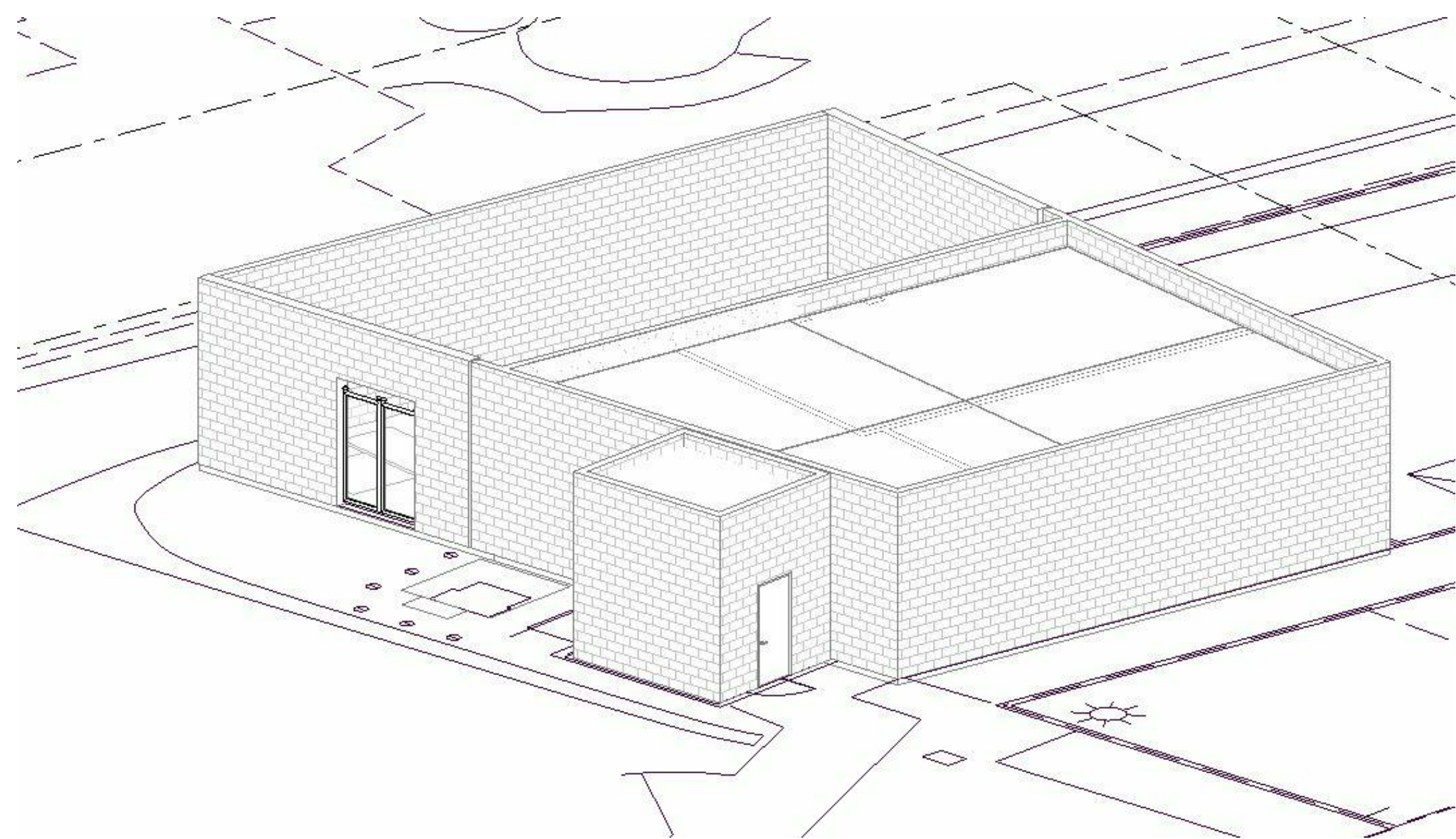


1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

3775 TENTH STREET, RIVERSIDE CALIFORNIA 92501 (951) 684 4664 / 5751 PALMER WAY, SUITE C, CARLSBAD CALIFORNIA 92010 (760) 438 5899



RUHNAU
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ARCHITECTS

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specstudio@icloud.com

[illegible]

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT: DSA SUBMITTAL MAY 20, 2021

PROJECT No. :1-30-56
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**VALHALLA HIGH SCHOOL BATTERY
REPLACEMENT**
VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

TITLE SHEET & SHEET INDEX

G-1



STAMPS

AGENCY APPROVAL
DATE: 07-26-2024 04-12-2025

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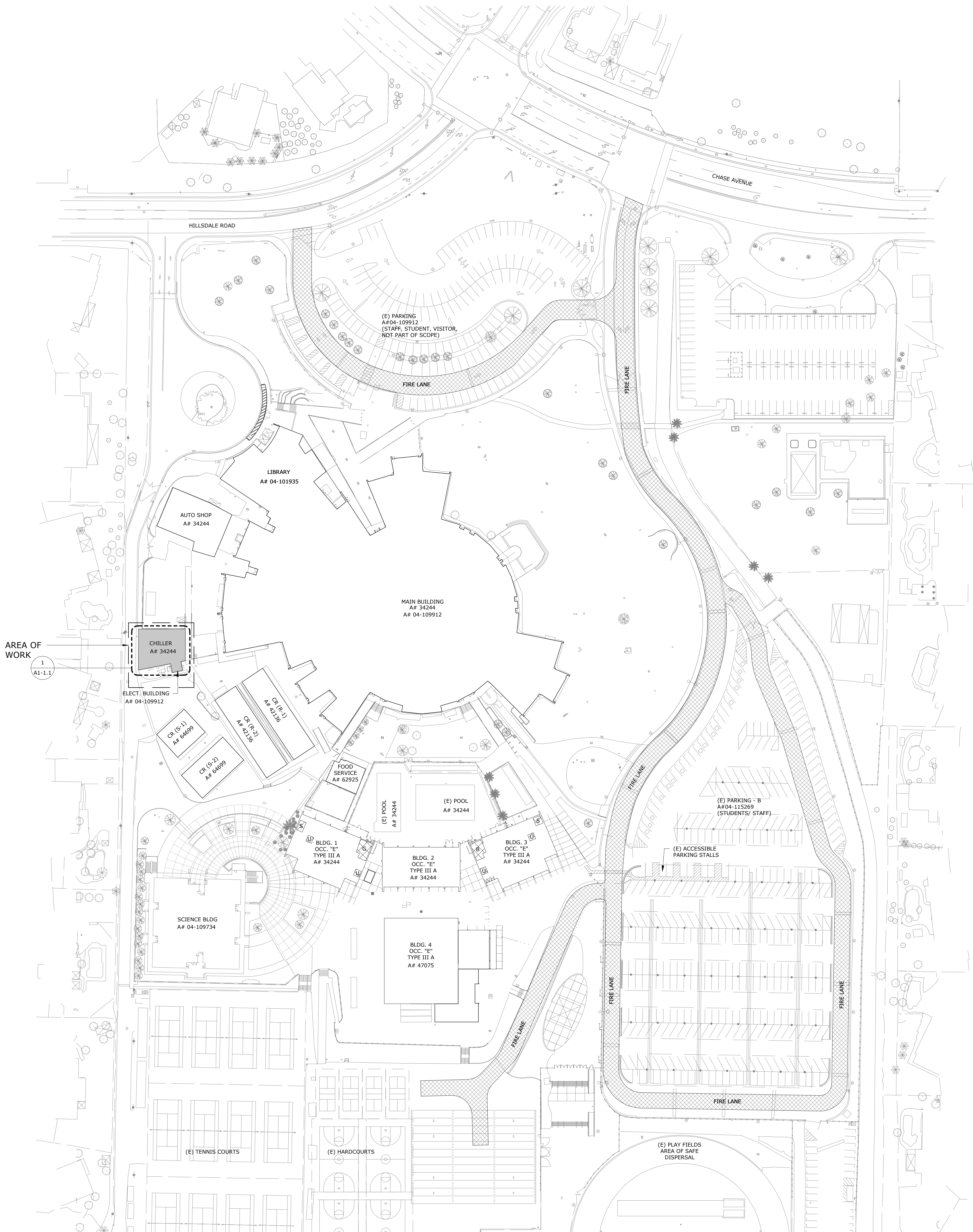
CONSULTANT BRANDING

GENERAL NOTES

1. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

LEGEND SITE PLAN - MOD.

- EXISTING BUILDING TO REMAIN
- EXISTING BUILDING TO BE MODERNIZED
SEE FLOOR PLANS
- EXISTING FIRE LANE



OVERALL SITE PLAN 1

PROJECT No. :1-30-56
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ISSUE No.	DATE	DESCRIPTION	REVISION No.	DATE	DESCRIPTION

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VALHALLA HIGH SCHOOL BATTERY
REPLACEMENT

VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

OVERALL SITE PLAN

AS-2.0

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT: DSA SUBMITTAL MAY 20, 2021



STAMPS

AGENCY APPROVAL
03/31/23 12:25 PM 1/04-120235

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CONSULTANT BRANDING

DEMOLITION GENERAL NOTES

1. AT LOCATIONS WHERE ANY ITEM IS TO BE REMOVED, PATCH AND REPAIR ALL SURFACES AS NEEDED TO MATCH EXISTING ADJACENT MATERIALS AND FINISHES, UNLESS NOTED OTHERWISE.
2. VERIFY WITH ARCHITECT BEFORE ALTERING OR REMOVING ANY STRUCTURAL ITEMS INCLUDING BUT NOT LIMITED TO HOLD DOWNS, SHEAR WALLS, BEARING WALLS UNLESS IDENTIFIED ON THE DRAWINGS AND APPROPRIATE DETAILS ARE APPROVED BY THE DIVISION OF STATE ARCHITECT.
3. RESTORE ALL SURROUNDING AREAS AFFECTED BY THE WORK.
4. PROTECT ITEMS TO REMAIN.
5. CONTRACTOR TO VERIFY EXISTING FOOTINGS, IF PLUMBING OR CONDUIT ROUTING BELOW THE EXISTING FOOTING IS REQUIRED SEE STRUCTURAL.

LEGEND DEMO. FLOOR PLAN

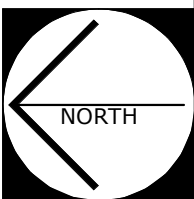
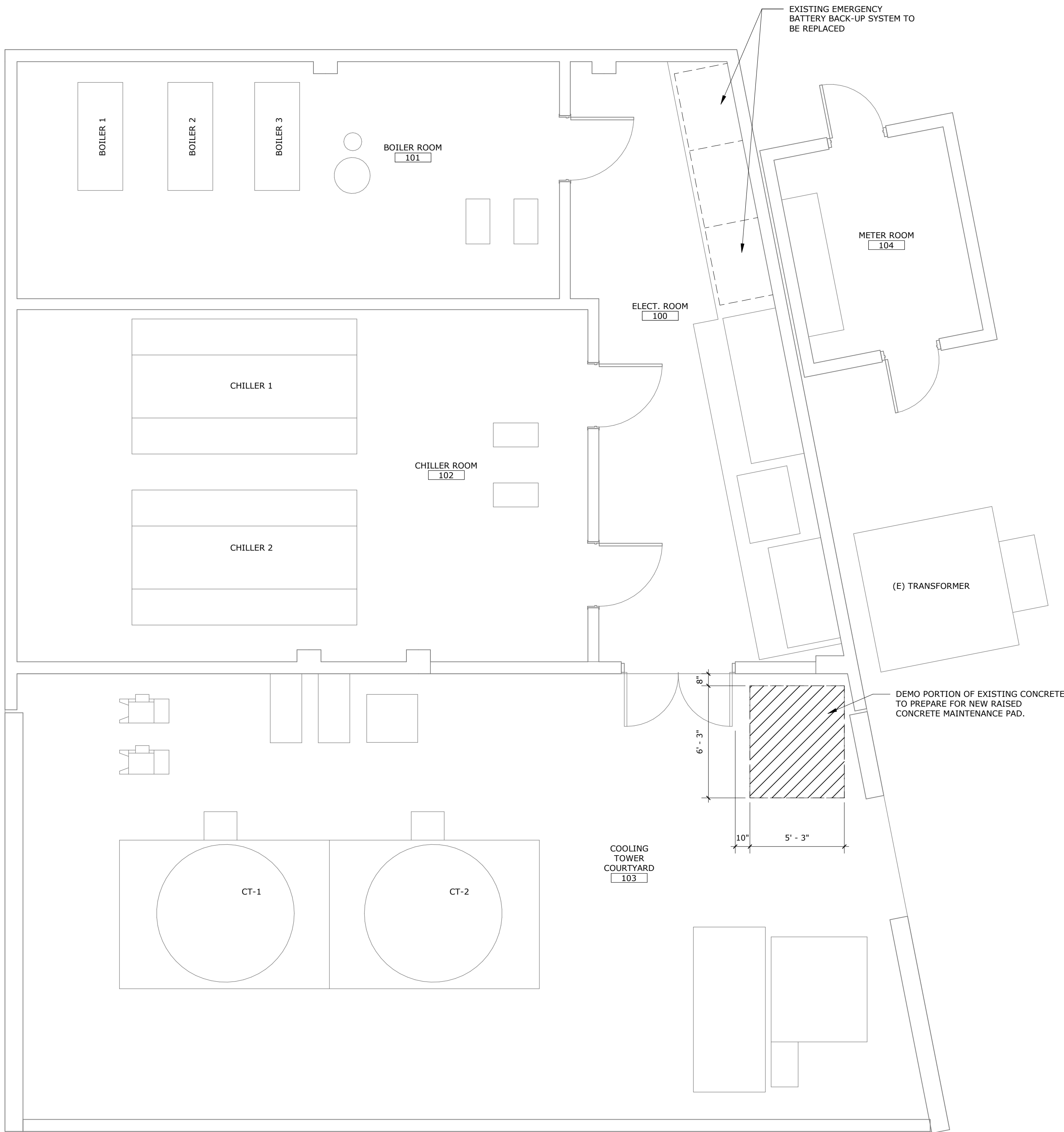
- EXISTING WALL TO REMAIN
- ITEM TO BE REMOVED
- EXISTING CONCRETE SLAB TO BE DEMOLISHED AS REQUIRED
- EXISTING FIXTURE / EQUIPMENT TO BE DEMOLISHED

GENERAL NOTES

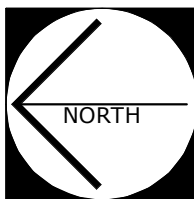
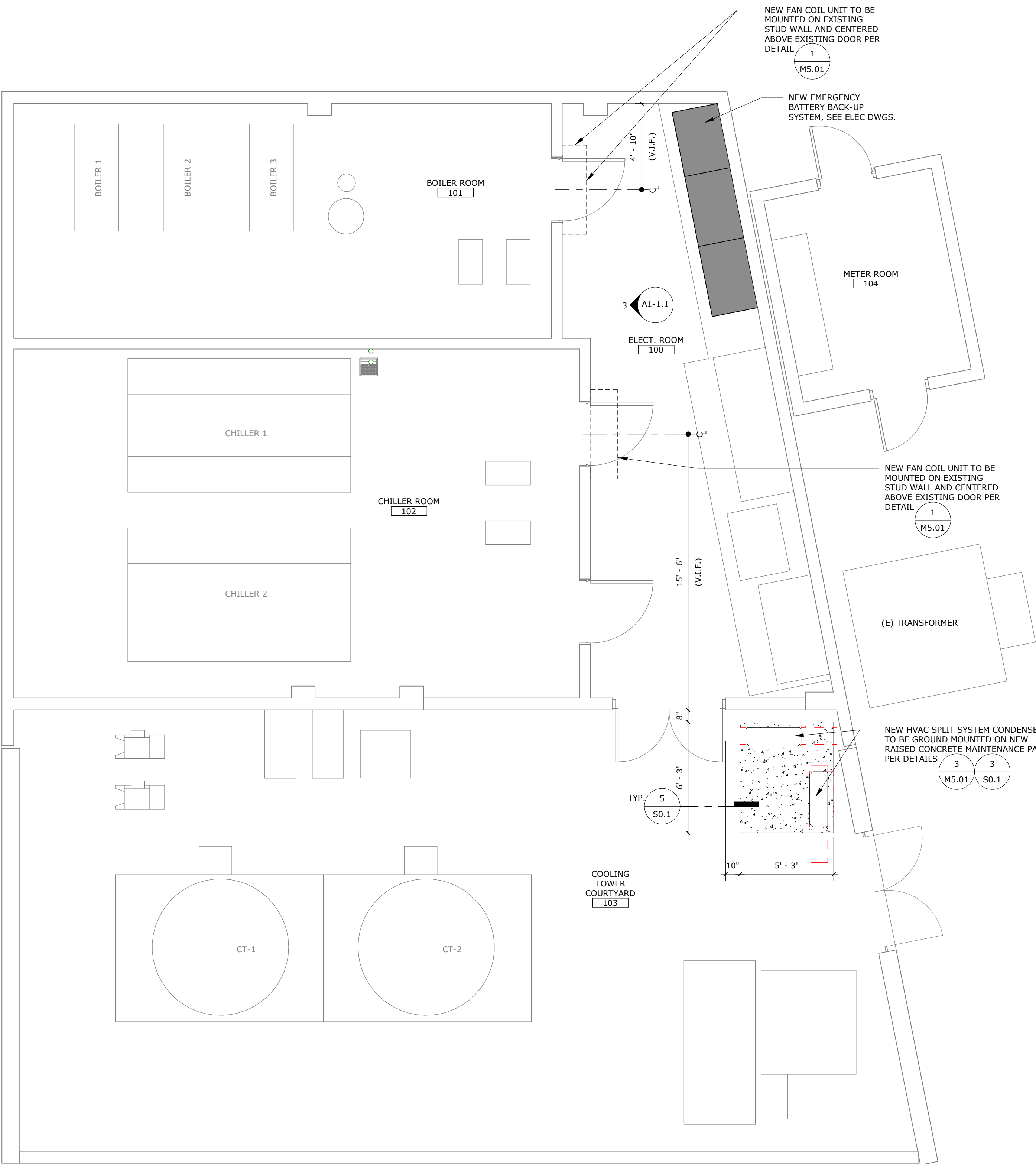
1. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN OR EDGE OF SLAB, U.N.O.
3. PROVIDE STUD BRACING AND SUPPORT FOR NEW FAN COIL UNIT PER DETAIL 1 (MS.01)

LEGEND MOD. FLOOR PLAN

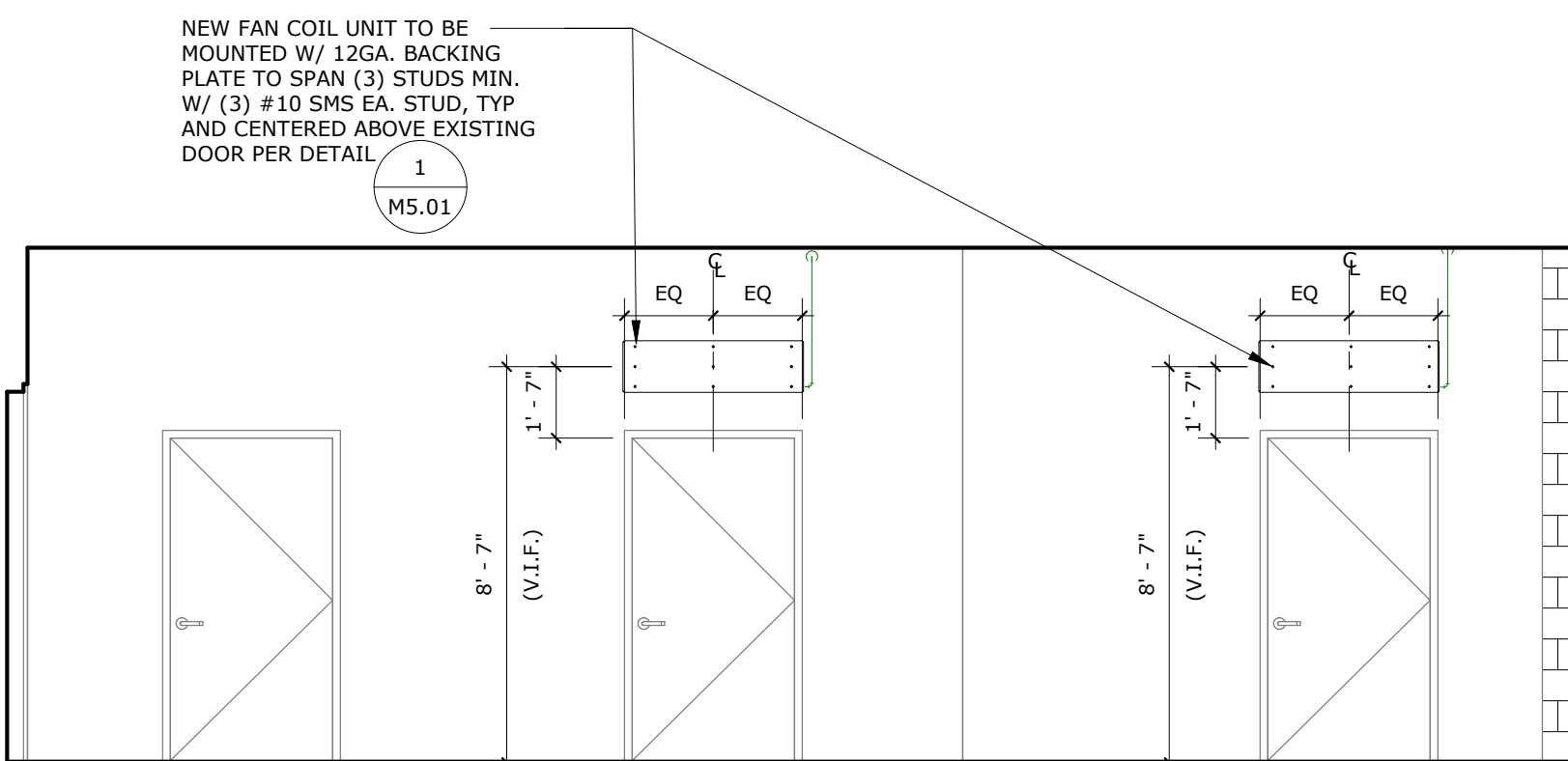
- EXISTING WALL TO REMAIN
- NEW CONCRETE MAINTENANCE PAD SEE STRUCTURAL DETAIL 5 (S0.1)
- NEW ELECTRICAL EQUIPMENT SEE ELECTRICAL DRAWING 1 (EL.1)
- NEW FAN COIL UNIT SEE MECHANICAL DRAWING 1 (M2.01)



DEMO FLOOR PLAN 2



MOD FLOOR PLAN 1



ELECT. ROOM 100 INTERIOR ELEVATION 3

PROJECT No. :1-30-56
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VALHALLA HIGH SCHOOL BATTERY REPLACEMENT
VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

DEMO & MOD FLOOR
PLANS & INT.ELEV.

A1-1.1

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT: DSA SUBMITTAL MAY 20, 2021

LIST OF ABBREVIATIONS

ADD'L.	ADDITIONAL
ALT.	ALTERNATE
ACI	AMERICAN CONCRETE
INSTITUTE	
ASSOCIATION	
ASTM	AMERICAN SOCIETY FOR
TESTING AND MATERIALS	
AWS	AMERICAN WELDING SOCIETY
A.B.	ANCHOR BOLT(S)
ARCH.	ARCHITECT/ARCHITECTURAL
®	AT
BTWN.	BETWEEN
BOT. OR BOTT.	BOTTOM
BLDG.	BUILDING
CBC	CALIFORNIA BUILDING CODE
CIP	CAST IN PLACE
CJP	COMPLETE JOINT
PENETRATION WELD	
¢	CENTER LINE
CLR.	CLEAR
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDITION
CONN.	CONNECTION
CONSTR.	CONSTRUCTION
CONT'D.	CONTINUED
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
DL	DEAD LOAD
DEMO.	DEMOLISH
DTL. OR DET.	DETAIL
DIAG.	DIAGONAL
DIA. OR Ø	DIAMETER
DIM.	DIMENSION
DBL.	DOUBLE
DWL.	DOWEL
DWG.	DRAWING
EA.	EACH
E.F.	EACH FACE
E.S.	EACH SIDE
E.W.	EACH WAY
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EMBED.	EMBEDMENT
ENG.	ENGINEER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXCAV.	EXCAVATION
(E)	EXISTING
EXT.	EXTERIOR
F.O.C.	FACE OF CONCRETE
F.O.S.	FACE OF STUD OR FACE OF
SLAB	
F.S.	FAR SIDE
FIN.	FINISH
F.F.	FINISHED FLOOR
FLR.	FLOOR
FTG.	FOOTING
FNDN.	FOUNDATION
GALV.	GALVANIZE
GA.	GAUGE
GR.	GRADE
HGR.	HANGER
HDR.	HEADER
HT.	HEIGHT
HSS	HOLLOW STRUCTURAL
SECTION	
HORIZ.	HORIZONTAL
INFO.	INFORMATION
I.D.	INSIDE DIAMETER
INT.	INTERIOR
IBC	INTERNATIONAL BUILDING
CODE	
ICC	INTERNATIONAL CODE
COUNCIL	
INV.	INVERT
KSI	KIPS PER SQUARE INCH
LDGR.	LEDGER
LT. WT. OR LW	LIGHT WEIGHT
LL	LIVE LOAD
LG.	LONG OR LENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO-HY	LOW HYDROGEN
M.B.	MACHINE BOLT(S)
MFR.	MANUFACTURER
MATL.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MTL.	METAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MU	MECHANICAL UNIT
N.F.	NEAR FACE
N.S.	NEAR SIDE
NSA	NELSON STUD ANCHOR
(N)	NEW
NIC.	NOT IN CONTRACT
NTS.	NOT TO SCALE
NO. OR #	NUMBER
O.C.	ON CENTER
OPNG.	OPENING
OPP.	OPPOSITE
O.H.	OPPOSITE HAND
O.D.	OUTSIDE DIAMETER
PCF	POUNDS PER CUBIC FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PL	PROPERTY LINE
RAD.	RADIUS
REF.	REFERENCE
REINF.	REINFORCING
REQ'D	REQUIRED
REQMT.	REQUIREMENT
SCHED.	SCHEDULE
SEC.	SECTION
SHT.	SHEET
SMS	SHEET METAL SCREWS
SIM.	SIMILAR
SIMP.	SIMPSON
SPCC.	SPACING
SPECS.	SPECIFICATION
SQ.	SQUARE
STGR.	STAGGER
S.S.	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STIFF.	STIFFENER
STRUCT.	STRUCTURAL
SYM.	SYMMETRICAL
THK.	THICK
K OR KIP	1,000 POUNDS
THRU	THROUGH
TAB	TOP AND BOTTOM
T.O.F.	TOP OF FOOTING
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
VERT.	VERTICAL
WT.	WEIGHT
W/	WITH
W/O	WITHOUT

GENERAL

- THESE STRUCTURAL DRAWINGS AND SPECIFICATIONS, INCLUDING ANY ADDENDA (COLLECTIVELY "THE PLANS") INCORPORATE ALL LEGAL AND INDUSTRY REQUIREMENTS AND STANDARDS INCLUDING WITHOUT LIMITATION THE FOLLOWING:
 - THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1 (CALIFORNIA ADMINISTRATIVE CODE), 2019 EDITION.
 - THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2 (CALIFORNIA BUILDING CODE), 2019 EDITION.
 - OTHER REGULATING AGENCIES WHICH MAY HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
 - THE FUNCTIONALITY STANDARDS SET FORTH IN TITLE 7 OF THE CALIFORNIA CIVIL CODE (THE "RIGHT TO REPAIR ACT").
 - THE MANUFACTURER'S REQUIREMENTS OR RECOMMENDATIONS FOR ANY INCORPORATED PRODUCTS.
 - THE MOST CURRENT APPROVED ISSUES OF ANY NOTED SPECIFICATIONS, CODES AND STANDARDS, INCLUDING SUPPLEMENTS, UNLESS NOTED OTHERWISE.
- THE PLANS REPRESENT ONLY THE FINISHED STRUCTURE, AND THEY ARE NOT INTENDED TO INDICATE OR REQUIRE ANY CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES. IN PARTICULAR AND WITHOUT LIMITATION, THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY AND ALL EXCAVATION, DEMOLITION, SHORING AND ERECTION PROCEDURES AND FOR ANY AND ALL SAFETY PROGRAMS AND PRECAUTIONS.
- IN USING THE PLANS FOR BIDDING OR CONSTRUCTION PURPOSES, THE CONTRACTOR IS REQUIRED TO REVIEW ALL OF THE PROJECT'S CONSTRUCTION DOCUMENTS AS A WHOLE IN ORDER TO IDENTIFY ALL REQUIREMENTS THAT DIRECTLY OR INDIRECTLY AFFECT ITS PORTION OF THE STRUCTURAL WORK, EVEN REQUIREMENTS LOCATED IN SECTIONS DESIGNATED AS APPLICABLE TO OTHER TRADES. IN CASE OF CONFLICTS, THE CONTRACTOR SHALL EITHER OBTAIN DIRECTION FROM AN APPROPRIATE OWNER REPRESENTATIVE OR OTHERWISE APPLY THE MORE STRINGENT REQUIREMENT.
- IN INTERPRETING THE PLANS, THE FOLLOWING GENERAL RULES APPLY:
 - WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DRAWINGS.
 - SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
 - WORK NOT PARTICULARLY SHOWN OR SPECIFIED SHALL BE THE SAME AS SIMILAR PARTS THAT ARE SHOWN OR SPECIFIED.
 - SCALED DIMENSIONS AND GRAPHICALLY SHOWN LOCATIONS ARE TO BE CONSIDERED ONLY APPROXIMATE.
- IN IMPLEMENTING THE PLANS, THE FOLLOWING GENERAL RULES APPLY:
 - BECAUSE THE PLANS ARE INTENDED TO SET FORTH THE REQUIREMENTS FOR CONSTRUCTION IN ONLY AN INDUSTRY-STANDARD LEVEL OF QUALITY AND DETAIL, AND THEREFORE ARE INTENDED TO BE SUPPLEMENTED BY APPROPRIATE REQUESTS FOR CLARIFICATION AND INFORMATION, ERRORS AND OMISSIONS ARE TO BE EXPECTED AND ANTICIPATED; AND THE CONTRACTOR IS REQUIRED TO CAREFULLY REVIEW THE PLANS FOR ERRORS AND OMISSIONS AND TO BRING THESE ERRORS AND OMISSIONS TO THE ATTENTION OF AN APPROPRIATE OWNER REPRESENTATIVE IN A TIMELY MANNER AND ASSUMES THE RISK OF THE SEQUENCES OF FAILING TO DO SO BEFORE BIDDING OR OTHERWISE PROCEEDING.
 - THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.
- SUBMITTALS WILL BE REVIEWED BY THE STRUCTURAL ENGINEER, IF AT ALL, ONLY PURSUANT TO THE INDUSTRY-STANDARD PROTOCOL SET FORTH IN AIA DOCUMENT A201, AND IN NO EVENT WILL THE SUBMITTAL REVIEW PROCESS RELIEVE OR LESSEN THE SUBMITTING CONTRACTOR'S RESPONSIBILITY FOR AN INAPPROPRIATE SUBMITTAL.
- IN NO EVENT WILL ANY SITE VISITS BY THE STRUCTURAL ENGINEER CONCERN CONSTRUCTION MEANS AND METHODS OR CONSTRUCTION SAFETY, AND ALL SUCH MATTERS SHALL REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- COPIES OF THE PLANS PROVIDED IN ANY ELECTRONIC FORM ARE SUBJECT TO THE SAME PROVISIONS AS THE OTHER INSTRUMENTS OF SERVICE PREPARED BY OR ON BEHALF OF STRUCTURAL ENGINEER FOR THIS PROJECT, INCLUDING WITHOUT LIMITATION THE ENGINEER'S COMMON LAW, STATUTORY OR OTHER RESERVED RIGHTS, INCLUDING COPYRIGHTS. A RECIPIENT IS GRANTED AT MOST A TRANSFERABLE NONEXCLUSIVE LICENSE TO REUSE THE PLANS SOLELY FOR PROJECT PURPOSES, AND NO RECIPIENT IS AUTHORIZED TO USE OR TO ALLOW THE USE OF ALL OR ANY PORTION OF THESE PLANS FOR ANY OTHER PURPOSE, AND ANY USE FOR ANY OTHER PURPOSE WOULD CONSTITUTE ACTIONABLE PLAGIARISM. STRUCTURAL ENGINEER PROVIDES DOCUMENTS IN AN ELECTRONIC FORM ONLY IN ITS STANDARD FORMATS AND CONVENTIONS AND WITH NO GUARANTEE OF COMPATIBILITY WITH ANY RECIPIENT'S SOFTWARE OR HARDWARE, AND ANY USE WITH OR CONVERSION TO OTHER FORMATS OR CONVENTIONS, OR THE USE WITH ANY PARTICULAR SOFTWARE OR HARDWARE, IS AT THE RECIPIENT'S SOLE RISK.

PROJECT DESIGN CRITERIA

- WIND LOADS
 - RISK CATEGORY: III
 - EXPOSURE CATEGORY: C
 - BASIC DESIGN WIND SPEED (3-SECOND GUST), $V = 103$ MPH
 - ALLOWABLE STRESS DESIGN WIND SPEED, $V_{ASD} = 80$ MPH
 - VELOCITY PRESSURE EXPOSURE COEFFICIENT, $K_z = 0.85$ (0-15 FT)
 - TOPOGRAPHIC FACTOR, $K_{zt} = 1.0$
 - WIND DIRECTIONALITY FACTOR, $K_d = 0.85$
 - GROUND ELEVATION FACTOR, $K_e = 1.00$
 - GUST EFFECT FACTOR, $G = 0.85$
- EARTHQUAKE LOADS
 - SEISMIC DESIGN CRITERIA
 - $S_s = 0.742$
 - $S_1 = 0.274$
 - SITE CLASS: D
 - $F_A = 1.206$
 - $F_v = 2.1$
 - $S_{DS} = 0.597$
 - $S_{D1} = 0.383$
 - RISK CATEGORY: III
 - SEISMIC DESIGN CATEGORY: D
 - SEISMIC DESIGN REQUIREMENTS
 - SEISMIC HORIZONTAL FORCE FOR EQUIPMENT
 - $F_p = 0.4(A_p)(S_{DS})(W_p) \frac{(1+2(Z/h)W_p)}{R_p}$
 - DESIGN HORIZONTAL FORCE FOR TANKS
 - $V = C_s W$
 - WHERE
 - $C_s = \frac{S_{DS}}{R}(R/W)$
 - BUT SHALL NOT BE LESS THAN
 - $0.3(S_{DS})(W)(W_p)$
 - BUT NEED NOT EXCEED
 - $1.6(S_{DS})(W)(W_p)$
 - WHERE:
 - $R_p = 1.0$
 - $R_s = 2.5$
 - $Z/h = 0$
 - $W_o = 2.0$

DIMENSIONS

- DIMENSIONS SHALL BE DEFINED TO INCLUDE BOTH HORIZONTAL DIMENSIONS AND VERTICAL DIMENSIONS (ELEVATIONS).
- WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DRAWINGS.
- SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT NOTED ON STRUCTURAL DRAWINGS.
- THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.

POST-INSTALLED ANCHORS

- ACCEPTABLE EQUIVALENT MANUFACTURERS OF POST-INSTALLED EXPANSION ANCHORS AND SCREW ANCHORS SHALL BE HILTI INC., SIMPSON STRONG-TIE COMPANY INC., OR DEWALT, UNO.
- TESTS FOR POST-INSTALLED ANCHORS IN HARDENED CONCRETE SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A, SECTION 1910A.5.
- POST-INSTALLED ANCHOR INSTALLATION SHALL BE INSPECTED BY A SPECIAL INSPECTOR SPECIFICALLY APPROVED BY THE ENFORCEMENT AGENCY FOR THAT PURPOSE.
- POST-INSTALLED ANCHOR TESTING SHALL BE DONE IN THE PRESENCE OF THE PROJECT INSPECTOR.
- TEST QUANTITY OF POST-INSTALLED ANCHORS AS NOTED BELOW:

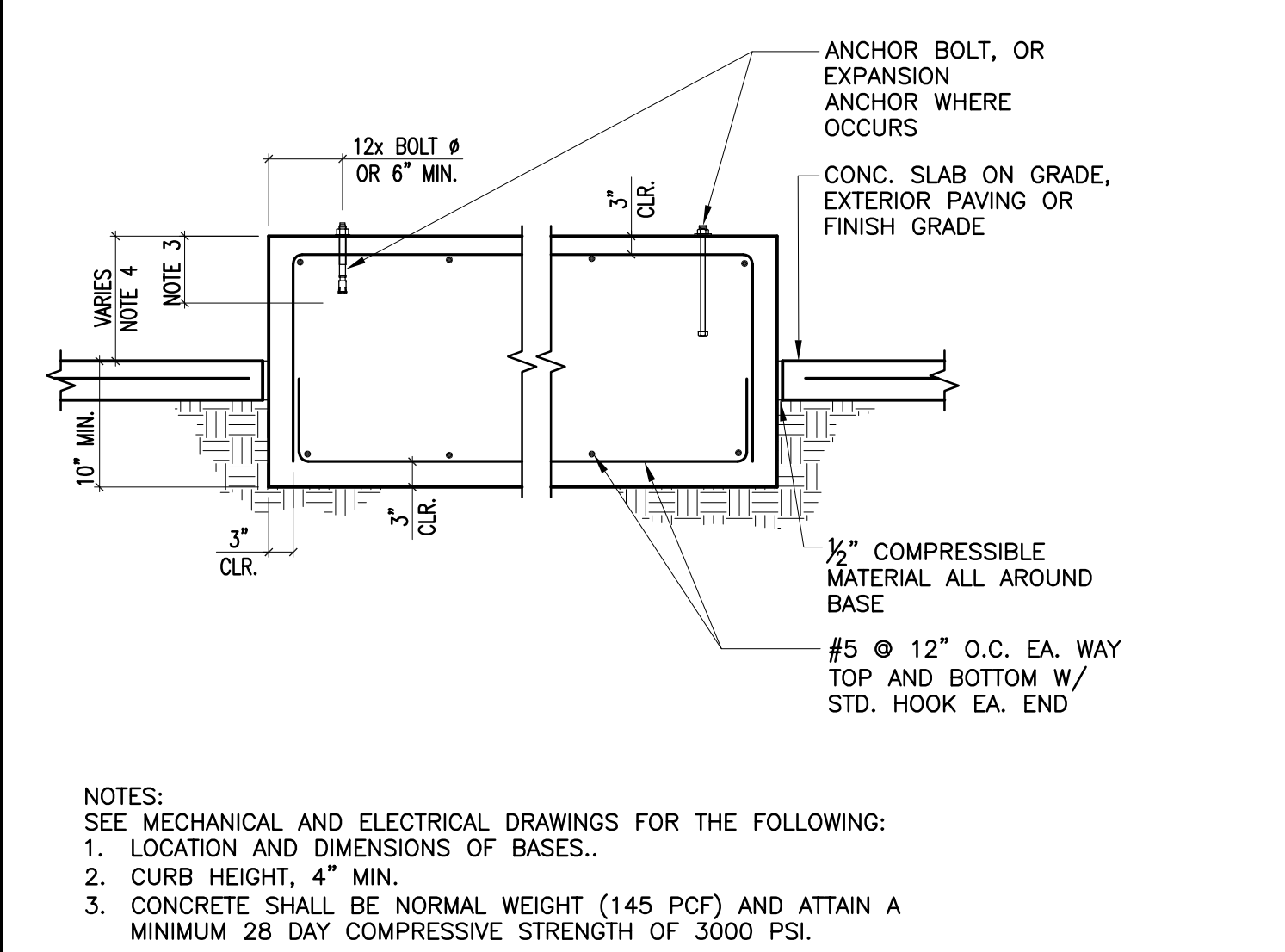
APPLICATION	QUANTITY
NON-STRUCTURAL (EQUIP. ANCHORAGE, ETC.)	50% OF BOLTS
- IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME INITIAL TESTING FREQUENCY.
- TORQUE TESTING SHALL BE APPLIED BY CALIBRATED WRENCH. TENSION TESTING (WHERE INDICATED) SHALL BE APPLIED BY HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICE.
- THE FOLLOWING CRITERIA SHALL APPLY FOR THE ACCEPTANCE OF INSTALLED POST-INSTALLED ANCHORS:
 - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE ATTAINED WITHIN ONE-HALF ($\frac{1}{2}$) TURN OF THE NUT. SLEEVE ANCHORS $\frac{3}{8}$ INCH DIAMETER OR LESS MUST ATTAIN THE SPECIFIED TEST TORQUE WITHIN ONE-QUARTER ($\frac{1}{4}$) TURN OF THE NUT, AND THREADED ANCHORS MUST ATTAIN THE SPECIFIED TEST TORQUE WITHIN ONE-QUARTER ($\frac{1}{4}$) TURN OF THE SCREW AFTER INITIAL SEATING OF THE SCREW HEAD.
 - HYDRAULIC RAM METHOD: (FOR TENSION TESTING WHERE INDICATED) ANCHORS SHALL MAINTAIN THE TENSION TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL EXHIBIT NO DISCERNABLE MOVEMENT DURING THE TENSION TEST. (AN EXAMPLE OF DISCERNABLE MOVEMENT WOULD BE LOOSENING OF THE WASHER UNDER THE NUT).
- TEST LOADS 1(1)(2)(3)

TORQUE TEST VALUES – EXPANSION ANCHORS NORMAL WEIGHT CONCRETE		
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT-LBF)
$\frac{3}{8}$	2	25
	2	40
$\frac{1}{2}$	$3\frac{1}{4}$	40
	$3\frac{3}{8}$	60
$\frac{5}{8}$	4	60
	$3\frac{3}{4}$	110
$\frac{3}{4}$	$4\frac{3}{4}$	110

- TEST VALUES ARE BASED ON KWIK BOLT T22 (KB-T22) EXPANSION ANCHORS BY HILTI, INC. (ICC EVALUATION REPORT NUMBER ESR-4266).
- TEST VALUES ARE BASED ON CARBON STEEL ANCHORS.
- VERIFY TORQUE VALUES WITH MANUFACTURER FOR SIMPSON STRONG-BOLT 2 (ICC ESR-3037) OR DEWALT POWER-STUD+SD2 (ICC ESR-2502)

CONCRETE

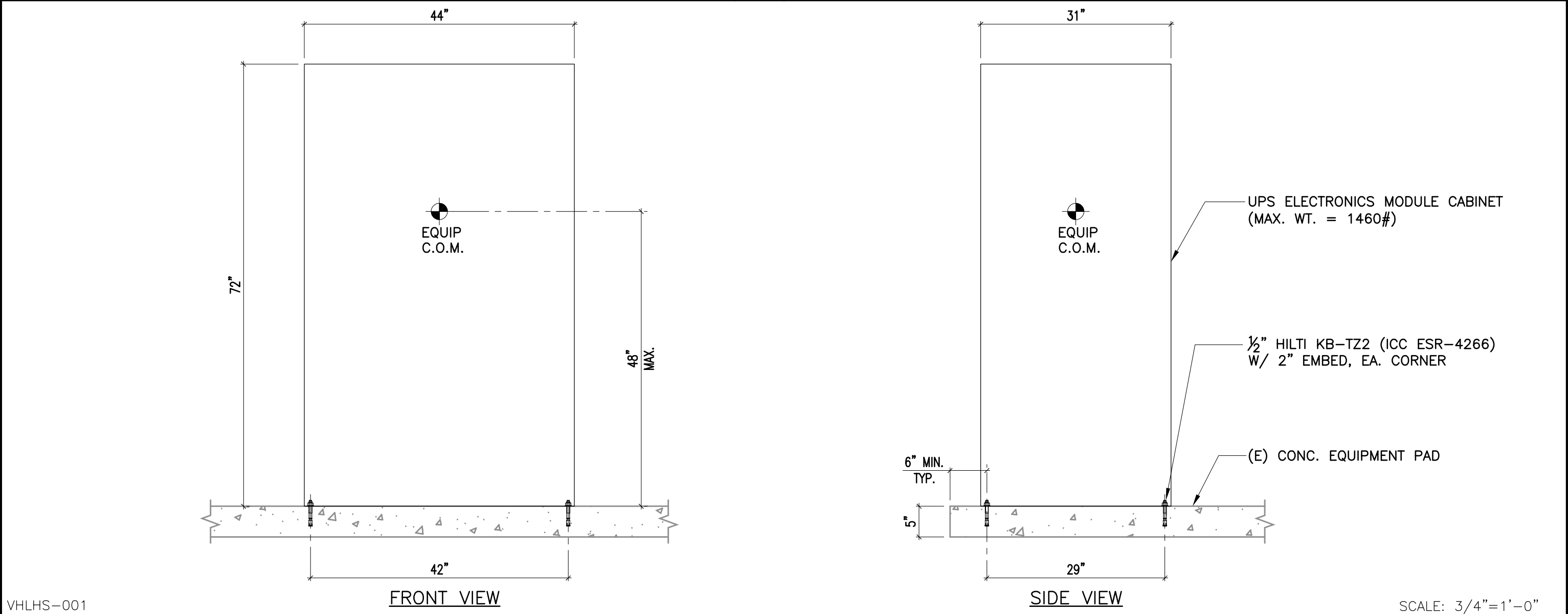
- ALL PORTIONS OF WORK PERTAINING TO CONCRETE CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A.
- CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. MIX DESIGNS SHALL CONFORM TO ACI 318, SEC. 26.4, CBC SEC.1903A AND 1904A. MIX DESIGNS SHALL INCORPORATE THE FOLLOWING CRITERIA:
 - MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE. MAXIMUM OF 7 SACKS OF CEMENT PER YARD OF CONCRETE.
 - MAXIMUM WATER/CEMENT RATIO (BY WEIGHT) OF CONCRETE IN CONTACT WITH SOIL SHALL BE 0.45.
 - MAXIMUM SLUMP SHALL NOT EXCEED $4" \pm 1"$. SLUMP LIMITATIONS NOTED SHALL APPLY TO CONCRETE MIX PRIOR TO THE ADDITION OF ANY WATER-REDUCING ADMIXTURES OR SUPER-PLASTICIZERS. MAXIMUM SLUMP MAY BE INCREASED TO $5" \pm 1"$ FOR MIX INCLUDING WATER-REDUCING ADMIXTURES OR SUPER-PLASTICIZERS.
 - CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CHLORIDE(S) SHALL NOT BE USED.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II. CEMENT USED FOR CONCRETE IN CONTACT WITH SOIL SHALL CONFORM TO ASTM C-150, TYPE V.
- AGGREGATE FOR NORMALWEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. COMBINED AGGREGATE GRADATION OF $\frac{3}{8}"$ MAXIMUM (PEA GRAVEL) SHALL NOT BE USED.
- READY MIXED CONCRETE SHALL CONFORM TO ASTM C-94.
- PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 304. CLEAN AND ROUGHEN TO $\frac{1}{4}"$ AMPLITUDE ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.
- ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- IF APPROVED BY DIVISION OF THE STATE ARCHITECT, BATCH PLANT INSPECTION MAY BE REDUCED TO PERIODIC SUBJECT TO THE REQUIREMENTS OF CBC SEC. 1705A.3.3.1.



C209-0 SCALE: NO SCALE

CONCRETE BASE FOR EQUIPMENT

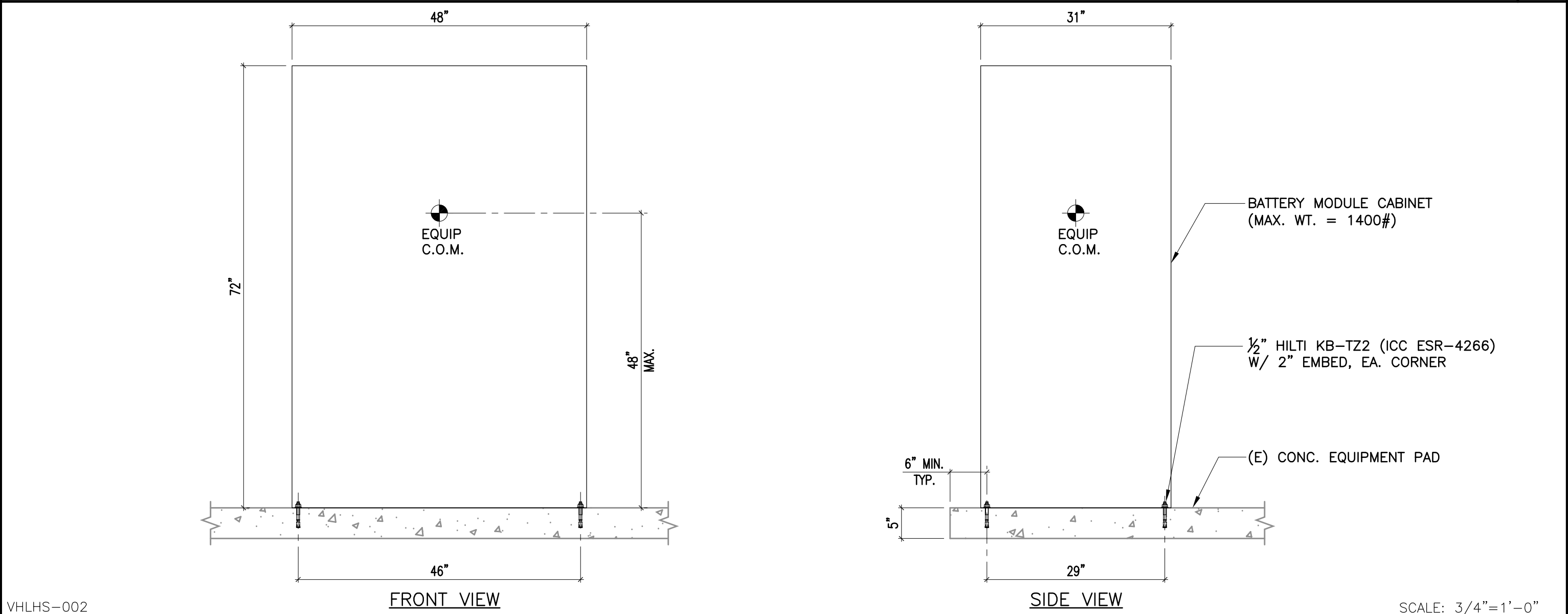
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VHLHS-001

UPS ELECTRONICS MODULE CABINET ANCHORAGE

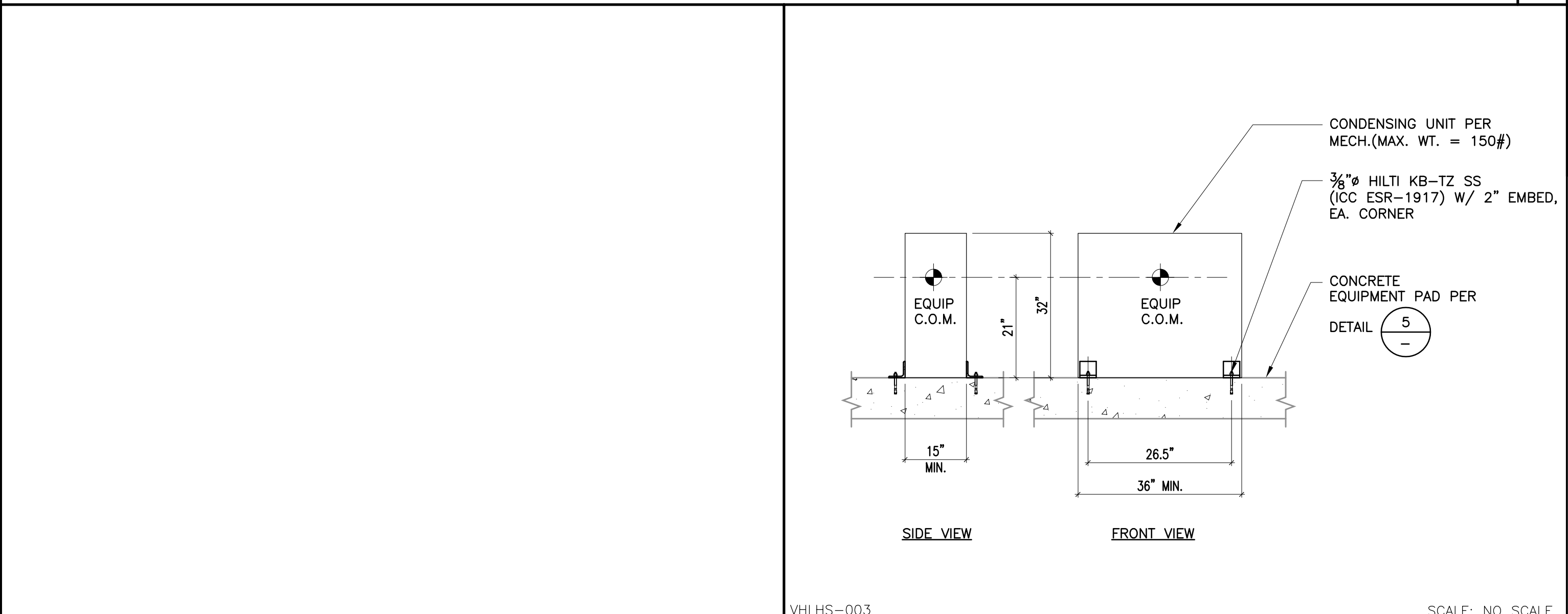
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VHLHS-002

BATTERY MODULE CABINET ANCHORAGE

2



VHLHS-003

SCALE: NO SCALE

CONDENSING UNIT ANCHORAGE

3

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VALHALLA HIGH SCHOOL BATTERY REPLACEMENT

VALHALLA HIGH SCHOOL 1725 HILLSDALE ROAD, EL CAJON, CA 92019 GROSSMONT UNION HIGH SCHOOL DISTRICT

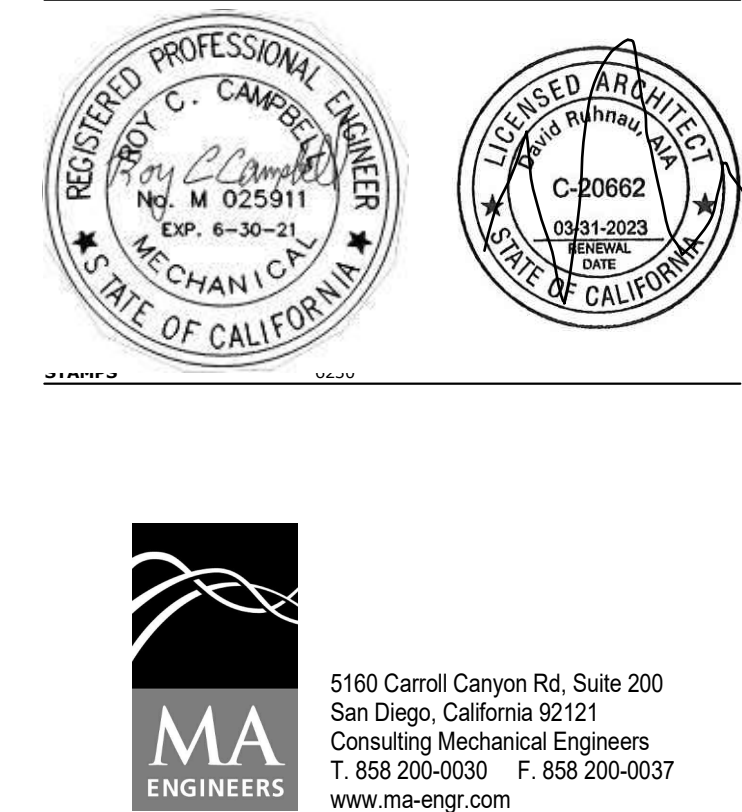
GENERAL NOTES AND DETAILS

S0.1

MECHANICAL LEGEND					
SYMBOL	ABBREV	DESCRIPTION	SYMBOL	ABBREV	DESCRIPTION
		REMOVE EXISTING EQUIPMENT OR PIPING SHOWN DASHED		CD	DUCT TRANSITION
	POC	POINT OF CONNECTION		RR	RETURN REGISTER
	POD	POINT OF DISCONNECT		ER	EXHAUST REGISTER
		COORDINATE WITH ELECTRICAL		T'STAT	THERMOSTAT OR TEMPERATURE SENSOR (NUMBER INDICATES EQUIPMENT ZONE SERVED)
	HHWS	HEATING HOT WATER SUPPLY		H'STAT	HUMIDISTAT
	HHWR	HEATING HOT WATER RETURN		SENSOR	OCCUPANCY SENSOR
	CHW	CHILLED WATER		SWITCH	CONTROL SWITCH
	CHWR	CHILLED WATER RETURN		CFM	CARBON DIOXIDE SENSOR
	CHWS	CHILLED WATER SUPPLY			CUBIC FEET PER MINUTE
	CD	CONDENSATE DRAIN (A.C.)			SYMBOL SEE EQUIPMENT SCHEDULE
	CWR	CONDENSER WATER RETURN		ADAP	ACCESS DOOR / ACCESS PANEL
	CWS	CONDENSER WATER SUPPLY		AFF	ABOVE FINISHED FLOOR
	D	DRAIN		BDD	BACK DRAFT DAMPER
	ST	STEAM		BOD	BOTTOM OF DUCT
	LPS	LOW PRESSURE STEAM		BOP	BOTTOM OF PIPE (ABOVE FIN. FLR.)
	MPS	MEDIUM PRESSURE STEAM		CD	CEILING DIFFUSER
	HPS	HIGH PRESSURE STEAM		CLG	CEILING
	CR	STEAM CONDENSATE RETURN		CFM	CUBIC FEET PER MINUTE
	RD	REFRIGERANT DISCHARGE		CONC.	CONCRETE
	RL	REFRIGERANT LIQUID		CONT.	CONTINUATION
	RS	REFRIGERANT SUCTION		F	DEGREES FAHRENHEIT
		PIPE DOWN		DA	DIAMETER
		PIPE UP		DN	DOWN
		PIPE RISE (OR DN. FOR DROP)		DWGS.	DRAWINGS
		DIRECTION OF FLOW IN PIPE		DB	DRY BULB
	AV	AIR VENT (VALVE)		DTR	DUCT THRU ROOF
	CHV	CHECK VALVE		(E)	EXISTING
	SD	SUCTION DIFFUSER		EA	EXHAUST AIR
	CV (2W)	CONTROL VALVE (2-WAY)		ER	EXHAUST REGISTER
	CV (3W)	CONTROL VALVE (3-WAY)		EFF.	EFFICIENCY
	FCD	AUTOMATIC FLOW CONTROL DEVICE		ELEV.	ELEVATION
	GV	GATE VALVE		ENT.	ENTERING
		GLOBE/BALL/BUTTERFLY VALVE		EWT	ENTERING WATER TEMPERATURE
		COMBINATION BALANCING & SHUT-OFF VALVE		EXH.	EXHAUST
	FEV	FLOW ELEMENT VENTURI		EXIST.	EXISTING
		VALVE ON RISE OR DROP		FF	FINISHED FLOOR
	STR.	STRAINER		FIN.	FINISH
	CL	CAPPED LINE		FLR.	FLOOR
	DN.	DOWN OR DROP		GPM	GALLONS PER MINUTE
	UP	RISE OR RISER		IN.	INCH
	RV	PRESSURE RELIEF VALVE		IN.	INCH
	PG	PRESSURE GAUGE WITH BALL VALVE		IN.	INCH
	R	ECCENTRIC REDUCER		HOA	HAND-OFF-AUTOMATIC
	R	CONCENTRIC REDUCER		HP	HORSEPOWER
	FC	FLEXIBLE CONNECTION (PIPE)		LD	LINEAR DIFFUSER
	TW	TEST WELL (PETE'S PLUG) - PRESSURE AND/OR TEMPERATURE		LVG.	LEAVING
	TI	THERMOMETER		LWT	LEAVING WATER TEMPERATURE
	PA	PIPE ANCHOR		MAX.	MAXIMUM
	U	UNION		MBH	ONE THOUSAND B.T.U.'s PER HOUR
		DUCTWORK (1ST NUMBER INDICATES WIDTH SHOWN), NET INSIDE DIMENSION		MECH.	MECHANICAL
	TV	SQUARE ELBOW WITH TURNING VANES		MIN.	MINIMUM
		RADIUS ELBOW		MTD.	MOUNTED
	MVD	MANUAL VOLUME DAMPER		MTG.	MOUNTING
	MOD	MOTOR OPERATED DAMPER		NC	NORMALLY CLOSED
	BDD	BACKDRAFT DAMPER		NO	NORMALLY OPEN
	FD	FIRE DAMPER		OBD	OPPOSED BLADE DAMPER
	SD	DUCT MOUNTED SMOKE DETECTOR		OA	OUTSIDE AIR
	SFD	AUTOMATIC SMOKE AND FIRE DAMPER		PD	PRESSURE DROP
	FLEX	FLEXIBLE CONNECTION (DUCTWORK)		PSIG	POUNDS PER SQUARE INCH GAUGE
		LINED DUCTWORK (OR FLENUM)		RA	RETURN AIR
		DUCT RISE IN DIRECTION OF FLOW		REG.	REGISTER
		DUCT DROP IN DIRECTION OF FLOW		RR	RETURN REGISTER
		ROUND DUCT UP		SA	SUPPLY AIR
		ROUND DUCT DOWN		SF	SQUARE FEET
		SUPPLY DUCT UP		SS	STAINLESS STEEL
		SUPPLY DUCT DOWN		ST	STEAM
		RETURN AIR DUCT/OUTSIDE AIR DUCT UP		TYP.	TYPICAL
		EXHAUST AIR DUCT UP		UC	UNDER CUT
		EXHAUST AIR DUCT DOWN		UNO	UNLESS NOTED OTHERWISE
				UOS	UNLESS OTHERWISE SPECIFIED
				UTR	UP THRU ROOF
				YAV	VARIABLE AIR VOLUME
				VFD	VARIABLE FREQUENCY DRIVE
				VTR	VENT THRU ROOF
				WG	WATER GAUGE
				WB	WET BULB
				W	WITH

PLAN CHECK NOTES	
<div>1. CERTIFICATE OF ACCEPTANCE (MECH-2A AND ENV-2A) AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED.</div> <div>2. ALL PIPING AND DUCT WORK SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTIONS 118, 123, 124 TITLE 24 ENERGY STANDARDS AND CHAPTER 6 OF CMC.</div> <div>3. ALL HVAC SYSTEMS SHALL MEET THE CONTROL REQUIREMENTS PER SECTION 112 AND 122 E.E.S.</div> <div>4. ALL HVAC EQUIPMENT AND APPLIANCES SHALL MET THE REQUIREMENTS PER SECTION 111-113, 115, 120-124 TITLE 24 ENERGY STANDARDS.</div> <div>5. PROVIDE SMOKE DETECTORS IN MAIN SUPPLY AIR DUCTS OF AIR MOVING SYSTEMS EXCEEDING 2000 CFM PER SECTION 909.0 CMC.</div>	
TITLE 24 NOTES	
<div>1. HVAC SYSTEMS SHALL MEET THE LATEST CONTROL REQUIREMENTS OF SECTIONS 112 & 122 ENERGY EFFICIENCY STANDARDS.</div> <div>2. DOORS AND WINDOWS SHALL MEET MINIMUM INFILTRATION REQUIREMENTS OF SECTION 116 ENERGY EFFICIENCY STANDARDS.</div> <div>3. INSULATION AND FLEXIBLE DUCT SHALL COMPLY WITH STATE FIRE MARSHAL CRITERIA AND SHALL NOT EXCEED FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50 PER ASTM-84, NFPA-225, AND U.L. 723.</div> <div>4. ALL WORK SHALL BE IN ACCORDANCE WITH CITY CODES, CALIFORNIA ENERGY CONSERVATION STANDARDS, TITLE - 24, AND ALL OTHER APPLICABLE CODES.</div> <div>5. ALL PIPING AND DUCT WORK SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTIONS 118, 123, 124 TITLE 24 ENERGY STANDARDS AND CHAPTER 6 OF CALIFORNIA MECHANICAL CODE.</div>	
CA GREEN BUILDING NOTES	
<div>1. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE OCCUPIED AREAS OF BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST MERV OF 8 (REF. SECTION 5.504.5.3).</div> <div>2. PROVIDE TESTING AND ADJUSTING OF HVAC SYSTEMS AND CONTROLS PER 5.713.10.4.</div> <div>3. IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, RETURN AIR FILTERS WITH A MERV 8 RATING SHALL BE USED PER 5.714.4.1.</div> <div>4. INSTALLED HVAC EQUIPMENT SHALL NOT CONTAIN CFC'S OR HALONS PER 5.714.8.1.</div>	
ANCHORAGE NOTES:	
<div>MEP COMPONENT ANCHORAGE NOTE</div> <div>ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE OSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.</div> <div><div>1. ALL PERMANENT EQUIPMENT AND COMPONENTS.</div><div>2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HAND-WIRED) TO BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS, OR WATER.</div><div>3. MOVABLE EQUIPMENT THAT IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS IS REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.</div></div> <div>THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.</div> <div><div>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.</div><div>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.</div></div> <div>FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE OSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.</div> <div>PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE</div> <div>PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC SECTIONS 1616A.1.24, 1616A.1.25 AND 1616A.1.26.</div> <div>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 PRE-APPROVED INSTALLATION GUIDE (E.G., SMACNA OR OSHPD OPM), 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 RECORDS SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.</div> <div>MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E)</div> <div><div>MP () MD () PP () E ()</div><div>- OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.</div><div>MP (X) MD (X) PP () E ()</div><div>- OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) # OPM-0043-13.</div><div>MP () MD () PP (X)</div><div>- OPTION 3: SHALL COMPLY WITH THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION (2009), INCLUDING ANY ADDENDA, FASTENERS AND OTHER ATTACHMENTS NOT SPECIFICALLY IDENTIFIED IN THE SMACNA SEISMIC RESTRAINT MANUAL. OSHPD EDITION, ARE DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. THE DETAILS SHALL ACCOUNT FOR THE APPLICABLE SEISMIC HAZARD LEVEL.</div></div> <div>AND CONNECTION LEVEL _____ FOR THE PROJECT AND CONDITIONS.</div>	

GENERAL NOTES:	
<div>1. THESE DRAWINGS ARE A GENERAL GRAPHIC PRESENTATION OF THE WORK. DUCTWORK, PIPING, AND EQUIPMENT AS SHOWN, ARE SCHEMATIC, FABRICATE AND INSTALL BASED ON ACTUAL FIELD MEASUREMENT. COORDINATE WITH OTHER TRADES. PROVIDE A COMPLETE SET OF SHOP DRAWINGS REFLECTING ACTUAL DIMENSIONS, ACCESS REQUIREMENTS, AND DETAILS BASED UPON THE ACTUAL EQUIPMENT PROCURED. MAINTAIN AN UP TO DATE SET OF AS-BUILT DRAWINGS AT THE JOB SITE.</div> <div>2. THESE DRAWINGS ARE TO BE CONSIDERED NOT FOR CONSTRUCTION UNTIL THEY ARE STAMPED, SIGNED, AND PERMITTED. UNTIL THEN THEY ARE SUBJECT TO CHANGE WITHOUT NOTICE.</div> <div>3. COMPLY WITH CALIFORNIA MECHANICAL CODE (CMC), CALIFORNIA PLUMBING CODE (CPC), AND NATIONAL FIRE PROTECTION AGENCY (NFPA) AND GOVERNING CODES. THERE SHALL BE NO EXCEPTION. REPORT DEFICIENCIES WITHIN THIRTY (30) DAYS UPON AUTHORIZATION TO PROCEED.</div> <div>4. REVIEW ALL DRAWINGS AND SPECIFICATIONS INCLUDING ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY QUESTIONS SHALL BE BROUGHT UP, IN WRITING, TO THE ATTENTION OF THE ENGINEER BEFORE THE START OF CONSTRUCTION.</div> <div>5. PROVIDE ACCESS AND CLEARANCE FOR MAINTENANCE FOR MECHANICAL EQUIPMENT AND COMPONENTS AS RECOMMENDED BY EQUIPMENT MANUFACTURER AND APPLICABLE CODES.</div> <div>6. HANDLE, STORE AND INSTALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.</div> <div>7. INSTALL VALVES WITH UNIONS OR FLANGES AT EACH PIECE OF EQUIPMENT ARRANGED TO ALLOW SERVICE MAINTENANCE, AND EQUIPMENT REMOVAL WITHOUT SYSTEM SHUT-DOWN.</div> <div>8. BRACE AND SUPPORT PIPES, CONDUIT, AND DUCTWORK IN ACCORDANCE WITH SMACNA GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL AND PLUMBING PIPING SYSTEM. REFERENCE ANCHORAGE NOTES OPM 0043-13 FOR ANCHORAGE.</div> <div>9. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS, REGISTERS, GRILLES, AND ACCESS PANELS.</div> <div>10. ALL DUCT DIMENSIONS, AS SHOWN ON MECHANICAL DRAWINGS ARE CLEAR INSIDE DIMENSIONS.</div> <div>11. INSULATION AND FLEXIBLE DUCT SHALL COMPLY WITH STATE FIRE MARSHAL CRITERIA AND SHALL NOT EXCEED FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50 PER ASTM-84, NFPA-223, AND UL 723.</div> <div>12. INSULATE PIPING AND DUCTWORK IN ACCORDANCE WITH THE GOVERNING CODES.</div> <div>13. COMMISSION AND START-UP THE MECHANICAL SYSTEMS TO ASSURE A COMPLETE AND OPERATIONAL HVAC SYSTEM IN ACCORDANCE WITH ASHRAE AND NEBB.</div> <div>14. ALL SQUARE ELBOWS IN DUCTWORK SHALL HAVE DOUBLE THICKNESS TURNING VANES. ALL RADIUS ELBOWS IN DUCTWORK SHALL BE MINIMUM 1.5W (1.5 WIDTH) AND HAVE 3 SPLITTER VANES. PROVIDE MANUAL VOLUME DAMPER AT EACH BRANCH DUCT TAKE-OFF SERVING EACH AIR TERMINAL DEVICE. PROVIDE BALANCING DAMPERS FOR EACH MAIN DUCT TAKE-OFF IN ACCORDANCE WITH SMACNA IN ORDER TO ASSURE A COMPLETELY BALANCED SYSTEM.</div> <div>15. FIRE DAMPER ASSEMBLIES, INCLUDING LOCATION, SLEEVES, AND INSTALLATION PROCEDURES SHALL BE APPROVED BY THE BUILDING INSPECTOR PRIOR TO PROCUREMENT AND INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATIONS.</div> <div>16. COORDINATE WITH ELECTRICAL AND CONTROL CONTRACTORS FOR ALL POWER REQUIREMENTS PRIOR TO BID.</div> <div>17. COORDINATE WITH ELECTRICAL AND CONTROL CONTRACTORS FOR ALL POWER REQUIREMENTS PRIOR TO ORDERING ANY EQUIPMENT.</div> <div>18. UPON INSTALLATION OF ALL EQUIPMENT, DEVICES, VIBRATION ISOLATION, ETC., PROVIDE WRITTEN CONFIRMATION BY EQUIPMENT MANUFACTURER'S REPRESENTATIVES TO ENSURE COMPLIANCE WITH MANUFACTURER'S REQUIREMENTS.</div> <div>19. PROVIDE DETAILS AND SEISMIC CALCULATIONS FOR ALL EQUIPMENT ON VIBRATION ISOLATION. ALL DETAILS SHALL BE STAMPED BY A STRUCTURE ENGINEER FROM VIBRATION ISOLATION MANUFACTURER.</div>	
PROJECT NOTES	
<div>1. CONTRACTOR SHALL COORDINATE ARCHITECTURAL, REFLECTED CEILINGS PLANS WITH ALL DISCIPLINES TO VERIFY CLEARANCES BETWEEN HVAC DUCTS, HVAC PIPING, LIGHT FIXTURES, ELECTRICAL DATA CONDUITS, PLUMBING LINES, FIRE PROTECTION LINES, STRUCTURAL MEMBERS, ETC. SPECIAL ATTENTION IS REQUIRED ALONG THE LENGTH OF MAIN MECHANICAL SUPPLY AND RETURN AIR DUCTS WHERE THERE IS LIMITED CLEARANCE FOR PASSAGE OR ROUTING OF UTILITIES.</div> <div>2. THE SPACE FOR DUCT WORK & MECHANICAL EQUIPMENT FOR THIS PROJECT IS LIMITED. COORDINATION WITH OTHER TRADES IS CRITICAL. PROCEED WITH PREPARATION OF SHOP DRAWINGS IMMEDIATELY UPON RECEIVING AN AUTHORIZATION TO PROCEED FOR THE PROJECT. COMPLETE SHOP DRAWINGS PRIOR TO MATERIAL FABRICATION AND INSTALLATION. SHOP DRAWINGS SHALL BE REVIEWED BY COMMISSIONING AGENT PRIOR TO SUBMITTAL.</div> <div>3. PROVIDE ORIGINALLY PREPARED CONTRACTOR'S SHOP DRAWINGS IN ELECTRONIC FORMAT. IN ADDITION TO THE REQUIREMENTS SPECIFIED ELSEWHERE, THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:<div><div>a. DUCT, PIPE AND PLUMBING ELEVATIONS.</div><div>b. DOUBLE LINE DUCTWORK AND PIPING (6" & LARGER).</div><div>c. ACTUAL SIZE OF PURCHASED EQUIPMENT. PER APPROVED CONTRACTOR'S SHOP DRAWINGS.</div><div>d. ACCESS PANELS INCLUDING CEILING PANELS.</div><div>e. ACCESS CLEARANCES FOR EQUIPMENT.</div><div>f. ACTUAL LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND RETURN REGISTERS.</div><div>g. LOCATIONS OF STRUCTURAL MEMBERS SUCH AS BEAMS.</div><div>h. ACTUAL LOCATIONS OF CONTROL PANELS AND POWER CONNECTIONS TO EQUIPMENT.</div><div>i. COLOR CODED DUCT AND PIPING BASED ON MATERIAL USED.</div><div>j. MINIMUM 1/4"=1" SCALE DRAWINGS.</div><div>k. LABEL AND TAG SCHEDULE FOR EQUIPMENT.</div><div>l. DUCT TRANSITIONS TO CLEAR BEAMS OR TIGHT AREAS.</div><div>m. ROOM TEMPERATURE SENSOR LOCATIONS.</div><div>n. POINT OF CONNECTION TO UTILITIES OUTSIDE THE BUILDING.</div><div>o. SECTIONS OR 3-D DRAWINGS OF CONGESTED AREAS.</div><div>p. GRID LINES.</div><div>q. UTILITY PROFILES FOR UNDERGROUND PIPING.</div></div></div> <div>4. DO NOT COMMENCE WITH ANY INSTALLATION, ORDERING OF ANY EQUIPMENT OR MATERIAL FABRICATION WITHOUT AN APPROVED SHOP DRAWING SUBMITTAL.</div> <div>5. FOR EACH SUBMITTAL, THE CONTRACTOR SHALL PROVIDE A LETTER (ON COMPANY LETTERHEAD) AND SIGNED BY THE PROJECT MANAGER INDICATING THE SUBMITTAL HAS BEEN FULLY IN HOUSE REVIEWED TO ENSURE FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND COORDINATION WITH OTHER TRADES. ANY EXCEPTIONS TO THE CONTRACT DOCUMENTS SHALL BE CLEARLY INDICATED ON THIS LETTER. ANY DISCREPANCIES/EXCEPTIONS NOT IDENTIFIED IN WRITING SHALL BE CORRECTED AT THE SOLE EXPENSE OF THE CONTRACTOR AND AT NO EXPENSE TO THE OWNER AND ENGINEER.</div> <div>6. CONDENSATE DRAIN PIPING SHALL BE TYPE L COPPER WITH SOLDERED JOINTS.</div>	



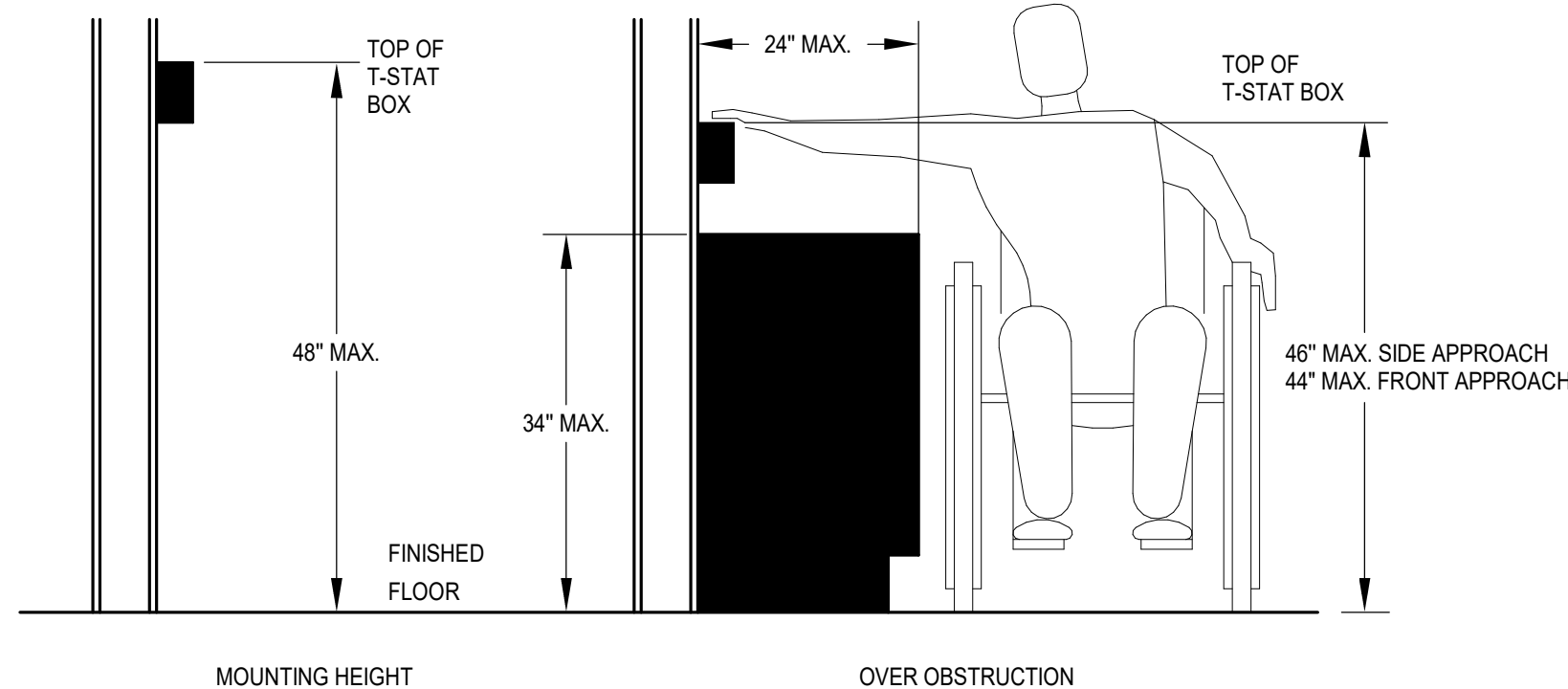
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AGENCY APPROVAL
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SPLIT SYSTEM HEAT PUMP & COOLING ONLY SCHEDULE																																			
SYMBOL	DESCRIPTION	SERVES	INDOOR FAN SECTION												SYMBOL	DESCRIPTION	OUTDOOR SECTION										REMARKS								
													FILTERS				OPER. WT. LBS.	ELECTRICAL DATA					COMBINED CAPACITY												
			CFM	E.S.P.	H.P.	DRIVE	V	PH	Hz	MCA	FLA	MOCP	TK	MIN. A.F.T.*				RLA	MCA	MOCP	V	PH	Hz	OPER. WT. LBS.	TOTAL CAP. SENSIBLE MBH	COOLING CAP. MBH	AMB °F	ENT DB °F	ENT WB °F	SEER	AMB °F	HEATING OUTPUT MBH	HSPF	MIN. OSA CFM	
FC 1	CARRIER 40MAQB36B-3	ELECTRICAL ROOM - 100	870	--	--	DIRECT	208	1	60	0.40	--	--	--	--	50	CU 1	CARRIER 38MAQB36B-3	--	25.0	35.0	208	1	60	175	36.0	27.0	95	80	67	16.0	--	--	--	--	① ② ③
FC 2	CARRIER 40MAQB36B-3	ELECTRICAL ROOM - 100	870	--	--	DIRECT	208	1	60	0.40	--	--	--	--	50	CU 2	CARRIER 38MAQB36B-3	--	25.0	35.0	208	1	60	175	36.0	27.0	95	80	67	16.0	--	--	--	--	① ② ③
* 100% EQUIPMENT PROCESS LOAD (NO OCCUPANTS) ① CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL EMS DDC ROOM TEMPERATURE SENSOR FOR MONITORING, TRENDING AND ALARMING. ② FC SHALL BE CONTROLLED BY FC UNIT MANUFACTURER PROVIDE HARD WIRED CONTROLS. LOW VOLTAGE CONTROLS ARE TO BE WIRED AND INSTALLED BY THE CONTROLS CONTRACTOR. ③ FC UNIT POWERED BY CU.																																			



① MOUNTING HEIGHT OVER OBSTRUCTION
NO SCALE

PROJECT No.: 5003	
5/24/2021 1:31:06 PM	
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VALHALLA HIGH SCHOOL BATTERY REPLACEMENT
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GROSSMONT UNION HIGH SCHOOL DISTRICT

MECHANICAL LEGEND
AND GENERAL NOTES

M0.01

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT:



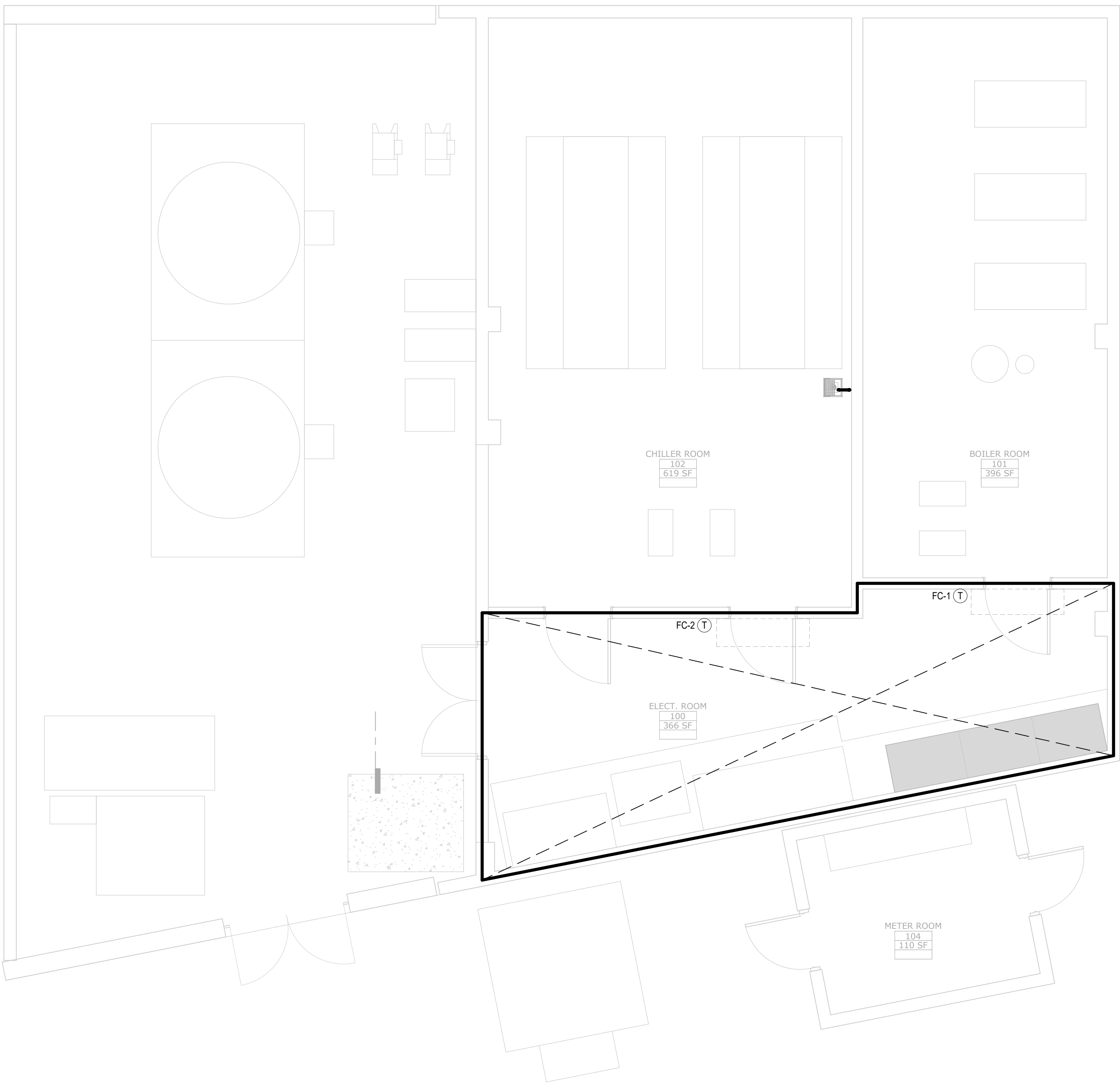
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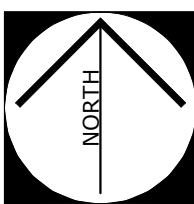
1 MECH ZONING PLAN
1/4" = 1'-0"

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VALHALLA HIGH SCHOOL BATTERY
REPLACEMENT
VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

MECH ZONING PLAN

M1.01

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT:



AGENCY APPROVAL
DATE: 02-28-2024 0104-120235



5160 Carrol Canyon Rd, Suite 200
San Diego, California 92121
Consulting Mechanical Engineers
T. 858-200-0090 F. 858-200-0037
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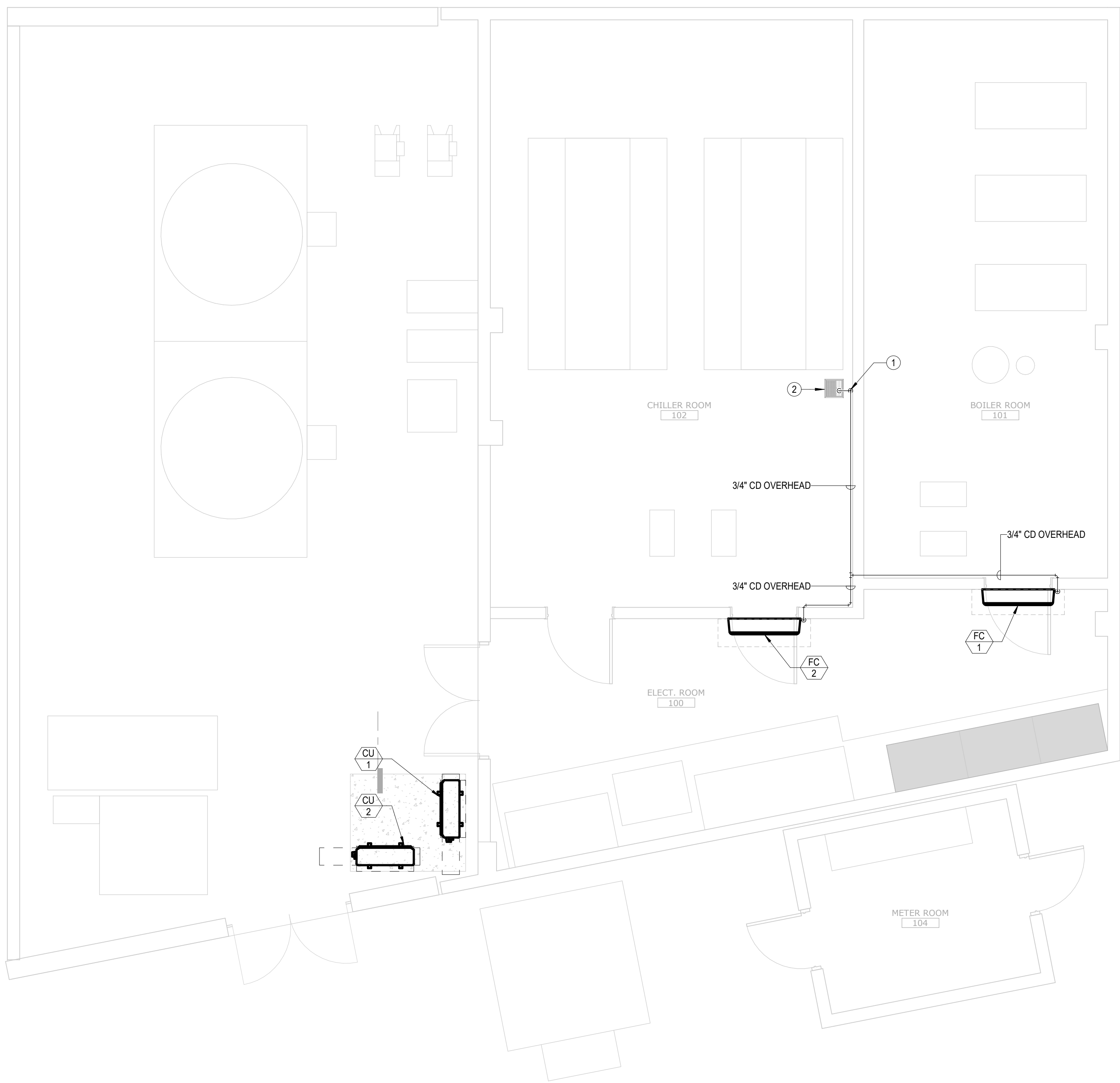
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CONSULTANT BRANDING



KEYNOTES

- 3/4" CONDENSATE DRAIN DOWN WALL AND DRAIN INDIRECT TO FLOOR SINK.
- EXISTING FLOOR SINK.



1 MECH FLOOR PLAN
1/4" = 1'-0"

PROJECT No. :5003
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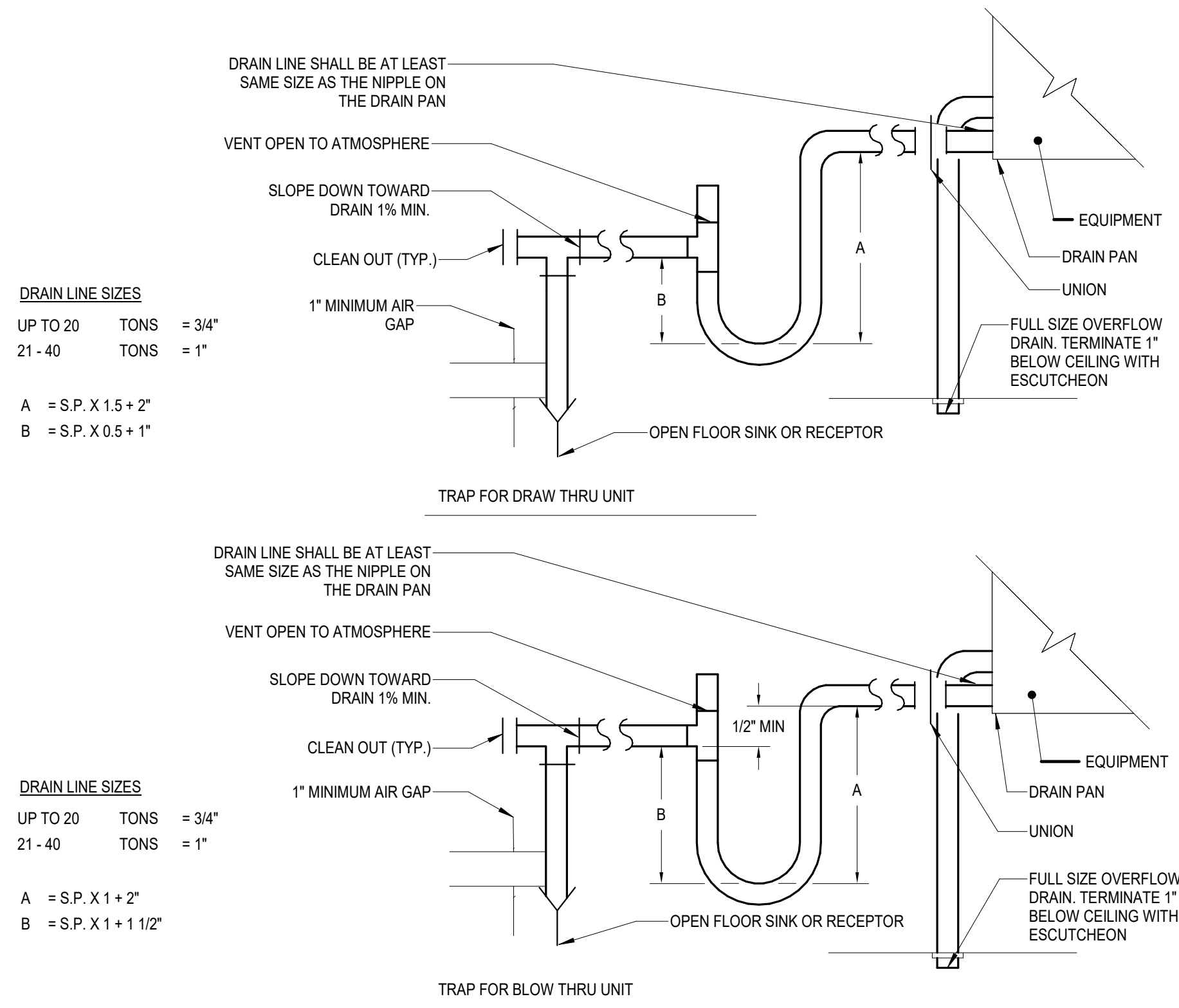
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VALHALLA HIGH SCHOOL BATTERY
REPLACEMENT
VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
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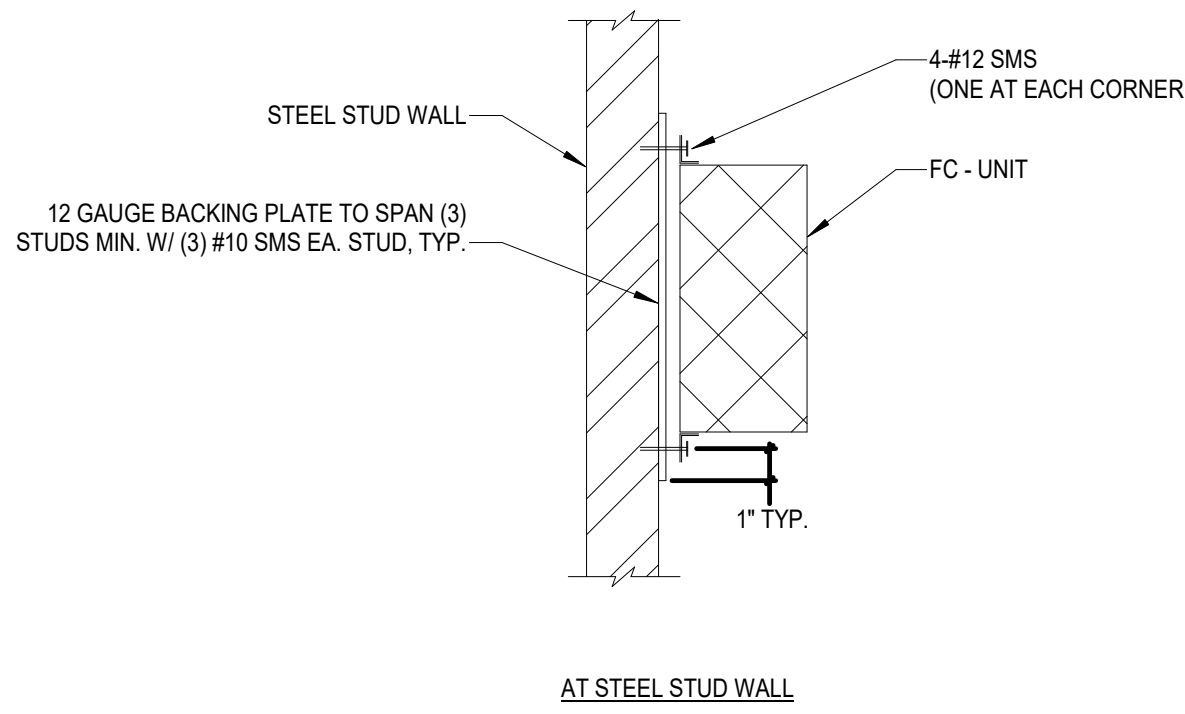
MECH FLOOR PLAN

M2.01

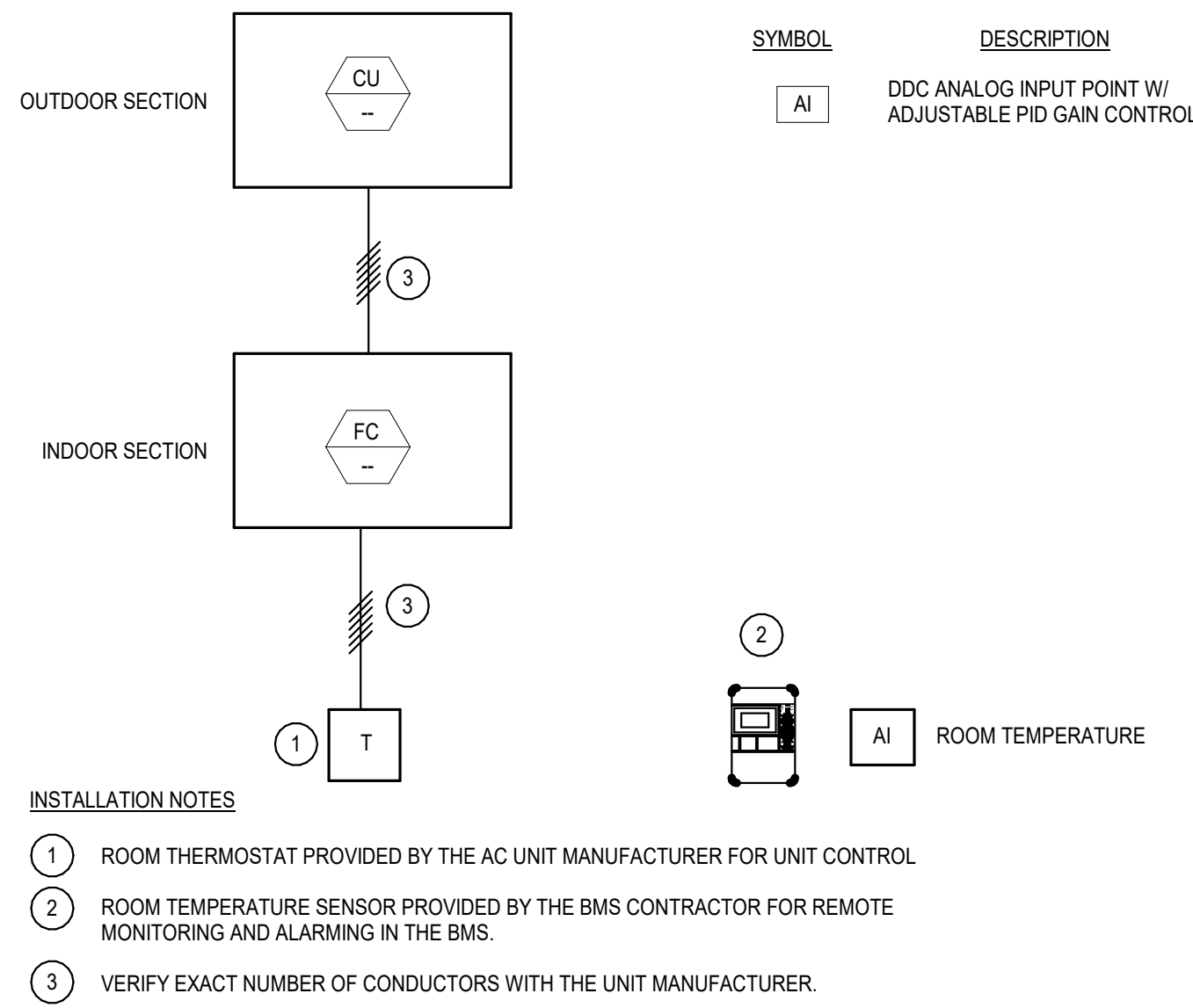
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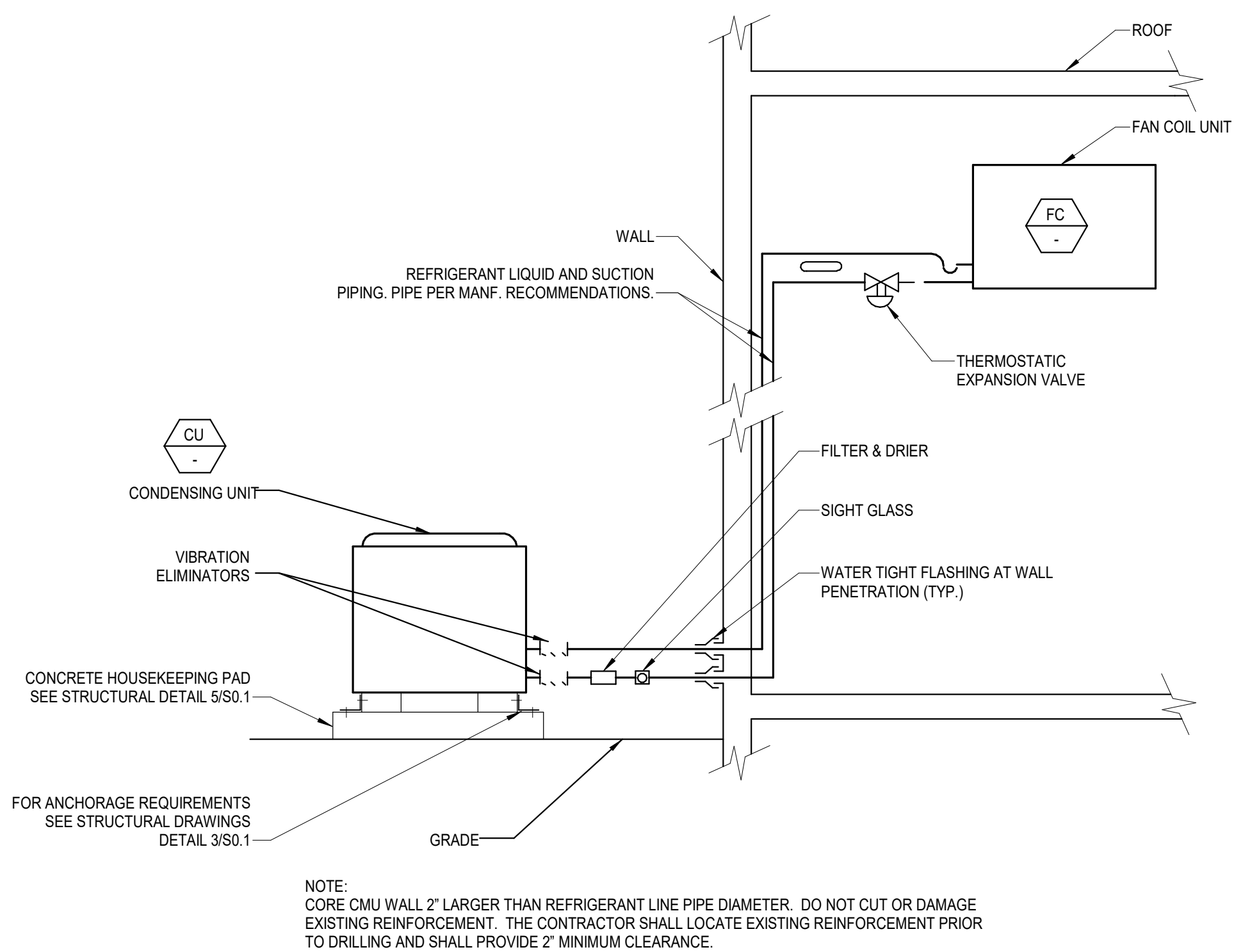
4 TYPICAL CONDENSATE DRAIN DETAIL
NO SCALE



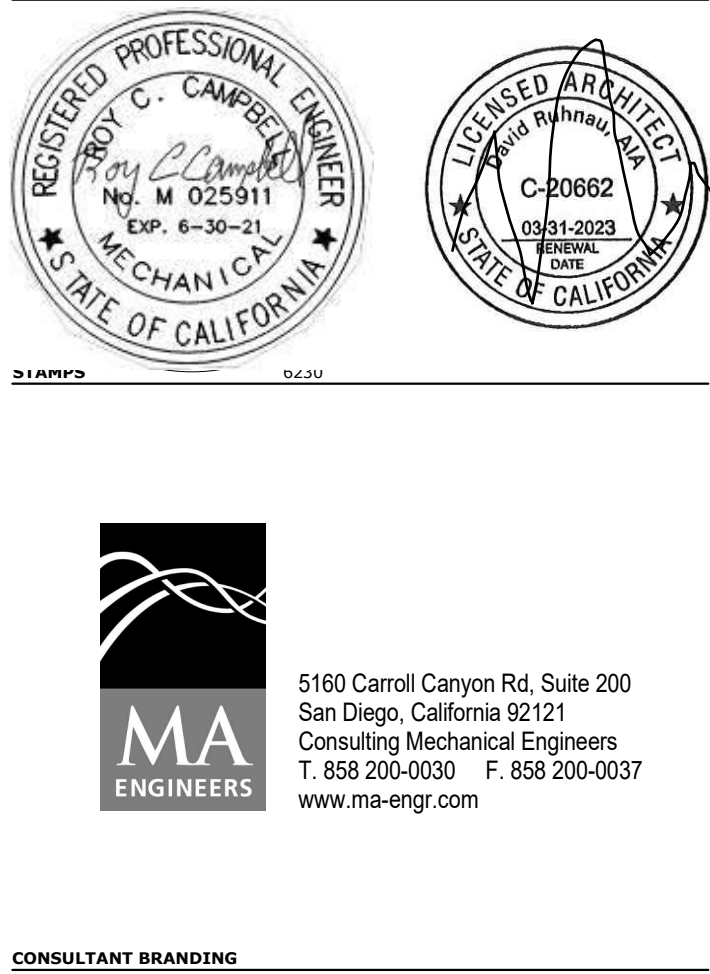
1 DUCTLESS FC MOUNT DETAIL
NO SCALE



2 SPLIT SYSTEM UNIT TEMP CONTROL DETAIL
NO SCALE



3 DUCTLESS SPLIT SYSTEM REFRIGERANT PIPING AND CU MOUNTING DETAIL
NO SCALE



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ABBREVIATIONS

A	AMPERE (AMPS)
AC	ALTERNATING CURRENT
AF	AMPS-FRAME (RATING)
AG	AMP INTERRUPTING CURRENT
AM	AMMETER
AS	AMP SWITCH (FUSED SWITCH RATING)
AT	AMPS-TRIP (RATING)
AWG	AMERICAN WIRE GAUGE
BO	BARE COPPER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CO	CONDUIT ONLY
CT	CURRENT TRANSFORMER
CU	COPPER
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CFOI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DPST	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE DOUBLE THROWN
DWG	DRAWING
EX	EXISTING
FLA	FULL LOAD AMPS
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
GRD/GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
KN	KILOWATT
LCL	LONG CONTINUOUS LOAD
LRA	LOCKED ROTOR AMPS
LTS	LIGHTING
MCC	MOTOR CONTROL CENTER
MCM (KCM)	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
NG	NORMALLY CLOSED
NF	NON-FUSED
NO	NORMALLY OPEN/NUMBER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFCI	OWNER FURNISHED OWNER INSTALLED
P	POLE
PH	PHASE
POC	POINT OF CONNECTION
PRS	PVC COATED RIGID STEEL (CONDUIT)
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE DUCT
SMBD	SWITCHBOARD
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERES
VM	VOLTMETER
VL	VERIFY LOCATION
W	WIRE/WATTS
WP	WEATHER-PROOF (NEMA TYPE 3R)
WT	WATERTIGHT
XP	EXPLOSION PROOF (RATED FOR AREA HAZARD)

ELECTRICAL SYMBOL LEGEND

POWER CONTINUED

	DUPLEX RECEPTACLE, FLOOR MOUNTED
	DUPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
	RECEPTACLE, WALL MOUNTED HORIZONTALLY, +18" A.F.F. (U.O.N.)
	FOURPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
	RECEPTACLE MOUNTED +6" ABOVE COUNTER BACKSPLASH SEE ARCHITECTURAL PLANS FOR REQUIRED MOUNTING HEIGHT PRIOR TO ROUGH-IN.
	PROVIDE (2) DUPLEX RECEPTACLE CEILING MOUNTED LOCATE ADJACENT TO PROJECTOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
	RECEPTACLE WITH (2) USB PORTS MOUNTED +6" ABOVE COUNTER BACKSPLASH. SEE ARCHITECTURAL PLANS FOR REQUIRED MOUNTING HEIGHT PRIOR TO ROUGH-IN. EATON #TR1756.
	SINGLE RECEPTACLE, WALL MOUNTED +18" A.F.F. (U.O.N.)
	SINGLE RECEPTACLE (CLOCK HANGER TYPE) WALL MOUNTED +7'-0" A.F.F. (U.O.N.)
	SWITCH CONTROLLED DUPLEX RECEPTACLE +18" U.O.N.
	CONTROLLED FOURPLEX RECEPTACLE +18" U.O.N. (1) DUPLEX, (1) HALF HOT CONTROLLED DUPLEX. SEE LIGHTING CONTROL DIAGRAMS FOR FURTHER INFO.
	DUPLEX GROUND FAULT INTERRUPTING RECEPTACLE +18" A.F.F. (U.O.N.)
	DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT +18" A.F.F. (U.O.N.)
	DUPLEX RECEPTACLE IN WEATHERPROOF ENCLOSURE +18" A.F.F. (U.O.N.)
	DUPLEX RECEPTACLE IN WEATHERPROOF "LOCKING" ENCLOSURE +18" A.F.F. (U.O.N.) (SEE TYPICAL DETAILS ES SERIES SHEETS AND SPECIFICATIONS FOR REQUIRED TYPE).
	DUPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED +18" A.F.F. (U.O.N.)
	FOURPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED +18" A.F.F. (U.O.N.)
	DUPLEX RECEPTACLE SAFETY TYPE / TAMPER PROOF WALL MOUNTED +18" A.F.F. (U.O.N.)
	DUPLEX COMPUTER RECEPTACLE (GREY), WALL MOUNTED +18" A.F.F. (U.O.N.)
	JUNCTION BOX, CEILING OR WALL MOUNTED
	HAND DRYER CONNECTION, SEE ARCHITECTURAL FOR MOUNTING HEIGHT.
	FUSED DISCONNECT SWITCH, WHERE SHOWN NF = NON-FUSED.
	MANUAL MOTOR STARTER +48" A.F.F. OR ON EQUIPMENT (U.O.N.)
	MOTOR CONNECTION, NUMERAL INDICATES HORSEPOWER.
	MECHANICAL EQUIPMENT TAG (SEE MECHANICAL DRAWINGS FOR DESCRIPTION)

	CONDUIT AND WIRE, CONCEALED IN CEILING OR WALL
	CONDUIT AND WIRE, CONCEALED IN OR UNDER FINISHED FLOOR OR UNDER FINISHED GRADE.
	FLEXIBLE CONDUIT CONNECTION
	BRANCH CIRCUIT HOMERUN TO PANEL. SLASHES INDICATE NUMBER OF CONDUCTORS, EQUIPMENT GROUND WIRE NOT INDICATED U.O.N. #12 CONDUCTORS ARE MINIMUM, NO HASH MARKS = MIN (2) #12
	3/4" CONDUIT STUBBED FROM DEVICE TO ABOVE ACCESSIBLE CEILING
	BRANCH CIRCUIT HOMERUN, NUMBER INDICATES INCREASED CONDUCTOR SIZE, CONDUCTORS SHALL REMAIN AS INDICATED FOR SIZE THROUGHOUT THE ENTIRE CIRCUIT.
	PANELBOARD, SURFACE MOUNTED.
	PANELBOARD, RECESSED

GENERAL PROJECT NOTES:

- UNLESS WHERE OTHERWISE NOTED, ALL WORK INDICATED ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK.
- UNLESS WHERE OTHERWISE NOTED, ALL DIMENSIONS ARE TO BE CENTERLINE OF THE DEVICE.
- "GENERAL NOTES" SHOWN ON AN INDIVIDUAL DRAWING APPLY TO ALL WORK SHOWN ON THAT SHEET. "KEY NOTES" ONLY APPLY TO SPECIFIC ITEMS WHERE ANNOTATED AT SPECIFIC LOCATIONS. SOME KEY NOTES MAY NOT APPLY TO ANY SPECIFIC ITEMS.
- UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

GENERAL DEMOLITION NOTES:

- ALL ELECTRICAL EQUIPMENT, EXPOSED RACEWAY AND CONDUIT, OUTLET BOXES AND RINGS, AND DEVICES ARE TO BE REMOVED, EXCEPT WHERE SHOWN TO REMAIN. EXISTING WIRING, WHETHER EXPOSED, IN CONDUIT OR RACEWAY IS TO BE REMOVED TO THE GREATEST EXTENT POSSIBLE.
- THE ELECTRICAL CONTRACTOR IS TO DIRECT THE REMOVAL OF THE ABOVE LISTED WORK.

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 1611A.1.15 THROUGH 1611A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- 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.
- 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:

- 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.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

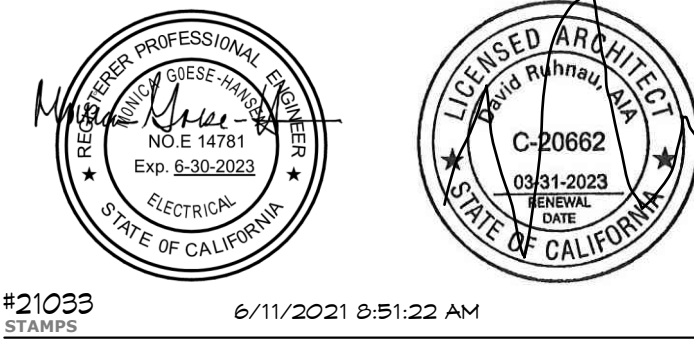
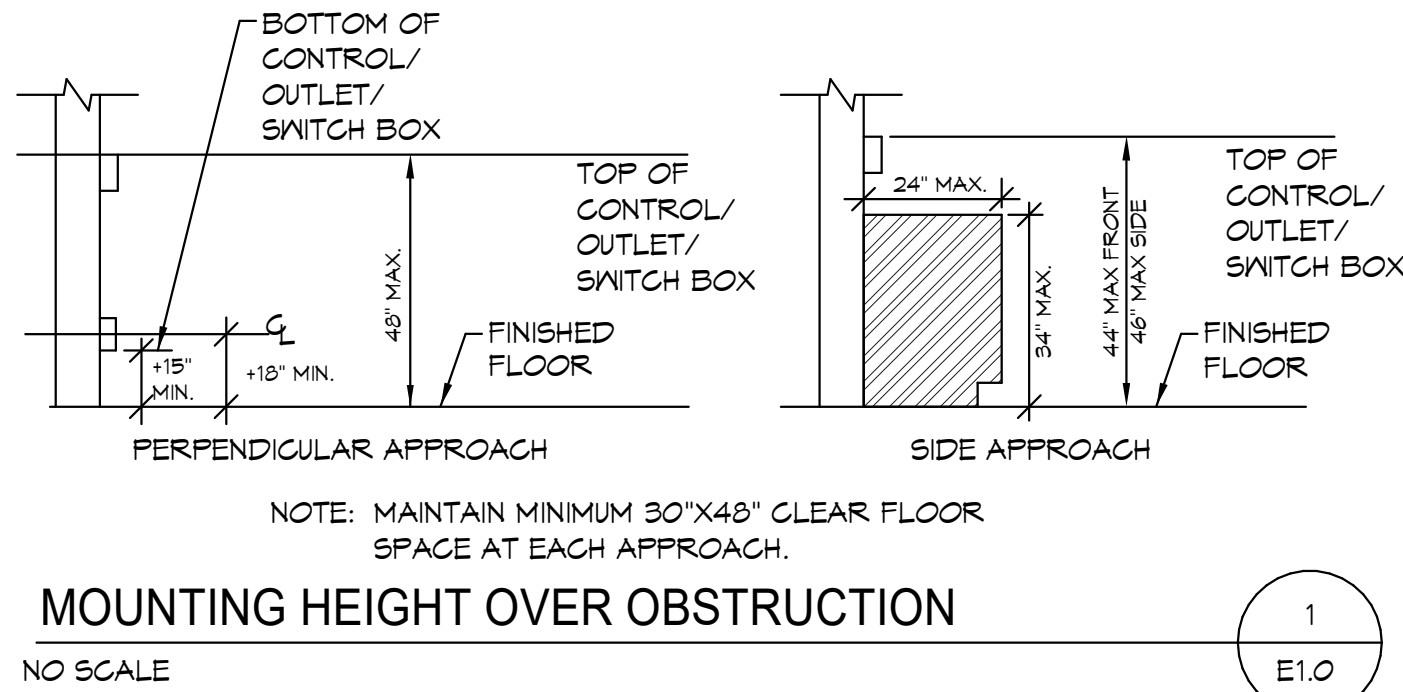
THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE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

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1611A.1.24, 1611A.1.25 AND 1611A.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 2019 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.
MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

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

MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM) # _____



JOHNSON
CONSULTING ENGINEERS, INC.
Power | Lighting | Multimedia
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12875 Brookprinter Place, Suite 300
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www.jce-inc.com

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PARTIAL SITE PLAN - ELECTRICAL

SCALE: 1" = 20'-0"
2

PROJECT No. :Project Number
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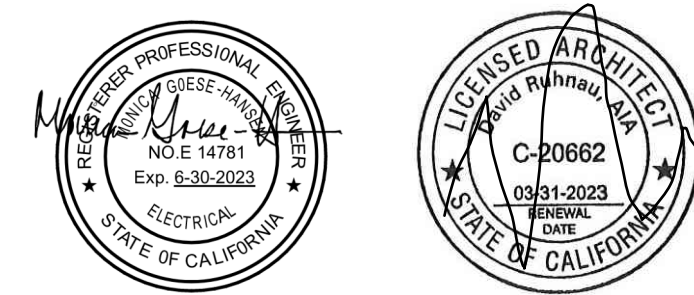
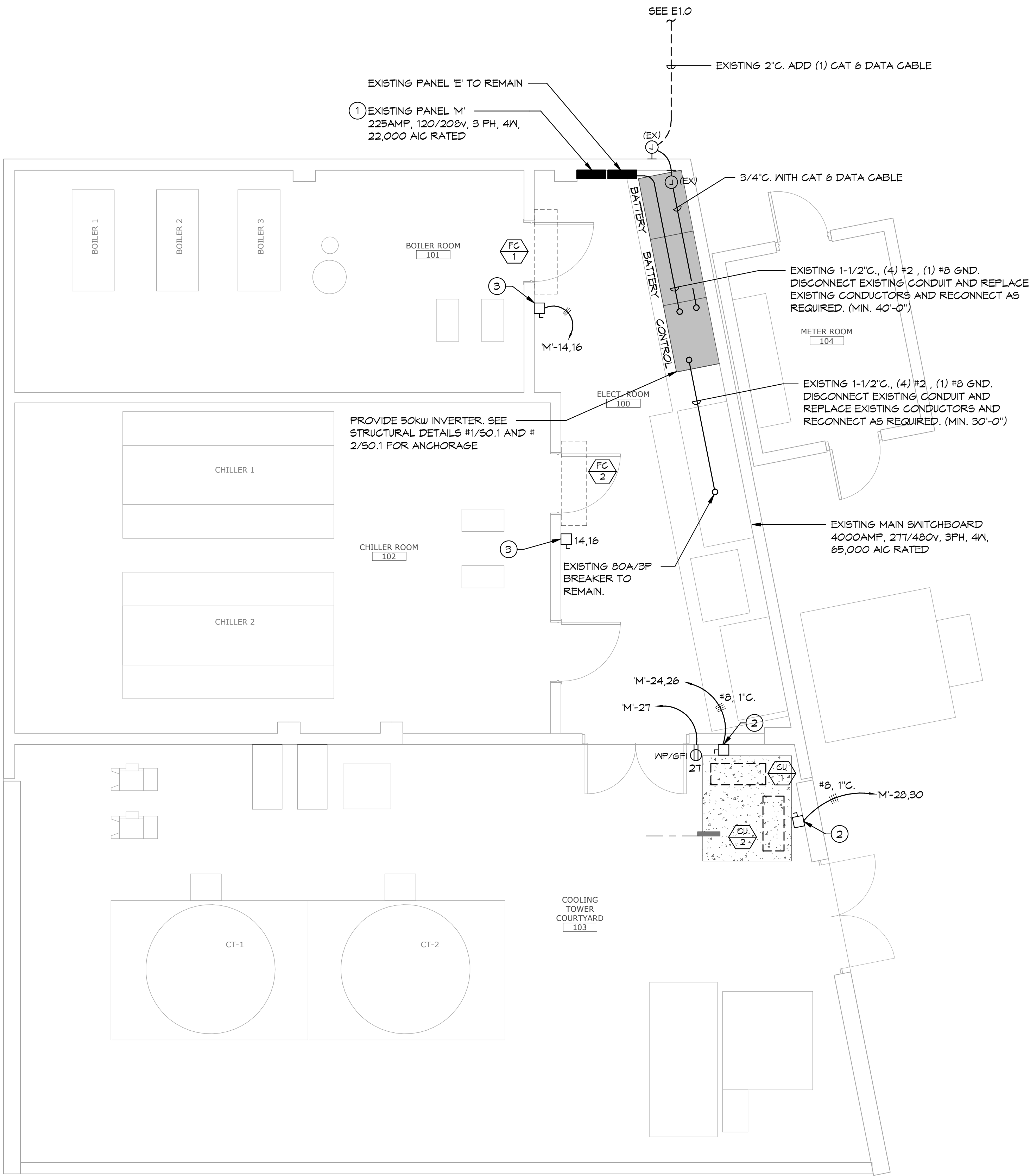
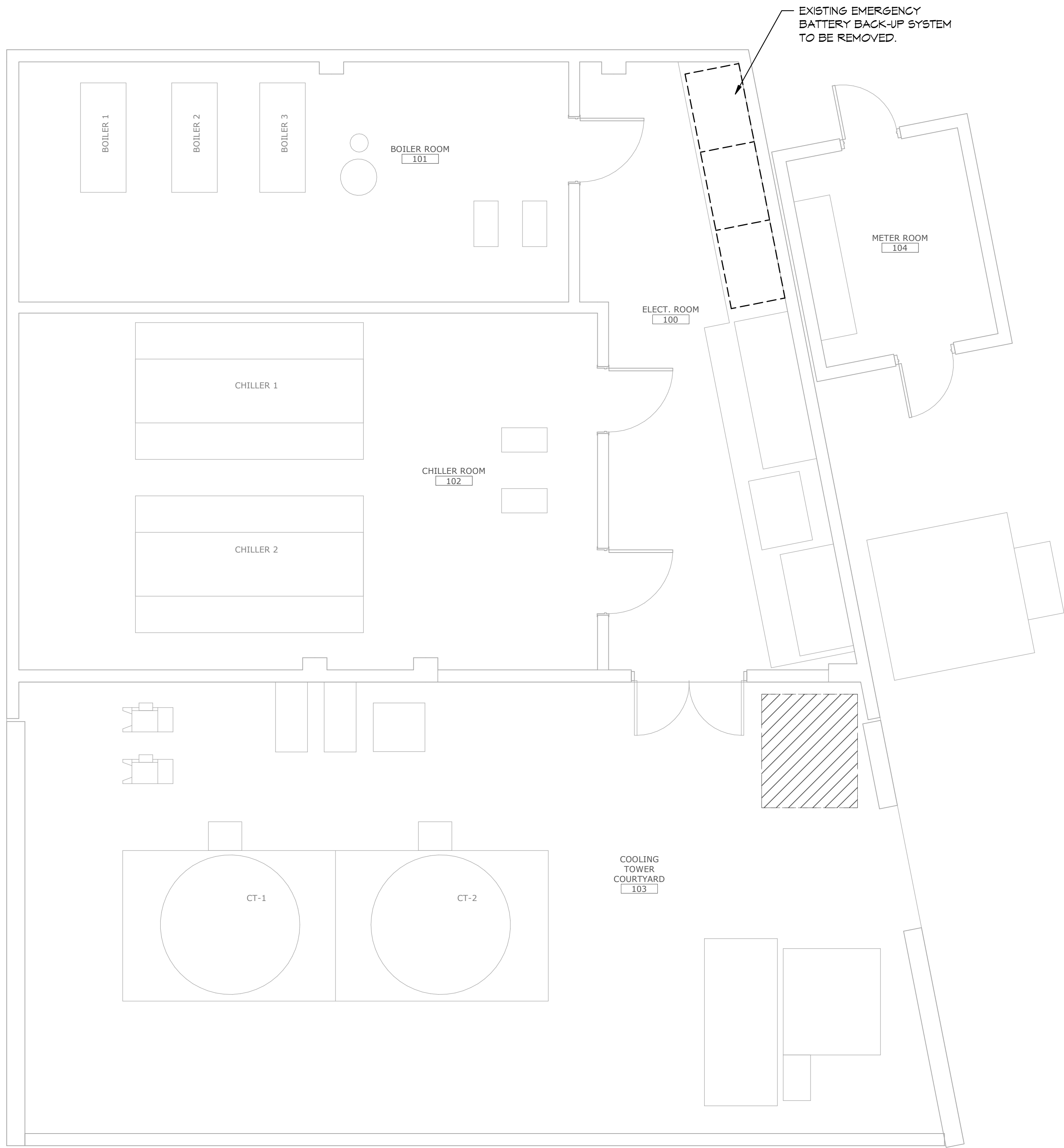
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VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

**ELECTRICAL SYMBOLS,
ABBREVIATIONS, AND
NOTES**

E1.0

Project Number

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT:



#21033 6/11/2021 8:51:22 AM AGENCY APPROVAL 12/10/2020 12:25



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KEY NOTES:

- 1 PROVIDE (1) 20A/1P BREAKER, (2) 40A/2P BREAKERS AND (1) 20A/2P BREAKER IN EXISTING SPACES.
- 2 60A/3P/3R DISCONNECT WITH 35 AMP FUSES.
- 3 30A/2P DISCONNECT WITH 10 AMP FUSES.

MOD FLOOR PLAN - DEMOLITION

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

2

MOD FLOOR PLAN - POWER

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

1

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VALHALLA HIGH SCHOOL BATTERY REPLACEMENT

VALHALLA HIGH SCHOOL
1725 HILLSDALE ROAD, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

ELECTRICAL FLOOR
PLANS

E1.1

Project Number

VALHALLA HIGH SCHOOL BATTERY REPLACEMENT: