HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD, SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

DSA FILE NO: 49-39 **DSA APPLICATION NO:** 01-119434 **PTN:** 70714-16

PROJECT TEAM

OWNER

Gravenstein Union Elementary School District
3840 Twig Ave
Sebastopol, CA 95472
Phone: 707-823-7008
Email: drose@grav.k12.ca.us

ARCHITECT

Quattrocchi Kwok Architects
636 Fifth Street
Santa Rosa, CA 95404
Phone: 707-576-0829
Email: eddiev@qka.com

CONSTRUCTION MANAGER

Counterpoint Construction Services, Inc.
3663 North Laughlin Road Ste 200
Santa Rosa, CA 95403
Phone: 707-824-8440
Email: sbaer@counterpointcs.com

STRUCTURAL ENGINEER

ZFA Structural Engineers
1212 Fourth Street, Suite Z
Santa Rosa, CA 95404
Phone: 707-526-0992
Fax: 707-526-0217
Email: chrisw@zfa.com

MECHANICAL ENGINEER

Costa Engineers
3274 Villa Lane
Napa, CA 94558
Phone: 707-252-9177
Fax: 707-252-6473
Email: cdelcore@costaengineers.com

ELECTRICAL ENGINEER

O'Mahony & Myer
4340 Redwood Highway, Suite 245
San Rafael, CA 94903
Phone: 415-492-0420
Fax: 415-479-6962
Email: pcolenbrander@ommconsulting.com

QUATTROCCHI KWOK ARCHITECTS
Main:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

LICENSED ARCHITECT
JIM THEISS
LICENSE # C22643
EXP JUNE 30, 2021
STATE OF CALIFORNIA

SIGNED: APRIL 5, 2021

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

DSA APP NO. 01-119434
ARCH PROJECT NO: 1889.02
DRAWN BY: BMP
DRAWING SCALE: N.T.S.
PTN: 70714-16 FILE NO: 49-39
DSA SUBMITTAL
APRIL 5, 2021
SHEET TITLE

COVER SHEET

SHEET NUMBER

G-0.1

ABBREVIATIONS

&	AND	F	FACE		
L	ANGLE	FA	FIRE ALARM	PC	PORTLAND CEMENT
@	AT	FCO	FLOOR CLEAN OUT	P.C.F.	POUNDS PER CUBIC FOOT
℄	CENTERLINE	FD	FLOOR DRAIN	PDA	POWER DRIVEN ANCHOR
'	FEET	FDN	FOUNDATION	PERF	PERFORATED
"	INCHES	FE	FIRE EXTINGUISHER	PH	PLATE HEIGHT
d	PENNY	FEC	FIRE EXTINGUISHER CABINET	PL	PLATE
#	POUND/ NUMBER	FF	FINISH FLOOR	P/L	PROPERTY LINE
		FG	FINISH GRADE	PLAM	PLASTIC LAMINATE
AB	ANCHOR BOLT	FGL	FIBERGLASS	PLAS	PLASTER/ PLASTIC
ABBREV	ABBREVIATION	FH	FIRE HYDRANT	PLF	POUNDS PER LINEAL FOOT
AC	ASPHALT CONCRETE	FHMS	FLAT HEAD MACHINE SCREW	PLYWD	PLYWOOD
A/C	AIR CONDITIONING	FHS	FIRE HOSE STATION	P.O.C.	POINT OF CONTACT
ACC	ACCESSIBLE	FHWS	FLAT HEAD WOOD SCREW	PR	PAIR
ACOUS	ACOUSTICAL	FIN	FINISH	PROP	PROPERTY
AC T	ACOUSTICAL TILE	FIXT	FIXTURE	PSF	POUNDS PER SQUARE FOOT
AD	AREA DRAIN	FL	FLOOR LINE	PSI	POUNDS PER SQUARE INCH
ADJ	ADJUSTABLE	FLASH	FLASHING	PT	POINT
A.F.F.	ABOVE FINISH FLOOR	FLUOR	FLUORESCENT	PTDF	PRESSURE TREATED
AGG	AGGREGATE	FLR	FLOOR		DOUGLAS FIR
ALUM	ALUMINUM	FM / FOM	FACE OF MASONRY	PTN	PARTITION
ANOD	ANODIZED	FN	FACE NAIL	PTR	PAPER TOWEL RECEPTACLE
APPROX	APPROXIMATE	FOC	FACE OF CONCRETE	PVC	POLYVINYL CHLORIDE
ARCH	ARCHITECTURAL	FOF	FACE OF FINISH	PVMT	PAVEMENT
ASPH	ASPHALT	FOS	FACE OF STUD		
		FRMG	FRAMING	R	RISER
BD	BOARD	FR	FIRE-RESISTANT	R / RAD	RADIUS
BITUM	BITUMINOUS	FRP	FIBERGLASS REINFORCED	RD	ROOF DRAIN
BLDG	BUILDING		PANEL	REF	REFERENCE
BLK	BLOCK	FT	FEET	REFR	REFRIGERATOR
BLKG	BLOCKING	FTG	FOOTING	REG	REGULAR
BM	BEAM	FURR	FURRING	REQD	REQUIRED
BOT	BOTTOM			REINF	REINFORCED
BO	BY OWNER	GA	GAUGE	RH	ROOF HATCH
BRK	BREAK	GALV	GALVANIZED	RHMS	ROUND HEAD MACHINE SCREW
BRG	BEARING	GB	GRAB BAR	RHWS	ROUND HEAD WOOD SCREW
BTWN	BETWEEN	GC	GENERAL CONTRACTOR	RM	ROOM
BU	BUILT-UP	GI	GALVANIZED IRON	RO	ROUGH OPENING
BUR	BUILT-UP ROOFING	GL	GLASS/ GLAZING	RWL	RAIN WATER LEADER
		GLB	GLUE LAMINATED BEAM	RWD	REDWOOD
CAB	CABINET	GND	GROUND		
CB	CATCH BASIN	GR	GRADE	S	SOUTH
CBC	CALIFORNIA BUILDING CODE	GYP BD	GYPSUM BOARD	S.A.D.	SEE ARCHITECTURAL DRAWINGS
CEM	CEMENT			S.AV.D.	SEE AUDIOVIDEO DRAWINGS
CER	CERAMIC	HB	HOSE BIBB	SC	SOLID CORE
CI	CAST IRON	HC	HOLLOW CORE	S.C.D.	SEE CIVIL DRAWINGS
CIR	CIRCLE	HDR	HEADER	SCHED	SCHEDULE
CJ	CONTROL JOINT	HDWD	HARDWOOD	SD	STORM DRAIN
CORR	CORRIDOR	HDWR	HARDWARE	SECT	SECTION
CL	CLOSET/ CENTER LINE	HM	HOLLOW METAL	S.E.D.	SEE ELECTRICAL DRAWINGS
CLG	CEILING	HOR	HORIZONTAL	SEP	SEPARATION
CLR	CLEAR	HP	HIGH POINT	S.F.P.D.	SEE FIRE PROTECTION DRAWINGS
CLS	CLOSURE	HR	HOUR	SHTG	SHEATHING
CMU	CONCRETE MASONRY UNIT	HSS	HOLLOW STEEL SECTION	SIM	SIMILAR
CO	CLEANOUT	HT	HEIGHT	SL	SLIDING
COL	COLUMN	HTG	HEATING	S.L.D.	SEE LANDSCAPE DRAWINGS
COMB	COMBINATION	HVAC	HEATING, VENTILATING,	SM	SHEET METAL
COMP	COMPOSITION		AIR-CONDITIONING	S.M.D.	SEE MECHANICAL DRAWING
CONC	CONCRETE			SOV	SHUT OFF VALVE
CONN	CONNECTION	ID	INSIDE DIAMETER	S.P.D.	SEE PLUMBING DRAWINGS
CONST	CONSTRUCTION	INSUL	INSULATION	SPEC	SPECIFICATION
CONT	CONTINUOUS	INT	INTERIOR	SPKR	SPEAKER
CONTR	CONTRACTOR	INTEG	INTEGRAL	SQ	SQUARE
CT	CERAMIC TILE	INTERMED	INTERMEDIATE	SS	STAINLESS STEEL
CTR	CENTER	INV	INVERT	S.S.D.	SEE STRUCTURAL DRAWINGS
CTSK	COUNTERSINK			S.TH.D.	SEE THEATER DRAWINGS
CUST	CUSTODIAN	JH	JOIST HANGER	STA	STATION
CW	COLD WATER	JST	JOIST	STD	STANDARD
		JT	JOINT	STL	STEEL
DBL	DOUBLE			STOR	STORAGE
DEPT	DEPARTMENT	KIT	KITCHEN	STRUCT	STRUCTURAL
DET	DETAIL	KP	KICK PLATE	SUSP	SUSPENDED
DF	DRINKING FOUNTAIN			SYM	SYMMETRICAL
DG	DECOMPOSED	LAB	LABORATORY		
	GRANITE	LAM	LAMINATE	T	TREAD
DI	DRAIN INLET	LAV	LAVATORY	T&B	TOP & BOTTOM
DIA	DIAMETER	LL	LIVE LOAD	TC	TOP OF CURB
DIAG	DIAGONAL	LP	LOW POINT	TEL	TELEPHONE
DIM	DIMENSION	LT	LIGHT	TER	TERRAZZO
DISP	DISPOSAL			T&G	TONGUE & GROOVE
DIV	DIVISION	MAT	MATERIAL	TH	THICK
DN	DOWN	MAX	MAXIMUM	THRU	THROUGH
DO	DOOR OPENING	MB	MACHINE BOLT	TJ	TOOL JOINT
DIR	DIRECTLY	MC	MEDICINE CABINET	TN	TOE NAIL
DR	DOOR	MECH	MECHANICAL	T.O.D.	TOP OF DECK
DS	DOWN SPOUT	MED	MEDIUM	T.O.P.	TOP OF PLATE
DSA	DIVISION OF STATE ARCHITECT	MEMB	MEMBRANE	T.O.R.	TOP OF ROOF
DSP	DRY STAND PIPE	MFR	MANUFACTURER	T.O.W.	TOP OF WALL
DT	DRAIN TILE	MH	MANHOLE	T.P.	TOP OF PAVEMENT
DW	DISHWASHER	MIN	MINIMUM	TRN	TRANSOM
DWG	DRAWING	MIR	MIRROR	TRANS	TRANSPARENT
DWR	DRAWER	MISC	MISCELLANEOUS	TS	TUBE STEEL
		MO	MASONRY OPENING	TUB	TUBULAR
E	EAST	MOD	MODULAR	TV	TELEVISION
(E)	EXISTING	MR	MOISTURE RESISTANT	TW	TACKWALL
EA	EACH	MTD	MOUNTED	TYP	TYPICAL
EB	EXPANSION BOLT	MTL	METAL	UNF	UNFINISHED
EE	EACH END	MUL	MULLION	U.O.N.	UNLESS OTHERWISE NOTED
EF	EXHAUST FAN			UR	URINAL
EJ	EXPANSION JOINT	N	NORTH	UTIL	UTILITY
EL	ELEVATION GRADE	(N)	NEW		
ELEC	ELECTRICAL	NAT	NATURAL	VB	VAPOR BARRIER
ELEV	ELEVATION	N.I.C.	NOT IN CONTRACT	VCT	VINYL COMPOSITION TILE
EMER	EMERGENCY	NO	NUMBER	VERT	VERTICAL
EMT	ELECTRIC METALLIC TUBING	NOM	NOMINAL	VEST	VESTIBULE
ENCL	ENCLOSURE	N.T.S.	NOT TO SCALE	V.I.F.	VERIFY IN FIELD
EP	ELECTRIC PANEL			VTR	VENT THROUGH ROOF
EQ	EQUAL	O/	OVER	VWC	VINYL WALL COVERING
EQUIP	EQUIPMENT	OA	OVERALL		
EQUIV	EQUIVALENT	OBS	OBSCURE	W	WEST
ES	EACH SIDE	OC	ON CENTER	W/	WITH
EW	EACH WAY	OD	OUTSIDE DIAMETER	WC	WATER CLOSET
EXH	EXHAUST	OF	OVERFLOW	WD	WOOD
EXIST	EXISTING	OFCI	OWNER FURNISHED/	WDW	WINDOW
EXP	EXPANSION		CONTRACTOR INSTALLED	WH	WATER HEATER
EXT	EXTERIOR	O.L.F.	OCCUPANT LOAD FACTOR	W/O	WITHOUT
		OFF	OFFICE	WP	WATER PROOF
		OPNG	OPENING	W.P.	WORK POINT
		OPP	OPPOSITE	WR	WATER RESISTANT
		OVHD	OVERHEAD	WSCT	WAINSCOT
				WT	WEIGHT
				YD	YARD

Z101002

LEGEND

ALL NOTES AND SYMBOLS ARE INTENDED TO APPLY AT ALL OTHER LOCATIONS OF SIMILAR GRAPHIC REPRESENTATION. SUCH INDICATIONS MAY BE LIMITED TO PROMOTE CLARITY. NO LIMITATION OF APPLICATION IS INTENDED EXCEPT AS SPECIFICALLY NOTED.

AA / A1 — COLUMN GRIDS A AND 1 IN BUILDING A

6'-0" — DIMENSION TO FACE OF STUD OR MASONRY

6'-0" — DIMENSION TO FACE OF FINISH

6'-0" — DIMENSION TO CENTER LINE OR COLUMN LINE

12'-0" — RELATIVE ELEVATION DIMENSION

B101A — DOOR A IN ROOM NUMBER 101 IN BUILDING B
ACCESSIBLE CLEARANCES SHOWN DASHED
SEE - / -

W03 — WINDOW NUMBER 03

11 / A-9.12 — DETAIL NUMBER 11 ON SHEET NUMBER A-9.12

3 / A-B6.2 — SECTION NUMBER 3 ON SHEET NUMBER A-B6.2

2 / A-B5.3 — ELEVATION NUMBER 2 ON SHEET NUMBER A-B5.3

CLASSROOM — ROOM NAME

FLOOR PLAN: A204 / F-4 / A-A7.6
A204 — ROOM NUMBER 204 IN BUILDING A
F-4 — FLOOR FINISH CODE F-4
A-A7.6 — INTERIOR ELEVATION SHOWN ON SHEET A-A7.6

REFLECTED CLG PLAN: A204 / CL-6 / 10'-0"
A204 — ROOM NUMBER 204 IN BUILDING A
CL-6 — CEILING FINISH CODE CL-6
10'-0" — FINISH CEILING HEIGHT 10'-0"

33 — KEYNOTE NUMBER 33

8 — METAL WALL FRAMING SIZE 8"

50 — WALL ACOUSTIC RATING OF STC 50

C — TOILET ACCESSORY C

222 — ARCHITECTURAL WOODWORK STANDARDS (AWS) CABINET DESIGN SERIES IDENTIFIER

W-2 — FINISH CODE, WALL FINISH 2 SHOWN

E1 — ROOM / BUILDING ACCESSIBLE SIGNAGE TYPE E1. SEE ARCHITECTURAL GRAPHICS PLAN AND ACCESSIBLE SIGNAGE DETAIL

ARCHITECTURAL LOUVER TYPE L01, SEE ELEVATIONS AND LOUVER SCHEDULE. DOOR LOUVERS ARE NOT TAGGED, SEE DOOR SCHEDULE.

W.P. — RELATIVE ORIGIN OR WORK POINT

A — EQUIPMENT TAG
REFER TO EQUIPMENT SCHEDULE

Z100100

PROJECT DESCRIPTON

REPLACEMENT OF INTERNAL HEATING UNITS AT THREE CLASSROOM BUILDINGS WITH NEW CONDENSING UNITS FOR A/C. REMOVAL AND REPLACEMENT OF EXISTING PG&E SERVICE TO THE SITE TO MEET NEW ELECTRICAL LOADS.

DEFERRED APPROVALS

GENERAL NOTES

1. ALL WORK IS SHOWN, DESCRIBED OR SPECIFIED IN DRAWINGS INDEXED THIS PAGE OR IN SPECIFICATIONS.

ALL WORK NOT INDICATED AS EXISTING (E) IS NEW.

2. ALL FRAMING DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
•DO NOT SCALE DRAWINGS.
•VERIFY ALL DIMENSIONS WHERE WORK INVOLVES FRAMING FOR WINDOWS, DOORS, OR CABINETS.

3 ONLY WORK SO NOTED IS NOT IN CONTRACT (N.I.C.) ALL N.I.C. ITEMS ARE NOT PART OF DSA APPROVAL

4. GOVERNING CODES: A COPY OF TITLE 24 PARTS 1-5 SHALL BE KEPT ON THE JOB AT ALL TIMES.
CALIFORNIA CODE OF REGULATIONS TITLE 24 BUILDING STANDARDS CODE:
PART 1 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
PART 2 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
(2018 INTERNATIONAL BUILDING CODE, VOL. 1 & 2, AND 2016 CALIFORNIA AMENDMENTS)
PART 3 2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
(2017 NATIONAL ELECTRICAL CODE AND 2016 CALIFORNIA AMENDMENTS)
PART 4 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
(2018 IAPMO UNIFORM MECHANICAL CODE AND 2016 CALIFORNIA AMENDMENTS)
PART 5 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
(2018 IAPMO UNIFORM PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)
PART 6 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
PART 9 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
(2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)
PART 10 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
(2018 INTERNATIONAL EXISTING BUILDING CODE AND 2019 CALIFORNIA AMENDMENTS)
PART 11 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL-GREEN), PART 11, TITLE 24 CCR
PART 12 2019 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY CODE, STATE FIRE MARSHAL REGULATIONS
2010 ADA STANDARDS FOR ACCESSIBILITY DESIGN
2016 ASME A17.1-16/CSA B44-16 SAFETY CODE FOR ELEVATORS AND ESCALATORS

5. STANDARD AND GUIDES:

NFPA 13	INSTALLATION OF FIRE SPRINKLER SYSTEMS (CA AMENDED)	2016 EDITION
NFPA 14	INSTALLATION OF STANDPIPE AND HOSE SYSTEMS	2016 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 17A	WET CHEMICAL FIRE EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 20	INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION	2016 EDITION
NFPA 24	STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES	2016 EDITION
NFPA 25	CALIFORNIA EDITION - TESTING, MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS	2013 EDITION
NFPA 72	NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED)	2016 EDITION
NFPA 80	STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
NFPA 110	EMERGENCY AND STANDBY POWER SYSTEMS	2016 EDITION
NFPA 170	STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS	2018 EDITION
NFPA 2001	STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
UL 300	STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT	2005 (R2010)
UL 464	AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES	2003 EDITION
UL 521	STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION
UL 1971	STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED	2002 EDITION
UL 2034	STANDARD FOR SINGLE AND MULTIPLE CARBON MONOXIDE ALARMS	2017 EDITION

6. IN ACCORDANCE WITH TITLE 24 PART 1 CHAPTER 4: THE ADMINISTRATIVE REGULATIONS FOR THE DIVISION OF THE STATE ARCHITECT STRUCTURAL SAFETY (DSA/SS)
•4-331 DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION.
•4-332 WHEN CONSTRUCTION IS SUSPENDED FOR MORE THAN ONE MONTH, THE PROJECT INSPECTOR SHALL INFORM DSA.
•4-333(a) OBSERVATION OF THE WORK SHALL BE BY ARCHITECT OR REGISTERED ENGINEER.
•4-333(b) THE DISTRICT MUST PROVIDE AND PAY FOR PROJECT INSPECTOR.
•4-334 SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH THIS SECTION.
•4-335 STRUCTURAL TESTS AND INSPECTION ARE REQUIRED IN ACCORDANCE WITH THIS SECTION. TESTS OF MATERIALS AND TESTING LAB SHALL BE IN ACCORDANCE WITH SECTION 4-335 AND THE DISTRICT SHALL EMPLOY AND PAY THE LAB. COSTS OF RE-TEST MAY BE BACKCHARGED TO THE CONTRACTOR. ALL TESTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 4-335 AND APPROVED T & I SHEET (DSA-103)
•4-336 VERIFIED REPORTS SHALL BE SUBMITTED BY CONTRACTORS (DSA 006-C), INSPECTORS (DSA 006-PI), ARCHITECTS AND ENGINEERS (DSA 006-AE) IN ACCORDANCE WITH SECTIONS 4-336 AND 4-343.
•4-337 SEMI-MONTHLY REPORTS SHALL BE SUBMITTED BY INSPECTORS (DSA - 155), IN ACCORDANCE WITH SECTIONS 4-337.
•4-338 WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE APPROVED PLANS, ADDENDA AND CONSTRUCTION DOCUMENTS. CHANGES IN THE APPROVED PLANS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS STAMPED AND SIGNED BY THE ARCHITECT OR REGISTERED ENGINEER IN CHARGE. ADDENDA AND CHANGE DOCUMENTS SHALL BE SUBMITTED TO AND APPROVED BY DSA PRIOR TO COMMENCEMENT OF WORK.
• 4-341(a) THE ARCHITECT AND THE REGISTERED ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTIONS 4-333(a) AND 4-341.
• 4-341(d) INSPECTOR SHALL BE APPROVED BY DSA.
• 4-342 INSPECTION SHALL BE IN ACCORDANCE WITH SECTION 4-333 THE DUTY OF THE INSPECTOR SHALL BE IN ACCORDANCE WITH THIS SECTION.
• 4-343 THE CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE WITH THIS SECTION.

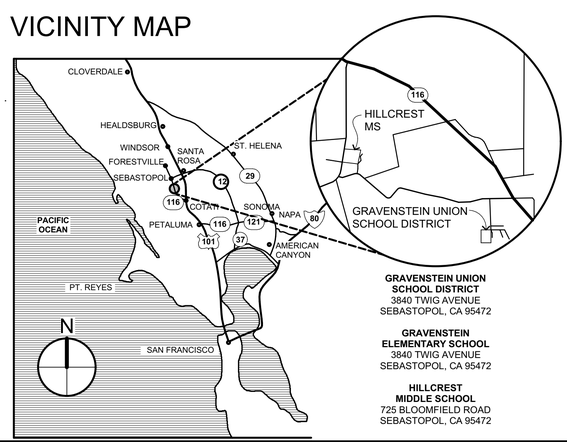
7. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, C.C.R. SHOULD ANY EXISTING CONDITIONS BE DISCOVERED WHICH ARE NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24 C.C.R. A CONSTRUCTION CHANGE DOCUMENT DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK. (TITLE 24 PART 1, SECTION 4-338(c))

8. COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION SHALL BE ENFORCED.

9. EMERGENCY VEHICLE ACCESS ROADS AND ON-SITE FIRE HYDRANTS SHALL BE IN SERVICE AND OPERABLE PRIOR TO LOADING THE SITE WITH COMBUSTIBLE MATERIALS.

10. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS, AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH APPLICABLE LOCAL ORDINANCES.

VICINITY MAP



GRAVENSTEIN UNION SCHOOL DISTRICT
3840 TWIG AVENUE
SEBASTOPOL, CA 95472

GRAVENSTEIN ELEMENTARY SCHOOL
3840 TWIG AVENUE
SEBASTOPOL, CA 95472

HILLCREST MIDDLE SCHOOL
725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

SHEET INDEX

QUATTROCCHI KWOK ARCHITECTS
Main:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

LICENSED ARCHITECT
JIM THEISS
LICENSE # C22643
EXP JUNE 30, 2021
STATE OF CALIFORNIA

SIGNED: APRIL 5, 2021

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

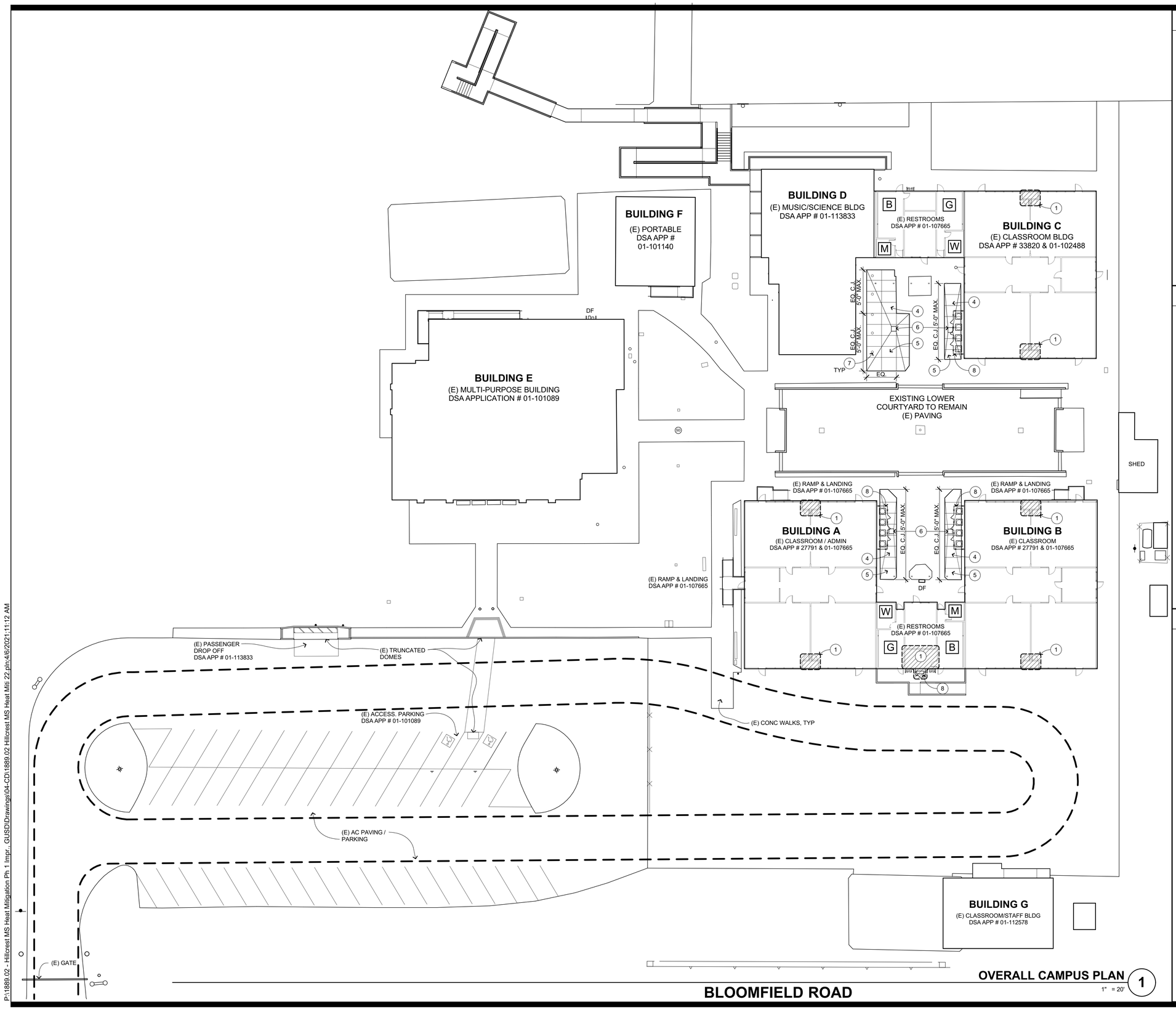
DSA APP NO. 01-119434
ARCH PROJECT NO: 1889.02
DRAWN BY:
DRAWING SCALE:
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL
APRIL 5, 2021

SHEET TITLE
ABBREVIATIONS AND NOTES

SHEET NUMBER
G-0.2

P:\1889.02 - Hillcrest MS Heat Mitigation Ph 1 Impr., GUSD\Drawings\04-CD\1889.02 Hillcrest MS Heat Miti 22.pln 4/6/2021 11:12 AM



OVERALL CAMPUS PLAN

1" = 20'

1

SITE PLAN KEYNOTES

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

1. MECHANICAL ITEM, S.M.D. PATCH & PAINT TO MATCH (E) FINISH & TEXTURE AT ALL PENETRATIONS.
2. PLUMBING ITEM / FIXTURE, S.P.D.
3. ELECTRICAL ITEM, S.E.D.
4. REMOVE (E) LANDSCAPING AND PREPARE AREAS FOR NEW CONC.
5. PROVIDE CONC. INFILL, S.S.D.
6. RAISE (E) D.I. TO PROVIDE A 1% MIN SLOPE TO DRIAN ALL AROUND.
7. RAISE (E) UTILITY BOX TO HAVE TOP OF BOX FLUSH W/ CONC, TYP.
8. INSTALL 4' HIGH CHAINLINK FENCE AND GATES.

SITE PLAN GENERAL NOTES

1. EMERGENCY VEHICLE ACCESS ROADS AND ON-SITE FIRE HYDRANTS SHALL BE IN SERVICE AND OPERABLE PRIOR TO LOADING THE SITE WITH COMBUSTIBLE MATERIALS.

SITE PLAN LEGEND

- AREA OF MECHANICAL WORK
- (E) BUILDING AREA WITH NO WORK
- FIRE ACCESS

QUATTROCCHI KWOK ARCHITECTS
Main:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

LICENSED ARCHITECT
JIM THEISS
LICENSE # C22643
EXP JUNE 30, 2021
STATE OF CALIFORNIA

SIGNED: APRIL 5, 2021

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	*BMP*
DRAWING SCALE:	1"=20'
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

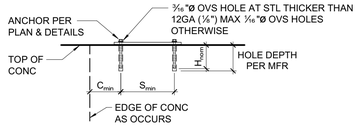
SHEET TITLE

CAMPUS SITE PLAN

SHEET NUMBER

A-1.1

STAINLESS STEEL SCREW ANCHOR IN 2500 PSI MIN CONCRETE							
ANCHOR TYPE	ANCHOR AND PILOT HOLE DIA	MINIMUM EMBEDMENT H_{nom}	MINIMUM EDGE DIST C_{min}	MINIMUM SPCG S_{min}	MINIMUM CONCRETE DEPTH H_{min}	INSTALL TORQUE (FT-LB)	MAX INSTALL TORQUE (FT-LB)
SIMPSON TITEN HDSS (IAPMO UES ER-493)	⅜"	2½"	1¾"	3"	4"	10	40
	½"	3¼"	1¾"	4"	5"	10	70
	⅝"	4"	1¾"	3"	6"	10	85
	¾"	5½"	1¾"	3"	8¼"	20	150



NOTES:

1. INSTALL SCREW ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS. INSTALLED ANCHORS SHALL BRING CONNECTED PLIES INTO FIRM CONTACT, MEETING THE INSTALL TORQUE BUT NOT EXCEEDING THE MAXIMUM INSTALL TORQUE.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), CONCRETE THICKNESS, AND TIGHTENING TORQUE.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTION 1910A.5.

3 SCREW ANCHOR IN CONCRETE
3/4" = 1'-0"

ABBREVIATIONS

AB	ANCHOR BOLT	FTG	FOOTING	PNL	PANEL
ABV	ABOVE	GA	GAGE or GAUGE	PSF	POUNDS PER SQUARE FOOT
AC	AIR CONDITIONING	GALV	GALVANIZED	PSI	POUNDS PER SQUARE INCH
ADJ	ADJACENT	GB	GRADE BEAM	PSL	PARALLEL STRAND LUMBER
ADDL	ADDITIONAL	GL	GRIDLINE	PTDF	PRESSURE TREATED DOUGLAS FIR
ALT	ALTERNATE	GLB	GLUE LAMINATED BEAM	PT	POINT
ALUM	ALUMINUM	GR	GRADE	R	RADIUS
ARCH	ARCHITECT	HD	HOLD DOWN	RBS	REDUCED BEAM SECTION
AYC	ALASKAN YELLOW CEDAR	HDG	HOT-DIP GALVANIZED	RFTR	RAFTER
@	AT	HDR	HEADER	REF	REFERENCE
BF	BRACED FRAME	HGR	HANGER	REINF	REINFORCING
BLDG	BUILDING	HK	HOOK	REQD	REQUIRED
BLK/BLKG	BLOCK/BLOCKING	HORIZ	HORIZONTAL	RET	RETAINING
BLW	BELOW	HSB	HIGH STRENGTH BOLT	REV	REVISION
BM	BEAM	HSG	HIGH STRENGTH GROUT	RF	ROOF
BN	BOUNDARY NAIL	HSH	HORIZONTAL SLOTTED HOLE	RWD	REDWOOD
BOT	BOTTOM	HSS	HOLLOW STRUCTURAL SECTION	S	AMERICAN STANDARD BEAM
BRG	BEARING	HT	HEIGHT	SAD	SEE ARCHITECTURAL DRAWINGS
BTWN	BETWEEN	ID	INSIDE DIAMETER	SB	SOLID BLOCK
BU	BUILT-UP	IJ	I SHAPED WOOD BUILT UP TRUSS	SC	SLIP CRITICAL
BYND	BEYOND	INT	INTERIOR	SCD	SEE CIVIL DRAWINGS
C	AMERICAN STANDARD CHANNEL	JST	JOIST	SCHED	SCHEDULE
CA	CALIFORNIA	JT	JOINT	SED	SEE ELECTRICAL DRAWINGS
CANT	CANTILEVER	KP	KING POST	SEOR	STRUCTURAL ENGINEER OF RECORD
CB	CARRIAGE BOLT	L	STEEL ANGLE	SFRS	SEISMIC FORCE RESISTING SYSTEM
CFS	COLD FORMED STEEL	Lb or #	POUND(s)	SHTG	SHEATHING
CIP	CAST IN PLACE	LGMF	LIGHT GAGE METAL FRAMING	SIM	SIMILAR
CGL	CERTIFIED GLUED LUMBER	LGMFC	LIGHT GAGE METAL FRAMING CONTRACTOR	SKYLT	SKYLIGHT
CJ	CONTROL JOINT	LL	LIVE LOAD	SLD	SEE LANDSCAPE DRAWINGS
℄	CENTERLINE	LLH	LONG LEG HORIZONTAL	SMS	SHEET METAL SCREW
CJP	COMPLETE JOINT PENETRATION	LLV	LONG LEG VERTICAL	SMD	SEE MECHANICAL DRAWINGS
CLG	CEILING	LOC	LOCATION	SOG	SLAB ON GRADE
CLR	CLEAR	LS	LAG SCREW	SPCG	SPACING
COL	COLUMN	LSL	LAMINATED STRAND LUMBER	SPD	SEE PLUMBING DRAWINGS
CONC	CONCRETE	LVL	LAMINATED VENEER LUMBER	SPEC	SPECIFICATION
CONN	CONNECTION	LWC	LIGHTWEIGHT CONCRETE	SQ	SQUARE
CONT	CONTINUOUS	MAX	MAXIMUM	SS	SELECT STRUCTURAL or STAINLESS STEEL
COORD	COORDINATE/ COORDINATION	MB	MACHINE BOLT	STGR	STAGGERED
CMU	CONCRETE MASONRY UNIT	MBM	METAL BUILDING MANUFACTURER	STD	STANDARD
CSK	COUNTERSINK	MC	MISCELLANEOUS CHANNEL	STFF	STIFFENER
CW	CUT WASHER	MECH	MECHANICAL	STL	STEEL
DBA	DEFORMED BAR ANCHOR	MEZZ	MEZZANINE	STRUCT	STRUCTURAL
DBL	DOUBLE	MF	MOMENT FRAME	SW	SHEAR WALL
DCW	DEMAND CRITICAL WELD	MFR	MANUFACTURER	SYM	SYMMETRICAL
DF	DOUGLAS FIR	MIN	MINIMUM	T&B	TOP AND BOTTOM
DIA or ø	DIAMETER	MISC	MISCELLANEOUS	T&G	TONGUE AND GROOVE
DIAG	DIAGONAL	MW	MALLEABLE IRON WASHER	THK	THICK
DIM	DIMENSION	MTL	METAL	THRD	THREADED
DIST	DISTANCE	MU	MECH UNIT	THRU	THROUGH
DJ	DOWEL JOINT	(N)	NEW	TL	TOTAL LOAD
DL	DEAD LOAD	N/A	NOT APPLICABLE	TN	TOE NAIL
DN	DOWN	NO or #	NUMBER	TOC	TOP OF CONCRETE
DO	DITTO	NS	NEAR SIDE	TOF	TOP OF FRAMING
DWG	DRAWING	NSG	NON-SHRINK GROUT	TOM	TOP OF MASONRY
DWL	DOWEL	NTS	NOT TO SCALE	TOP	TOP OF PLYWOOD
EA	EACH	NWC	NORMAL-WEIGHT CONCRETE	TOS	TOP OF STEEL
EE	EACH END	O/	OVER	TOT	TOTAL
EF	EACH FACE	OC	ON CENTER	TU	TILT UP
ELEC	ELECTRICAL	OD	OUTSIDE DIAMETER	TYP	TYPICAL
ELEV	ELEVATOR/ELEVATION	OH	OPPOSITE HAND	UNO	UNLESS NOTED OTHERWISE
EMBED	EMBEDMENT	OPNG	OPENING	VERT	VERTICAL
EQ	EQUAL	OPP	OPPOSITE	VIF	VERIFY IN FIELD
EQUIP	EQUIPMENT	OVS	OVERSIZED	VSH	VERTICAL SLOTTED HOLE
ES	EACH SIDE	OW	OTHERWISE	W	WIDE FLANGE STEEL BEAM
EW	EACH WAY	OWT	OPEN WEB TRUSS	W/	WITH
(E)	EXISTING	℄	PLATE or PROPERTY LINE	W/O	WITHOUT
EXP	EXPANSION	PA	POST ABOVE	WD	WOOD
EXT	EXTERIOR	PAF	POWER ACTUATED FASTENERS	WHS	WELDED HEADED STUD
FDN	FOUNDATION	PEN	PANEL EDGE NAIL	WLD	WELDED
FIN	FINISH	PERP	PERPENDICULAR	WP	WORK POINT/WATERPROOF
FG	FINISH GRADE	PES	PANEL EDGE SCREWS	WS	WOOD SCREW
FLR	FLOOR	PJP	PARTIAL JOINT PENETRATION	WT	WEIGHT
FN	FACE NAIL	PLF	POUNDS PER LINEAR FOOT	WTS	WELDED THREADED STUD
FOC	FACE OF CONCRETE			WWR	WELDED WIRE REINFORCEMENT
FOM	FACE OF MASONRY				
FOS	FACE OF STUD				
FRMG	FRAMING				
FS	FAR SIDE				

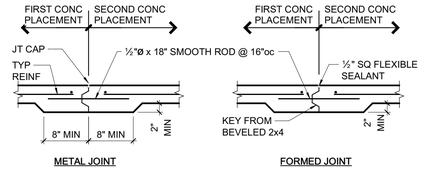
A FOUNDATION NOTES

1. NO GEOTECHNICAL REPORT HAS BEEN PROVIDED FOR THIS PROJECT. FOUNDATION DESIGN BASED ON MINIMUM ALLOWABLE SOIL BEARING PRESSURE ALLOWED PER THE CALIFORNIA BUILDING CODE, CHAPTER 18A.

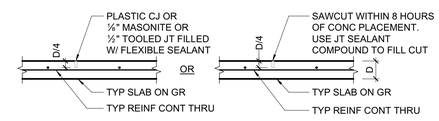
   SHALLOW FOOTINGS:

   DEAD LOAD + LIVE LOAD = 1,500 PSF
   DEAD LOAD + LIVE LOAD + LATERAL = 2,000 PSF

2. ALL SOILS WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS OF CHAPTER 18A OF THE CBC. ALL FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED, NATIVE SOILS AT OR EXCEEDING DEPTHS SHOWN ON THE DRAWINGS. INCREASE FILL AND OR FOOTING DEPTH AS REQUIRED. ALL FOOTING EXCAVATIONS SHALL BE AS NEAT AS PRACTICABLE. MAXIMUM OVER EXCAVATION IN WIDTH SHALL BE LESS THAN 12 INCHES OR 25% OF FOOTING WIDTH, WHICH EVER IS LESS. 6 INCHES MAXIMUM PER SIDE. LARGER OVER-EXCAVATIONS IN WIDTH SHALL BE FILLED WITH ADDITIONAL REINFORCED CONCRETE AS DIRECTED BY THE ENGINEER, OR FORMWORK SHALL BE PROVIDED. OVER-EXCAVATIONS IN DEPTH MAY BE FILLED WITH LEAN CONCRETE OR COMPACTED APPROVED BACKFILL. ALL LOOSE SOILS SHALL BE REMOVED FROM EXCAVATIONS PRIOR TO PLACEMENT OF REINFORCING OR CONCRETE.
3. TYPICAL SLAB: 5" CONCRETE REINFORCED WITH #4 @ 16"oc EACH WAY AT MID-DEPTH OVER 4" MINIMUM FREE DRAINING COMPACTED ¾" CRUSHED ROCK ON SUBGRADE. DO NOT DRIVE CONCRETE TRUCKS OR LARGE SCREED MACHINES ON VAPOR RETARDER WITHOUT ADDITIONAL BUFFER MATERIAL AND APPROVAL FROM THE STRUCTURAL ENGINEER.
4. PROVIDE CONTROL JOINTS PER 1/S0.1 (OR CONSTRUCTION/DOWEL JOINTS AT CONTRACTOR'S OPTION) AS SHOWN ON PLAN AND AS REQUIRED TO MEET A MAXIMUM SPACING IN FEET OF 3 TIMES THE SLAB DEPTH IN INCHES (FOR EXAMPLE 3x4" = 12'-0"oc MAX) AND 15'-0" MAX. INSTALL JOINTS TO DIVIDE SLAB INTO RECTANGULAR AREAS WITH LONG DIMENSION LESS THAN 1.5x SHORT DIMENSION. INSTALL JOINTS AT FACE OF STUDS OF WALL WHERE POSSIBLE. SUBMIT JOINT LAYOUT PLAN FOR REVIEW PRIOR TO PLACEMENT.
5. DO NOT UNDERCUT EXISTING FOUNDATIONS. NOTIFY ENGINEER FOR REVIEW AND POSSIBLE REVISIONS, IF EXISTING FOUNDATION CONDITIONS ARE NOT AS SHOWN.

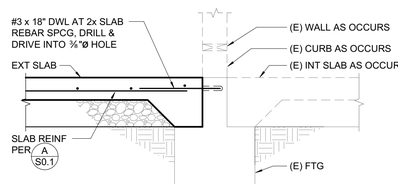


A CONSTRUCTION/DOWEL JOINT

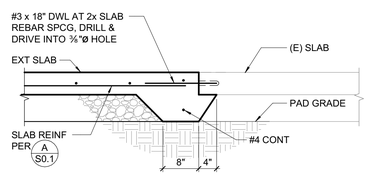


B CONTROL JOINT

1 SLAB ON GRADE JOINTS
3/4" = 1'-0"



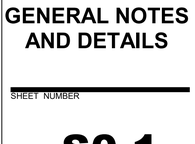
A NEW SLAB TO EXISTING FOOTING



2 NEW SLAB TO EXISTING SLAB
3/4" = 1'-0"

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no.21159
zfa.com
707.526.0992



04/01/2021

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ZFA NO:	21159
ENGR / PM:	JLT / CSW
DRAWING SCALE:	As indicated
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

GENERAL NOTES AND DETAILS

SHEET NUMBER

S0.1

EQUIPMENT ANCHORAGE NOTES

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 2019 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.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 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 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2019 CBC, SECTIONS 1616A.1.24, 1616A.1.25 AND 1616A.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., OSHPD OPM FOR 2016 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 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 #).

ENFORCABLE GOVERNING CODES:

2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA PLUMBING CODE
ASTM A653 AND A924 STANDARDS

HIGH EFFIENCY GAS FURNACE WITH OUTDOOR CONDENSING UNIT SCHEDULE

MANUFACTURER: CARRIER

BLDG. RM. NO.	EQUIP. TAGS	COND. MDL. FURNACE SS COIL	SUPPLY AIR CFM	VENT. CFM (MIN.)	COOLING (MBH)		GAS (BTUH)	SEER	AFUE	ESP	ELECTRICAL (FURNACE)				ELECTRICAL (CONDENSER)					(E)FILTER QTY./ SIZE	FURNACE WT (LBS)	CU WT (LBS)	MOUNTING + CONTROLS
					SENS.	TOTAL	INPUT/OUTPUT				Volts	Ø	MCA	MOCP	Volts	Ø	MCA	MOCP	FLA				
CLASS ROOM A1	F 1 / CU 1	24APB648A003 59TP6B080V21 CNPVP4821ALA	1600	430 (230)	34.69	45,24	80,000/78,000	16,0	96	0.50" W.C.	120	1	14,7	20	208	1	25,9	40	21,3	(2) 20"x20" @ MIXING BOX RACK	222	332	A M-4.1 / 1 M-5.2
CLASS ROOM A2	F 2 / CU 2	24APB648A003 59TP6B080V21 CNPVP4821ALA	1600	430 (230)	34.69	45,24	80,000/78,000	16,0	96	0.50" W.C.	120	1	14,7	20	208	1	25,9	40	21,3	(2) 20"x20" @ MIXING BOX RACK	222	332	A M-4.1 / 1 M-5.2
CLASS ROOM A3	F 3 / CU 3	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM A4	F 4 / CU 4	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM A5	F 5 / CU 5	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM A6	F 6 / CU 6	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM A7	F 7 / CU 7	24APB648A003 59TP6B080V21 CNPVP4821ALA	1600	430 (230)	34.69	45,24	80,000/78,000	16,0	96	0.50" W.C.	120	1	14,7	20	208	1	25,9	40	21,3	(2) 20"x20" @ MIXING BOX RACK	222	332	A M-4.1 / 1 M-5.2
CLASS ROOM A8	F 8 / CU 8	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM B9	F 9 / CU 9	24APB648A003 59TP6B080V21 CNPVP4821ALA	1600	430 (230)	34.69	45,24	80,000/78,000	16,0	96	0.50" W.C.	120	1	14,7	20	208	1	25,9	40	21,3	(2) 20"x20" @ MIXING BOX RACK	222	332	A M-4.1 / 1 M-5.2
CLASS ROOM B10	F 10 / CU 10	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM B11	F 11 / CU 11	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2
CLASS ROOM B12	F 12 / CU 12	24APB636A003 59TP6B060V17 CNPVP3717ALA	1200	330 (130)	25.79	33,60	60,000/58,000	16,0	96	0.50" W.C.	120	1	10,9	15	208	1	17,9	30	14,5	(2) 20"x20" @ MIXING BOX RACK	185	240	A M-4.1 / 1 M-5.2

REMARKS:
1. PROVIDE WITH PELICAN WIRELESS CONTROLLER INTERCONNECTED WITH CONTROLS SUPPLIED INTEGRAL FROM MANUFACTURER.
2. PROVIDE TEMPERATURE SENSOR AND NIGHT SETBACK THERMOSTAT CONNECTED TO BMS AS INDICATED ON PLANS.
3. MINIMUM VENTILATION PROVIDED TO SPACE THROUGH OSA INTAKE TO RETURN AIR PLENUM (MIXING BOX) IN COMPLIANCE WITH 2020 CEC.
4. SET OUTSIDE AIR LEVELS FOR CO2 CONTROL AS LISTED (TITLE-24 COMPLIANT) AND MIN OCCUPIED HOURS ECONOMIZER OSA AS LISTED.
5. EXISTING FURNACE AND FAN COIL MODEL NUMBERS ARE PROVIDED FOR REFERENCE ONLY AND MAY BE DIFFERENT AT SOME LOCATIONS.
6. REFRIGERANT LINE SET SIZING FOR NEW SYSTEMS: 3/8" LIQUID / 7/8" VAPOR INDICATED BASED ON REASONABLE LINE LENGTHS AND ELEVATIONS. SHOP DRAWINGS ARE REQUIRED TO VERIFY MAXIMUM LINE SIZE LENGTHS AND FITTINGS WITH MANUFACTURER'S TABLES AND RECOMMENDATIONS.
7. PROVIDE VERTICAL FURNACE AND COIL UNIT WITH AIR TIGHT MDL. FSFHE2020-6 FILTER KIT AND MICROMETL MB-GP15CA-D2DH MIXING BOX (FULL ECONOMIZER).
8. PROVIDE CARBON MONOXIDE SENSOR IN EACH CLASSROOM FOR MECHANICAL EQUIPMENT SHUT DOWN PER CBC AND AB.56 DIRECTIVES. SEE ELEC. DWGS.
9. PROVIDE MANUFACTURER VENT KIT FOR SIDE OF CABINET FLUE VENT AND COMBUSTION AIR INTAKE CONNECTIONS.

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE (PRINCIPALS OFFICE)

LOCATION	MARK	MODEL	SUPPLY AIR (CFM)	VENT. MIN. (CFM)	COOLING (MBH)		HEAT (MBH)	SEER	HSPF	ELECTRICAL (HEAT PUMP)					ELECTRICAL (FAN COIL)					HEATER kW	FILTER	FC WT (LBS)	HP WT (LBS)	DETAIL
					SENS.	TOTAL	TOTAL			Volts	Ø	MCA	MOCP	FLA	Volts	Ø	MCA	MOCP	FLA					
PRINCIPALS OFFICE A15	HP 1 / FC 1	CARRIER 38MAQB12R 40MBDQ12	176 LO 282 MD 353 HI	44	10.11	12.00	14.07	20.5	11.0	208	1	9.0	15	--	208	1	1.11	SEE OUT-DOOR UNIT	--	N/A	INTEGRAL	44	92	G M-4.1 / C M-4.1

REMARKS:
1. PROVIDE WITH ALL NECESSARY REFRIGERATION PIPING & APPURTENANCES; R410A REFRIGERANT
2. PROVIDE WITH AUXILIARY CONDENSATE PUMP AS REQUIRED.
3. PROVIDE WITH FACTORY CARRIER MDL.KSACN0701AAA WIRED 7 DAY PROGRAMMABLE THERMOSTAT. WIRE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTACT LOCAL REP FOR INFORMATION. FIELD MOUNTED THERMOSTAT ADAPTOR CARDS NOT ALLOWED.
4. MINIMUM VENTILATION AIR PROVIDED TO SPACE THROUGH OUTSIDE AIR DUCT WITH MANUALLY BALANCED VOLUME DAMPER IN COMPLIANCE WITH 2019 CA ENERGY CODE..
5. PROVIDE WITH MICROMETL MDL. #FS-40VM1.01 FILTER BOX WITH 2" PLEATED MERV-13 FILTERS.
6. INDOOR FAN COIL AND OUTDOOR CONDENSING UNITS REQUIRE SINGLE ELECTRICAL POINT OF CONNECTION.

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
1 / P-1		DRAWING NUMBER
A / P-1		DETAIL NUMBER / DRAWING NUMBER
WH 1		EQUIPMENT IDENTIFICATION
	SA OR OA	SECTION THRU SUPPLY AIR OR OUTSIDE AIR DUCT
	RA OR EA	SECTION THRU RETURN AIR OR EXHAUST AIR DUCT
		ROUND DUCT DOWN
DN / DN	DN OR UP	SLOPE DUCT DOWN OR UP IN DIRECTION OF FLOW
	L	ACOUSTICAL LINING
	FC	FLEXIBLE DUCT CONNECTION
	VD	VOLUME DAMPER
	TV	TURNING VANES
		FLEXIBLE DUCT
		45° ROUND DUCT TAKE-OFF
		45° RECTANGULAR DUCT TAKE-OFF
		90° RADIUS TURN - ROUND OR RECTANGULAR DUCT
		SQUARE TO ROUND DUCT TRANSITION
		DUCT TRANSITION
		RECTANGULAR DUCT 90° SPLIT
T		THERMOSTAT
CO_2		CARBON DIOXIDE SENSOR (48" A.F.F.)
M		MOTORIZED DAMPER + ACTUATOR
(E) FD		FIRE DAMPER - 1-1/2 HR. RATED, CURTAIN (EXISTING TO REMAIN)
	AP	ACCESS PANEL
	POC, POD	POINT OF CONNECTION, DISCONNECT

TERMINAL SCHEDULE

MANUFACTURER: TITUS

SWD		SUPPLY GRILLE (WALL)	MODEL 300FS HD. LOUVERS ON 3/4" CENTERS, DOUBLE DEFLECTION, STEEL CONSTRUCTION, LOUVERS PARALLEL W/ SHORT DIMENSION, WITH AIR SCOOP EXTRACTOR
SWR		RETURN GRILLE (WALL)	MODEL 355 ZRL. LOUVERS ON 3/4" CENTERS, 0° DEGREES DEFLECTION, HEAVY DUTY CONSTRUCTION, LOUVERS LOUVERS PARALLEL WITH LONG DIMENSION
(E)SD		SUPPLY DIFFUSER (DUCT)	(E)TITUS 272 RL SPIRAL DUCT-MOUNTED, OPPOSED BLADE DAMPER
		WALL LOUVER	RUSKIN ELBD-375E STEEL CONSTRUCTION WITH INTEGRAL BACKDRAFT DAMPER, FLANGE AND AUXILIARY FRAME

NOTES:
1. ADAPTER NEEDED FOR TRANSITION FROM SQUARE NECK TO ROUND DUCT.
2. SIZE (NECK/FACE) TYPE / CFM (NO. OF THROW) FACE SIZE FOR T-BAR CEILING ONLY

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER — CHRISTOPHER J. DEL CARLO — No. 24000 — MECHANICAL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
574 Villa Lane Napa, CA 94558 ph: 707-252-9177 fax: 707-252-9473

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434
ARCH PROJECT NO: 1889.02
DRAWN BY: MEC
DRAWING SCALE: AS SHOWN
PTN: 70714-16 FILE NO: 49-39

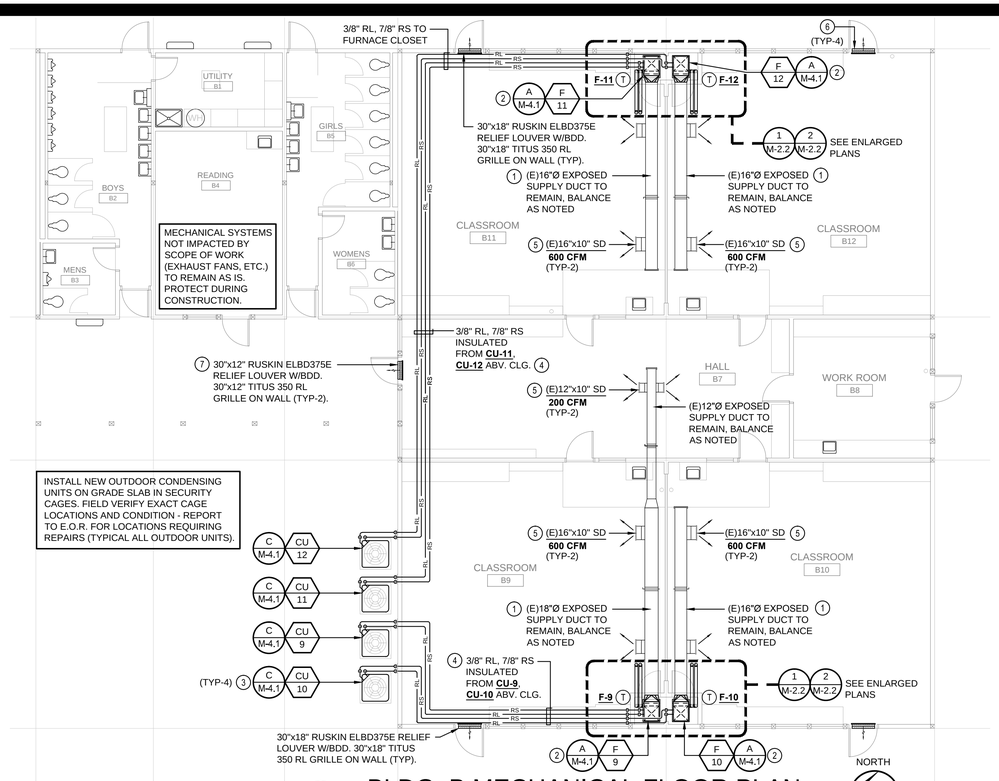
DSA SUBMITTAL
APRIL 5, 2021

SHEET TITLE
MECHANICAL SCHEDULES & LEGENDS

SHEET NUMBER
M-1.1

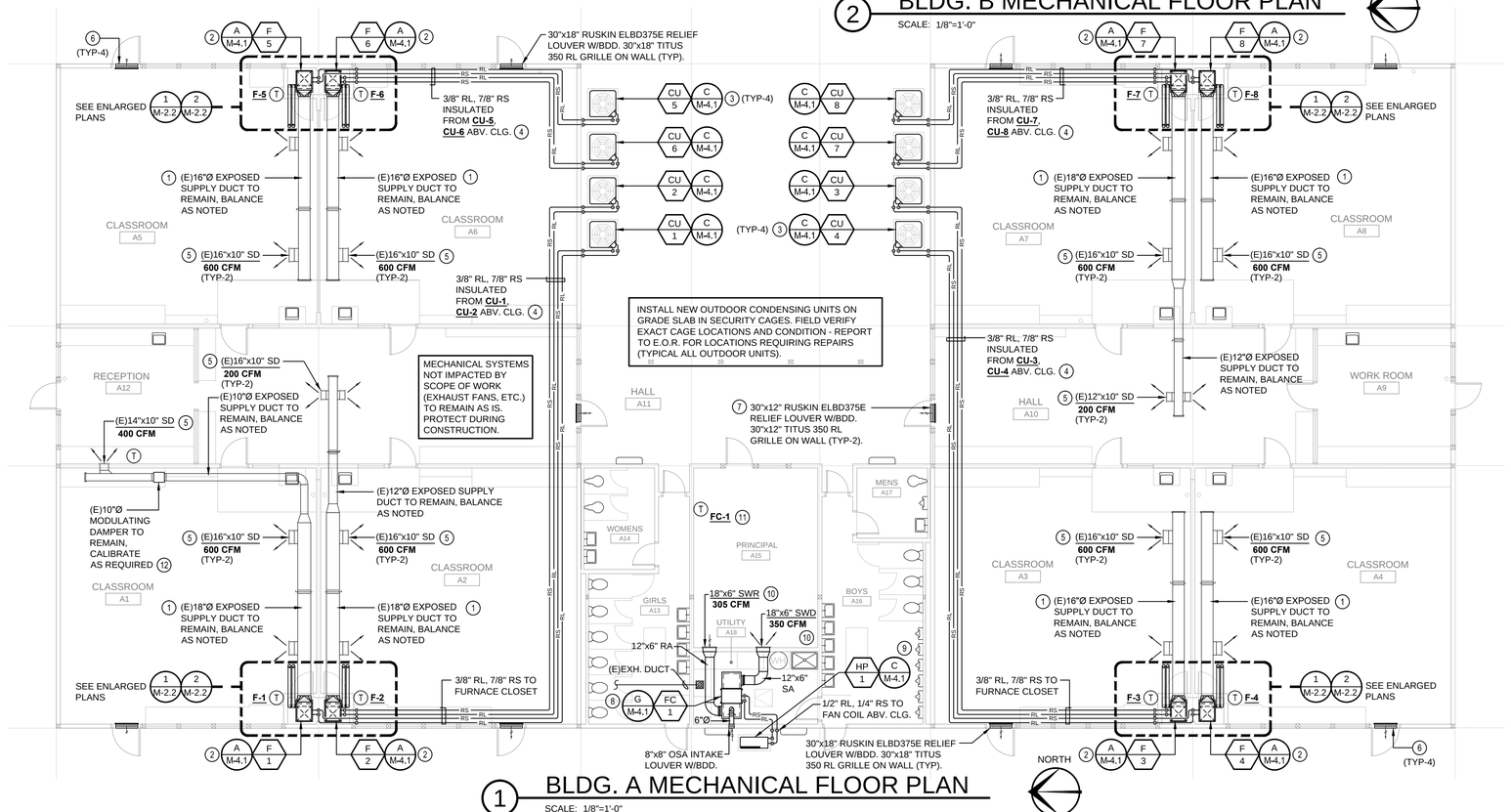
MECHANICAL COMBINED PLAN NOTES

1. DATA SHOWN IS BEST AVAILABLE FOR EXISTING DUCTS, DIFFUSERS AND ROUTING OF SPIRAL SUPPLY MAIN ROUTED IN CLASSROOM TO REMAIN. VERIFY CONDITION OF VOLUME DAMPERS AND DIFFUSERS FOR FUNCTIONALITY IN NEW SCOPE OF WORK AND REPORT ANY DEFECTS TO ENGINEER OF RECORD.
2. REMOVE AND REPLACE FURNACE ON MIXING PLENUM AND INSTALL NEW MOTORIZED CONTROL ACTUATORS/DAMPERS AT OUTSIDE AIR AND RETURN MIXING BOX CONNECTIONS. SEE M-2.2 FOR COMPLETE DEMOLITION AND NEW SCOPE OF WORK FOR ENLARGED CLASSROOM AREAS AS INDICATED.
3. INSTALL NEW OUTDOOR DX CONDENSING UNIT ON CONCRETE PAD AND ATTACH PER C/M-4.1. VERIFY LOCATIONS OF ALL NEW OUTDOOR EQUIPMENT WITH DISTRICT PRIOR TO COMMENCING WORK. FIELD REVIEW AND COORDINATE WITH ALL EXISTING LANDSCAPE AND UTILITY VALVES, PIPING, FOLIAGE ETC. THAT WOULD IMPACT SCOPE OF WORK AS SHOWN. ALERT E.O.R. TO CONFLICTS.
4. ROUTE NEW REFRIGERANT PIPING FROM OUTDOOR UNIT CONNECTION RACKED ALONG EXTERIOR WALL PER F/M-4.1 INTO ATTIC SPACE. SIZE PIPING AT LINE SETS FOR 3/8" LIQUID / 7/8" VAPOR TO NEW INDOOR DX COIL AND TRAP FOR OIL ENTRAINMENT, TEST COIL PERFORMANCE AND VERIFY OUTLET TEMPERATURE OF COIL @ 62°F MAX LEAVING AIR TEMPERATURE. ALL REFRIGERANT PIPING (LIQ./VAPOR) SHALL BE FULLY INSULATED WITH HARD SHELL FOR OUTDOOR LOCATIONS . FLASH AND PROTECT WALL PENETRATION. SUPPORT DX LINE SETS IN ATTIC PER F/M-4./1. VERIFY ATTIC ROUTING AND REPORT OBSTRUCTIONS TO E.O.R.
5. BALANCE EXISTING DIFFUSERS TO NEW AIRFLOW RATES SHOWN. REPORT IN FINAL DIAGRAMMED TAB REPORT TO E,O,R.
6. INSTALL NEW 30"x18" FACE RELIEF AIR LOUVER WITH BACK DRAFT DAMPER IN CLASSROOM EXTERIOR WALL ABOVE EXISTING DOOR. CONNECT NEW LOUVER SLEEVE TO BLADED INDOOR GRILLE ON INTERIOR WALL AS NOTED. FIELD VERIFY EXISTING CONDITIONS FOR OBSTRUCTION IMPACTING DESIGN.
7. INSTALL NEW 30"x12" FACE RELIEF AIR LOUVER WITH BACK DRAFT DAMPER IN HALLWAY EXTERIOR WALL ABOVE EXISTING DOOR. CONNECT NEW LOUVER SLEEVE TO BLADED INDOOR GRILLE ON INTERIOR WALL AS NOTED. FIELD VERIFY EXISTING CONDITIONS FOR OBSTRUCTION IMPACTING DESIGN.
8. INSTALL NEW LOW SILHOUETTE FAN COIL ABOVE CEILING IN UTILITY ROOM PER G/M-4.1. INSTALL EXTERIOR INTAKE LOUVER AND ROUTE 6"Ø OSA DUCT TO RETURN PLENUM CONNECTION. VERIFY LOUVER LOCATION AND HEIGHT WITH DISTRICT AND EXISTING FRAMING/CONDITIONS. PROVIDE LINED SUPPLY AND RETURN PLENUMS T FAN COIL CONNECTIONS AND ROUTE FLAT RECTANGULAR DUCT TO DIFFUSER AND GRILLE. FIELD VERIFY (E)ATTIC FRAMING.
9. INSTALL NEW OUTDOOR DX CONDENSING UNIT ON CONCRETE PAD BEHIND UTILITY ROOM AND ATTACH PER C/M-4.1. FIELD REVIEW AND COORDINATE WITH ALL EXISTING GUARD RAILS AND EXTERIOR ITEMS THAT WOULD IMPACT SCOPE OF WORK AS SHOWN. ALERT E.O.R. TO CONFLICTS.
10. LOCATE NEW SUPPLY DIFFUSER AND RETURN GRILLE BETWEEN HEADERS AT PRINCIPAL'S OFFICE CEILING AND UTILITY ROOM CEILING TO INTERIOR WALL AS SHOWN. COORDINATE WITH ARCHITECT AND DISTRICT FOR EXACT LOCATIONS AND REMODEL OF INTERIOR SPACE EXISTING CONDITIONS INCLUDING WALL FACING AND DECORATION. PROTECT ALL ITEMS MOVED TEMPORARILY OR RELOCATED. BALANCE AIRFLOW TO RATES SHOWN AND SET OUTSIDE AIR INTAKE DAMPER PER SCHEDULE ON M-1.1.
11. INSTALL NEW THERMOSTAT AS DIRECTED BY ARCHITECTURAL DRAWINGS AND COORDINATE LOCATION WITH EXISTING CONDITIONS. REFER TO DIAGRAM 1/M-5.2 FOR CONTROL COMPONENTS.
12. VERIFY OPERATION OF EXISTING MODULATING DAMPER SERVING RECEPTION AND CALIBRATE OR REFURBISH AS REQUIRED FOR COMPLETE OPERATION PER NEW SCOPE.



BLDG. B MECHANICAL FLOOR PLAN

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



BLDG. A MECHANICAL FLOOR PLAN

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

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. DEL CARLO
No. M 24000
MECHANICAL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
574 Villa Lane Napa, CA 94558 ph: 707.252.9177 fax: 707.252.6473

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	MEC
DRAWING SCALE:	AS SHOWN
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

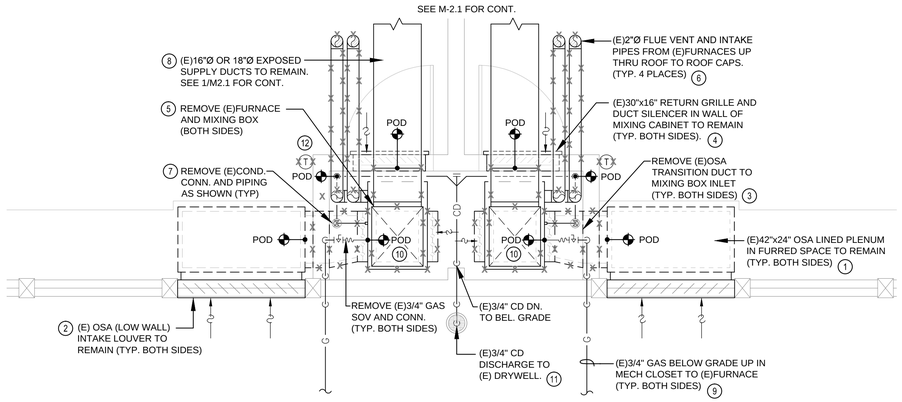
APRIL 5, 2021

SHEET TITLE

BLDG. A AND BLDG. B MECHANICAL FLOOR PLANS

SHEET NUMBER

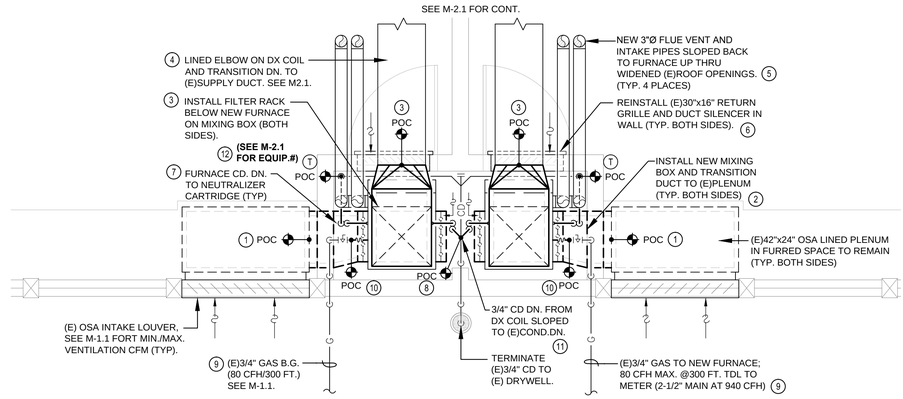
M-2.1



1 MECHANICAL ROOM DEMOLITION FLOOR PLAN (TYPICAL)

SCALE: 1/2"=1'-0"

NORTH



2 MECHANICAL ROOM REMODEL FLOOR PLAN (TYPICAL)

SCALE: 1/2"=1'-0"

NORTH

MECHANICAL DEMOLITION NOTES

GENERAL NOTE: DATA SHOWN IS BEST AVAILABLE FOR EXISTING FURNACE CLOSETS, DUCTS AND DIFFUSERS SERVING SPIRAL SUPPLY MAIN ROUTED IN SPACE TO REMAIN. VERIFY CONDITION OF VOLUME DAMPERS AND DIFFUSERS FOR COMPLETE FUNCTIONALITY IN NEW SCOPE OF WORK AND REPORT ANY DEFECTS TO ENGINEER OF RECORD.

1. PROTECT IN PLACE EXISTING LINED 42"x24" OUTSIDE AIR INTAKE PLENUM BOX. INVESTIGATE CONDITION OF DUCT AND LINING BY VIDEO CAMERA OR OTHER MEANS TO INSURE PLENUM IS CLEAN OF DEBRIS, HEAVY CORROSION, OR DENTS AND HOLES. REPORT TO E.O.R. MAJOR ITEMS IMPACTING NEW SCOPE.
2. PROTECT IN PLACE EXISTING OUTDOOR AIR INTAKE LOUVER INSTALLED IN EXTERIOR WALL OF MECHANICAL CLOSET AND CLASSROOM. CLEAN, REPAIR AND REFURBISH AS REQUIRED FOR FULL FUNCTIONALITY IN NEW SCOPE.
3. RECORD DIMENSIONS/CONNECTIONS OF EXISTING TRANSITION DUCT BETWEEN PLENUM AND OSA MIXING BOX. REMOVE MECHANICAL CLOSET TOP PLANKS AROUND FURNACE OPENING AS REQUIRED FOR ACCESS TO NEW MIXING DAMPERS AND CONNECTION OF TRANSITION REPLACEMENT IN NEW SCOPE.
4. TEMPORARILY REMOVE AND PROTECT EXISTING 30"x16" RETURN GRILLE AND DUCT SILENCER AT FURNACE CLOSET WALL FOR ACCESS TO MIXING AREA.
5. REMOVE EXISTING FURNACE ON MIXING PLENUM WITH FILTER RACK AND ALL MIXING DAMPERS. VERIFY EXISTING CONDITIONS AND FRAMING TO MATCH FOR REPAIR AT COMPLETION OF NEW MIXING BOX SCOPE. WIDEN EXISTING OPENING AS REQUIRED TO ACCOMPLISH NEW WORK AND CONTROLS.
6. DEMOLISH EXISTING 2" FLUE VENT AND INTAKE PIPING FROM (E)FURNACE UP FROM EQUIPMENT CLOSET THRU ROOF FOR REPLACEMENT. COORDINATE EXPANSION, FLASHING, PATCH & REPAIR OF (E) OPENINGS WITH NEW SCOPE.
7. REMOVE EXISTING CONDENSATE PIPING AND GAPPED INLET TO POINT OF DISCONNECT AS SHOWN. VERIFY (E) CONDENSATE COMBINED PIPING DOWNSTREAM OF P.O.D. IS SLOPED MIN. 1/8"/FT. TO DROP BELOW GRADE.
8. DISCONNECT EXISTING SUPPLY DUCTS FROM FURNACE CONNECTIONS AT EXISTING CLASSROOM WALL PENETRATIONS FOR NEW FURNACE INSTALLATION. VERIFY EXPOSED DUCT IS CLEAN WITHOUT DAMAGE AND RETAIN FOR REUSE.
9. FIELD VERIFY EXISTING GAS SUPPLY PIPING SIZE, CONDITION AND PRESSURE DELIVERY TO MECHANICAL CLOSET FOR REUSE. ALERT E.O.R. TO CONDITIONS SIGNIFICANTLY IMPACTING NEW SCOPE AND VERIFY S.O.V. OPERATION.
10. CAP AND DISCONNECT EXISTING GAS SUPPLY TO FURNACE AT SHUT OFF VALVE. PROTECT IN PLACE FOR RECONNECTION IN NEW SCOPE.
11. VERIFY EXISTING CONDENSATE TERMINATION AT EXISTING DRYWELL HAS MIN. REQUIRED AIR GAP PER 2019 CPC AND REFURBISH AS REQUIRED.
12. FIELD VERIFY EXISTING CONTROLS LOCATION, CONDUIT AND CONTROL WIRING FOR REPLACEMENT AND RECONNECTION TO NEW SCOPE OF WORK. PROTECT OR TEMPORARILY RELOCATE EXISTING COMPONENTS WHERE APPROPRIATE.

MECHANICAL FLOOR PLAN NOTES

1. INSTALL NEW TRANSITION DUCT AT (E)OUTSIDE AIR INTAKE PLENUM IN EQUIPMENT CLOSET EXTERIOR WALL SIZED TO MATCH (E)CONNECTION. ROUTE DUCT AND TRANSITION TO NEW MIXING BOX MOTORIZED DAMPER IN PLENUM SERVING FURNACE.
2. INSTALL NEW RETURN INLET AND OUTSIDE AIR INLET MOTORIZED DAMPERS AT MIXING BOX WITH NEW CONTROL ACTUATORS. COORDINATE CONTROL POWER TO DAMPERS WITH ELECTRICAL VOLTAGE TRANSFORMER AND CO_2 SENSORS. BALANCE AIRFLOW RATES IN ACCORDANCE WITH CEC AND SCHEDULE M-1.1.
3. REPAIR ANY TEMPORARY MODIFICATIONS REQUIRED TO (E) MIXING PLENUM FRAMING, BOARDS OR CONNECTIONS AND INSTALL NEW FILTER RACK ON TOP OF MICROMETL ECONOMIZER OPENING. LOCATE NEW FURNACE ON FILTER RACK IN EQUIPMENT CLOSET AND ATTACH TO STRUCTURE PER A/M-4.1.
4. FIELD VERIFY EXACT HEIGHTS OF DX COIL OUTLET AND (E) EXPOSED SPIRAL DUCT AT CLASSROOM WALL PENETRATION. ATTACH FULL SIZE RECTANGULAR LINED ELBOW ON DX COIL OUTLET AND TRANSITION DOWN AS REQUIRED TO ROUND DUCT CONNECTION. INSTALL REFRIGERANT LINE SET PER 2/M-2.1. BALANCE FURNACE SUPPLY, RETURN AND OUTSIDE AIR RATES WITH NEW MIXING PLENUM MOTORIZED DAMPERS TO SCHEDULE RATES SHOWN ON M-1.1.
5. ROUTE NEW 3" CONCENTRIC FLUE VENT/INTAKE PIPING FROM FURNACE UP THRU EQUIPMENT CLOSET SLOPED AT 1% BACK TO FURNACE. TERMINATE UP THRU EXPANDED ROOF OPENING PER 1/M-3.1. COORDINATE WITH EXISTING EQUIPMENT ROOF FRAMING AND FLASH/REROOF PER ARCH. DRAWINGS.
6. AT COMPLETION OF MIXING BOX AND FURNACE INSTALLATIONS, INSTALL (E) RETURN GRILLE AND DUCT SILENCER INTO ORIGINAL OPENING. TEST AND BALANCE ENTIRE SYSTEM AND VENTILATION AIRFLOW RATES PER SCHEDULES ON M-1.1, REPORT IN FINAL DIAGRAMMED TAB REPORT TO E.O.R.
7. CONNECT NEW 3/4" DRAIN LINE FROM CONDENSING FURNACE OUTLET PER B/M-4.2 AND PIPE TO NEUTRALIZER CARTRIDGE MOUNTED IN EQUIPMENT CLOSET, ATTACH PIPING PER C/M-4.2 AND CONNECT TO EXISTING COMBINED CONDENSATE SYSTEM. ALL PIPING SHALL BE SLOPED AT MIN. 1/8"/FT PER CPC.
8. CONNECT NEW 3/4" CONDENSATE AT DX COIL PAN CONNECTION PER X/M-4.1. TRAP AND ROUTE DOWN FOR CONNECTION TO (E) COMBINED CONDENSATE PIPING. FIELD VERIFY (E)COMBINED CD PIPING SIZE, SLOPE AND ATTACHMENT TO FRAMING. ALERT E.O.R. TO ISSUES REQUIRING MODIFICATION PER 2019 CPC.
9. VERIFY ADEQUATE LOW PRESSURE GAS DELIVERY FROM EXISTING SUPPLY INTO EQUIPMENT CLOSET FOR 60 CFH OR 80 CFH AT 300 FT. TDL PER 2019 CPC.
10. MAKE FINAL GAS CONNECTION TO NEW FURNACE FROM EXISTING GAS SUPPLY PER A/M-4.2. VERIFY CORRECT PILOT OPERATION. REPORT RESULTS TO E.O.R.
11. VERIFY CODE COMPLIANT CONDENSATE TERMINATION AT (E) DRYWELL WITH MIN. AIR GAP PER 2019 CPC. CLEAN AND REFURBISH DRYWELL AS REQUIRED FOR LONG TERM FUNCTIONALITY.
12. INSTALL NEW THERMOSTAT, CO_2 SENSOR AND CONNECTION TO BMS IN NEW SCOPE OF WORK PER 1/M5.2. CONNECT AND MOUNT PELICAN SYSTEM COMPONENTS, WIRING AND PROGRAMMING AS REQUIRED. MOUNT ALL CONTROLS PER ACCESSIBILITY STANDARDS.

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. DEL CARLO
No. M 24003
MECHANICAL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
574 Villa Lane, Napa, CA 94558 ph: 707-252-3177 fax: 707-252-6473

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: MEC
DRAWING SCALE: AS SHOWN
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

MECHANICAL ENLARGED FLOOR PLANS

SHEET NUMBER

M-2.2

DEMOLITION SCOPE OF WORK GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND PRESSURES INCLUDING GAS PIPE ROUTING AND SIZING PRIOR TO COMMENCEMENT OF PROJECT AND REPORT TO E.O.R. ANY DISCREPANCIES SIGNIFICANTLY ALTERING SCOPE AS SHOWN.

2. ISOLATE EACH BLDG. AT RISER OR SERVICE VALVE AND ENSURE ALL GAS EQUIPMENT IS DISABLED DURING ENTIRE COURSE OF CONSTRUCTION. VERIFY HEAT DISABLE.

3. VERIFY SEQUENCING OF GAS SYSTEM SHUT DOWN AND PURGE WITH DISTRICT AND FACILITY PERSONNEL MIN. 30 DAYS PRIOR TO COMMENCING DEMOLITION.

4. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR TRADE SEQUENCING DURING ROOFING REMOVAL, PIPE PURGING AND PIPING REMOVAL.

5. PIPING SHALL BE REMOVED IN LARGEST SEGMENTS FEASIBLE, AND RELOCATED TEMPORARILY IN STORAGE FREE FROM DUST AND DEBRIS ACCUMULATION UNTIL BEGINNING OF NEW WORK PHASE.

NEW ROOFING SCOPE OF WORK GENERAL NOTES:

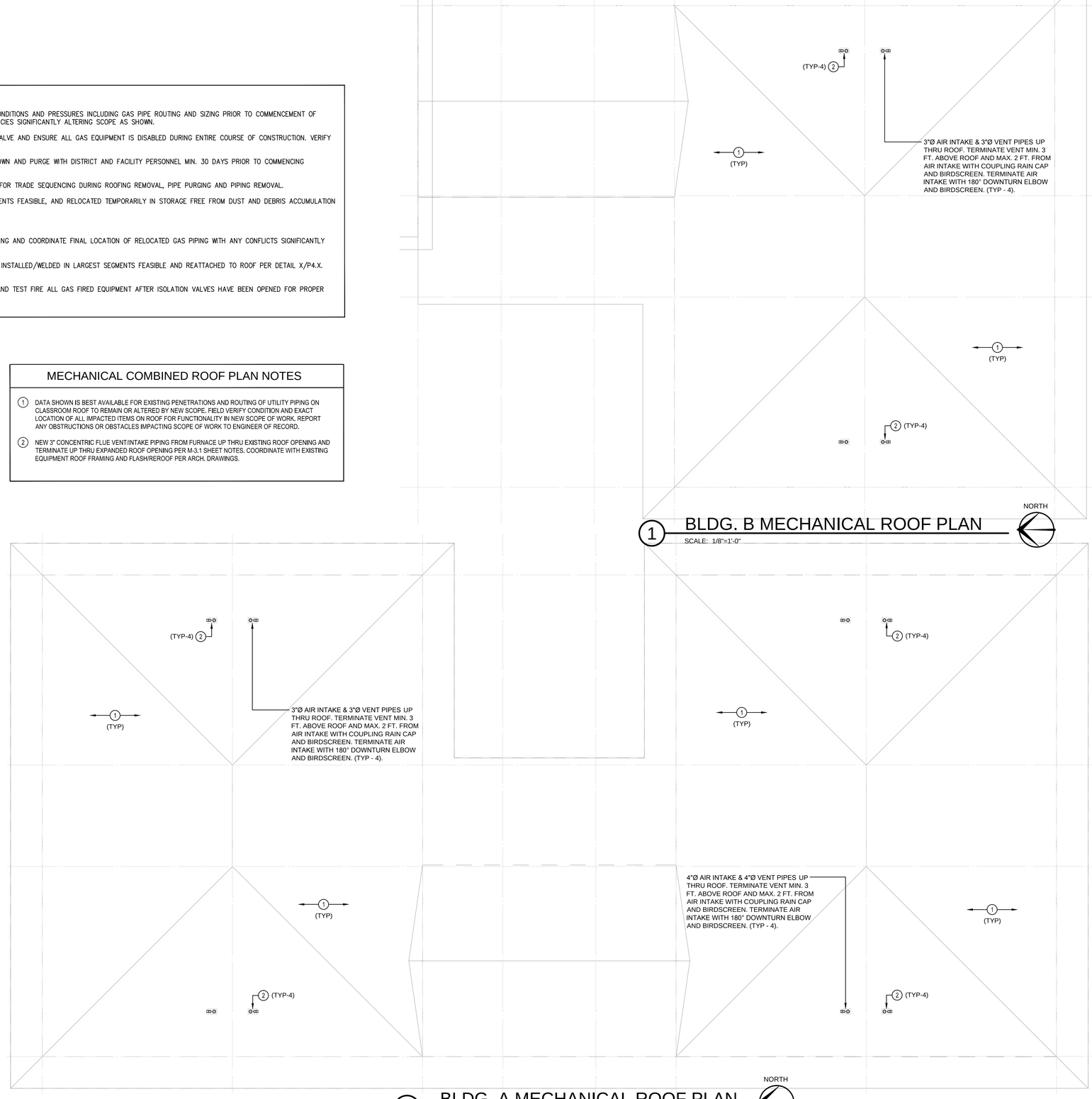
1. CONTRACTOR SHALL FIELD VERIFY ROOF FRAMING AND COORDINATE FINAL LOCATION OF RELOCATED GAS PIPING WITH ANY CONFLICTS SIGNIFICANTLY ALTERING SCOPE.

2. GAS PIPING RUNS SHALL BE RELOCATED AND INSTALLED/WELDED IN LARGEST SEGMENTS FEASIBLE AND REATTACHED TO ROOF PER DETAIL X/P4.X. REFER TO ARCHITECTURAL PLANS.

3. PURGE ENTIRE CAMPUS GAS PIPING SYSTEM AND TEST FIRE ALL GAS FIRED EQUIPMENT AFTER ISOLATION VALVES HAVE BEEN OPENED FOR PROPER OPERATION AND GAS FLOW PRESSURE.

MECHANICAL COMBINED ROOF PLAN NOTES

1. DATA SHOWN IS BEST AVAILABLE FOR EXISTING PENETRATIONS AND ROUTING OF UTILITY PIPING ON CLASSROOM ROOF TO REMAIN OR ALTERED BY NEW SCOPE. FIELD VERIFY CONDITION AND EXACT LOCATION OF ALL IMPACTED ITEMS ON ROOF FOR FUNCTIONALITY IN NEW SCOPE OF WORK. REPORT ANY OBSTRUCTIONS OR OBSTACLES IMPACTING SCOPE OF WORK TO ENGINEER OF RECORD.
2. NEW 3" CONCENTRIC FLUE VENT/INTAKE PIPING FROM FURNACE UP THRU EXISTING ROOF OPENING AND TERMINATE UP THRU EXPANDED ROOF OPENING PER M-3.1 SHEET NOTES. COORDINATE WITH EXISTING EQUIPMENT ROOF FRAMING AND FLASH/REROOF PER ARCH. DRAWINGS.



1 BLDG. B MECHANICAL ROOF PLAN
SCALE: 1/8"=1'-0"

1 BLDG. A MECHANICAL ROOF PLAN
SCALE: 1/8"=1'-0"

NORTH

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. DEL CARLO
No. 24003
MECHANICAL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
574 Villa Lane, Napa, CA 94558 ph: 707-252-3177 fax: 707-252-6473

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: MEC
DRAWING SCALE: AS SHOWN
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

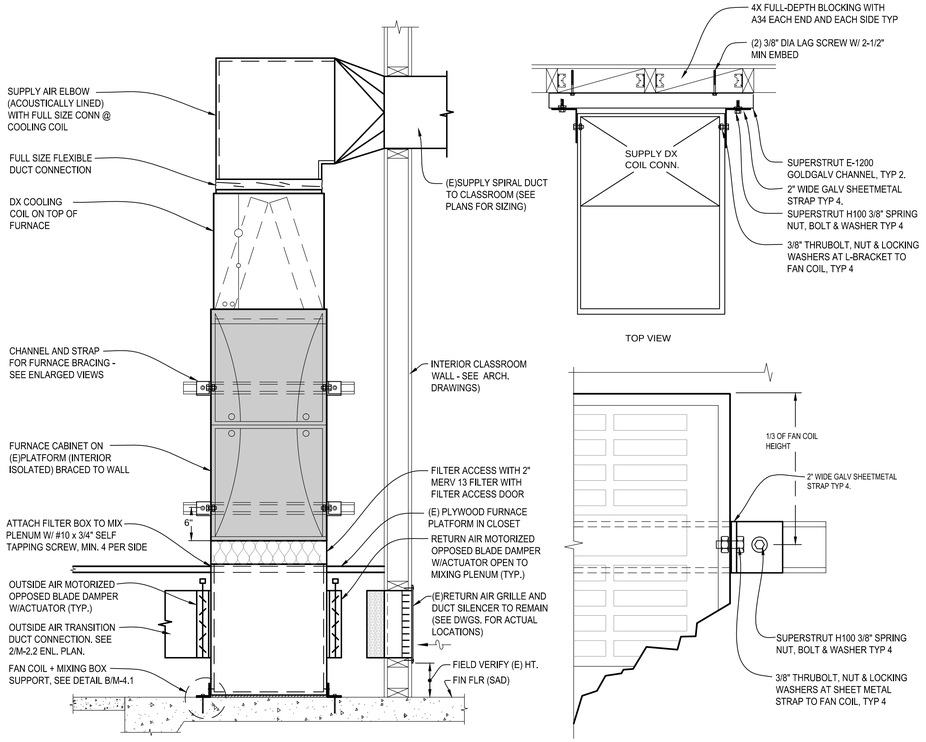
APRIL 5, 2021

SHEET TITLE

BLDG. A AND BLDG. B MECHANICAL ROOF PLAN

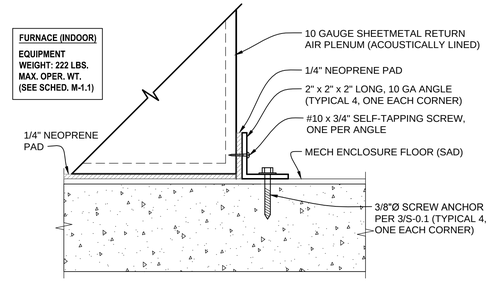
SHEET NUMBER

M-3.1



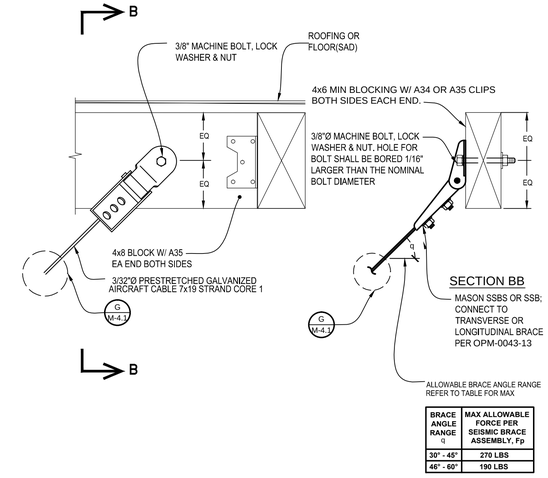
A TYPICAL VERTICAL FAN COIL SECTION

SCALE: NONE



B VERTICAL FAN COIL SUPPORT DETAIL

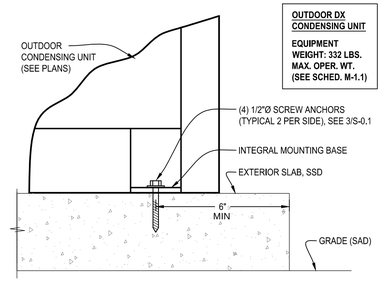
SCALE: NONE



BRACE ANGLE RANGE q	MAX ALLOWABLE FORCE PER SEISMIC BRACE ASSEMBLY, Fp
30° - 45°	270 LBS
46° - 60°	190 LBS

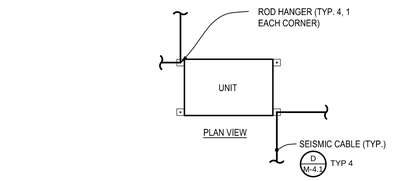
D SEISMIC BRACING CONNECTION

SCALE: NONE

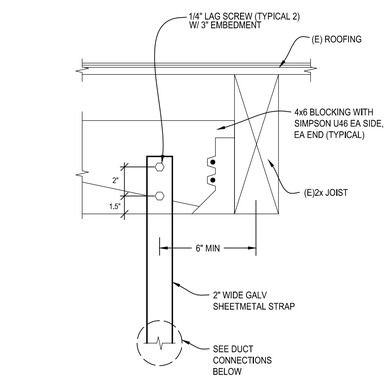


C OUTDOOR CONDENSING UNIT MOUNTING

SCALE: NONE



NOTE:
FAN COIL UNIT SHALL BE MOUNTED WITH FOUR HANGERS MASON INDUSTRIES SEISMIC CABLE BRACE SCBH-0 PROVIDE (2) 3/32"Ø SWAY IN ALL FOUR DIRECTIONS, (TOTAL 4) SHALL RUN IN 90° DIRECTIONS, PER OPM-0043-13. SEE PLAN VIEW. (TYP.)



DUCT SUPPORT NOTES:

A. ALL STRAPS, RODS, TRAPEZE ANGLES AND TRAPEZE CHANNELS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE LATEST OPM 0043-13 REQUIREMENTS.

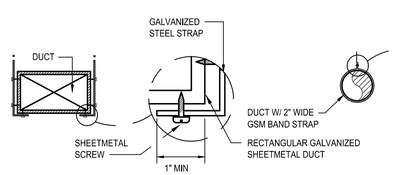
B. ALL BOLTS, NUTS, SCREWS AND OTHER FASTENING DEVICES SHALL BE LOAD-RATED AND SHALL MEET ALL CODE REQUIREMENTS AND SAFETY FACTORS WHICH APPLY.

C. WIRE, USED IN LIEU OF STRAPS AND RODS, IS NOT ALLOWED.

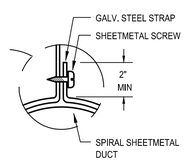
D. WHERE APPLICABLE, INSTALL INSULATION AFTER INSTALLING DUCT HANGERS.

E. LATERAL BRACING REQUIRED ON 32" WIDE AND LARGER RECTANGULAR DUCTS, AND ON 18" DIAMETER AND LARGER ROUND DUCTS.

F. SUPPORTS SHALL BE PLACED AT 8'-0" ON CENTER (MAX) AND AT ALL CHANGES IN DIRECTION.



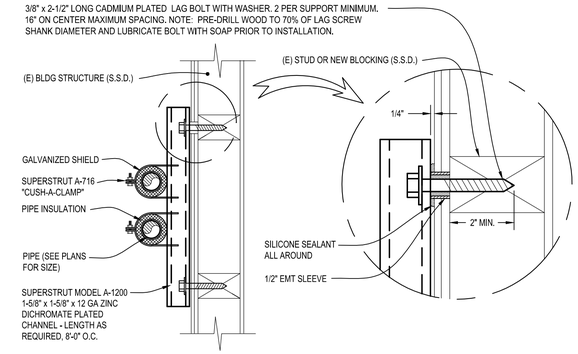
RECTANGULAR DUCT (EXPOSED/CONCEALED)
(WITH CROSS-SECTIONAL AREA SMALLER THAN 2 SQFT)



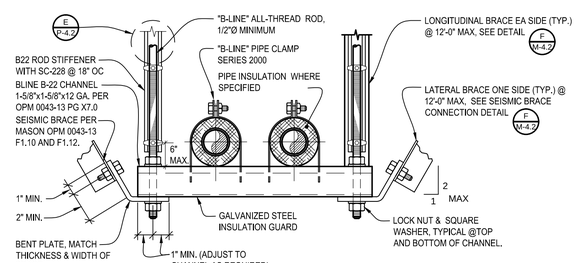
ROUND DUCT (EXPOSED/CONCEALED)
(WITH CROSS-SECTIONAL AREA SMALLER THAN 2 SQFT)

E TYPICAL SMALL DUCT SUPPORT DETAIL

SCALE: NONE



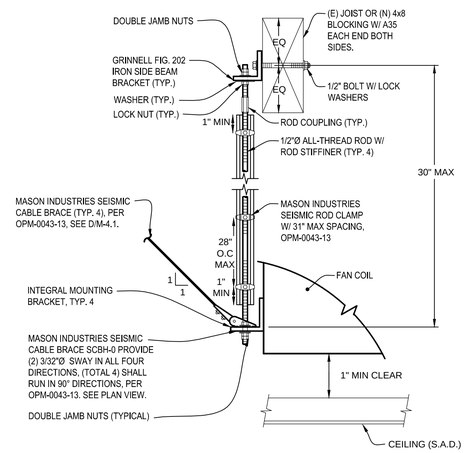
REFRIG. PIPING RACKED ON EXTERIOR WALL



REFRIG. PIPING RACKED ABOVE CEILING

F REFRIGERANT PIPING RACKED MOUNTING DETAILS

SCALE: NONE



FAN COIL (INDOOR)
EQUIPMENT WEIGHT: 45 LBS.
MAX. OPER. WT.
(SEE SCHED. M-1.1)

NOTE: SEISMIC BRACING NOT REQUIRED IF TOP OF UNIT ATTACHMENT IS LESS THAN 12" FROM ATTACHMENT TO STRUCTURE

G FAN COIL MOUNTING (ABV. CLG.)

SCALE: NONE

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. DEL CARLO
No. 24000
MECHANICAL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
3274 Villa Lane Napa, CA 94558 ph: 707-252-9177 fax: 707-252-6475

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	MEC
DRAWING SCALE:	AS SHOWN
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

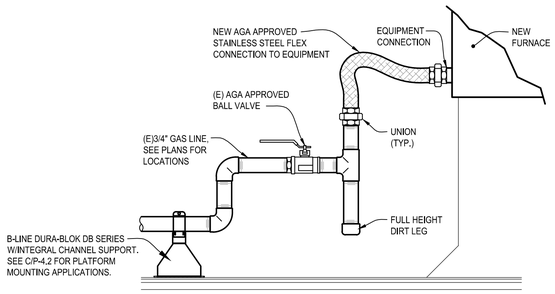
APRIL 5, 2021

SHEET TITLE

MECHANICAL DETAILS

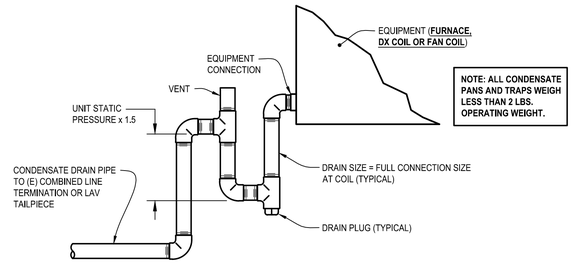
SHEET NUMBER

M-4.1



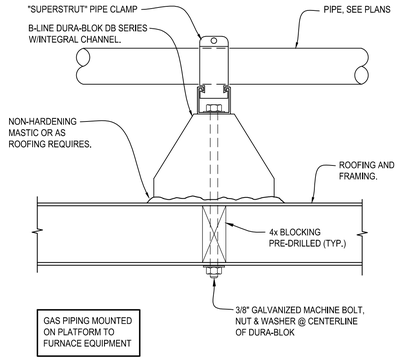
A GAS CONNECTION - FURNACE IN CLOSET

SCALE: NONE



B CONDENSATE DRAIN CONNECTION TO EQUIPMENT

SCALE: NONE



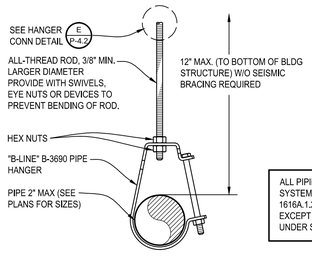
NOTE: SUPPORTS SHALL BE AT 8'-0" ON CENTER & AT ALL CHANGE OF DIRECTION

C PIPE SUPPORT ON EQUIPMENT PLATFORM

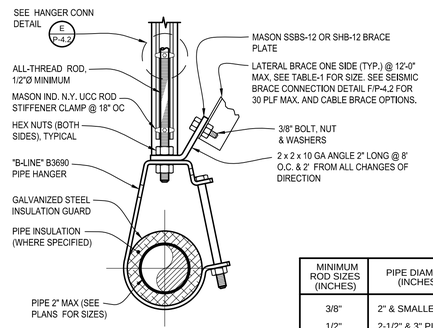
SCALE: NONE

NOTES:

1. RUN PIPING TRAPEZE AS CLOSE AS POSSIBLE TO STRUCTURE.
2. SUPPORT PIPING AT A MAXIMUM OF 8'-0" INTERVALS.
3. SEE PLANS FOR PIPE SIZES.
4. CHANNEL DEFLECTION SHALL NOT EXCEED L/360 OF THE SPAN BETWEEN RODS.
5. PROVIDE "B-LINE" CHANNEL ROD STIFFENER @ ALL-THREAD WHERE DIAGONAL BRACE OCCURS. INCLUDE SC228 ASSEMBLY AS RECOMMENDED BY MANUFACTURER.



ALL PIPING, COMPONENTS AND SYSTEMS SHALL COMPLY WITH 1616A.1.26 ASCE 7 SECTION 13.3 EXCEPT AS EXEMPTIONS APPLY UNDER SECTIONS 13,6,8,3 (1) - (3).

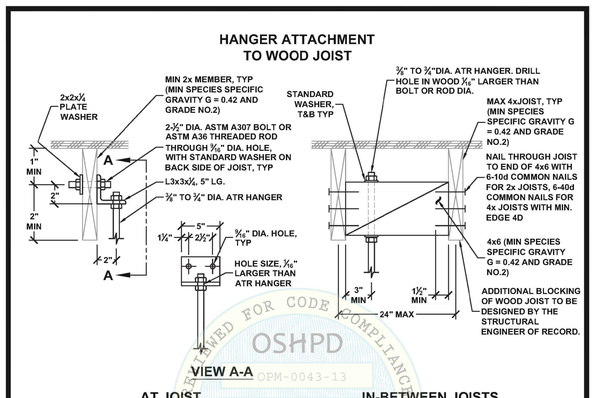


MINIMUM ROD SIZES (INCHES)	PIPE DIAMETER (INCHES)
3/8"	2" & SMALLER PIPE
1/2"	2-1/2" & 3" PIPE
5/8"	4" (SS & RD PIPE ONLY)

D TYPICAL SINGLE PIPE HANGAR DETAIL

SCALE: NONE

HANGER ATTACHMENT TO WOOD JOIST



HANGER ATTACHMENT TYPE	ALLOWABLE VERTICAL LOAD LBS	ATR HANGER DIA. INCH
38A TO 38E	420	⅜
50A TO 50E	420	½
63A TO 63E	420	⅝
75A TO 75E	420	¾

SEE DETAIL M0.00 FOR SECTION NOTES

MASON WEST, INC.
1601 E. Miraloma Ave. Placentia, CA 92870
TEL (714) 630 - 0701, www.masonwest.com

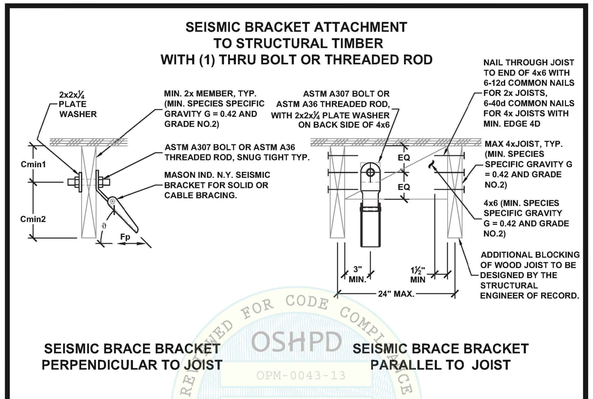
Jiefu "Jeff" Zhang, SE
California SE No. S5270

PAGE M4.10

E HANGER ATTACHMENT TO WOOD JOISTS

SCALE: NONE

SEISMIC BRACKET ATTACHMENT TO STRUCTURAL TIMBER WITH (1) THRU BOLT OR THREADED ROD



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ	ASTM A307 BOLTS OR ASTM A36 THREADED ROD DIA.: da INCH	MIN. EDGE Cmin1 INCH	MIN. EDGE Cmin2 INCH
38A TO 38D	250	30°- 45°	⅜	1⅜	1½
38A TO 38B	150	46°- 60°			
50A TO 50D	300	30°- 45°	½	1⅜	2
50A TO 50B	170	46°- 60°			
63A TO 63D	340	30°- 45°	⅝	1⅜	2½
63A TO 63C	200	46°- 60°			

SEE DETAIL N0.00 FOR SECTION NOTES

MASON WEST, INC.
1601 E. Miraloma Ave. Placentia, CA 92870
TEL (714) 630 - 0701, www.masonwest.com

Jiefu "Jeff" Zhang, SE
California SE No. S5270

PAGE N4.10

F BRACKET ATTACHMENT TO WOOD JOISTS

SCALE: NONE

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
574 Villa Lane, Napa, CA 94558 ph: 707-252-9177 fax: 707-252-6475

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	MEC
DRAWING SCALE:	AS SHOWN
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

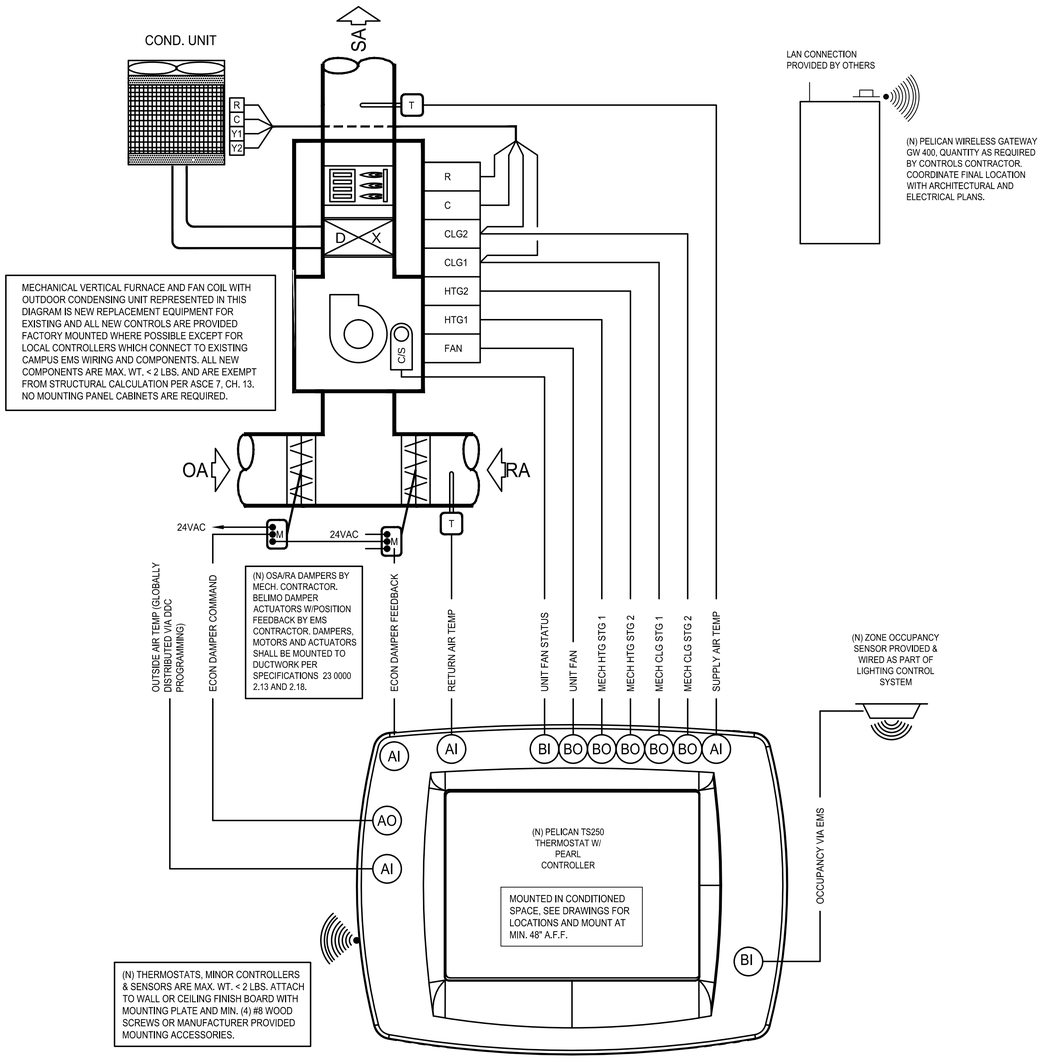
APRIL 5, 2021

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

M-4.2



Furnace/Condensing Unit Split System with Economizer, Demand Control Ventilation & Zone Occupancy Monitoring

1. System Overview
   a. Each FRN/CU unit will be directly controlled by its own dedicated EMS (Energy Management System) unitary controller.
   b. EMS unitary controller will be connected to a wall mounted electronic zone temperature sensor with integral relative humidity sensor and CO2 sensor.
   c. Electronic zone temperature sensor shall have a touch screen LCD interface which includes: 1) digital pushbuttons for warmer/cooler setpoint control; 2) visual display of room temperature, room humidity, room CO2 and ambient OSA temperature; and 3) digital pushbutton after-hours override timer control, with user adjustable duration. The after-hours override duration shall have the ability to be limited from the front-end.
2. Occupancy/Vacancy Monitoring
   a. Zone occupancy and vacancy will be actively monitored by connection to Lighting Control System occupancy sensor(s). If available, monitoring shall be accomplished via BACnet system integration. Otherwise, BAS contractor shall monitor auxiliary contacts on Lighting Control System occupancy sensor(s).
3. Unit Fan Operation
   a. When the zone is in Occupied Mode or in Afterhours Mode, the fan shall run continuously, unless Vacant Mode has been triggered.
   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.
4. Minimum Outdoor Air Ventilation
   a. During Occupied Mode or Afterhours Mode, the economizer damper shall be commanded by the EMS unitary controller to maintain a position which satisfies the Minimum Outdoor Air ventilation requirements for the zone. Damper position(s) determined by Air Balancing Contractor.
5. Demand Control Ventilation
   a. EMS unitary controller will be connected to a wall mounted CO2 sensor to monitor zone CO2 concentration.
   b. During Occupied Mode or Afterhours Mode, the EMS unitary controller shall reset the outside air damper minimum position to maintain the CO2 concentration below 1,000 ppm.
6. Automatic Demand Reduction Controls
   a. EMS shall be programmed with 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.
7. Vacant Mode Control
   a. When the zone has been scheduled for occupancy for at least one hour and the occupancy sensor has confirmed that zone has been vacant for 5 minutes (adjustable: maximum 30 minutes), zone shall be placed into Vacant Mode.
   b. Reset cooling and heating setpoints up and down by 2°F (adjustable) or more.
   c. Minimum Outdoor Air ventilation requirements in the zone need only be maintained 15 minutes out of every 60 minutes while the zone is in Vacant Mode.
   d. Upon detection of occupancy, Vacant Mode shall be cleared.
8. Zone 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.
9. Heating operation
   a. The controller compares the heating setpoint with the space temperature and determines a need-heating control signal to stage a gas regulating valve on the unit.
   b. Economizer to be commanded to Min CFM setpoint and mechanical cooling to be locked out during heating mode.
10. Cooling operation
   a. The controller compares the cooling setpoint with the space temperature and determines a need-cooling signal.
   b. The first stage of cooling will enable the economizer to provide free cooling for as long as possible.
   c. The second stage will enable the compressor(s) to maintain the room set point.
   d. Mechanical heating to be locked out during cooling mode.
11. Fault Detection Diagnostics
   a. The EMS DDC Controller shall monitor the following economizer actuator Fault Detection Diagnostic conditions and broadcast results via EMS network:
   i. Temperature Sensor Failure/Fault
   ii. Economizer not economizing when enabled
   iii. Economizer economizing when disabled
   iv. Economizer damper modulation failure
   v. Excess outdoor air
13. Monitoring - The following conditions shall be monitored and displayed at EMS Operator Workstation/Graphical User Interface:
   a. Supply air temperature.
   b. Room temperature.
   c. Room humidity.
   d. Room CO2 concentration.
   e. Room occupancy status.
   f. Current mode (heating/cooling/fan).
   g. Supply air temperature attained last time unit was in heating.
   h. Supply air temperature attained last time unit was in cooling.
   i. Current command status of fan, economizer, compressor and gas valve.
   j. Run time meters on fan, compressor, and heat.
   k. Fan Status thru Current Switch.
   l. Economizer actuator feedback status.

A FURNACE WITH ECONOMIZER DX COOLING - DCV CONTROL DIAGRAM

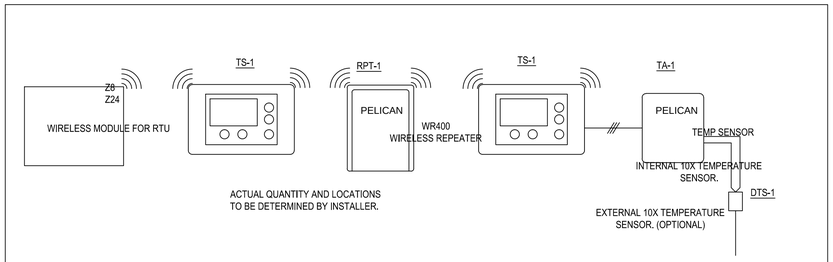
SCALE: NONE

THE WIRELESS GATEWAY IS DESIGNATED TO BE WALL MOUNTED USING THE INCLUDED 3M COMMAND REMOVABLE STRIPS.

FIND A SUITABLE LOCATION WHICH IS:

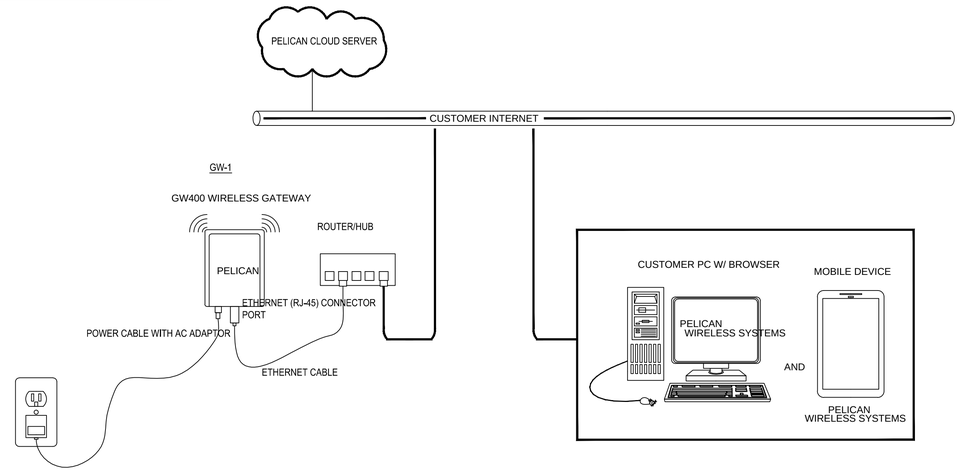
-WITHIN 10 FEET OF YOUR INTERNET ROUTER
-WITHIN 4 FEET OF AN ELECTRICAL OUTLET
-AT LEAST 4 FEET AWAY FROM OTHER WIRELESS DEVICES
-AWAY FROM LARGE METAL OBJECTS WHICH MAY INTERFERE WITH THE WIRELESS SIGNAL.
-ABOVE OFFICE EQUIPMENT WHICH MAY INTERFERE WITH THE WIRELESS SIGNAL
-ACTUAL QUANTITY AND LOCATIONS TO BE DETERMINED BY INSTALLER. NO PRACTICAL LIMITS TO NUMBER OF THERMOSTATS SUPPORTED BY A SINGLE GATEWAY
FACTORY IP ADDRESS GATE WAY WILL CONNECT AUTOMATICALLY TO PELICAN SERVER AFTER SERIAL NO. OF GATEWAY IS REGISTERED ON PELICAN SITE.

GO TO:http//www.pelicanwireless.com/new-site-subscription/



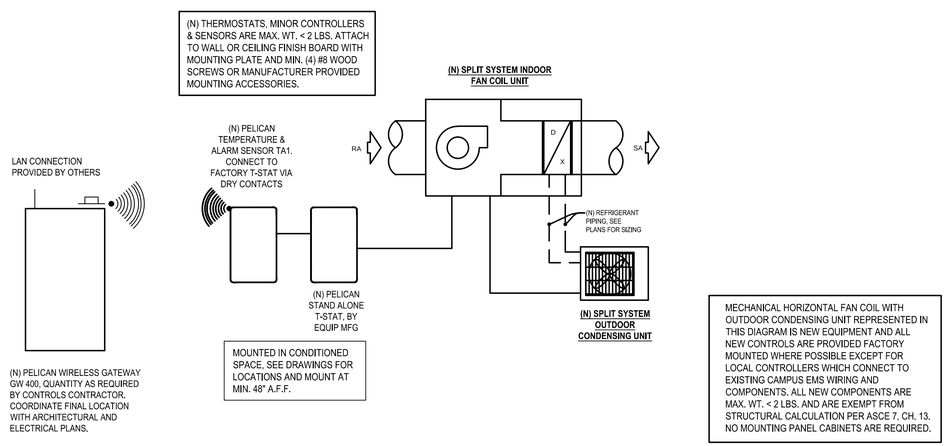
WIRELESS COMPONENTS

TAG	PART NUMBER	DESCRIPTION
RPT-1	PEL WR400	WIRELESS REPEATER, WITH POWER ADAPTOR
GW-1	PEL GW400	WIRELESS GATEWAY, WITH POWER ADAPTOR
TS-1	TS250	TEMPERATURE AND CO2 SENSOR WITH PEAL ECONOMIZER CONTROLLER



B TYPICAL PELICAN WIRELESS LAN LAYOUT

SCALE: NONE



MECHANICAL HORIZONTAL FAN COIL WITH OUTDOOR CONDENSING UNIT REPRESENTED IN THIS DIAGRAM IS NEW EQUIPMENT AND ALL NEW CONTROLS ARE PROVIDED FACTORY MOUNTED WHERE POSSIBLE EXCEPT FOR LOCAL CONTROLLERS WHICH CONNECT TO EXISTING CAMPUS EMS WIRING AND COMPONENTS. ALL NEW COMPONENTS ARE MAX. WT. < 2 LBS. AND ARE EXEMPT FROM STRUCTURAL CALCULATION PER ASCE 7, CH. 13. NO MOUNTING PANEL CABINETS ARE REQUIRED.

C LOW PROFILE SINGLE ZONE SPLIT SYSTEM FAN COIL CONTROL DIAGRAM

SCALE: NONE

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
Pleasanton Office:
600 Main Street, Suite E,
Pleasanton, CA 94566
(707) 576-0829

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. DEL CARLO
No. 24000
MECHANICAL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COSTA ENGINEERS INC.
3214 Villa Lane, Napa, CA 94558 ph: 707-252-9177 fax: 707-252-6475

HILLCREST MIDDLE SCHOOL
HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: MEC
DRAWING SCALE: AS SHOWN
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

CONTROL DIAGRAMS

SHEET NUMBER

M-5.1

ELECTRICAL EQUIPMENT ANCHORAGE

ELECTRICAL ANCHORAGE NOTES:

ALL 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 2019 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16, CHAPTER 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 ELECTRICAL COMPONENTS SHALL BE 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 CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

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

THE ANCHORAGE OF ALL ELECTRICAL 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.

ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:

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 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2019 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 (eg., OSHPD OPM FOR 2013 CBC), 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 ARE: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

GENERAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL LINES, LEVELS, DIMENSIONS AND EXISTING CONDITIONS. THE INFORMATION ON THE DRAWINGS REGARDING EXISTING ELECTRICAL EQUIPMENT AND BRANCH CIRCUITS IS THE RESULT OF FIELD SURVEY AND IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. IT IS INTENDED, HOWEVER, AS A GUIDE FOR USE IN VERIFICATION ONLY.
2. ALL EXISTING MECHANICAL UNITS SHALL BE REPLACED, AS NOTED ON THE MECHANICAL DRAWINGS. THE EXISTING ELECTRICAL SAFETY SWITCHES SHALL BE DEMOLISHED. DISCONNECT ALL EXISTING BRANCH CIRCUITING WIRING, REMOVE IF NOTED ON FLOOR PLANS, INTERCEPT, PRESERVE, AND EXTEND TO NEW SAFETY SWITCH AND NEW MECHANICAL UNIT.
3. WHEREVER THE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT IS CALLED FOR AND ALL EQUIPMENT ON A PARTICULAR BRANCH CIRCUIT IS TO BE REMOVED, ALL CONDUIT AND WIRE BACK TO THE PANEL SHALL BE ENTIRELY REMOVED AND THE CIRCUIT IN PANEL SHALL BE MARKED "SPARE".
4. WHEREVER THE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT IS CALLED FOR AND ALL EQUIPMENT ON A PARTICULAR BRANCH CIRCUIT IS NOT TO BE REMOVED, THE CIRCUIT SHALL BE MAINTAINED CONTINUOUS TO THE EXISTING EQUIPMENT IN USE WITH MINIMUM INTERRUPTIONS OF POWER.
5. CARE SHALL BE TAKEN IN ORDER TO IDENTIFY AND PROTECT ALL EXISTING ELECTRICAL WORK THAT IS TO REMAIN.
6. THE ELECTRICAL CONTRACTOR SHALL REVISE EXISTING PANEL SCHEDULES TO CORRESPOND TO ACTUAL CONDITIONS AFTER ALL DEMOLITION AND NEW WORK IS COMPLETED.
7. WHEN ELECTRICAL EQUIPMENT OR DEVICE IS REMOVED FROM AN EXISTING WALL OR CEILING WHICH IS TO REMAIN, PATCH ABANDONED OPENINGS TO MATCH EXISTING FINISH.
8. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS, EQUIPMENT, ETC. REMAINING IN OPERATION WHICH IS BEING FED BY AN ABANDONED OUTLET. MAINTAINING CONTINUITY SHALL CONSIST OF REROUTING OF CONDUIT, WIRE, ETC. AS REQUIRED.
9. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF EXISTING CIRCUITS AND ADJUST CIRCUIT NUMBERS ACCORDING TO EXISTING CONDITIONS IF REQUIRED
10. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS, IN AS-FOUND CONDITION. EQUIPMENT THAT IS TO BE TURNED OVER SHALL BE BOXED AND TAGGED TO IDENTIFY THE SPECIFIC EQUIPMENT. EQUIPMENT TO BE TEMPORARILY REMOVED DUE TO THE CONSTRUCTION SHALL BE CLEANED AND RE-INSTALLED IN ITS ORIGINAL CONDITION OR AS REQUIRED.
11. IF ANY EQUIPMENT THAT IS SCHEDULED TO REMAIN IN OPERATION IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPLACED TO ITS ORIGINAL CONDITION SATISFACTORY TO THE OWNER AT CONTRACTOR'S EXPENSE.

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
C	CONDUIT
C.O.	CONDUIT ONLY
CU	COPPER
E.C.	ELECTRICAL CONTRACTOR
EMS	ENERGY MANAGEMENT SYSTEM
(E)	EXISTING
EQPT	EQUIPMENT
EXT	EXTERIOR
FMC	FLEXIBLE METALLIC CONDUIT
GFI	GROUND FAULT CIRCUIT INTERRUPTING TYPE RECEPTACLE
IDF	INTERMEDIATE DISTRIBUTION FRAME
L	LOCKABLE
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MDF	MAIN DISTRIBUTION FRAME
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
(N)	NEW
N.E.C.	NATIONAL ELECTRICAL CODE
NEU	NEUTRAL
N.I.E.C.	NOT IN ELECTRICAL CONTRACT
O.A.H.	OVERALL HEIGHT
O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED
PA	PUBLIC ADDRESS
PNL	PANEL
S.A.D.	SEE ARCHITECTURAL DRAWINGS
STC	SIGNAL TERMINAL CABINET
TELE	TELEPHONE
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHER PROOF, NEMA 3R
WPIU	WEATHER PROOF WHILE IN USE

SYMBOLS LIST

ALL SWITCH AND CONTROL MOUNTING HEIGHTS OF 48" SHALL BE TO TOP OF THE DEVICE BOX. ALL RECEPTACLES WITH MOUNTING HEIGHT OF UP TO 18" SHALL BE NO LOWER THAN 15" TO BOTTOM OF THE DEVICE BOX, TYPICAL, U.O.N.

- MAIN SWITCHBOARD, DISTRIBUTION PANEL OR MOTOR CONTROL CENTER
- FLUSH MOUNTED PANELBOARD, 6'-6" TO TOP
- SURFACE MOUNTED PANELBOARD, 6'-6" TO TOP
- $m — LINE VOLTAGE MOTOR RATED TOGGLE SWITCH INSTALLED AT EQPT SHOWN
- FUSED EQUIPMENT DISCONNECT SWITCH WITH FUSE SIZE AS RECOMMENDED BY EQUIPMENT MANUFACTURER
- MOTOR DISCONNECT SWITCH; HORSEPOWER RATED, NON FUSE
- COMBINATION MOTOR STARTER & DISCONNECT
- MAGNETIC MOTOR STARTER
- MOTOR WITH FLEXIBLE CONDUIT CONNECTION AND DISCONNECT
- T — TRANSFORMER
- CONCRETE PULLBOX, SIZE AS REQUIRED OR SHOWN - CHRISTY OR EQUAL WITH LABELED LID PER USE
- COPPER GROUND ROD
- J — FLUSH CEILING MOUNTED JUNCTION BOX, U.O.N.
- J — FLUSH WALL MOUNTED JUNCTION BOX, UP 18" U.O.N.
- J — JUNCTION BOX FLUSH FLOOR MOUNTED
- 20A 3PG 125V DUPLEX RECEPTACLE, UP 18" U.O.N.
- 20A 3PG 125V DUPLEX RECEPTACLE, WEATHERPROOF, UP 18" U.O.N.
- GFI — 20A 3PG 125V DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTER TYPE, UP 18" U.O.N.
- F 110 — FIRE ALARM SYSTEM HORN/STROBE, UP 80" U.O.N. NUMBER ADJACENT INDICATES CANDELA VALUE FOR STROBE
- FIRE ALARM SYSTEM CEILING MOUNTED CARBON MONOXIDE DETECTOR
- FIRE ALARM SYSTEM END-OF-LINE RESISTOR
- WEATHERPROOF ENCLOSURE
- CONDUIT AND WIRE CONCEALED IN CEILING OR WALL
- CONDUIT AND WIRE CONCEALED IN OR UNDER SLAB OR UNDERGROUND
- CONDUIT AND WIRE RUN EXPOSED
- CROSSMARKS INDICATE QUANTITY OF #12 CONDUCTORS PLUS PARITY SIZED GROUND CONDUCTOR (INCLUDED BUT NOT INDICATED), NO HASHMARKS INDICATES (2) #12 CONDUCTORS PLUS PARITY SIZED GROUND CONDUCTOR, U.O.N.
- GROUND WIRE
- (#10) — WIRE SIZE 10 AWG FOR ALL CONDUCTORS, INCLUDING GROUND WIRE, THROUGHOUT THE COMPLETE CIRCUIT
- FLEXIBLE METALLIC CONDUIT
- HOMERUN TO PANELBOARD OR TERMINAL BOARD, AS NOTED ON PLANS
- COMPLETE CONNECTION OF EQUIPMENT
- CONDUIT STUBBED OUT, CAPPED AND MARKED
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- AC-1 — MECHANICAL EQUIPMENT DESIGNATION - SEE MECHANICAL PLANS
- 3 / E-6 — DETAIL DESIGNATION - SEE DETAIL 3, SHEET E-6
- 1 — NUMBERED SHEET NOTE
- M — UTILITY METER
- CT'S — CURRENT TRANSFORMERS
- 30A 3P — CIRCUIT BREAKER. NUMBER INDICATES 30A 3-POLE
- 1504N — FEEDER SIZE - SEE POWER SINGLE LINE DIAGRAMS & FEEDER SCHEDULE

GENERAL NOTES

1. PRIOR TO BID THE CONTRACTOR SHALL VISIT THE SITE TO ADEQUATELY DETERMINE ALL PRE-EXISTING CONDITIONS. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR WILL BE DEEMED TO HAVE COMPLIED WITH THE FOREGOING, TO HAVE ACCEPTED SUCH CONDITIONS, AND TO HAVE MADE ALLOWANCES THEREFORE IN PREPARING THE BID.
2. PROVIDE PARITY SIZED GREEN GROUND WIRE IN ALL POWER CONDUITS, BRANCH CIRCUITS AND HOMERUNS. PROVIDE ADDITIONAL ISOLATED GROUND, GREEN WITH YELLOW STRIPE, TO ALL ISOLATED GROUND RECEPTACLES.
3. PROVIDE PULLROPE IN ALL EMPTY CONDUITS THROUGHOUT THE PROJECT.
4. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION & CONNECTION REQUIREMENTS OF ALL ELECTRICAL RELATED DEVICE MOUNTING HEIGHTS AND LOCATIONS. COORDINATE LOCATIONS OF ALL JUNCTION BOXES WITH MECHANICAL DIVISION PRIOR TO ROUGH-IN.
5. REFER TO MECHANICAL PLANS FOR EXACT LOCATION(S) OF ALL MECHANICAL EQUIPMENT, AND CONFIRM EXACT CONNECTION REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL DIVISION, PRIOR TO ROUGH-IN. VERIFY EXACT REQUIREMENTS FOR VOLTAGE, PHASE, HORSE-POWER, OR KVA RATINGS, OF ALL MECHANICAL DIVISION EQUIPMENT REQUIRING ELECTRICAL CONNECTION.
6. VERIFY EXACT CONNECTION REQUIREMENTS, OUTLET TYPE(S), MOUNTING HEIGHT(S) AND LOCATION(S) OF ALL OWNER-SUPPLIED EQUIPMENT, AND ALL EQUIPMENT PROVIDED UNDER OTHER SECTIONS OF THE SPECIFICATIONS, PRIOR TO ROUGH-IN. REFER TO ARCHITECTURAL DRAWINGS FOR EQUIPMENT LOCATIONS.
7. COORDINATE TRENCHING WITH OWNER AND OTHER TRADES BEFORE BEGINNING WORK.
8. ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS SHALL BE SEALED AND EQUIPPED WITH U.L. LISTED FIRE PENETRATION ASSEMBLIES TO MAINTAIN FIRE SEPARATION RATING.
9. DO NOT INSTALL ANY OUTLETS BACK TO BACK IN STUD WALLS OR DE-MOUNTABLE PARTITIONS.
10. CIRCUITRY AND CONDUIT ROUTING SHOWN ON THE PLANS IS DIAGRAMMATIC ONLY. THIS CONTRACTOR IS RESPONSIBLE FOR BECOMING COMPLETELY FAMILIAR WITH THE ARCHITECTURAL AND STRUCTURAL CONDITIONS AND LIMITATIONS IN THE BUILDING AND TO PROVIDE ALL LABOR, TOOLS AND MATERIALS REQUIRED TO PRODUCE A COMPLETELY CONCEALED INSTALLATION WHEREVER INDICATED ON THE PLANS.
11. MAINTAIN "AS-BUILT" RECORDS AT ALL TIMES, SHOWING EXACT LOCATION OF ALL UNDERGROUND AND/OR CONCEALED CONDUITS AND SERVICES INSTALLED UNDER THIS CONTRACT, INCLUDING CIRCUIT IDENTIFICATION WHERE APPLICABLE. PROVIDE OWNER WITH "AS-BUILT" DOCUMENTS AS INDICATED IN THE SPECIFICATIONS, AND/OR CALLED FOR IN THE SPECIFICATIONS.
12. DRAWINGS INDICATE THE LOCATION(S) OF DEVICES, AND EQUIPMENT, AND THE CIRCUIT NUMBER AND PANEL DESIGNATED TO SUPPLY THEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETELY CONNECTING ALL ELECTRICAL DEVICES TO CIRCUITS INDICATED ON THE DRAWINGS.
13. UNLESS OTHERWISE NOTED, ALL WORK SHOWN ON DRAWINGS IS NEW AND TO BE PROVIDED AND INSTALLED COMPLETE UNDER THIS CONTRACT.
14. ALL EQUIPMENT GROUNDING SHALL CONFORM TO ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, LATEST EDITION.
15. ALL EXTERIOR CONDUIT ABOVE GRADE, INCLUDING ALL ROOF MOUNTED CONDUIT, SHALL BE GALVANIZED RIGID STEEL. COAT ALL EXPOSED THREADS WITH GALVANIZING PAINT. PAINT ALL SURFACE MOUNTED RACEWAYS AND PULLBOXES TO MATCH SURROUNDING CONDITIONS, AS DIRECTED BY THE ARCHITECT.
16. ALL ELECTRICAL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE N.E.C., AS WELL AS STATE, AND LOCAL CODES AND REQUIREMENTS.
17. ALL CONDUIT SHALL BE CONCEALED, UNLESS OTHERWISE NOTED.
18. EQUIPMENT OVERLOADS AND FUSES SHALL BE PROVIDED AND INSTALLED AS PER NAME PLATE ON THE EQUIPMENT ACTUALLY PROVIDED.
19. THE CONTRACTOR SHALL VERIFY ALL CRITICAL DIMENSIONS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.
20. ALL MECHANICAL DIVISION EQUIPMENT LOW VOLTAGE CONTROL WIRING AND RACEWAY SHALL BE PROVIDED AND INSTALLED AS SPECIFIED IN MECHANICAL DIVISION U.O.N.
21. USE FLEXIBLE CONDUIT FOR ALL MOTOR, AND CONNECTIONS BETWEEN TWO SEPARATE STRUCTURES AND FOR ALL FINAL CONNECTIONS TO "CRITICAL EQUIPMENT" AS DEFINED IN SPECIFICATIONS. MINIMUM 1/2" DIAMETER, LIQUID TIGHT TYPE USED OUTDOORS AND IN ALL WET LOCATIONS; PROVIDE WITH CODE-SIZE (MINIMUM #12) BARE GROUND WIRE IN ALL FLEXIBLE CONDUIT.
22. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR ALL BRANCH CIRCUITS FEEDING OUTLETS AS NOTED ON THE DRAWINGS.
23. ALL CONDUIT CONNECTORS TO OUTLET OR JUNCTION BOXES SHALL HAVE INSULATED THROATS (MANUFACTURED AS AN INTEGRAL PART OF THE CONNECTOR). AFTER-MARKET INSERTABLE THROATS ARE NOT ACCEPTABLE.
24. ALL CIRCUITS IN ALL JUNCTION BOXES AND DEVICES SHALL BE CLEARLY IDENTIFIED BY MEANS OF "EZ" NUMBERING TAGS OR EQUIVALENT, TO IDENTIFY THE CIRCUIT NUMBER OR RELAY SUPPLYING THE CONDUCTOR. ALL JUNCTION BOXES SHALL BE LABELED PER SPECIFICATIONS.
25. ALL LOCATIONS OF BARE METAL SURFACE MOUNTED CONDUIT, BOXES, PANEL COVERS, AND RELATED FITTINGS OR ACCESSORIES INSTALLED IN FINISHED AREAS (BOTH INTERIOR AND EXTERIOR) SHALL BE FINISH PAINTED TO MATCH THE SURFACE TO WHICH THEY ARE MOUNTED TO (AFTER INSTALLATION). PAINTING SHALL INCLUDE DIFFERENT COLORS AS REQUIRED TO MATCH EXISTING STRIPING OR OTHER BUILDING FEATURES TO WHICH THE EQUIPMENT IS ATTACHED AND VISIBLE. VERIFY EXACT JUNCTION BOX LOCATION(S) AND ROUTING OF EXPOSED RACEWAYS WITH THE ARCHITECT PRIOR TO ROUGH-IN.
26. PROVIDE A BLANK COVER PLATE (COLOR TO MATCH ADJACENT DEVICES OR AS SPECIFICALLY CALLED FOR IN SPECIFICATIONS) FOR ALL JUNCTION BOXES (NEW AND EXISTING) ON THE PROJECT WHEN NO DEVICE IS INSTALLED.
27. FOR OUTDOOR 15 AND 20-AMPERE, 125 AND 250-VOLT RECEPTACLES: RECEPTACLES LOCATED IN "WET" LOCATIONS SHALL HAVE "IN-USE" TYPE WEATHERPROOF COVER PLATES PROVIDED AND INSTALLED; RECEPTACLES LOCATED IN "DAMP" LOCATIONS SHALL HAVE "IN-USE" TYPE WEATHERPROOF COVER PLATES IN LOCATIONS DEEMED TO BE "IN-USE" WITH CORD AND PLUG ATTACHED.

LIST OF DRAWINGS

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0502/FAX (415) 479-0662
www.omeconsulting.com

REGISTERED PROFESSIONAL ENGINEER — PAUL COLEMAN — No.14738 — Exp. 6/21 — ELECTRICAL — STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

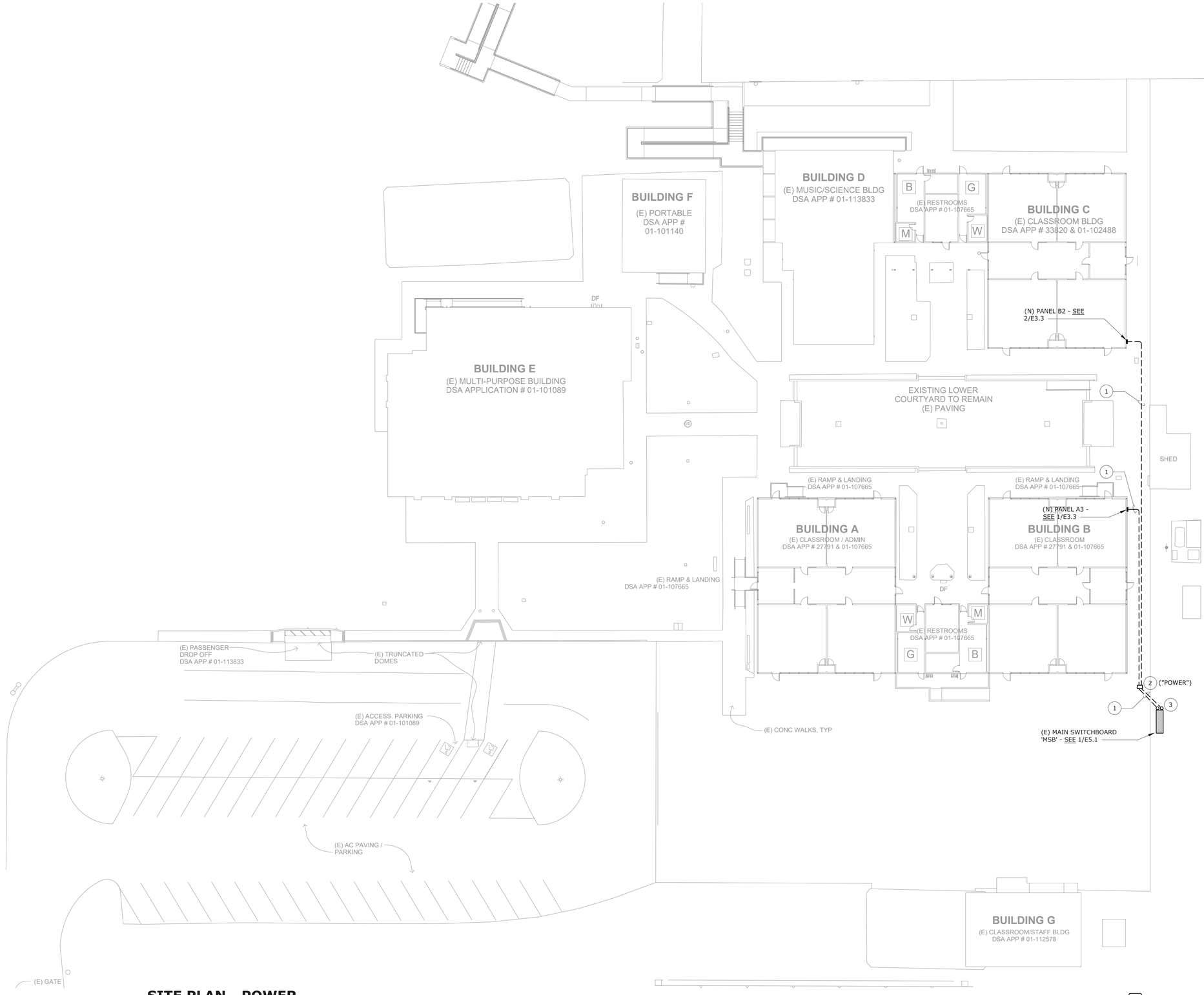
SHEET TITLE

SYMBOLS LIST, GENERAL NOTES & LIST OF DRAWINGS

SHEET NUMBER

E0.1

HILLCREST MS HEAT MITIGATION PH 1 – 221013



NUMBERED SHEET NOTES

1. PROVIDE AND INSTALL NEW UNDERGROUND FEEDERS TO NEW PANELBOARDS, SIZED PER SHEET E5.1. SEE 1/E7.1 FOR TRENCH DETAIL.
2. PROVIDE FLUSH, IN GRADE PULLBOX CHRISTY (OR EQUAL), SIZED AS NOTED ON PLANS. PULLBOX COVER SHALL BE LABELED AS IDENTIFIED ON PLANS. WHERE LOCATED IN TRAFFIC AREAS, BOXES SHALL BE 'TRAFFIC RATED' REINFORCED CONCRETE WITH STEEL FRAME AND STEEL COVER. WHERE LOCATED ELSEWHERE, BOXES SHALL BE REINFORCED CONCRETE AND COMPOSITE COVER. ALL PULLBOX LOCATION SHALL BE COORDINATED WITH THE ARCHITECT.
3. RISE UP AS SIDE OF EXISTING GEAR AND TRANSITION WITH LB CONDUIT BODY. SEAL PENETRATIONS WATER-TIGHT.

SITE PLAN - POWER

SCALE: 1" = 20' - 0"

1 / –

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omaheonconsulting.com

REGISTERED PROFESSIONAL ENGINEER
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	JK
DRAWING SCALE:	AS NOTED
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

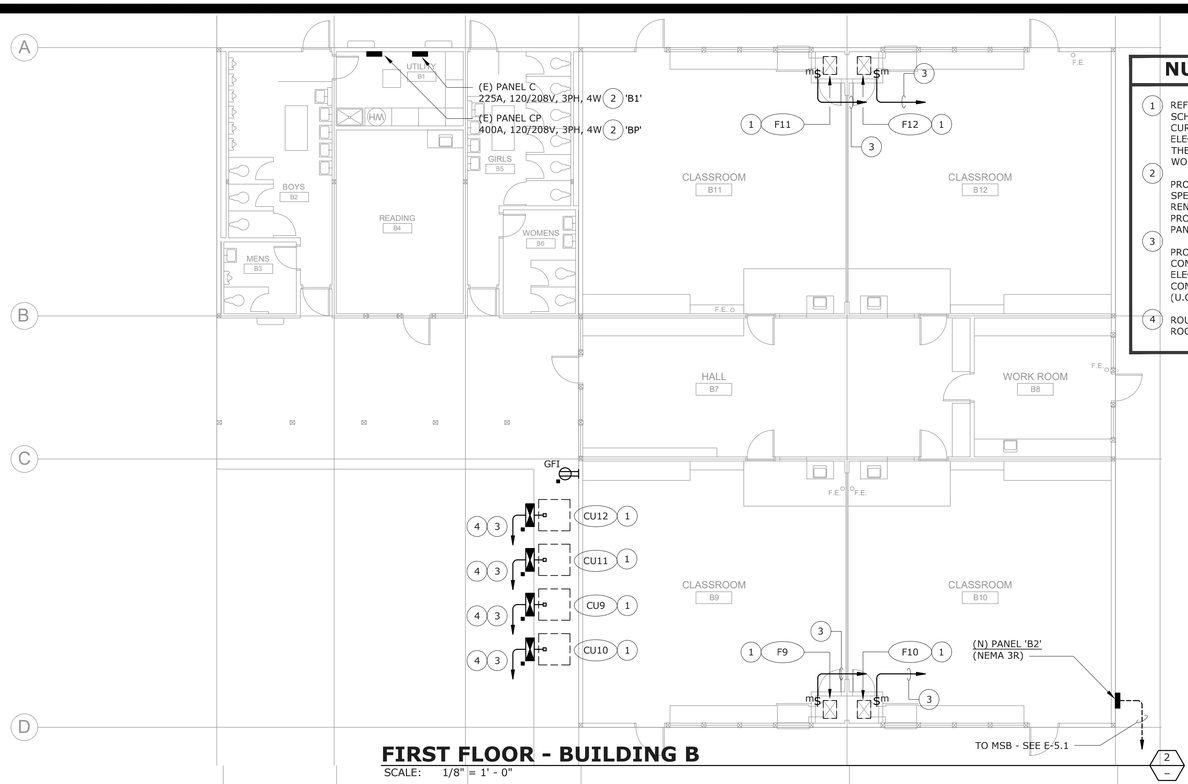
APRIL 5, 2021

SHEET TITLE

SITE PLAN POWER

SHEET NUMBER

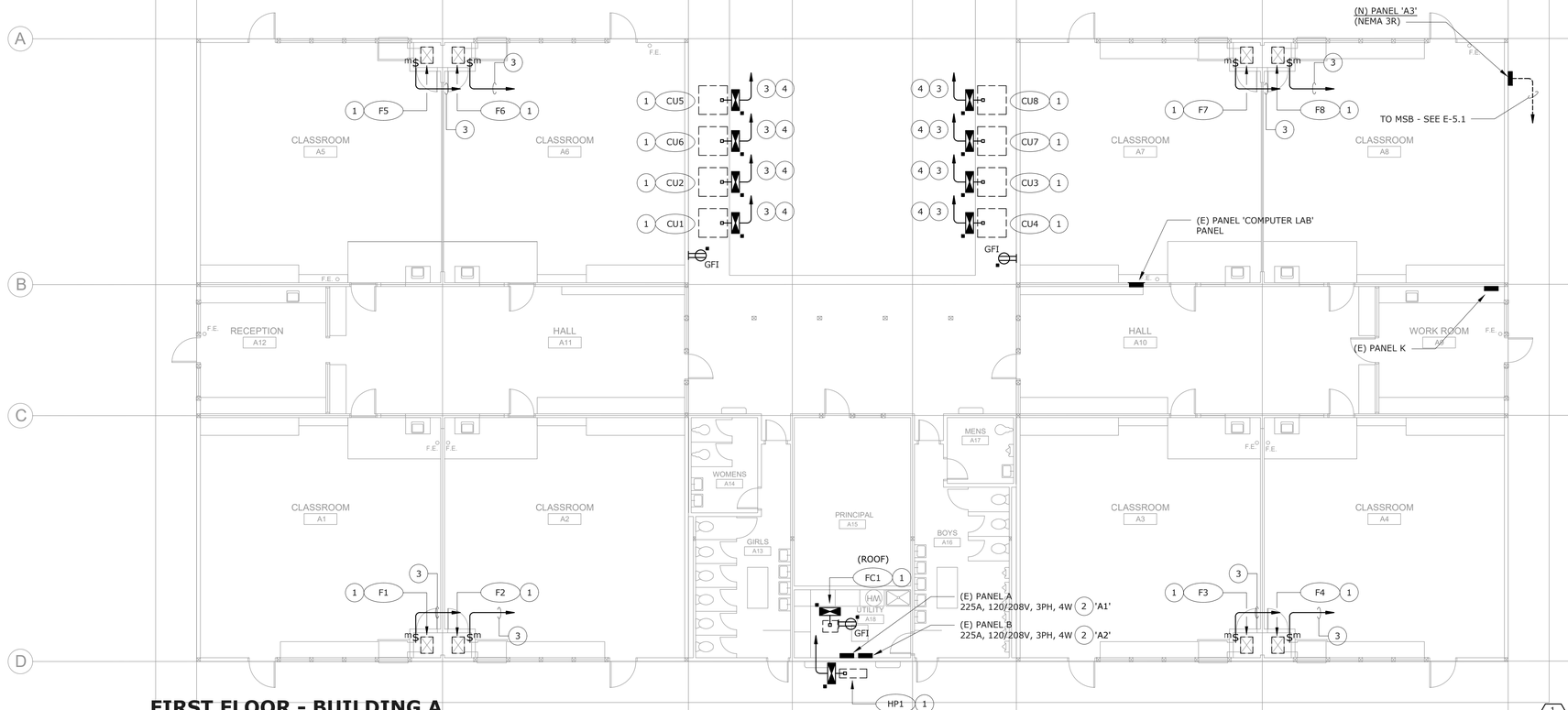
E1.1



FIRST FLOOR - BUILDING B

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

2



FIRST FLOOR - BUILDING A

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

1

NUMBERED SHEET NOTES

1. REFER TO MECHANICAL EQUIPMENT ELECTRICAL FEEDER SCHEDULE, THIS SHEET, FOR NEW WIRING AND OVER CURRENT PROTECTION DEVICE REQUIRED. ALL ELECTRICAL ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL DIVISION, PRIOR TO COMMENCING WORK.
2. PROVIDE NEW NAMEPLATE AT PANELBOARD, SEE SPECIFICATIONS FOR NAMEPLATE REQUIREMENTS. RENAME AS INDICATED ADJACENT NUMBERED NOTE. PROVIDE UPDATED TYPE CIRCUIT DIRECTORY WITHIN PANELBOARD, INDICATING ALL FINAL CONDITIONS.
3. PROVIDE AND INSTALL NEW BRANCH CIRCUIT WITH CONDUIT AND WIRE PER MECHANICAL EQUIPMENT ELECTRICAL FEEDER SCHEDULE, SHEET E-6.1. ROUTE CONDUIT CONCEALED VIA EXISTING ACCESSIBLE CEILING (U.O.N.) TO PANELBOARD LOCATION.
4. ROUTE CONDUITS UP TO ROOF, AND TRANSITION ALONG ROOF TO NEW PANELBOARD LOCATION.

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omahonyandmyer.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

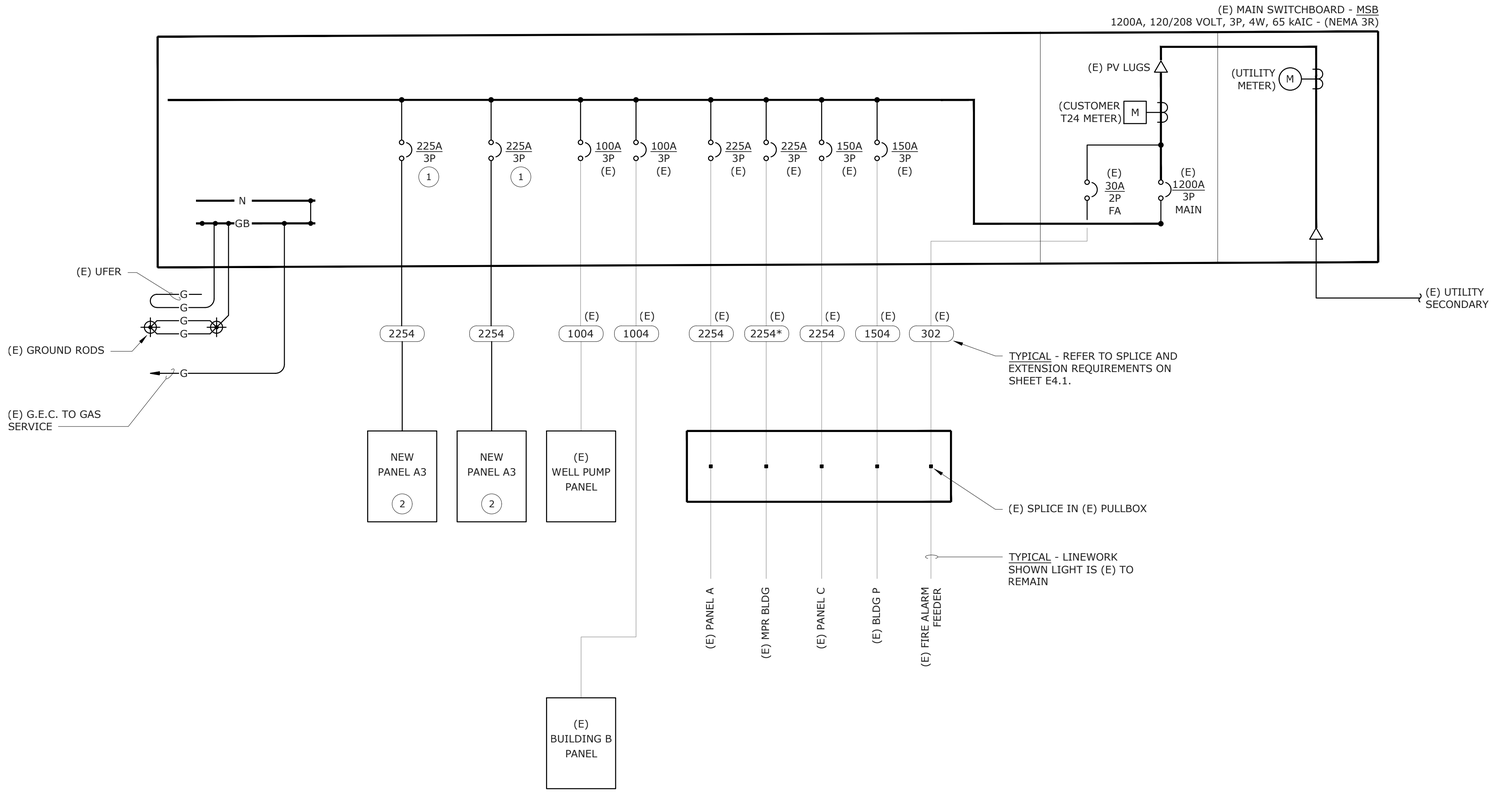
APRIL 5, 2021

SHEET TITLE

FLOOR PLANS POWER

SHEET NUMBER

E3.3



NUMBERED SHEET NOTES

1. NEW CIRCUIT BREAKER IN EXISTING DISTRIBUTION SECTION. (E) MSB IS EATON, POW-R-LINE C SERIES. MATCH (E) CIRCUIT BREAKERS IN MFGR, FRAME TYPE AND 65kAIC RATING.
2. SEE PANEL SCHEDULES ON SHEET E6.1.

COPPER FEEDER SCHEDULE

FEEDER	CONDUIT	CONDUCTORS
3004	(1) 3"	(4)350 MCM & (1)#2 G.
2254	(1) 3"	(4)#4/0 & (1)#4 G.
2254*	(1) 3"	(4)#300 & (1)#3 G.
2004	(1) 2"	(4)#3/0 & (1)#4 G.
1504	(1) 2"	(4)#1/0 & (1)#6 G.
1004	(1) 2"	(4)#2 & (1)#6 G.
203	(1) 3/4"	(2)#8 & (1)#10 G.
302	(1) 3/4"	(2)#8 & (1)#10 G.

FEEDER TAG KEY

400 4 N
- INDICATES DOUBLE NEUTRAL
- WIRE QUANTITY
- FEEDER AMPACITY

NOTE: NOT ALL FEEDERS ON THIS SCHEDULE ARE NECESSARILY USED ON THIS PROJECT.

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omeyerconsulting.com
REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

SINGLE LINE DIAGRAMS

SHEET NUMBER

E5.1

MECHANICAL EQUIPMENT - ELECTRICAL FEEDER SCHEDULE

MECHANICAL ID TAG	FEEDER	PANEL	#	ELECTRICAL RATINGS				NOTES
-	-	-	-	Voltage	Phase	MCA	MOCP	-
F 1	(2) #10 + (1) #10G. IN 3/4" C.	A3-	1	120	1	14.7	20A	
CU 1	(2) #8 + (1) #10G. IN 3/4" C.	A3-	3/5	208	1	25.9	40A	
F 2	(2) #10 + (1) #10G. IN 3/4" C.	A3-	11	120	1	14.7	20A	
CU 2	(2) #8 + (1) #10G. IN 3/4" C.	A3-	7/9	208	1	25.9	40A	
F 3	(2) #10 + (1) #10G. IN 3/4" C.	A3-	16	120	1	10.9	15A	
CU 3	(2) #8 + (1) #10G. IN 3/4" C.	A3-	18/20	208	1	17.9	30A	
F 4	(2) #10 + (1) #10G. IN 3/4" C.	A3-	22	120	1	10.9	15A	
CU 4	(2) #8 + (1) #10G. IN 3/4" C.	A3-	24/26	208	1	17.9	30A	
F 5	(2) #10 + (1) #10G. IN 3/4" C.	A3-	15	120	1	10.9	15A	
CU 5	(2) #8 + (1) #10G. IN 3/4" C.	A3-	17/19	208	1	17.9	30A	
F 6	(2) #10 + (1) #10G. IN 3/4" C.	A3-	21	120	1	10.9	15A	
CU 6	(2) #8 + (1) #10G. IN 3/4" C.	A3-	23/25	208	1	17.9	30A	
F 7	(2) #10 + (1) #10G. IN 3/4" C.	A3-	12	120	1	14.7	20A	
CU 7	(2) #8 + (1) #10G. IN 3/4" C.	A3-	8/10	208	1	25.9	40A	
F 8	(2) #10 + (1) #10G. IN 3/4" C.	A3-	2	120	1	10.9	15A	
CU 8	(2) #8 + (1) #10G. IN 3/4" C.	A3-	4/6	208	1	17.9	30A	
F 9	(2) #10 + (1) #10G. IN 3/4" C.	B2-	1	120	1	14.7	20A	
CU 9	(2) #8 + (1) #10G. IN 3/4" C.	B2-	3/5	208	1	25.9	40A	
F 10	(2) #10 + (1) #10G. IN 3/4" C.	B2-	11	120	1	10.9	15A	
CU 10	(2) #8 + (1) #10G. IN 3/4" C.	B2-	7/9	208	1	17.9	30A	
F 11	(2) #10 + (1) #10G. IN 3/4" C.	B2-	15	120	1	10.9	15A	
CU 11	(2) #8 + (1) #10G. IN 3/4" C.	B2-	17/19	208	1	17.9	30A	
F 12	(2) #10 + (1) #10G. IN 3/4" C.	B2-	21	120	1	10.9	15A	
CU 12	(2) #8 + (1) #10G. IN 3/4" C.	B2-	23/25	208	1	17.9	30A	
HP 1	(2) #10 + (1) #10G. IN 3/4" C.	A3-	28/30	208	1	9	15A	
FC 1	SEE NOTES			-	-	-	-	1

Notes: 1. Indoor FC unit fed from outdoor CU unit. Provide and install 3/4" control wiring raceway between units.

PANEL A3 (NEMA 3R)

VOLTS: 120 / 208
PHASE: 3 PH
WIRE: 4 W
BUSSING: 225A
POLES: 42P

MAIN BRKR: 225A MCB
FEEDER: SEE DIAGRAM
CONDUIT: SEE DIAGRAM
MOUNTED: SURFACE
AIC RATING: SERIES

LOAD DESCRIPTION	TYPE	A	B	C	BRKR.	CKT.	CKT.	BRKR.	A	B	C	TYPE	LOAD DESCRIPTION
HVAC - F 1 (RM A1)	H	1.77			20/1	1	2	20/1	1.77			H	HVAC - F 8 (RM A8)
HVAC - CU 1 (RM A1)	H		2.70		40/2	3	4	40/2		2.70		H	HVAC - CU 8 (RM A8)
	H			2.70		5	6				2.70	H	
HVAC - CU 2 (RM A2)	H	2.70			40/2	7	8	40/2	2.70			H	HVAC - CU 7 (RM A7)
	H		2.70			9	10			2.70		H	
HVAC - F 2 (RM A2)	H			1.77	20/1	11	12	20/1			1.77	H	HVAC - F 7 (RM A7)
SPARE					20/1	13	14	20/1					SPARE
HVAC - F 5 (RM A5)	H		1.31		20/1	15	16	20/1		1.31		H	HVAC - F 3 (RM A3)
HVAC - CU 5 (RM A5)	H			1.86	30/2	17	18	30/2			1.86	H	HVAC - CU 3 (RM A3)
	H	1.86				19	20		1.86			H	
HVAC - F 6 (RM A6)	H		1.31		20/1	21	22	20/1		1.31		H	HVAC - F 4 (RM A4)
HVAC - CU 6 (RM A6)	H			1.86	30/2	23	24	30/2			1.86	H	HVAC - CU 4 (RM A4)
	H	1.86				25	26		1.86			H	
SPARE					20/1	27	28	15/2		0.94		H	HVAC - HP 1 (PRINCIPAL)
SPARE					20/1	29	30				0.94	H	
SPARE					20/1	31	32	20/1					SPARE
SPARE					20/1	33	34	20/1					SPARE
SPARE					20/1	35	36	20/1					SPARE
SPARE					20/1	37	38	20/1					SPARE
SPARE					20/1	39	40	20/1					SPARE
SPARE					20/1	41	42	20/1					SPARE
		8.19	8.02	8.19					8.19	8.96	9.13		

DEMAND LOAD SUMMARY	CONN. KVA	DEMAND FACTOR	DEMAND KVA
TYPE "M": NON-CONTINUOUS / MISC. LOADS	0.00	100%	0.00
TYPE "L": LIGHTING / CONTINUOUS LOADS	0.00	125%	0.00
TYPE "R": RECEPTACLES (FIRST 10KVA)	0.00	100%	0.00
TYPE "R": RECEPTACLES (OVER 10KVA)	0.00	50%	0.00
TYPE "H": HVAC / MECHANICAL LOADS	50.68	100%	50.68
TOTALS:	50.68		50.68

PHASE A: 16.38 **KVA**
PHASE B: 16.98 **KVA**
PHASE C: 17.32 **KVA**

144.33 **MAX AMPS / PHASE**

PANEL B2 (NEMA 3R)

VOLTS: 120 / 208
PHASE: 3 PH
WIRE: 4 W
BUSSING: 225A
POLES: 42P

MAIN BRKR: 225A MCB
FEEDER: SEE DIAGRAM
CONDUIT: SEE DIAGRAM
MOUNTED: SURFACE
AIC RATING: SERIES

LOAD DESCRIPTION	TYPE	A	B	C	BRKR.	CKT.	CKT.	BRKR.	A	B	C	TYPE	LOAD DESCRIPTION
HVAC - F 9 (RM B9)	H	1.77			20/1	1	2	20/1					SPARE
HVAC - CU 9 (RM B9)	H		2.70		40/2	3	4	20/1					SPARE
	H			2.70		5	6	20/1					SPARE
HVAC - CU 10 (RM B10)	H	1.86			30/2	7	8	20/1					SPARE
	H		1.86			9	10	20/1					SPARE
HVAC - F 10 (RM B10)	H			1.31	20/1	11	12	20/1					SPARE
SPARE					20/1	13	14	20/1					SPARE
HVAC - F 11 (RM B11)	H		1.31		20/1	15	16	20/1					SPARE
HVAC - CU 11 (RM B11)	H			1.86	30/2	17	18	20/1					SPARE
	H	1.86				19	20	20/1					SPARE
HVAC - F 12 (RM B12)	H		1.31		20/1	21	22	20/1					SPARE
HVAC - CU 12 (RM B12)	H			1.86	30/2	23	24	20/1					SPARE
	H	1.86				25	26	20/1					SPARE
SPARE					20/1	27	28	20/1					SPARE
SPARE					20/1	29	30	20/1					SPARE
SPARE					20/1	31	32	20/1					SPARE
SPARE					20/1	33	34	20/1					SPARE
SPARE					20/1	35	36	20/1					SPARE
SPARE					20/1	37	38	20/1					SPARE
SPARE					20/1	39	40	20/1					SPARE
SPARE					20/1	41	42	20/1					SPARE
		7.35	7.18	7.73					0.00	0.00	0.00		

DEMAND LOAD SUMMARY	CONN. KVA	DEMAND FACTOR	DEMAND KVA
TYPE "M": NON-CONTINUOUS / MISC. LOADS	0.00	100%	0.00
TYPE "L": LIGHTING / CONTINUOUS LOADS	0.00	125%	0.00
TYPE "R": RECEPTACLES (FIRST 10KVA)	0.00	100%	0.00
TYPE "R": RECEPTACLES (OVER 10KVA)	0.00	50%	0.00
TYPE "H": HVAC / MECHANICAL LOADS	22.26	100%	22.26
TOTALS:	22.26		22.26

PHASE A: 7.35 **KVA**
PHASE B: 7.18 **KVA**
PHASE C: 7.73 **KVA**

64.42 **MAX AMPS / PHASE**

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omaeconsulting.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

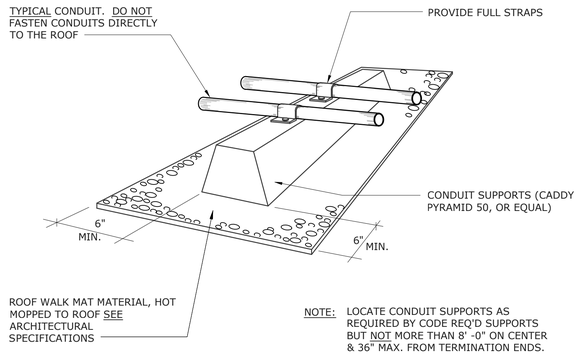
APRIL 5, 2021

SHEET TITLE

SCHEDULES

SHEET NUMBER

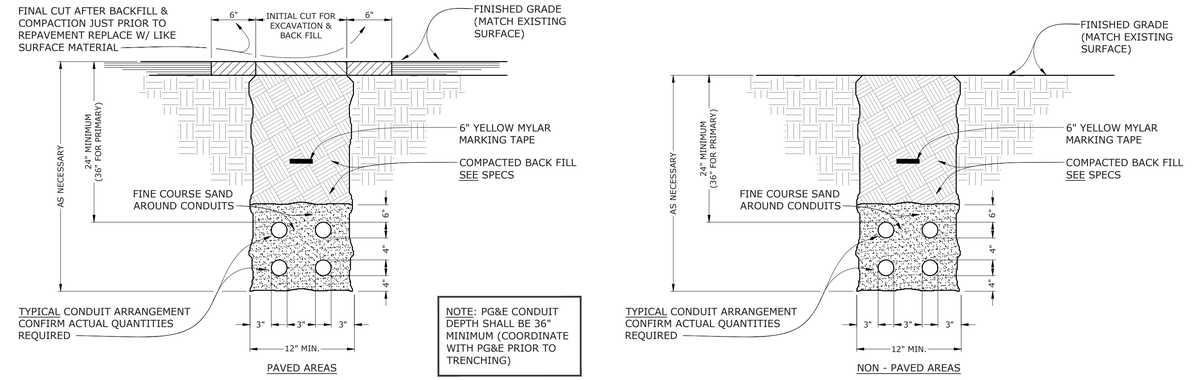
E6.1



ROOF MOUNTED ELECTRICAL CONDUIT SUPPORTS

5 E7.1

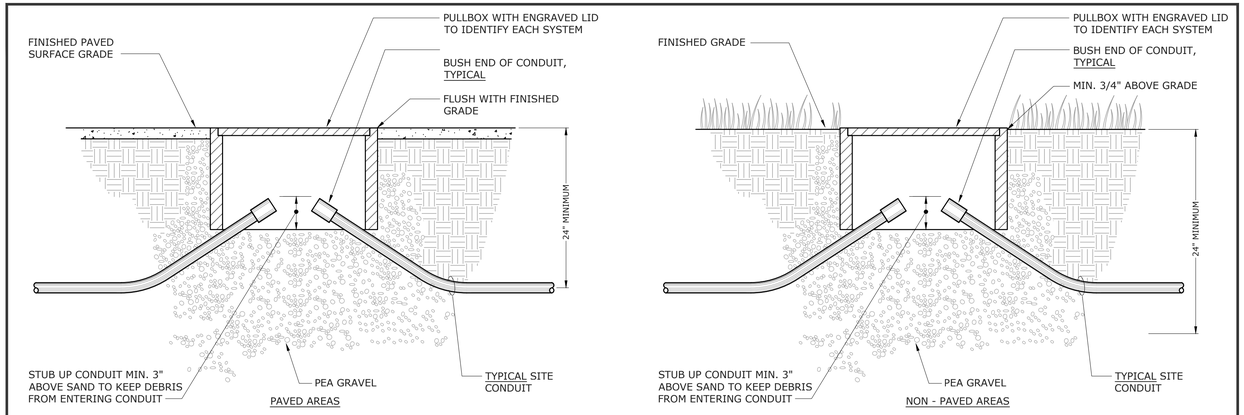
SCALE: NONE
FILE: L:\POWER\CONDUIT\PCOND012



TYPICAL TRENCH SECTIONS

1 E7.1

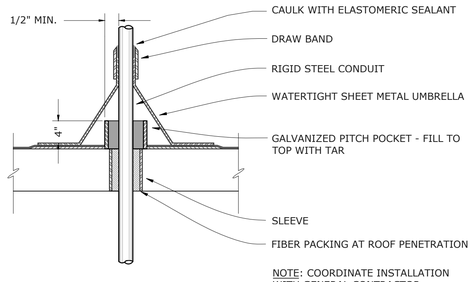
SCALE: NOT TO SCALE
FILE: L:\DETAILS\POWER\TRENCH\PTREN005



TYPICAL PULLBOX DETAILS

2 E7.1

SCALE: NOT TO SCALE
FILE: L:\DETAILS\POWER\UG-PULLBOX\PUGP007



ROOF PENETRATION DETAIL

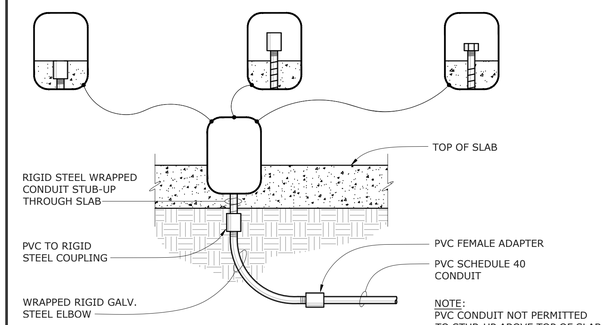
4 E7.1

SCALE: NOT TO SCALE
FILE: L:\DETAILS\POWER\CONDUIT\PCOND009

A. RIGID STEEL COUPLING FLUSH WITH TOP OF SLAB. PROVIDE FLUSH PLUG ON COUPLING.

B. STUB-UP 6" AT LOCATION SHOWN ON DRAWINGS. CAP WITH THREADED COMBINATION COUPLING (RIGID STEEL TO EMT AND PLUG). SET SCREW CONNECTORS NOT ALLOWED.

C. STUB-UP 6" AT LOCATION SHOWN ON DRAWINGS. BUSH END OF CONDUIT.



CONDUIT STUB-UP DETAILS

3 E7.1

SCALE: NONE
FILE: L:\DETAILS\POWER\CONDUIT\PCOND007

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omaheonyandmyer.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

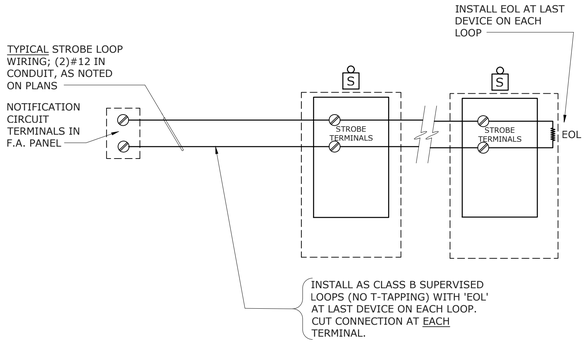
APRIL 5, 2021

SHEET TITLE

DETAILS

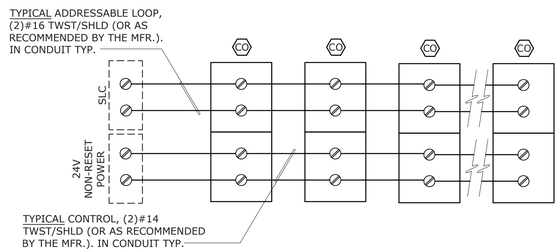
SHEET NUMBER

E7.1



TYPICAL NOTIFICATION CIRCUIT WIRING (1)

SCALE: NONE
FILE: L:\DETAILS\POWER\FIREALRM\

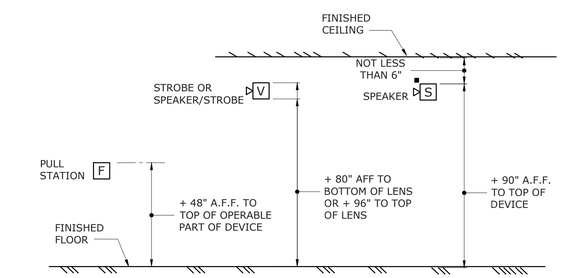


NOTE:

1. T-TAPPING ALLOWED ON ADDRESSABLE LOOPS. NO `EOL' DEVICES REQUIRED. MAXIMUM TOTAL LENGTH OF 3,000 FEET.
2. PROPERLY TERMINATE SHIELDS AND DRAINS AS PER SYSTEM SUPPLIERS RECOMMENDED INSTRUCTIONS.

TYPICAL ADDRESSABLE INITIATION LOOP WIRING (2)

SCALE: NONE
FILE: L:\DETAILS\POWER\FIREALRM\PFIRE013



TYPICAL DEVICE MOUNTING HEIGHTS (3)

SCALE: NONE
FILE: L:\DETAILS\POWER\FIREALRM\

GENERAL CO DETECTION NOTES

1. FINAL CO DETECTION TEST SHALL BE MADE WITH THE DSA INSPECTOR OF RECORD (IOR). LOCAL FIRE AUTHORITY SHALL BE NOTIFIED OF DATE AND TIME OF FINAL ALARM TESTING AND SHALL ASSIST/WITNESS SUCH TESTING WHEN ABLE. DSA/ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF (48) HOURS PRIOR TO THE FINAL INSPECTION AND/OR TESTING.
2. UNDERGROUND AND EXTERIOR CONDUITS SHALL HAVE WATERTIGHT FITTINGS.
3. AUDIBLE FIRE ALARM SYSTEM LEVEL SHALL BE AT LEAST 15dBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL IN ALL OCCUPIABLE AREAS, OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, MEASURED AT 5 FEET ABOVE THE FLOOR. AUDIBLE SIGNALS SHALL NOT BE LESS THAN 75dBA AT 10 FEET, OR MORE THAN 110dBA AT THE MINIMUM HEARING DISTANCE.
4. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL THREE DISTINCTIVE FIRE ALARM SOUND PER NFPA 72.
5. APPLICABLE CODES:
   a. CBC 2016; CEC 2016; CMC 2016; CFC 2016.
   b. STATE FIRE MARSHAL TITLE 19, PUBLIC SAFETY.
   c. NFPA 72, 2016 EDITION W/CA AMENDMENTS, FIRE ALARM CODE.
6. STROBES SHALL FLASH AT A RATE NOT EXCEEDING TWO FLASHES PER SECOND, AND NOT LESS THAN ONE FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. VISUAL DEVICES WITHIN 55 FEET OF EACH OTHER SHALL BE SYNCHRONIZED.
7. FIRE ALARM CONTRACTOR SHALL PROVIDE A COPY OF NFPA 72 SYSTEM RECORD OF COMPLETION, SYSTEM RECORD OF INSPECTION AND TESTING, AND THE "EMERGENCY COMMUNICATIONS SUPPLEMENTARY RECORD OF COMPLETION", TO THE INSPECTOR OF RECORD IOR/DSA, SCHOOL DISTRICT, ARCHITECT AND LOCAL FIRE AUTHORITY.
8. POWER SERVICE TO THE CODCP, REMOTE POWER SUPPLIES, SHALL BE ON A DEDICATED BRANCH CIRCUIT WITH A RED MARKING AND IDENTIFIED AS "CO PANEL CIRCUIT CONTROL".
9. INSTALL ALL WIRING IN CONDUIT, MIN. 3/4" CONDUIT. ALL CO DETECTION SYSTEM WIRING SHALL BE FLP (FIRE POWER LIMITED) OR FPLP (FIRE POWER LIMITED PLENUM RATED) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
10. CONDUIT AND WIRING SHALL BE PER MANUFACTURERS REQUIREMENTS.
11. ALL CO DETECTION COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICES/EQPT. SHALL EXCEED 20LBS. WITHOUT SPECIAL MOUNTING DETAILS.
12. INSTALLATION OF SYSTEM SHALL NOT BE STARTED UNTIL COMPLETE SET OF CONSTRUCTION DOCUMENTS (WITH DEVICE TYPES AND LISTINGS) HAVE BEEN REVIEWED AND APPROVED BY DSA.
13. A STAMPED SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES AND SHALL BE USED FOR INSTALLATION.
14. ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND ARCHITECT/ENGINEER OF RECORD.
15. THE CONTRACTOR SHALL INSTALL AND ADJUST ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE ALARM DEVICE. DO NOT SPLICE WIRE. THERE MUST BE AT LEAST 6" OF WIRE LEAD FROM THE BOX TO THE DEVICE. ALL BOXES TO BE SIZED PER CEC FOR PROPER VOLUME WITH INSTALLED WIRING AND DEVICES.
17. A DOCUMENTATION CABINET SHALL BE INSTALLED ADJACENT TO THE CODCP IN THE MAIN ELECTRICAL ROOM (NFPA 72, 7.7.2.1). SPACE AGE ELECTRONICS INC, ACERBOX FAD SERIES (#SSU00685 OR EQUAL).
18. ALL RECORD DOCUMENTATION SHALL BE STORED IN THE DOCUMENTATION CABINET (NFPA 72, 7.7.2.2): PROVIDE NAMEPLATE "CO DETECTION SYSTEM RECORD DOCUMENTS" (NFPA 72, 7.7.2.4).

SEQUENCE OF OPERATION

1. CO DETECTORS - WHEN A CO DETECTOR IS ACTIVATED, IT SHALL ANNUNCIATE AN ALARM AT THE CODCP. ALARM SHALL ACTIVATE THE VISUAL DEVICE LOCATED ADJACENT THE ADMIN RECEPTIONISTS DESK.
2. ANY BUILDING POWER FAILURE- IF THE BUILDING LOSES POWER, THE FAILURE SHALL SHOW UP AS A TROUBLE SIGNAL ON THE CODCP. THE SYSTEM SHALL STAY ACTIVE ON BATTERY BACK-UP POWER IN ACCORDANCE WITH THE STATE FIRE CODE.
3. SYSTEM SHALL INDICATE TROUBLE ALARMS FOR ALL SYSTEM FAULTS (i.e. GROUND FAULTS, SHORTS, OPEN CIRCUITS, BATTERY DISCONNECT, ETC.).

CO DETECTION EQUIPMENT LIST

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL NUMBER	CSFM LISTING NUMBER	STANDBY CURRENT	ALARM CURRENT
CO CP	INTELLIGENT FIRE ALARM CONTROL PANEL	NOTIFIER - NFS-320	7165-0028:0243		
CO	ADDRESSABLE FIRE/CO DETECTOR	NOTIFIER - FCO-851 (A)	7275-0028:0264		
CO EP	ADDRESSABLE CHARGER/POWER SUPPLY	NOTIFIER - ACPS-610 (E)	7315-0028:0248		
S	COMBINATION VISUAL STROBE AND HORN WITH TEMPORAL 4	WHEELOCK-HSW	7125-0785:0168		
			STROBE CKT: 15cd		

CO DETECTION WIRING LEGEND

TAG	DESCRIPTION	CABLING
A	INITIATION CIRCUIT	(2) #16 TWISTED/UNSHIELDED
B	NOTIFICATION CIRCUIT(S)	(2) #12 THHN/THWN
C	CONTROL (NON RESETABLE POWER)	(2) #14 THHN/THWN

NOTE:
CONTRACTOR SHALL VERIFY EXACT CABLE/WIRE TYPES WITH SYSTEM MANUFACTURER PRIOR TO ROUGH-IN.

CO DETECTION SCOPE OF WORK

1. TERMINATE EACH NOTIFICATION OR SLC LOOP TO THE CO CONTROL PANEL OR CO EXPANDER PANEL AS SHOWN ON PLANS AND RISER DIAGRAMS.

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.omeyconsulting.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN O'MAHONY
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO: 1889.02
DRAWN BY: JK
DRAWING SCALE: AS NOTED
PTN: 70714-16 FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

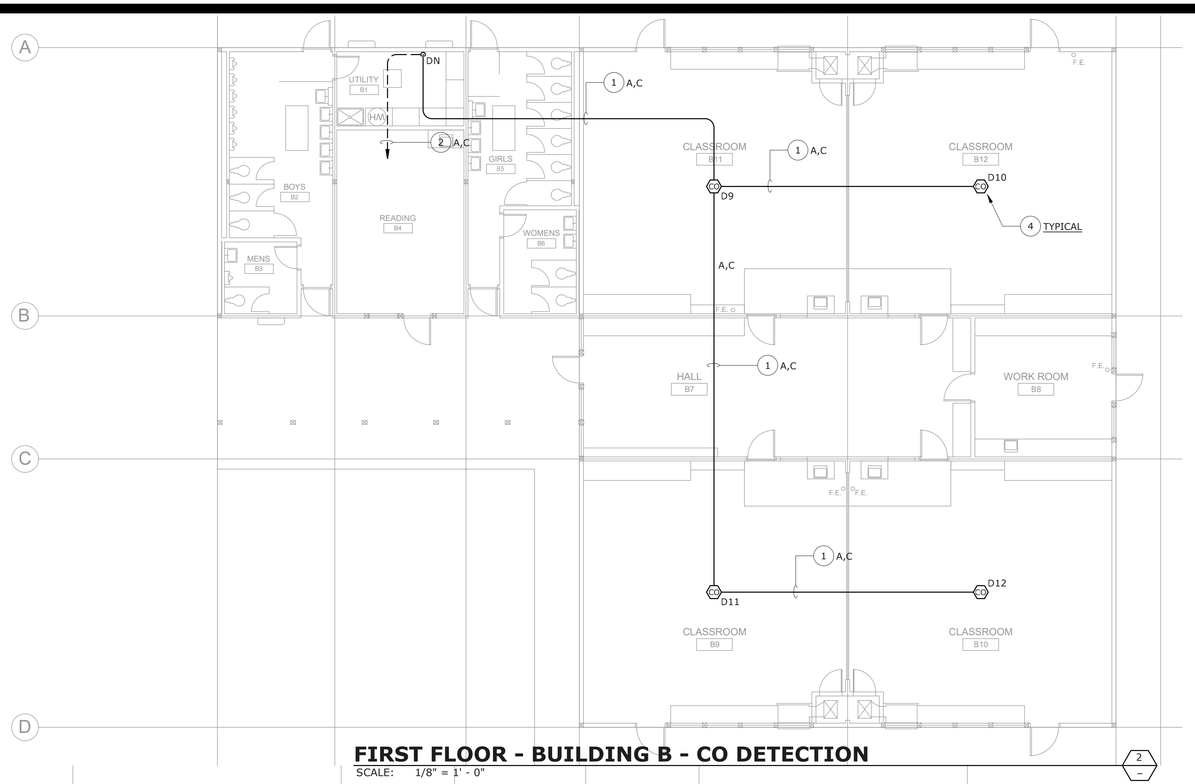
SHEET TITLE

CO DETECTION EQUIPMENT LIST & NOTES

SHEET NUMBER

FE0.1

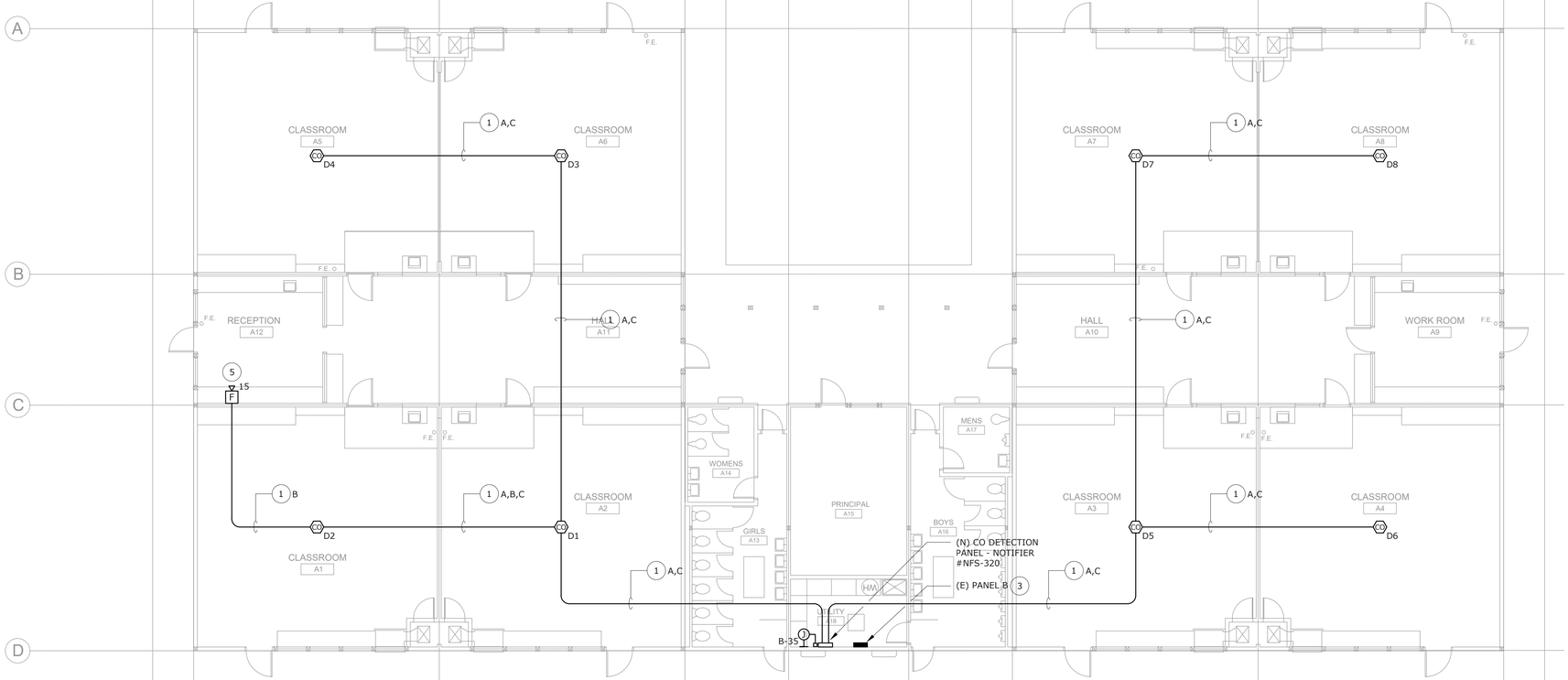
HILLCREST MS HEAT MITIGATION PH 1 – 221013



FIRST FLOOR - BUILDING B - CO DETECTION

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

2



FIRST FLOOR - BUILDING A - CO DETECTION

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

1

NUMBERED SHEET NOTES

1. PROVIDE AND INSTALL CO DETECTION WIRING INDICATED, IN 3/4" C. CONCEALED WITHIN ACCESSIBLE CEILING SPACES.
2. PROVIDE AND INSTALL CO DETECTION WIRING INDICATED IN EXISTING UNDERGROUND CONDUIT TO BUILDING A UTILITY CLOSET.
3. PROVIDE AND INSTALL NEW 20A/1P CIRCUIT BREAKER AT POSITION B-35. CIRCUIT BREAKER SHALL BE RED, WITH "LOCK-ON" DEVICE, IN EXISTING EATON PRL1a PANELBOARD.
4. ADDRESSABLE CO DETECTOR, WITH AUDIBLE SOUNDER BASE. NOTIFIER #FCO-851(A).
5. COMBO HORN/STROBE, WITH TEMPORAL 4 AUDIBLE PATTERN AND AMBER STROBE. DEVICE SHALL BE WHITE WITH RED LETTERING MARKED "ALERT".

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
490 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.ommconsulting.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN MYER
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	JK
DRAWING SCALE:	AS NOTED
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

FLOOR PLANS CO DETECTION

SHEET NUMBER

FE3.3

VOLTAGE DROP CALCULATIONS

FIRE ALARM CONTROL PANEL 'CO CP'

SIGNAL CIRCUIT:	N1		
TOTAL CKT CURRENT =	0.066	A	
MAX VOLT-DROP =	0.16%		
SYSTEM VOLTAGE =	20.4	V	
Device Address-->	N1-1		
Type of Device -->	15CSTR	eol	
Current of Device (Amp) -->	0.061	0.005	
Size of Wire (AWG) -->	#12	#12	
Distance to each Device (Ft) -->	125	5	
Current Total (Amp) -->	0.066	0.005	
Device Volt-drop -->	0.16%	0.16%	
Device Volt -->	20.37	20.37	

BATTERY CALCULATIONS: **CO DETECTION CONTROL PANEL CODCP**

STANDBY MODE

	EA (A)	QTY.	CURRENT
CONTROL UNIT	0.150	1	0.150
MODULES	0.0003	0	0.0000
CO DETECTORS	0.0200	12	0.2400

TOTAL STANDBY CURRENT = 0.390 A
REQUIRED (24 HOURS) = 9.360 AH

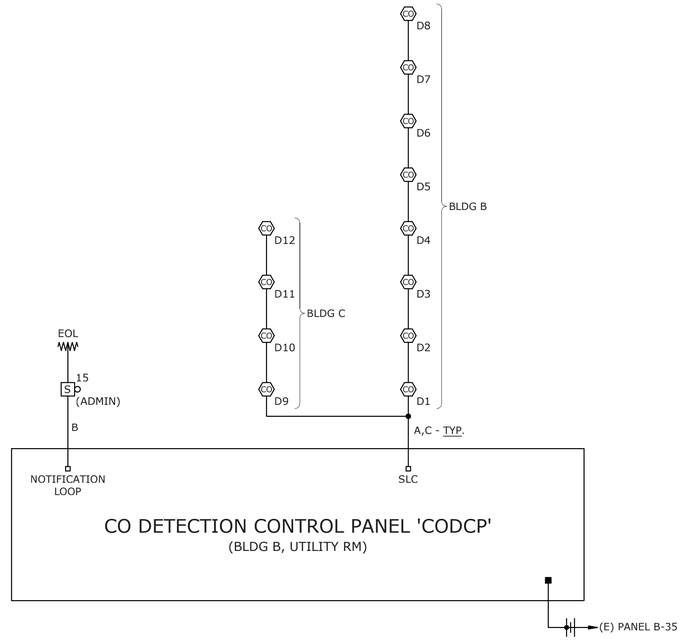
ALARM MODE

	EA (A)	QTY.	CURRENT
CONTROL UNIT	0.262	1	0.262
MODULES	0.007	0	0.000
CO DETECTORS	0.0400	12	0.480
NOTIFICATION CKT 15CD	0.0660	1	0.066

TOTAL ALARM CURRENT = 0.808 A
REQUIRED (15 MIN) = 0.202 AH

TOTAL POWER REQUIRED WITH 120% BATTERY DERATING FACTOR = **11.474 AH**

PROVIDE TWO 12V, 24AH BATTERIES. CABINET PER MFR RECOMMENDATION



CO DETECTION RISER DIAGRAM

SCALE: NO SCALE

1

QUATTROCCHI KWOK ARCHITECTS
Main Office:
636 Fifth Street, Santa Rosa, CA 95404
East Bay:
55 Harrison Street, Suite 525,
Oakland, CA 94607
(707) 576-0829

NOT FOR CONSTRUCTION

O'MAHONY & MYER
ELECTRICAL ENGINEERS and LIGHTING DESIGN
430 REDWOOD HWY, SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0420/FAX (415) 479-0662
www.ommconsulting.com

REGISTERED PROFESSIONAL ENGINEER
PAUL COLEMAN
No.14738
Exp. 6/21
ELECTRICAL
STATE OF CALIFORNIA

HILLCREST MIDDLE SCHOOL

HEAT MITIGATION IMPROVEMENTS

725 BLOOMFIELD ROAD
SEBASTOPOL, CA 95472

GRAVENSTEIN UNION ELEMENTARY SCHOOL DISTRICT

REVISIONS

DSA APP NO. 01-119434

ARCH PROJECT NO:	1889.02
DRAWN BY:	JK
DRAWING SCALE:	AS NOTED
PTN: 70714-16	FILE NO: 49-39

DSA SUBMITTAL

APRIL 5, 2021

SHEET TITLE

CO DETECTION EQUIPMENT LIST & NOTES

SHEET NUMBER

FE0.1