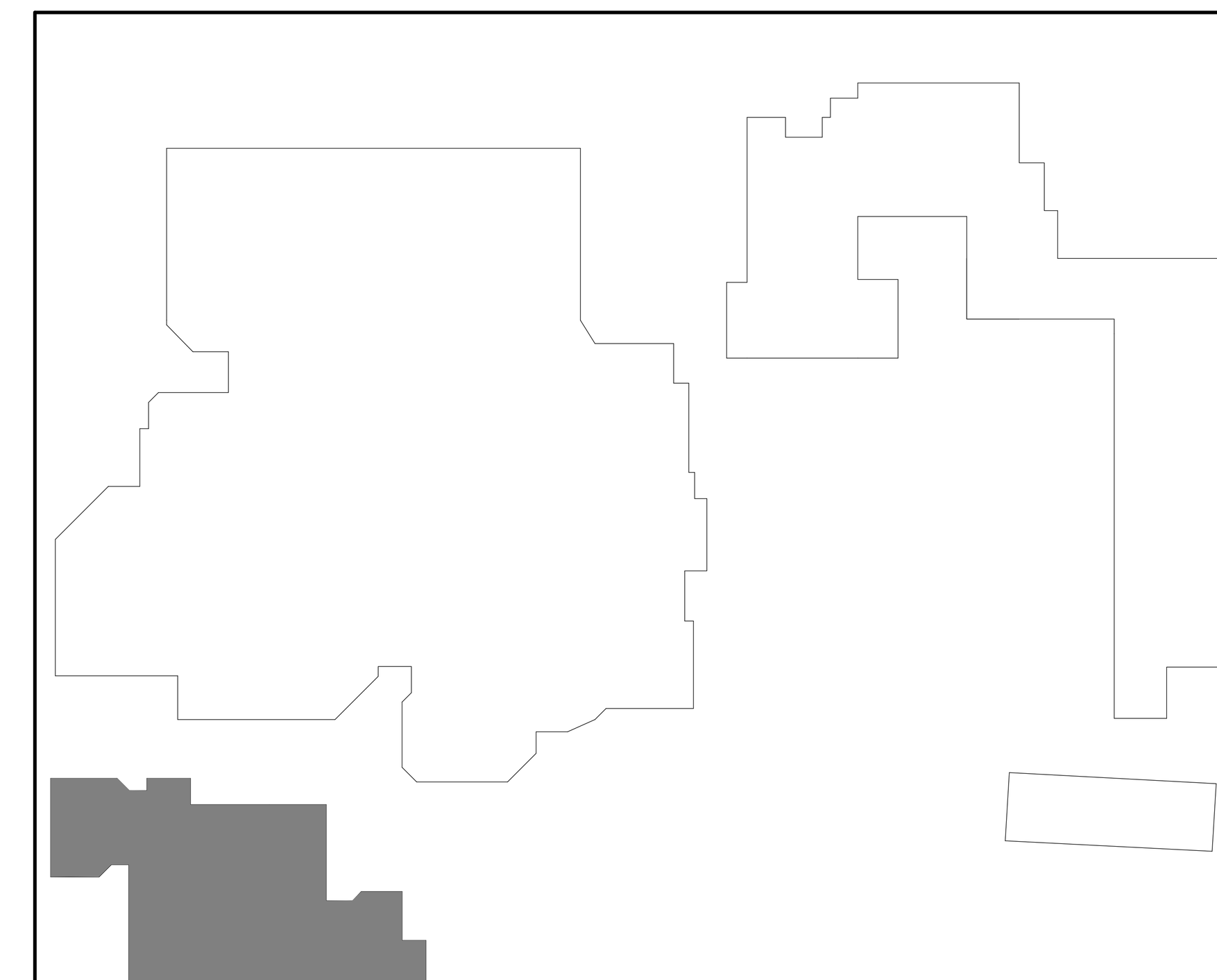
Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALIFORNIA MIDDLE SCHOOL RENEWAL



KEY PLAN

Drawing Title: GYMNASIUM POWER PLAN

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Project No.: 23-074

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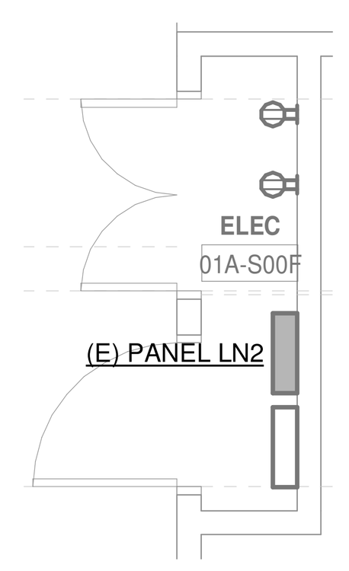
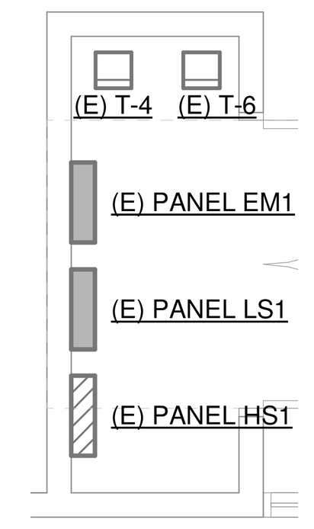
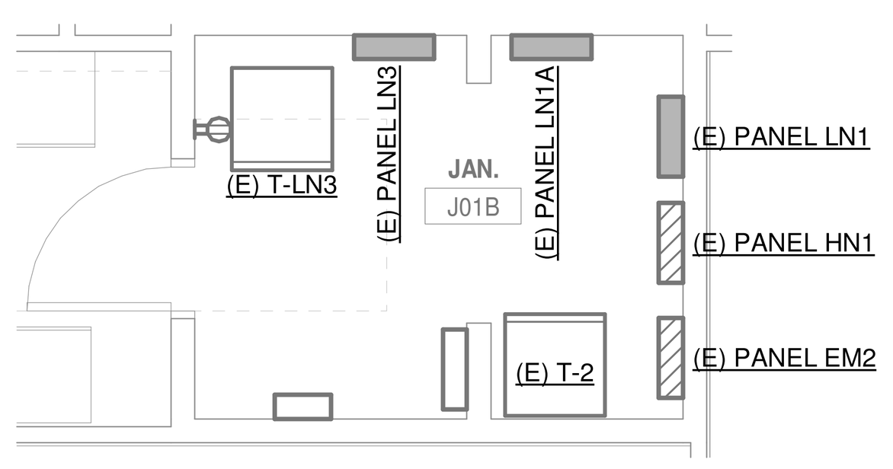


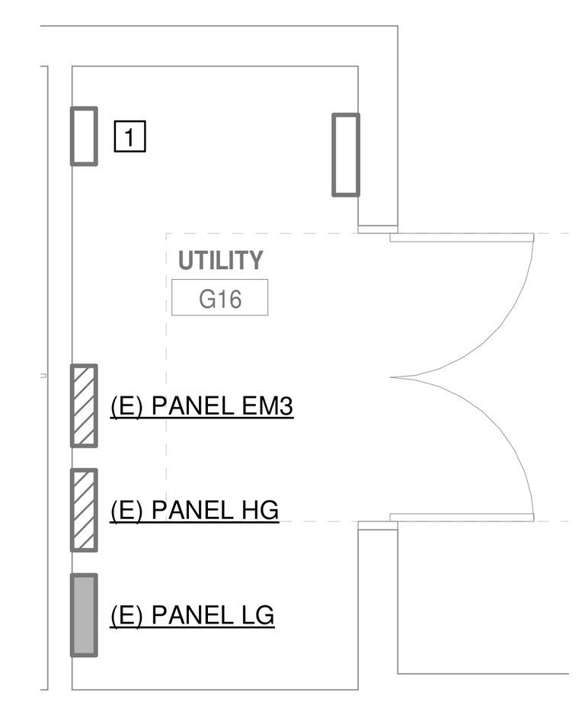
1 BLDG. 1 - ELEC 01A-S00F (1/E4.1.1)
SCALE: 1/4" = 1'-0"



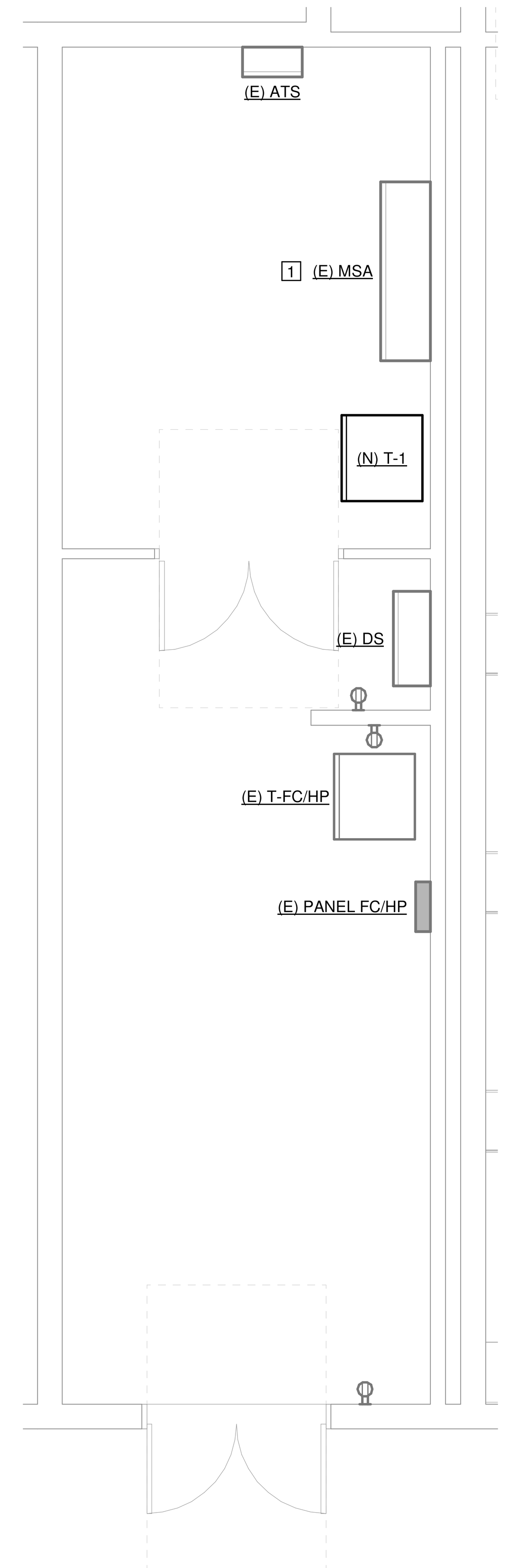
2 BLDG. 1 - MECH 01A-Z027
SCALE: 1/4" = 1'-0"



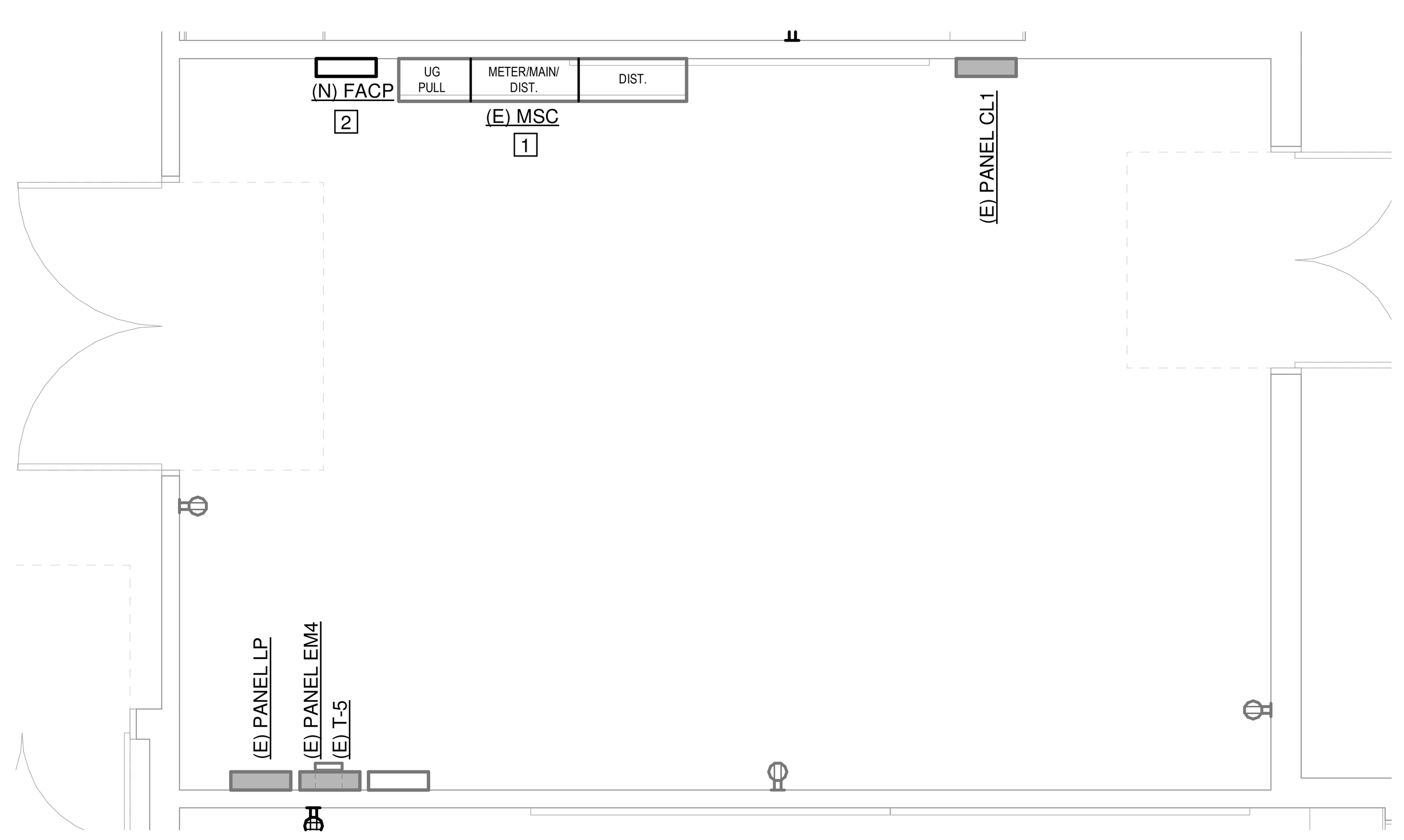
3 BLDG. 1 - JANITOR J01B
SCALE: 1/4" = 1'-0"



4 GYMNASIUM ROOM G16
SCALE: 1/4" = 1'-0"



6 BLDG. 1 - ELECTRICAL ROOM
SCALE: 1/4" = 1'-0"



7 BLDG. 3 - UTILITY 03A-B001
SCALE: 1/4" = 1'-0"

NUMBERED SHEET NOTES

1. REFER TO POWER ONE-LINE DIAGRAM FOR WORK AT MAIN SWITCHBOARD TO BE INCLUDED IN THE BASE BID, AND SCOPE THAT IS A BID ALTERNATE.
2. RECONNECT NEW FIRE ALARM CONTROL PANEL TO EXISTING DEDICATED, 20A 120V CIRCUIT.

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SCOTT WHEELER ELECTRICAL — STATE OF CALIFORNIA

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title: ENLARGED PLANS

NO.	DATE	ISSUE

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GENERAL SHEET NOTES

A. EXISTING GEAR TO REMAIN AS CONNECTED SHOWN IN GRAY LINETYPE, NEW WORK SHOWN WITH BOLD LINETYPE.

NUMBERED SHEET NOTES

1 BASE BID: PROVIDE THE FOLLOWING PREVENTATIVE MAINTENANCE AND REFURBISHMENT SERVICES ON THE EXISTING MAIN SWITCHBOARD:

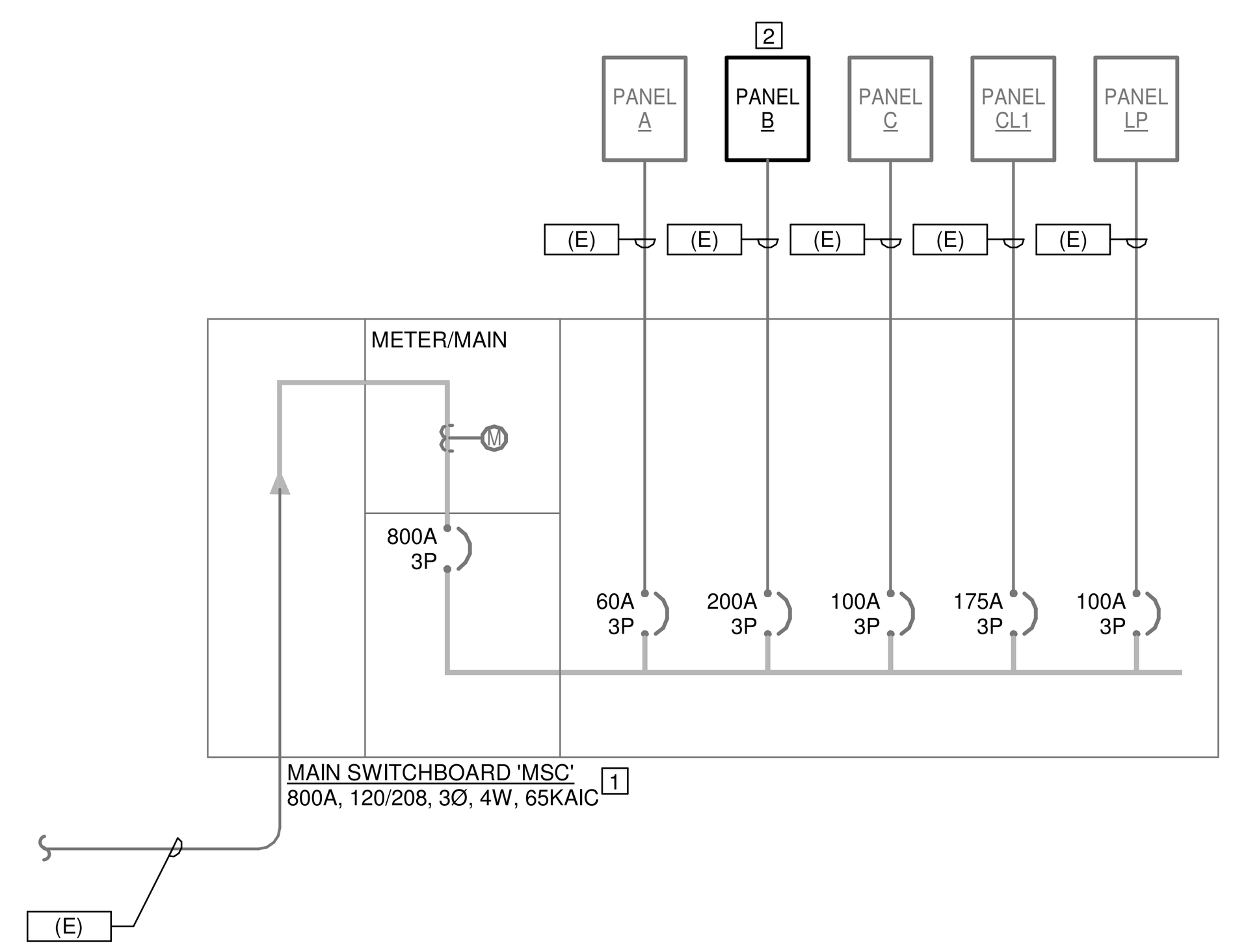
- INSPECT FOR PHYSICAL DAMAGE.
- THOROUGHLY CLEAN THE INTERIOR OF THE ENCLOSURE, REMOVE ALL DEBRIS AND SCRAP WIRE.
- SAND DOWN ANY PATCHES OF RUST, AND TOUCH UP INTERIOR AND EXTERIOR OF ENCLOSURE WITH RUST INHIBITING PAINT TO MATCH EXISTING COLOR.
- TRAIN ALL EXISTING INTERIOR WIRING; BUNDLE AND CLAMP USING PLASTIC TIES IN A NEAT AND WORKMANLIKE MANNER.
- PROVIDE NECESSARY HARDWARE AT ALL EXISTING BREAKERS TO PERMIT LOCKING IN THE OFF POSITION.
- PERFORM MECHANICAL OPERATIONAL TESTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- PROVIDE/UPDATE NAMEPLATE INFORMATION PER SPECIFICATIONS.
- CHECK AND ENSURE THAT ALL COVERS, BARRIERS AND DOOR ARE SECURE.
- TIGHTEN ALL ELECTRICAL CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS PUBLISHED TORQUE-TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUE REQUIREMENTS ARE NOT INDICATED, COMPLY WITH UL STANDARD 486A TIGHTENING TORQUE SPECIFICATIONS.

ADD ALTERNATE: REPLACE EXISITNG METERED MAIN SWITCHBOARD WITH NEW, LIKE KIND SWITCHGEAR AT EXISTING LOCATION. NEW SWITCHBOARD SHALL BE IN SAME CONFIGURATION WITH SAME DIMENSIONS AS EXISTING TO ENSURE ALIGMENT WITH EXISTING CONDUIT STUBS. RECONNECT EXISTING UTILITY COMPANY SECONDARY CONNECTION AND EXISTING BRANCH CIRCUIT CONDUCTORS. CONTRACTOR TO CONFIRM BREAKER SIZES, CONDUCTOR SIZES AND AVAILABLE SLACK IN THE WIRES, AND FAULT CURRENT RATING PRIOR TO RELEASE OF GEAR. CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY (SMUD) AS REQUIRED FOR REINSTALLATION OF METER IN NEW SWITCHBOARD.

2 REPLACE EXISITNG PANEL WITH NEW AT EXISTING LOCATION, RECONNECT EXISTING FEEDER CONDUCTORS AND ALL BRANCH CIRCUIT CONDUCTORS. CONTRACTOR TO CONFIRM ON SITE BREAKER CONFIGURATION OF ALL EXISTING LOADS PRIOR TO ORDERING NEW PANEL. REFER TO FLOOR PLANS AND PANEL SCHEDULES FOR NEW WORK AND ADDITIONAL REQUIREMENTS.

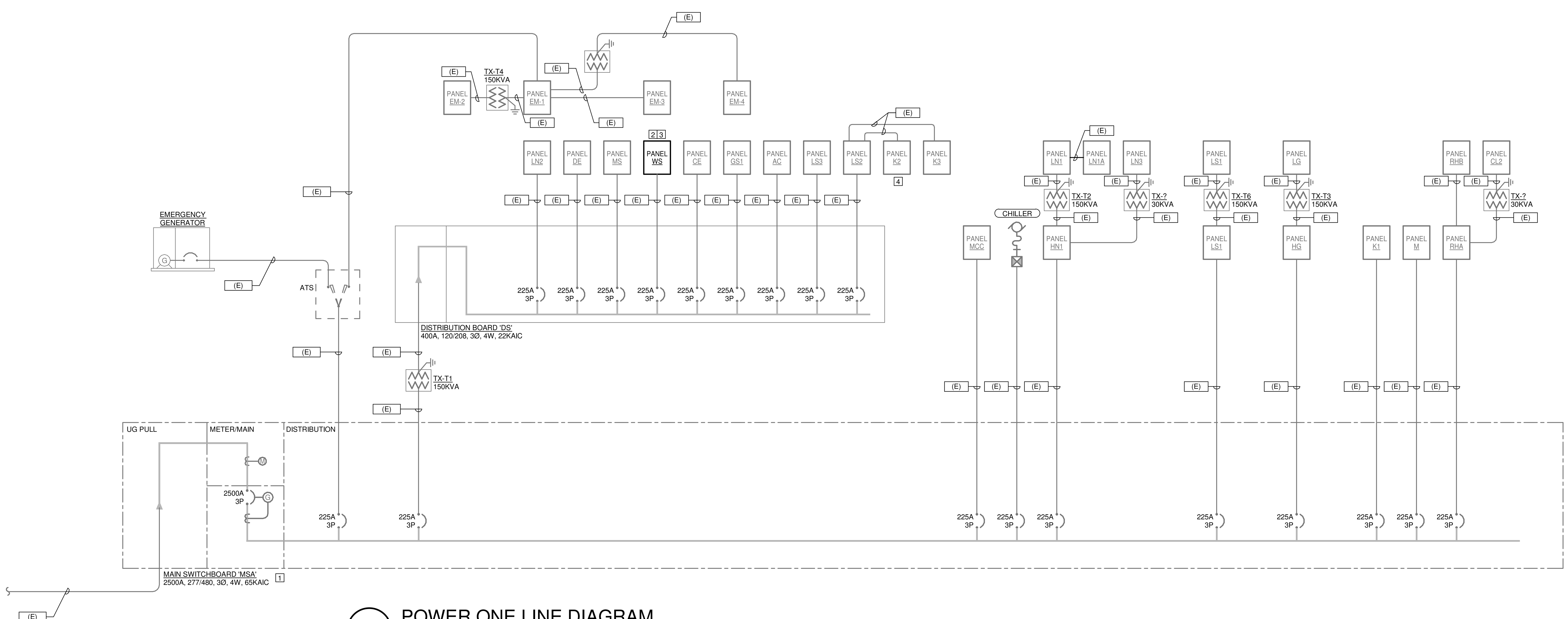
3 PROVIDE WITH SHUNT TRIP MAIN BREAKER AND RECONNECT TO EXISTING CONTROL WIRING.

4 VERIFY IF EXISTING MAIN BREAKER IN PANEL IS SHUNT TRIP. IF SO, CONNECT SHUNT TRIP CONTROL TO FIRE SUPPRESSION HOOD, AND SHUNT TRIP BREAKERS FOR NEW EQUIPMENT NOT REQUIRED.



1 POWER ONE LINE DIAGRAM - CROCKER SCHOOL

SCALE:N.T.S.



2 POWER ONE LINE DIAGRAM

SCALE:N.T.S.

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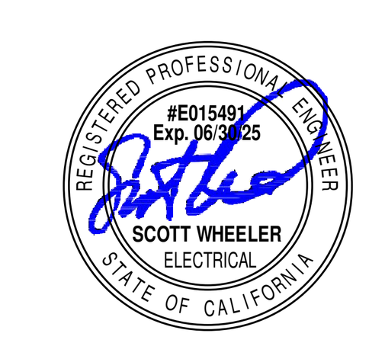

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
POWER ONE LINE DIAGRAM

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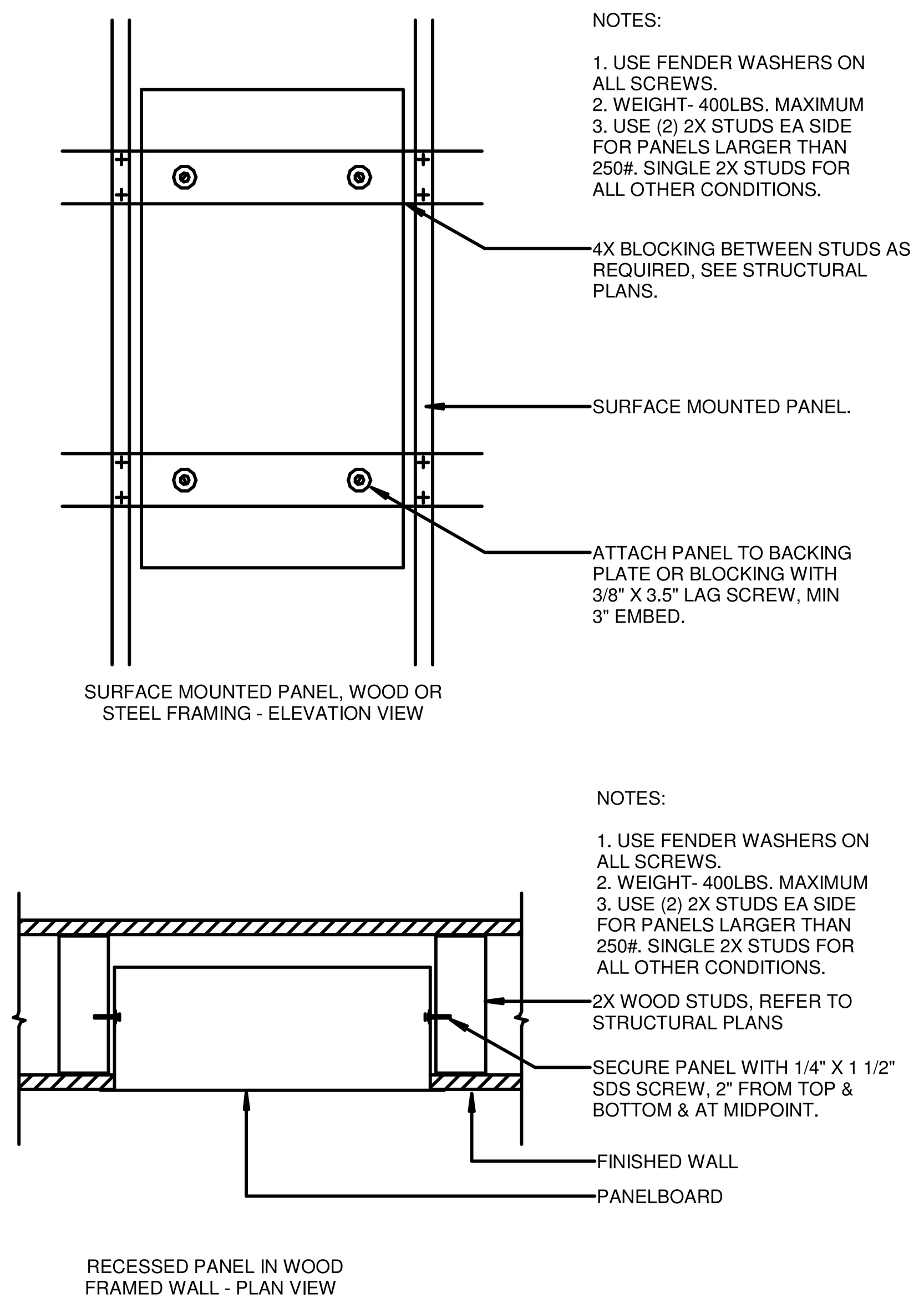
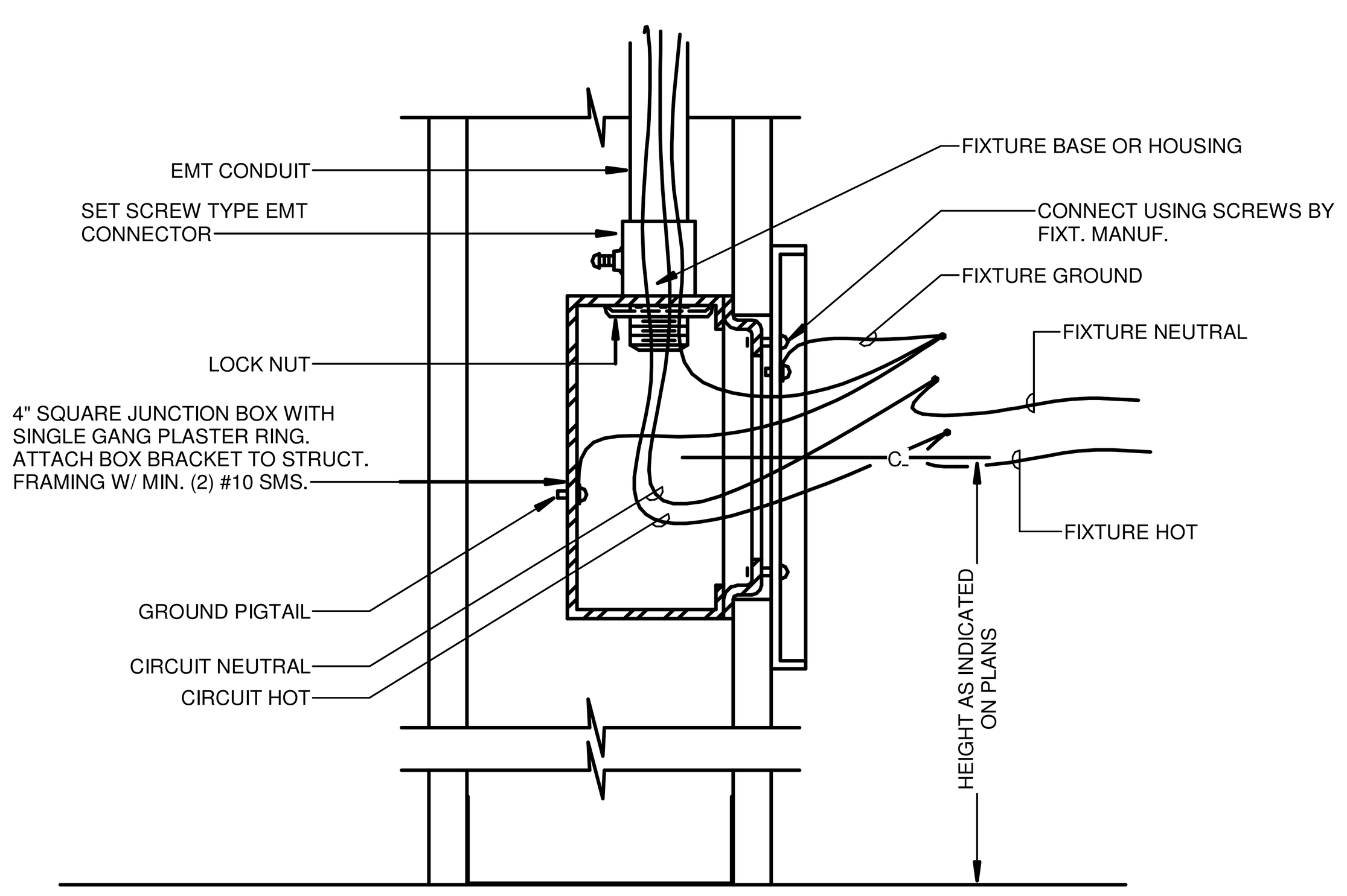


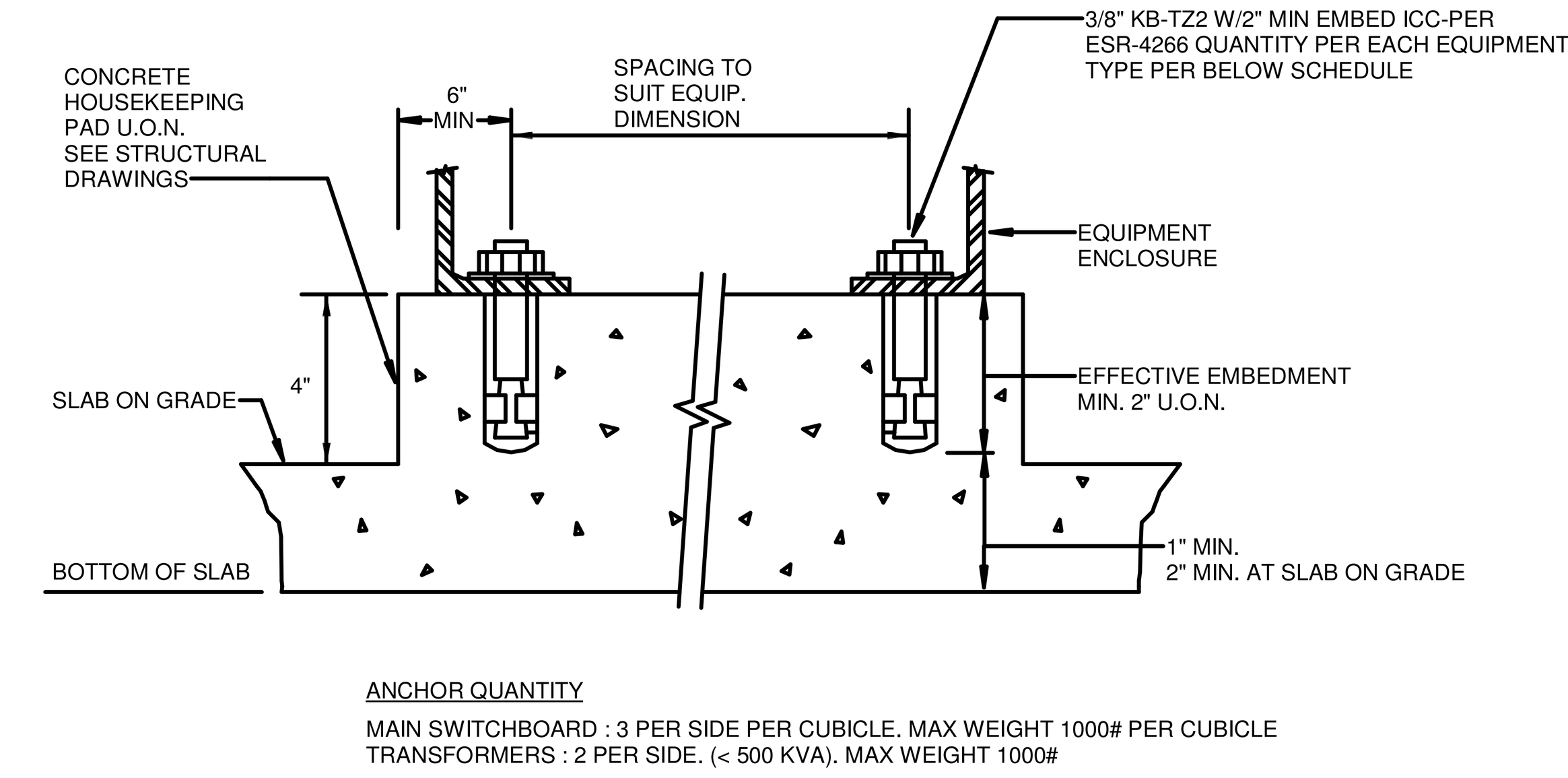
1 SURFACE OR RECESSED PANELBOARD

SCALE: NTS



2 WALL MOUNTED FIXTURE

SCALE: NTS



ANCHOR QUANTITY

MAIN SWITCHBOARD : 3 PER SIDE PER CUBICLE. MAX WEIGHT 1000# PER CUBICLE
TRANSFORMERS : 2 PER SIDE. (< 500 KVA). MAX WEIGHT 1000#

3 ELECTRICAL EQUIPMENT FASTENING DETAIL

SCALE: NTS

DSA ANCHORAGE SCHEDULE

APPLICABLE CODE: 2022 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

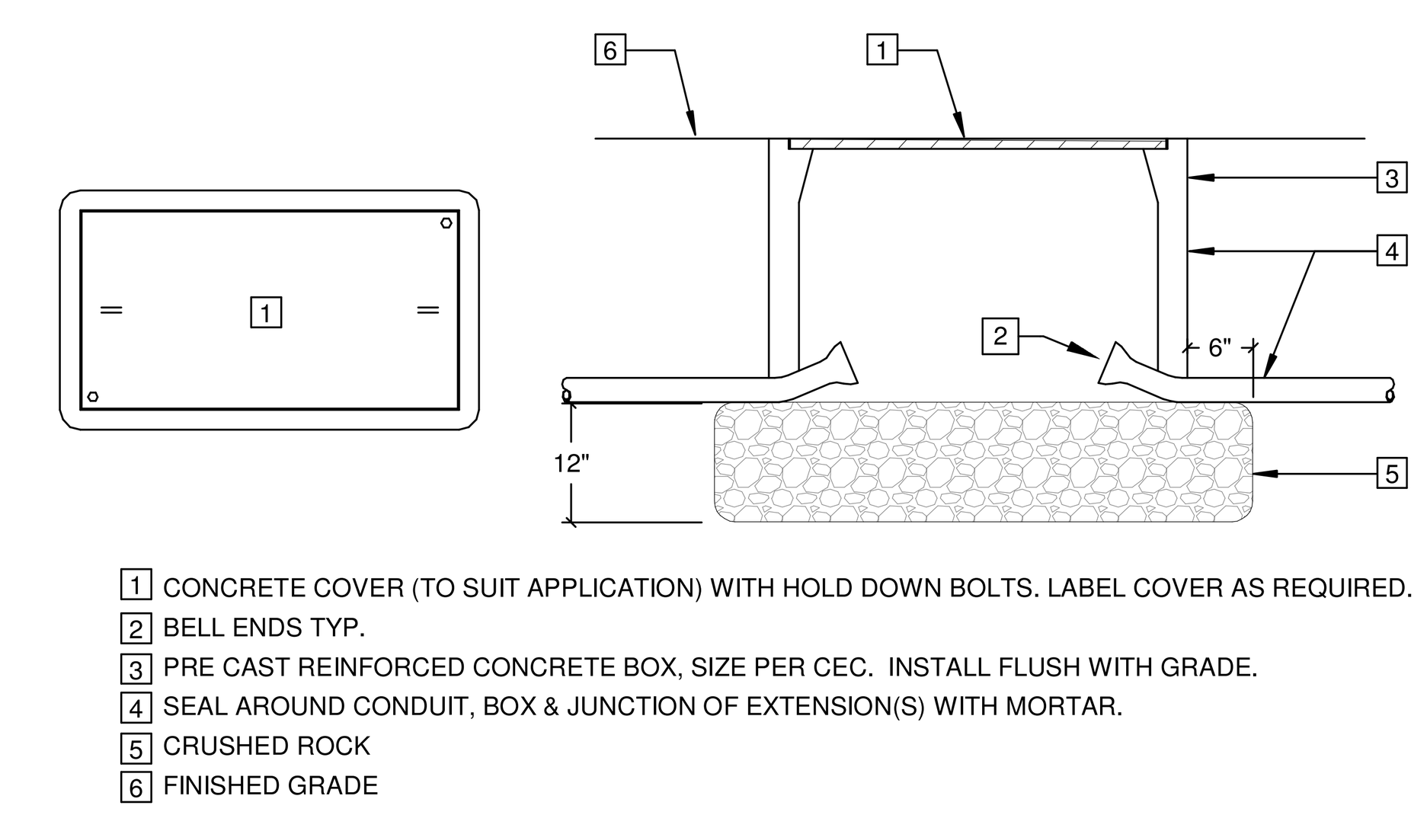
THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

APPLICABLE CODE: 2022 CBC

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26. THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

ELECTRICAL DISTRIBUTION SYSTEMS, OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.



1 CONCRETE COVER (TO SUIT APPLICATION) WITH HOLD DOWN BOLTS. LABEL COVER AS REQUIRED.
2 BELL ENDS TYP.
3 PRE CAST REINFORCED CONCRETE BOX, SIZE PER CEC. INSTALL FLUSH WITH GRADE.
4 SEAL AROUND CONDUIT, BOX & JUNCTION OF EXTENSION(S) WITH MORTAR.
5 CRUSHED ROCK
6 FINISHED GRADE

4 SITE PULLBOX INSTALLATION DETAIL

SCALE:NTS

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SEAL

REGISTERED PROFESSIONAL ENGINEER — SCOTT WHEELER — ELECTRICAL — STATE OF CALIFORNIA

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
ELECTRICAL DETAILS

NO.	DATE	ISSUE

Drawn By: Author
Checked By: Checker
Project No.: 23-074
©Date: 11/3/2023
DRAWING NO.
E6.1.1

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FIRE ALARM WIRE TYPE LEGEND:

CABLE ID	DESCRIPTION	CABLE TYPE	INTERIOR OPEN PATHWAY (NON PLENUM)	INTERIOR OPEN PATHWAY (PLENUM)	UNDERGROUND
VIS	VISIBLE NAC CIRCUIT	2-COND 12 AWG STRANDED RED JACKET	W.P. 998S	W.P. 60995BS	W.P. AQ-227
AUD	AUDIBLE NAC CIRCUIT	2-COND 14 AWG TWISTED	W.P. 994S	W.P. 60993BS	W.P. AQ-226
SBUS	SBUS CIRCUIT	4-COND 18 AWG TWISTED	W.P. 982	W.P. 60982B	W.P. AQ-224
A	SIGNAL CIRCUIT	2-COND 18 AWG TWISTED	W.P. D980	W.P. 60980	W.P AQ-224
D	INITIATING DEVICE CIRCUIT	2-COND 18 AWG TWISTED	W.P. D980	W.P. 60980B	W.P. AQ-224
RM	REMOTE MIC AUDIO CIRCUIT	2-COND 16 AWG TWISTED SHIELDED	W.P. D975	W.P. 60990BS	W.P. AQC-294
AR	AUDIO RISER CIRCUIT	2-COND 16 AWG TWISTED SHIELDED	W.P. D975	W.P. 60990BS	W.P. AQC-294
AUX	AUXILIARY POWER CIRCUIT	2-COND 12 AWG TWISTED	W.P. 998S	W.P. 60995BS	W.P. AQ-227

NOTE:

1) ALL FIRE CABLE SHALL HAVE A RED JACKET.
2) ALL UNDERGROUND CABLE SHALL BE WEST PENN AQUA SEAL, OR AN APPROVED EQUAL BY DISTRICT.
3) ALL FIRE ALARM CABLING TO BE FPL OR FPLP RATED.

INTERIOR TO EXTERIOR COLOR CODE:

INT	FUNCTION		EXT
RED	+ DATA/	+ INITIATING	RED
BLK	- DATA/	- INITIATING	BLK
WHT	POSITIVE		BLU
GRN	NEGATIVE		BRN

FIRE ALARM MATRIX:

ACTION / RESULTS	PULL STATION	SMOKE DETECTOR	HEAT DETECTOR	WATERFLOW	DUCT SMOKE DETECTOR	VALVE SUPERVISION	POWER LOSS AC OR BATTERY	REMOTE POWER BOOSTER TROUBLE
ALARM INDICATOR AT FIRE ALARM PANEL AND REMOTE ANNUNCIATOR.	✓	✓	✓	✓				
ALARM THROUGHOUT W/ RECORDED SPEECH/LIVE SPEECH(WHERE INSTALLED or 90Hz TONE*) & SYNCHRONIZED STROBES WHERE REQ.	✓	✓	✓	✓				
TROUBLE INDICATION AT FIRE ALARM PANEL	✓	✓	✓	✓	✓		✓	✓
SUPERVISORY INDICATION AT FIRE ALARM PANEL					✓**	✓		
HVAC UNIT SHUTDOWN (FOR CONTROLLED UNITS)		✓			✓			
MONITORED AT CENTRAL STATION	✓	✓	✓	✓	✓	✓	✓	✓

* - 1KHz TONE OCCURS IF AMPLIFIER IS DISABLED.
** - NFPA 72, 21.7.4 DUCT SMOKE DETECTORS SHALL INITIATE A SUPERVISORY SIGNAL.

FIRE ALARM SYMBOL LEGEND:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL / PART NUMBER	CSFM LISTING/NOTES/DETAIL REFERENCES
FACP *	FIRE ALARM CONTROL PANEL/CPU/ COMM MODULE/SEISMIC MOUNTING KIT	NOTIFIER	NFS2-3030/CPU2-3030D/ NCM-W/SEISKIT-CAB	7165-0028:0224
	INTEGRATED DIGITAL VOICE COMMAND/ KEYPAD/ANALOG OUTPUT BOARD	NOTIFIER	DVC-EM/DVC-KD/ DVC-AO	
	CHASSIS/PAGING MICROPHONE	NOTIFIER	CA-1/CMIC-1	
	ADDRESSABLE POWER SUPPLY	NOTIFIER	AMPS-24	
	LOOP CONTROL MODULE (QTY=2)	NOTIFIER	LCM-320	
	LOOP EXPANDER MODULE (QTY=2)	NOTIFIER	LEM-320	
	CABINET/DOOR/BATTERY PLATE	NOTIFIER	SBB-C4/DR-C4/BP-4	
	MOUNTING CHASSIS/DRESS PLATE/BLANK PLATES	NOTIFIER	AS REQUIRED	
	INTERNET MONITORING MODULE	NOTIFIER	IPDACT-2	
	BATTERY BOX WITH SEISMIC KIT	NOTIFIER	NFS-LBB/SEISKIT-LBB	
	BATTERIES	POWERSONIC	PS-12550	N/A
ANN	NETWORK CONTROL ANNUNCIATOR /CABINET/CHASSIS/COMM MODULE	NOTIFIER	NCA-2/ABS-2D/ CHS-2D/NCM-W	7165-0028:0224
RPU	REMOTE PAGING UNIT/MIC/CABINET	NOTIFIER	DVC-RPU/CMIC-RP/ CAB-RP	7165-0028:0224
AMP	REMOTE AMPLIFIER/CABINET	NOTIFIER	AA-120/SBB-A4/ DR-A4B	7165-0028:0224
F	PULL STATION	NOTIFIER	NBG-12LX	7150-0028:0199
S	SMOKE DETECTOR (NEW)	NOTIFIER	FSP-951	7272-0028:0503
S (E)	SMOKE DETECTOR (EXISTING)	NOTIFIER	FSP-851	7272-0028:0206
H (E)	HEAT DETECTOR (EXISTING)	NOTIFIER	FST-851	7270-0028:0196
PS	REMOTE POWER SUPPLY (EXISTING)	NOTIFIER	FCPS-24S6	7315-0028:0225
CR	CONTROL RELAY MODULE	NOTIFIER	FRM-1	7300-0028:0219
MM	MONITOR MODULE	NOTIFIER	FMM	7300-0028:0219
DSD	DUCT SMOKE DECTOR	SYSTEM SENSOR	D4120	3242-1653:0207
TS	REMOTE TEST SWITCH	SYSTEM SENSOR	RTS-151-KEY	7300-1653:0212
	SPARE PARTS - SMOKE DETECTOR	NOTIFIER	FSP-951	7272-0028:0503 / QTY=60
	SPARE PARTS - HEAT DETECTOR	NOTIFIER	FST-951	7270-0028:0502 / QTY=20
	SPARE PARTS - EXTERIOR HORN	SYSTEM SENSOR	HRK	7135-1653:0189 / QTY=15
	SPARE PARTS - POWER BOOSTER	NOTIFIER/HONEYWELL	HPF-PS6	7315-1637:0505 / QTY=1

DEVICE NOTES:
* THE INSTALLING CONTRACTOR SHALL PROVIDE ALL PROGRAMMING FOR A COMPLETE AND OPERABLE SYSTEM PER THE OWNERS STANDARDS.

ANCHORAGE AND BRACING NOTES:

APPLICABLE CODE: 2022 CBC — REVISED: 01/11/2024

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MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP MD PP E X
OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP MD PP E
OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM #) # AS INCLUDED IN THESE DRAWINGS WITH PROJECT-SPECIFIC NOTES AND DETAILS.

DESCRIPTORS LEGEND:

FIRE ALARM VISIBLE AND AUDIBLE NOTIFICATION APPLIANCE DESCRIPTORS

APPLIANCE ID NUMBER
CIRCUIT NUMBER
POWER EXTENDER / AMPLIFIER NUMBER
15cd — CANDELA RATING
1/4w — WATTAGE RATING

FIRE ALARM INITIATING DEVICE DESCRIPTORS

DEVICE ID NUMBER
D OR M (DETECTOR OR MODULE)
LOOP NUMBER

TYPICAL CIRCUIT CABLE DESCRIPTORS

X-X — QUANTITY OF CABLES - CABLE ID

FIRE ALARM NOTES:

1. THE AUTOMATIC FIRE ALARM SYSTEM SHALL BE REPLACED AND TESTED IN ACCORDANCE WITH APPLICABLE CODES AS LISTED ON COVER SHEET.
2. LABEL ALL DEVICES, PANELS AND TERMINAL CANS WITH BLACK LETTERS ON WHITE SELF ADHESIVE TAPE (1/4" LETTERS FOR DEVICES LOCATED <= 10' AFF, 1/2" LETTERS FOR DEVICES >10' AFF).
3. DEVICE MOUNTING AND BACK BOXES SHALL BE PER MANUFACTURERS RECOMMENDATIONS.
4. ALL CONDUIT AND SURFACE RACEWAY FILL RATE SHALL NOT EXCEED 40%.
5. ALL CABLES SHALL BE RUN UNEXPOSED THROUGHOUT THE ENTIRE CABLE PATH.
6. WHEN APPROVED BY THE ARCHITECT/DESIGNER IT IS ACCEPTABLE TO FISH CABLES IN NON-ACCESSIBLE AREAS INSTEAD OF INSTALLING SURFACE RACEWAY.
7. OPEN RUN CABLES CONCEALED ABOVE CEILING SHALL BE ROUTED UNIFORMLY AND PERPENDICULAR TO THE BUILDING STRUCTURE. CABLES TURNS SHALL BE ROUTED AT 90° ANGLES TO THE BUILDING. NO DIAGONAL RUNS ARE PERMITTED.
8. ALL WIRING SHALL BE INSTALLED IN A NEAT, PROFESSIONAL AND WORKMAN-LIKE MANNER
9. ALL CABLES SHALL BE IDENTIFIED (PER CABLE SCHEDULE) AT ALL PANELS AND/OR TERMINAL CABINETS WITH PRINTED SELF ADHESIVE LABELS IN A NEAT AND PERMANENT MANNER.
10. PROVIDE 24" SERVICE LOOP AT END TERMINAL CABINETS ONLY, UNLESS NOTED OTHERWISE.
11. CABLES SHALL NOT BE PERMITTED TO LAY ON ANY SUSPENDED CEILING SURFACES OR EQUIPMENT, OR TIED TO ANY SUPPORT WIRES OR STRUCTURE. CABLE ROUTES SHALL BE SELF SUPPORTED AT A MINIMUM OF EVERY 48" O.C. WITH "D" RING OR EQUAL SUPPORTS.
12. USE EXISTING LOW VOLTAGE PATHWAYS, CABLE TRAYS AND LADDER RACKS OF SAME SYSTEM TYPE WHENEVER POSSIBLE.
13. MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED ON DESIGN DOCUMENTS.
14. ALL CONDUIT STUBS SHALL HAVE A PROTECTIVE BUSHING AT THEIR ENDS.
15. PROVIDE STRAIN RELIEF AT ALL BACK BOX TO OPEN WIRE TRANSITIONS.
16. UNDERGROUND TO BUILDING CIRCUIT CONNECTIONS SHALL BE MADE AT TERMINAL STRIPS OR FIRST INTERIOR DEVICE ONLY.
17. RESTORE ANY DISTURBED SURFACES BY THE INSTALLATION AND/OR REMOVAL OF EQUIPMENT TO MATCH ORIGINAL CONDITION.
18. REMOVE ALL ABANDONED EQUIPMENT AND WIRE. ABANDONED UNDERGROUND CONDUITS SHALL HAVE WIRE REMOVED AND ENDS CAPPED. ABANDONED CONDUIT IN ATTIC SHALL HAVE WIRE REMOVED. ABANDONED EXPOSED PATHWAY SHALL BE REMOVED.
19. UNLESS OTHERWISE NOTED, REMOVED FLUSH MOUNTED DEVICES OR PANELS SHALL HAVE BLANK METAL COVERS INSTALLED.
20. REMOVED EQUIPMENT SHALL BE RETURNED TO THE OWNER OR PROPERLY DISPOSED OF PER OWNERS REQUEST.
21. THE CONTRACTOR SHALL PRETEST THE SYSTEM TO VERIFY OPERATION IS 100% BEFORE CALLING FOR INSPECTION. FAILED INSPECTION CAN RESULT IN FEES PAYABLE TO THE AHJ AND ARCHITECT/ DESIGNER.
22. PER CBC 907.6.6.4 (SFM AMENDMENT) REQUIRES FIRE ALARM TO TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISING STATIONS SHALL BE LISTED AS EITHER UUFX (CENTRAL STATION) OR UUUS (REMOTE AND PROPRIETARY) BY UNDERWRITERS LABORATORY (UL) OR SHALL COMPLY WITH THE REQUIREMENTS OF STANDARD FM 3011.
23. THE INSTALLING CONTRACTOR SHALL PROVIDE A TYPED RECORD OF COMPLETION PER NFPA 72. A FINAL WILL NOT BE GRANTED UNTIL THE ABOVE IS APPROVED BY THE OWNER.
24. FINAL ACCEPTANCE TEST TO INCLUDE TESTING THE CONNECTION BETWEEN THE FIRE ALARM PANEL AND THE SUPERVISING STATION.
25. INSPECTION AND TESTING TO COMPLY WITH NFPA 72, CHAPTER 14 REQUIREMENTS.
26. DOCUMENTED ON THE "SYSTEM RECORD OF COMPLETION". FIGURE 7.8.2(a) THROUGH (l) AS APPLICABLE.

DSA GL-2 (REV 08-10-18) FIRE ALARM AND DETECTION SYSTEMS NOTES:

1. APPLICABLE STANDARD NFPA 72, AS ADOPTED AND AMENDED IN CBC CHAPTER 35.
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF THE INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND /OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES, REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH A PENETRATION FIRE STOP SYSTEM AS IDENTIFIED IN CBC CHAPTER 7. UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPE OF MATERIALS SHALL BE IDENTIFIED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8. WALL MOUNTED VISUAL NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM FROM FINISHED FLOOR.
9. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THEN 6" TO A HORIZONTAL STRUCTURE.
10. AUDIBLE DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (Dba) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 Dba ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEASE 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.
11. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN. (UNLESS NOTED OTHERWISE).
12. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELLA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
15. ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. ALL BOXES TO BE SIZED PER CEC.
17. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER.
18. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
19. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
20. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL". CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXTENDERS.
21. THE INSTALLING CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72.
22. CONTROL PANELS, REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48" (UNLESS NOTED OTHERWISE).
23. MICROPHONES ASSOCIATED WITH EMERGENCY VOICE ALARM COMMUNICATION SYSTEM (EVAC) SHALL BE ACCESSIBLE FOR USE, INSTALLED IN COMPLIANCE WITH CBC SECTIONS 11B-305 AND 11B-308
24. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2. (UNLESS NOTED OTHERWISE)
25. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
26. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.

**** UPDATED TO REFLECT CURRENT CODE CYCLE.

SITE SPECIFIC NOTES AND PERFORMANCE SCOPE OF WORK:

1. PRODUCE AND RECEIVE APPROVAL FOR "SHOP DRAWINGS" PRIOR TO ORDERING EQUIPMENT. PARTS LISTED ARE MAJOR COMPONENTS AND MAY NOT LIST ALL REQUIRED COMPONENTS. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE AND OPERABLE SYSTEM TO THE SATISFACTION OF THE DISTRICT.
2. PRE-TEST EXISTING SYSTEM AND NOTIFY DISTRICT OR DISTRICT'S REPRESENTATIVE OF ANY INITIATION/NOTIFICATION DEVICES THAT NEED REPAIR.
3. INSTALL NEW FACP TO REPLACE EXISTING AND FAILING FACP. REATTACH ALL EXISTING INITIATING AND NOTIFICATION CIRCUITS AS-IS. REATTACH EXISTING UL LISTED MONITORING CIRCUITS.
3. THE DESIGN INTENT IS TO HAVE A VOICE EVACUATION FIRE ALARM SYSTEM AVAILABLE FOR ANY FUTURE FIRE ALARM UPGRADES REQUIRING VOICE EVACUATION.
4. ALL EXISTING INITIATING OR NOTIFICATION CIRCUITS ARE CLASS B TYPE CIRCUITS.
5. PROVIDE FIRE WATCH SERVICES DURING FACP REPLACEMENT TIME WHILE SYSTEM IS OFF-LINE.
6. INSTALL NEW PATHWAY (AS NOTED) AND WIRING BETWEEN FACP AND REPLACED/NEW COMPONENTS AS REQUIRED. SEE T SHEETS FOR SITE PATHWAY COORDINATION.
7. INSTALL NEW LOCAL OPERATOR CONSOLE, NEW ANNUNCIATOR AND NEW PULL STATION IN ADMIN AREA.
8. SEE DEMOLITION NOTES FOR EQUIPMENT REMOVAL AND WALL PREPARATION.
9. REPLACE FIRELITE ECC 50/100 WITH A NOTIFIER AMPLIFIER IN GYMNASIUM FOR SITE COORDINATED VOICE EVACUATION.
10. PROGRAM ALL EXISTING INITIATION/NOTIFICATION DEVICES AND CIRCUITS AS-IS TO NEW FACP. PROGRAM NEW SYSTEM BASED ON OLD SYSTEM'S PROGRAMMING.
11. PERFORM A PRETEST OF SYSTEM PRIOR TO REQUESTING A FINAL TEST.
12. PERFORM A 100% TEST OF THE NOTIFICATION DEVICES AND 10% TEST OF INITIATION DEVICES IN THE PRESENCE OF THE DISTRICT PERSONNEL OR DISTRICT'S REPRESENTATIVE.
13. COMPLETE NFPA 72 RECORD OF COMPLETION FORM.
14. DOCUMENT SYSTEM AND PRODUCE SITE-WIDE AS-BUILT DRAWINGS.
15. FURNISH SPARE MAINTENANCE PARTS AS FOLLOWS:
 15.1. SMOKE DETECTORS NOTIFIER FSP-951 QUANTITY 60
 15.2. HEAT DETECTORS NOTIFIER FST-951 QUANTITY 20
 15.3. EXTERIOR HORNS SYSTEM SENSOR HRK QUANTITY 15
 15.4. POWER EXTENDER NOTIFIER PSE-6 QUANTITY 1
16. PROVIDE DUCT SMOKE DETECTOR(S), SAMPLE TUBE(S) AND COORDINATE WITH MECHANICAL FOR INSTALL. PROVIDE AND MAKE CONNECTIONS FOR POWER, TEST SWITCH(ES), MONITOR MODULE(S) AND CONTROL RELAY(S).

PROJECT CODES AND STANDARDS

REVISED: 01/11/2024

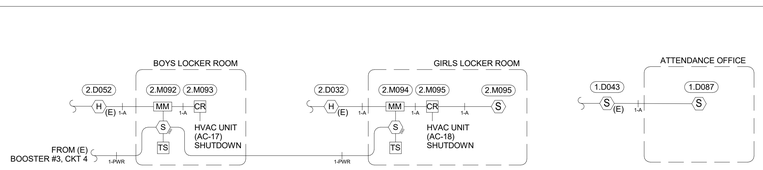
PARTIAL LIST OF APPLICABLE CODES AND STANDARDS EFFECTIVE JANUARY 1, 2022:
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), CCR, TITLE 24, PART 1
2022 CALIFORNIA BUILDING CODE (CBC), CCR, TITLE 24, PART 2 (2021 INTERNATIONAL BUILDING CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), CCR, TITLE 24, PART 3 (2020 NATIONAL ELECTRICAL CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC), CCR, TITLE 24, PART 4 (2021 UNIFORM MECHANICAL CODE, WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), CCR, TITLE 24, PART 5 (2021 UNIFORM PLUMBING CODE, WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE, CCR, TITLE 24, PART 6
2022 CALIFORNIA FIRE CODE (CFC), CCR, TITLE 24, PART 9 (2021 INTERNATIONAL FIRE CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, CCR, TITLE 24, PART 11
2022 CALIFORNIA REFERENCED STANDARDS CODE, CCR, TITLE 24, PART 12
2022 NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE, NATIONAL FIRE PROTECTION ASSOCIATION

KMM DESIGN CONSULTANTS

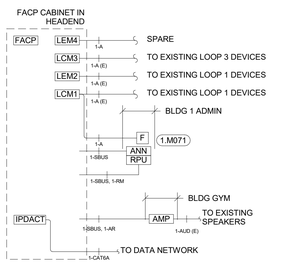
KMM SERVICES, INC.
5433 EL CAMINO, SUITE 5
CARMICHAEL, CALIFORNIA 95608
PHONE: (916) 359-4000

FIRE ALARM DESIGN PROFESSIONAL
CHRISTOPHER CLUFF (CC)
FIRE ALARM SYSTEMS, LEVEL III
ENGINEERING TECHNICIAN
NICET #: 129281
EXP. DATE: 06/01/2025

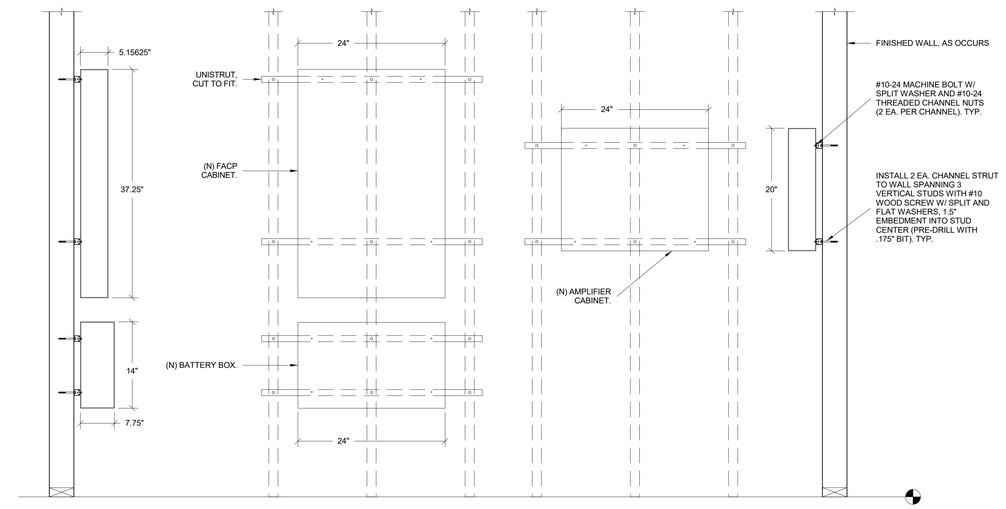
FIRE ALARM SHEET INDEX:



3 FIRE ALARM SINGLE LINE DIAGRAM
SCALE: NONE



2 FIRE ALARM SINGLE LINE DIAGRAM
SCALE: NONE



NOTES:
1. FACP TOTAL WEIGHT = 107.7LBS., INCLUDES FACTORY SEISMIC HARDENING KIT.
2. BATTERY BOX TOTAL WEIGHT = 87LBS., INCLUDES FACTORY SEISMIC HARDENING KIT.
3. AMPLIFIER CABINET TOTAL WEIGHT = 74.6LBS.

1 CABINET MOUNTING DETAIL
SCALE: NONE

JK ARCHITECTURE ENGINEERING
AUBURN | TAHOE CITY | RENO | SAN JOSE
WWW.JKAEDESIGN.COM

NICET III CERTIFIED

Christopher C. Cluff
NICET #129281
Fire Alarm Systems, Level III
Engineering Technician

CONSULTANT

KMM SERVICES, INC
TECHNOLOGY AND FIRE LIFE SAFETY DESIGN
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
Office: (916) 359-4000
www.kmmservices.com

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
FIRE ALARM COVER SHEET

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No. 23-145
@Date
ISSUE DATE
DRAWING NO.
FA-001

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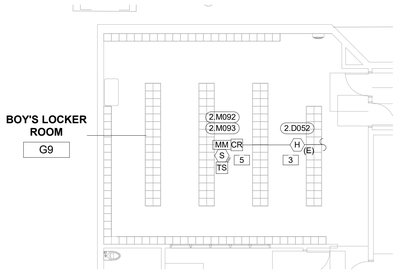
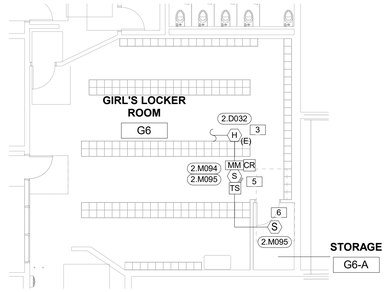
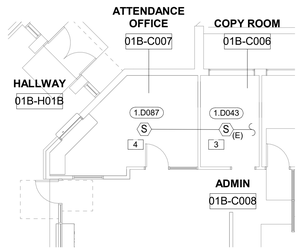


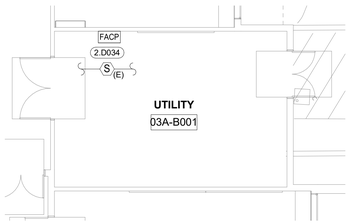
7 FIRE ALARM ENLARGED PLAN - BOY'S LOCKER ROOM
1/8" = 1'-0"



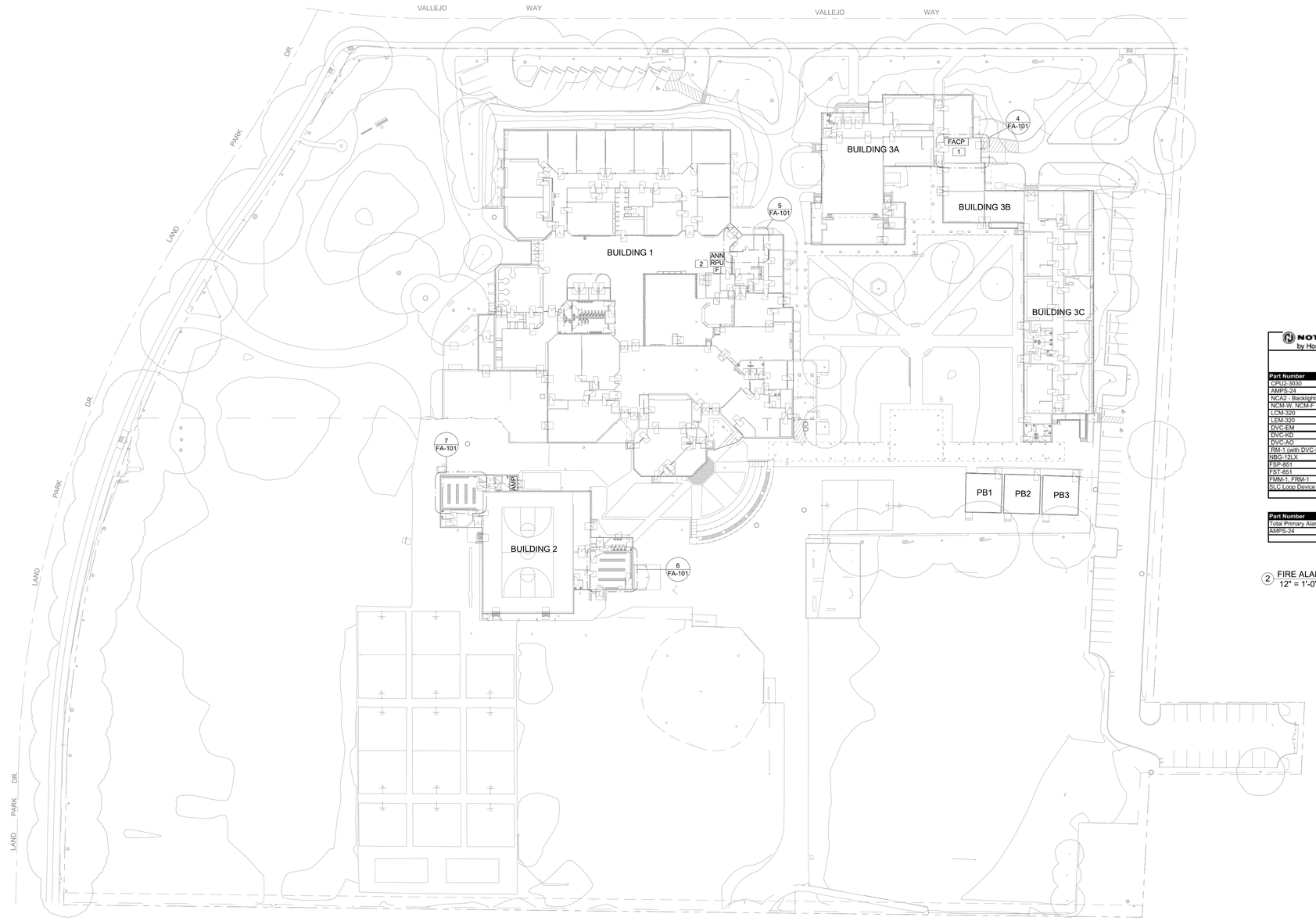
6 FIRE ALARM ENLARGED PLAN - GIRL'S LOCKER ROOM
1/8" = 1'-0"



5 FIRE ALARM ENLARGED PLAN - ADMIN.
1/8" = 1'-0"



4 FIRE ALARM ENLARGED PLAN - UTILITY
1/8" = 1'-0"



1 FIRE ALARM SITE PLAN
1" = 40'-0"

GENERAL NOTES

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- 15.4. POWER EXTENDER NOTIFIER PSE-6 QUANTITY 1

16. COORDINATE FIRE ALARM CABLING TO BE MOVED FROM (E) AERIAL TO (E) UNDERGROUND PRIOR TO AERIAL DEMO. SEE KEYNOTE 6/T-053 FOR MORE INFORMATION.

SHEET NOTES

ID	DESCRIPTION
1	COORDINATE WITH ELECTRICAL CONTRACTOR FOR DEDICATED POWER CONNECTION.
2	REMOVE OLD ABANDONED FIRE ALARM CABINET COVER WITH PAINT-GRADE PLYWOOD AND INSTALL NEW ANNUNCIATOR, NEW REMOTE PAGING UNIT AND NEW PULL STATION.
3	MAKE T-TAP TIE-IN CONNECTION FOR THE NEW DEVICE SLC AT EXISTING NEAR BY DEVICE.
4	PROVIDE AND INSTALL NEW SMOKE DETECTOR IN NEW ATTENDANCE OFFICE.
5	PROVIDE DUCT SMOKE DETECTOR, SAMPLE TUBE AND COORDINATE WITH MECHANICAL FOR INSTALL. PROVIDE AND MAKE CONNECTIONS FOR POWER, TEST SWITCH, MONITOR MODULE AND CONTROL RELAY.
6	PROVIDE AND INSTALL NEW SMOKE DETECTOR IN NEW GIRLS LOCKER ROOM STORAGE.

NOTIFIER by Honeywell

Device Current Draw

NFS2-3030 Fire Alarm Control Panel

Quantity x [device current draw] = total current draw per device (in amps)

Part Number	Qty	Primary Non-Alarm		Primary Alarm		Secondary Non-Alarm	
ICPU2-3030	1	0.120000	0.1200000	0.120000	0.1200000	0.120000	0.1200000
AMPS-24	1	0.000000	0.0000000	0.000000	0.0000000	0.130000	0.1300000
NCA2 - Backlight Off	1	0.200000	0.2000000	0.200000	0.2000000	0.200000	0.2000000
NCM-W, NCM-F	1	0.110000	0.1100000	0.110000	0.1100000	0.110000	0.1100000
LCM-320	2	0.130000	0.2600000	0.130000	0.2600000	0.130000	0.2600000
LEM-320	2	0.100000	0.1200000	0.100000	0.1200000	0.100000	0.1200000
DVC-EM	1	0.300000	0.2000000	0.300000	0.2000000	0.300000	0.2000000
DVC-KD	1	0.060000	0.0600000	0.060000	0.0600000	0.060000	0.0600000
DVC-AO	1	0.175000	0.1750000	0.175000	0.1750000	0.175000	0.1750000
RM-1 (with DVC-EM)	1	0.075000	0.0750000	0.075000	0.0750000	0.075000	0.0750000
NBG-12LX	10	0.000380	0.0038000	0.000000	0.0000000	0.000380	0.0038000
FSP-851	221	0.000300	0.0663000	0.000000	0.0000000	0.000300	0.0663000
FST-851	80	0.000300	0.0240000	0.000000	0.0000000	0.000300	0.0240000
FMM-1, FRM-1	78	0.000350	0.0273000	0.000000	0.0000000	0.000350	0.0273000
SLC Loop Device Activation Current	4	0.000000	0.0000000	0.200000	0.8000000	0.000000	0.0000000
Total (Amperes):			**1.44140 A**		**2.2200 A**		**1.5714 A**

Part Number	Qty	Secondary Alarm	
Total Primary Alarm Load - C2	1	2.300000	2.300000
AMPS-24	1	0.130000	0.130000
Total (Amperes):			**2.4300 A**

2 FIRE ALARM BATTERY CALCULATIONS
12" = 1'-0"

NOTIFIER by Honeywell

System Power Requirements

Notifier NFS2-3030 Fire Alarm Control Panel

Protected Premises: SCUSD Cal Middle School — Date: 11/3/2023
Address: 1600 Vallejo Way
City: Sacramento — State: CA — Zip: 95818

Prepared By: KMM Services, Inc — Phone:
Address: 5433 El Camino Ave. — Email:
City: Carmichael — State: CA — Zip: 95608

AC Branch Current Requirements **5.00** AMPS @ 120 VAC
Current required by source to power the fire alarm system.

Primary Standby Load **1.62** Amps
Current load on the primary power supply during **non-alarm** conditions.

Primary Alarm Load **2.30** Amps
Current load on the primary power supply during **alarm** conditions.

Secondary Load Requirements **53.24** Amp Hours
Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 1.749 A	x	Required Standby Time 24 hours	41.98
Secondary Alarm Load 2.430 A	x	Required Alarm Time 0.250 hours	0.61
		Total Secondary Load	42.59
		Derating factor	x 1.25
		Secondary Load Requirements	**53.24**

Battery Selection **55** Amp Hours
Select batteries from the list below.
50 AH BAT-12550 Battery (12 volt)
☒ Two ☐ Four (two 12VDC sets in parallel)

3 FIRE ALARM BATTERY SIZE
12" = 1'-0"

JK ARCHITECTURE ENGINEERING
AUBURN | TAHOE CITY | RENO | SAN JOSE
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Christopher C. Cluff
NICET #129281
Fire Alarm Systems, Level III
Engineering Technikian
CONSULTANT

KMM SERVICES, INC
TECHNOLOGY AND FIRE LIFE SAFETY DESIGN
5433 El Camino Ave. Suite 5
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Office: (916) 359-4000
www.kmmservices.com

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
FIRE ALARM SITE PLAN

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No. 23-145
©Date
ISSUE DATE
DRAWING NO.
FA-101

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ABBREVIATIONS:

REVISED: 09/20/2023

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANN	ANNUNCIATOR
AP	ACCESS POINT
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BICSI	BUILDING INDUSTRY CONSTRUCTION SERVICE INTERNATIONAL
BLDG	BUILDING
C	CONDUIT
CAB	CABINET
CAT	CATEGORY
CATV	CABLE TELEVISION
CD	CANDELA
CFCI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CL	CENTER LINE
CO	CARBON MONOXIDE
DN	DOWN
(E)	EXISTING
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FTC	FIRE TERMINAL CABINET
GRC	GALVANIZED RIGID CONDUIT
G OR GB	GROUND BOX
IACP	INTRUSION ALARM CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
IMC	INTERMEDIATE METAL CONDUIT
J OR JB	JUNCTION BOX
MEP	MECHANICAL / ELECTRICAL / PLUMBING
MDF	MAIN DISTRIBUTION FRAME
MPOE	MINIMUM PONT OF ENTRY
(N)	NEW
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
N/A	NOT APPLICABLE
OFE	OWNER FURNISHED EQUIPMENT
OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED/OWNER INSTALLED
OSP	OUTSIDE PLANT
PVC	POLYVINYL CHLORIDE
RCDD	REGISTERED COMMUNICATION DISTRIBUTION DESIGNER
RCWY	RACEWAY
RM	ROOM
SR	SURFACE RACEWAY
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRIGHTERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
W	WATT
WP	WEATHERPROOF

TECHNOLOGY SYMBOL LEGEND:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL / PART NUMBER	NOTES / DETAIL REFERENCES
G	GROUND BOX	JENSEN		N/A (1 T-501)
J	JUNCTION BOX	COMMERCIAL GRADE		GREY = EXISTING
	CONDUIT STUB	COMMERCIAL GRADE		N/A
	UNDERGROUND CONDUIT	COMMERCIAL GRADE		N/A
	CONDUIT (EMT, GRC & ALL THREAD)	COMMERCIAL GRADE		N/A
	J-HOOK (SINGLE/STACKED)	NVENT/CADDY		N/A (7 T-502)
R	TELECOMMUNICATIONS RACK, WALL SWING, 40RU-32" DEEP	MIDDLE ATLANTIC	SR-40-32	N/A (7 T-501)
TGB	TELECOM GROUND BUS BAR, WALL MOUNT	CHATSWORTH PRODUCTS	10622-010	N/A (9 T-501)
#	DATA PERMANENT LINK, CAT6A JACK/CABLE # = QTY., NO # = 1	ORTRONICS / SUPERIOR ESSEX	SEE 27 10 00	WHITE JACK / WHITE CABLE
M	MODULAR PLUG DATA PERMANENT LINK, CAT6A JACK / CABLE / MOD PLUG	ORTRONICS / SUPERIOR ESSEX	SEE 27 10 00	MOD PLUG / WHITE CABLE
W	WALL PHONE / DATA LOCATION, CAT6A JACK / CABLE	ORTRONICS / SUPERIOR ESSEX	SEE 27 10 00	WHITE JACK / WHITE CABLE
	PHONE HANDSET EQUIPMENT	CISCO	EXISTING	PROVIDE WALL MOUNT KIT, CP-7800-WMK
CLOCK	CLOCK/DATA LOCATION, CAT6A JACK/CABLE	ORTRONICS / SUPERIOR ESSEX	SEE 27 10 00	YELLOW JACK / WHITE CABLE
CLOCK	CLOCK/SMALL MESSAGE BOARD, SPEAKER COMBO	RAULAND TELECENTER U	SEE 27 51 23.50	N/A (8 T-502)
DC	CAT6A DATA DROP LOCATION - DROP CEILING INTERCOM SPKR/IP MOD	RAULAND	SEE 27 51 23.50	N/A (8 T-502)
DC	CAT6A DATA DROP LOCATION - DROP CEILING INTERCOM SPKR/IP MOD	RAULAND	SEE 27 51 23.50	N/A (8 T-502)
	25V DROP CEILING INTERCOM SPEAKER	RAULAND	SEE 27 51 23.50	N/A (13 T-502)
	CAT6A DATA DROP LOCATION - WALL MOUNTED SPEAKER/IP MODULE	RAULAND	SEE 27 51 23.50	N/A (11 T-502)
	25V WALL MOUNTED INTERCOM SPEAKER	RAULAND	SEE 27 51 23.50	N/A (11 T-502)
WP	CAT6A DATA DROP LOCATION - EXTERIOR INTERCOM SPEAKER/IP MODULE	LOWELL AND RAULAND	SEE 27 51 23.50	MOUNT IP MODULE INSIDE BUILDING (10 T-502)
CIS	NETWORK DATA SWITCH (STANDARD)	CISCO	SEE 27 21 00	N/A
MSG	CAT6A DATA DROP LOCATION - LARGE MESSAGE BOARD	RAULAND	TCC-3012L	MOUNT ON 4-SQ. AS PER MFR. SPECIFICATIONS.
MPOE	MINIMAL POINT OF ENTRY	AT&T AND COMCAST		N/A
MAR-A	OUTDOOR FULL-COLOR MARQUEE DISPLAY	DAKTRONICS	GT6X-10-144X252-RGB-SF	N/A
LED-A	OUTDOOR LED DISPLAY	EXISTING	TO BE REMOVED AS PER KEYNOTE	N/A

ELECTRONIC ACCESS CONTROL SYMBOL LEGEND:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL / PART NUMBER	NOTES / DETAIL REFERENCES
CON	ACCESS CONTROL MANAGEMENT EMBEDDED CONTROLLER	AVIGILON	AC-MER-CONT-LP1501	INSTALL AT MDF LOCATION (- T-601)
MRC	DOOR/DATA LOCATION, CAT6A JACK/CABLE	ORTRONICS / SUPERIOR ESSEX	SEE 27 10 00	BLACK JACK / BLUE CABLE
	ACCESS CONTROL MANAGEMENT REMOTE CONTROLLER (POE)	AVIGILON	AC-MER-CONT-MR62E	N/A (7 T-602)
PSU	ACCESS CONTROL POWER SUPPLY UNIT W/ BATTERY BACKUP	AVIGILON	AC-LSP-2DR-MER-LCK	INSTALL AT MDF & IDF LOCATIONS
CRA	CARD READER	AVIGILON	AC-ING-READ-APTIQ-SNG-MT15	N/A (5 T-501) (15 T-501)
LRM	LATCH RETRACT MOTOR RETROFIT	VON DUPRIN	QEL	N/A
VIC	VIDEO INTERCOM W/ SURFACE MOUNTED BACKBOX	AVIGILON	H4VI-RO1-IR, H4VI-MT-SURF1	N/A (5 T-501) (15 T-501)
TEL	ADMINISTRATIVE DESK PHONE SET	CISCO	EXISTING	PROGRAM KEY AT PHONE SET FOR DOOR UNLOCK
	RFID CARDS	SCHLAGE	8520	QUANTITY 200. SERIALIZED PER DIST. REQUIREMENTS.
NVR	NETWORK VIDEO RECORDER	iPRO	NVR-RL-2-48TB-V4	INSTALL AT MDF LOCATION
ADL	ARMORED DOOR LOOP	SECO-LARM	SD-969-M15Q/*	* = "S" FOR SILVER OR "B" FOR BRONZE

TECHNOLOGY SCOPE OF WORK:

1. THE CONTRACTOR SHALL PROVIDE ALL CLOCK, BELL AND INTERCOM EQUIPMENT, LICENSES, SOFTWARE AND ACCESSORIES FOR COMPLETE AND FULLY OPERATIONAL SYSTEMS.

2. THE CONTRACTOR SHALL PROVIDE ALL DATA NETWORK EQUIPMENT, LICENSES, SOFTWARE AND ACCESSORIES FOR COMPLETE AND FULLY OPERATIONAL DATA NETWORK SYSTEM.

3. THE CONTRACTOR SHALL PROVIDE ALL VIDEO INTERCOM AND ELECTRONIC ACCESS CONTROL EQUIPMENT, LICENSES, SOFTWARE, AND ACCESSORIES FOR COMPLETE AND FULLY OPERATIONAL SYSTEMS.

4. THE CONTRACTOR SHALL FURNISH AND DELIVER THE (N) VIDEO INTERCOM AND (N) ELECTRONIC ACCESS CONTROLLERS TO DISTRICT FOR PROGRAMMING.

5. THE CONTRACTOR SHALL PROVIDE THE OUTDOOR ELECTRONIC LED DISPLAY INCLUDING ALL LICENSES, SOFTWARE, AND ACCESSORIES FOR A COMPLETE ANF FULLY OPERATIONAL SYSTEM.

6. THE CONTRACTOR SHALL REMOVE OLD OR ABANDONED CLOCK, BELL AND INTERCOM COMPONENTS (INCLUDING WIRE AND PATHWAY) AND PLATE OVER ANY OPENINGS.

7. THE CONTRACTOR SHALL REMOVE OLD OR ABANDONED TELEPHONE AND DATA NETWORK COMPONENTS (INCLUDING WIRE AND PATHWAY) AND PLATE OVER ANY OPENINGS.

8. THE CONTRACTOR SHALL COORDINATE CUTOVERS AND ACTIVATION/COMMISSIONING OF NEW SYSTEM WITH DISTRICT REPRESENTATIVE AND DISTRICT STAFF.

ANCHORAGE AND BRACING NOTES:

APPLICABLE CODE: 2022 CBC — REVISED: 01/11/2024

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☐ E X
OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐
OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM #) # AS INCLUDED IN THESE DRAWINGS WITH PROJECT-SPECIFIC NOTES AND DETAILS.

PROJECT CODES AND STANDARDS

REVISED: 01/11/2024

PARTIAL LIST OF APPLICABLE CODES AND STANDARDS EFFECTIVE JANUARY 1, 2022.
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), CCR, TITLE 24, PART 1
2022 CALIFORNIA BUILDING CODE (CBC), CCR, TITLE 24, PART 2
(2021 INTERNATIONAL BUILDING CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), CCR, TITLE 24, PART 3
(2020 NATIONAL ELECTRICAL CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC), CCR, TITLE 24, PART 4
(2021 UNIFORM MECHANICAL CODE, WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), CCR, TITLE 24, PART 5
(2021 UNIFORM PLUMBING CODE, WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE, CCR, TITLE 24, PART 6
2022 CALIFORNIA FIRE CODE (CFC), CCR, TITLE 24, PART 9
(2021 INTERNATIONAL FIRE CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, CCR, TITLE 24, PART 11
2022 CALIFORNIA REFERENCED STANDARDS CODE, CCR, TITLE 24, PART 12
2022 NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE, NATIONAL FIRE PROTECTION ASSOCIATION

PROJECT NOTES:

PRODUCT ORDERING
1. ANY PRODUCTS WITH LONG LEAD TIMES SHALL BE BROUGHT TO THE PROJECT MANAGER'S ATTENTION.
2. PRODUCT ORDERING SHALL ONLY OCCUR AFTER APPROVED PRODUCT SUBMITTALS, APPROVED SUBSTITUTION REQUEST (IF ANY) AND APPROVED SHOP DRAWINGS.

INSTALLATION
1. ANY DISCREPANCIES BETWEEN THE DESIGN DOCUMENTS AND GOVERNING CODE / STANDARDS SHALL BE BROUGHT TO THE PROJECT MANAGER'S ATTENTION.
2. A STAMPED SET OF APPROVED DESIGN DOCUMENTS AND SHOP DRAWINGS SHALL BE ONSITE AT ALL TIMES.
3. CONTRACTOR SHALL CONSTANTLY MAINTAIN ONSITE REDLINE DRAWINGS AND BE AVAILABLE FOR INSPECTION BY THE INSPECTOR OF RECORD.
4. ANY PENETRATIONS THROUGH RATED ASSEMBLIES REQUIRE MATERIALS / EQUIPMENT APPROVED TO MAINTAIN THE RATING OF THE ASSEMBLY.
5. ALL WIRING SHALL BE CONNECTED TO DEVICES, NO SPLICING IS ALLOWED.
6. ALL LOW-VOLTAGE CABLING SHALL BE IN CONDUIT, RACEWAY OR OPEN AIR ON J-HOOKS / CABLE TRAY FOR ABOVE CEILINGS.
7. ELECTRICAL POWER FOR LOW-VOLTAGE SYSTEMS TO BE DEDICATED TO EACH SYSTEM AND WORK TO BE PERFORMED BY A LICENSED ELECTRICIAN.
8. LOW VOLTAGE EQUIPMENT, CABINETS AND ACCESSORIES TO BE MOUNTED PER MANUFACTURER'S INSTRUCTIONS. NO SINGLE DEVICE SHALL EXCEED 20 POUNDS IN WEIGHT WITHOUT SPECIAL MOUNTING DETAILS.
9. CONTRACTOR SHALL REQUEST A PUNCH WALK INSPECTION 10 WORKING DAYS PRIOR TO FINAL INSPECTION.
10. PRIOR TO FINAL INSPECTION CONTRACTOR SHALL PROVIDE PRINTED REDLINES FOR USE BY THE INSPECTORS.
11. AT THE FINAL INSPECTION THE CONTRACTOR SHALL PROVIDE A SATISFACTORY TEST OF THE ENTIRE SYSTEM(S) IN PRESENCE OF THE DESIGNER/ENGINEER, INSPECTOR OF RECORD, THE OWNER OR THE OWNER'S REPRESENTATIVE.
12. THE CONTRACTOR SHALL PROVIDE OWNER WITH SYSTEM OPERATION TRAINING.
13. SECURITY SYSTEM SHALL NOT IN ANY WAY LIMIT OR COMPROMISE EXITING THROUGH ALL REQUIRED EXIT ACCESS AND EXIT DISCHARGE SYSTEMS.

CONTRACTOR FURNISHED DOCUMENTS:

SEE SECTION 27 00 00 FOR MORE INFORMATION / REQUIREMENTS

PRODUCT SUBMITTALS
1. SUBMIT PRODUCT MATERIALS SUBMITTALS PER 27 00 00 REQUIREMENTS
2. ANY PROPOSED ALTERNATIVE PRODUCTS REQUIRE A WRITTEN PRODUCT SUBSTITUTION REQUEST.

SHOP DRAWINGS
1. SUBMIT SHOP DRAWINGS PER 27 00 00 REQUIREMENTS
2. SHOP DRAWINGS ARE REQUIRED FOR MDF/IDF DATA RACK LAYOUTS, MDF/IDF WALL ELEVATIONS, AUDIO-VISUAL SYSTEMS AND INTERCOM SYSTEMS.
3. DESIGN DOCUMENTS ARE AS ACCURATE AS POSSIBLE, BUT SHALL BE CONSIDERED AS DIAGRAMMATIC.
4. SHOP DRAWINGS SHALL PRESENT A LEVEL OF DETAIL FOR A COMPLETE, BUILDABLE AND OPERABLE SYSTEM.
5. SHOP DRAWINGS ALLOW THE CONTRACTOR TO MAKE CORRECTIONS FOR ERRORS/OMISSIONS IN DESIGN DOCUMENTS.
6. IN CASE OF DOUBT OF WORK INTENDED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REQUEST INSTRUCTIONS FROM THE PROJECT MANAGER.
7. APPROVED SHOP DRAWINGS ARE REQUIRED PRIOR TO START OF WORK. ANY WORK STARTED PRIOR TO SHOP DRAWING APPROVAL SHALL BE AT CONTRACTOR'S OWN RISK.
8. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE AND OPERABLE SYSTEM AND ANY COMPONENT(S) NEEDED FOR A COMPLETE AND OPERABLE SYSTEM AFTER SHOP DRAWING APPROVAL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

CONTRACTOR CERTIFICATION
1. STRUCTURED DATA CABLING AND INTERCOM SYSTEMS REQUIRE CERTIFIED INSTALLERS. CONTRACTOR TO PROVIDE CERTIFICATIONS PRIOR TO START OF WORK.
2. CONTRACTOR SHALL ONLY PROVIDE WORK FOR SYSTEMS THAT THEY POSSESS CURRENT AND VALID CERTIFICATIONS.

CLOSEOUT DOCUMENTS
1. DOCUMENTS PER 27 00 00 REQUIREMENTS
2. UPDATED PRINTED AS-BUILT DRAWINGS
3. TYPED RECORD OF COMPLETION

TECHNOLOGY SHEET INDEX:

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SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY COVER SHEET

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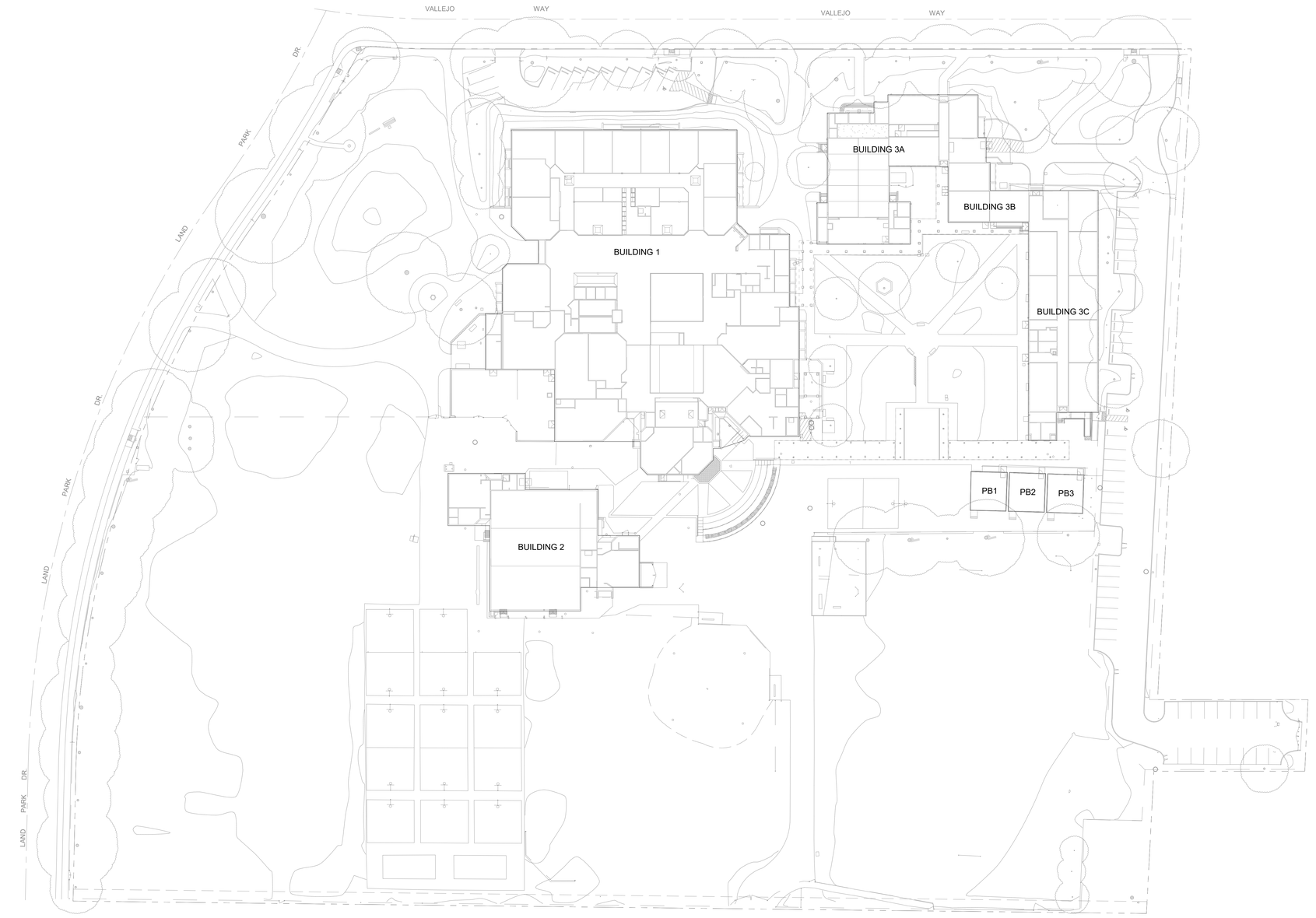
GENERAL NOTES
1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION. 2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS. 3. SEE DETAIL 1/T-502 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.



1 TECHNOLOGY DEMO SITE PLAN
1" = 40'-0"

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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DEMO SITE PLAN

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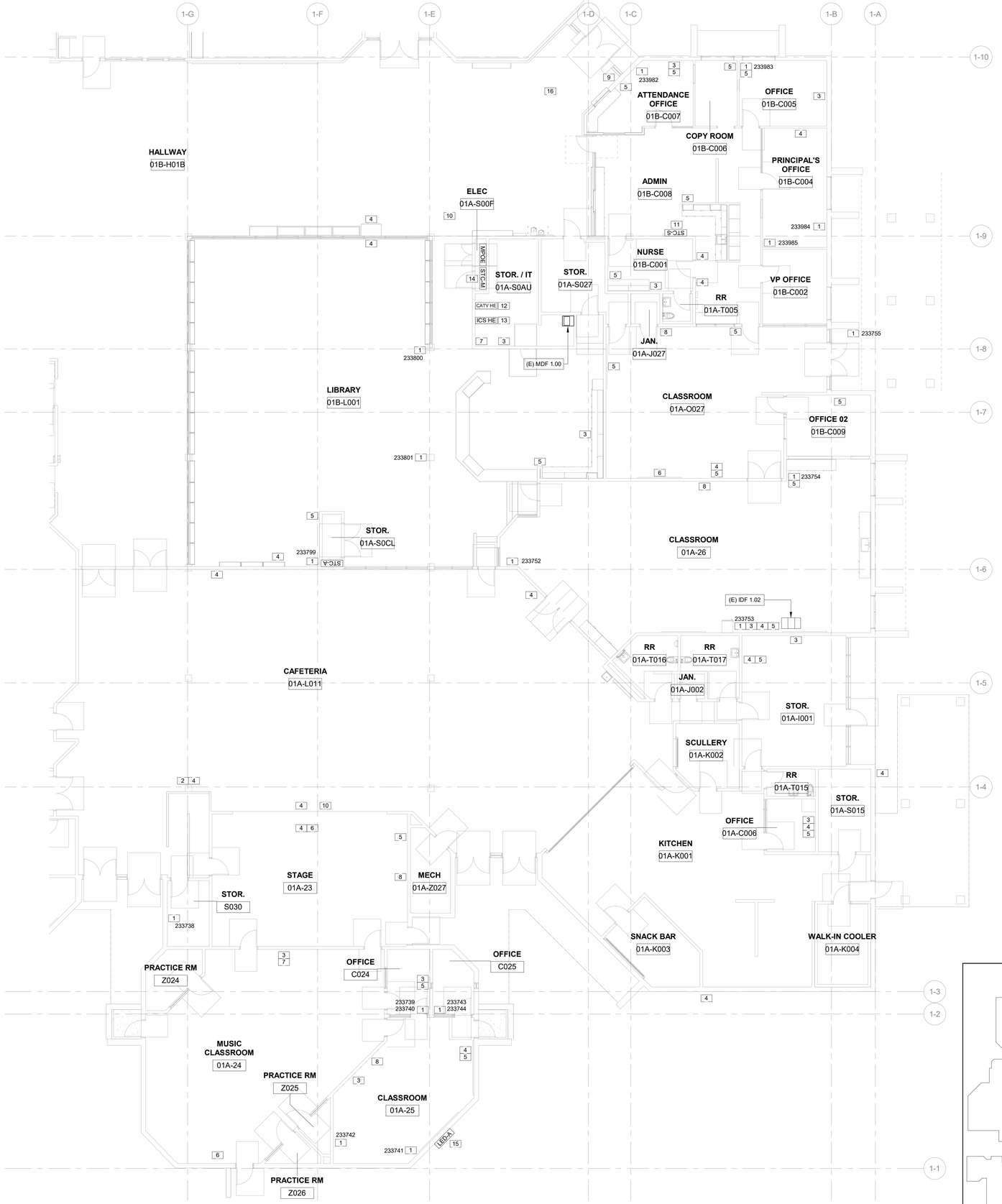
SHEET T-051 DEMO TAG NOTES:

LOCATION	TAG ID	DESCRIPTION
STC-MAIN	233765	19 EA. CAT5
	233766	1 EA. 15 PAIR
	233767	4 EA. 15 PAIR
	233768	4 EA. 15 PAIR
	233769	2 EA. 15 PAIR
	233770	8 EA. 15 PAIR
	233771	4 EA. 15 PAIR
	233772	2 EA. CAT5
	233773	3 EA. CAT3
	233774	3 EA. 15 PAIR
	233775	6 EA. 18/3
	233776	2 EA. RG59
	233777	12 EA. THHN
	233778	16 EA. THHN
	233779	2 EA. RG59
	233760	6 EA. 15 PAIR
STC-A	233791	2 EA. 15 PAIR
	233792	9 EA. 18/3
	233793	15 EA. 18/3
	233794	2 EA. RG59
	233795	9 EA. THHN
	233796	6 EA. THHN
	233797	1 EA. RG59
	233798	2 EA. RG59
STC-S	233756	12 EA. THHN
	233757	6 EA. THHN
	233758	4 EA. 18/3
	233759	3 EA. THHN
	233760	3 EA. 15 PAIR
	233981	4 EA. CAT5
RM C007	233982	1 EA. 15 PAIR
RM C005	233983	1 EA. CAT5 AND SURFACE BISCUIT
RM C004	233984	1 EA. 15 PAIR
	233985	1 EA. CAT5 AND SURFACE BISCUIT
RM 26	233754	1 EA. CAT5 AND SURFACE BISCUIT
	233754	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233753	2 EA. CAT5
	233752	2 EA. CAT5
RM L001	233800	1 EA. CAT5 AND SURFACE BISCUIT
	233801	1 EA. CAT5 AND SURFACE BISCUIT
	233799	1 EA. 15 PAIR
RM S030	233738	1 EA. 15 PAIR
	233738	1 EA. ABANDONED WALL PHONE AND CONDUIT
RM C024	233739	1 EA. 15 PAIR, 2 EA. CAT5, 1 EA. CAT3
	233740	2 EA. CAT3
RM C025	233743	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233744	1 EA. CAT5 AND SURFACE BOX
RM 25	233741	1 EA. CAT3
	233742	1 EA. ABANDONED WALL PHONE
ICS HE	233745	8 EA. 15 PAIR, 1 EA. CAT6
	233746	2 EA. 15 PAIR
	233747	25 EA. 18/3
	233748	4 EA. 15 PAIR, 2 EA. CAT5
	233749	15 EA. CAT5
	233750	12 EA. CAT5
	233761	5 EA. 15-PAIR, 5 EA. CAT5
CATV HE	233762	3 EA. RG59
	233763	1 EA. RG59
	233764	1 EA. RG59



1 TECHNOLOGY DEMO FLOOR PLAN - ADMINISTRATION
1/8" = 1'-0"

GENERAL NOTES

1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

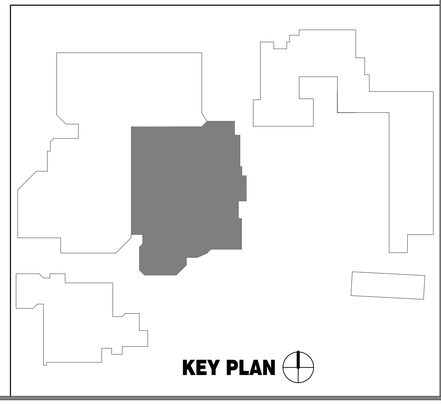
2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

3. SEE DETAIL 1/T-502 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

ID	DESCRIPTION
1	SEE DEMO TAG INDEX FOR NOTED TAG NUMBER.
2	REMOVE (E) CLOCK AND WIRING TO SOURCE. PROVIDE FLUSH BLANKING COVER.
3	REMOVE (E) FLUSH SPEAKER AND WIRING TO SOURCE. PROVIDE 12"x12"x1/8" ACRYLIC COVER PLATE.
4	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
5	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
6	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
7	REMOVE COAX SINGLE GANG PLATE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.
8	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.
9	REMOVE 2 EA. 3-GANG ABANDONED WALL PLATES. PROVIDE (N) 3-GANG BLANK PLATES, STAINLESS STEEL.
10	REMOVE LED MESSAGE BOARD AT CEILING, INCLUDING WIRING TO SOURCE.
11	REMOVE (E) INTERCOM CABINET DOOR INSERT. PROVIDE (N) 1/8" HARDBOARD INSERT. PAINT INSERT TO MATCH ADJACENT WALL. SEE PICTURE DETAIL 2/T-051.
12	REMOVE CATV EQUIPMENT INCLUDING CABLING AND RACK CABINET. PROVIDE BLANK SINGLE GANG PLATE FOR OPENING.
13	REMOVE ALL TELECENTER ICS HEADEND EQUIPMENT INCLUDING 2 EA. RACK CABINETS, WIRING, 66 BLOCKS, AND PLYWOOD BACKBOARD. DELIVER 2 EA. RACK CABINETS AND ACTIVE EQUIPMENT TO DISTRICT MAINTENANCE SHOP IN GOOD CONDITION.
14	REMOVE CLOCK SYSTEM POWER SUPPLY AND TRANSFORMER. SAFE OFF ELECTRICAL, AS OCCURS.
15	REMOVE LED MESSAGE BOARD AND MOUNTING HARDWARE. SAFE OFF ELECTRICAL. WATERPROOF ALL PENETRATIONS. PROVIDE BLANKING PLATES AS REQUIRED.
16	REMOVE TV ANTENNA AND MOUNT AT ROOF. REMOVE ALL WIRING AND WATERPROOF ALL PENETRATIONS.

2 (E) INTERCOM HEADEND
12" = 1'-0"



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Drawing Title
TECHNOLOGY DEMO FLOOR PLAN - ADMINISTRATION

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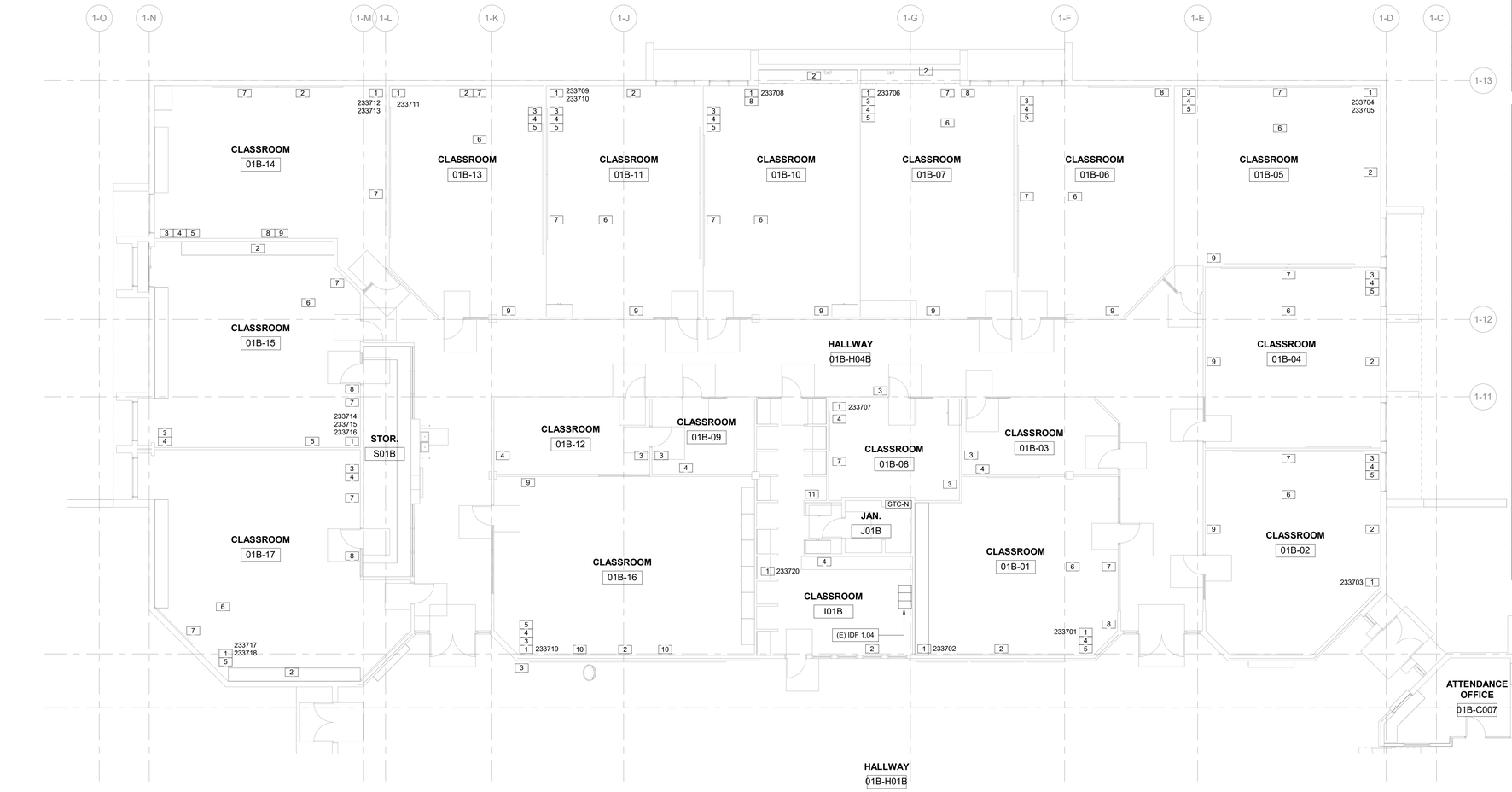


1 TECHNOLOGY DEMO FLOOR PLAN - NORTH CLASSROOMS
1/8" = 1'-0"

GENERAL NOTES

1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

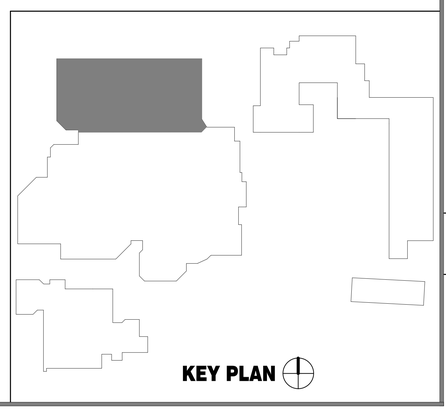
3. SEE DETAIL 1/T-502 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

ID	DESCRIPTION
1	SEE DEMO TAG INDEX FOR NOTED TAG NUMBER.
2	REMOVE (E) FLUSH SPEAKER AND WIRING TO SOURCE. PROVIDE 12"x12"x1/8" ACRYLIC COVER PLATE.
3	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
4	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
5	REMOVE A/V PROJECTOR CABLING INCLUDING SURFACE RACEWAY.
6	REMOVE A/V PROJECTOR INCLUDING MOUNT AND CEILING TILE. REMOVE ALL CABLING AND SAFE OFF ELECTRICAL, AS OCCURS. PROVIDE FULL REPLACEMENT CEILING TILE, AS OCCURS.
7	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
8	REMOVE COAX SINGLE GANG PLATE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.
9	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.
10	REMOVE LCD TV MONITOR INCLUDING MOUNT AND CABLING.
11	REMOVE TELEPHONE/DATA WALL PLATE AND WIRING TO SOURCE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.

SHEET T-052 DEMO TAG NOTES:

LOCATION	TAG ID	DESCRIPTION
STC-N	233721	2 EA. 15-PAIR
	233722	5 EA. RG-59
	233723	3 EA. THHN
	233724	15 EA. THHN, 1 EA. 14/3, 1 EA. 16/2
	233725	25 EA. 18/3
RM 1	233701	1 EA. CAT5 AND SURFACE BISCUIT
	233702	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 2	233703	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 5	233704	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233705	1 EA. CAT5 AND SURFACE BISCUIT
RM 7	233706	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 8	233707	3 EA. 15-PAIR
RM 10	233708	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 11	233709	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233710	1 EA. CAT5 AND SURFACE BISCUIT
RM 13	233711	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 14	233712	1 EA. CAT5 AND SURFACE BISCUIT
	233713	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 15	233714	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233715	1 EA. CAT3
	233716	1 EA. CAT5 AND SURFACE BISCUIT
RM 16	233719	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 17	233717	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233718	1 EA. CAT5 AND SURFACE BISCUIT
RM "STAFF"	233720	2 EA. CAT5



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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DEMO FLOOR PLAN - NORTH CLASSROOMS

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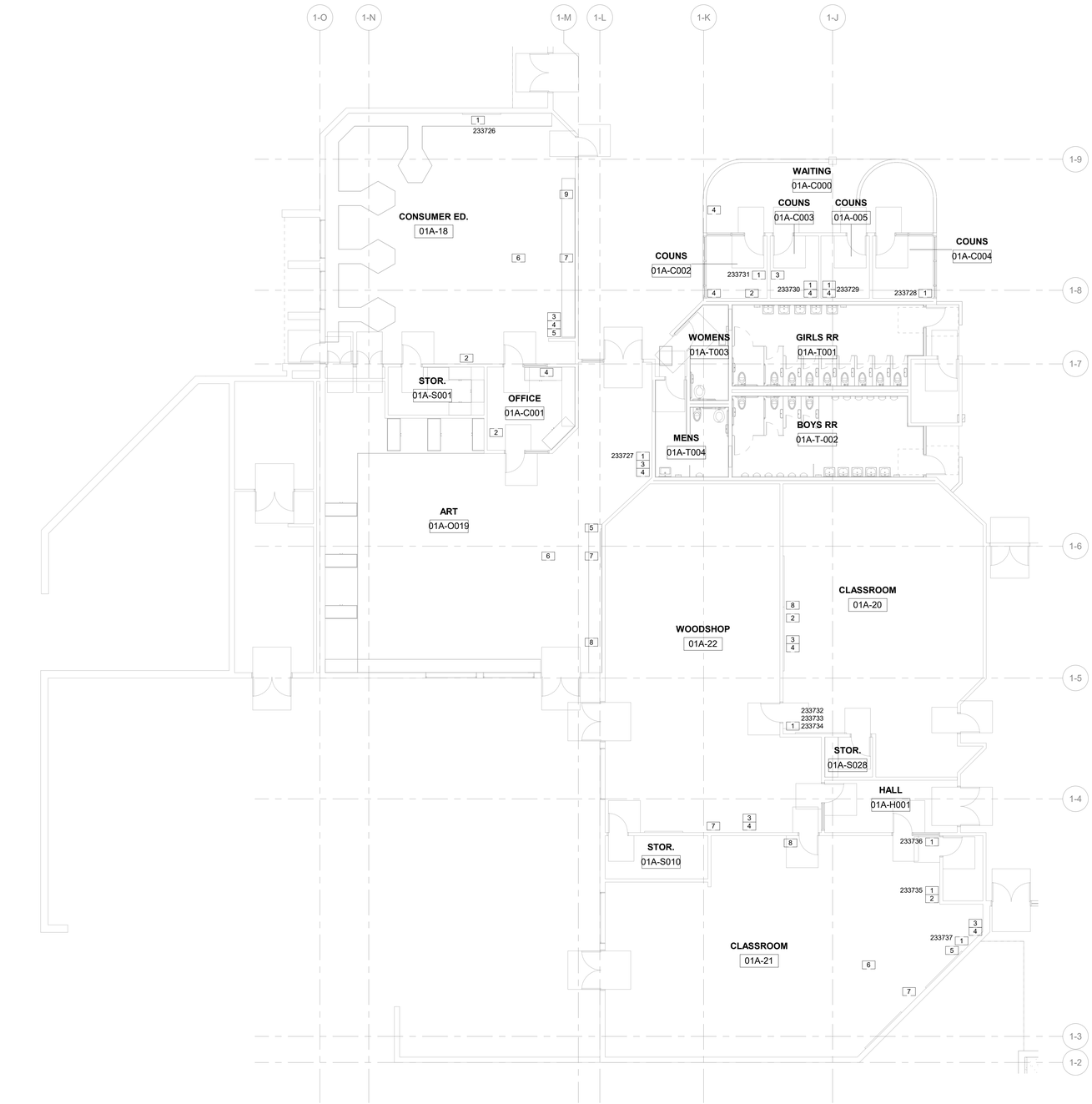


1 TECHNOLOGY DEMO FLOOR PLAN - SOUTH CLASSROOMS
1/8" = 1'-0"

GENERAL NOTES

1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

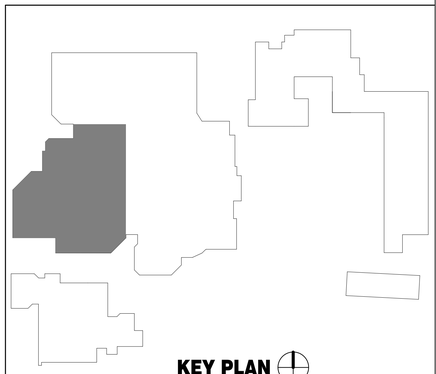
3. SEE DETAIL 1/T-501 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

ID	DESCRIPTION
1	SEE DEMO TAG INDEX FOR NOTED TAG NUMBER.
2	REMOVE (E) FLUSH SPEAKER AND WIRING TO SOURCE. PROVIDE 12"x12"x1/8" ACRYLIC COVER PLATE.
3	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
4	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
5	REMOVE A/V PROJECTOR CABLING INCLUDING SURFACE RACEWAY.
6	REMOVE A/V PROJECTOR INCLUDING MOUNT AND CEILING TILE. REMOVE ALL CABLING AND SAFE OFF ELECTRICAL, AS OCCURS. PROVIDE FULL REPLACEMENT CEILING TILE, AS OCCURS.
7	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
8	REMOVE COAX SINGLE GANG PLATE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.
9	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.

SHEET T-053 DEMO TAG NOTES:

LOCATION	TAG ID	DESCRIPTION
RM 18	233726	1 EA. CAT5 AND SURFACE BISCUIT
RM 19	233727	1 EA. CAT5 AND SURFACE BISCUIT
RM 20	233732	1 EA. CAT5 AND SURFACE BISCUIT
	233733	1 EA. CAT5
	233734	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 21	233737	1 EA. CAT5 AND SURFACE BISCUIT
	233735	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
	233736	2 EA. CAT5
RM C002	233731	1 EA. CAT5 AND SURFACE BISCUIT
RM C003	233730	1 EA. CAT5 AND SURFACE BISCUIT
RM C005	233729	1 EA. CAT5 AND SURFACE BISCUIT
RM C004	233728	1 EA. CAT5 AND SURFACE BISCUIT



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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DEMO FLOOR PLAN - SOUTH CLASSROOMS

Drawn By: JG
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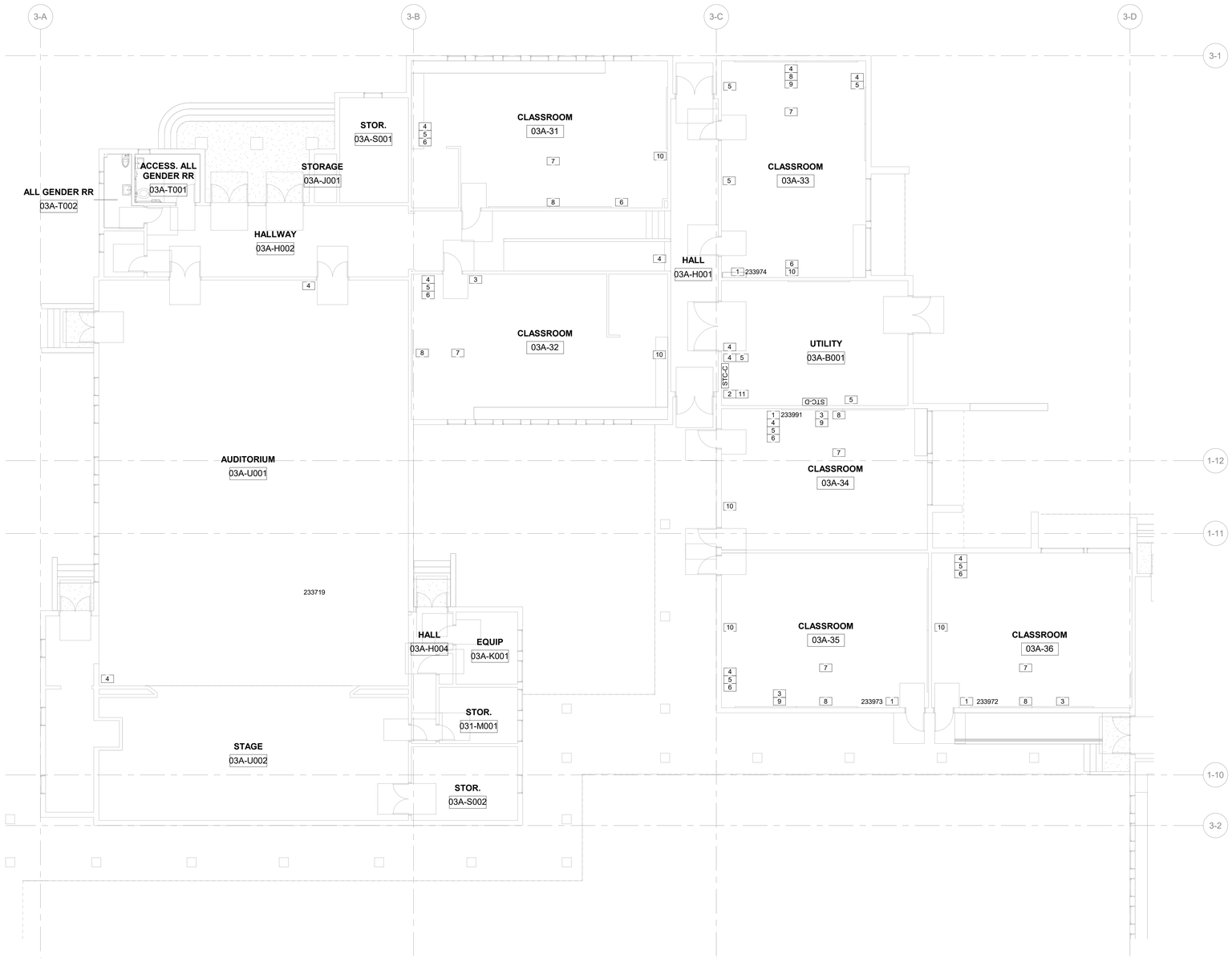

1 TECHNOLOGY DEMO FLOOR PLAN - AUDITORIUM
1/8" = 1'-0"

GENERAL NOTES

1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

3. SEE DETAIL 1/T-501 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

ID	DESCRIPTION
1	SEE DEMO TAG INDEX FOR NOTED TAG NUMBER.
2	REMOVE (E) CLOCK AND WIRING TO SOURCE. PROVIDE FLUSH BLANKING COVER.
3	REMOVE (E) FLUSH SPEAKER AND WIRING TO SOURCE. PROVIDE 12"x12"x1/8" ACRYLIC COVER PLATE.
4	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
5	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
6	REMOVE A/V PROJECTOR CABLING INCLUDING SURFACE RACEWAY.
7	REMOVE A/V PROJECTOR INCLUDING MOUNT AND CEILING TILE. REMOVE ALL CABLING AND SAFE OFF ELECTRICAL, AS OCCURS. PROVIDE FULL REPLACEMENT CEILING TILE, AS OCCURS.
8	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
9	REMOVE COAX SINGLE GANG PLATE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.
10	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.
11	REMOVE CATV EQUIPMENT INCLUDING CABLING AND RACK CABINET. PROVIDE BLANK SINGLE GANG PLATE FOR OPENING.

SHEET T-054 DEMO TAG NOTES:

LOCATION	TAG ID	DESCRIPTION
STC-C	233986	2 EA. 15 PAIR
	233987	1 EA. 15 PAIR
	233988	8 EA. 18/3
	233989	3 EA. RG59
	233990	REMOVE ALL CLOCK WIRING, POWER SUPPLY, AND TRANSFORMER.
RM 33	233974	12 EA. CAT5, PATCH PANEL, SURFACE TELEPHONE JACK AND DATA BISCUIT
RM 34	233991	2 EA. CAT5
RM 35	233973	1 EA. CAT3 AND TELEPHONE SURFACE PLATE
RM 36	233972	2 EA. CAT3 AND TELEPHONE SURFACE PLATE

KEY PLAN

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Drawing Title
TECHNOLOGY DEMO FLOOR PLAN - AUDITORIUM

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GENERAL NOTES

1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

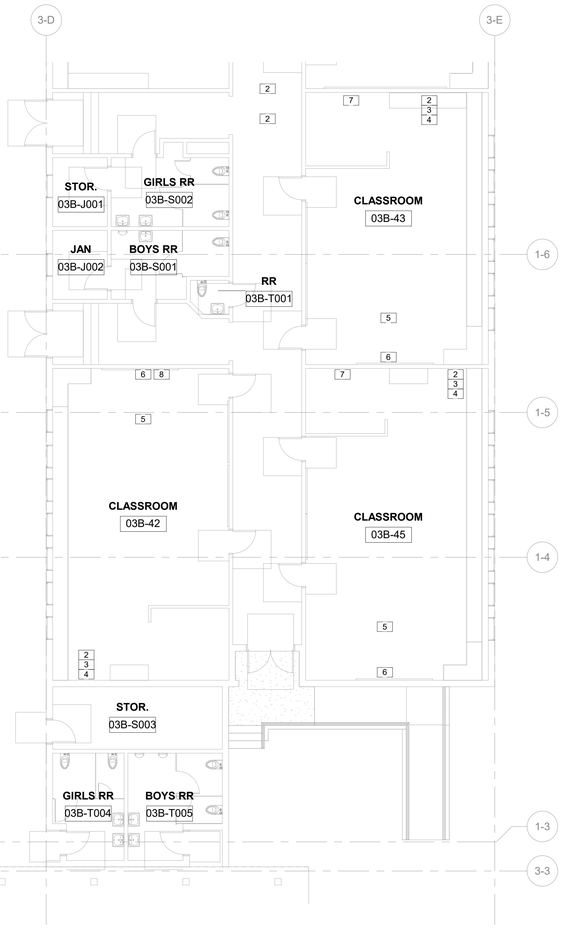
3. SEE DETAIL 1/T-501 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

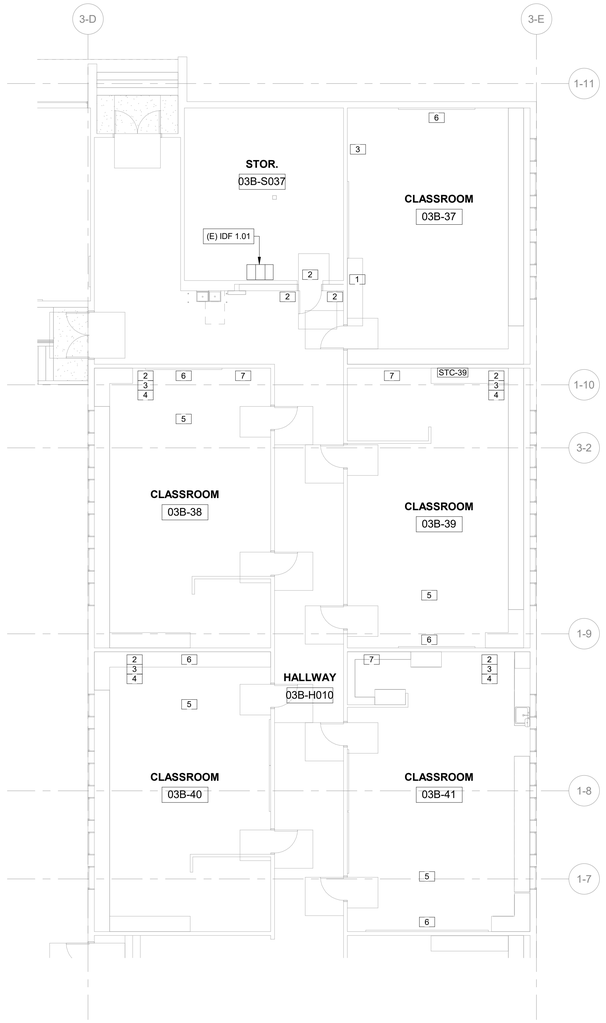
ID	DESCRIPTION
1	REMOVE (E) CLOCK AND WIRING TO SOURCE. PROVIDE FLUSH BLANKING COVER.
2	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
3	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
4	REMOVE A/V PROJECTOR CABLING INCLUDING SURFACE RACEWAY.
5	REMOVE A/V PROJECTOR INCLUDING MOUNT AND CEILING TILE. REMOVE ALL CABLING AND SAFE OFF ELECTRICAL, AS OCCURS. PROVIDE FULL REPLACEMENT CEILING TILE, AS OCCURS.
6	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
7	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.
8	REMOVE TELEPHONE/DATA WALL PLATE AND WIRING TO SOURCE. PROVIDE (N) SINGLE GANG BLANK PLATE, IVORY.

SHEET T-055 DEMO TAG NOTES:

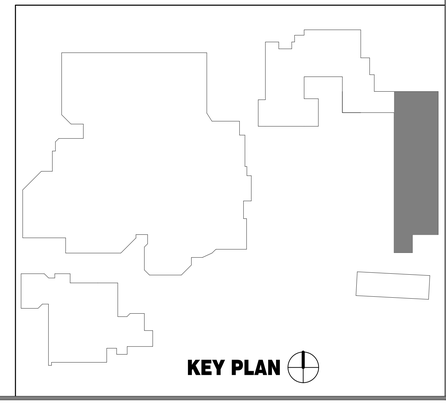
LOCATION	TAG ID	DESCRIPTION
STC-39	233995	10 EA. CAT3
	233996	2 EA. 15 PAIR
	233997	2 EA. 15 PAIR
	233998	2 EA. 15 PAIR, 2 EA. CAT3
	233999	8 EA. 18/3
	234000	1 EA. 50 PAIR
	233971	2 EA. CAT5
IDF1.01	233992	1 EA. 25 PAIR, 17 EA. CAT5
	233993	3 EA. 15 PAIR
	233994	21 EA. 18/3



2 TECHNOLOGY DEMO FLOOR PLAN - BUILDING 3 - SOUTH
1/8" = 1'-0"



1 TECHNOLOGY DEMO FLOOR PLAN - BUILDING 3 - NORTH
1/8" = 1'-0"



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TECHNOLOGY DEMO FLOOR PLAN - BUILDING 3

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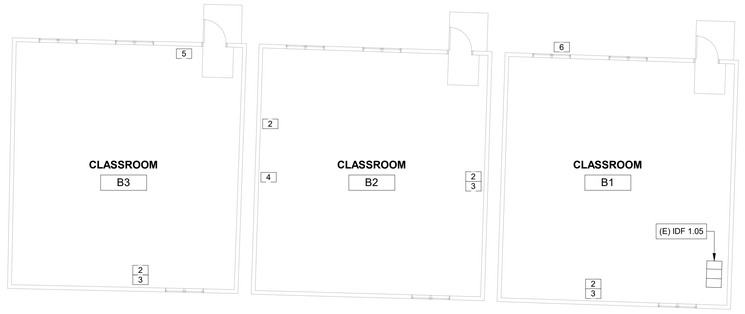
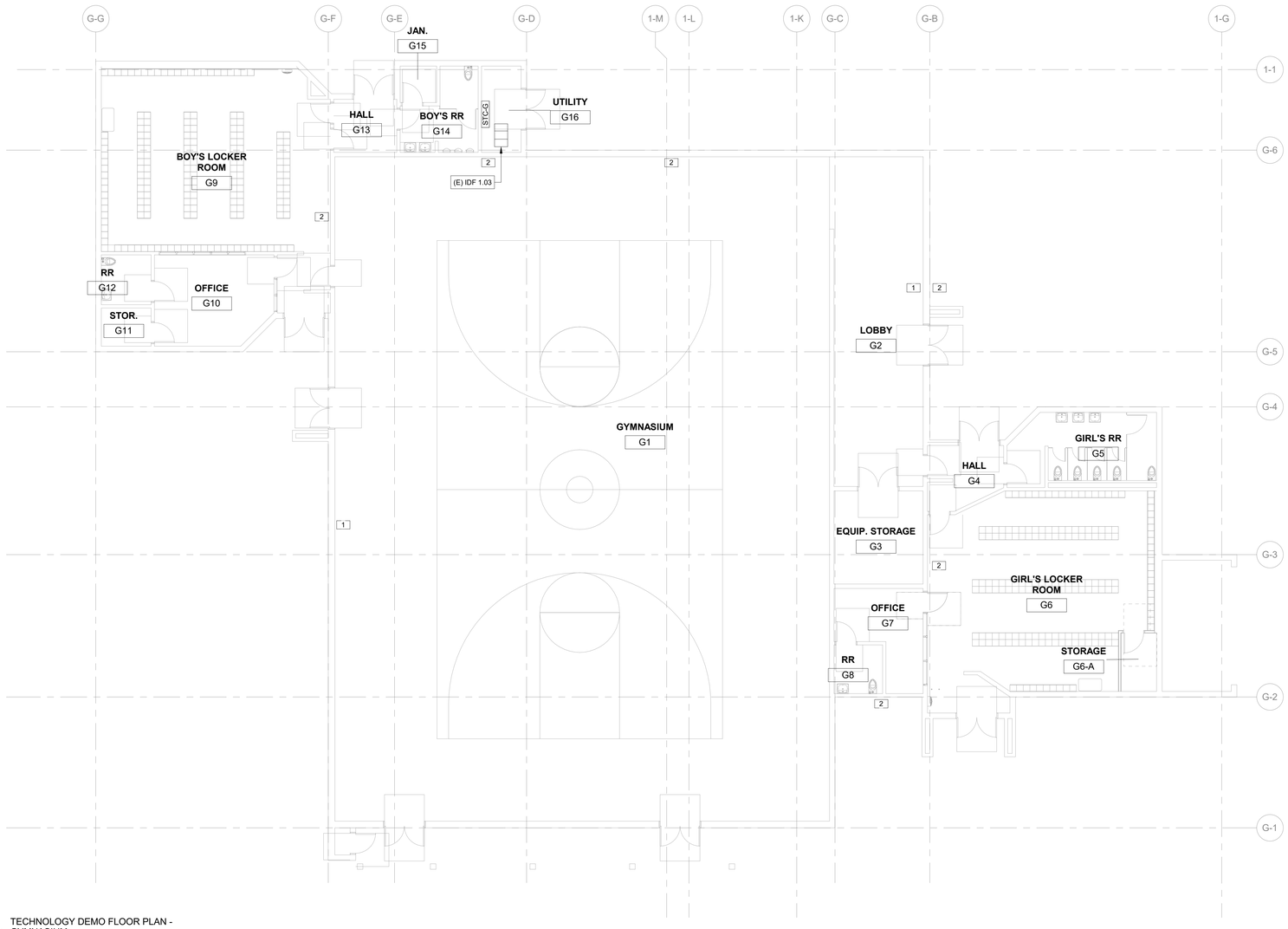


2 TECHNOLOGY DEMO FLOOR PLAN - PORTABLES
1/8" = 1'-0"



1 TECHNOLOGY DEMO FLOOR PLAN - GYMNASIUM
1/8" = 1'-0"

GENERAL NOTES

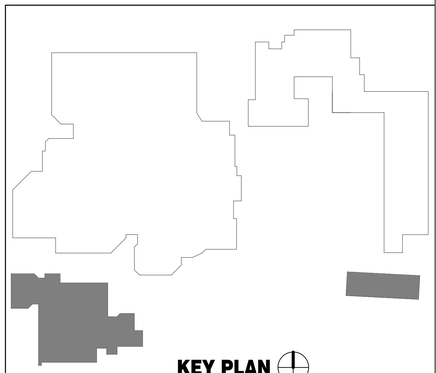
1. ALL WIRELESS SYSTEM CLOCKS REMOVED SHALL BE BOXED AND DELIVERED TO THE DISTRICT WAREHOUSE IN GOOD CONDITION.

2. ALL PHONES SHALL BE LABELED WITH ROOM NUMBER, REMOVED, AND STORED IN A SUITABLE LOCATION DURING THE CONSTRUCTION PERIOD. PHONES SHALL BE RE-INSTALLED IN THE ROOM FROM WHICH THEY CAME, UTILIZING THE WALL PHONE DATA LOCATION, AS OCCURS. PROVIDE (N) COMPATIBLE WALL PHONE MOUNTING BRACKET FOR ALL WALL PHONE LOCATIONS.

3. SEE DETAIL 1/T-501 FOR TYPICAL DEMO CLASSROOM PICTURE DETAIL INSTRUCTIONS.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE (E) CLOCK AND WIRING TO SOURCE. PROVIDE FLUSH BLANKING COVER.
2	REMOVE (E) SURFACE SPEAKER AND WIRING TO SOURCE. PROVIDE SINGLE GANG BLANK PLATE, AS REQUIRED, AND MAKE WATERPROOF, AS REQUIRED.
3	REMOVE (E) TELEPHONE AND DATA DROP WIRING TO SOURCE INCLUDING SURFACE RACEWAY.
4	REMOVE ROJECTOR SCREEN AND/OR MOUNTING HARDWARE INCLUDING BRACKETS AND WALL REINFORCEMENTS.
5	REMOVE ABANDONED DATA DROP AT CEILING INCLUDING WIRING TO SOURCE AND WIREMOLD.
6	REPLACE ALL ACTIVE CABLING IN AERIAL, EXCEPT FOR DATA NETWORK CABLING, VIA (E) UNDERGROUND COMMUNICATIONS CONDUIT. REMOVE AERIAL AND JUNCTION BOXES AND WATERPROOF ALL PENETRATIONS. DEMO DATA NETWORK CABLING, AS OCCURS. COORDINATE WITH FIRE ALARM CONTRACTOR PRIOR TO DISCONNECTING FIRE ALARM CABLING.



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TECHNOLOGY DEMO FLOOR PLAN - GYMNASIUM AND PORTABLES

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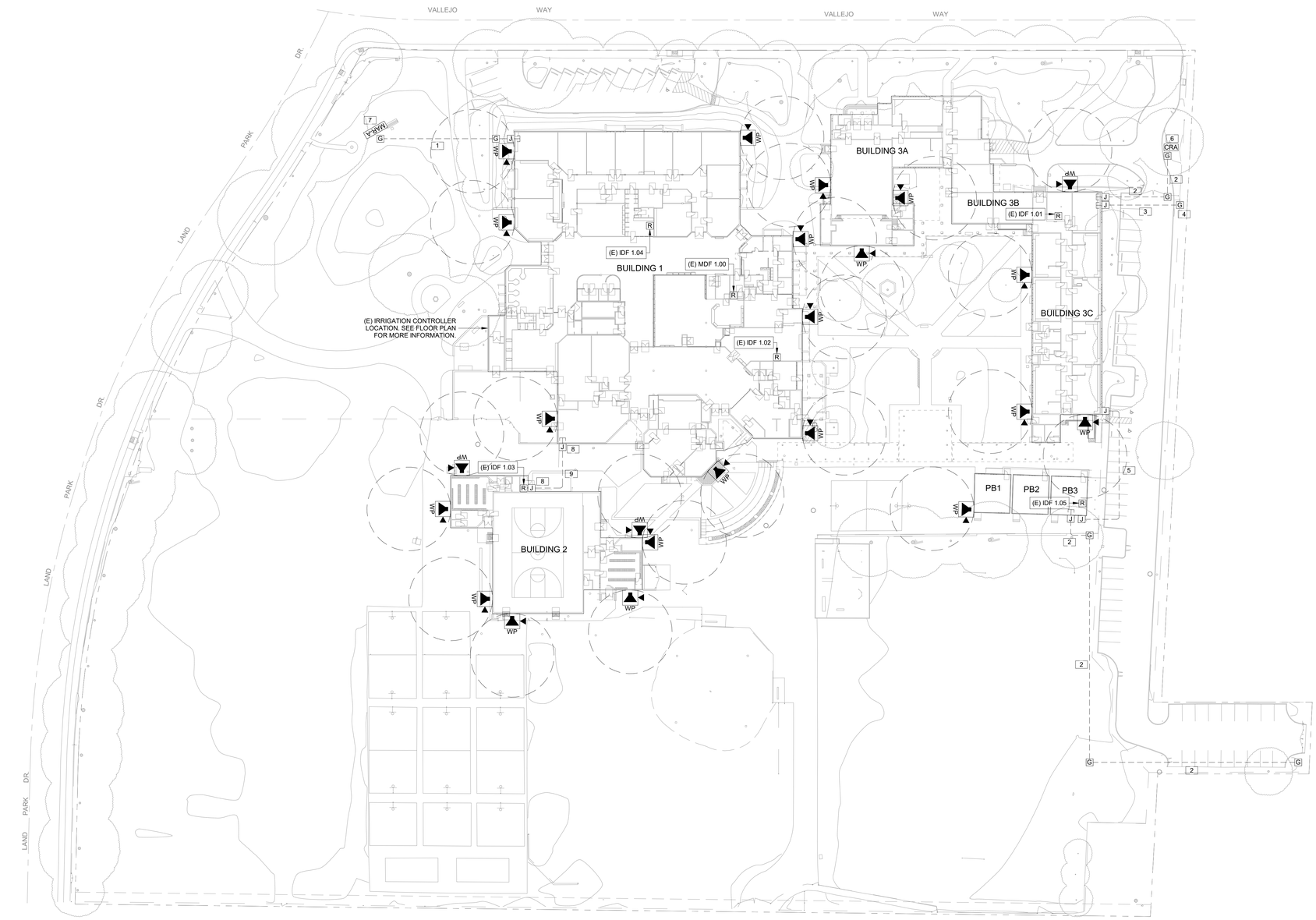
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	(N) 1 EA. 1" CONDUIT.
2	(N) 1 EA. 2" CONDUIT.
3	(N) 2 EA. 2" CONDUITS. EXTEND 2 EA. 2" CONDUITS 1' A.F.G., CAP FOR FUTURE USE.
4	(N) COMCAST GROUND BOX.
5	(E) 4 EA. 2" CONDUITS.
6	ACCESS CONTROL CARD READER ON PEDESTAL.
7	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP AT ELECTRONIC MARQUEE, TERMINATE AT IDF 1.04.
8	FURNISH AND INSTALL 1 EA. NEMA3R JUNCTION BOX, MATCH SIZE AND HEIGHT OF EXISTING WALL MOUNTED JUNCTION BOX, PENETRATE INTO BUILDING WITH 2 EA. 2" CONDUITS. PAINT JUNCTION BOXES TO MATCH EXISTING BUILDING.
9	FURNISH AND INSTALL 2 EA. 2" CONDUITS, MATCH ROUTE OF EXISTING 1 EA. 2" CONDUIT.



1 TECHNOLOGY NEW SITE PLAN
1" = 40'-0"

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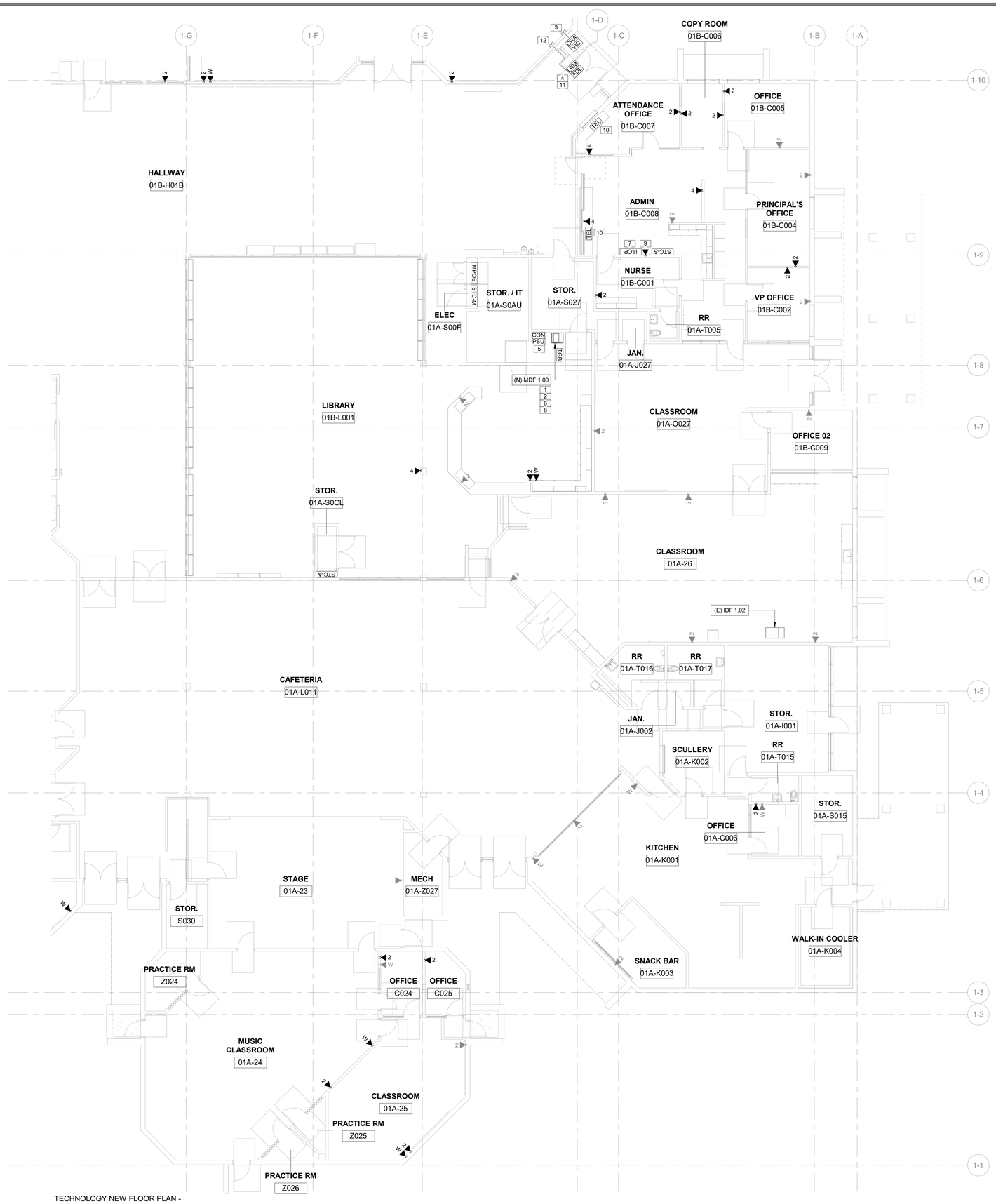


1 TECHNOLOGY NEW FLOOR PLAN - ADMINISTRATION
1/8" = 1'-0"

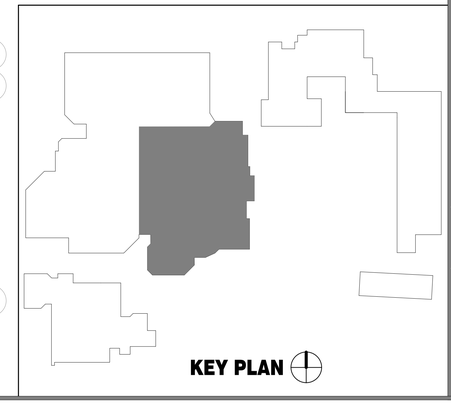
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	FURNISH AND INSTALL (N) WALL SWING RACK, WITH ZERO CLEARANCE LATCH, AND FRONT DOOR, IN MDF. PROVIDE (N) LADDER RACK TO TRANSITION CABLING FROM CONDUIT STUBS. REWORK ALL DATA CABLING TO REMAIN INTO (N) RACK. SEE DETAIL 7/T501 FOR WEIGHT AND ANCHORAGE.
2	RELOCATE EQUIPMENT NOTED AS EXISTING ON MDF RACK ELEVATION FROM (E) MDF RACK TO (N) MDF RACK. SEE SHEET T601.
3	FURNISH AND INSTALL (N) VIDEO INTERCOM AND (N) CARD READER ON EXTERIOR OF BUILDING. UTILIZE (E) ABANDONED DUBLEX BOX AND PATHWAY TO ACCESSIBLE CEILING. DELIVER VIDEO INTERCOM TO DISTRICT FOR PROGRAMMING IN ADVANCE OF INSTALLATION.
4	FURNISH AND INSTALL (N) ELECTRIFIED LATCH RETRACT MOTOR, (N) ARMORED DOOR LOOP AND WIRING AT FRONT DOOR INTERIOR.
5	FURNISH AND INSTALL (N) ELECTRONIC ACCESS CONTROLLER AND (N) POWER SUPPLY. PROVIDE OR EXTEND 120V POWER TO (N) POWER SUPPLY LOCATION AS REQ'D. DELIVER ELECTRONIC ACCESS CONTROLLER TO DISTRICT FOR PROGRAMMING IN ADVANCE OF INSTALLATION.
6	FURNISH AND INSTALL (N) NETWORK VIDEO RECORDER IN MDF.
7	FURNISH AND INSTALL (N) 4-PAIR COPPER FEEDER BETWEEN MPOE AND IACP.
8	FURNISH AND INSTALL (N) 2 EA. 4-PAIR COPPER FEEDERS BETWEEN MPOE AND MDF. AT MDF, TERMINATE EACH PAIR ON CENTER PINS OF A KEYSTONE JACK, SEE MDF RACK LAYOUT.
9	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP AT (E) IACP PANEL FOR FUTURE USE.
10	COORDINATE WITH DISTRICT TO PROGRAM (E) ADMIN PHONE SET FOR RING DOWN FROM VIDEO INTERCOM.
11	FURNISH AND INSTALL (N) SURFACE RACEWAY FROM (N) METAL SURFACE BOX. LOCATED AT HEIGHT OF PANIC HARDWARE, UP TO DECORATIVE SOFFIT. WRAP BRICK COLUMN WITH SURFACE RACEWAY AT SOFFIT LEVEL. CONTINUE SURFACE RACEWAY ACROSS TOP WINDOW MULLION. PENTRATE BRICK WALL. PAINT SURFACE RACEWAY TO MATCH BRICK.
12	FURNISH AND INSTALL (N) SURFACE RACEWAY FROM (N) WALL PENETRATION UP TO ACCESSIBLE CEILING.



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Drawing Title
TECHNOLOGY NEW FLOOR PLAN - ADMINISTRATION

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GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

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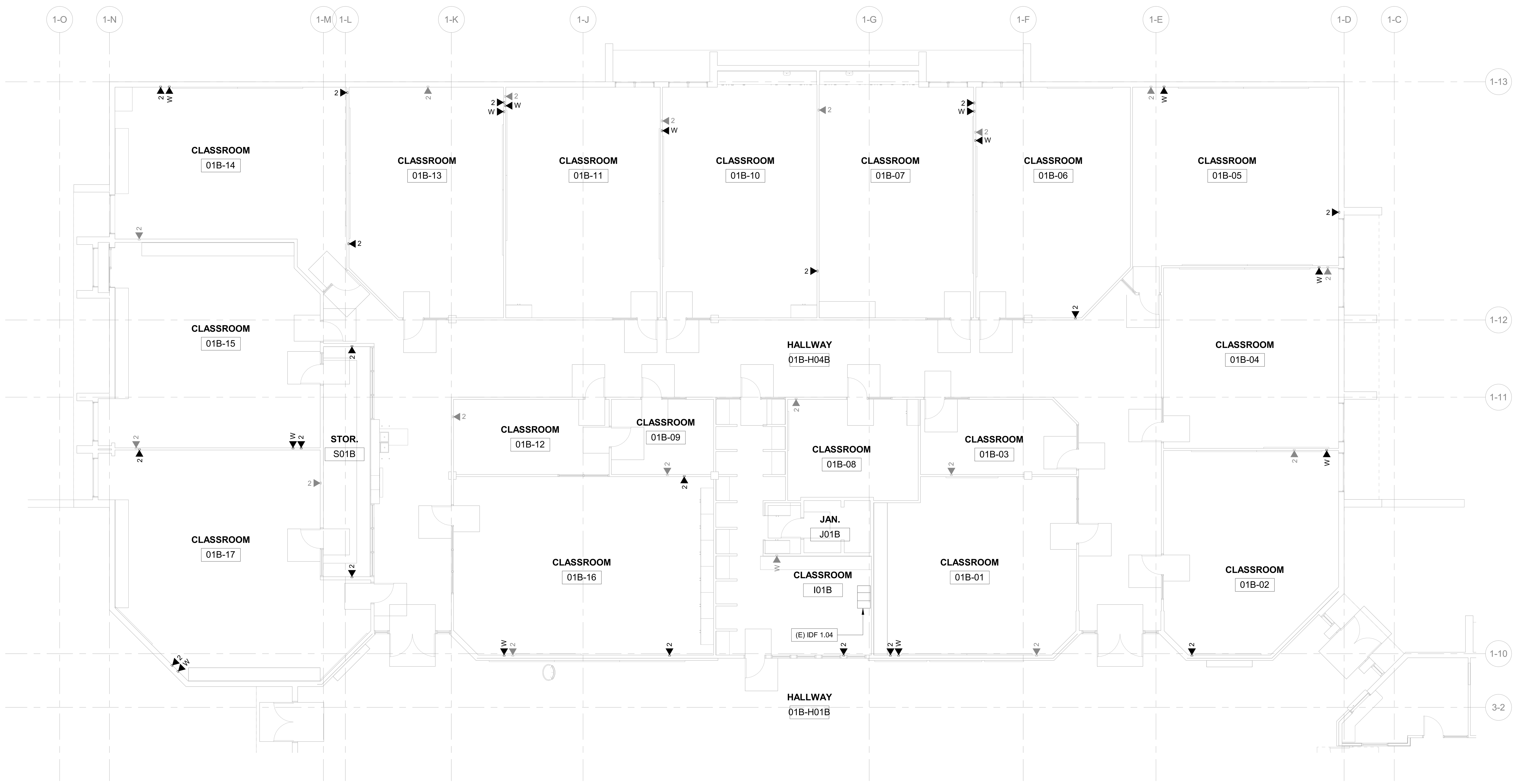
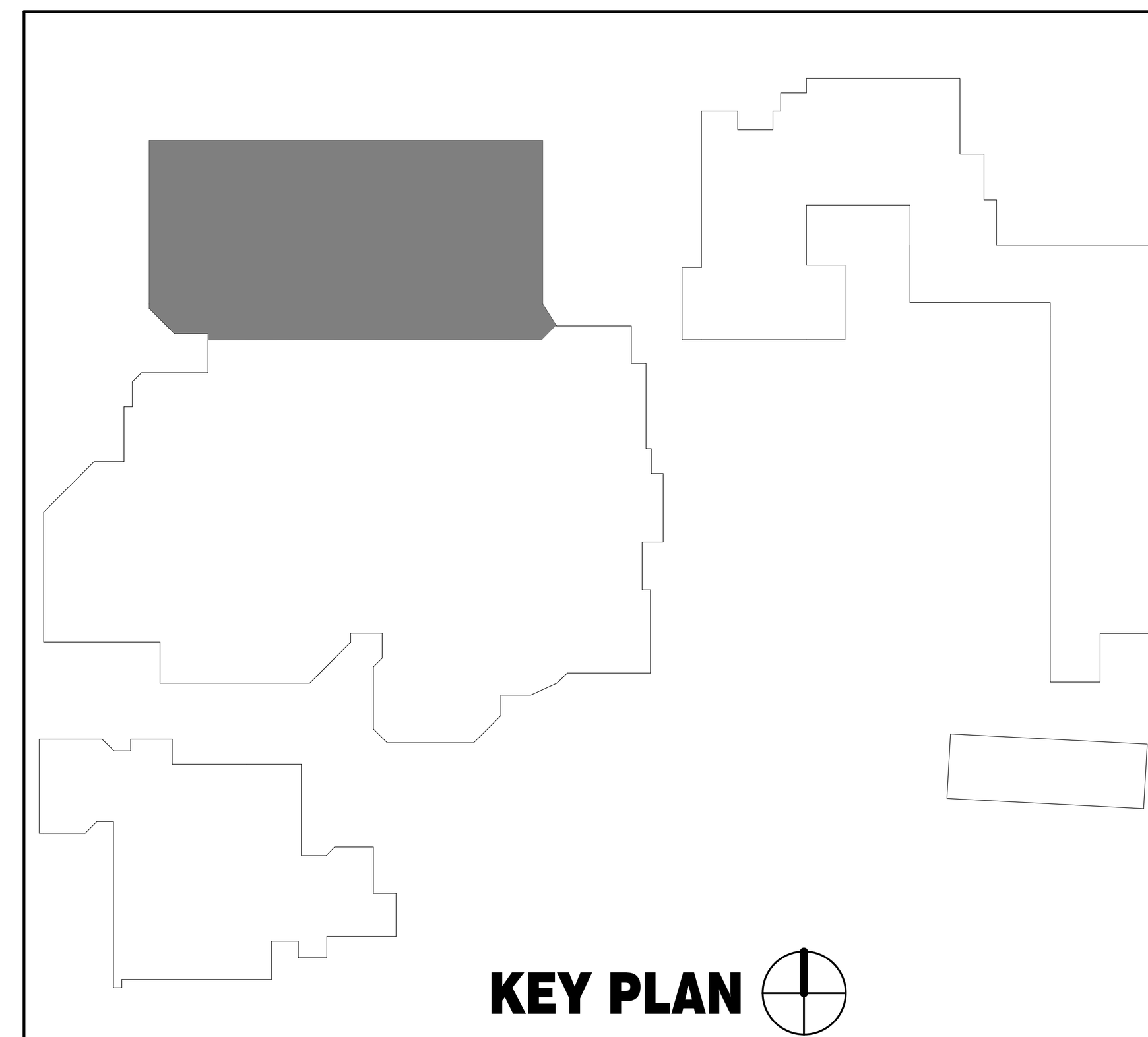


1 TECHNOLOGY NEW FLOOR PLAN - NORTH CLASSROOMS
1/8" = 1'-0"



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Drawing Title

TECHNOLOGY NEW FLOOR PLAN - NORTH CLASSROOMS

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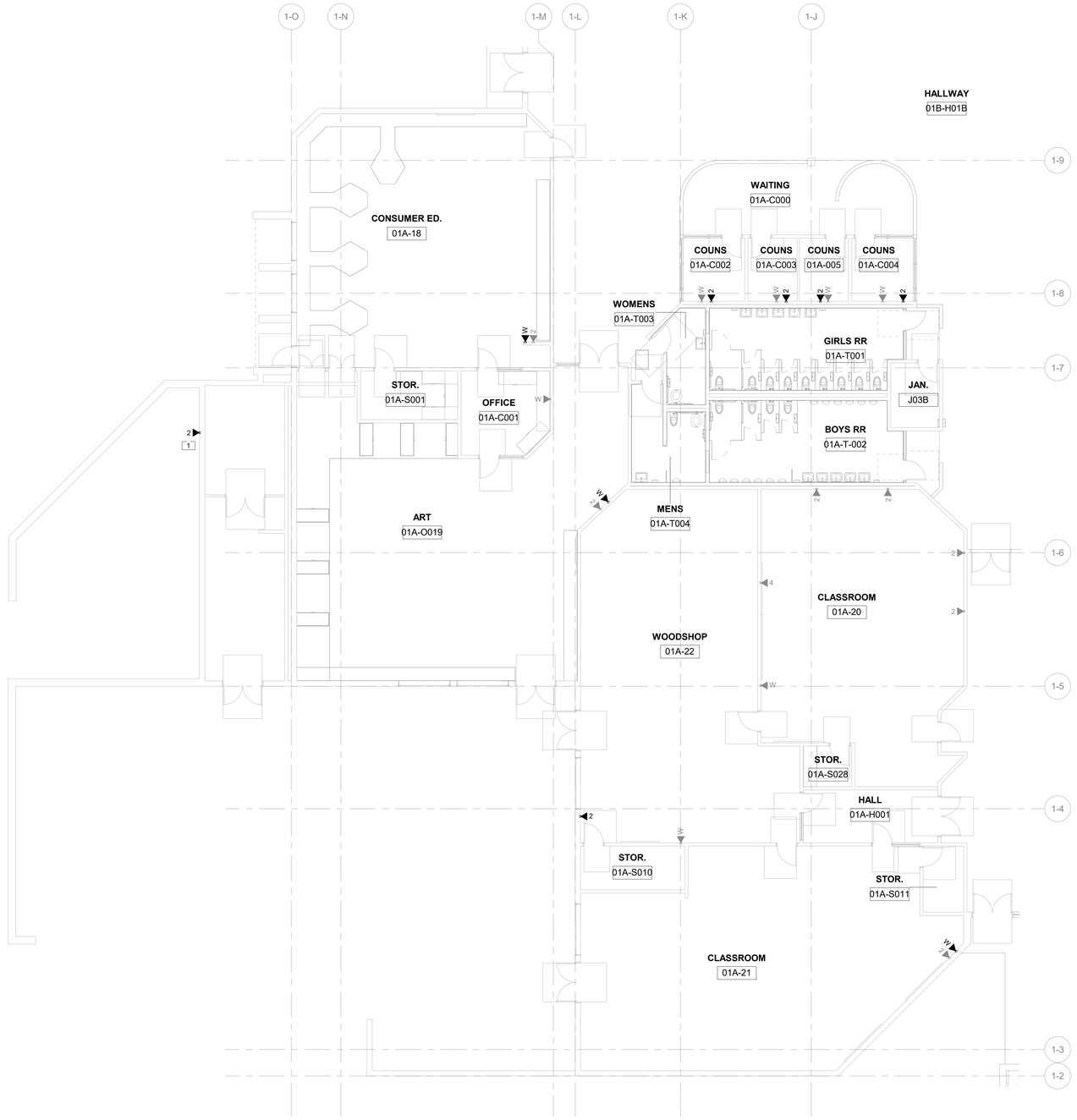
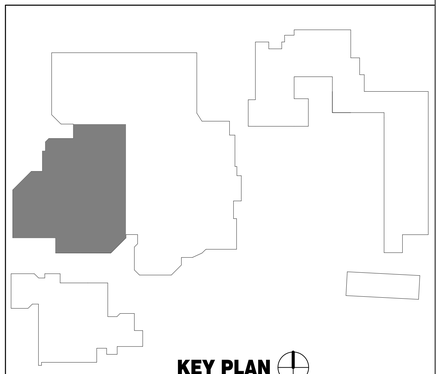
GENERAL NOTES
1) NO STRUCTURAL BEAMS SHALL BE PENETRATED. 2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES	
ID	DESCRIPTION
1	NEW DATA FOR IRRIGATION CONTROLLER. COORDINATE WITH IRRIGATION CONTRACTOR. PROVIDE AND INSTALL 1 EA. 1" CONDUIT AND NEMA3R JUNCTION BOX TO MAKE A WATER TIGHT PENETRATION INTO BUILDING.



1 TECHNOLOGY NEW FLOOR PLAN - SOUTH CLASSROOMS
1/8" = 1'-0"



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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY NEW FLOOR PLAN - SOUTH CLASSROOMS

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No.: 23-145
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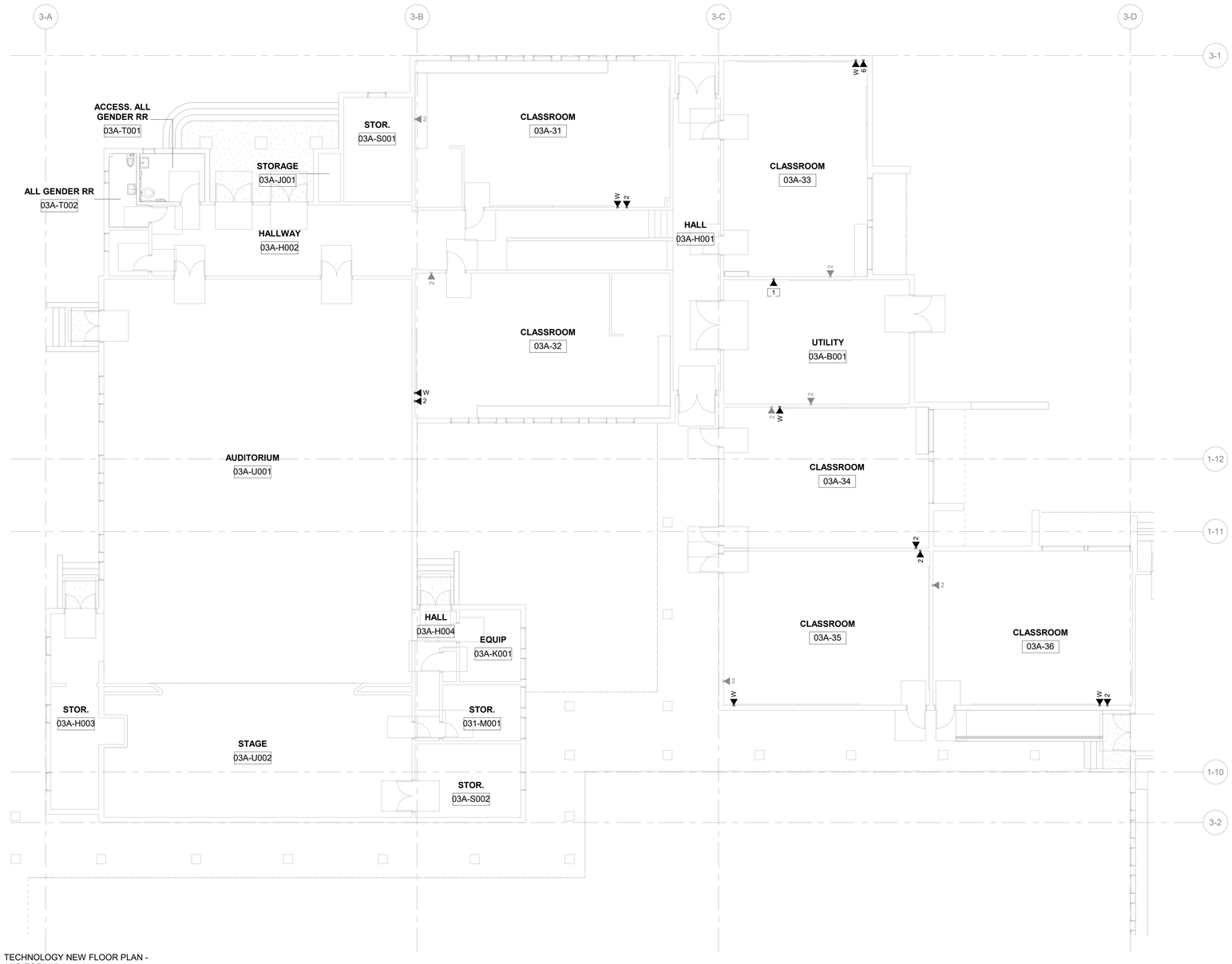
ISSUE DATE

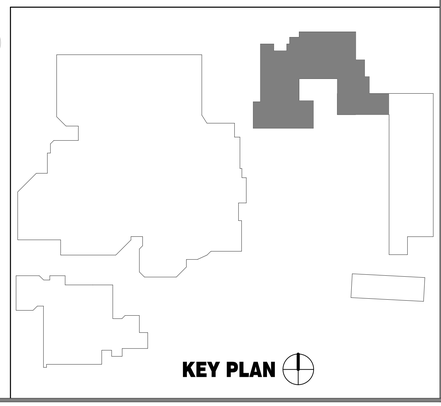
DRAWING NO.
T-113

GENERAL NOTES
1) NO STRUCTURAL BEAMS SHALL BE PENETRATED. 2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES	
ID	DESCRIPTION
1	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP AT FACP FOR FUTURE USE.



1 TECHNOLOGY NEW FLOOR PLAN - AUDITORIUM
1/8" = 1'-0"



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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY NEW FLOOR PLAN - AUDITORIUM

Drawn By
JG
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NO.	DATE	ISSUE

Project No.
23-145
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DRAWING NO.
T-114

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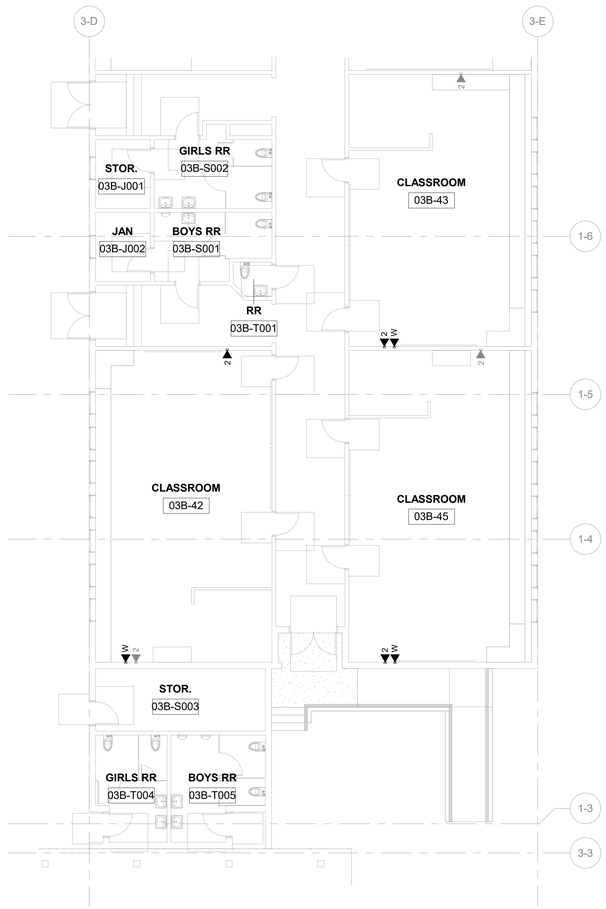
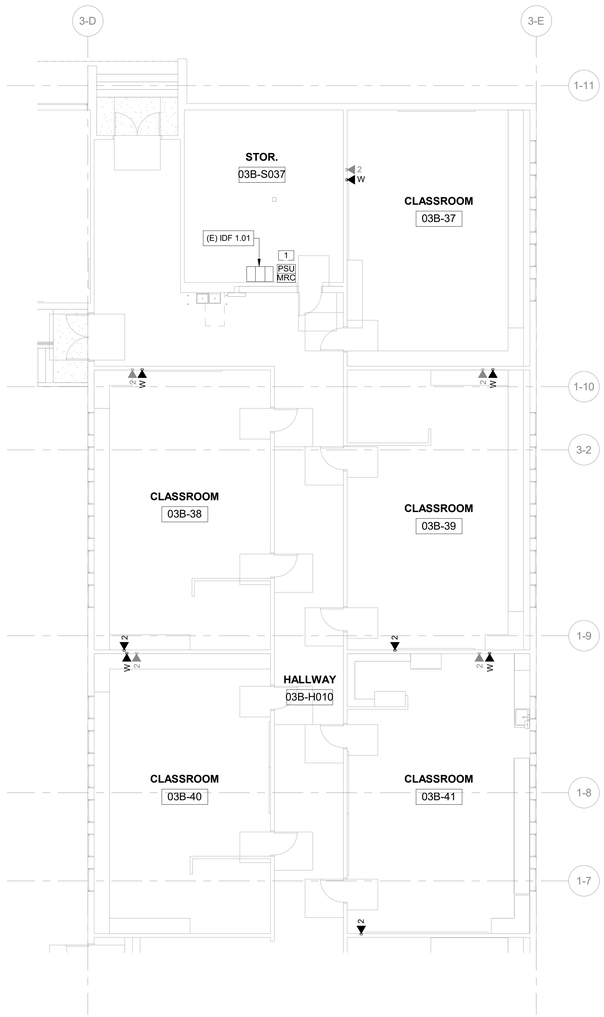
GENERAL NOTES
1) NO STRUCTURAL BEAMS SHALL BE PENETRATED. 2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

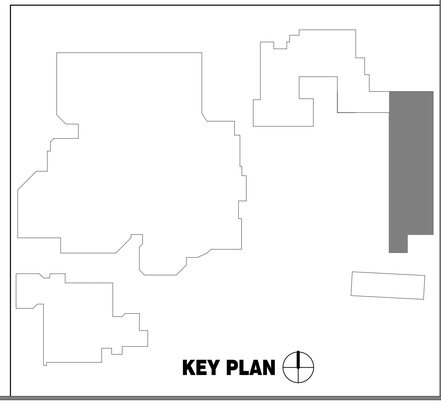
SHEET NOTES	
ID	DESCRIPTION
1	FURNISH AND INSTALL (N) ELECTRONIC ACCESS CONTROLLER AND (N) POWER SUPPLY. PROVIDE OR EXTEND 120V POWER TO (N) POWER SUPPLY LOCATION AS REQ'D. DELIVER ELECTRONIC ACCESS CONTROLLER TO DISTRICT FOR PROGRAMMING IN ADVANCE OF INSTALLATION.



2 TECHNOLOGY NEW FLOOR PLAN - BUILDING 3 - SOUTH
1/8" = 1'-0"



1 TECHNOLOGY NEW FLOOR PLAN - BUILDING 3 - NORTH
1/8" = 1'-0"



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Drawing Title
TECHNOLOGY NEW FLOOR PLAN - BUILDING 3

NO.	DATE	ISSUE

Drawn By: JG
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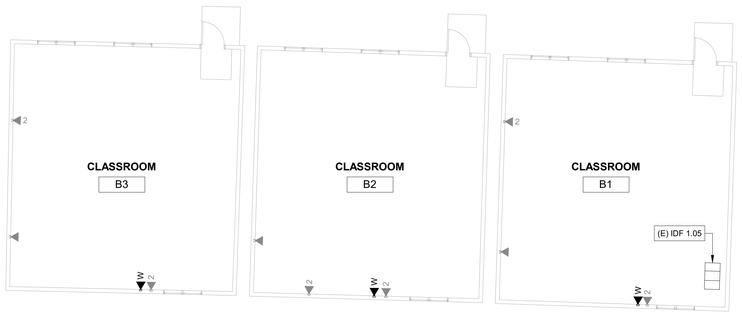
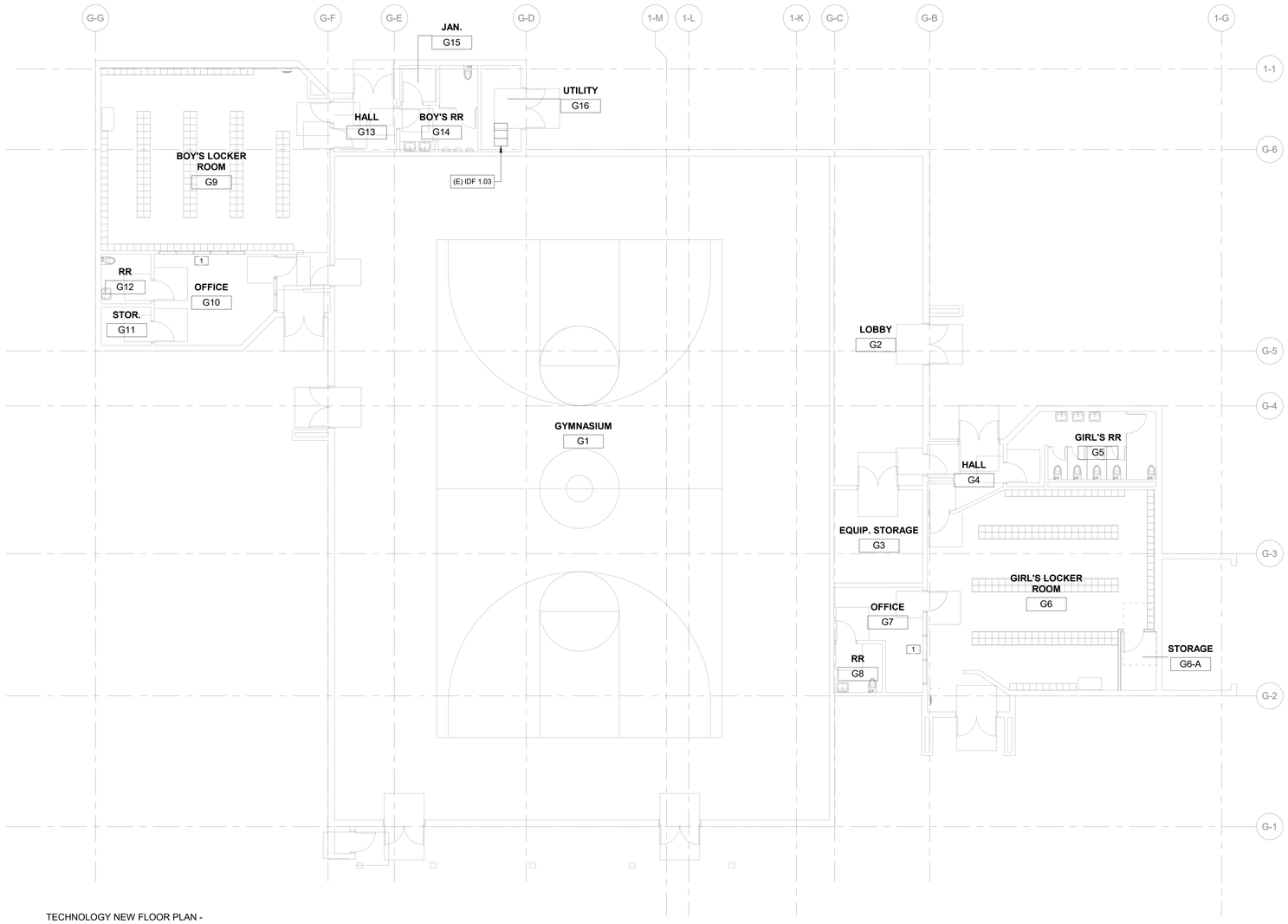
Project No.: 23-145
@Date
ISSUE DATE
DRAWING NO.: T-115



2 TECHNOLOGY NEW FLOOR PLAN - PORTABLES
1/8" = 1'-0"



1 TECHNOLOGY NEW FLOOR PLAN - GYMNASIUM
1/8" = 1'-0"

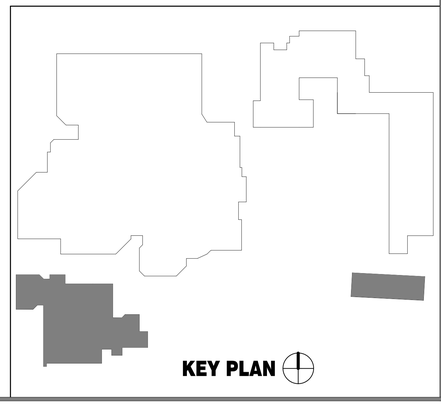
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	SEE SHEET E.3.1.6, KEYNOTE #1, FOR INFORMATION ABOUT WORK REQUIRED AT THIS LOCATION. RETERMINATE AND RETEST EXISTING DATA DROPS.



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Drawing Title
TECHNOLOGY NEW FLOOR PLAN - GYMNASIUM AND PORTABLES

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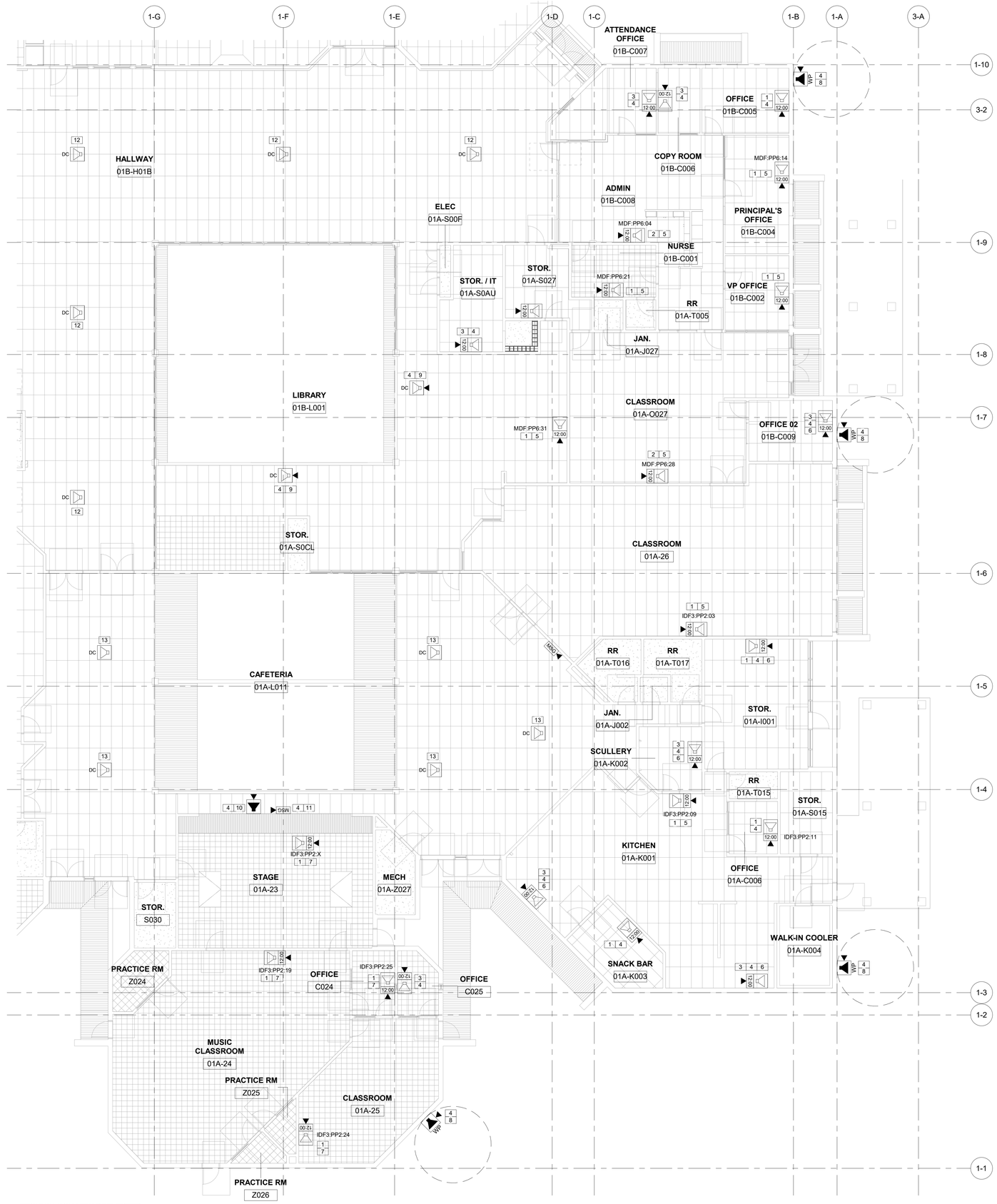


1 TECHNOLOGY NEW REFLECTED CEILING PLAN - ADMINISTRATION
1/8" = 1'-0"

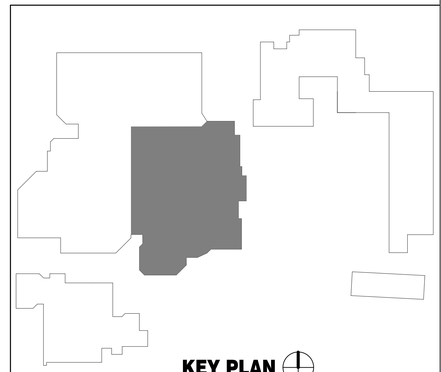
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE EXISTING CLOCK. INSTALL (N) COMBO BOX OVER OPENING WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	REMOVE EXISTING CLOCK/SPEAKER COMBO UNIT. INSTALL (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
3	FURNISH AND INSTALL (N) SPEAKER WITH (N) CLASSROOM IP MODULE AND (N) CLOCK MOUNTED IN (N) CLOCK/SPEAKER COMBO BOX.
4	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
5	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
6	ROUTE DATA DROP INTO COMBO BOX WITH APPROPRIATE WIREMOLD TRANSITION.
7	REMOVE (E) WIREMOLD DUPLEX BOX, REWORK (E) DATA DROP INTO (N) COMBO BOX.
8	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
9	FURNISH AND INSTALL (N) LAY-IN SPEAKER WITH (N) CLASSROOM IP MODULE.
10	FURNISH AND INSTALL (N) SPEAKER MOUNTED IN (N) BACKBOX AND (N) CLASSROOM IP MODULE.
11	FURNISH AND INSTALL (N) LARGE MESSAGE BOARD. TOTAL ASSEMBLY WEIGHT = 5.40LBS.
12	NEW #101 - PROVIDE (N) LAY IN SPEAKER. CABLE TO ZONE AMPLIFIER IN MDF - CHANNEL 1.
13	NEW #100 - PROVIDE (N) LAY IN SPEAKER. CABLE TO ZONE AMPLIFIER IN MDF - CHANNEL 2.



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TECHNOLOGY NEW RCP - ADMINISTRATION

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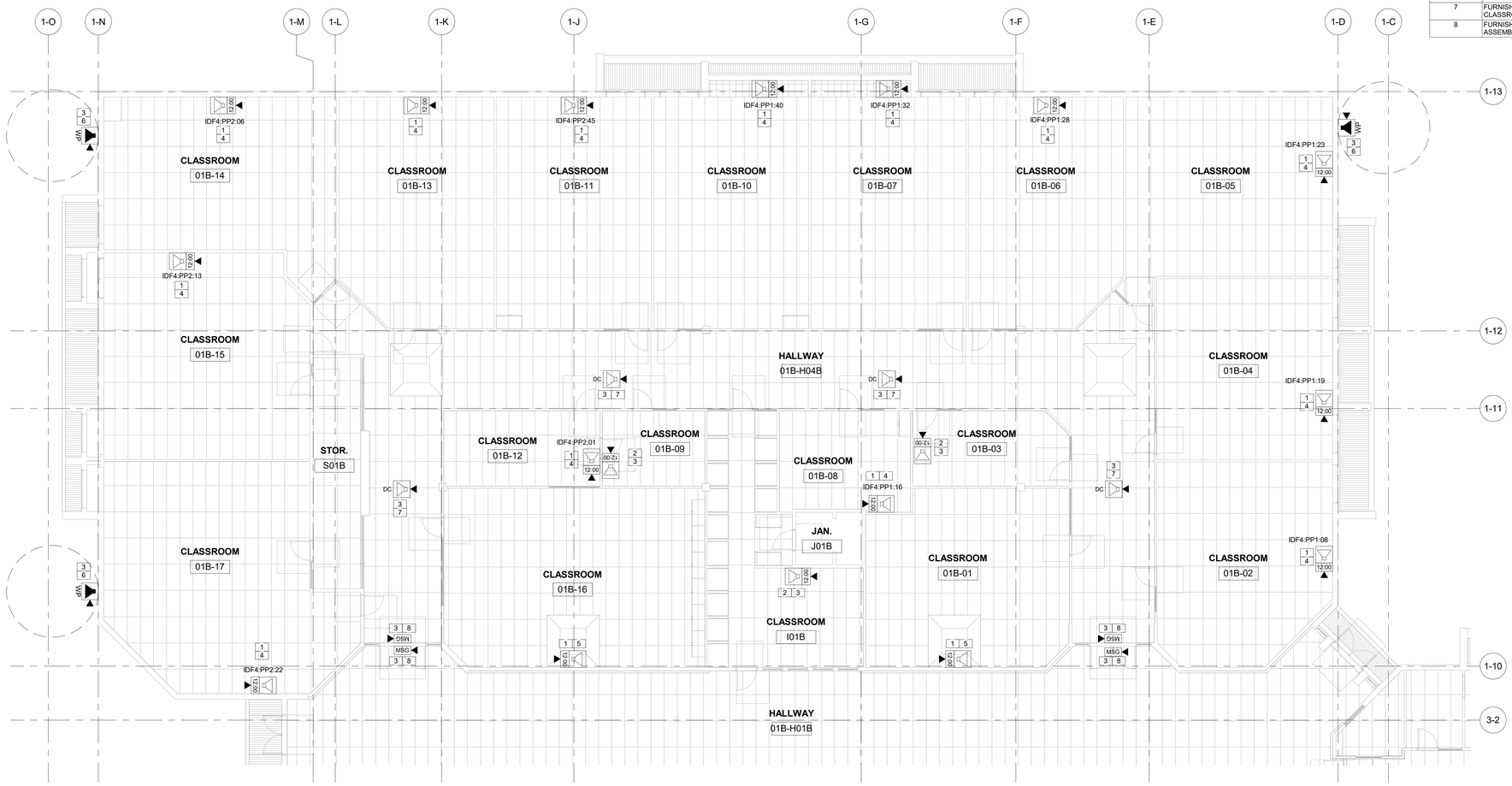


1 TECHNOLOGY NEW REFLECTED CEILING PLAN - NORTH CLASSROOMS
1/8" = 1'-0"

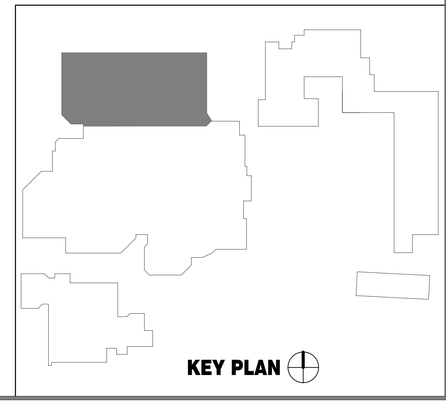
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE EXISTING CLOCK. INSTALL (N) COMBO BOX OVER OPENING WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	FURNISH AND INSTALL (N) SPEAKER WITH (N) CLASSROOM IP MODULE AND (N) CLOCK MOUNTED IN (N) CLOCK/SPEAKER COMBO BOX.
3	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
4	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
5	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX WITH APPROPRIATE WIREMOLD TRANSITION.
6	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
7	FURNISH AND INSTALL (N) LAY-IN SPEAKER WITH (N) CLASSROOM IP MODULE.
8	FURNISH AND INSTALL (N) LARGE MESSAGE BOARD. TOTAL ASSEMBLY WEIGHT = 5.40LBS.



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Drawing Title
TECHNOLOGY NEW RCP - NORTH CLASSROOMS

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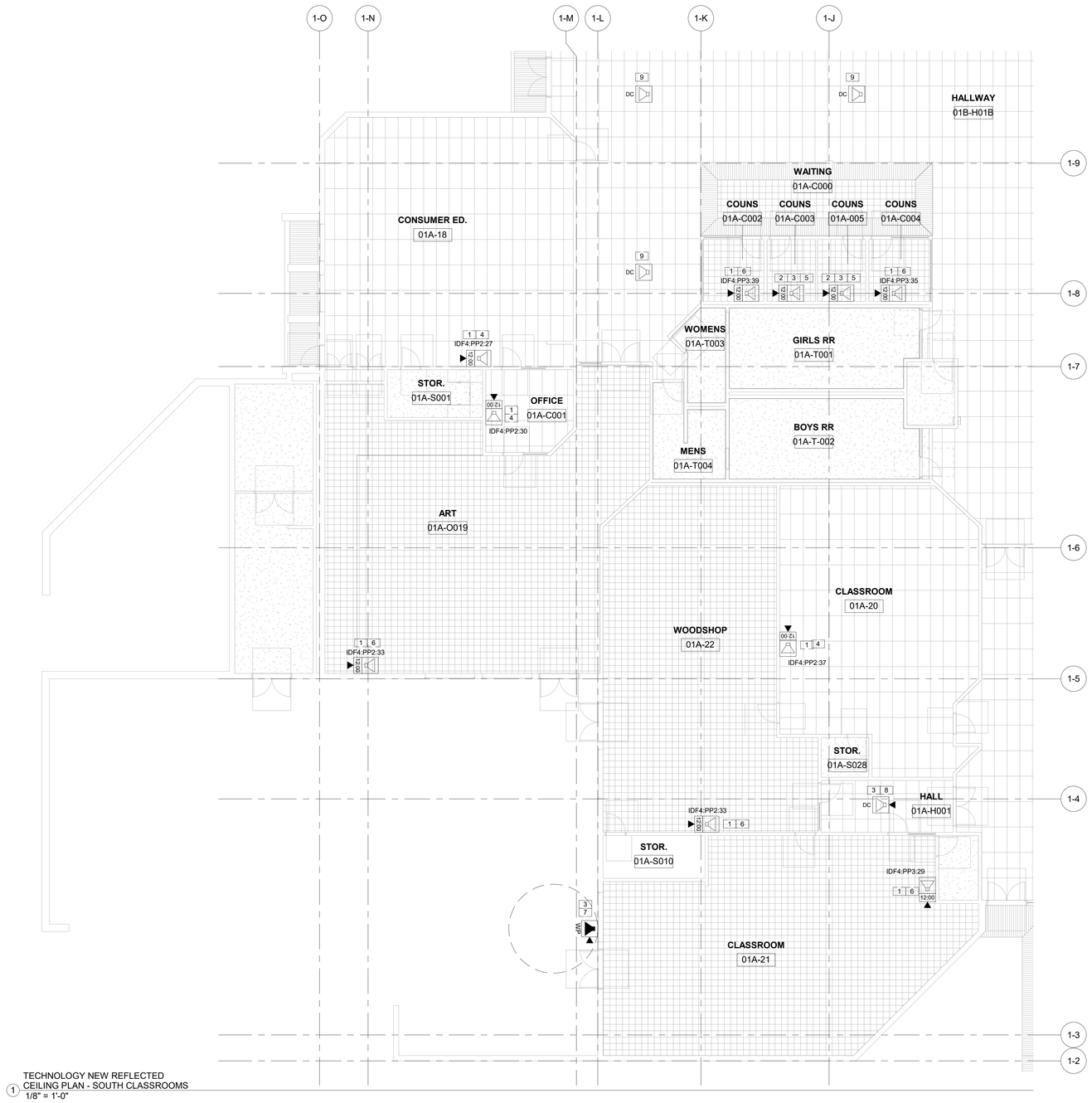


1 TECHNOLOGY NEW REFLECTED CEILING PLAN - SOUTH CLASSROOMS
1/8" = 1'-0"

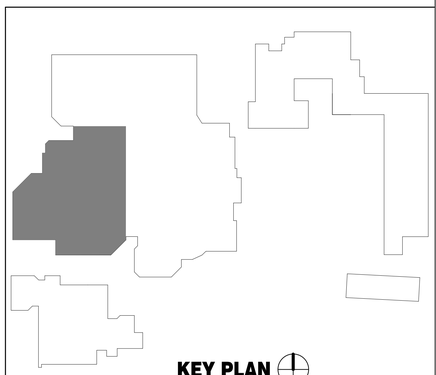
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE EXISTING CLOCK. INSTALL (N) COMBO BOX OVER OPENING WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	FURNISH AND INSTALL (N) SPEAKER WITH (N) CLASSROOM IP MODULE AND (N) CLOCK MOUNTED IN (N) CLOCK/SPEAKER COMBO BOX.
3	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
4	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
5	ROUTE DATA DROP INTO COMBO BOX WITH APPROPRIATE WIREMOLD TRANSITION.
6	REMOVE (E) WIREMOLD DUPLEX BOX, REWORK (E) DATA DROP INTO (N) COMBO BOX.
7	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
8	FURNISH AND INSTALL (N) LAY-IN SPEAKER WITH (N) CLASSROOM IP MODULE.
9	NEW #101 - PROVIDE (N) LAY IN SPEAKER. CABLE TO ZONE AMPLIFIER IN MDF - CHANNEL 1.



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CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY NEW RCP - SOUTH CLASSROOMS

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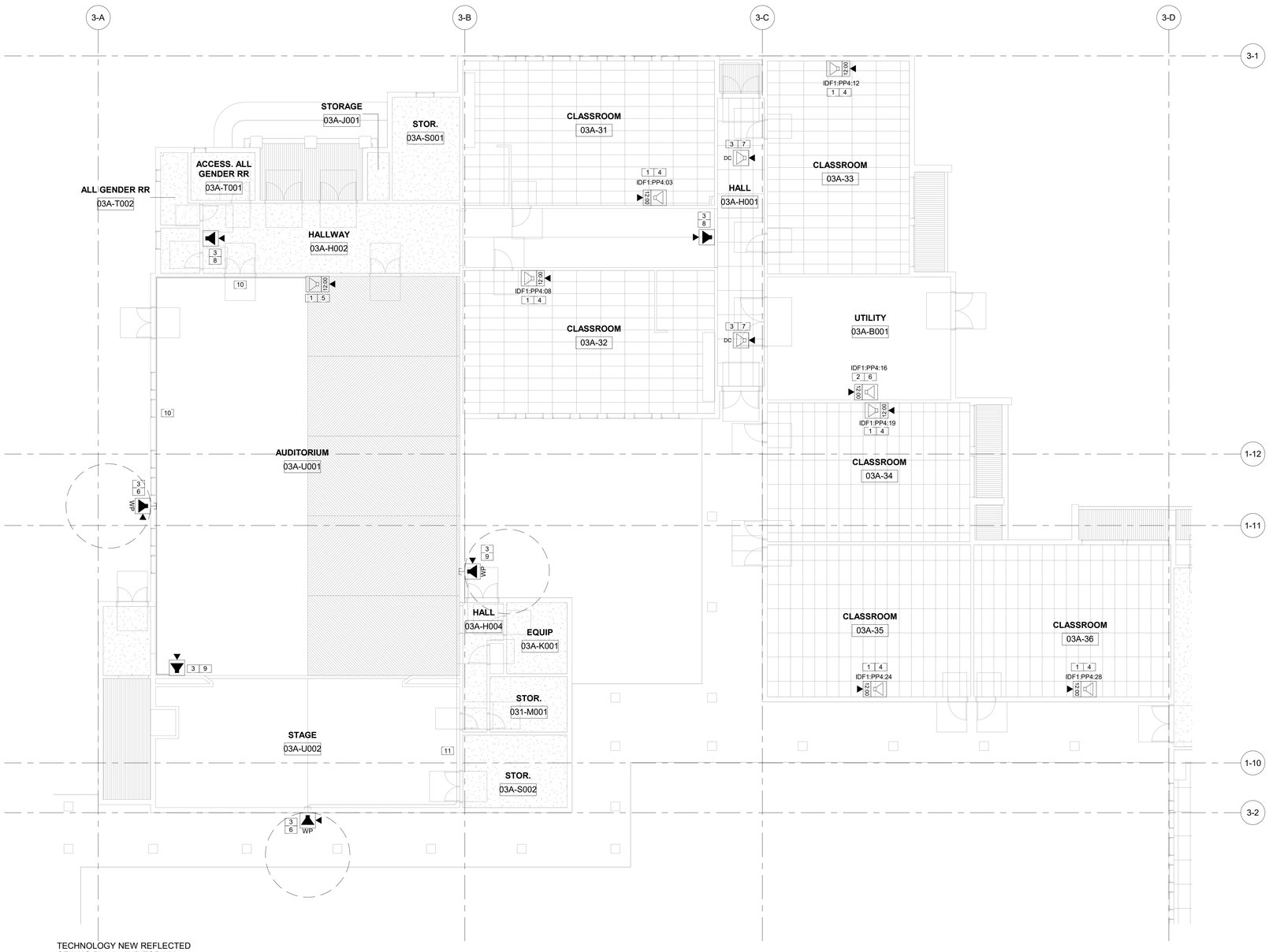
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

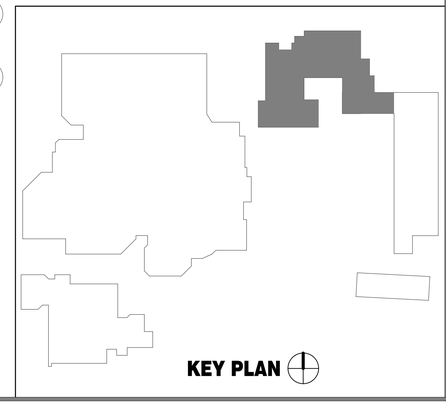
2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE EXISTING CLOCK. INSTALL (N) COMBO BOX OVER OPENING WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	FURNISH AND INSTALL (N) SPEAKER WITH (N) CLASSROOM IP MODULE AND (N) CLOCK MOUNTED IN (N) CLOCK/SPEAKER COMBO BOX.
3	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
4	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
5	REMOVE (E) WIREMOLD DUPLEX BOX, REWORK (E) DATA DROP INTO (N) COMBO BOX.
6	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
7	FURNISH AND INSTALL (N) LAY-IN SPEAKER WITH (N) CLASSROOM IP MODULE.
8	FURNISH AND INSTALL (N) SPEAKER MOUNTED IN (N) BACKBOX AND (N) CLASSROOM IP MODULE.
9	FURNISH AND INSTALL (N) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
10	(N) SURFACE WIREMOLD WM2300.
11	(E) SURFACE MOUNTED CONDUIT.



1 TECHNOLOGY NEW REFLECTED CEILING PLAN - AUDITORIUM
1/8" = 1'-0"



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Drawing Title
TECHNOLOGY NEW RCP - AUDITORIUM

Drawn By: JG
Checked By: CC

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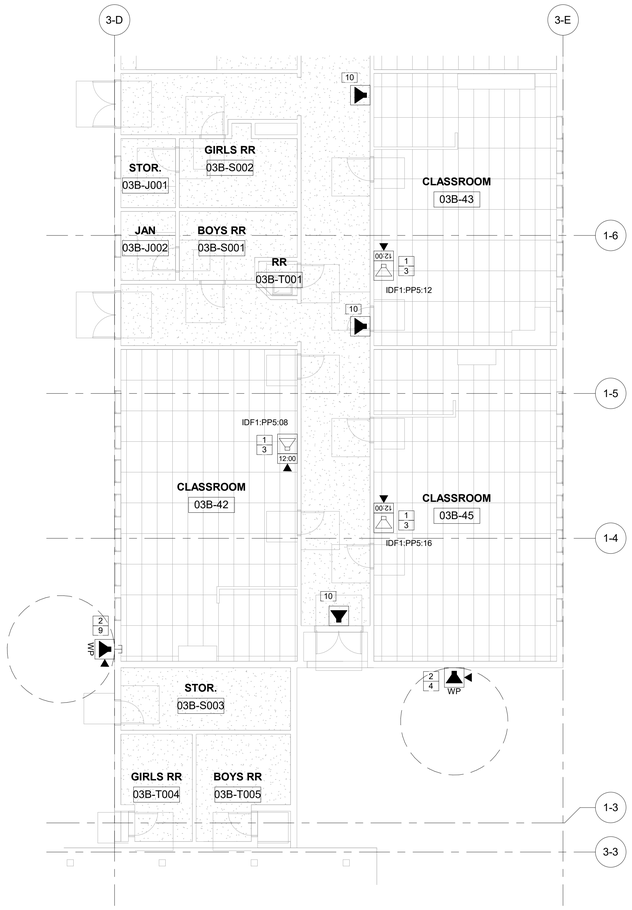
GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

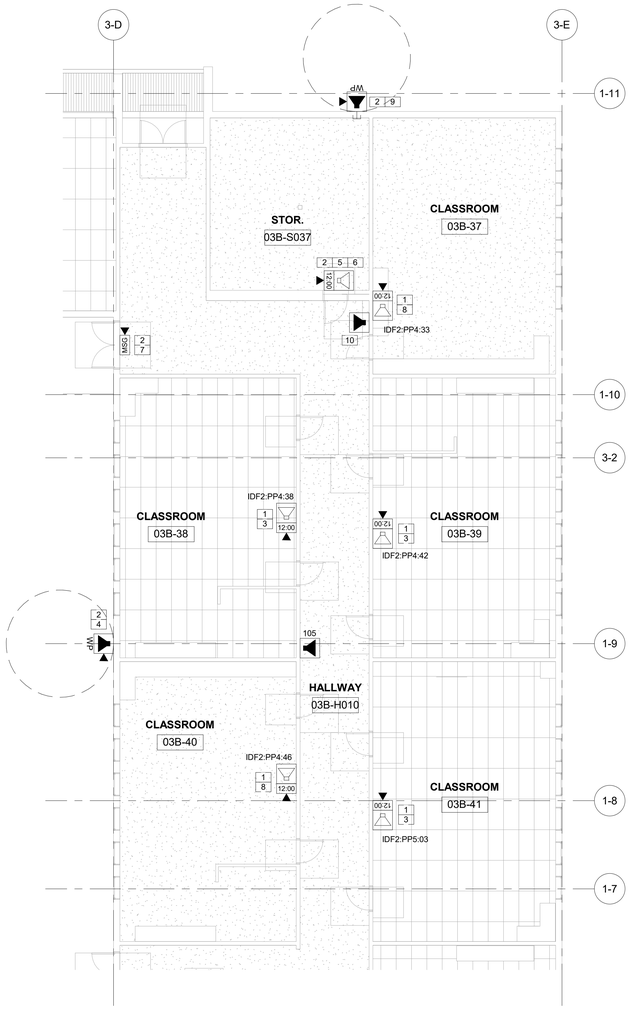
2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

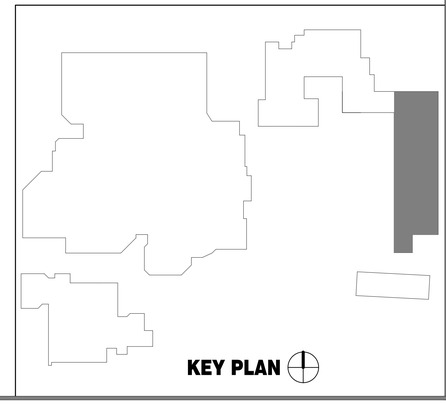
ID	DESCRIPTION
1	REMOVE EXISTING CLOCK. INSTALL (N) COMBO BOX OVER OPENING WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
3	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
4	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
5	ROUTE DATA DROP INTO COMBO BOX WITH APPROPRIATE WIREMOLD TRANSITION.
6	FURNISH AND INSTALL (N) SPEAKER WITH (N) CLASSROOM IP MODULE AND (N) CLOCK MOUNTED IN (N) CLOCK/SPEAKER COMBO BOX.
7	FURNISH AND INSTALL (N) LARGE MESSAGE BOARD. TOTAL ASSEMBLY WEIGHT = 5.40LBS.
8	REMOVE (E) WIREMOLD DUPLEX BOX, REWORK (E) DATA DROP INTO (N) COMBO BOX.
9	FURNISH AND INSTALL (N) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
10	NEW #105 - PROVIDE (N) SPEAKER MOUNTED IN (N) BACKBOX. CABLE TO ZONE PAGE AMPLIFIER IN NEAREST IDF.



2 TECHNOLOGY NEW REFLECTED CEILING PLAN - BUILDING 3 - SOUTH
1/8" = 1'-0"



1 TECHNOLOGY NEW REFLECTED CEILING PLAN - BUILDING 3 - NORTH
1/8" = 1'-0"



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CONSULTANT

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY NEW RCP - BUILDING 3

Drawn By
JG
Checked By
CC

NO.	DATE	ISSUE

Project No.
23-145
@Date
ISSUE DATE

DRAWING NO.
T-125

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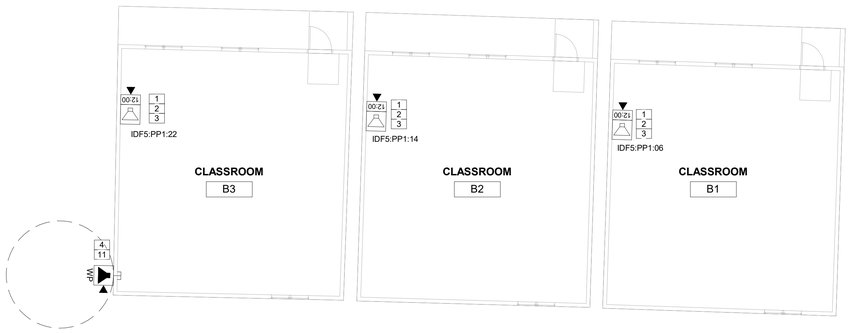
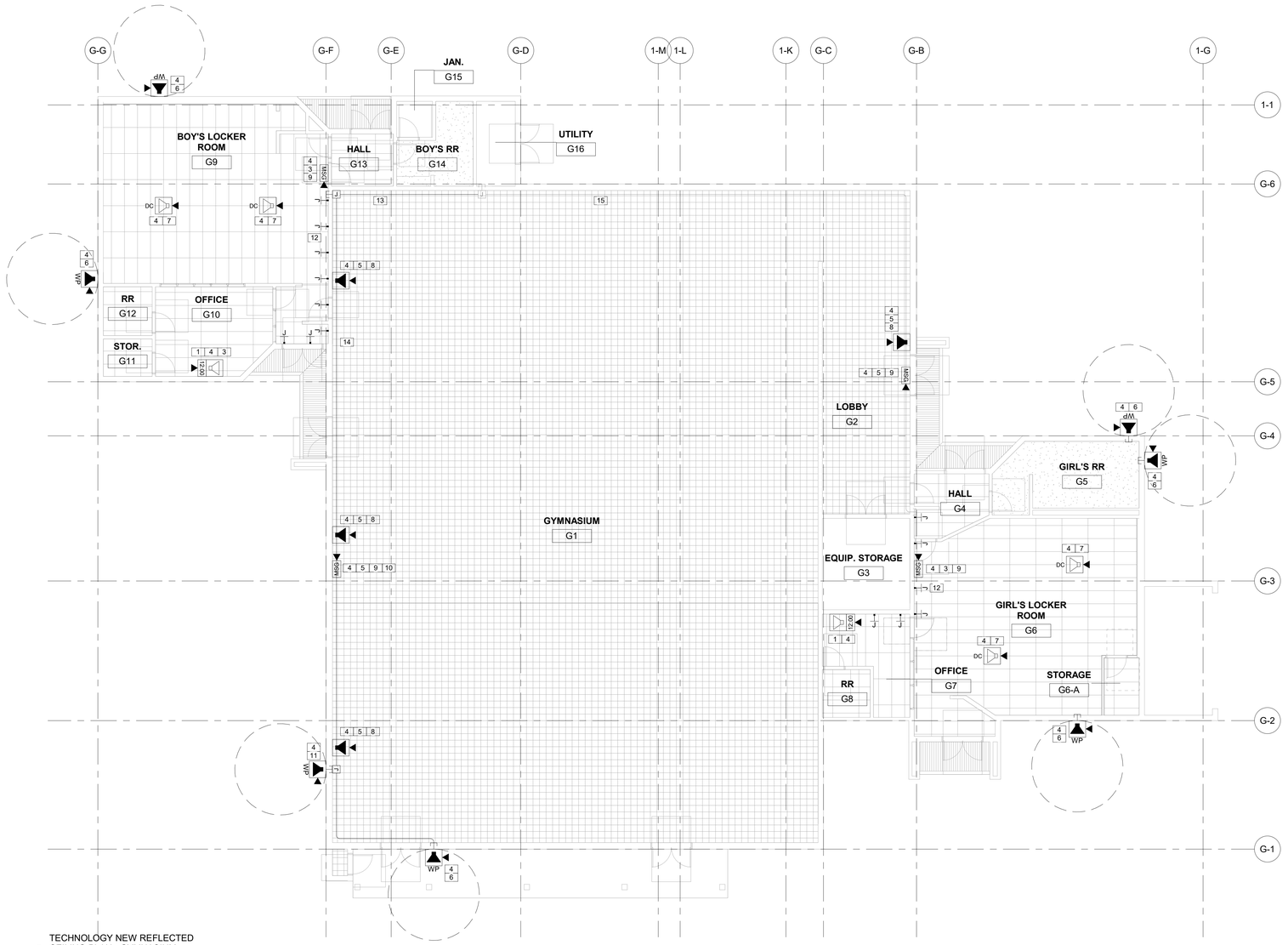


2 TECHNOLOGY NEW REFLECTED CEILING PLAN - PORTABLES
1/8" = 1'-0"



1 TECHNOLOGY NEW REFLECTED CEILING PLAN - GYMNASIUM
1/8" = 1'-0"

GENERAL NOTES

1) NO STRUCTURAL BEAMS SHALL BE PENETRATED.

2) DATA DROP LOCATIONS SHOWN AS BOLD ARE NEW LOCATIONS AND REQUIRE NEW ROUGH-IN. USE CUT IN BOXES AND FISH CABLE WHERE POSSIBLE. WHERE SURFACE RACEWAY IS REQUIRED, COORDINATE WITH ELECTRICAL PLANS AND USE DUAL CHANNEL RACEWAY, WHERE APPLICABLE.

SHEET NOTES

ID	DESCRIPTION
1	REMOVE EXISTING CLOCK/SPEAKER COMBO UNIT. INSTALL (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) CLOCK.
2	LOCATE EXISTING DATA DROP COILED ABOVE T-BAR AND ROUTE INTO (N) COMBO BOX VIA (E) CONDUIT TO ACCESSIBLE CEILING. ROUTE VIA NEAREST (E) CLOCK J-BOX OR INTERCEPT (E) CONDUIT AS REQ'D.
3	ROUTE DATA DROP INTO COMBO BOX WITH APPROPRIATE WIREMOLD TRANSITION.
4	FURNISH AND INSTALL 1 EA. (N) CAT6A DATA DROP.
5	FURNISH AND INSTALL (N) GRC CONDUIT TO NEAREST DATA J-BOX.
6	REPLACE (E) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
7	FURNISH AND INSTALL (N) LAY-IN SPEAKER WITH (N) CLASSROOM IP MODULE.
8	FURNISH AND INSTALL (N) SPEAKER MOUNTED IN (N) BACKBOX AND (N) CLASSROOM IP MODULE.
9	FURNISH AND INSTALL (N) LARGE MESSAGE BOARD. TOTAL ASSEMBLY WEIGHT = 5.40LBS.
10	FURNISH AND INSTALL (N) PROTECTIVE COVER FOR LARGE MESSAGE BOARD.
11	FURNISH AND INSTALL (N) EXTERIOR SPEAKER WITH (N) BACKBOX AND (N) SPEAKER. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE.
12	(N) J-HOOKS.
13	(N) 1 EA. 2" GRC.
14	(N) 1 EA. 1" GRC.
15	(E) SURFACE MOUNTED CONDUIT.

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Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY NEW RCP - GYMNASIUM AND PORTABLES

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No.: 23-145
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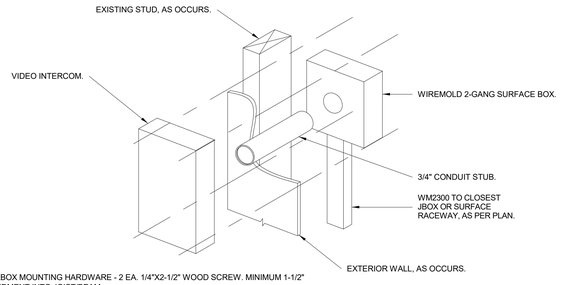
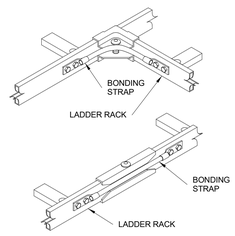
DRAWING NO.: T-126

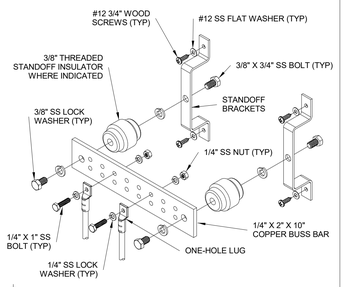


NOTE:
1. BACKBOX MOUNTING HARDWARE - 2 EA. 1/4"X2-1/2" WOOD SCREW. MINIMUM 1-1/2" EMBEDMENT INTO JOIST/BEAM.

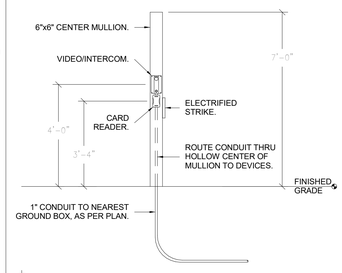
15 EXTERIOR VIDEO INTERCOM MOUNTING DETAIL
SCALE: NONE



9 LADDER RACK BONDING DETAIL
SCALE: NONE

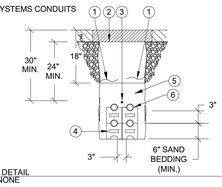


8 MAIN GROUND BAR DETAIL
SCALE: NONE



5 VIDEO / INTERCOM / ELEC. ACCESS CONTROL IN GATE MULLION DETAIL
SCALE = NONE

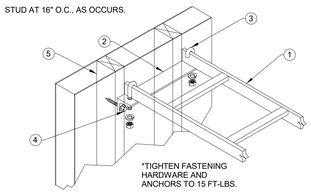
1. PLASTIC WARNING TAPE
2. LAST 12" AB MATERIAL AT 95% COMPACTION FOR ASPHALT AND CONCRETE, 90% FOR PLANTED AREAS
3. 10 AWG WIRE OR METAL TRACING TAPE PLACED ON TOP OF CONDUITS AND CONTINUOUS THROUGHOUT ENTIRE TRENCH LENGTH AND TERMINATING ON RISER UNISTRUT OR GROUNDING BAR IN GROUND BOX.
4. BOTTOM AND MIDDLE PLASTIC SPACERS EVERY 5'-0" SHALL BE USED WHERE CONDUITS HAVE TO BE STACKED ON TOP OF ONE ANOTHER DUE TO SPACE LIMITATIONS.
5. SAND AT 90% COMPACTION
6. SIGNAL SYSTEMS CONDUITS



4 TRENCH DETAIL
SCALE: NONE

NOT USED

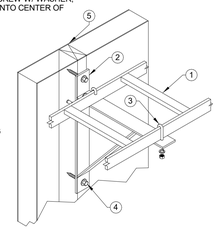
1. LADDER RACK ASSEMBLY PER DRAWINGS.
2. MOUNTING BRACKET FOR WALL
3. MFR. INCLUDED MOUNTING BRACKET J-HOOK HARDWARE
4. 3/16" DIA. WOOD LAG SCREW W/ WASHER, 1.5" MIN. EMBEDMENT INTO CENTER OF STUD, SPAN 2-BAYS.
5. STUD AT 16" O.C., AS OCCURS.



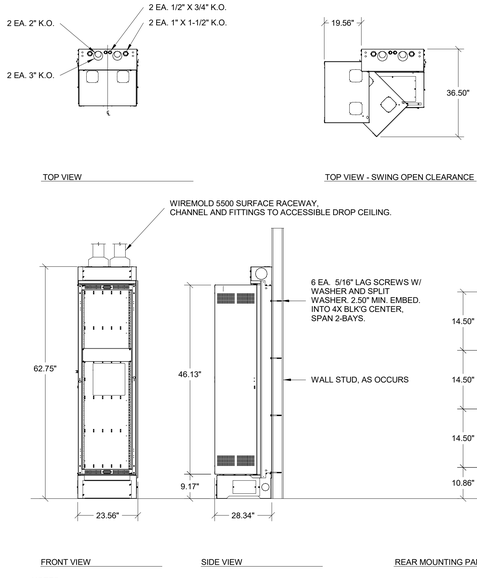
13 RUNWAY END WALL SUPPORT DETAIL
SCALE: NONE

NOT USED

1. LADDER RACK ASSEMBLY PER DRAWINGS.
2. MOUNTING BRACKET, 60" OC MAXIMUM SPACING BETWEEN BRACKETS.
3. MFR. INCLUDED MOUNTING BRACKET J-HOOK HARDWARE
4. 3/16" DIA. WOOD LAG SCREW W/ WASHER, 1.5" MIN. EMBEDMENT INTO CENTER OF STUD, SPAN 2-BAYS.
5. STUD AT 16" O.C.



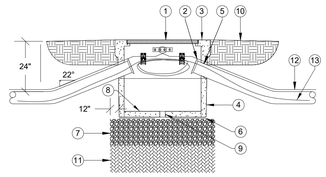
12 RUNWAY SIDE WALL SUPPORT DETAIL
SCALE: NONE



NOTES:
1. TOTAL ASSEMBLY WEIGHT = 800LBS.

7 TELECOMMUNICATIONS RACK, WALL SWING, 40RU-32" DEEP (500 LBS. MAX LOADING)
SCALE: NONE

1. LID PER. TYPE PER GROUND BOX DETAIL
2. BELL ENDS TYP.
3. PRE CAST REINFORCED CONCRETE BOX, SIZE PER PLANS
4. PRE CAST REINFORCED CONCRETE EXTENSIONS AS REQUIRED
5. SEAL AROUND CONDUIT, BOX & JUNCTION OF EXTENSION(S) WITH MORTAR
6. VAPOR RETARDER
7. 12" CRUSHED ROCK
8. REINFORCED CONCRETE BOTTOM
9. 1" DRAIN HOLE
10. FINISHED GRADE, SLOPE 1/8" OVER 12" EXTEND 4'-0"
11. COMPACTED SOIL
12. 10 AWG WIRE OR METAL TRACING TAPE PLACED ON TOP OF CONDUITS AND CONTINUOUS THROUGH OUT ENTIRE TRENCH LENGTH AND TERMINATING ON RISER UNISTRUT OR GROUNDING BAR IN GROUNDBOX.
13. ALL SERVICE LOOPS AND PULL STRINGS TO BE SECURELY AND NEATLY ATTACHED TO WALLS OF GROUND BOX WITH NO CABLES LEFT ON THE BOTTOM OF THE BOX.

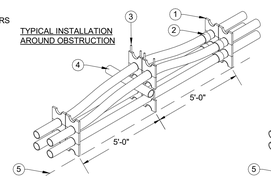


3 GROUND PULL BOX DETAIL
SCALE: NONE

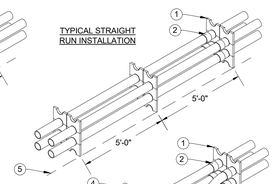
1. BOTTOM & MIDDLE PLASTIC SPACERS EVERY 5' SHALL BE USED WHERE CONDUITS HAVE TO BE STACKED ON TOP OF ONE ANOTHER DUE TO SPACE LIMITATIONS.
2. COUPLING
3. REINFORCING STEEL RODS
4. OBSTRUCTION
5. TRENCH BOTTOM

NOTES:
1. USE THESE DETAILS TO AVOID CONFLICTS WITH EXISTING OR NEW OBSTRUCTIONS.
2. SPACE SIGNAL AND COMMUNICATION CONDUIT 12" FROM POWER CONDUIT (ABOVE 120V) AND 3" FROM ALL OTHER CONDUIT.

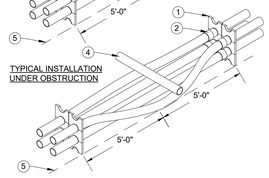
TYPICAL INSTALLATION AROUND OBSTRUCTION



TYPICAL STRAIGHT RUN INSTALLATION



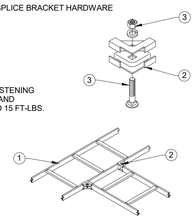
TYPICAL INSTALLATION UNDER OBSTRUCTION



2 CONDUIT TRANSITION DETAIL
SCALE: NONE

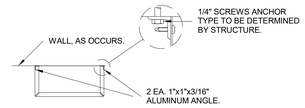
NOT USED

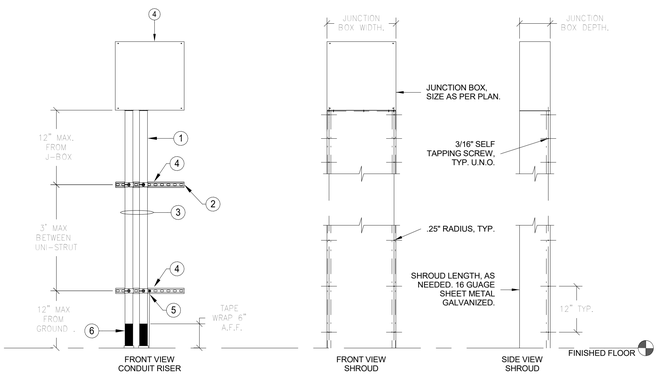
1. (N) 18" LADDER RACK ASSEMBLY
2. MOUNTING BRACKET FOR 90 DEGREE ATTACHMENT
3. MFR. INCLUDED TEE SPLICE BRACKET HARDWARE



11 HORIZONTAL TEE SPLICE KIT DETAIL
SCALE: NONE

1. INSTALL CONDUIT AS CLOSE AS POSSIBLE AND TO ONE SIDE OF J-BOX TO ACCOMMODATE FUTURE INSTALLATIONS
2. UNI-STRUT TO BE CUT THE SAME LENGTH AS J-BOX.
3. RIGID CONDUIT.
4. CAULKING ACCORDING TO FIRE RATING-TYPICAL.
5. 10 AWG WIRE OR METAL TRACING TAPE PLACED ON TOP OF CONDUITS AND CONTINUOUS THROUGHOUT ENTIRE TRENCH LENGTH AND TERMINATING ON RISER UNISTRUT OR GROUNDING BAR IN GROUND BOX.
6. FLEX BETWEEN RISER AND GROUND CONDUIT.

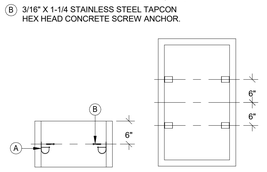


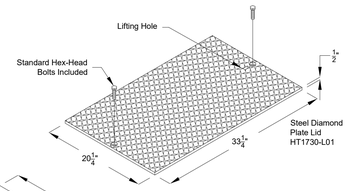


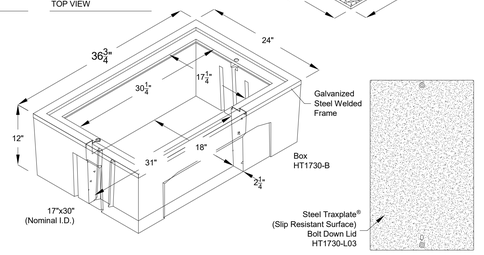
NOTE:
1. PAINT SHROUD TO MATCH EXISTING BUILDING.

6 WALL MOUNTED JUNCTION BOX WITH CONDUIT RISER AND SHROUD DETAIL
SCALE: NONE

A. J-HOOK, 2" CADDY (P/N CAT32), MOUNT DIRECTLY TO SIDE OF GROUND BOX, TYP.
B. 3/16" X 1-1/4 STAINLESS STEEL TAPCON HEX HEAD CONCRETE SCREW ANCHOR.



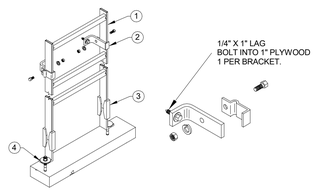




MFG.	PART NO.	PRODUCT	DESCRIPTION	APPROX. WEIGHT	QTY. PER PALLET
JENSEN*	HT1730-B	BOX	17"x30"x12" Concrete Traffic Rated Box (Comes Standard With Hex Bolts)	290	6
JENSEN*	HT1730-E	EXTENSION	17"x30"x12" Concrete Extension	288	6
JENSEN*	HT1730-L01	LID	Steel Diamond Plate Bolt Down Lid	105	
JENSEN*	HT1730-L03	LID	Steel Traxplate® Bolt Down Slip Resistant Traffic Rated Lid	105	
* OR APPROVED EQUAL					

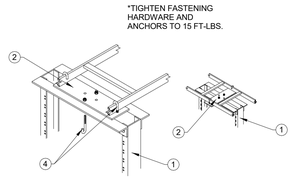
1 IN-GROUND PULL BOX DETAIL - G1
SCALE: NONE

1. CABLE LADDER PER DRAWINGS.
2. VERTICAL WALL BRACKETS, CHATSWORTH PN 10608-001 OR EQUAL
3. VERT. LADDER FLOOR BRACKET, CHATSWORTH PN 11309-000 OR EQUAL
4. 3/8" DIA. HILTI KB-TZ2 ANCHOR, 2" EMBED (2-TOTAL)



14 VERTICAL LADDER SUPPORT DETAIL
SCALE: NONE

1. DATA RACK ASSEMBLIES
2. TOP PLATE MOUNTING BRACKET
3. MFR. INCLUDED TOP PLATE MOUNTING BRACKET, J-HOOK HARDWARE.



10 RUNWAY SUPPORT KIT FOR RACK DETAIL
SCALE: NONE

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SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DETAILS

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No.: 23-145
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ISSUE DATE
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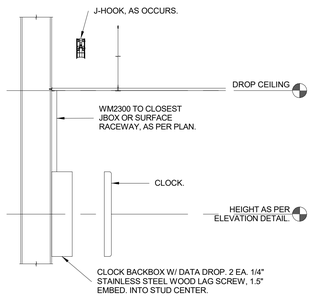
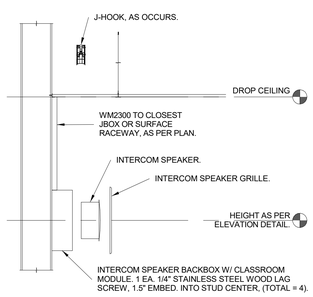
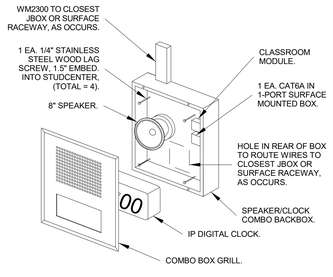


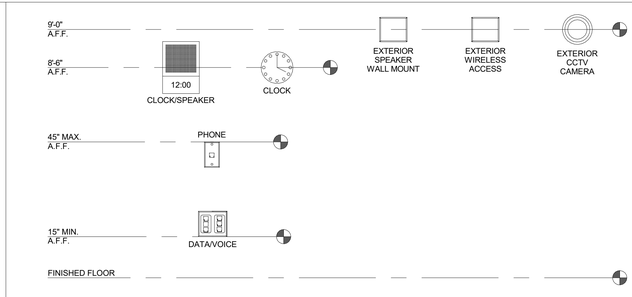
12 SURFACE WALL MOUNTED CLOCK DETAIL
SCALE: NONE



11 SURFACE WALL MOUNTED INTERIOR INTERCOM SPEAKER DETAIL
SCALE: NONE

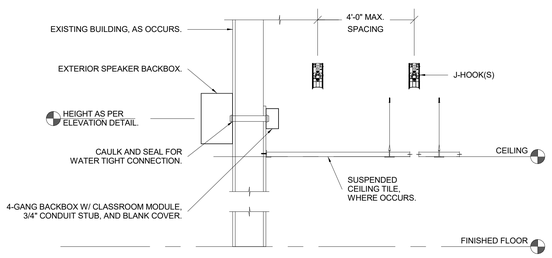


6 DIGITAL CLOCK AND SPEAKER COMBO ENCLOSURE MOUNTING DETAIL
SCALE: NONE

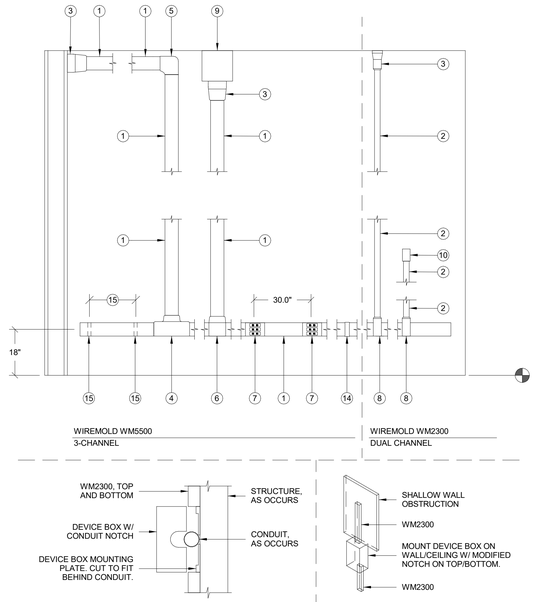


5 TYPICAL TECHNOLOGY BACKBOX MOUNTING HEIGHT ELEVATION DETAIL
SCALE: NONE

NOT USED



10 EXTERIOR INTERCOM SPEAKER MOUNTING DETAIL
SCALE: NONE



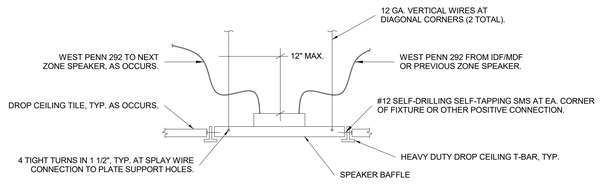
4 TYPICAL SURFACE MOUNTED RACEWAY W/ ASSEMBLY COMPONENTS DETAIL
SCALE: NONE

WIREMOLD SURFACE RACEWAY

SYMBOL	DESCRIPTION	WM5500 PART NUMBER	WM2300 PART NUMBER
1	WIREMOLD WM5500	5500	N/A
2	WIREMOLD WM2300	N/A	2300
3	ENTRANCE END FITTING	5510D	2310A
4	FULL CAPACITY TEE (FIBER READY)	N/A	N/A
5	FULL CAPACITY FLAT ELBOW 90°	5511F0	2311DFO
6	TEE	5515	2315
7	DEVICE BRACKET W/ DUAL RJ FACEPLATE, DUPLEX FACEPLATE OR BLACK FACEPLATE AS NEEDED	5550 / 5507FRJ / 5507D / 5507B	5474 / 5574
8	TRANSITION FITTING FOR WM2300	5574	2348
9	WALL MOUNTED PULL BOX SIZE AS NOTED PER PLAN	N/A	2300
10	DEVICE BOX	N/A	2348
11	END CAP	5510	2310B
12	INTERNAL ELBOW	5517FO	2317DFO
13	EXTERNAL ELBOW	5518FO	2318DFO
14	BASE SEAM COVER	5506	2306
15	WIRE CLIP	5500WC (INSTALL CLIPS AT 48" O.C. ENTIRE LENGTH OF WIREMOLD)	2300WC (INSTALL CLIPS AT 48" O.C. ENTIRE LENGTH OF WIREMOLD)
16	TRANSITION FITTING FOR WM5500 TO WM5400	5574A	N/A

NOTE:
1) DEVICE BOX (10) TO BE USED TO TRANSITION OVER CONDUIT AND SHALLOW WALL OBSTRUCTIONS (I.E. BULLETIN BOARD, TRIM, CASEWORK, ETC.) WHERE REQUIRED. UNDER NO CIRCUMSTANCES SHOULD SURFACE RACEWAY BE BENT OVER OBSTRUCTIONS.

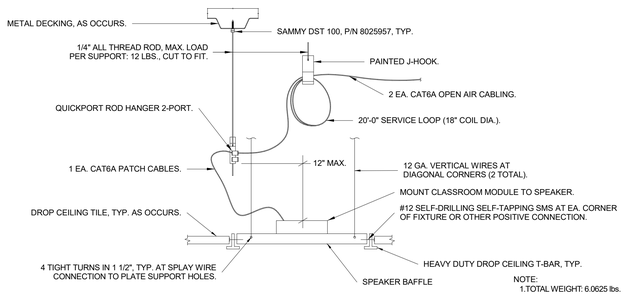
NOT USED



NOTE:
1.TOTAL WEIGHT: 6.0625 lbs.

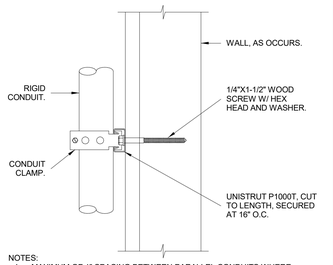
9 INTERCOM PAGING SPEAKER DETAIL - DROP CEILING MOUNT - 25 VOLT FEED
SCALE: NONE

NOT USED



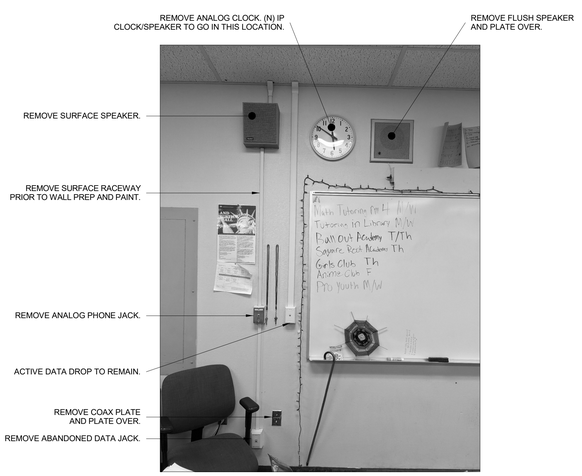
NOTE:
1.TOTAL WEIGHT: 6.0625 lbs.

8 INTERCOM PAGING SPEAKER DETAIL - DROP CEILING MOUNT - W/ DATA DROP
SCALE: NONE



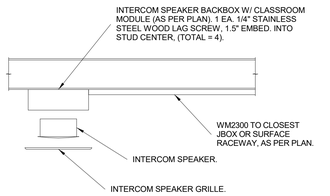
NOTES:
1. MAXIMUM OF 1" SPACING BETWEEN PARALLEL CONDUITS WHERE APPLICABLE.

3 CONDUIT SUPPORT DETAIL - VERTICAL
SCALE: NONE

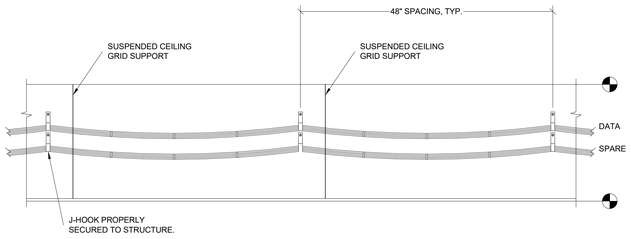


GENERAL NOTE:
1. ALL REMOVED DEVICES, WIRING AND RACEWAY TO BE DISPOSED OF RESPONSIBLY.
2. PATCH AND PREP FOR PAINT ALL LOCATIONS WITH REMOVED EQUIPMENT.

1 TYPICAL CLASSROOM DEMO PICTURE DETAIL
SCALE: NONE

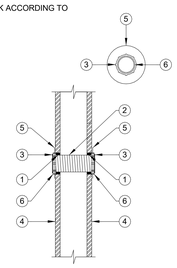


13 SURFACE CEILING MOUNTED INTERIOR INTERCOM SPEAKER DETAIL
SCALE: NONE



7 J-HOOK PATHWAY ABOVE CEILING DETAIL
SCALE: NONE

1 DRAFT STOP OR FIRE CAULK ACCORDING TO NFPA REQUIREMENTS
2 THREADED, RIGID, CONDUIT
3 SCREW ON BUSHING
4 WALL
5 REDUCING WASHER OR PLATE
6 SCREW ON LOCKING RINGS FRONT & BACK (TYP.)



2 CONDUIT SLEEVE PENETRATION DETAIL
SCALE = NONE

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CONSULTANT

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DETAILS

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No.: 23-145
©Date
ISSUE DATE

DRAWING NO.
T-502

Autodesk Docs://23-145 California Middle School Renewal/23-145_California Middle School Renewal_LWFA.rvt
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Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

CLIV.R14288
Wall-opening Protective Materials

SpecSeal Power Shield Box Inserts , for use with flush device UL Listed Metallic Outlet Boxes without internal clamps installed with steel mud rings in framed wall assemblies. When protective material is used in outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). The max outlet box dimensions, hourly rating, type of stud, use of stud cavity insulation and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. **Studs** - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. **Stud Cavity Insulation** - Where indicated in the table below, stud cavity insulation to consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3). Unless indicated as required, stud cavity insulation is optional.

C. **Wall Design** - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

D. **Pad Dimensions** - The minimum dimensions of the insert pad are shown in the table below. Pads may be cut to achieve dimensions shown in table and partial insert pads may be utilized.

Product	Max Outlet Box Size, in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size, in. (mm)	Rating, hr	Stud	Cavity Insulation	Face Plate Type	Putty Ball
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	No	Steel	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	Yes	Plastic	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	No	Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	Yes	Plastic	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	No	Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	Yes	Plastic	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-1/2 x 14 x 2-1/2 (114 x 356 x 64) deep	-	-	4-1/2 x 13-3/4 (114 x 349)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-

SpecSeal Putty Pads , for use with flush device UL Listed Metallic Outlet Boxes installed with steel mud rings or UL Listed Nonmetallic Outlet Boxes in framed wall assemblies. When protective material is used on outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. When nonmetallic box is used with Type NM cable, a 3/16 in. (5 mm) thickness of putty shall be formed around the cable at its connection to the box and extending a min of 1 in. (25 mm). The box composition, max device dimensions, hourly rating, type of stud and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. **Studs** - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. **Stud Cavity Insulation** - Unless indicated as required, stud cavity insulation is optional and may consist of min 3-1/2 in. (89 mm)thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3).

C. **Wall Design** - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

D. **Metallic Outlet Boxes** - Except as indicated in the table below, when steel outlet boxes are used and the boxes are interconnected by means of electrical metallic tube or conduit, a ball of putty is to be installed to plug the open end of each electrical metallic tube (EMT) or conduit within the outlet box. When MC cable is used and/or when the outlet boxes are not interconnected, the ball of putty is not required.

E. **Nonmetallic Outlet Boxes** - The box manufacturer is indicated in the table below. Boxes shall bear a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory.

Model	Max Outlet Box Size in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size in. (mm)	Rating, hr	Stud	Cavity Insulation	Face Plate Type	Putty Ball
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Steel	No
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Plastic	Yes
-	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Wood	-	Steel	Yes
-	4-1/2 x 14 x 2-1/2 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Polyvinyl Chloride	Lamson & Sessions or Carlon	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Phenolic	Allied Moulded Prods	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Polycarbonate	Thomas & Betts	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Phenolic	Thomas & Betts	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	2-1/4 x 3-3/4 x 2-3/4 (57 x 95 x 70) deep	Polyvinyl Chloride	Pass & Seymour	-	1 or 2	Wood	-	Plastic or Steel	N.A.

SpecSeal Putty Pads , for use with maximum 4 by 4 by 2-1/8 in. (102 by 102 by 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 5-1/2 in. (140 mm) wide wood or steel studs and with stud cavities filled with fiberglass (nom 0.5 pcf or 8 kg/m3) or mineral fiber (nom 4 pcf or 64 kg/m3) insulation. When protective material is used on outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the boxes on opposite sides of the wall are not interconnected with conduit or, when interconnected, the open end of the conduit within the outlet box is filled with a ball of putty. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13mm) The seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box.

SpecSeal EP23, EP24 and EP44 Power Shield Box Inserts and SpecSeal Putty Pads , for use with maximum 4 by 4 by 1-1/2 or 2-1/8 in. (102 by 102 by 38 or 54 mm) deep flush device UL Listed **Metallic Outlet Boxes** installed with steel mud rings and with steel or plastic faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 3-1/2 in. (89 mm) wide wood or steel studs. When both protective materials are used with outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the backs of the boxes are minimum 1/2 in. (13 mm) apart and provided that the boxes are not interconnected. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. An insert pad shall be installed to completely cover the back inside surface of each outlet box.

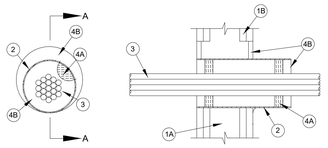
SpecSeal Putty Pads , for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud unless otherwise noted) including nailing tabs and to completely seal against the stud within the stud cavity. Multiple moldable putty pads may be installed on an outlet box to attain the required minimum thickness of putty material. Additional putty material used to seal around each conduit and/or cable fitting on the exterior of each box. A min 3/16 in. (4.8 mm) thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.

SpecSeal EP55 Power Shield Box Inserts , for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Power Shield Box Insert is to be applied to the back surface of the box and may be slit to accommodate communications-circuit accessories. When the Power Shield Box Insert is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-3210

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 3/4 Hr	FT Rating - 3/4 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft (See Items 3 and 4B)	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating at 400°F - Less Than 1 CFM/sq ft (See Items 3 and 4B)	FTH Rating - 3/4 Hr
	L Rating at Ambient - Less Than 5.1 L/S/m² (See Items 3 and 4B)
	L Rating at 204°F - Less Than 5.1 L/S/m² (See Items 3 and 4B)



Section A-A

1. **Wall Assembly** - The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, V300, U400, V400, or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** - Thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-1/2 in. (165 mm) when sleeve (Item 2) is installed. Max diam of opening is 4 in. (102 mm) when sleeve is not used.
   The hourly F and FH rating of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Steel Sleeve - (Optional)** - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), steel conduit, Schedule 5 (or heavier) steel pipe sleeve or nom 0.016 in. thick (0.41 mm, No. 26 ga) galv steel sleeve installed flush with wall surfaces. The annular space between the steel sleeve and periphery of opening shall be min 0 in. (continuous point contact) to max 2 in. (51 mm). When Schedule 5 steel pipe or EMT is used, sleeve may be installed flush with or extend up to 18 in. (46 cm) beyond one or both wall surfaces. Steel sleeve may be installed at an angle not greater than 45 degrees from perpendicular. Schedule 5 steel pipe or EMT sleeves may extend continuously beyond one wall surface. Sleeve to be rigidly supported when extending from the wall surfaces.

3. **Cables** - Aggregate cross-sectional area of cables in opening when a steel sleeve (Item 2) is not used, or within steel sleeve to be max 48 percent of the aggregate cross-sectional area of the opening or sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. When the sleeve is installed, the annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). When the sleeve (Item 2) is not used, the annular space between the cables and the opening shall be a min 0 in. (point contact) to a max 1/2 in. (13 mm). When L Ratings for penetrants are required, min separation between cables and between cables and periphery of opening or the sleeve ox 1/8 in. (3 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
   A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
   B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
   C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
   D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
   E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
   F. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
   G. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
   H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad® or Armored-Clad® cable.
   I. Max 3/C No. 2 (19 mm) diam copper ground cable with or without a PVC jacket.
4. **Firestop System** - The firestop system shall consist of the following:
   A. **Packing Material** - When required (see table in Item 4B), min 1 in. (25 mm) thickness of min 4.0 pfc (64 kg/m ^{3}) mineral wool batt insulation firmly packed into each end of sleeve (Item 2) as a permanent form, packing materials to be recessed from each end of sleeve as required to accommodate thee required thickness of fill material. When the sleeve is not used, the packing material is not required.
   B. **Fill, Void or Cavity Material* - Sealant or Putty** - When sleeve (Item 2) is used, fill material applied to appropriate thickness within steel sleeve as shown in the table below, flush with edges of steel sleeve on both surfaces of wall. Min 1/2 in. (13 mm) thickness of fill material installed into annular space between sleeve and wall flush with both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant or "rope" of putty shall be applied around the perimeter of the sleeve on each side of the wall when sleeve extends beyond surface of wall and is installed at continuous point contact. When sleeve is not used, a min 5/8 in. (16 mm) thickness of fill material shall be applied within the annulus, flush with both surfaces of the wall. At point contact location, apply min 1/4 in. (6 mm) diam bead of fill material at cable/gypsum board interface on both sides of the wall.

Sealant or Putty Type	Thickness, In. (mm)	Packing Material Required
SpecSeal Series SSS Sealant or LCI Sealant	1/2 in. (13)	Yes
SpecSeal Series SSS Sealant or LCI Sealant	1 in. (25)	No
SpecSeal Putty	1 in. (25)	No

SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant or SpecSeal Putty

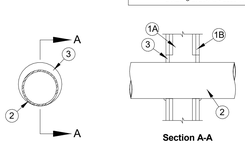
L Ratings apply only when SpecSeal Series SSS or SpecSeal LCI Sealants are used.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-1049

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating at Ambient - Less Than 5.1 L/S/m2
	L Rating at 204°C - Less Than 5.1 L/S/m2



Section A-A

1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, V300, U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 8 in. (102 to 152 mm) wider and 4 to 8 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76mm) clearance is present between the penetrating item and the framing on all four sides.
   B. **Gypsum Board*** - 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 38 in. (965 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

1A. **Metallic Sleeve** - (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) to max 0.105 in. (2.7 mm) thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Longitudinal seam of sleeve welded or overlapped min 1 in. (25 mm). The ends of the steel sleeve shall be flush or recessed max 1/4 in. (6 mm) from wall surfaces.

2. **Through Penetrant** - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** - Nom 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** - Nom 36 in. (914 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Conduit** - Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit, nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or nom 4 in. (102 mm) diam (or smaller) flexible steel conduit.
   D. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. **Stainless Steel Pipe** - Nom 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) stainless steel pipe.

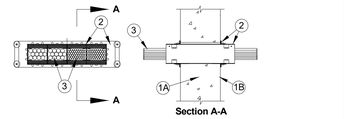
2A. **Through Penetrating Product* - Flexible Metal Piping** - As an alternate to Item 2, one nom 2 in. (51 mm) diam (or smaller) steel flexible metal pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Pipe to be rigidly supported on both sides of the wall assembly.
   OMEGA FLEX INC
   GASTITE, DIV OF
   TITEFLEX WARD MFG L L C

3. **Fill, Void or Cavity Material*** - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between through penetrant and gypsum board, a min 3/8 in. (10 mm) diam bead of fill material shall be applied at the gypsum board/through penetrant interface on both surfaces of wall.
   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-J-3098

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 2 and 4 Hr (See Item 3)	F Ratings - 2 and 4 Hr (See Item 3)
T Ratings - 3/4 and 1 Hr (See Item 3)	FT Ratings - 3/4 and 1 Hr (See Item 3)
L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3)	FH Ratings - 2 and 4 Hr (See Item 3)
L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3)	FTH Ratings - 3/4 and 1 Hr (See Item 3)
	L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3)
	L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3)



Section A-A

1. **Wall Assembly** - Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks*** . Opening to be max 1/4 in. (6 mm) larger than width and height dimensions of firestop device(s).
   See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Firestop Device*** - One, two, three, four or seven firestop device modules ganged together. Each firestop device module consists of a 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long galv steel tube with an intumescent material lining. Firstop device modules to be installed in accordance with the accompanying installation instructions. The space between the firestop device module(s) and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 1/8 in. (3.2 mm). In typical openings, the space between the firestop device and the periphery of the opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Firestop device module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device by means of steel set screws provided with device. Each firestop device module is to be installed with ends projecting an equal distance beyond each surface of the wall assembly. As an option, devices may be cast or grouted into wall assembly. When device is cast or grouted in place, the steel wall plates are optional.
   SPECIFIED TECHNOLOGIES INC - EZ PATH Series 33 Fire Rated Pathway.

2A. **Firestop Device* - Extension Module** - (Optional, Not Shown) - Module attached to ends of 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long firestop device (Item 3) to increase its length to facilitate installation in thicker walls. Each module consists of a 3 by 3 by 9 in. (76 by 76 by 152 mm) long galv steel tube with an intumescent material lining. Extension module to be installed in accordance with the accompanying installation instructions. When module is used, firestop device (Item 2) and extension module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device or extension module(s) by means of steel set screws provided with wall plates. Firestop device and extension module(s) assembly to be installed with ends projecting an equal distance beyond each surface of the wall assembly.
   SPECIFIED TECHNOLOGIES INC - EZ PATH Extension.

3. **Cables** - Cables may represent a 0 to 100 percent visual fill within the loading area for each firestop device module. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types of cables may be used:
   A. Max 400 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 350 kcmil single copper conductor power cable with XLPE jacket and insulation
   C. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   D. Max 3/C No. 10 AWG metal clad or armored cable with steel or aluminum jacket.
   E. Max 3/C No. 8 AWG NM cable (Romex) with PVC insulation and jacket.
   F. Max four pair No. 22 AWG (or smaller) copper conductor data cable with PVC or plenum rated jacketing and insulation.
   G. Max RG/U coaxial cable with fluorinated ethylene insulation and jacketing.
   H. Optical fiber cable with PVC or polyethylene (PE) jacket and insulation and having a max diam of 5/8 in. (16 mm).
   When Item 3A, 3B, 3C, 3D or 3E is used, the F and FH Ratings are 2 hr and the T, FT and FTH Ratings are 3/4 hr. When max 200 pair No. 24 AWG telecommunication cable is used or when Item 3F, 3G or 3H is used, the F and FH Ratings are 4 hr and the T, FT and FTH Ratings are 1 hr.
   The L Rating for each empty firestop device module is less than 1 cfm at ambient and at 400F. When Item 3A is used, the L Rating for each firestop device module with 100 percent visual fill is 4 cfm at ambient and 3 cfm at 400F. When Item 3F is used, the L Rating for each firestop device module with 100 percent visual fill is 1.3 cfm at ambient and less than 1 cfm at 400F.When Item 3G or 3H is used, the L Rating for each firestop device module with 100 percent visual fill is 7 cfm at ambient and 2 cfm at 400F.
   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY DETAILS

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No. 23-145
@Date
ISSUE DATE

DRAWING NO.
T-503

Autodesk Docs://23-145 California Middle School Renewal/23-145_California Middle School Renewal_LP.rvt
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IDF 1.05 EXISTING COMPONENTS:

1. 1U FIBER LIU
2. 2U 48 PORT PATCH PANEL (22 AVAIL.)
3. 2U CABLE MANAGER
4. 1U 48 PORT SWITCH (22 AVAIL.)

IDF 1.05 SCOPE OF WORK:

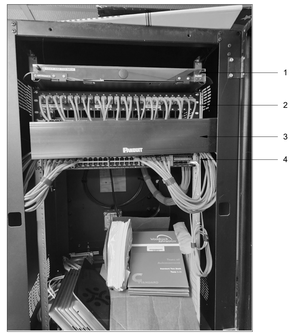
A. REMOVE (E) CABLE MANAGER #3. PROVIDE (N) REAR CABLE MANAGEMENT BAR (ORTRONICS P/N OR-CMBFR0RU) AT PATCH PANEL #2.

B. RELOCATE (E) SWITCH #4 DIRECTLY BELOW (E) PATCH PANEL #2.

C. PROVIDE (N) 12" SLIMLINE CAT6A PATCH CABLES, COLORS PER 27 10 00, TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

D. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY, N1C P/N N1C.L1000. MOUNT AT BOTTOM OF CABINET. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY UPS.

E. RE-LABEL ALL DATA DROP LOCATIONS ORIGINATING FROM THIS IDF TO MATCH ULTIMATE PATCH PANEL CONFIGURATION.



6 DATA RACK LAYOUT - IDF 1.05 - CLASSROOM B1
SCALE: NONE

IDF 1.04 EXISTING COMPONENTS:

1. 1U FIBER LIU
2. 2U CABLE MANAGER
3. 2U 48 PORT PATCH PANEL (0 AVAIL.)
4. 2U CABLE MANAGER
5. 2U 48 PORT PATCH PANEL (0 AVAIL.)
6. 2U CABLE MANAGER
7. 2U 4 PORT PATCH PANEL (7 AVAIL.)
8. 2U CABLE MANAGER
9. 1U 48 PORT SWITCH (0 AVAIL.)
10. 1U 48 PORT SWITCH (0 AVAIL.)
11. 1U 48 PORT SWITCH (7 AVAIL.)

IDF 1.04 SCOPE OF WORK:

A. REMOVE (E) CABLE MANAGERS #2,4,6,8. PROVIDE (N) REAR CABLE MANAGEMENT BAR (ORTRONICS P/N OR-CMBFR0RU) AT (E) PATCH PANELS #3,5,7.

B. RELOCATE (E) SWITCHES #9,10,11 ONE EACH BETWEEN (E) PATCH PANELS #3,5,7 AND ELIMINATE EMPTY RACK SPACES.

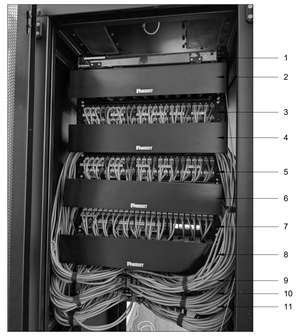
C. PROVIDE 2 EA. (N) 24-PORT PATCH PANELS, SEE KEYNOTE 19.

D. PROVIDE 1 EA. (N) 48-PORT PATCH PANEL, SEE KEYNOTE 20.

E. PROVIDE 2 EA. (N) 48-PORT SWITCHES, SEE KEYNOTE 13.

F. PROVIDE (N) 6" SLIMLINE CAT6A PATCH CABLES, COLORS PER 27 10 00, TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

G. PROVIDE 2 EA. (N) UNINTERRUPTIBLE POWER SUPPLY, N1C P/N N1C.LR2000, WITH BATTERY N1C.L4850EBM2U. MOUNT AT BOTTOM OF CABINET. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY UPS.



5 DATA RACK LAYOUT - IDF 1.04 - STAFF ROOM
SCALE: NONE

IDF 1.03 EXISTING COMPONENTS:

1. 1U FIBER LIU
2. 2U CABLE MANAGER
3. 1U 24 PORT PATCH PANEL (0 AVAIL.)
4. 1U FIBER LIU
5. 2U 48 PORT PATCH PANEL (42 AVAIL.)
6. 1U 48 PORT SWITCH (26 AVAIL.)
7. 4U CCTV SWITCH (6 AVAIL.)
8. 1U UPS

IDF 1.03 SCOPE OF WORK:

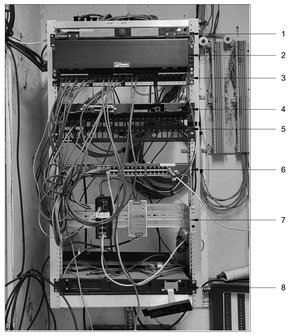
A. PATCH FIBER FEEDING (E) CCTV SWITCH TO (E) FIBER LIU #1, AND MAKE CORRESPONDING CHANGE IN MDF. REMOVE (E) FIBER LIU #4. PROVIDE (N) FIBER PATCH CABLES AS REQUIRED.

B. RELOCATE (E) SWITCH #6 DIRECTLY BELOW (E) PATCH PANEL #3. RELOCATE (E) PATCH PANEL #5 DIRECTLY BELOW (E) SWITCH #6.

C. PROVIDE (N) 6" SLIMLINE CAT6A PATCH CABLES, COLORS PER 27 10 00, TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

D. REMOVE (E) UPS #8 AND DISPOSE OF.

E. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY, N1C P/N N1C.L1000. MOUNT AT LOWEST POSITION IN RACK. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY UPS.



4 DATA RACK LAYOUT - IDF 1.03 - GYM UTILITY ROOM
SCALE: NONE

RACK COMPONENTS:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
①	TELECOMMUNICATIONS RACK, WALL SWING, 40RU-32" DEEP	MIDDLE ATLANTIC	SR-40-32	N/A
	ZERO CLEARANCE LATCH KIT		DWRSR-ZL	N/A
	PLEXI FRONT DOOR		PFD-40	N/A
②	20 AMP POWER STRIP	CHATSWORTH PRODUCTS	12848-701	N/A
③	STANDARD BUS BAR	CHATSWORTH PRODUCTS	10622-010	N/A
④	CUSTOMER CWDM FIBER CHASSIS	EXISTING	EXISTING	N/A
⑤	RESERVED FOR SERVICE PROVIDER LIU	N/A	N/A	N/A
⑥	FIBER OPTIC LIU 1-RU	EXISTING	EXISTING	N/A
⑦	FIBER OPTIC LIU 2-RU	EXISTING	EXISTING	N/A
⑧	NETWORK SWITCH 48G/4SFP+	CISCO	C9300L-48PF-4X-EDU	N/A
	NETWORK SWITCH LICENSE		C9300-DNA-E-48-3Y	N/A
⑨	NETWORK SWITCH 16SFP+/2QSFP+	CISCO	C9500-16X	N/A
	SWITCH POWER SUPPLY		PWR-C4-950WAC-R	N/A
	NETWORK SWITCH LICENSE		C9500-DNA-E-3Y	N/A
⑩	VOIP GATEWAY	EXISTING	EXISTING	N/A
⑪	STACK CABLE	CISCO	C9300L-STACK-KIT2	N/A
⑫	SFP+ TRANSCEIVER	CISCO	SFP-10G-LR	N/A
⑬	19" HORIZONTAL CABLE MANAGER	ORTRONICS	808004759	N/A
⑭	24-PORT PATCH PANEL	ORTRONICS	OR-SPKSU24	N/A
	PATCH PANEL CABLE SUPPORT BAR		OR-CMBFR0RU	N/A
⑮	48-PORT PATCH PANEL	ORTRONICS	OR-SPKSU48	N/A
	PATCH PANEL CABLE SUPPORT BAR		OR-CMBFR0RU	N/A
⑯	UPS	N1C	N1C.LR2000	N/A
⑰	UPS - BATTERY	N1C	N1C.L4850EBM2U	N/A
⑱	24-PORT POE SWITCH, CCTV	EXISTING	EXISTING	N/A
⑲	NETWORK VIDEO RECORDER	I-PRO	NVR-RL-2-96TB-V4	N/A
⑳	CCTV MONITOR / KEYBOARD	TRIPP LITE	B021-000-19-HD2	N/A

MDF GENERAL NOTES:

DEMO WORK PER DEMO SHEETS MUST BE COMPLETED BEFORE REWORK OF THE MDF CAN BEGIN.

MDF SCOPE OF WORK:

A. PROVIDE 2 EA. (N) 120V/20A DEDICATED CIRCUITS IN QUAD BOX ON REAR PAN OF RACK (BY ELEC.)

B. SET RACK RAIL DEPTH SO THAT THE FRONT DOOR WILL BE ABLE TO CLOSE AND LATCH AFTER EQUIPMENT AND PATCH CABLES ARE INSTALLED.

C. PROVIDE ALL (N) EQUIPMENT CALLED FOR IN THE ELEVATION.

D. RELOCATE ALL (E) EQUIPMENT AS NOTED.

E. REMOVE ALL (E) EQUIPMENT NOT NOTED FOR REUSE AND DELIVER TO DISTRICT WAREHOUSE IN GOOD CONDITION.

F. REROUTE, RETERMINATE AND TEST ALL (E) DATA CABLING VIA (N) LADDER RACKING TO (N) MDF RACK.

G. TERMINATE (E) CCTV DATA DROPS ON (N) KEYSTONES UTILIZING (N) PATCH PANEL PROVIDED ADJACENT TO THE (E) CCTV SWITCH.

H. PROVIDE (N) 6" SLIMLINE CAT6A PATCH CABLES TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

I. RE-LABEL ALL DATA DROP LOCATIONS ORIGINATING FROM THE MDF TO MATCH ULTIMATE PATCH PANEL CONFIGURATION.

IDF 1.02 EXISTING COMPONENTS:

1. 1U FIBER LIU
2. 2U 48 PORT PATCH PANEL (0 AVAIL.)
3. 1U 48 PORT SWITCH (8 AVAIL.)
4. 1U 48 PORT SWITCH (XX AVAIL.)
5. 1U 48 PORT SWITCH (XX AVAIL.)
6. 2U CABLE MANAGER
7. 2U 48 PORT PATCH PANEL

IDF 1.02 SCOPE OF WORK:

A. RELOCATE (E) SWITCH #3 DIRECTLY BELOW (E) PATCH PANEL #2.

B. PROVIDE A (N) 24-PORT PATCH PANEL PER KEYNOTE 19.

C. REMOVE (E) CABLE MANAGER #6. PROVIDE (N) REAR CABLE MANAGEMENT BAR (ORTRONICS P/N OR-CMBFR0RU) AT (E) PATCH PANEL #7.

D. RELOCATE (E) PATCH PANEL #7 DIRECTLY BELOW (E) SWITCH #4.

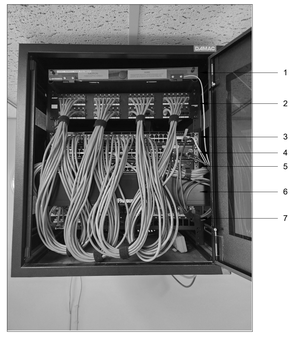
E. RELOCATE (E) SWITCH #5 DIRECTLY BELOW (E) PATCH PANEL #7.

F. (E) PATCH PANEL #1, PORTS 1-48, SHALL BE PATCHED TO (E) SWITCH #3, PORTS 1-4, PROVIDE (N) 12" SLIMLINE CAT6A PATCH CABLES TO REPLACE ALL (E) PATCH CABLES.

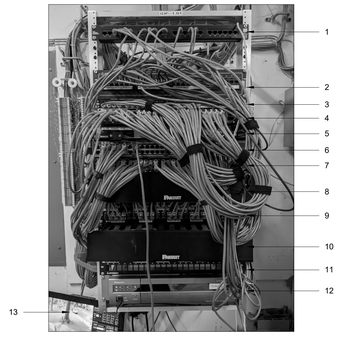
G. FOR (E) SWITCHES #4, 5, PORTS 1-24 SHALL BE PATCHED TO THE PATCH PANEL IMMEDIATELY ABOVE. PORTS 25-48 SHALL BE PATCHED TO THE PATCH PANEL IMMEDIATELY BELOW. PROVIDE (N) 6" SLIMLINE CAT6A PATCH CABLES, COLORS PER 27 10 00, TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

H. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY, N1C P/N N1C.L2000. MOUNT AT BOTTOM OF CABINET. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY UPS.

I. RE-LABEL ALL DATA DROP LOCATIONS ORIGINATING FROM THIS IDF TO MATCH ULTIMATE PATCH PANEL CONFIGURATION.



3 DATA RACK LAYOUT - IDF 1.02 - CLASSROOM 26
SCALE: NONE



2 DATA RACK LAYOUT - IDF 1.01 - CROCKER STORAGE
SCALE: NONE

IDF 1.01 GENERAL NOTES:

DEMO WORK PER DEMO SHEETS MUST BE COMPLETED BEFORE REWORK OF THIS IDF CAN BEGIN. (N) NVR TO BE PROVIDED IN MDF MUST BE INSTALLED AND ACTIVATED BEFORE (E) NVR CAN BE REMOVED.

IDF 1.01 EXISTING COMPONENTS:

1. 1U 24 PORT PATCH PANEL (0 AVAIL.)
2. 2U 24 PORT PATCH PANEL (0 AVAIL.)
3. 1U 24 PORT PATCH PANEL (0 AVAIL.)
4. 1U 48 PORT SWITCH (0 AVAIL.)
5. 1U FIBER LIU
6. 1U 48 PORT SWITCH (12 AVAIL.)
7. 1U 48 PORT SWITCH (0 AVAIL.)
8. 2U CABLE MANAGER
9. 2U 48 PORT PATCH PANEL (0 AVAIL.)
10. 2U CABLE MANAGER
11. 2U 48 PORT PATCH PANEL (27 AVAIL.)
12. 2U NVR
13. NVR VIDEO MONITOR AND WALL MOUNT

IDF 1.01 SCOPE OF WORK:

A. REMOVE (E) NVR #12 AND VIDEO MONITOR #13, AND RETURN TO DISTRICT WAREHOUSE IN GOOD CONDITION.

B. RELOCATE (E) FIBER LIU #5 AS HIGH IN RACK AS POSSIBLE.

C. (E) PATCH PANELS #2, 3 SHOULD HAVE ALL DROP WIRING REMOVED PER DEMO SHEETS. IF ANY DROPS ARE DETERMINED TO REMAIN, RETERMINATE ON NEW KEYSTONES IN NEW PATCH PANELS AND REMOVE PATCH PANELS 2,3. LABEL AND TEST ALL NEW TERMINATIONS.

D. PROVIDE (N) 24 PORT PATCH PANEL PER KEYNOTE 14.

E. REMOVE (E) CABLE MANAGERS #8,10. PROVIDE (N) REAR CABLE MANAGEMENT BARS (ORTRONICS P/N OR-CMBFR0RU) AT (E) PATCH PANEL #9,11.

F. RELOCATE (E) SWITCH #4 DIRECTLY BELOW (N) PATCH PANEL PROVIDED IN "D".

G. RELOCATE (E) PATCH PANEL #9 DIRECTLY BELOW (E) SWITCH #4.

H. RELOCATE (E) SWITCH #5 DIRECTLY BELOW (E) PATCH PANEL #9.

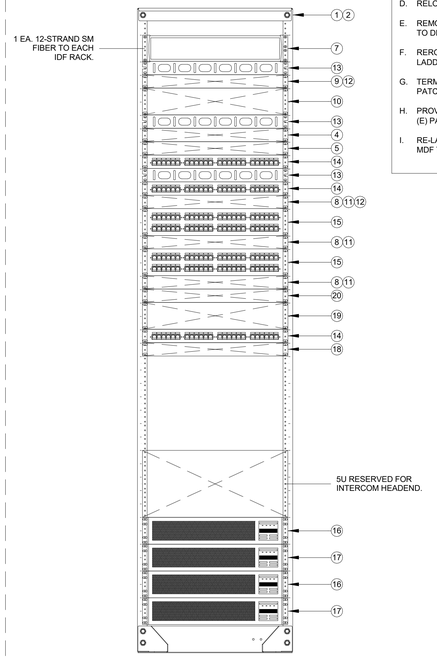
I. RELOCATE (E) PATCH PANEL #11 DIRECTLY BELOW (E) SWITCH #5.

J. RELOCATE (E) SWITCH #7 DIRECTLY BELOW (E) PATCH PANEL #11.

K. PROVIDE (N) 6" SLIMLINE CAT6A PATCH CABLES, COLORS PER 27 10 00, TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS.

L. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY, N1C P/N N1C.L2000. MOUNT AT BOTTOM OF CABINET. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY UPS.

M. RE-LABEL ALL DATA DROP LOCATIONS ORIGINATING FROM THIS IDF TO MATCH ULTIMATE PATCH PANEL CONFIGURATION.



1 DATA RACK LAYOUT - MDF 1.00
SCALE: NONE

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CONSULTANT

SEAL

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL RENEWAL

Drawing Title
TECHNOLOGY SINGLE LINE DIAGRAMS

Drawn By: JG
Checked By: CC

NO.	DATE	ISSUE

Project No.: 23-145
@Date
ISSUE DATE

DRAWING NO.
T-601

Autodesk Docs://23-145 California Middle School Renewal/23-145_California Middle School Renewal_LVFA.rvt
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EQUIPMENT INTERCOM SCHEDULE:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
1	TELECENTER U IP CONTROLLER	RAULAND	TCC2000	N/A
2	TELECENTER U ADMIN CONSOLE		TCC2045	N/A
3	TELECENTER U AUX. IN/OUT. MODULE		TCC2033	N/A
	UNIVERSAL RACK MOUNTING KIT		TCC2099	N/A
4	TELECENTER U PROGRAM LINE INPUT MODULE		TCC2055	N/A
5	ZONE PAGE MODULE		TCC2022	N/A
6	ZONE PAGE AMPLIFIER		TCC3022	N/A
7	ZONE PAGE AMPLIFIER AUX POWER SUPPLY		TCC3022PS	N/A
8	AUDIO POWER AMPLIFIER	POWERSOFT	MEZZO 322A	N/A
9	24-PORT OR 48-PORT PATCH PANEL	SEE DATA SINGLE LINE RACK COMPONENTS BELOW FOR MORE INFORMATION.		(N) OR (E) AS NOTED
10	48-PORT NETWORK SWITCH	SEE DATA SINGLE LINE RACK COMPONENTS BELOW FOR MORE INFORMATION.		(N) OR (E) AS NOTED

A EQUIPMENT SCHEDULE INTERIOR SURFACE CLOCK/SPEAKER COMBO:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT IN ENCLOSURE
IP DIGITAL CLOCK	RAULAND	TCC3011S	N/A
BAFFLE ASSEMBLY WITH SPEAKER	RAULAND	ACC3011S	N/A
SURFACE MOUNT ENCLOSURE CLOCK/SPEAKER COMBO	RAULAND	ACC3011SBB	N/A

B EQUIPMENT SCHEDULE INTERIOR SURFACE SPEAKER:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT INSIDE ENCLOSURE
8 OHM, 8" SPEAKER WITH RJ45 CONNECTOR	RAULAND	US0880	N/A
SPEAKER BAFFLE	RAULAND	ACC1003	N/A
SURFACE MOUNT SPEAKER ENCLOSURE	RAULAND	ACC1112	N/A

C EQUIPMENT SCHEDULE INTERIOR DROP CEILING SPEAKER (IP MODULE):
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT TO SPEAKER
2'X2' 8 OHM DROP-IN SPEAKER WITH RJ45 CONNECTOR	RAULAND	BAFKIT2X2L8RJ	N/A

D EQUIPMENT SCHEDULE EXTERIOR SURFACE SPEAKER:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT INSIDE BUILDING
TELECENTER U BREAKOUT MODULE	RAULAND	603101	MOUNT INSIDE BUILDING
8 OHM, 8" MOISTURE RESISTANT SPEAKER	LOWELL	8C10MRB	N/A
GRILLE VANDAL RESISTANT	RAULAND	ACC1012	N/A
SURFACE MOUNT SPEAKER ENCLOSURE	RAULAND	ACC1113	N/A
(N) SURFACE MOUNTED 4 GANG BACKBOX - WHITE	FSR	SMWB-4G-WHT	MOUNT INSIDE BUILDING

E EQUIPMENT SCHEDULE INTERIOR DROP CEILING SPEAKER (25V):
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

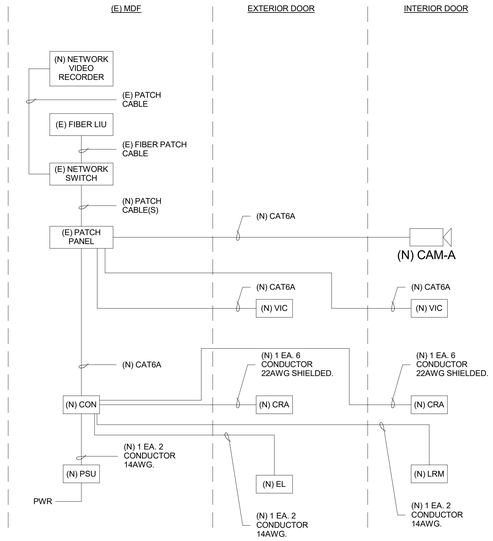
DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
CEILING SPEAKER ASSEMBLY	RAULAND	BAFKIT2X2L	N/A
24" CEILING GRID CROSS T	GENERIC	MATCH EXISTING	N/A

F EQUIPMENT SCHEDULE LARGE MESSAGE BOARD:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

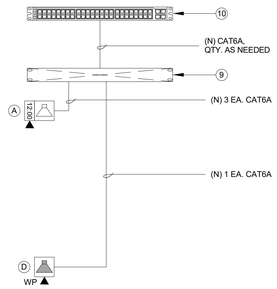
DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
LARGE MESSAGE BOARD	RAULAND	TCC3012L	N/A

G EQUIPMENT SCHEDULE INTERIOR SURFACE SPEAKER (25V):
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
SURFACE SPEAKER ASSEMBLY	RAULAND	ACCWB5	N/A



7 NETWORK ONE-LINE DIAGRAM
SCALE = NONE



6 INTERCOM SPEAKER ONE-LINE - IDF 1.05 - CLASSROOM B1
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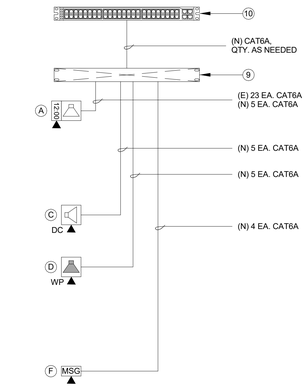

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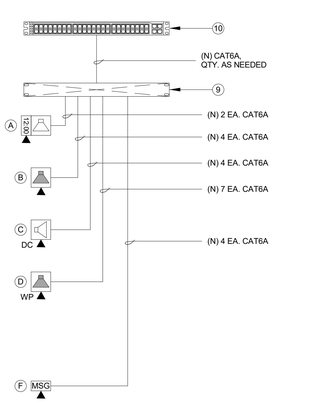

4 INTERCOM SPEAKER ONE-LINE - IDF 1.03 - GYM UTILITY ROOM
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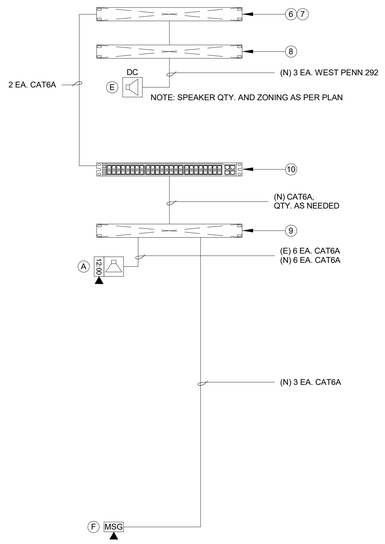

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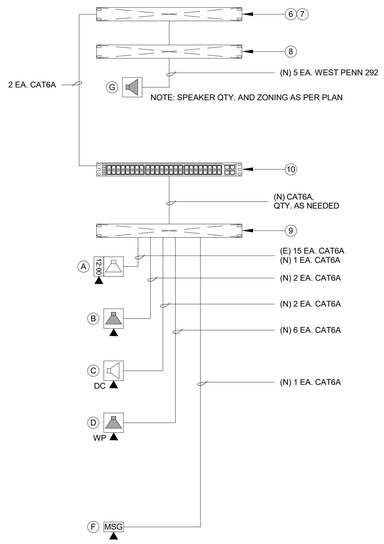

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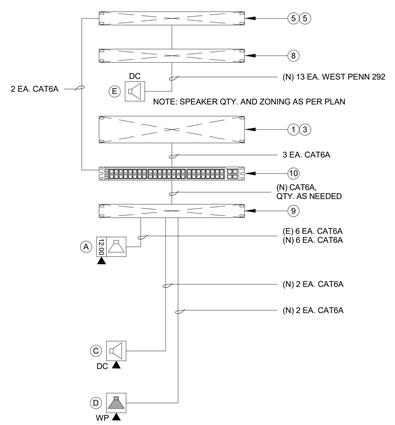

1 INTERCOM SPEAKER ONE-LINE - MDF 1.00
SCALE: NONE

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Drawn By: JG
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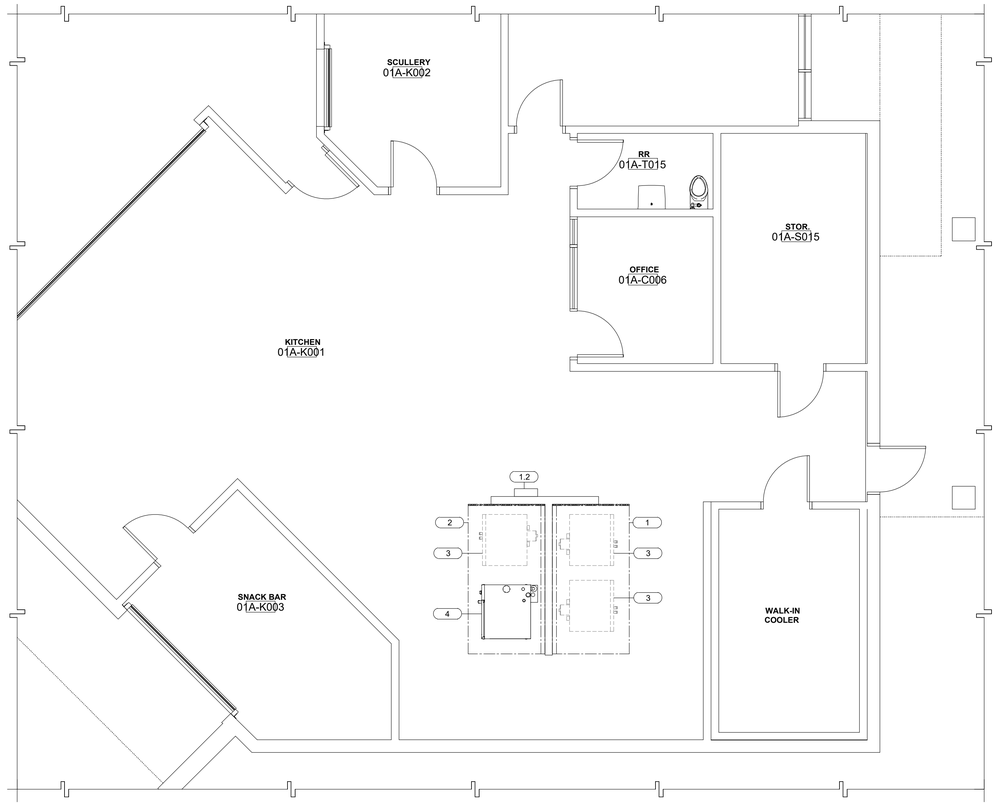

FOODSERVICE EQUIPMENT FLOOR PLAN

SCALE : 1/4" = 1'-0"

1 / FS1.1

EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	MANUFACTURER	MODEL NUMBER	EQUIPMENT REMARKS	EQUIPMENT WT.	ANCHORAGE DETAIL	NOTES
1	1	EXHAUST HOOD (TYPE I)	CAPTIVE AIRE	6030 ND-2	EXISTING TO REMAIN			
1.2	1	FIRE SUPPRESION SYSTEM FOR HOODS 1 AND 2	ANSUL	R-102 UL-300 COMPLIANT	EXISTING TO REMAIN			1
2	1	EXHAUST HOOD (TYPE I)	CAPTIVE AIRE	6030 ND-2	EXISTING TO REMAIN			
3	3	OVEN, CONVECTION, GAS	SOUTHBEND		EXISTING TO REMAIN			
4	1	OVEN-STEAMER, COMBINATION, GAS	RATIONAL USA	ICOMBI CLASSIC 6-FULL SIZE G/6-FS G STAND I				

FOODSERVICE KEYNOTES:

1. EXISTING ANSUL FIRE SUPPRESION SYSTEM TO BE UPDATED SEE SHEET FS5.1

FOODSERVICE DRAWINGS SHEET LIST

APPLICABLE CODE: 2022 CBC

FOODSERVICE EQUIPMENT COMPONENT ANCHORAGE NOTE

ALL FOODSERVICE COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THEN 400 POUNDS AND HAVING A CENTER MASS 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTIONS SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PRE-APPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☒ MD☒ PP☒E ☒ Option 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐E ☐ Option 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) # .

HEALTH DEPARTMENT NOTES:

1. PROVIDE THERMOMETER IN ALL REFRIGERATION UNITS CONTAINING PERISHABLE FOODS.
2. PROVIDE PROBE THERMOMETER FOR CHECKING HOT AND COLD FOODS.
3. FOOD STORAGE SHELVES SHALL BE MINIMUM SIZE (6) INCHES ABOVE FLOOR.
4. ALL EQUIPMENT SHALL MEET OR BE EQUIVALENT TO "NSF" STANDARDS.
5. PROVIDE GARMENT STORAGE AREA: LOCKER, CABINET OR HANGERS FOR EMPLOYEE GARMENTS.
6. RODENT AND INSECT-PROOF ALL EXTERIOR DOORS AND WINDOWS. PROVIDE HEAVY-DUTY SELF-CLOSERS ON ALL EXTERIOR DOORS AND RESTROOM DOORS. SEAL ALL HOLES OR GAPS AROUND PIPES ENTERING BUILDING.
7. EXTERIOR DOORS SHALL BE RODENT PROOF WITH NO OPENINGS GREATER THAN 1/4 INCH.
8. PROVIDE HARDWOOD, METAL, FORMICA OR OTHER APPROVED MATERIALS, SMOOTH WITH SEALER ON ALL TABLE, COUNTERS, SHELVES, AND OTHER FOOD CONTACT SURFACES.
9. PROVIDE HAZARDOUS SUBSTANCE LOCATION: SEPARATE CABINET, ROOM OR DESIGNATED AREA FOR STORAGE OF PESTICIDE AND CLEANING COMPOUNDS.
10. INSTALL EQUIPMENT TO FACILITATE CLEANING. PLACE FLOOR MOUNTED UNITS ON CASTERS, MINIMUM SIX (6) INCHES HIGH, ROUND, METAL LEGS, OR SEAL IN POSITION ON MINIMUM FOUR (4) INCH CURB.
11. UNPACKAGED PROCESSED FOODS ON DISPLAY SHALL BE EFFECTIVELY SHIELDED OR COVERED.
12. PROVIDE SOAP AND TOWEL DISPENSERS AT ALL HAND WASHING SINKS.
13. FLOOR SINKS SHALL BE INSTALLED FLUSH WITH FLOOR AND READILY ACCESSIBLE FOR CLEANING.
14. GREASE INTERCEPTORS SHALL BE INSTALLED READILY ACCESSIBLE FOR CLEANING.
15. PROVIDE PROTECTIVE COVERS ON ALL LIGHTS IN FOOD PREPARATION, OPENED FOOD STORAGE ROOM(S), UTENSIL WASH AREAS, OR USE SHATTERPROOF BULBS.
16. LIGHTING REQUIREMENTS:
    -MINIMUM 50FT. CANDLES REQUIRED IN FOOD PREP AREA
    -MINIMUM 20FT. CANDLES REQUIRED IN RESTROOMS AND BARS
    -MINIMUM 10FT. CANDLES REQUIRED IN REFRIGERATORS
    -MINIMUM 10FT. CANDLES REQUIRED IN STORAGE AREAS
    -LIGHTING SHALL BE SHATTERPROOF OR SHIELDED
17. EXISTING FIXTURES, FINISHES, AND EQUIPMENT SHALL BE IN OPERABLE CONDITION AND SUBJECT TO FIELD APPROVAL.
18. WALLS & CEILING IN THE RESTROOMS, PREPARATION, STORAGE, AND JANITORIAL AREAS SHALL BE CONSTRUCTED OF APPROVED MATERIALS SO AS TO BE SMOOTH, WASHABLE, AND EASY TO CLEAN.

FLOOR LEGEND

SYMBOL/ABBREVIATION	DESCRIPTION	SYMBOL	DESCRIPTION
OFCI	OWNER FURNISH / CONTRACTOR INSTALLED	30" CLR. / 48" CLR.	ACCESSIBLE CLEARANCES AND SYMBOL 30"x48" MIN CLEARANCE
OFOI	OWNER FURNISH / OWNER INSTALLED		OUTLINE OF FOODSERVICE EQUIPMENT
FSEC	FOODSERVICE EQUIPMENT CONTRACTOR		FOODSERVICE EQUIPMENT BELOW EQUIPMENT TOP
VFVI	VENDER FURNISH / VENDER INSTALLED		FOODSERVICE EQUIPMENT ABOVE EQUIPMENT TOP
(E), EXIST	EXISTING FOODSERVICE EQUIPMENT		MOBILE FOODSERVICE EQUIPMENT
(F)	FUTURE FOODSERVICE EQUIPMENT	FE	FIRE EXTINGUISHER & CABINET REFER TO ARCH. DRAWINGS FOR FIRE EXTINGUISHER LOCATIONS
	BUILDING WALLS (SEE ARCH. DWGS.)	FS.1	SHEET NUMBER
1 / 1	KEY / SHEET NOTE	W.H.	WATER HEATER (SEE PLUMBING ENG. DWG.)
1	ITEM NUMBER SYMBOL (SEE EQUIPMENT SCHEDULE FOR DESCRIPTION)	A / FS0.1 / B	ELEVATION INDICATOR SYMBOL
KITCHEN / 1	ROOM/ AREA NAME AND ROOM NUMBER		
C	COLUMN GRIDS WITH COLUMN INDICATORS		
48x91/18	STORAGE SHELVING SIZES (Width x Length)		

North

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AMD FOODSERVICE DESIGN

SEAL

LICENSED ARCHITECT — REGISTERED PROFESSIONAL — NO. C30650 REN. 2-28-25 — STATE OF CALIFORNIA

DSA APP. #:

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
FOODSERVICE EQUIPMENT FLOOR PLAN

Drawn By

Checked By

NO.	DATE	ISSUE

Project No. 23-145

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Drawing No. FS1.1

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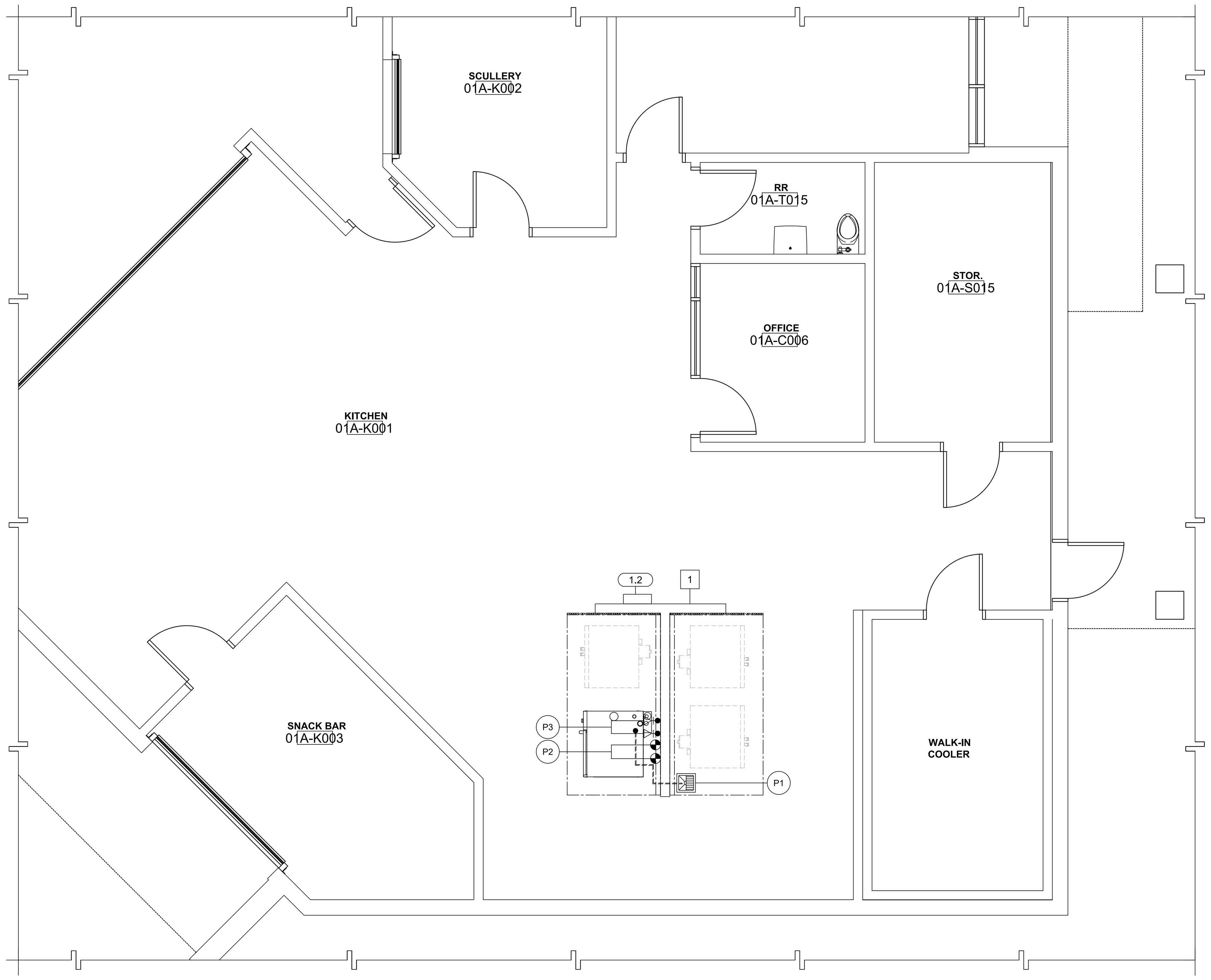


FOODSERVICE EQUIPMENT FLOOR PLAN

1 / FS2.1

SCALE : 1/4" = 1'-0"

PLUMBING SCHEDULE

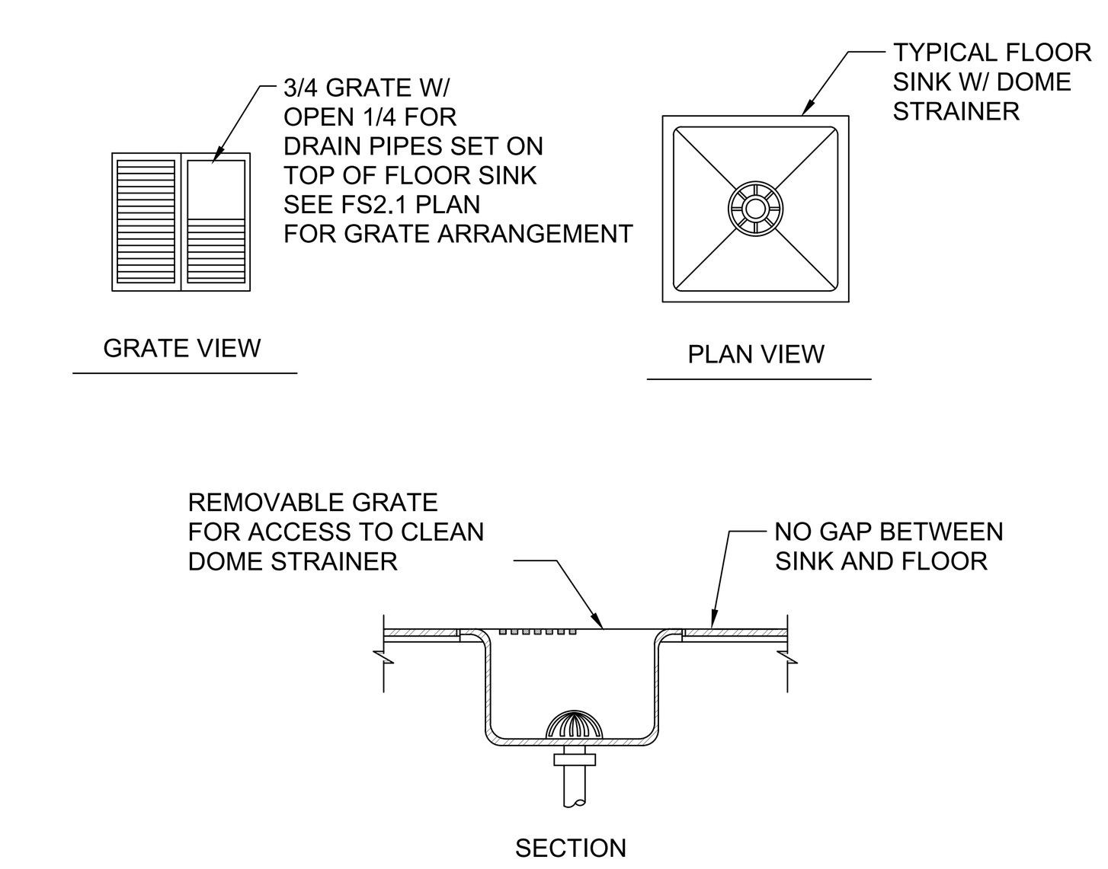
PLUM. NO.	ITEM. NO.	DESCRIPTION	QTY.	WATER CONN. SIZE C.W.	WATER CONN. SIZE H.W.	WATER HGT.@ WALL	WASTE CONN. SIZE DIR.	WASTE CONN. SIZE INDIR.	WASTE HGT.@ WALL	GAS BTU/HR (x1,000)	GAS CONN. SIZE	GAS HGT. @ WALL	REMARKS	NOTE(S)
P1	-	FLOOR SINK	1 EA.	-	-	-	-	-	0"	-	-	-	INSTALL FLUSH WITH FINISH FLOOR, PROVIDE GRATE COVER W/ DOME STRAINER, REFER TO PLUMBING PLANS FOR TYPE AND SIZE.	
P2	4	COMBI OVEN (TOP & BOTTOM OVEN) GAS CONNECTION/ WASTE CONNECTION	2EA.	-	-	-	-	2"	-	105	3/4"	6" / 20"	PROVIDE 2" INDIRECT DRAIN TO F.S P1.1. (CROME OR PAINT SILVER) FROM TOP AND BOTTOM OVENS	
P3	4	COMBI OVEN (TOP/BOTTOM) WATER CONNECTION	2EA.	3/4"	-	24" / 48"	-	-	-	-	-	-	PROVIDE S.O.V., RUN PIPING TO UNIT CONNECTION.	

PLUMBING KEY NOTE(S):

1. WATER HAMMER ARRESTOR (MEETING ASSE-1010 STANDARD) BY PLUMBER IN SUPPLY LINE.
2. WATER PRESSURE 15-25 PSI- IF HIGHER, FURNISH PRESSURE REGULATOR VALVE WITH INTERNAL THERMAL EXPANSION BYPASS BY PLUMBER.
3. CONTRACTOR TO VERIFY UTILITY REQUIREMENTS FOR OWNER FURNISHED EQUIPMENT

FIRE SYSTEM NOTE:

1. FURNISH AUTOMATIC GAS SHUT-OFF VALVE INCLUDING ANY NECESSARY ACCESS PANEL. CONTRACTOR SHALL INSTALL THE AUTOMATIC SHUT-OFF VALVE IN AN ACCESSIBLE LOCATION. REFER TO PLUMBING DRAWINGS FOR GAS VALVE LOCATION.



NOTE:
FLOOR SINK DETAIL IS FOR REFERENCE ONLY. FOR FLOOR SINK TYPE AND SIZE REFER TO PLUMBING PLANS.

FLUSH FLOOR SINK DETAIL

3 / FS2.1

SCALE : NONE

PLUMBING NOTES

1. PLUMBING CONTRACTOR TO VERIFY ALL INCOMING SERVICE AND MAKE FINAL HOOK-UPS TO ALL APPLICABLE EQUIPMENT AND TO PROVIDE ALL PIPING, TEES, ELLS, TRAPS, FILTERS, REGULATORS, FAUCETS, ETC., UNLESS SPECIFICALLY STATED OTHERWISE.
2. ALL HORIZONTAL DIMENSIONS SHOWN ON PLAN ARE FROM FINISHED FACE OF WALL TO CENTERLINE OF STUB-OUT OR FROM CENTERLINE OF STUB-OUT TO CENTERLINE OF STUB-OUT, UNLESS NOTED OTHERWISE ON PLAN OR DETAILS.
3. (VERIFY ALL DIMENSIONS)
4. SYMBOLS NOTED +24", +48", ETC., INDICATES TO STUB-OUT OF WALL AT HEIGHT INDICATED. HEIGHT IS GIVEN FROM FINISHED FLOOR (NOT FINISHED CURB) TO CENTERLINE OF STUB-OUT. SYMBOLS INDICATED "STUB-UP" AND "STUB-DOWN" ARE TO EXTEND ABOVE FINISHED FLOOR AND/OR BELOW FINISHED CEILING AT LOCATION SHOWN.
5. PLUMBING STUBS AND CONNECTIONS SHOWN ON PLANS ARE FOR EQUIPMENT FURNISHED BY THE FOOD SERVICE EQUIPMENT CONTRACTOR.
6. FLOOR SINKS SHOWN ARE TO BE SET FLUSHED WITH TOP OF FINISHED FLOOR. FLOOR SINKS INDICATED HALF-IN AND HALF-OUT OF EQUIPMENT TO BE SET FLUSHED WITH TOP OF FINISHED FLOOR. FLOOR SINKS LOCATED COMPLETELY WITHIN EQUIPMENT AREA TO BE SET FLUSHED WITH TOP OF FINISHED FLOOR.
7. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL REMOVABLE COVERS OR GRATES FOR ALL FULLY OR PARTIALLY EXPOSED FLOOR SINKS. GRATES TO HAVE 1/2" MAX OPENINGS WHERE DRAIN IS EXPOSED TO P.O.T OR TO PEDESTRIAN WAYS TYP.
8. PLUMBING CONTRACTOR SHALL SEAL ALL PLUMBING PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS. WATERTIGHT AND VERMIN-PROOF.
9. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL SHUT-OFF VALVES ON ALL WATER AND GAS LINES, INCLUDING VALVES IN FIXTURES, LOCATED IN SUCH A WAY AS TO BE ACCESSIBLE WITHOUT USE OF TOOLS.
10. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL FOR ALL APPLICABLE EQUIPMENT, A TRAPPED FLOOR SINK WITH A LEGAL AIR GAP DRAIN LINE (INDIRECT WASTE) TO FLOOR SINK. INSULATE ALL DRAIN LINES FROM ICE BINS, ICE MACHINES, REFRIG. EQUIP., ETC..

FOODSERVICE PLUMBING LEGEND

ABREV./SYMB.	DESCRIPTION	SYMBOL	DESCRIPTION
C.W.	COLD WATER	P1	PLUMBING SCHEDULE REFERENCE, REFER TO FS2.1 FOR SCHEDULE
H.W.	HOT WATER	1 / 1	SHEET AND/OR KEY NOTE
DIR.	WASTE (DIRECT CONNECTION)		COLD WATER INLET
INDIR.	INDIRECT WASTE (AIR GAP)		HOT WATER INLET
LAV.	LAVATORY		WATER CONNECTION TO EQUIPMENT
W.C.	WATER CLOSET		SHUT OFF VALVE (S.O.V.)
F.S.	FLOOR SINK		COLD WATER SHUT OFF VALVE
P.C.	PLUMBING CONTRACTOR		GAS SHUT-OFF VALVE
G.C.	GENERAL CONTRACTOR		FLOOR SINK
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR		FLOOR DRAIN
S.O.V.	SHUT OFF VALVE		WASTE DOWN
GPH	GALLONS PER HOUR		GAS INLET
PSI	POUNDS PER SQUARE INCH		WALK-IN DRAIN LINE
(F)	DEGREES FAHRENHEIT		I.D. DRAIN LINE
CONN.	CONNECT		
LOC.	LOCATE		

PLUMBING PLAN SHEET NOTES

1. GAS SHUT-OFF VALVE FOR ANSUL SYSTEM WITH ACCESS DOOR. REFER TO PLUMBING PLANS FOR LOCATION.

North

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AMD FOODSERVICE DESIGN

SEAL

LICENSED ARCHITECT
DEREK M. LABRECQUE
NO. C30650
REN. 2-28-25
STATE OF CALIFORNIA

DSA APP. #:

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title: FOODSERVICE EQUIPMENT PLUMBING FLOOR PLAN

NO.	DATE	ISSUE

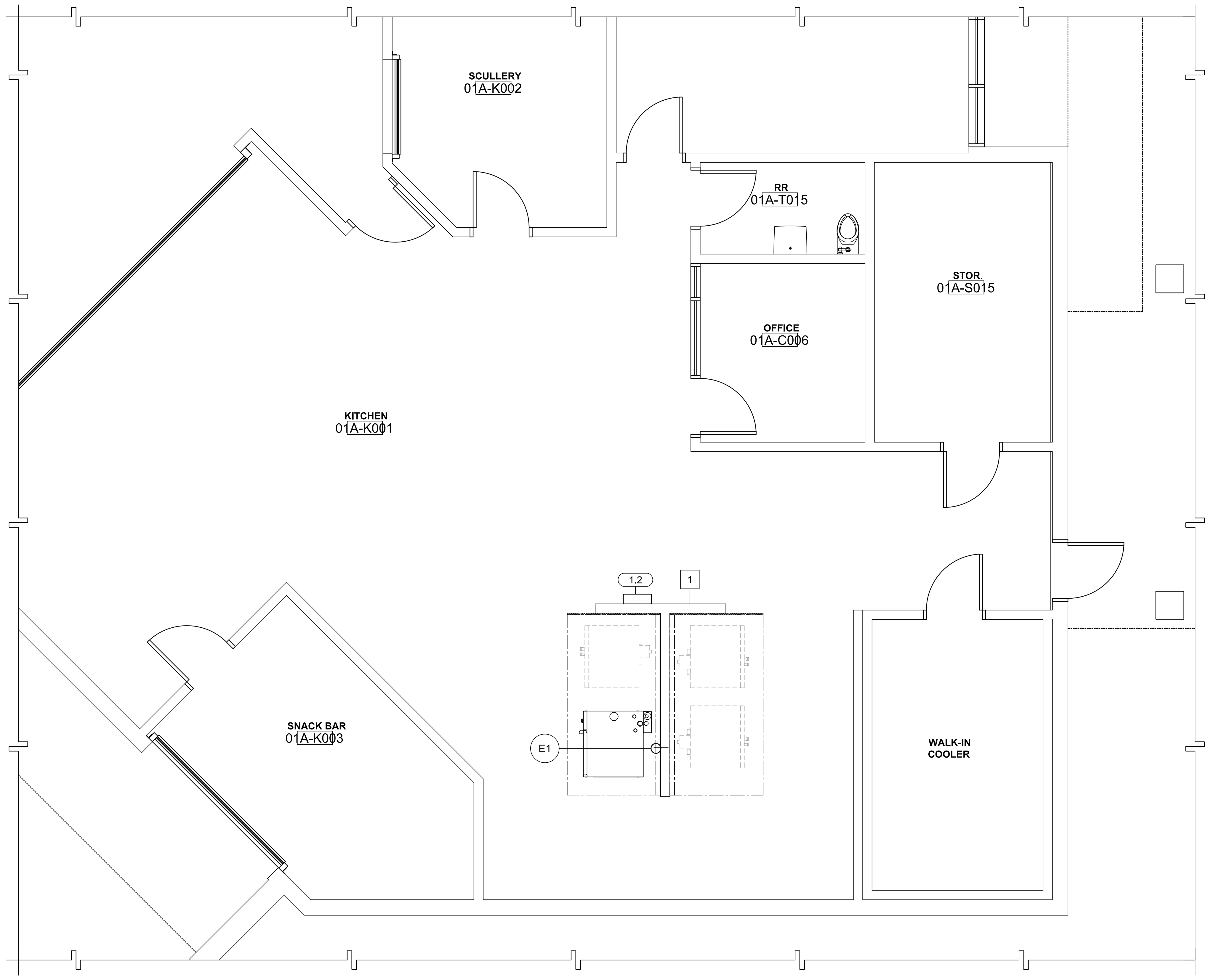
Drawn By

Checked By

Project No. 23-145

Date 11/3/2023

Drawing No. FS2.1



FOODSERVICE EQUIPMENT ELECTRICAL FLOOR PLAN

SCALE : 1/4" = 1'-0"

1
FS3.1

ELECTRICAL SCHEDULE

ELEC. NO.	ITEM NO.	DESCRIPTION	QTY.	VOLT.	PH	DIRECT	PLUG	NEMA	LOAD WATT	LOAD AMPS. DRAW	LOAD HP	OUTLET HEIGHT	REMARKS	NOTE(S)
E1	4	DOUBLE STACK COMBI OVEN	2EA.	208	1	-	X	6-15R	.77 KW	3.7	-	+54" / +30"	PROVIDE SIMPLEX RECEPTACLE IN WALL (1)EA. UPPER DECK AND (1) EA. LOWER DECK TOTAL OF (2) UNIT PROVIDED WITH CORD SET (NEMA 6-15P)	1

ELECTRICAL KEYNOTES:

1. ELECTRICAL CONTRACTOR TO PROVIDE INTERLOCK WIRING FROM FIRE PROTECTION SYSTEMS TO ELEC. SHUNT TRIP BREAKERS.

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ELECTRICAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ROUGH-INS, FINAL CONNECTIONS AND INTER-CONNECTIONS TO THE FOOD SERVICE EQUIPMENT
2. CONNECTIONS SHOWN ARE FOR THE FOOD SERVICE EQUIPMENT ONLY. REFER TO ELECTRICAL DRAWINGS FOR CONVENIENCE OUTLETS AND ADDITIONAL REQUIREMENTS.
3. RECEPTACLES, JUNCTION/HANDY BOXES INDICATED AT WALLS SHALL BE CONCEALED IN THE WALL AND STUBBED OUT OF THE WALL AT THE HEIGHT INDICATED.
4. RECEPTACLES, JUNCTION/HANDY BOXES INDICATED AT WALLS SHALL BE CONCEALED IN THE WALL AT THE HEIGHT INDICATED.
5. VERTICAL DIMENSIONS ARE GIVEN FROM FINISHED FLOOR TO CENTER LINE OF ROUGH-IN LOCATION.
6. UTILITIES WHEREVER POSSIBLE SHALL BE BROUGHT IN FROM ABOVE, VERIFY THE UTILITY REQUIREMENTS OF OWNER FURNISHED AND/OR EXISTING EQUIPMENT.
7. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND/OR INSTALL ALL JUNCTION/HANDY BOXES, EXTENSION RINGS, DISCONNECT WITCHES AS SHOWN, CONVENIENCE OUTLETS WITH STAINLESS STEEL OVERS, SWITCHES, CONNECTORS, CONTROLS AND OTHER ACCESSORIES THAT ARE NOT AN INTEGRAL PART OF THE FOOD SERVICE EQUIPMENT AS REQUIRED TO MAKE FINAL CONNECTIONS TO THE EQUIPMENT FOR A COMPLETE AND OPERABLE OPERATION MEETING ALL APPLICABLE CODES AND ORDINANCES.
8. JUNCTION/HANDY BOXES, CONVENIENCE OUTLETS AND SPECIAL PURPOSE OUTLETS SHOWN IN FABRICATED WORK TABLES AND COUNTERS SHALL BE FURNISHED BY FABRICATOR. ELECTRICAL CONTRACTOR TO PROVED ALL WIRING & RECEPTACLES.

ELECTRICAL PLAN LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	(simplex outlet symbol)	SIMPLEX OUTLET SEE SCHEDULE FOR VOLTAGE
CLG.	CEILING	(J)	JUNCTION BOX
CONN.	CONNECT	▲	DATA OUTLET
E.C.	ELECTRICAL CONTRACTOR	(P)	EMPTY OCTAGONAL BOX W/ CONDUIT TO +2" ABOVE CEILING BY E.C
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR	[J]	STUBBED-UP JUNCTION BOX
G.C.	GENERAL CONTRACTOR	(boxed duplex outlet symbol)	STUBBED-UP CONVENIENCE OUTLET
P.R.P.	PRESSURE RELIEF PORT	(boxed simplex outlet symbol)	STUBBED-UP SIMPLEX OUTLET
S.F.	STAINLESS STEEL FABRICATOR	[▲]	STUBBED-UP DATA OUTLET
M.C.	MECHANICAL CONTRACTOR	$	WALL MOUNTED SWITCH BY E.C
LOC.	LOCATE		
E1	ELECTRICAL SCHEDULE REFERENCE, REFER TO FS3.1 FOR SCHEDULE		
1 [1]	SHEET AND/OR KEY NOTE		
(duplex outlet symbol)	DUPLEX CONVENIENCE OUTLET 115V/1Ø UNLESS OTHERWISE NOTED		

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DSA APP. #:

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
FOODSERVICE EQUIPMENT ELECTRCIAL FLOOR PLAN

Drawn By

Checked By

NO.	DATE	ISSUE

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©Date 11/3/2023

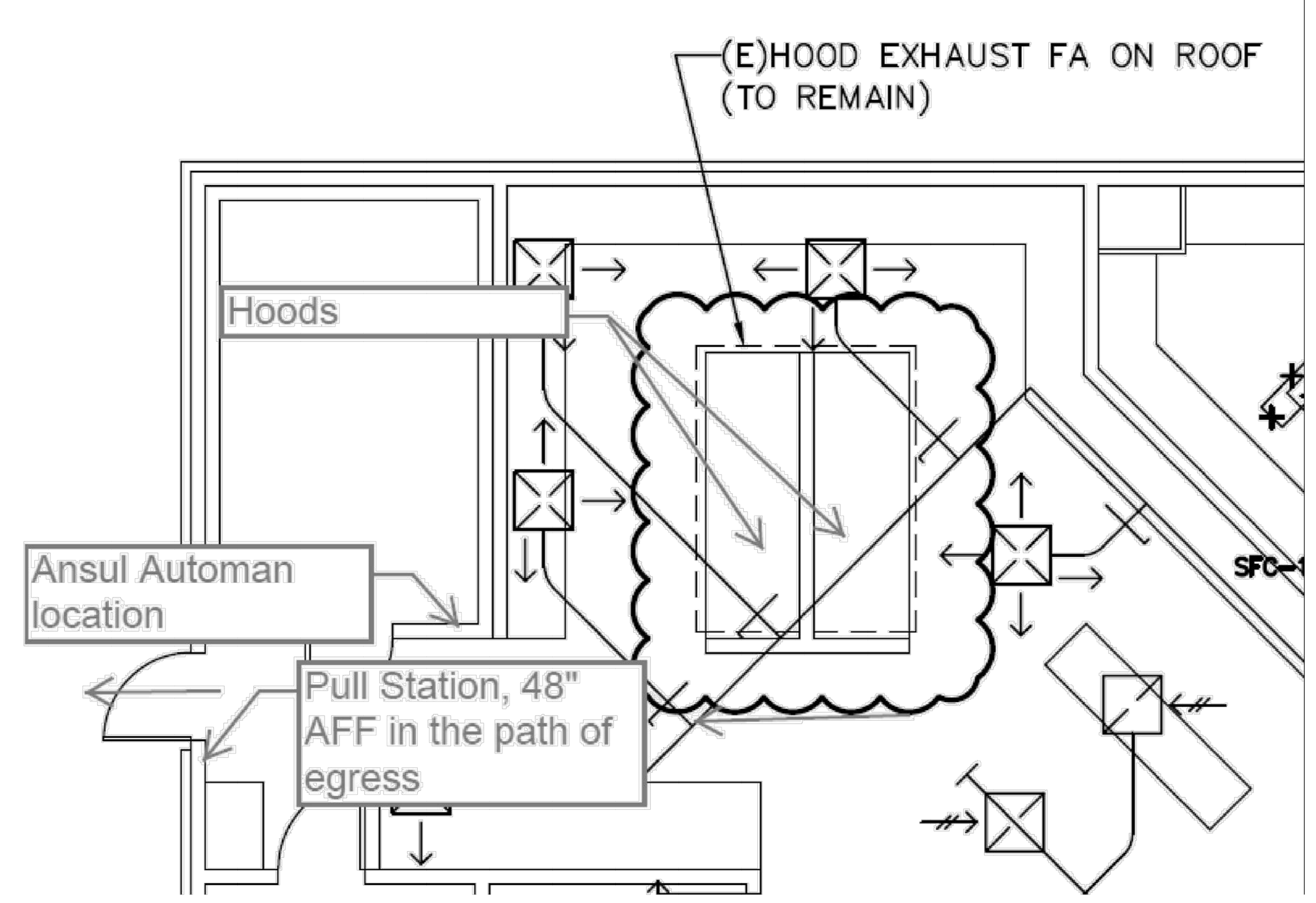
Drawing No.
FS3.1

Fire System Parts List Key

FIRE SYSTEM NO.	TAG	KEY NUMBER - PART DESCRIPTION	QTY. BY FACTORY	QTY. BY DIST.
1		0 - 0 - METALCAP-CB BLOWOFF CAP - Metal	7	0
		1 - 1 - AT - 1.5 TANK(#1A) - 1.5 Gallon SS Tank (for use with Automan Release, Actuator, or SS Enclosure (UL/ULC))	0	1
		1 - 1 - AT - 3.0 TANK(#1B) - 3.0 Gallon SS Tank (for use with Automan Release, Actuator, or SS Enclosure (UL/ULC))	0	1
		2 - 2 - AP - AR AUTOMAN RELEASE - Ansul Automan Mechanical Release (UL)429853 Tank sold separately	0	1
		3 - 3 - AP - AE ENCLOSURE - Stainless Steel Enclosure Assembly (UL) 429870	0	1
		5 - 5 - LIQ-3.0 AGENT - Ansulex Low PH Wet Chemical Agent, 3 Gallon (UL) 79372	0	1
		6 - 6 - LIQ-1.5 AGENT - Ansulex Low PH Wet Chemical Agent, 1.5 Gallon (UL) 79694	0	1
		9 - 9 - 101-30 CARTRIDGE - Carbon Dioxide, 101-30, Cartridge (R-102)	0	1
		10 - 10 - TLINK LINK - Test Link (1 test link)	0	1
		11 - 11 - MICRO-SDA MICROSWITCH KIT- Includes 2 switcvhes and Mounting Hardware. Single Dual Electric Switch, One Standard Switch, One Alarm Duty Switch 437155	0	1
		12 - 12 - HOSEGROMMET HOSE - Hose/Grommet Package	0	1
		13 - 13 - 419337 NOZZLE - 2W Nozzle, Duct (Replaces ANSUL Part# 419348, CAS Part# 419337) A0001267	2	0
		16 - 16 - 419335 NOZZLE - 1N Nozzle, Plenum/Appliance (Replaces ANSUL Part# 419346, CAS Part# 419335) A0001265	2	0
		24 - 24 - 419341 NOZZLE - 260 Nozzle, Appliance (Replaces ANSUL Part# 419352, CAS Part# 419341) A0001271	3	0
		25 - 25 - 418569 NOZZLE ADAPTOR - Swivel Nozzle Adaptor (Replaces CAS Part # 418569) A0001274	3	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL)	7	0
		27 - 27 - QPSA-1/2 PULLEY SEAL - 1/2" Hood Seal (UL)	5	0
		28 - 28 - S-DET DETECTOR - Series (Scissor Linkage) NEW#435547/435548 (OLD#417369/434480)	5	0
		29 - 29 - ANS-360FL FUSIBLE LINK - 360deg F, R-102 and PIRANHA	5	0
		34 - 34 - RPS-A REMOTE PULL STATION - Red composite (without wire rope) 434618 (Old Macola #06-4835)	0	1
		35 - 35 - PE-LT PULLEY ELBOW - Low Temp. Pulley Elbow, Set Screw Type ANSUL Part #415670	3	10
		36 - 36 - PE-HT PULLEY ELBOW - High Temp Pulley Elbow, Compression Type	4	0

LEGEND - WALL MOUNTED ANSUL SYSTEM

1A	1.5 GALLON TANK
1B	3.0 GALLON TANK
2	AUTOMAN RELEASE
3	3 GALLON TANK ENCLOSURE
4	REGULATED ACTUATOR
5	ANSULEX LIQUID AGENT (3 GAL.)
6	ANSULEX LIQUID AGENT (1.5 GAL.)
9	CARTRIDGE (101-30)
10	TEST LINK
11	DOUBLE MICROSWITCH
2W	DUCT NOZZLE (419337)
1N	NOZZLE ASSEMBLY (419335)
260	NOZZLE ASSEMBLY (419341)
28	DETECTOR BRACKET
29	LOW TEMP FUSIBLE LINK
MGV	MECHANICAL GAS VALVE
34	REMOTE MANUAL PULL STATION
S	SWIVEL ADAPTOR



Nozzle Chart

Nozzle	FP	QTY	TOTAL fp
1N	1	2	2
2w	2	2	4
TOTAL FP			6

6 Flowpoints used on a 16 FP UL300
Ansul R102 4.5 gallon (2 tank) fire system

Job #: 2487694
Job Name: California Middle School
Drawn By:
System Size: ANSUL-3.0/1.5 Total FP required: 6
Hood # 1 9' 8.00" Long x 60" Wide x 30" High
Riser # 1 Size: 10" x 18"
Hood # 1 Metal Blow-Off Caps included.
Hood # 2 9' 8.00" Long x 60" Wide x 30" High
Riser # 1 Size: 10" x 18"
Hood # 2 Metal Blow-Off Caps included.

General Notes:

1: All Installation procedures are in compliance with manufacturer's specifications and in accordance with NFPA17A (2016) and NFPA96 (2016) standards.

2: Remote pull station is mounted no higher than 48" from finished floor and in path of egress

3: The hood extinguishing system must be interconnected to the building alarm system

4: Automatic fuel shut down device(s) shall shut down all sources of fuel under the hood.

5: All electrical under the hood shall shut down upon activation

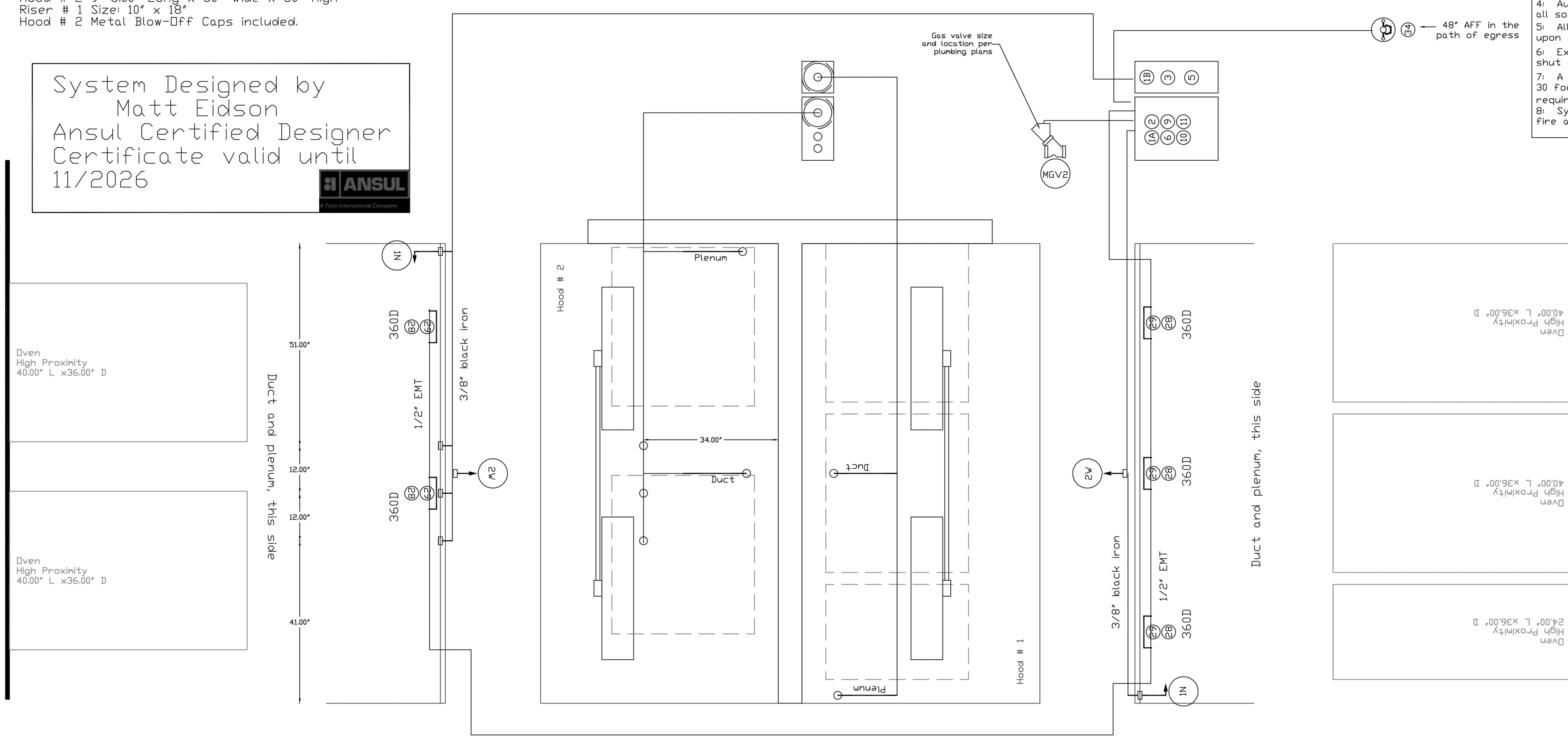
6: Exhaust fan is to stay on and make up air must shut down upon system activation

7: A K Class rated fire extinguisher accessible within 30 foot unobstructed path from cooking equipment is required

8: System to be test fired and witnessed by local fire authorities upon completion.

System Designed by
Matt Eidson
Ansul Certified Designer
Certificate valid until
11/2026

ANSUL
A Tyco International Company



FIRE SYSTEM NOTES

GENERAL
CUSTOMER RESPONSIBLE FOR ADDITIONAL LABOR AND PARTS CHANGES AS A RESULT OF COOKING EQUIPMENT LAYOUT CHANGES OR MISINFORMATION AFTER RELEASE OF ORDER.
CUSTOMER RESPONSIBLE FOR ADDITIONAL TRIPS BY FIRE SYSTEM DISTRIBUTOR DUE TO JOB SITE DELAYS.
UNION LABOR CHARGES, IF REQUIRED, ARE EXTRA.

GAS VALVE
MECHANICAL OR ELECTRICAL GAS VALVE IS TO BE INSTALLED BY PLUMBING CONTRACTOR. PLUMBING PERMIT REQUIRED FOR GAS VALVE INSTALLATION.

ELECTRIC SHUT OFF
ELECTRICAL COOKING EQUIPMENT MUST BE SHUT OFF WHEN FIRE SYSTEM IS ACTIVATED. ELECTRICAL CONTRACTOR IS TO PROVIDE SHUT OFF CONTACTS OR SHUNT TRIP BREAKERS. THE DESIGN OF THE FIRE SYSTEM SHALL COMPLY WITH S.M.A.C.N.A. GUIDELINES FOR SEISMIC RESTAINTS OF MECHANICAL SYSTEMS. O.S.H.P.D. APPROVED ANCHORAGE R-0010 SUPPORTS AND BRACING OF PIPE & CONDUIT.

IF APPLICABLE TO LOCAL CODE
EXISTING FIRE ALARM SYSTEM MUST BE INTERCONNECTED TO THE ANSUL SYSTEM.

FIRE SUPPRESSION SYSTEM TEST
THE TEST WILL BE CONDUCTED IN FRONT OF A SYSTEM INSPECTOR WITH A NITROGEN CARTRIDGE WITH BALLOONS COVERING THE SYSTEM NOZZLES. THE TEST WILL BE CONDUCTED SIMULATING THE REMOTE AND AUTOMATIC ACTUATION.

REMOTE PULL STATION
4-0 BOX WITH 1/2" KO'S POSITIONED AS SHOWN WITH TABS IN THE UPPER RIGHT AND LOWER LEFT OF BOX. TO BE 48" ABOVE FINISHED FLOOR 1/2" EMT. TO BE 12" ABOVE FINISHED DROP CEILING LINE WITHOUT BENDS OR OFFSETS. ONE 4-0 BOX TO BE PROVIDED FOR EACH REMOTE PULL STATION WHEN TWO REMOTE PULLS ARE MOUNTED SIDE BY SIDE. THE DISTANCE BETWEEN CENTERS SHALL BE NO LESS THAN 7".

INSTALLATION/PIPING NOTES
REGULATED RELEASE ASSEMBLY, REGULATED ACTUATOR ASSEMBLY, AND TANK ENCLOSURE MUST BE LOCATED IN AREAS WHERE AIR TEMPERATURE WILL NOT FALL BELOW 32 DEGREES F OR EXCEED 130 DEGREES F.

1. MOUNT THE REGULATED RELEASE ASSEMBLE AND EACH REGULATED ACTUATOR ASSEMBLY REQUIRED BY COMPLETING THE FOLLOWING STEPS:

A. SELECT A RIGID SURFACE FOR MOUNTING THE ENCLOSURE. THE MOUNTING LOCATIONS MUST ALLOW THE REGULATED RELEASE ASSEMBLY AND THE REGULATED ACTUATOR ASSEMBLY TO BE WITHIN THE LIMITATION OF THE ACTUATION AND EXPELLANT GAS LINE LENGTHS AND MUST BE ABLE TO SUPPORT THE WEIGHT OF THE ASSEMBLY. NOTE: WALL MOUNTED SYSTEMS ONLY.

B. DETACH THE COVER FROM THE ENCLOSURE. REMOVE AGENT TANK FROM ENCLOSURE AND THE EXPELLANT GAS LINE HOSE FROM THE TANK/ADAPTOR ASSEMBLY.

C. SECURE ENCLOSURE BOX TO SELECTED MOUNTING LOCATION USING THE FOUR MOUNTING HOLES. USE APPROPRIATE TYPE OF FASTENERS DEPENDING ON THE MOUNTING SURFACE. WALL MOUNTED SYSTEMS.

SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY C.A.S. OR FIRE DISTRIBUTOR.

ALL PIPE FOR 3.0/3.5 GALLON SYSTEM IS 3/8".
ALL PIPE SHALL BE BLACK IRON SCHEDULE-40.
ALL EXPOSED PIPE SHALL BE CHROME SLEEVED.
NOZZLES SHALL BE A MAXIMUM OF 50" ABOVE SURFACE OF COOKING EQUIPMENT.

REVISIONS

DESCRIPTION	DATE:
△	
△	
△	
△	

CAPTIVEAIRE
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California Middle School
, 0

DATE: 1/9/2024

DWG.#: 248769

DRAWN BY: MRE

SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 1

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AMD INC. FOODSERVICE DESIGN

SEAL
LICENSED ARCHITECT DEREK M. LABRECQUE NO. C30650 REN. 2-28-25 STATE OF CALIFORNIA

DSA APP. #:

Project: SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title: FOODSERVICE EQUIPMENT HOOD FIRE SYSTEM

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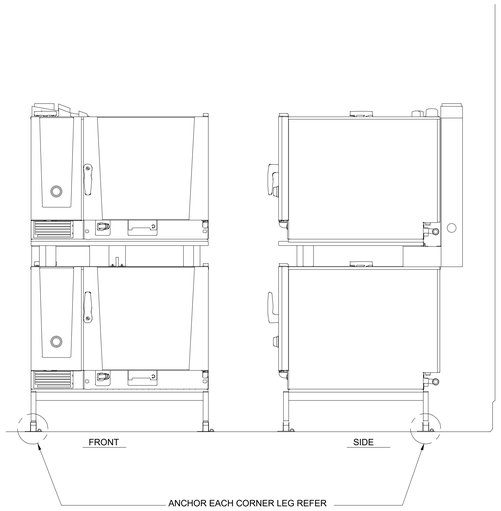
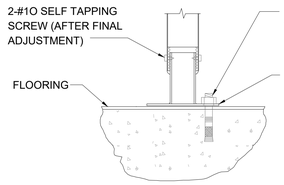


A DOUBLE STACK COMBI OVEN NTS



(FLANGED FOOT) SHEAR & UPLIFT

NOTE: INSTALL ANCHOR PER ICC-ES
ESR-1917. TORQUE TEST =25 FT.LB

B L FOOT ANCHORAGE DETAIL NTS

SPARE

C NTS

SPARE

D NTS

SPARE

E

SPARE

F

SPARE

G

SPARE

H

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AMD FOODSERVICE DESIGN

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DSA APP. #:

Project
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALIFORNIA MIDDLE SCHOOL CAMPUS RENEWAL

Drawing Title
FOODSERVICE EQUIPMENT ANCHORAGE DETAILS

Drawn By

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