BUILDING 1500 LIBRARY
HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE

380 EAST ATEN ROAD, IMPERIAL, CA 92251

DSA A#04-119862

GENERAL NOTES

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND CONSTRUCTABILITY. CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDINGS AND SHALL DETERMINE ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND OWNER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL THOROUGHLY INVESTIGATE, VERIFY AND BEAR RESPONSIBILITY FOR DIMENSIONS AND EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY CONDITION REQUIRING MODIFICATION OR CHANGE PRIOR TO STARTING WORK. ANY WORK INSTALLED IN CONFLICT WITH THE DRAWINGS WITHOUT PRIOR APPROVAL SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. WHERE EXISTING FINISHES, FACILITIES, AND SURFACES ARE DISTURBED, DAMAGED, OR REMOVED DURING THE COURSE OF CONSTRUCTION OPERATIONS, THE CONTRACTOR IS TO REPAIR OR REPLACE AS NECESSARY TO MATCH EXISTING. ALL NEW MATERIALS SHALL MATCH EXISTING IN ALL RESPECTS.
5. LOCATIONS OF UTILITIES, WHERE SHOWN, ARE APPROXIMATE, AND CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON ALL SITES TO AVOID EXISTING DUCTS, PIPING, OR CONDUITS, ETC. AND TO PREVENT HARM TO PERSONNEL AND/OR DAMAGE TO EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER SHOULD UNIDENTIFIED CONDITIONS BE DISCOVERED.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY WHERE THE PROPOSED WORK AFFECTS THE EXISTING IRRIGATION SYSTEMS THE CONTRACTOR SHALL PERFORM ANY WORK NECESSARY TO MAINTAIN AN OPERATIONAL IRRIGATION SYSTEM.
7. THESE DRAWINGS AND SPECIFICATIONS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
8. CONSTRUCTION WORKERS WILL ONLY BE ALLOWED IN THE AREAS APPROPRIATE TO THE WORK AND SHALL NOT DISTURB THE OWNER, STAFF, STUDENTS OR CUSTOMERS.
9. CONSTRUCTION WORKERS SHALL WEAR APPROPRIATE SAFETY GEAR & COMPLY WITH SAFETY REGULATIONS.
10. CONSTRUCTION WORKERS SHALL DRESS & BEHAVIOR IN A MANNER APPROPRIATE TO THE JOB SITE AND BE ACCEPTABLE TO THE OWNER REPRESENTATIVES.
11. SMOKING IS NOT PERMITTED ON THE CONSTRUCTION SITE.
12. THERE SHALL BE NO POSSESSION OR CONSUMPTION OF DRUGS OR ALCOHOLIC BEVERAGES ON THE JOB SITE BY ANY PERSON AT ANY TIME OR CONSUMPTION PRIOR THAT MAY IMPAIR THE USE OF EQUIPMENT IN A SAFE MANNER.

CODES AND STANDARDS

APPLICABLE CODES

- 2019 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
- 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) , PART 3, TITLE 24 C.C.R.
- 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
- 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
- 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
- 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
- 2019 CALIFORNIA EXISITNG BUILDING (CEBC), PART 10, TITLE 24 CCR
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.
- 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
- TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
- 2016 ASME A17.1/ CSA B44-13 SAFETY CODE FOR ELEVATORS AND ESCALATORS (PER 2019 CBC PART 2 CH 35)

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13	AUTOMATIC FIRE SPRINKLER SYSTEMS (CA AMENDED)	2016 EDITION
NFPA 14	STANDPIPE AND HOSE SYSTEMS (CA AMENDED)	2016 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 17a	WET CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE (CA AMENDED)	2016 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
UL 464	AUDIBLE SIGNAL APPLIANCES	2003 EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION
UL 1971	STANDARD FOR SIGNALING DEVICES FOR HEARING IMPAIRED	2002 (R2010)
ICC 300	ICC STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING, AND GRANDSTANDS	2017 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2019 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIR CODE CHAPTER 80

SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

COMPLIANCE WITH CFC CHAPTER 33 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.

SCOPE OF WORK

SCOPE OF WORK LIMITED TO THE FOLLOWING @ BUILDING 1500 ONLY:

- REMOVAL & REPLACEMENT OF EXISTING HVAC EQUIPMENT
- REMOVAL OF EXISTING HYDRONIC PIPING FOR HVAC EQUIPMENT TO BE REMOVED
- INSTALLATION OF REFRIGERATION LINES FOR NEW HVAC EQUIPMENT
- MODIFICATIONS TO THE ELECTRICAL SYSTEM TO SUPPORT THE HVAC UPGRADES
- CONSTRUCTION OF CMU MECHANICAL ENCLOSURE
- CEILING ACCESS FOR HVAC WORK REQUIRES ONLY "POPPING UP" CEILING TILES DURING HVAC REPLACEMENT. NO CHANGE TO EXISTING CEILING GRID.

PROJECT DIRECTORY

CLIENT: IMPERIAL VALLEY COLLEGE
380 EAST ATEN ROAD
IMPERIAL, CA 92251
TELEPHONE: 760.457.6995
CONTACT: JOE JACKSON
EMAIL: joseph.jackson@imperial.edu

ARCHITECT: SGH ARCHITECTS
707 BROOKSIDE AVENUE
REDLANDS, CA 92373
TELEPHONE: 909.375.3030
CONTACT: MICHAEL STEPHENS, AIA
JOHN RIVERA, PROJECT ARCHITECT
EMAIL: mstephens@sgharch.com

STRUCTURAL: HOHBACH-LEWIN, INC.
511 MISSION STREET
SOUTH PASADENA, CA 91030
TELEPHONE: 626.441.1211
CONTACT: LES TSO
EMAIL: ltso@hohbach-lewin.com

MECHANICAL: P2S
5000 EAST SPRINGS ROAD, SUITE 8000
LONG BEACH, CA 90815
TELEPHONE: 562.497.2999
CONTACT: KARL FISH
EMAIL: karl.fish@p2sinc.com

ELECTRICAL: P2S
5000 EAST SPRINGS ROAD, SUITE 800
LONG BEACH, CA 90815
TELEPHONE: 562.497.2999
CONTACT: WES MCKEAN
EMAIL: wes.mckean@p2sinc.com

SHEET INDEX

REGULATION NOTES

1. ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR) PARTS 1 TO 6, 9 AND 12.
2. FABRICATION AND INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE DSA. NO DEFERRED SUBMITTAL ITEMS LISTED FOR THIS PROJECT.
3. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGED DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
4. ALL SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE CONSIDERED AS A CONSTRUCTION CHANGE DOCUMENT (CCD) OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION SECTION 4-338, PART 1, TITLE 24, CCR. SUBSTITUTIONS SHALL BE FOR ANY MATERIAL, SYSTEM OR PRODUCT THAT WOULD OTHERWISE BE REGULATED BY DSA.
5. A "DSA CERTIFIED' CLASS 3 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR.
6. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
7. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).
8. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
9. A COPY OF CCR TITLE 24, PARTS 1-6, 9 AND 12 SHALL BE KEPT ON SITE DURING CONSTRUCTION.
10. A COPY OF THE APPROVED DRAWINGS, SPECIFICATIONS, ADDENDUMS AND CONSTRUCTION CHANGE DOCUMENTS SHALL BE KEPT ON SITE DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL MAINTAIN CONSTRUCTION SAFE GUARDS IN ACCORDANCE WITH CHAPTER 33, PART 2 TITLE 24, CCR AND CHAPTER 33, PART 9 TITLE 24, CCR (2019 CBC)
12. THE CONTRACTOR SHALL PROVIDE CLEAN, SANITARY, TEMPORARY TOILET FACILITIES FOR THE CONSTRUCTION PERSONNEL. UNDER NO CIRCUMSTANCES SHALL CONSTRUCTION PERSONNEL BE ALLOWED TO UTILIZE THE PERMANENT SITE FACILITIES. ALL TEMPORARY FACILITIES SHALL BE REMOVED FROM THE SITE AT THE CONCLUSION OF CONSTRUCTION.

STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS / ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND / OR CONSULTANTS.

(APPLICATION NO. 119862 FILE NO. 13-C1)

☒ THE SHEETS LISTED ON THE COVER WITH A MARKED * IN THE HEADING.

☐ THIS DRAWING, PAGE OF SPECIFICATIONS / CALCULATIONS.

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1. DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATORS AND THE PROJECT SPECIFICATIONS PREPARED BY ME AND
2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344" OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B))

I CERTIFY THAT: ☒ ALL DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET.

☐ THIS DRAWING OR PAGE.

☒ IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND

☒ HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS

SIGNATURE — DATE 02/22/21

ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE.

MICHAEL STEPHENS
PRINT NAME

C 26450 — LICENSE NUMBER
05/31/2021 — EXPIRATION DATE

☐ IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND

☐ HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS

SIGNATURE — DATE

ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBILITY FOR THIS PORTION OF THE WORK.

PRINT NAME

LICENSE NUMBER — EXPIRATION DATE

CODE ANALYSIS

BUILDING DATA SUMMARY:

BUILDING 1500

OCCUPANCY TYPE:	A-3	B
CONSTRUCTION TYPE:	VA	VA
SPRINKLERED:	YES	YES
BUILDING S.F.:	15,574 S.F.	6,860 S.F.
TOTAL BUILDING S.F.:	22,434 S.F.	

ALLOWABLE AREA AND HEIGHT: C.B.C. 2019 TABLE 504.3, 504.4 AND 506.2

OCCUPANCY:	A-3	B
NUMBER OF STORIES:	3	4
BUILDING HEIGHT:	70'-0"	70'-0"
BUILDING AREA (S1):	46,000 S.F.	54,000 S.F.
TOTAL ALLOWABLE EA. FLOOR:	46,000 S.F.	54,000 S.F.

ACTUAL AREA AND HEIGHT

OCCUPANCY:	A-3	B
NUMBER OF STORIES:	1	1
BUILDING HEIGHT:	28'-4"	28'-4"
BUILDING AREA:	15,574 S.F.	6,860 S.F.

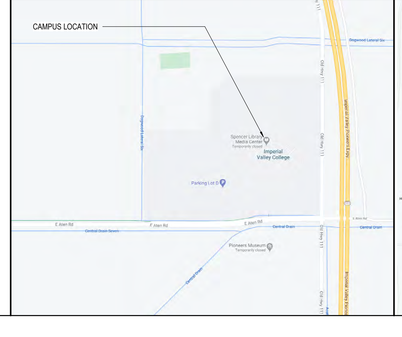
OCCUPANCY AREA:

A3 OCCUPANCY:
TOTAL: 15,574 SQ.FT. > 46,000 SQ.FT. MAX
ALLOWED FOR A3 OCCUPANCY

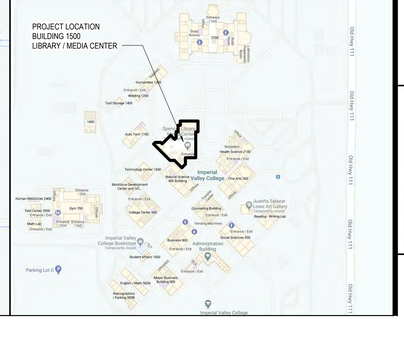
B OCCUPANCY:
TOTAL: 6,680 SQ.FT. >54,000 SQ.FT. MAX
ALLOWED FOR B OCCUPANCY

MIXED-AREA RATIO:
15,574/46,000 + 6,860/54,000 = 0.339 + 0.127 = 0.466 < 1

VICINITY MAP



SITE MAP



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

COVER SHEET
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT MICHAEL J. STEPHENS NO. C26450 REN. 5-31-21 STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION: DATE: DESCRIPTION:

G0.0

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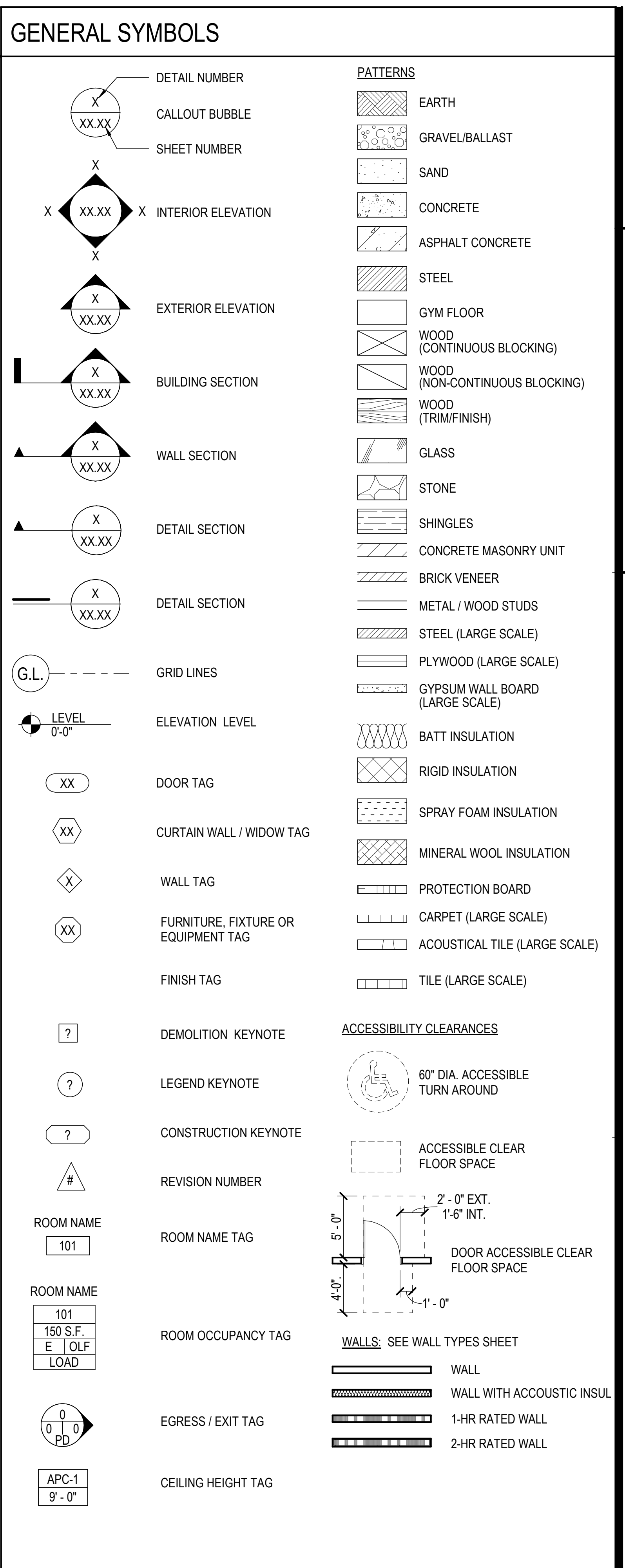
ABBREVIATIONS

A	
AB	ANCHOR BOLT
AC	ACOUSTICAL CEILING
AC	ASPHALT CONCRETE
ACC	ACCESSIBLE
ACCB	ACCESSIBLE BENCH
ACST	ACOUSTIC
ACT	ACOUSTIC CEILING TILE
AD	ACCESS DOOR
AD	AREA DRAIN
ADDN	ADDITION OR ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT
AV	AVERAGE
AWP	ACOUSTICAL WALL PANEL
B	
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BET	BETWEEN
BFP	BACKFLOW PREVENTOR
BFR	BELOW FLOOR
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BM	BENCH MARK
BOF	BOTTOM OF FOOTING
BOTT	BOTTOM
BRKT	BRACKET
BSMT	BASEMENT
BUR	BUILT UP ROOFING
C	
CBD	CHALKBOARD
CBC	CALIFORNIA BUILDING CODE
CD	CONDENSATE DRAIN
CER	CERAMIC
CG	CORNER GUARD
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CEILING MOUNTED
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPOSITE
COMPR	COMPRESSIBLE
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR OR CONTRACT
CORR	CORRIDOR
CP	COVER PLATE
CPT	CARPET
CR	CORROSION RESISTANT
CS	COUNTERSINK
CSK	COUNTERSUNK
CSTJ	CONSTRUCTION JOINT
CSWK	CASEWORK
CT	CERAMIC TILE
CTR	CENTER
CW	COLD WATER
CY	CUBIC YARD
D	
D	DEPTH
DBL	DOUBLE
d	PENNY (AS NAIL 10D)
DEG	DEGREE
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DG	DOOR GRILLE
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DN	DOWN
DN	DOWNSPOUT NOZZLE
DO OR "	DITTO
DPFG	DAMPROOFING
DR	DOOR
DR	DRAIN
DS	DOWNSPOUT
DSA	DEPARTMENT OF STATE ARCHITECT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
DWL	DOWEL
DWR	DRAWER
E	
E	EAST
EA	EACH
EB	EXPANSION BOLT
EE	EACH END
EEW	EMERGENCY EYEWASH
EEWS	EMERGENCY EYEWASH/SHOWER
EF	EACH FACE
EF	EXHAUST FAN
EH	ELECTRICAL HEATER
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
ERF	EPOXY RESIN FLOORING
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
EST	ESTIMATE
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXT	EXTERIOR
F	
F	FIRELINE
FA	FIRE ALARM
FAB	FABRICATED
FB	FACE BRICK
FC	FOOT CANDLE
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISH
FIX	FIXTURE
FL	FLOOR
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FM	FIRE MAIN
FO	FACE OF
FO	FINISH OPENING
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FACE OF STUD
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIREPROOFING
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOOR SINK
FSD	FIRE/SMOKE DAMPER
FSS	FOLDING SHOWER SEAT
FT	FEET (FOOT)
FTG	FOOTING
FUT	FUTURE
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	
G	GRILLE
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GEN	GENERAL
GEN	GENERATOR
GFA	GROSS FLOOR AREA
GFI	GROUND FAULT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GOVT	GOVERNMENT
GR	GUAD RAIL
G CONTNUED	
GR	GRADE
GR	GRILLE
GRC	GLASS REINFORCED CONCRETE
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	
H	HEIGHT
HB	HOSE BIB
HC	HOLLOW CORE
HD	HAND DRYER OR HAIR DRYER
HDBD	HARDBOARD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HANDRAIL
HR	HOUR
HS	HEADSTUD
HSS	HOLLOW STRUCTURAL SECTION
HSTR	HIGH STRENGTH
HT	HEIGHT
HTR	HEATER
HW	DOMESTIC HOT WATER
I	
IAW	IN ACCORDANCE WITH
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IJ	ISOLATION JOINT
IN	INCH
INC	INCLUDE (ING)
INSUL	INSULATION
INT	INTERIOR
J	
JAN	JANITOR
JST	JOIST
JFB	JOINT FILLER BOARD
JT	JOINT
K	
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
L	
L	ANGLE
LAM	LAMINATE(D)
LAV	LAVATORY
LB	POUND
LBR	LUMBER
LBS	POUNDS
LDG	LOADING
LF	LINEAR FOOT (FEET)
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LOX	LIQUID OXYGEN
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTG	LIGHTING
LV	LOUVER
LW	LONG WAY
M	
MAC	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MB	MOP BASIN
MBD	MARKER BOARD
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MH	MANHOLE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLDG	MOLDING
MLWK	MILLWORK
MO	MASONRY OPENING
MR	MIRROR
MR/S	MIRROR WITH SHELF
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
M CONTINUED	
MUL	MULLION
MW	MARKER WALL
N	
N	NORTH
N/A	NOT APPLICABLE
NC	NURSE CALL
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O	
O to O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OVFL	OVERFLOW
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OPG	OPENING
OPP	OPPOSITE
OTCS	OPEN TO CEILING SPACE
OVHD	OVERHEAD
P	
P	PAINT
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PARTICLE BOARD
PB	PULL BOX
PB	PUSH BUTTON
PC	PRECAST
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PERF	PERFORATED
PERP	PERPENDICULAR
PIV	POST INDICATOR VALVE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POC	POINT OF CONNECTION
PORC	PORCELAIN
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECTION
PS	PROJECTION SCREEN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PLASTER TRAP
PT	POINT
PTD	PAPER TOWEL DISPENSER
PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWR	POWER
Q	
QT	QUARRY TILE
QTR RND	QUARTER ROUND
R	
R	RADIUS
RA	RETURN AIR
RAD	RADIUS
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REG	REGISTER
REM	REMOVABLE
REQ(D)	REQUIRE(D)
RESIL	RESILIENT
RET	RETAINING (WALL)
REV	REVISIONS
RF	RUBBER FLOOR
RFM	RECESSED FLOOR MAT
RH	ROBE HOOK
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
S	
S	SINK
S	SANITARY SEWER
S	SOAP DISH
S	SOUTH
S	SPRINKLER LINE
SA	SUPPLY AIR
SAN	SANITARY WASTE
SC	SECURITY
SC	SOLID CORE
SC	SHOWER CURTAIN
SC	SPECIAL COATING
SCD	SEAT COVER DISPENSER
SCH	SHOWER CURTAIN HOOKS
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SCT	STRUCTURAL CLAY TILE
S CONTINUED	
SD	SOAP DISPENSER
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
SD	STORM DRAIN
SEC	SECONDARY
SECT	SECTION
SECY	SECRETARY
SF	SQUARE FOOT
SFCMU	SPLIT-FACED CONCRETE MASONRY UNIT
SGL	SINGLE
SH	SHOWER
SHEATH	SHEATHING
SHM	SECURITY HOLLOW METAL
SHT	SHEET
SIM	SIMILAR
SL	SHORT LEG
SLNT	SEALANT
SM	SHEET METAL
SM	SPRINKLER MAIN
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SPEC	SPECIFICATIONS
SPL	SPECIAL
SPL BLK	SPLASH BLOCK
SQ	SQUARE
SS	SERVICE SINK
SS	SOLID SURFACE
SST	STAINLESS STEEL
ST	STAIR
STAG'D	STAGGERED
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL - STRUCTURE
SUBFL	SUBFLOOR
SURF	SURFACE
SUSP	SUSPENDED
SV	SHEET VINYL
SYM	SYMMETRICAL
T	
T	TEMPERED
T	THERMOSTAT
T & B	TOP & BOTTOM
T& G	TONGUE & GROOVE
T	TREAD
TA	TRANSFER AIR
TAN	TANGENT
TB	TOWEL BAR
TBD	TACK BOARD
TC	TEMPERATURE CONTROL
TC	TIME CLOCK
TD	TRENCH DRAIN
TEL	TELEPHONE
TEMP	TEMPERED - TEMPORARY
TERR	TERRAZZO
TEXT	TEXTURED
TH	THRESHOLD
TH	TOWEL HOOK
THK	THICK(NESS)
TMR	TILT MIRROR UNIT
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOIL	TOILET
TOP	TOP OF PAVING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPV	TRAP PRIMER
TR	TRIP
TRANS	TRANSVERSE
TRD	TREAD
TT	TERRAZZO TILE
TTD	TOILET TISSUE DISPENSER
TV	TELEVISION / MONITOR
TW	TACK WALL
TYP	TYPICAL
U	
U	URINAL
UL	UNDERWRITERS LABORATORIES
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
US	UTILITY SHELF
UTIL	UTILITY
V	
V	VENT
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VB	VINYL BASE
VCB	VENTED COVE BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FLOOR
VP	VENEER PLASTER
VT	VINYL TILE
VTR	VENT THROUGH ROOF
VWC	VINYL WALLCOVERING
W	
W	WATER SERVICE
W	WIDE; WIDTH
W CONTINUED	
W	WEST
W	WIDE FLANGE
W/	WITH
W/O	WITHOUT
WC	WALL COVERING
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WD	WOOD
WDW	WINDOW
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WH	WATER HEATER
WI	WROUGHT IRON
WNSCT	WAINSCOT
WP	WEATHERPROOF
WR	WATER RESISTANT
WR	WASTE RECEPTACLE
WSP	WET STAND PIPE
WT	WEIGHT
WWF	WELDED WIRE FABRIC
X	
XFMR	TRANSFORMER
Y	
YD	YARD
YH	YARD HYDRANT
#	
&	AND
@	AT
i.e.	THAT IS
#	NUMBER

GLAZING ABBREVIATIONS:

CG	CLEAR FLOAT GLASS
CIG	CLEAR INSULATING GLASS
CTG	CLEAR TEMPERED FLOAT GLASS
CTIG	CLEAR TEMPERED INSULATING GLASS
FG	FIRE-RATED GLASS
LG	LAMINATED GLASS
LIG	LAMINATED INSULATING GLASS
PG	PATTERN GLASS
PIG	PATTERN INSULATING GLASS
SG	SPANDREL GLASS
SIG	SPANDREL INSULATING GLASS
TG	TINTED FLOAT GLASS
TIG	TINTED INSULATING GLASS
TTG	TINTED TEMPERED FLOAT GLASS
TTIG	TINTED TEMPERED INSULATING GLASS

GENERAL SYMBOLS



GENERAL NOTES

CONSTRUCTION DOCUMENT NOTES:

1. THE GENERAL CONTRACTOR SHALL CAREFULLY REVIEW AND COMPARE THE CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION AND SHALL AT ONCE REPORT TO THE ARCHITECT ANY ERROR, INCONSISTENCY, OR OMISSION THE CONTRACTOR MAY DISCOVER. IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WITHOUT PRIOR NOTICE TO THE ARCHITECT, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY, AND SHALL BEAR ALL COSTS ATTRIBUTABLE THERETO FOR CORRECTION OF THE WORK.
2. CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND CONSTRUCTABILITY.
3. CONTRACTOR SHALL VERIFY ALL CONDITIONS AT THE SITE BEFORE STARTING ANY WORK AND REPORT FOR CLARIFICATION ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
4. THE CONSULTING ENGINEERS' DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. SHOULD THERE BE A DISCREPANCY BETWEEN THE ARCHITECTURAL DRAWINGS AND THE CONSULTING ENGINEERS' DRAWINGS, SUCH DISCREPANCY IS TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO INSTALLATION OF SAID WORK. ANY WORK INSTALLED IN CONFLICT WITH THE DRAWINGS SHALL BE CORRECTED BY THE CONTRACTOR AT CONTRACTORS EXPENSE.
5. NOTWITHSTANDING ANY OMISSIONS, IT SHALL BE THE SOLE DUTY AND RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ACTUAL CONSTRUCTION DETAILS AND FABRICATE AND INSTALL SAID DESIGN IN ACCORDANCE WITH ACCEPTED BEST PRACTICES AND PROCEDURES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION AND COORDINATION WITH OTHER TRADES AND THEIR WORK FOR COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.
7. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE ALL WORK WITH THE SUBCONTRACTORS. IF A PORTION OF WORK FOR A SPECIFIC TRADE APPEARS IN A SECTION OF THESE DOCUMENTS OTHER THAN THAT WHICH IS SPECIFIC TO THAT TRADE, IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE SAID TRADE OF SUCH WORK.
8. CONTRACTOR TO COORDINATE WITH N.I.C. EQUIPMENT CONTRACTOR(S) BEFORE STARTING WORK ADJACENT TO N.I.C. EQUIPMENT SHOWN ON DRAWINGS. VERIFY THAT ALL ITEMS (SUCH AS BELOW FLOOR PIPING AND ELECTRICAL CONDUITS, INSERTS, PIT AND PLATFORM, SIZES AND LOCATIONS, ETC.) HAVE BEEN PROVIDED AND INSTALLED AS REQUIRED FOR OPERATION OF THIS EQUIPMENT. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
9. VERIFY LOCATION AND SIZE OF OPENINGS, BLOCKING, INSERTS, AND EMBEDDED ITEMS ON APPLICABLE SHOP DRAWINGS BEFORE STARTING WORK.
10. CONTRACTOR SHALL COORDINATE WITH ALL EQUIPMENT MANUFACTURERS FOR EQUIPMENT ROUGH-IN REQUIREMENTS.
11. CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL OPENINGS FOR MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT WITH RESPECTIVE SUBCONTRACTORS.
12. THE GENERAL CONTRACTOR SHALL COORDINATE CUTOUTS FOR CASEWORK, MILLWORK, OR OTHER EQUIPMENT AS REQUIRED.
13. ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED, AND INDICATED IN THE CONTRACTORS BID.
14. THE USE OF THE WORD "PROVIDE" IN CONNECTION WITH ANY ITEM SPECIFIED, IS INTENDED TO MEAN THAT SUCH SHALL BE FURNISHED, INSTALLED COMPLETE, CONNECTED AND TESTED FOR PROPER OPERATION WHERE SO REQUIRED.
15. PROVIDE ALL PERTINENT SHOP DRAWINGS FOR APPROVAL IN ADVANCE OF FABRICATION AND INSTALLATION ALLOWING SUFFICIENT TIME FOR REVIEW AND CORRECTIVE ACTIONS SHOULD IT BE REQUIRED. SUBMIT CUT SHEETS OF ALL FIXTURES, EQUIPMENT AND SAMPLES OF ALL FINISHES SPECIFIED FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
16. PRIOR TO SUBMITTAL OF BID, NOTIFY ARCHITECT IN WRITING, IF ANY SPECIFIED MATERIALS OR EQUIPMENT ARE EITHER UNAVAILABLE OR WILL CAUSE A DELAY IN THE CONSTRUCTION COMPLETION SCHEDULE.
17. ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY OF INFORMATION CONTAINED IN OWNER SUPPLIED DOCUMENTS.
18. DO NOT SCALE DRAWINGS. IN CASE OF DISCREPANCIES, OBTAIN CLARIFICATION FROM THE ARCHITECT.
19. LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, CONTRACTOR TO NOTIFY ARCHITECT OF DISCREPANCIES.
20. DETAILS ARE NOT INTENDED TO SHOW METHOD AND MANNER OF ACCOMPLISHING WORK.
21. WHEN +/- SIGN OR V.I.F. ABBREVIATION IS ADJACENT TO A GIVEN DIMENSION, IT INDICATES THAT THE ACTUAL DIMENSION MIGHT VARY DUE TO EXISTING CONDITIONS. VERIFY DIMENSIONS BEFORE PROCEEDING WITH THE WORK; DISCREPANCIES BETWEEN THE NOTED DIMENSIONS AND ACTUAL DIMENSIONS ARE TO BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

HAZARDOUS MATERIAL NOTES:

22. THE ARCHITECT ASSUMES NO RESPONSIBILITY RELATING TO ANY HAZARDOUS OR TOXIC MATERIALS, INCLUDING ASBESTOS, AND ASSUMES NO RESPONSIBILITY FOR VERIFYING ITS EXISTENCE OR REMOVAL. THE OWNER/TENANT SHALL TAKE ACTION FOR DIRECTLY CONTRACTING WITH A CONSULTANT OR SPECIALIST FOR SUCH, LICENSED BY THE STATE OF CALIFORNIA, SHOULD THOSE SERVICES BE REQUIRED ON THE PROJECT.
23. NO PRODUCTS CONTAINING ASBESTOS OR LEAD IN ANY FORM SHALL BE USED ON ANY PART OF THE WORK.

CONSTRUCTION NOTES:

24. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING CONSTRUCTION AND BUILDING IMPROVEMENTS, CONCRETE SIDEWALKS CURBS. ETC., AND UPON COMPLETION OF WORK REPAIR ANY DAMAGE THAT MAY OCCUR DURING CONSTRUCTION. MAKE NECESSARY PROVISIONS TO INCLUDE TEMPORARY DUST TIGHT PARTITIONS TO PREVENT SPREAD OF DUST AND DIRT TO INHABITED AREAS OF THE EXISTING BUILDINGS AND PROTECT EXISTING FACILITIES ON AND ADJACENT TO THE SITE. VERIFY EQUIPMENT LOCATIONS AND REQUIREMENTS WITH CONSULTANT'S DRAWINGS AND COORDINATE WITH CONTRACT DOCUMENTS. REMOVE AND LEGALLY DISPOSE OF DEBRIS, RUBBISH, ETC., LEAVING AREA CLEAR AND BROOM CLEAN READY FOR WORK. ROUTE FOR RUBBISH DISPOSAL SHALL BE APPROVED BY OWNER.
25. NEITHER THE OWNER NOR THE ARCHITECT SHALL ENFORCE SAFETY MEASURES OR REGULATIONS. CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES DURING SHORING AND BRACING, AND SHALL SOLELY BE RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH REGULATIONS, STANDARDS AND LAWS.
26. THE GENERAL CONTRACTOR AND SUBCONTRACTORS PERFORMING WORK ON THE PREMISES SHALL BE RESPONSIBLE FOR MAINTAINING AND SUPERVISING THEIR SAFETY PROGRAM, INCLUDING, BUT NOT LIMITED TO THE ISOLATION OF WORK AREAS AND THE PROMPT REMOVAL OF DEBRIS OR TOOLS WHICH MIGHT ENDANGER VISITORS, PATIENTS OR EMPLOYEES OF THE FACILITY. ALL ROADS AND WALKWAYS SHALL REMAIN UNOBSTRUCTED. WHEN NECESSARY, ALTERNATE ROUTES OF TRAFFIC CONTROL MUST BE MAINTAINED, SHOULD UNSAFE CONDITIONS OCCUR.
27. CONTRACTOR SHALL PROVIDE BARRICADES AROUND ALL NEW AND EXISTING OPENINGS WHERE REQUIRED OR NECESSARY FOR SAFETY.
28. CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY BARRICADES, CLOSURE WALLS, ETC., AS REQUIRED TO PROTECT THE PUBLIC DURING THE PERIOD OF CONSTRUCTION. CONSTRUCTION BARRICADE WALLS TO BE EQUAL TO RATING OF THE WALL REPLACED.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS CLEAN UP OF THE SITE OF ALL DEBRIS WHETHER CREATED BY HIS WORK OR THE FAILURE OF HIS SUB-CONTRACTORS TO CLEAN UP AFTER THEIR WORK.
30. THE CONTRACTOR SHALL MAINTAIN EQUIPMENT, MATERIALS AND WORK IN A NEAT, CLEAN, ORDERLY AND SAFE CONDITION AT ALL TIMES
31. CONTRACTOR SHALL KEEP SITE AND BUILDING CLEAN, HAZARD FREE AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, ETC. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY NATURE
32. CONTRACTOR SHALL LEAVE WORK / PROJECT AREA IN A SECURE CONDITION DURING PERIOD OF THIS WORK WHEN WORKERS ARE NOT ON THE PROJECT SITE.
33. CONTRACTOR TO SCHEDULE CONSTRUCTION ACTIVITIES TO HAVE THE LEAST IMPACT ON EXISTING BUILDING FUNCTIONS. THIS INCLUDES RESTRICTING TYPICAL DEMOLITION AND CONSTRUCTION ACTIVITIES TO THE HOURS DESIGNATED BY THE OWNER. CERTAIN ACTIVITIES SUCH AS THE USE OF JACKHAMMERS ON EXISTING BUILDINGS WILL NEED TO BE SCHEDULED AT SPECIAL TIMES. CONTACT THE OWNER FOR SCHEDULING OF ALL ACTIVITIES.
34. THE GENERAL CONTRACTOR SHALL MAKE SPECIAL PROVISIONS FOR NOISE AND DUST CONTROL SO AS NOT DISRUPT EXISTING ADJACENT OCCUPIED AREA.
35. THE CONTRACTOR SHALL COOPERATE WITH OWNER AS REQUIRED TO MINIMIZE INTERFERENCE WITH AND DISRUPTION OF OWNER ACTIVITIES.
36. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING SITE ACCESS, STAGING AREAS, USE OF SITE, USE OF UTILITY SERVICES AND FACILITIES.
37. CONTRACTOR SHALL MAINTAIN FIRE LANES, PEDESTRIAN AND VEHICULAR ACCESS, FIRE PROTECTIVE DEVICES AND ALARMS DURING CONSTRUCTION.
38. DO NOT STORE MATERIALS ON ANY FLOOR OR ROOF IN EXCESS OF ALLOWABLE LOAD.
39. ALL EXITS MUST BE CONTINUOUS AND TERMINATE IN A PUBLIC WAY OR EXIT COURT LEADING TO A PUBLIC WAY OR AN APPROVED AREA OF REFUGE.
40. WHENEVER THE BUILDING IS OCCUPIED, EXIT SIGNS SHALL BE ILLUMINATED SO THAT THEY ARE CLEARLY VISIBLE.
41. PROVIDE PORTABLE FIRE EXTINGUISHERS AT EACH FIRE EXTINGUISHER CABINET AS SHOWN ON DRAWINGS. ADDITIONAL FIRE EXTINGUISHERS AS REQUIRED BY FIRE DEPARTMENT OR STATE FIRE MARSHALL FIELD INSPECTORS ARE N.I.C.
42. GENERAL CONTRACTOR IS TO MAKE EXACT DETERMINATIONS AS TO THE LOCATION OF ALL EXISTING UTILITIES. DO NOT BEGIN WORK UNTIL THIS DETERMINATION HAS BEEN MADE. CONTRACTOR IS FULLY RESPONSIBLE FOR DAMAGE CAUSE BY FAILURE TO LOCATE AND PROTECT UTILITIES.
43. PROVIDE RE-ROUTING OF EXISTING UTILITIES SERVING OCCUPIED AREAS AS REQUIRED TO MAINTAIN OPERATIONS.
44. SUPPLY TEMPORARY ELECTRICAL POWER TO THE JOB SITE FOR USE BY ALL CONSTRUCTION TRADES PRIOR TO CONNECTION OF THE SPECIFIED ELECTRICAL WORK.
45. NOTIFY OWNER AT LEAST SEVENTY-TWO HOURS PRIOR TO DISRUPTION OF UTILITIES.
46. PATCH SURFACES WHERE AFFECTED BY INSTALLATION OF NEW MECHANICAL, ELECTRICAL AND STRUCTURAL ITEMS. MATCH EXISTING ADJACENT SURFACES AND FINISHES EXCEPT WHERE OTHERWISE NOTED OR INDICATED.
47. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING AS REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY. PATCHING OF FINISHED WORK ALREADY INSTALLED AS A RESULT BY ERRORS, CHANGES OR OTHER REASONS IS ALSO THE CONTRACTOR'S RESPONSIBILITY. THE REFINISHED SURFACES SHALL MATCH THE ADJACENT SURFACES FOR COLOR, TEXTURE AND MATERIAL.
48. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWER-DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDON BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
49. PATCH AND REPAIR EXISTING FIRE-RATED ASSEMBLIES DAMAGED DURING DEMOLITION TO MAINTAIN RATED ASSEMBLY.
50. ALL PENETRATIONS THROUGH FIRE RATED WALLS AND SHAFTS SHALL BE EQUIPPED WITH DAMPERS, SEALANTS, OR OTHER APPROPRIATE AND APPROVED U.L. LISTED ASSEMBLIES, MATERIALS AND METHODS SO AS TO MAINTAIN THAT RATING.
51. ALL OPENINGS AT WINDOWS, OPENINGS FOR UTILITY PIPING AND WIRING, ETC., WITHIN THE AREA OF WORK SHALL BE CAULKED AND SEALED.
52. PROVIDE BACKING FOR CASEWORK, TOILET ACCESSORIES, LOCKERS, ELECTRICAL PANELS, AND OTHER ANY WALL MOUNTED ITEMS AS INDICATED IN THE DRAWINGS.
53. PROVIDE ALL NECESSARY BLOCKING, BACKING AND FRAMING FOR LIGHT FIXTURES, ELECTRICAL UNITS, MECHANICAL AND PLUMBING EQUIPMENT AND ALL OTHER ITEMS REQUIRING THE SAME AS INDICATED IN THE DRAWINGS.
54. MECHANICAL, PLUMBING AND ELECTRICAL PLANS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF DUCTS, PIPES, CONDUIT, WIRING, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS.
55. ALL PIPING AND CONDUITS SHALL BE CONCEALED WITHIN WALLS, UNDERGROUND, ABOVE CEILINGS OR IN ARCHITECT APPROVED UTILITY SPACES IN ALL CASES UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. EXPOSED ITEMS MUST BE LOCATED IN AREAS APPROVED BY THE ARCHITECT. EXPOSED ITEMS SHALL BE INSTALLED AND FINISHED TO PROVIDE MINIMAL VISUAL IMPACT. ALL EXPOSED ITEMS ARE TO BE PAINTED TO MATCH THE ADJACENT SURFACES UNLESS SCHEDULED FOR AN ACCENT COLOR.
56. ALL PIPE DUCTS AND CONDUIT SHALL BE SUPPORTED AND SEISMICALLY BRACED USING AN APPROVED SEISMIC RESTRAINT SYSTEM AS SHOWN ON THE DRAWINGS.
57. ANCHORAGE AND SUPPORTS OF ALL EQUIPMENT TO BE INSTALLED, AS A PART OF THIS PROJECT SHALL BE DETAILED ON CONSTRUCTION DOCUMENTS, EXCEPT THOSE EXEMPT BY 2019 CBC SECTION 1617A.1.18
58. EQUIPMENT SUPPORTS, AND ANCHORAGE SHALL BE APPROVED BY THE APPROPRIATE DESIGN PROFESSIONAL OF RECORD AND OSHPD AS A PART OF HELD REVIEWS / OBSERVATIONS. THE INSPECTOR OF RECORD (IOR) SHALL ASSURE THAT THE ABOVE REQUIREMENTS ARE ENFORCED.
59. CONTRACTOR SHALL COORDINATE SIZES AND LOCATIONS OF 4" HIGH CONCRETE HOUSEKEEPING PADS WITH THE MECHANICAL AND ELECTRICAL EQUIPMENT SUPPLIERS.
60. UNLESS NOTED OTHERWISE ALL WALL TO BE FULL HEIGHT.
61. PROVISIONS SHALL BE MADE AT FULL HEIGHT NON-BEARING WALLS FOR 1/2 INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH FIRE SAFING INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. FILL AT SMOKE PARTITIONS WITH MATERIALS CAPABLE OF RESISTING THE PASSAGE OF SMOKE.
62. SCRIBE GYPSUM BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF STRUCTURE AND ROOF DECK ABOVE.
63. CONTRACTOR OPERATIONS SHALL NOT BLOCK, HINDER, IMPEDE OR OTHERWISE INHIBIT THE USE OF REQUIRED EXITS AT ANY TIME. CONTRACTOR SHALL MAINTAIN UNOBSTRUCTED ACCESS TO FIRE EXTINGUISHERS, FIRE HYDRANTS, TEMPORARY FIRE PROTECTION FACILITIES, STAIRWAYS AND OTHER ACCESS ROUTES FOR FIRE-FIGHTING EQUIPMENT AND OR PERSONNEL.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

SYMBOLS AND ABBREVIATIONS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

MICHAEL J. STEPHENS
NO. 26450
REN. 5-31-21

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION: DATE: DESCRIPTION:
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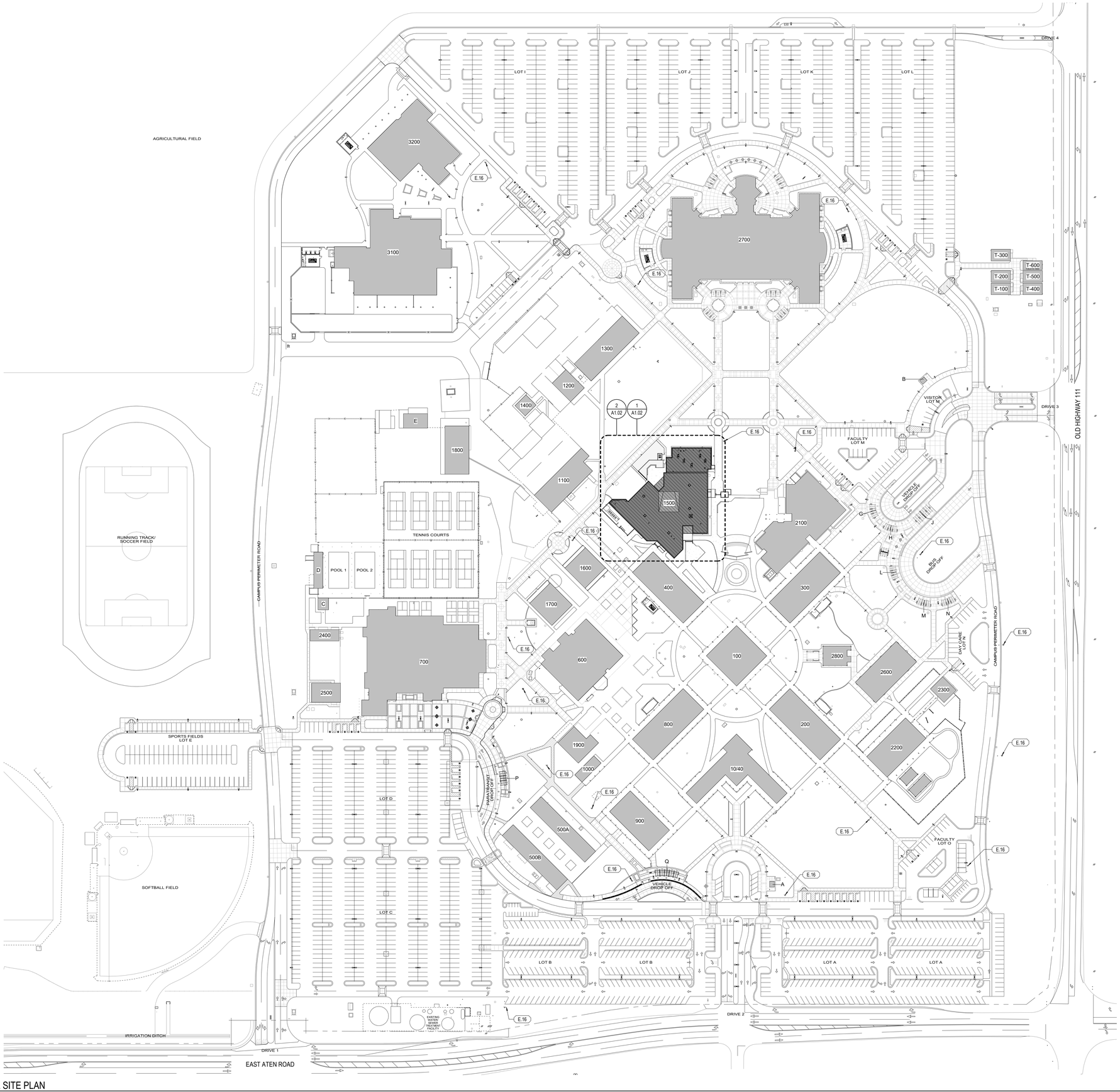

1 OVERALL SITE PLAN
A1.01 SCALE: 1" = 80'-0"

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KEYNOTES

DESCRIPTION

E.16 (E) FIRE HYDRANT

DSA A# / BUILDING INFORMATION.

BUILDING NAME / USE	BUILDING NAME	BUILDING ORIGINAL	BUILDING MODERNIZATION	SHADE STRUCTURE
10/40	ADMINISTRATION	A-21614		
100	COUNSELING/ FINANCIAL AID	A-21614	A-38564, A-59185	
200	SOCIAL SCIENCES/ ENGLISH	A-21614		
300	FINE ART	A-21614		
400	ASSEMBLY CENTER/ CLASSROOMS	A-21614	A-111262	
500A	ENGLISH/ MATHEMATICS	A-20204	A-21614	
500B	REPROGRAPHICS/ PARKING	A-20204	A-21614	
600	WORKFORCE DEVELOPMENT CENTER	A-21614	A-29289, A-38800	
700	GYMNASIUM	A-21614	A-26153, A-27239, A-28378, A-30408, A-33594, A-35011, A-100778, A-104120	
800	BUSINESS	A-21614	A-25289, 04-118720	
900	MEYER BUSINESS BUILDING	A-33912	A-52343, A-112788	
1000	STUDENT AFFAIRS OFFICE	A-33912		
1100	AUTO TECHNOLOGY	A-21614		
1200	AUTO TECHNOLOGY/ HUMANITIES	A-33832		
1300	AUTO TECHNOLOGY/ HUMANITIES	A-33832		
1400	TOOL STORAGE	UNKNOWN		
1500	LIBRARY MEDIA CENTER	A-36944	A-100260, A-110557	
1600	TECHNOLOGY CENTER	A-38576		
1700	WORKFORCE DEVELOPMENT CENTER	UNKNOWN		
1800	MAINTENANCE/ WAREHOUSE	A-30409		
1900	BOOKSTORE	UNKNOWN		
2100	HEALTH SCIENCES/ DISABLED STUDENT	A-47276		
2200	PRESCHOOL	A-54425		
2300	INFANT TODDLER CENTER	A-100748		
2400	HUMAN RESOURCES	NONE		
2500	MATH LAB CENTER	UNKNOWN		
2600	READING/ WRITING/ LANGUAGE LABORATORY	A-103704		
2700	SCIENCE	A-108533		
2800	ART GALLERY	A-110775		
3100	CAREER TECHNICAL	A-112064		
3200	CAREER TECHNICAL	A-112064		
A	INFORMATION BOOTH "A"	N/A		
B	INFORMATION BOOTH "B"	N/A		
C	SHOWERS/ TOILETS	UNKNOWN		
D	POOLS AND GRANDSTANDS	A-36933		
E	CARPENTER SHOP	UNKNOWN		
G	SHADE STRUCTURE			A-110557
H	SHADE STRUCTURE			A-110557
J	SHADE STRUCTURE			A-110557
K	KIOSK		A-110557	
L	SHADE STRUCTURE			A-110557
M	SHADE STRUCTURE			A-110557
N	SHADE STRUCTURE			A-110557
P	SHADE STRUCTURE			A-111893
Q	SHADE STRUCTURE			A-111893
R	SHADE STRUCTURE			A-54425
S	SHADE STRUCTURE			A101106
T-100	RELOCATABLE CLASSROOM	A-110973		
T-200	RELOCATABLE CLASSROOM	A-110973		
T-300	RELOCATABLE CLASSROOM	A-110973		
T-400	RELOCATABLE CLASSROOM	A-110973		
T-500	RELOCATABLE CLASSROOM	A-110973		
T-600	RELOCATABLE CLASSROOM	A-110973		

REFERENCE ONLY

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SEALS:

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MICHAEL J. STOPPS
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PROJECT STATUS: CD
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REVISION: DATE: DESCRIPTION:
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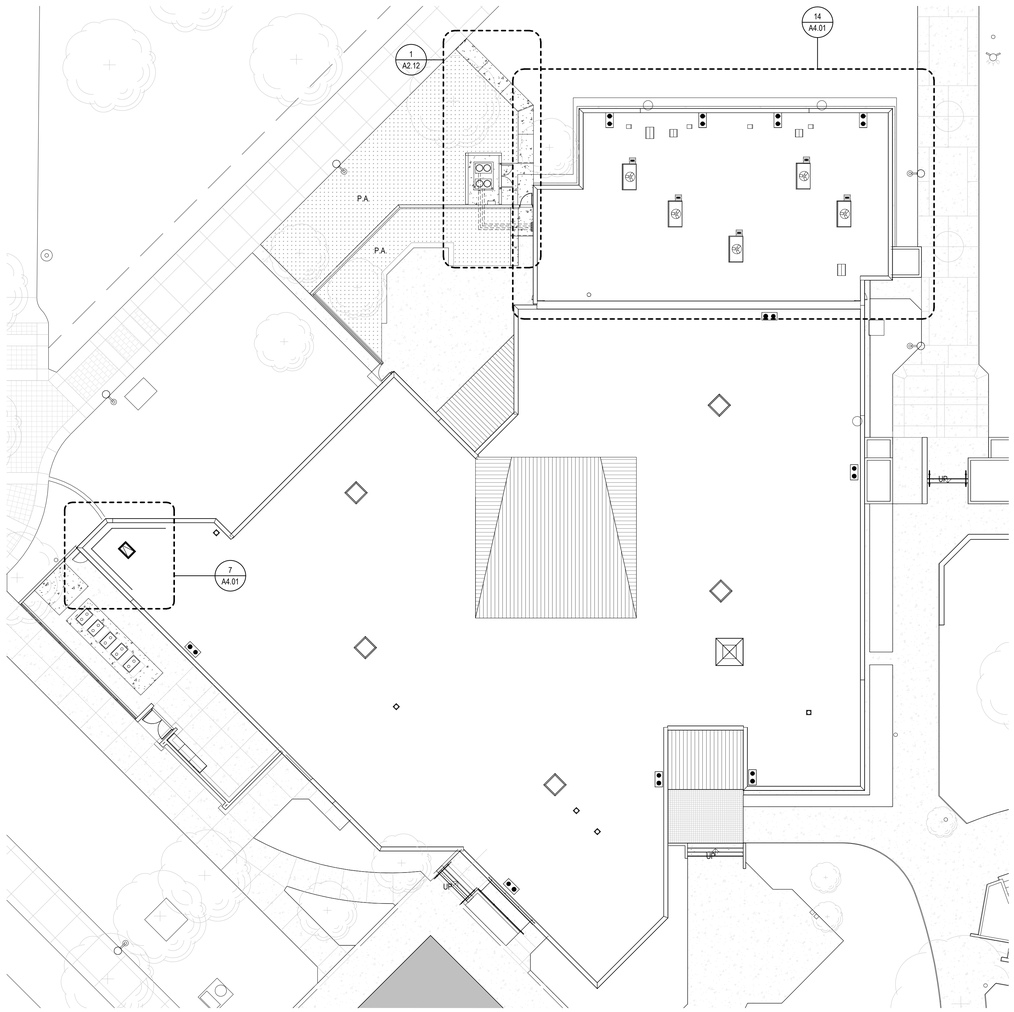
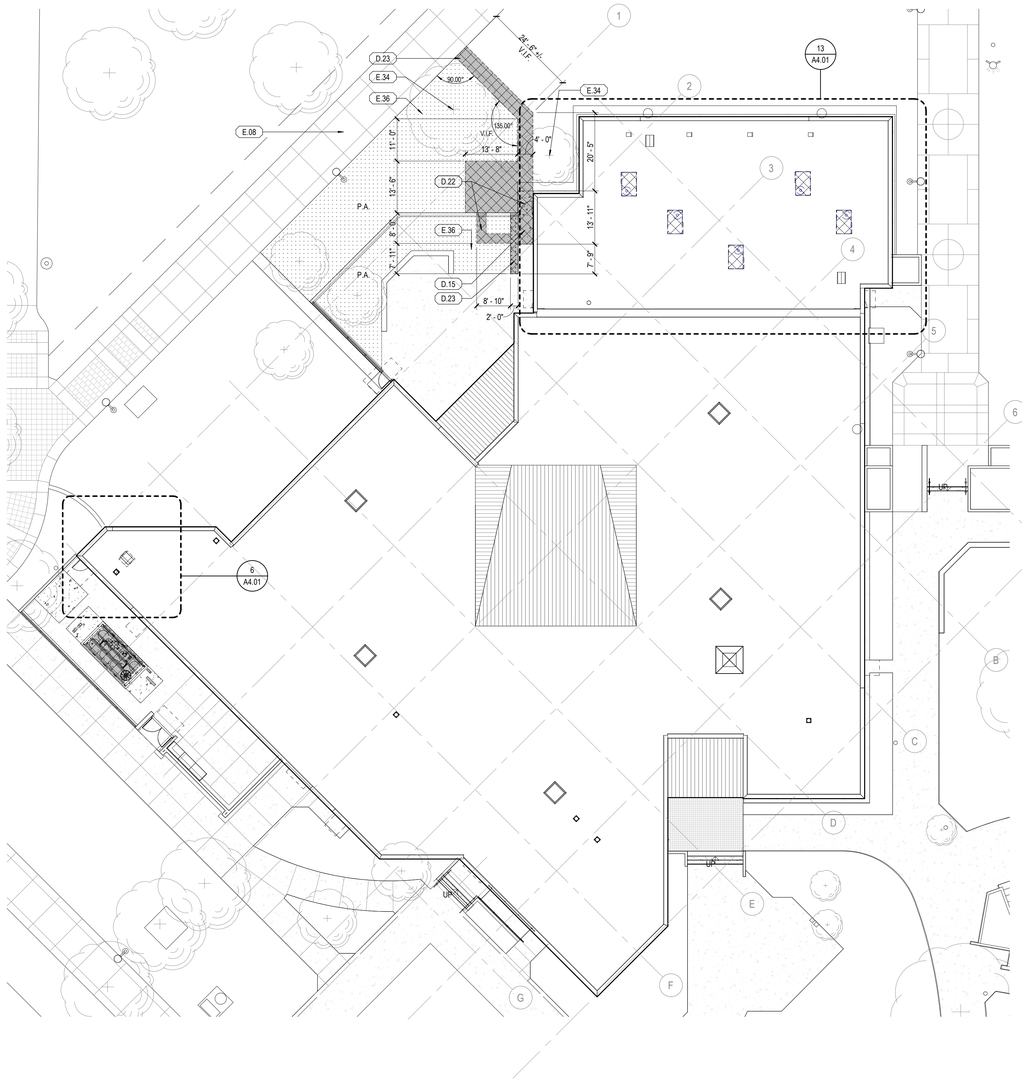
A1.01



2 A1.02 ENLARGED SITE PLAN/ ROOF PLAN_REMODEL
SCALE: 1/16" = 1'-0"

NORTH



1 A1.02 ENLARGED SITE PLAN/ ROOF PLAN_DEMO
SCALE: 1/16" = 1'-0"

NORTH

DEMOLITION NOTES

A. DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION SHEETS.
B. COORDINATE DEMOLITION AND PHASING EFFORTS WITH ARCHITECT AND OWNER'S REPRESENTATIVES. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS AND TO PROVIDE BUILDING USER'S SAFETY. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH OWNER'S REPRESENTATIVE.
C. COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER AND AS SPECIFIED.
D. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE DEMOLITION AND CONSTRUCTION WORK FROM GENERAL PUBLIC AND AS DEEMED NECESSARY BY OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
E. MAINTAIN A SECURE AND WEATHER-TIGHT ENCLOSURE.
F. VERIFY EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS AND NOTIFY ARCHITECT OF DISCREPANCIES.
G. REMOVE EXISTING WALLS, DOORS, MILLWORK, PLUMBING FIXTURES, CEILINGS, SOFFITS, MARKERBOARDS, ETC. IN THEIR ENTIRETY AND AS REQUIRED TO EXECUTE DEMOLITION AND CONSTRUCTION WORK DESCRIBED ON THE DRAWINGS.
H. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
I. PROVIDE PROTECTION FOR EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
J. REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND /OR CONDITION.
K. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
L. VERIFY AND MAINTAIN LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF SERVICE.
M. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
N. CAP DISCONNECTED MECHANICAL PIPING LINES WITHIN WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
O. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
P. AVOID DISTURBING OF SOILS WITHIN ZONE OF INFLUENCE AROUND EXISTING FOOTINGS AND FLOOR SLABS AS DIRECTED BY GEOTECHNICAL ENGINEER.
Q. WHERE CMU WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY REMOVING CMU IN TOOTH-IN PATTERN BOTH SIDES OF DEMOLITION FOR CONTRACTOR TO TOOTH IN NEW CMU PATCHES.
R. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION.

DO NOT START DEMOLITION WITHOUT OBTAINING AGENCY AND OWNER APPROVAL.
COORDINATE DEMOLITION WITH OWNER TO MINIMIZE DISTURBANCE.
COMPLETE DEMOLITION OF SPACES AS INDICATED AND TO THE EXTENT REQUIRED TO ENABLE NEW CONSTRUCTION WORK TO BE PERFORMED.

S. TRENCHING PATCHES TO PEDESTRIAN SHALL COMPLY WITH 11B-302.1 AND 11B-303

DEMO PLAN LEGEND

DEMO OR NEW WORK IN THIS AREA
REFER TO REMODEL PLANS/ MEP DRAWINGS FOR SELECTIVE WORK REQUIRED THIS AREA

ENLARGED SITE PLAN LEGEND

CONCRETE PAVING

PLANTING AREA

KEYNOTES

DESCRIPTION

D.15 SAW CUT & REMOVE PARTIAL (E) CONCRETE PAVING FOR UTILTIY; PATCH, REPAIR TO MATCH (E)
D.22 (E) PARTIAL PLANTING AREA TO BE REMOVE FOR UTILITY; RESTORE TO MATCH (E)
D.23 (E) PARTIAL PLANTING AREA TO BE REMOVE
E.08 (E) CONCRETE PAVING, PROTECT IN PLACE
E.34 (E) TREE TO REMAIN, PROTECT IN PLACE
E.36 LANDSCAPE/ IRRIGATION RESTORATION

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

ENLARGED SITE PLAN/ ROOF PLAN_DEMO & REMODEL
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT
MICHAEL J. STEPANIAN
NO. 26450
REN. 6-31-21
STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-S3100-00
PROJECT STATUS: CD
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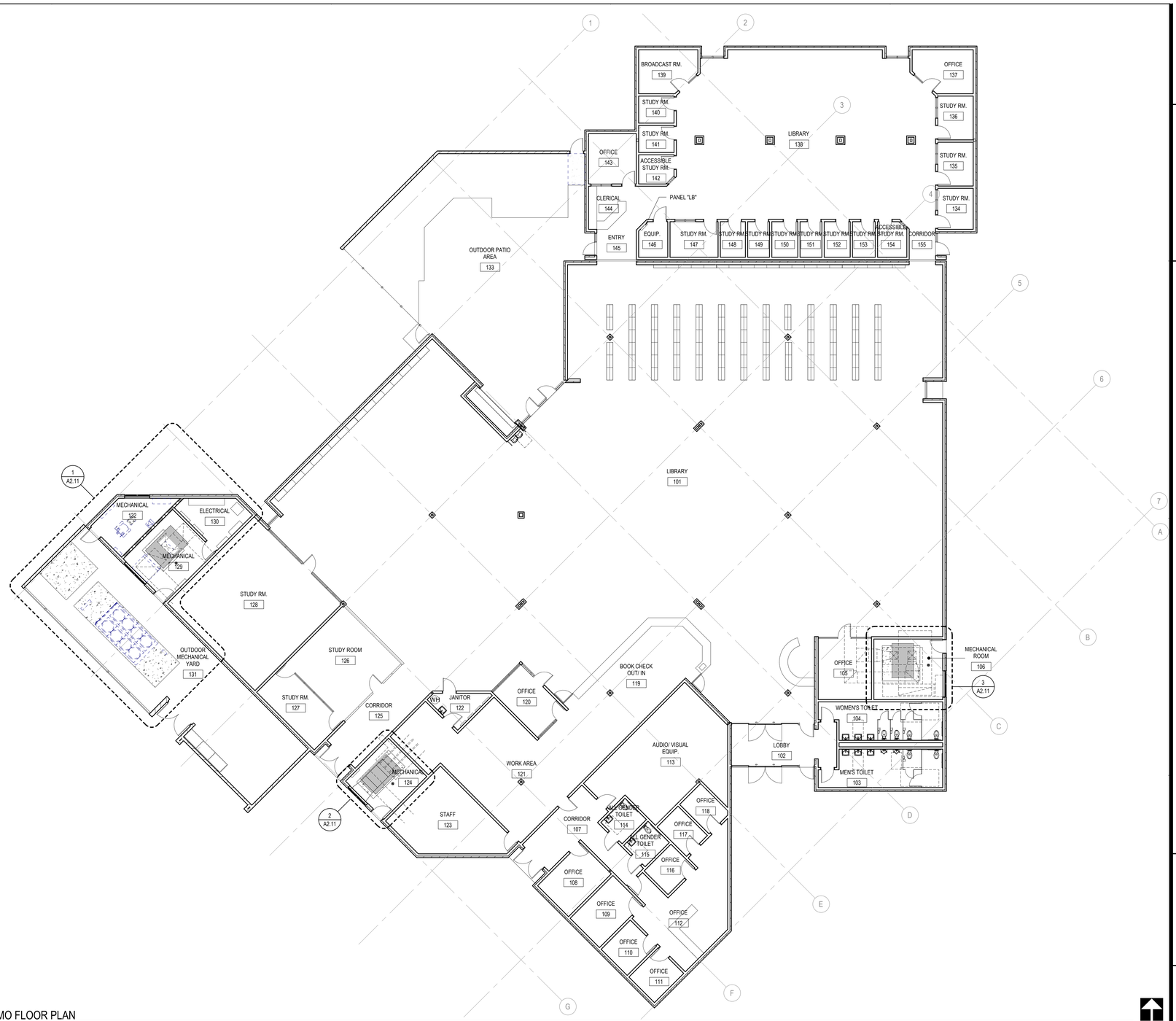

1 A2.01 DEMO FLOOR PLAN
SCALE: 3/32" = 1'-0"

NOTES

1. GENERAL NOTES APPLY TO THIS DRAWINGS
2. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF MASONRY, CENTERLINE OF DOORS OR CENTERLINE OF COLUMN, UNLESS NOTED OTHERWISE.
3. ALL CLEARANCE DIMENISIONS ARE ACTUAL AND ARE TO FINISH FACE, CENTERLINE OF PLUMBING FIXTURES, AND DOOR OPENINGS, UNLESS NOTED OTHERWISE.
4. REFERENCE ADULTING MOUNTING HEIGHTS FOR ADDITIONAL DIMENSION NOT SHOWN ON PLANS AND ELEVATIONS.

WALL LEGEND

- EXISTING WOOD STUD WALL WITH CMU VENEER
- EXISTING 1 HR. RATED WALL
- EXISTING NON-RATED WALL

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FLOOR PLAN_DEMO

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT
MICHAEL J. STEPHENS
NO. C26450
REN: 6-31-21
STATE OF CALIFORNIA

sgh ARCHITECTS

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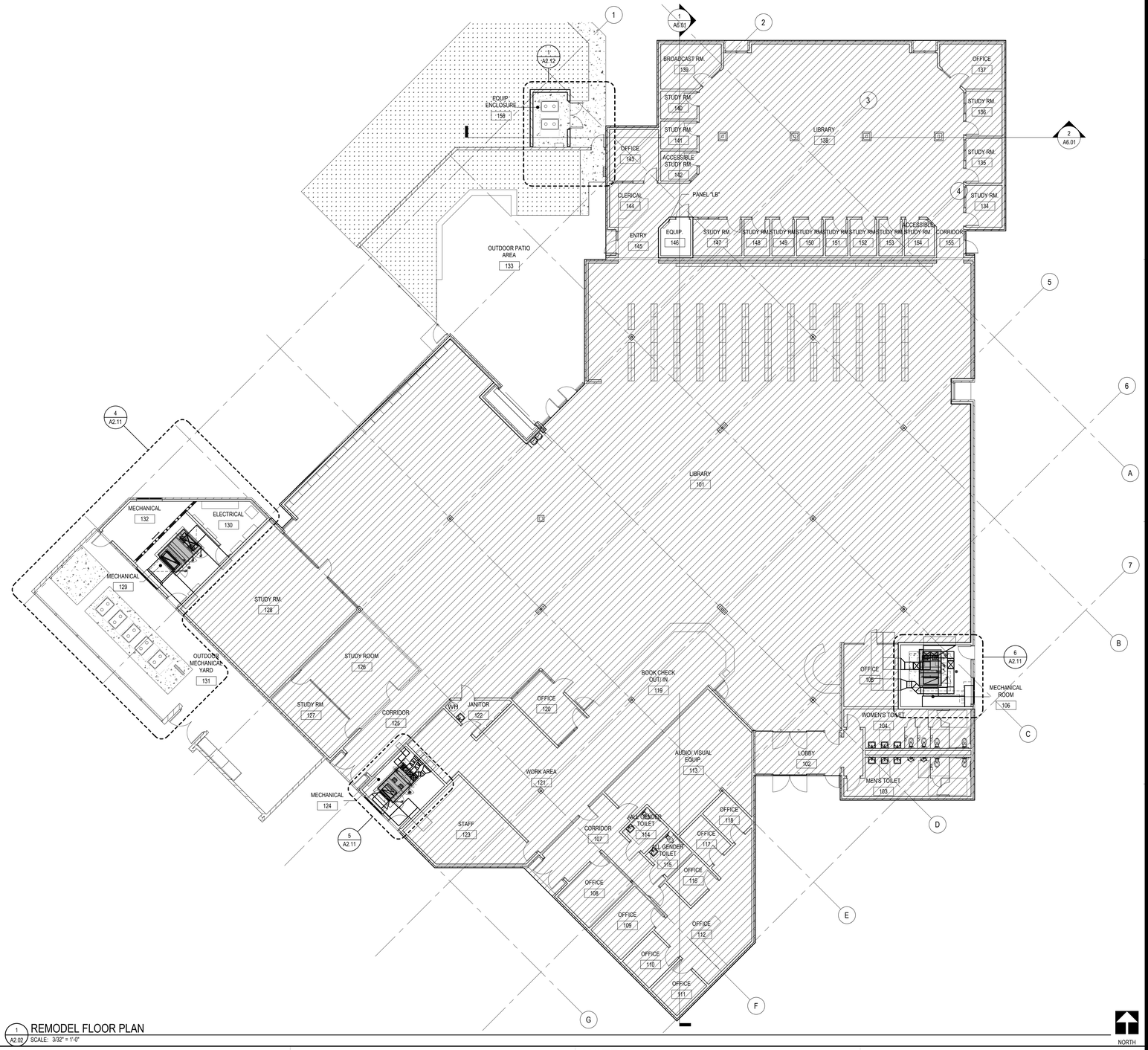
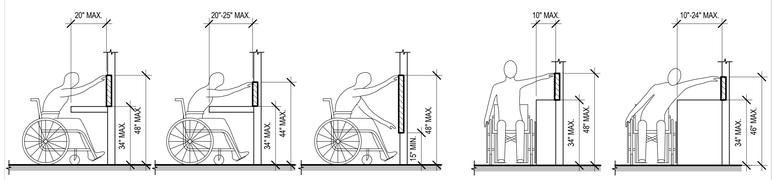


1 A2.02 REMODEL FLOOR PLAN
SCALE: 3/32" = 1'-0"



INSTALL ABOVE COUNTER DEVICE AT 44" ABOVE FINISHED FLOOR.

INSTALL ABOVE COUNTER DEVICE AT 40" ABOVE FINISHED FLOOR.

INSTALL DEVICE AT 18" ABOVE FINISHED FLOOR.

FRONT ACCESS

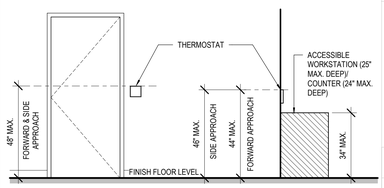
INSTALL DEVICE AT 44" ABOVE FINISHED FLOOR.

INSTALL DEVICE AT 42" ABOVE FINISHED FLOOR.

SIDE ACCESS

NOTE: THIS DETAILS APPLIES TO ANY WALL MOUNT MECHANICAL AND ELECTRICAL DEVICE WITH AN OPERABLE PART WHICH CONTROLS AND ADJUSTS BY THE OCCUPANT.

3 A2.02 ACCESSIBLE STANDARDS
SCALE: 6" = 1'-0"



NOTE:
- ALL THERMOSTATS THAT ARE BEING PLACED NEW OR ARE BEING ALTERED ARE NOT EXEMPT AND MUST COMPLY WITH BOTH ACCESSIBLE ROUTE (36" MIN WIDTH) **11B-403.5.1** AND CLEAR FLOOR AREA, THE SIZE IS DEPENDENT ON THE APPROACH. **11B-305.5**
- ALL NEW AND ALTERED THERMOSTATS ARE NOT EXEMPT FROM ACCESSIBILITY MUST COMPLY WITH ONE OF THE REACH REQUIREMENT IN **11B-308**.
- ALL MEASUREMENTS ARE TAKEN TO THE TOP OF THE CONTROL BOX. **11B-308.1.1**
- ALL NEW AND ALTERED THERMOSTATS ARE MUST COMPLY WITH **11B-309.4**. NO TIGHT GRASPING PINCHING OR TWISTING OF THE WRIST. 5LBS MAX FORCE TO OPERATE.

2 A2.02 THERMOSTAT MOUNTING HEIGHT
SCALE: 3/8" = 1'-0"

NOTES

1. GENERAL NOTES APPLY TO THIS DRAWINGS
2. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF MASONRY, CENTERLINE OF DOORS OR CENTERLINE OF COLUMN, UNLESS NOTED OTHERWISE.
3. ALL CLEARANCE DIMENSIONS ARE ACTUAL AND ARE TO FINISH FACE, CENTERLINE OF PLUMBING FIXTURES, AND DOOR OPENINGS, UNLESS NOTED OTHERWISE.
4. REFERENCE ADULTING MOUNTING HEIGHTS FOR ADDITIONAL DIMENSION NOT SHOWN ON PLANS AND ELEVATIONS.

FLOOR PLAN LEGEND

NO DEMO OR NEW WORK IN THIS AREA, PROTECT IN PLACE
REFER TO RCP/ MEP DRAWINGS FOR SELECTIVE WORK REQUIRED THIS AREA

WALL LEGEND

EXISTING WOOD STUD WALL WITH CMU VENEER

EXISTING 1 HR. RATED WALL

EXISTING NON-RATED WALL

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IMPERIAL VALLEY COLLEGE
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SEALS:

LICENSED ARCHITECT MICHAEL J. STEPHENS NO. 26450 REN. 6-31-21 STATE OF CALIFORNIA

sgh ARCHITECTS

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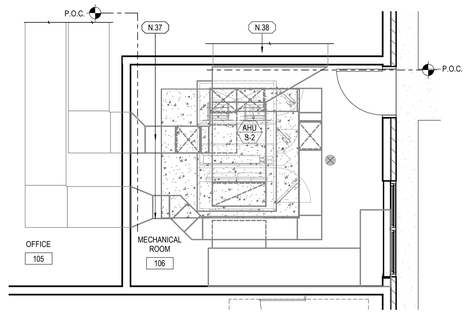
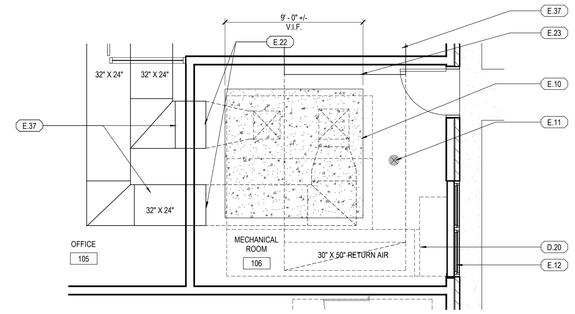


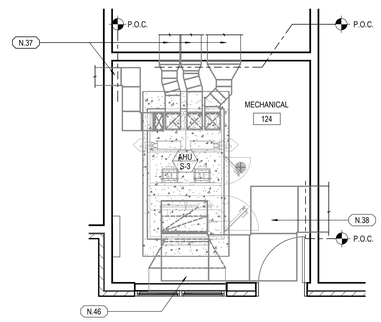
6 A2.11 EXISITNG ENLARGED FLOOR PLAN_MECH RM. 106_REMODEL
SCALE: 1/4" = 1'-0"

NORTH



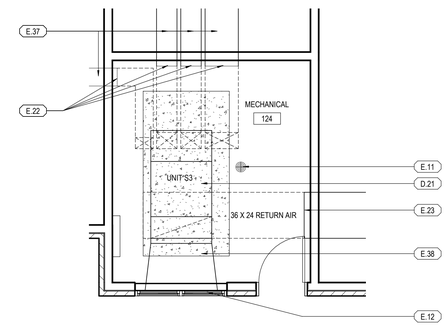
3 A2.11 ENLARGED FLOOR PLAN_MECH RM. 106_DEMO
SCALE: 1/4" = 1'-0"

NORTH



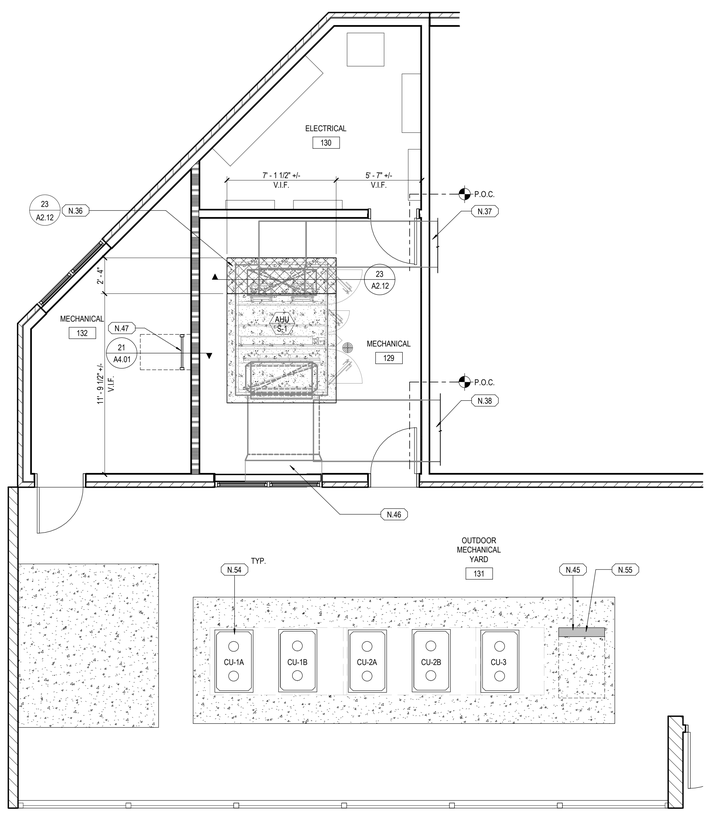
5 A2.11 ENLARGED FLOOR PLAN_MECH RM. 124_REMODEL
SCALE: 1/4" = 1'-0"

NORTH



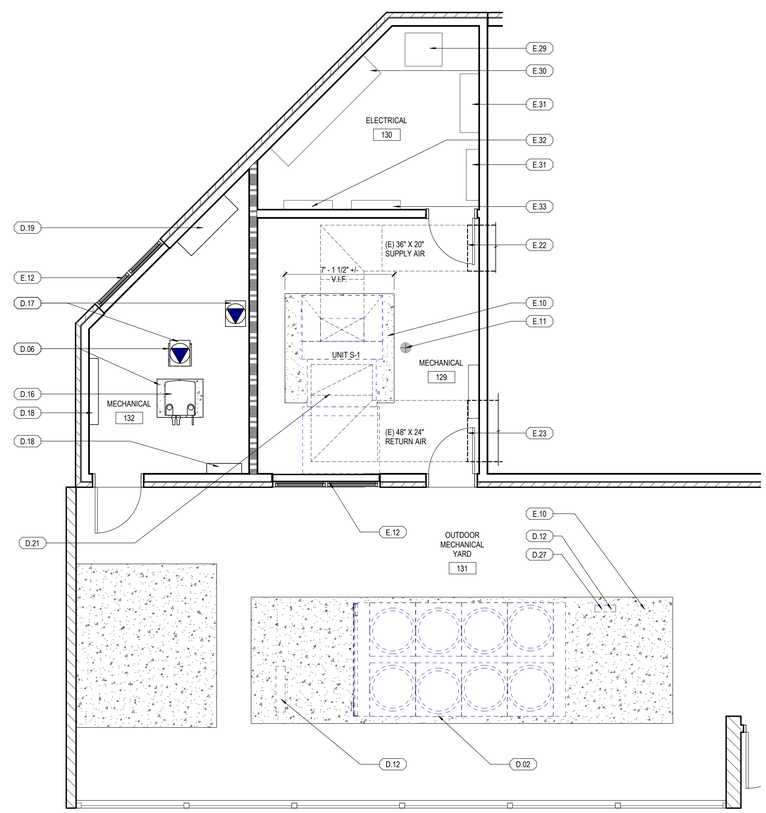
2 A2.11 ENLARGED FLOOR PLAN_MECH RM. 124_DEMO
SCALE: 1/4" = 1'-0"

NORTH



4 A2.11 ENLARGED FLOOR PLAN_MECH YARD 131, ELEC. RM. 130, MECH. RM. 129 & 132_REMODEL
SCALE: 1/4" = 1'-0"

NORTH



1 A2.11 ENLARGED FLOOR PLAN_MECH YARD 131, ELEC. RM. 130, MECH. RM. 129 & 132_DEMO
SCALE: 1/4" = 1'-0"

NORTH

KEYNOTES

	DESCRIPTION
D.02	(E) MULTI-ZONE AHU AND AIR COOLED CHILLERS TO BE DEMOLISHED, SEE MECH. DWGS.
D.06	(E) RAISED CONCRETE PAD TO BE DEMOLISHED; SAW CUT, POUR CONCRETE BACK AND FLUSH TO EXISTING AND COORDINATE (E) PIPE & CONDUIT TO REMOVAL AND CAP.
D.12	DISCONNECT & REMOVE (E) ELECTRICAL EQUIP, PATCH FLOOR, SEE ELEC. DWGS.
D.16	(E) BOILER TO BE DEMOLISHED, REMOVED AND CAP ALL PIPING; PATCH AND REPAIR WALL & FLOOR
D.17	(E) PUMP TO BE DEMOLISHED, REMOVED AND CAP ALL PIPING; PATCH AND REPAIR WALL & FLOOR
D.18	(E) MECHANICAL CONTROL PANEL TO BE DEMOLISHED, DISCONNECT & REMOVE (E) EQUIP, PATCH & REAPIR WALL
D.19	(E) CHILLED WATER EXPANSION TANK TO BE DEMOLISHED, REMOVED AND CAP ALL PIPING; PATCH AND REPAIR WALL & ROOF
D.20	(E) AIR DAMPER AND PLENUM TO BE DEMOLISHED
D.21	(E) SUPPLY AIR UNITS, COOLING & HEATING COILS TO BE REMOVED, SEE MECH. DWGS.
D.27	DISPOSITION OF (E) CONDUIT AND RECONNECT TO (N) POWER PANEL
E.10	(E) CONCRETE PAD TO REMAIN. PROTECT IN PLACE
E.11	(E) FLOOR DRAIN TO REMAIN, PROTECT IN PLACE
E.12	(E) LOUVERS TO REMAIN, PROTECT IN PLACE
E.22	P.O.C OF (E) SUPPLY AIR
E.23	P.O.C OF (E) RETURN AIR
E.29	(E) TRANSFORMER, PROTECT IN PLACE
E.30	(E) MAIN SWITCH BOARD, PROTECT IN PLACE
E.31	(E) ELECTRICAL PANEL, PROTECT IN PLACE
E.32	(E) SIGNAL TERMINAL CABINET, PROTECT IN PLACE
E.33	(E) TEL. TERMINAL CABINET, PROTECT IN PLACE
E.37	(E) DUCT, PROTECT IN PLACE
E.38	(E) AIR DAMPER AND PLENUM DUCT TO REMAIN, PROTECT IN PLACE
N.36	RAISED CONCRETE PAD TO MATCH (E)
N.37	P.O.C FOR SUPPLY AIR TO (E) SUPPLY AIR DUCT, SEE MECH. DWG.
N.38	P.O.C FOR RETURN AIR TO (E) RETURN AIR DUCT, SEE MECH. DWG.
N.45	POWER PANEL, SEE ELEC. DWG.
N.46	P.O.C FOR OSA DUCT TO (E) OSA PLENUM
N.47	ACCESS LADDER
N.54	CONDENSER
N.55	RECONNECT (E) CONDUIT TO NEW ELEC. PANEL

FLOOR PLAN LEGEND

(E) CONCRETE PAD

(N) CONCRETE PAD

WALL LEGEND

EXISTING WOOD STUD WALL WITH CMU VENEER

EXISTING 1 HR. RATED WALL TO REMAIN

EXISTING NON-RATED WALL TO REMAIN

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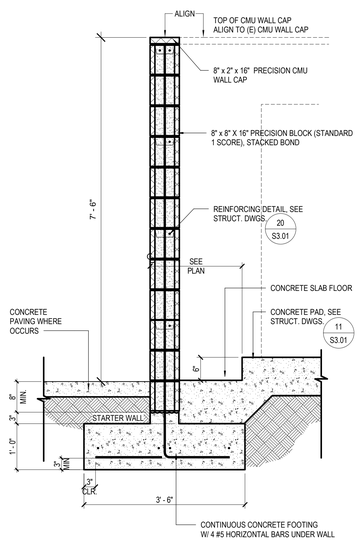
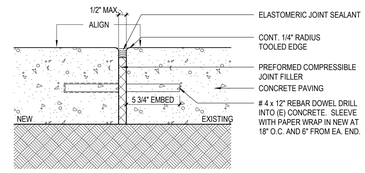


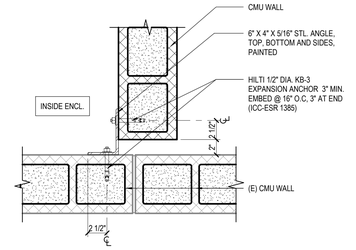
NOTE: SEE DETAIL 20/S3.01

24 A2.12 EQUIP. ENCLOSURE_CMU WALL
SCALE: 3/4" = 1'-0"

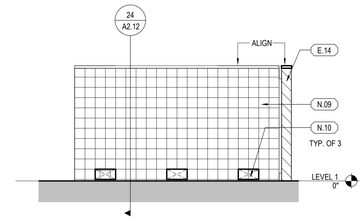


NOTE:
1. PLACE EXPANSION JOINT AT 20'-0" EACH WAY MAX. U.N.O.
2. SEE PLAN FOR LOCATIONS

20 A2.12 CONCRETE PAVING EXPANSION JOINT
SCALE: 3" = 1'-0"



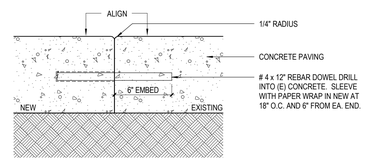
15 A2.12 EQUIP. ENCLOSURE_END PANEL DETAIL
SCALE: 1 1/2" = 1'-0"



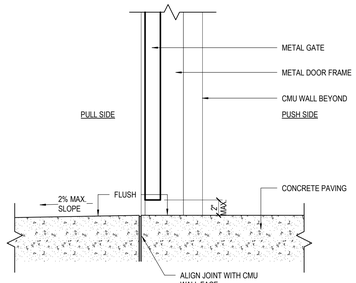
4 A2.12 OUTDOOR EQUIP. ENCLOSURE_WEST ELEVATION
SCALE: 1/4" = 1'-0"

KEYNOTES

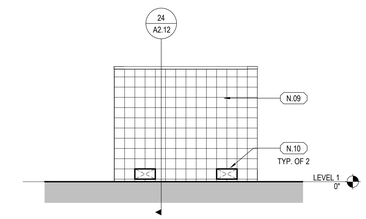
	DESCRIPTION
E.08	(E) CONCRETE PAVING, PROTECT IN PLACE
E.14	(E) CONCRETE MASONRY WALL
N.03	HVAC UNIT, SEE MECH DWGS
N.04	ELECTRICAL EQUIP., SEE ELEC. DWGS
N.07	CONCRETE PAVING TO MATCH EXISITNG NATURAL COLOR BROOM FINISH
N.08	RAISED CONCRETE PAD, SEE STRUCT. DWGS.
N.09	CONCRETE MASONRY WALL(STANDARD 1-SCORE)
N.10	OMIT CMU FOR DRAIN AND AIR CIRCULATION
N.11	METAL REFRIGERANT LINE COVER, PAINTED
N.13	GLAV. STEEL METAL GATE, PAINT TO MATCH EXISTING GATES
N.14	CONCRETE SLAB
N.15	REFRIGERANT PIPING LINE SETS, SEE MECH DWGS
N.48	CONCRETE CONTROL JOINT
N.49	CONCRETE EXPANSION JOINT
N.50	CONCRETE CONSTRUCTION JOINT
N.53	EXIT SIGN



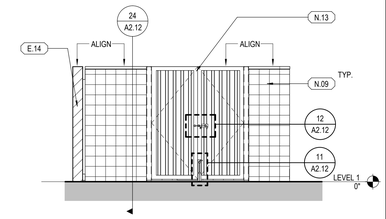
19 A2.12 CONCRETE PAVING CONSTRUCTION JOINT
SCALE: 3" = 1'-0"



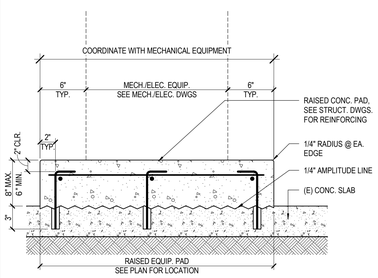
14 A2.12 EXTERIOR GATE THRESHOLD
SCALE: 1 1/2" = 1'-0"



3 A2.12 OUTDOOR EQUIP. ENCLOSURE_NORTH ELEVATION
SCALE: 1/4" = 1'-0"

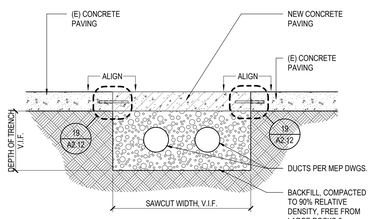


2 A2.12 OUTDOOR EQUIP. ENCLOSURE_EAST ELEVATION
SCALE: 1/4" = 1'-0"

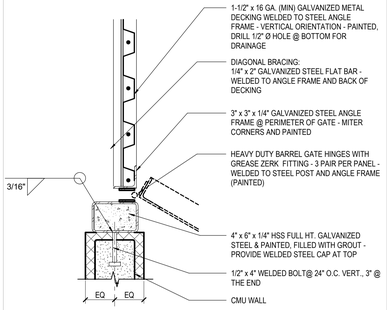


NOTE: SEE 13/S3.01 FOR INFO.

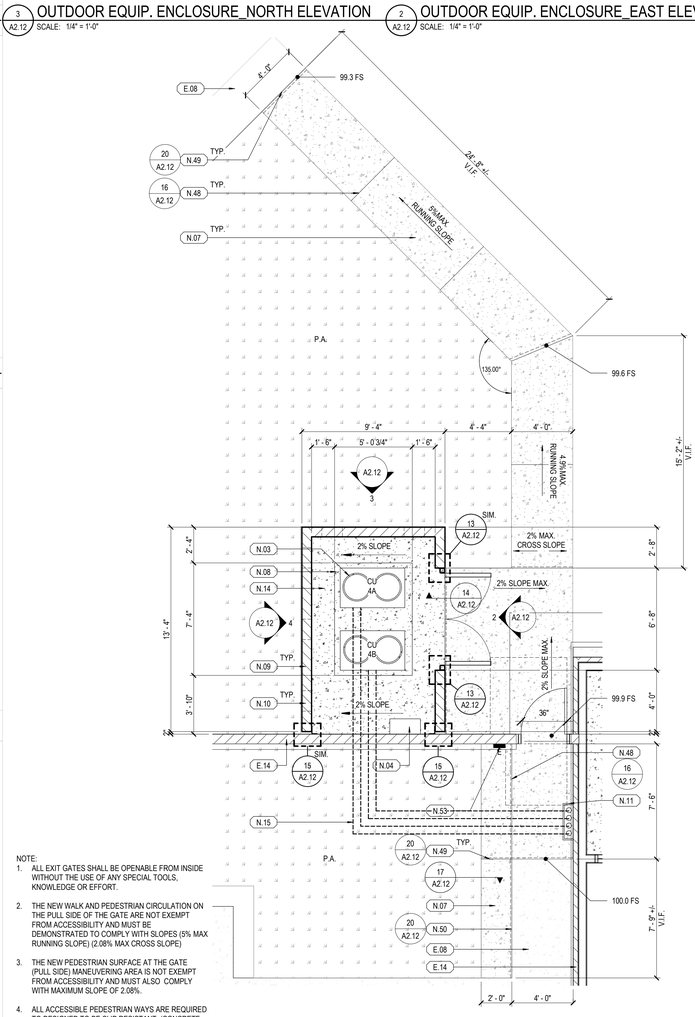
23 A2.12 RAISED CONCRETE PAD
SCALE: 1 1/2" = 1'-0"



18 A2.12 TRENCH @ CONCRETE PAVING
SCALE: 3/4" = 1'-0"

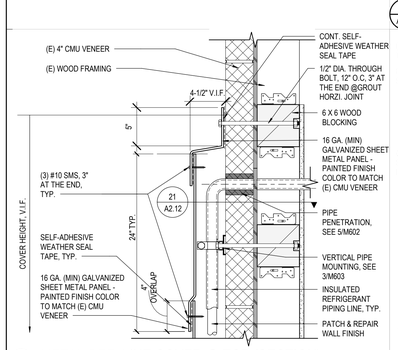


13 A2.12 EQUIP. ENCLOSURE_GATE JAMB @ ACCESS GATE
SCALE: 1 1/2" = 1'-0"

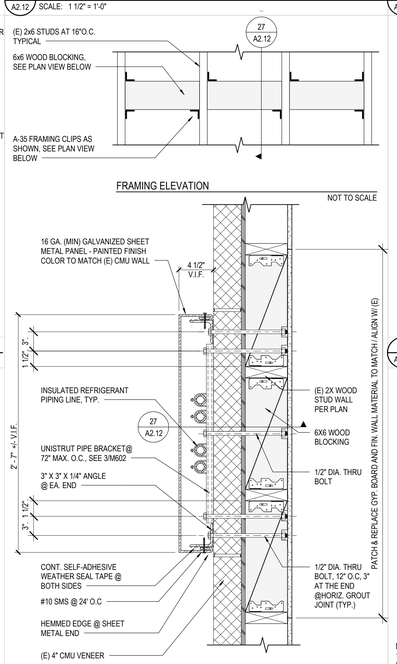


NOTE:
1. ALL EXIT GATES SHALL BE OPENABLE FROM INSIDE WITHOUT THE USE OF ANY SPECIAL TOOLS, KNOWLEDGE OR EFFORT.
2. THE NEW WALK AND PEDESTRIAN CIRCULATION ON THE PULL SIDE OF THE GATE ARE NOT EXEMPT FROM ACCESSIBILITY AND MUST BE DEMONSTRATED TO COMPLY WITH SLOPES (5% MAX RUNNING SLOPE) (2.08% MAX CROSS SLOPE)
3. THE NEW PEDESTRIAN SURFACE AT THE GATE (PULL SIDE) MANEUVERING AREA IS NOT EXEMPT FROM ACCESSIBILITY AND MUST ALSO COMPLY WITH MAXIMUM SLOPE OF 2.08%.
4. ALL ACCESSIBLE PEDESTRIAN WAYS ARE REQUIRED TO DESIGNED TO BE SLIP RESISTANT. (CONCRETE WALK TO BE BROOM FINISH)

1 A2.12 ENLARGED EQUIP. ENCLOSURE
SCALE: 1/4" = 1'-0"

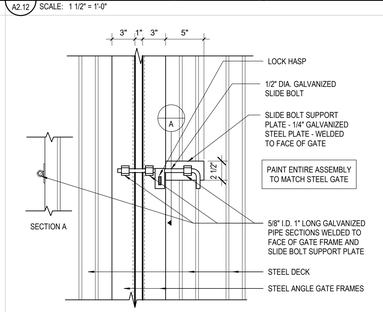


27 A2.12 METAL REF. LINE COVER @ TOP (SECTION)
SCALE: 1 1/2" = 1'-0"

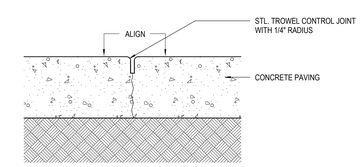


21 A2.12 METAL REF. LINE COVER (PLAN VIEW)
SCALE: 1 1/2" = 1'-0"

17 A2.12 CONCRETE PAVING TO TURF
SCALE: 3" = 1'-0"

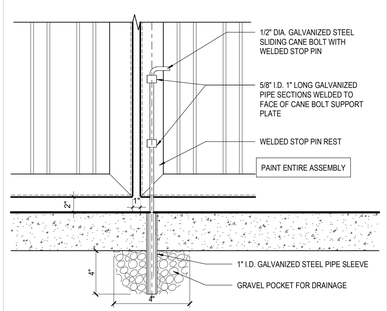


12 A2.12 EQUIP. ENCLOSURE - LOCKABLE SLIDE BOLT
SCALE: 1 1/2" = 1'-0"



NOTE:
1. PLACE CONTROL JOINT AT 10'-0" EACH WAY MAX. U.N.O.
2. SEE PLAN FOR LOCATIONS

16 A2.12 CONCRETE PAVING CONTROL JOINT
SCALE: 3" = 1'-0"



11 A2.12 EQUIP. ENCLOSURE - CANE BOLT
SCALE: 1 1/2" = 1'-0"

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DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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DATE: 02/24/2021

CONSULTANT:

ENLARGED FLOOR PLAN, ELEVATIONS & DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

IMPERIAL VALLEY COLLEGE Est. 1962

SEALS:

LICENSED ARCHITECT MICHAEL J. STAPLETON NO. 26450 REN. 9-31-21 STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION: DATE: DESCRIPTION:
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A2.12

NORTH

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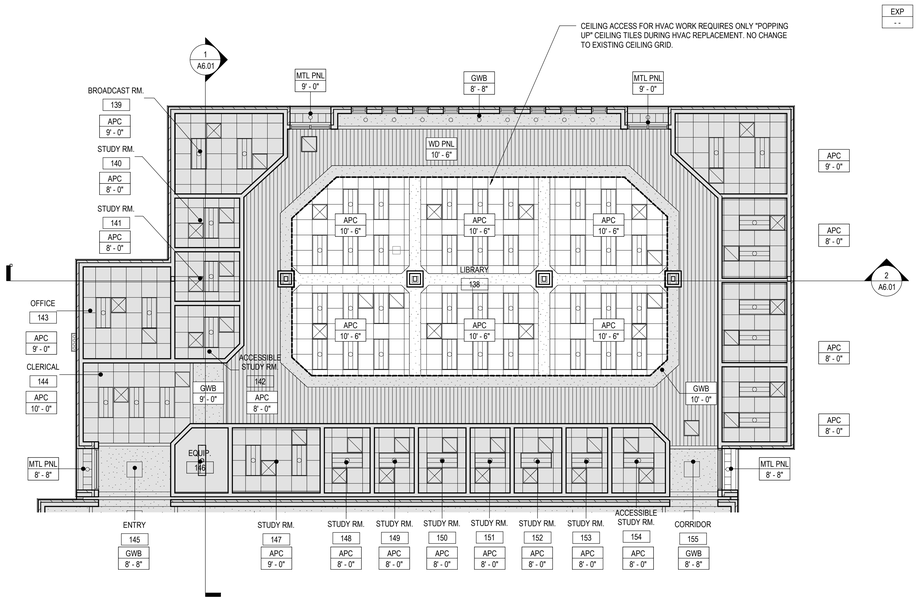
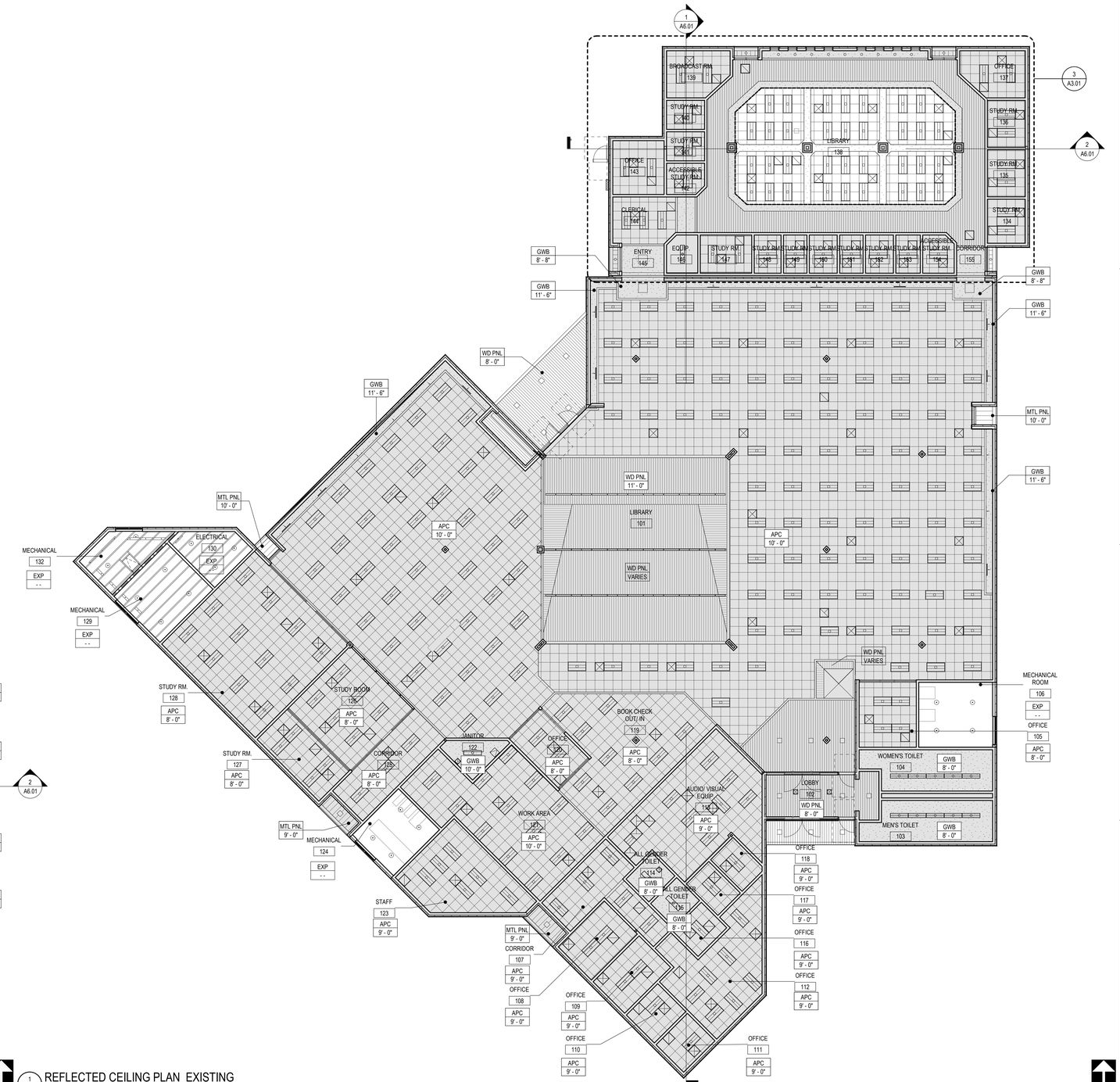


3 A3.01 ENLARGED RCP_EXISTING
SCALE: 1/8" = 1'-0"



1 A3.01 REFLECTED CEILING PLAN_EXISTING
SCALE: 3/32" = 1'-0"

NORTH

REFLECTED CEILING PLAN NOTES:

- THE ENTIRE CEILING IN THE AFFECTED SPACE SHALL BE UPGRADED TO MEET THE CURRENT REQUIREMENTS OF THE CBC AND DSA IR 25-2.13 IF ANY PORTION OF THE GRID SYSTEM IS CUT OR ALTERED. EXCEPTION: IF THE CEILING HAS LATERAL BRACING ASSEMBLIES SPACED NO MORE THAN 12 FEET ON CENTER, A CEILING UPGRADE WILL ONLY BE REQUIRED IF THE AREA CUT OR ALTERED EXCEEDS 10 PERCENT OF THE ENTIRE CEILING AREA.

REFLECTED CEILING PLAN LEGEND

XXX X" - X"	CEILING TYPE CEILING HEIGHT
	2' x 2' ACOUSTIC CEILING PANEL (APC 2X2)
	GYP. BD. CEILING (GWB)
	CEMENT PLASTER
	LINEAR WOOD PANEL CEILING
	SURFACE MOUNTED UTILITY LIGHTING FIXTURE
	2 x 4 RECESSED LIGHTING FIXTURE
	RECESSED DOWNLIGHT
	SURFACE MOUNTED LIGHT FIXTURE
	AREA NOT IN SCOPE OF WORK
	SUPPLY
	EXHAUST
	RETURN
	RETURN (SIDEWALL)
	ACCESS PANEL

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CONSULTANT:

REFLECTED CEILING PLAN_EXISTING

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT MICHAEL J. STEPHENS NCARB 26450 REN. 5-31-21 STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
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REVISION: DATE: DESCRIPTION:

A3.01

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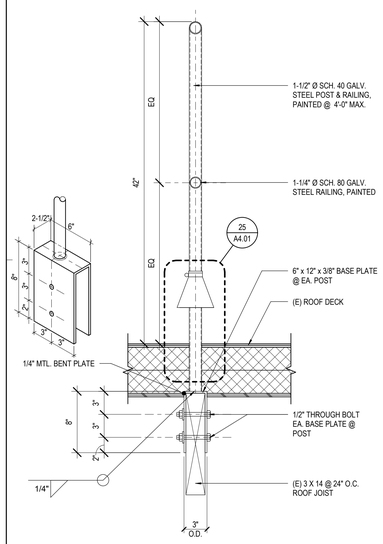
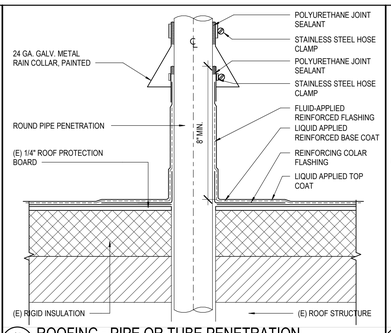
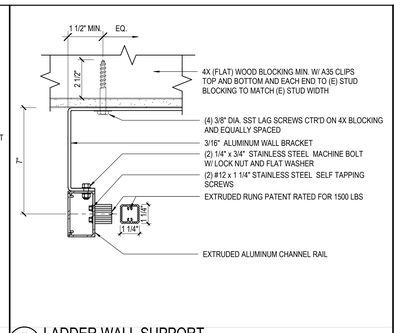


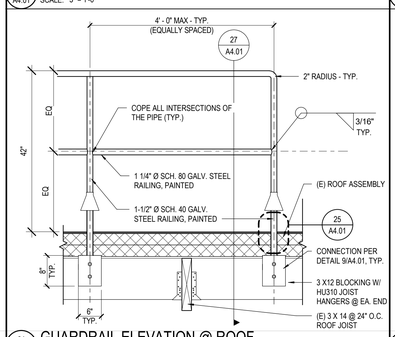
29 A4.01 GUARDRAIL SECTION - PARALLEL TO JOIST
SCALE: 1 1/2" = 1'-0"



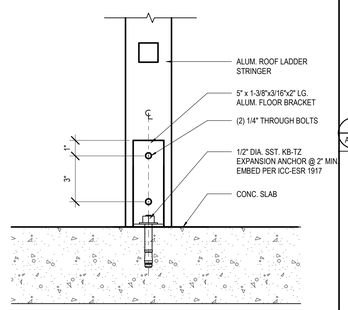
25 A4.01 ROOFING - PIPE OR TUBE PENETRATION
SCALE: 3" = 1'-0"



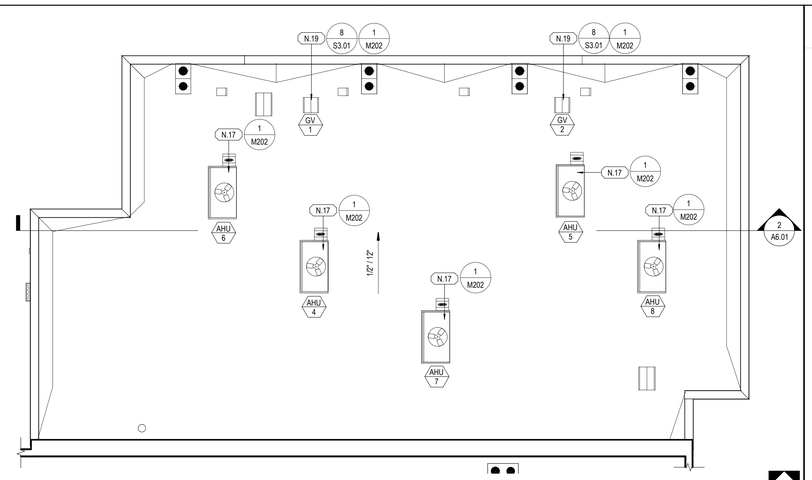
20 A4.01 LADDER WALL SUPPORT
SCALE: 3" = 1'-0"



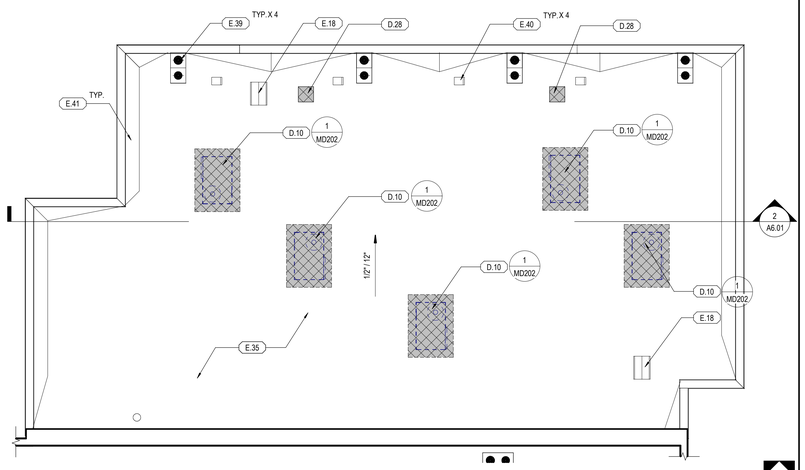
24 A4.01 GUARDRAIL ELEVATION @ ROOF
SCALE: 3/4" = 1'-0"



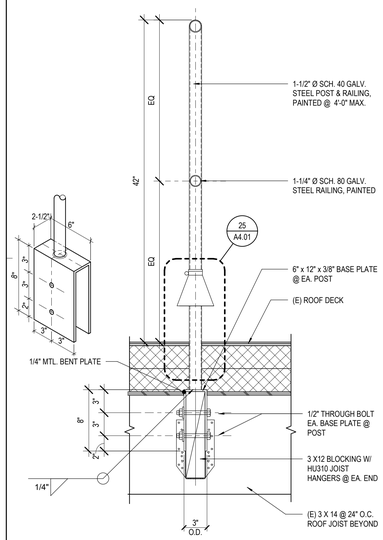
19 A4.01 LADDER BASE SUPPORT
SCALE: 3" = 1'-0"



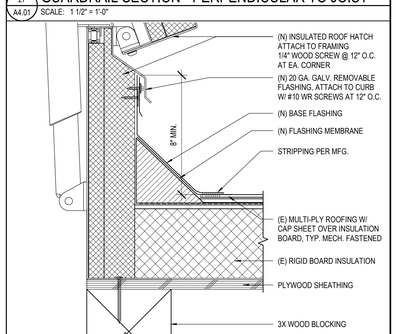
14 A4.01 ENLARGED REMODEL ROOF PLAN_NORTH
SCALE: 1/8" = 1'-0"



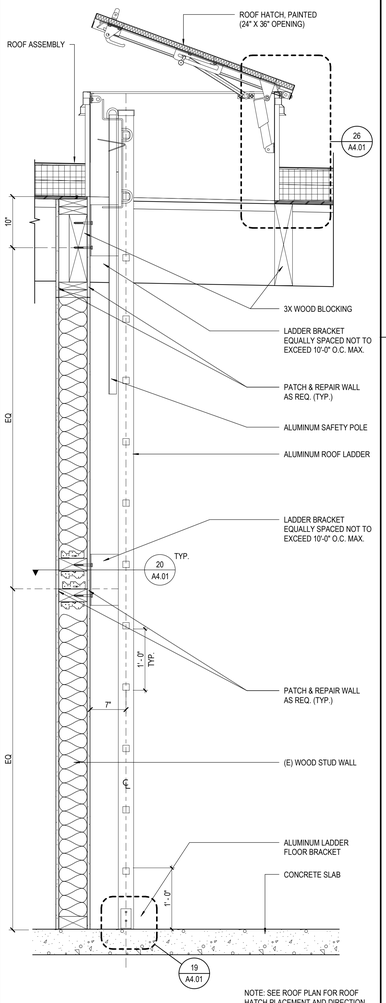
13 A4.01 ENLARGED DEMO ROOF PLAN_NORTH
SCALE: 1/8" = 1'-0"



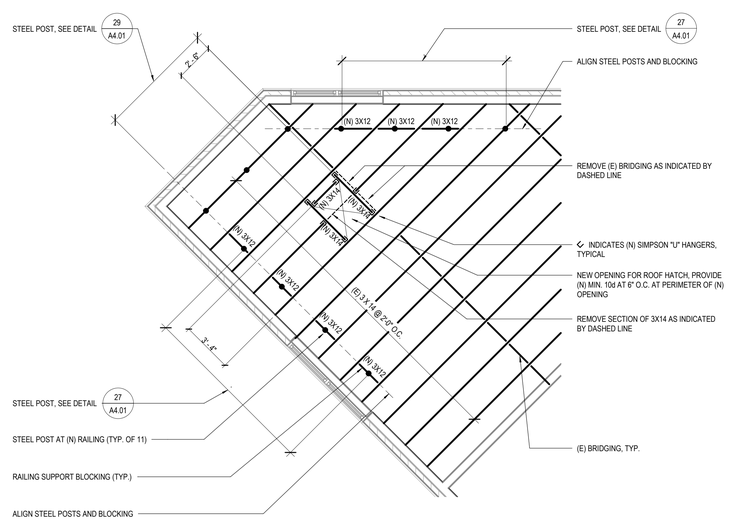
27 A4.01 GUARDRAIL SECTION - PERPENDICULAR TO JOIST
SCALE: 1 1/2" = 1'-0"



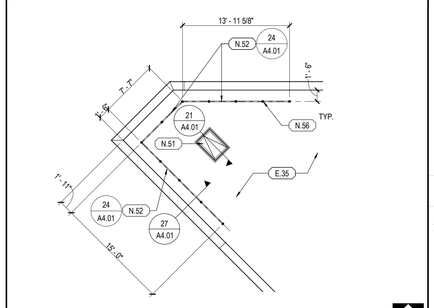
26 A4.01 ROOFING - ROOF HATCH
SCALE: 3" = 1'-0"



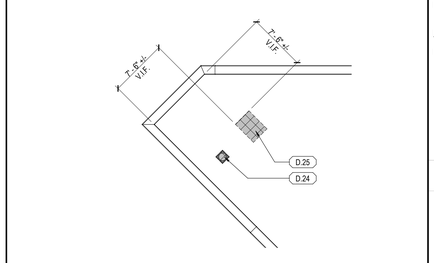
21 A4.01 ACCESS LADDER
SCALE: 1" = 1'-0"



16 A4.01 PARTIAL ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



7 A4.01 ENLARGED REMODEL ROOF PLAN_SOUTH WEST
SCALE: 1/8" = 1'-0"



6 A4.01 ENLARGED DEMO ROOF PLAN_SOUTH WEST
SCALE: 1/8" = 1'-0"

KEYNOTES

	DESCRIPTION
D.10	REMOVE ROOF MOUNTED HEAT PUMPS AND ROOF CURB PER MECH. DWGS, PREPARE TO INSTALL AIR HANDLER
D.24	REMOVE (E) VENT, PATCH & REPAIR ROOF
D.25	SAWCUT & REMOVE PARTIAL (E) ROOF ASSEMBLY FOR ROOF HATCH, PATCH & REPAIR ROOF AT CURB TO MATCH (E)
D.28	PARTIAL (E) ROOF TO BE DEMOLISHED FOR PREPARE TO INSTALL GRAVITY VENT WITH ROOF CURB
E.18	(E) ROOF MOUNTED GRAVITY VENT TO REMAIN, SEE MECH. DWGS.
E.35	(E) BUILD-UP ROOFING, CLASS B MIN., REPAIR AND PATCH ROOF AS REQUIRED
E.39	(E) ROOF DRAIN TO REMAIN, PROTECT IN PLACE.
E.40	(E) ROOF VENT TO REMAIN, PROTECT IN PLACE
E.41	(E) ROOF CRICKET TO REMAIN, PROTECT IN PLACE
N.17	AIR HANDLER WITH (N) ROOF MECH CURB, REPAIR AND PATCH ROOF AS REQUIRED, SEE MECH DWGS.
N.19	GRAVITY VENT, SEE MECH DWG
N.51	ROOF HATCH
N.52	GALV. STEEL GUARDRAIL, PAINTED
N.56	VERTICAL POSTS OF GALV. STEEL GUARDRAIL TO BE PLACED (4'-0" O.C MAX.)

ROOF PLAN GENERAL NOTES:

A. ROOF PLAN NOTES APPLY TO ALL ROOF PLAN SHEETS.
B. MOST ROOF SLOPES ARE CREATED BY SLOPING THE ROOF STRUCTURE. SEE STRUCTURAL DRAWINGS FOR ELEVATIONS OF THE HIGH AND LOW POINTS TO DETERMINE PROPER TAPER IN INSULATION. SHADED AREAS INDICATE TAPERED INSULATION. TAPERED INSULATION SHALL PROVIDE A MINIMUM OF 1/8-INCH PER FOOT OF SLOPE TO ROOF DRAINS, UNLESS NOTED OTHERWISE.
C. ALL ROOF CURBS TO BE A MINIMUM OF 8" ABOVE ROOFING LEVELS. PROVIDE TAPERED INSULATION ROOF SADDLES AT ROOF CURBS TO PROVIDE APPROPRIATE DRAINAGE.
D. SEE STRUCTURAL FOR FRAMING AROUND ROOF PENETRATIONS.
E. COORDINATE THE SIZE AND LOCATION OF ROOF PENETRATIONS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR PENETRATIONS NOT SHOWN ON THIS SHEET.
F. FLASH DRAINS, CURBS, VENTS AND STACKS PER MANUFACTURER'S RECOMMENDATIONS IF DETAIL NOT SHOWN ON PLANS.
G. REFERENCE SHEET FOR ALL ROOF PENETRATIONS NOT CALL OUT ON THE DRAWING.
H. ROOF CRICKETS 1/8" TO 1'-0" SLOPE, TYP.
I. PATCH AND REPAIR ROOFING WITH MATCHING MATERIAL AT ALL AREAS AFFECTED BY HVAC REPLACEMENT, GUARDRAIL INSTALLATION, ROOF HATCH INSTALLATION, ETC.

ROOF COVERING CLASSIFICATION PER CBC TABLE 1505.1

BUILDING CONSTRUCTION TYPE: VA REQ'D MIN: CLASS B

DEMO PLAN LEGEND

DEMO OR NEW WORK IN THIS AREA
REFER TO REMODEL PLANS/ MEP DRAWINGS FOR SELECTIVE WORK REQUIRED THIS AREA

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APP: 04-119862 INC:
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CONSULTANT:

ENLARGED ROOF PLAN_DEMO & REMODEL AND DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT MICHAEL J. STEPHENS NCL26450 REN. 5-31-21 STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
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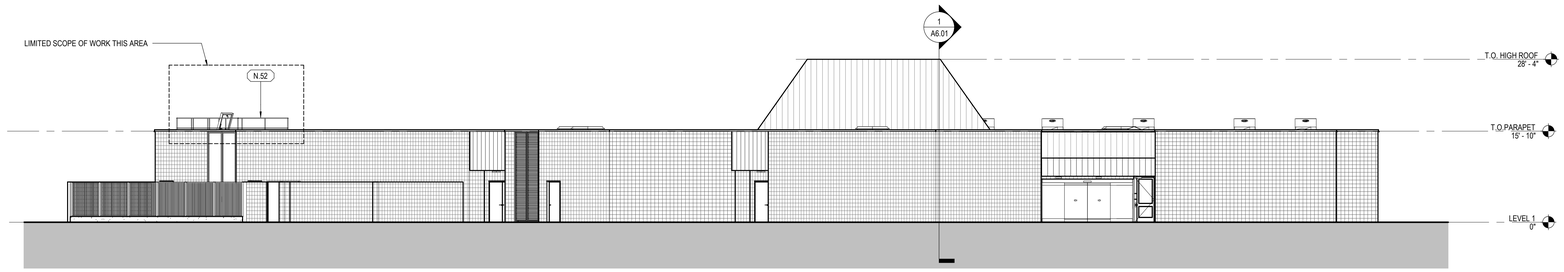
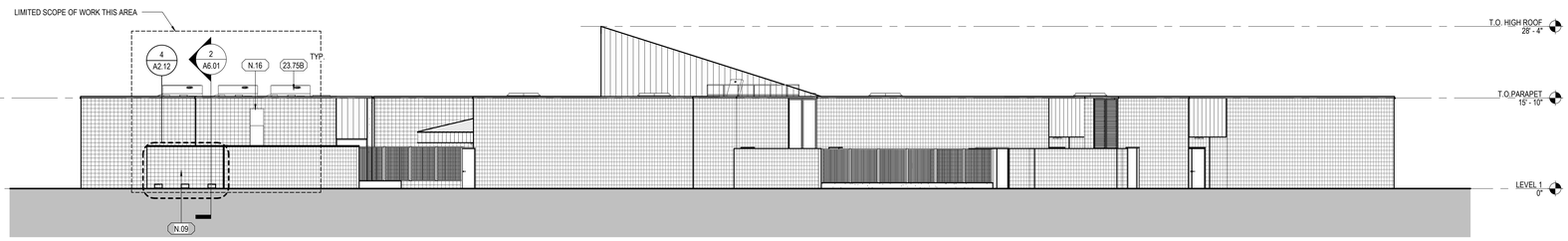
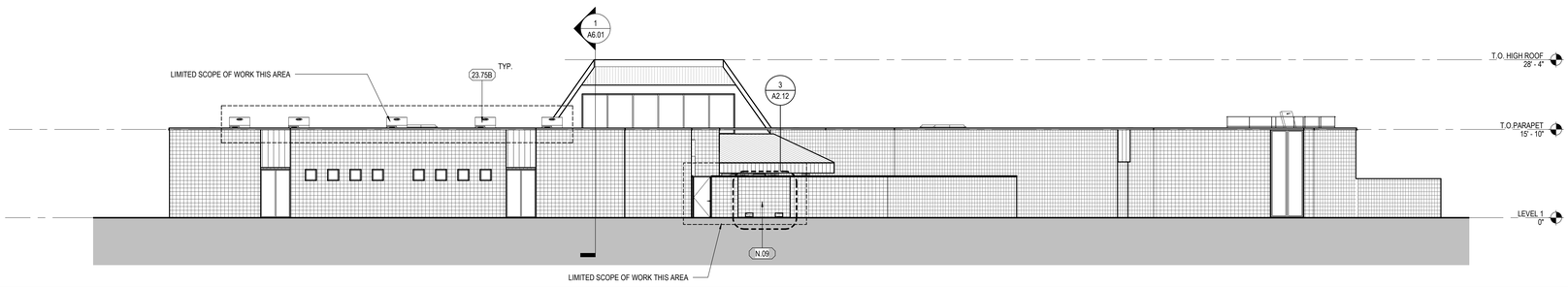


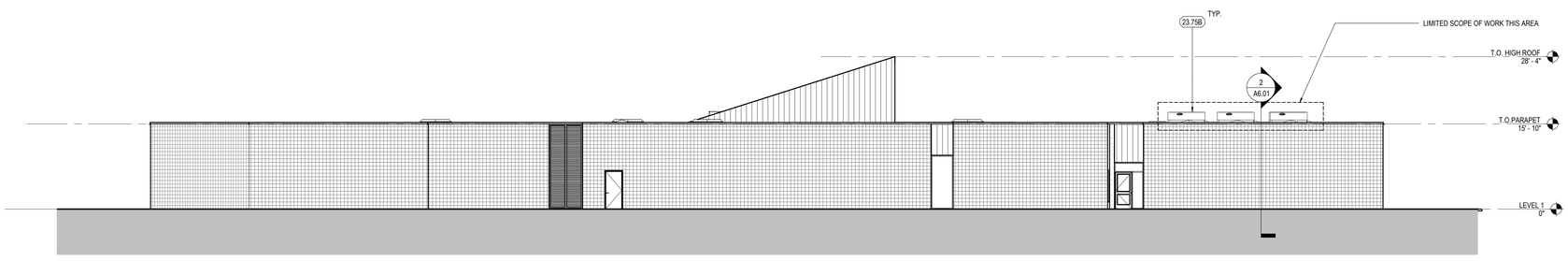
4 A5.01 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 A5.01 WEST ELEVATION
SCALE: 3/32" = 1'-0"



2 A5.01 NORTH ELEVATION
SCALE: 3/32" = 1'-0"



1 A5.01 EAST ELEVATION
SCALE: 3/32" = 1'-0"

KEYNOTES

	DESCRIPTION
23.75B	
N.09	CONCRETE MASONRY WALL(STANDARD 1-SCORE)
N.16	METAL REFRIGERANT LINE COVER
N.52	GALV. STEEL GUARDRAIL, PAINTED

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

EXTERIOR ELEVATIONS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT
MICHAEL J. STEPHENS
NO. 26450
REN. 6-31-21
STATE OF CALIFORNIA

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
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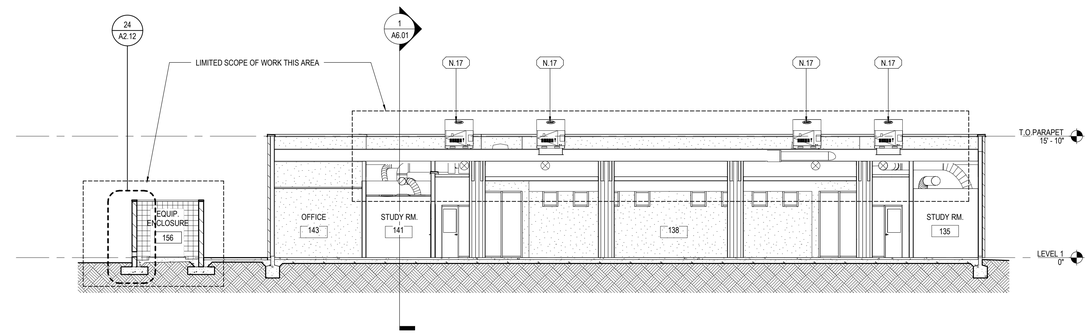
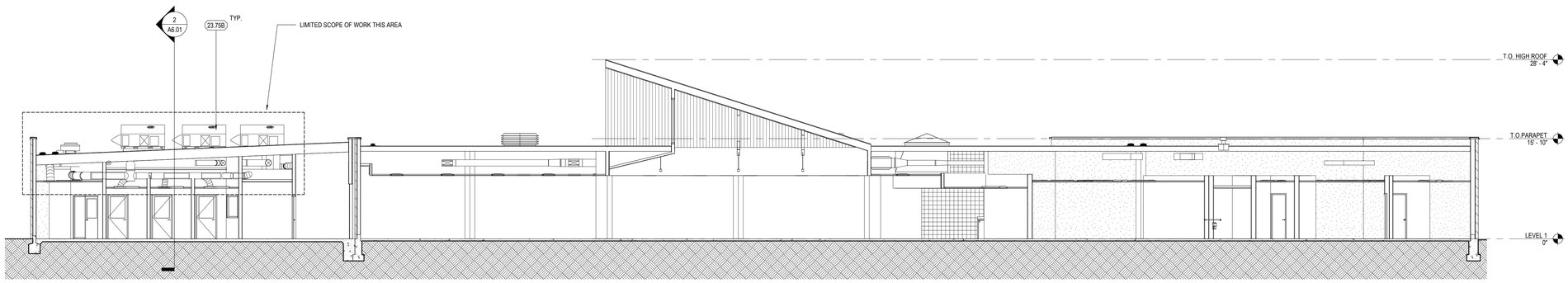


2 A6.01 SECTION 2
SCALE: 1/8" = 1'-0"



1 A6.01 SECTION 1
SCALE: 1/8" = 1'-0"

KEYNOTES

	DESCRIPTION
23.75B	
N.17	AIR HANDLER WITH (N) ROOF MECH CURB, REPAIR AND PATCH ROOF AS REQUIRED, SEE MECH DWGS

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APP: 04-119862 INC:
REVIEWED FOR
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DATE: 02/24/2021

CONSULTANT:

BUILDING SECTIONS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

LICENSED ARCHITECT
MICHAEL J. STEPHENS
NO. 26450
REN. 6-31-21
STATE OF CALIFORNIA

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PROJECT NUMBER: 20-53100-00
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- GENERAL

A. THESE DRAWINGS ARE COPY RIGHTED INSTRUMENTS OF SERVICE OF HOHBACH-LEWIN, INC. FOR USE ONLY ON THIS PROJECT.

B. CONTRACTOR RESPONSIBILITY - CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES AND SAFETY PRECAUTIONS, INCLUDING BUT NOT LIMITED TO SHORING AND TEMPORARY BRACING.

C. DIMENSIONS - USE WRITTEN DIMENSIONS ONLY. VERIFY ALL DIMENSIONS AT JOB SITE BEFORE COMMENCING WORK AND REPORT ANY DISCREPANCIES. WHERE NO DIMENSIONS ARE PROVIDED, OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH WORK. DO NOT SCALE DRAWINGS.

D. COORDINATION - OPENINGS THROUGH WALLS AND FLOORS FOR MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE COORDINATED BY CONTRACTOR AND CONSTRUCTED PER TYPICAL DETAILS SHOWN IN THESE DOCUMENTS. NO MECHANICAL OR ELECTRICAL SYSTEM COMPONENTS SHALL BE EMBEDDED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED IN THESE DOCUMENTS.

E. OMISSIONS AND CONFLICTS - OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS SHOULD BE BROUGHT TO THE ATTENTION OF THE DESIGN TEAM. IF CERTAIN FEATURES ARE NOT FULLY DELINEATED IN THE CONSTRUCTION DOCUMENTS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE DELINEATED.

F. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.

G. THERE SHALL BE NO CHANGE IN SIZE OR DIMENSION OF A STRUCTURAL MEMBER, NOR SHALL ANY OPENINGS BE MADE IN ANY STRUCTURAL MEMBER, WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

H. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON THE STRUCTURE. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE STRUCTURE AT THE TIME THE LOADS ARE IMPOSED.

I. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS.

J. SEE DRAWINGS OTHER THAN STRUCTURAL FOR: TYPES OF FLOOR FINISH AND THEIR LOCATION, DEPRESSIONS IN FLOOR SLABS, OPENINGS IN WALLS AND FLOORS REQUIRED BY ARCHITECTURAL AND MECHANICAL FEATURES, AND ROADWAY PAVING, WALKS, RAMPS, STAIRS, CURBS, ETC.

K. TYPICAL DETAILS - DETAILS NOTED AS TYPICAL ARE APPLICABLE WHERE SPECIFIED ON THE STRUCTURAL DRAWINGS AND WHEREVER THE CONDITION OCCURS THROUGHOUT THE PROJECT, INCLUDING LOCATIONS WHERE THE DETAIL IS NOT EXPLICITLY SPECIFIED OR REFERENCED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY LOCATIONS WHERE TYPICAL DETAILS ARE APPLICABLE PRIOR TO CONSTRUCTION.

- DESIGN BASIS

A. APPLICABLE CODE: CALIFORNIA BUILDING CODE (CBC), 2019 EDITION.
1. DESIGN SEISMIC CRITERIA (FOR (N) MEP UNITS AND MISC. NON-STRUCTURAL COMPONENTS)
RISK CATEGORY : III
SEISMIC IMPORTANCE FACTOR : Ip = 1.00
SITE CLASS : D
S_s = 2.232g
S_1 = 0.785g
S_{DS} = 1.786g
S_{D1} = 0.742g
ap = 2.5
Rp = 2.5
Z/h = VARIES (0 TO 1.0)
2. DESIGN WIND CRITERIA: PER ASCE 7-16
ULTIMATE DESIGN WIND SPEED: 105 mph
NOMINAL DESIGN WIND SPEED: 81 mph
WIND EXPOSURE: C
Kz = VARIES FROM 0.85 TO 1.04
Kzt = 1.0
Kd = 0.85
G = 0.85
GCp = 1.4 AND +1.0 FOR WALLS AND PARAPETS
GCp = VARIES FROM -0.4 TO -3.2 FOR ROOFS AND PARAPETS
GCpi = +/-0.18
CF = VARIES FROM 1.40 TO 2.60

B. GEOTECHNICAL CRITERIA: PER CBC ALLOWABLE MINIMUM

TABLE: 1806A.2
ALLOWABLE BEARING PRESSURE = 1,500 PSF
ALLOWABLE LATERAL BEARING = 100 PCF
LATERAL SLIDING RESISTANCE = 130 PSF COHESION

- CONCRETE

A. CONCRETE SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ACI 318.

B. CONCRETE SHALL BE AS FOLLOWS:

CONCRETE USE	STRENGTH AT 28 DAYS U.O.N.	W/C RATIO	MAX. AGGREGATE SIZE	WEIGHT	SHRINKAGE
(N) CONCRETE PADS	3000 PSI	0.45 MAX.	3/4" TO 1" (LS)	145pcf	.045%

C. STRENGTH: COMPRESSIVE STRENGTH IN PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39

D. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II.

E. AGGREGATE FOR STONE CONCRETE SHALL CONFORM TO ASTM C-33. FOR LOW SHRINKAGE AGGREGATE; USE LIMESTONE OR GRANITE. AGGREGATE FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C-330.

F. FLY ASH: ASTM C 618, CLASS F OR CLASS C. MINIMUM RECOMMENDED FLY ASH F. CONTENT BY MASS OF CEMENTITIOUS MATERIAL IS 20%. MAXIMUM RECOMMENDATION IS 25%.
(DSA PROJECTS FLY ASH: ASTM C 618, ASTM C 311 CLASS N OR F AND DSA IR 19-3
CLASS F. RECOMMENDED FLY ASH CONTENT BY MASS OF CEMENTITIOUS MATERIAL IS 15%.)

G. ADMIXTURES: MIX SHALL CONTAIN POLYMER BASED, WATER REDUCING ADMIXTURE. THE FOLLOWING TYPES OF ADMIXTURES ARE ALLOWED AS PLASTICIZERS AND/ OR SET ACCELERATORS TO IMPROVE WORKABILITY. 1. ASTM C494, TYPES A, C, E, G. HIGH RANGE WATER REDUCERS SHALL ALSO MEET REQUIREMENTS OF ASTM C 1017. 2. THE INITIAL SLUMP OF THE CONCRETE BEFORE INTRODUCING ADMIXTURES SHOULD BE MINIMUM 2" INCHES

H. SHRINKAGE - CONTRACTOR TO PROVIDE CONCRETE MIX HISTORY DATA OR PROVIDE TESTING REPORT.

I. MINIMUM REINF. COVER FOR CAST-IN-PLACE CONCRETE:
1. CONC. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
2. CONC., FORMED BELOW GRADE OR EXPOSED TO WEATHER:
NO. 6 AND GREATER . . . . . 2"
NO. 5 AND SMALLER . . . . . 1 1/2"
3. CONC. NOT EXPOSED TO WEATHER NOR IN CONTACT WITH GROUND:
SLABS, WALLS, AND JOISTS: NO. 11 AND SMALLER . . . . . 1"
BEAMS AND COL: PRIMARY REINF., TIES, STIRRUPS, SPIRALS . . . . . 1 1/2"

J. PLACEMENT
1. ALL REINFORCING BARS, ANCHOR BOLTS, AND ALL OTHER CONC. INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
2. CHAMFER ALL CORNERS OF CONCRETE TO PREVENT DAMAGE.
3. CONSTRUCTION TOLERANCE SHALL COMPLY TO ACI 117.
4. CONCRETE SHALL BE PLACED IN A CONTINUOUS OPERATION BETWEEN PREDETERMINED CONSTRUCTION JOINTS.
5. USE VIBRATORS TO CONSOLIDATE CONCRETE. DO NOT USE VIBRATORS TO MOVE CONCRETE.
6. CONCRETE SHALL BE CONTINUOUSLY CURED FOR 7 DAYS AFTER PLACEMENT IN ANY APPROVED MANNER. FOOTINGS ARE EXEMPTED FROM THIS REQUIREMENT.
7. PATCHING OF CONCRETE: ALL INSERT HOLES AND OTHER IMPERFECTIONS ON THE SURFACES OF THE CONCRETE SHALL BE FILLED WITH GROUT, BRUSHED AND SACKED TO A UNIFORM FINISH.

- REINFORCING STEEL

A. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH ACI 315 AND ACI 318.

B. REINFORCING STEEL SHALL BE AS FOLLOWS:

REINF.	TYPE
DEFORMED BARS/TIES/SPIRALS	ASTM 615, GRADE 60, TYP. (GRADE 40 @ #3)
WELDED REINF.	ASTM A706, GRADE 60 OR 80 AS NOTED
TIE AND SPIRAL WIRE REINF.	ASTM A1064, GRADE 60
WELDED WIRE REINF.	ASTM A1064, GRADE 60
REINF. USE	TYPE
FOUNDATIONS (INCLUDING SLAB-ON-GRADE)	ASTM A615, GRADE 60

* THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED Fy BY MORE THAN 18,000 PSI; AND THE RATIO OF THE ACTUAL TENSILE STRENGTH TO THE ACTUAL YIELD STRENGTH IS NOT LESS THAN 1.25.

C. DO NOT FIELD BEND OR STRAIGHTEN IN ANY MANNER THAT WILL DAMAGE REINFORCING.

D. PROVIDE SPLICES IN REINFORCING ONLY WHERE SHOWN ON DRAWINGS OR APPROVED IN WRITING BY ENGINEER OF RECORD.

- CONCRETE MASONRY

A. CONCRETE MASONRY TO BE SUPPLIED PER 2019 CBC SECTION 2105A AND PLACED PER SECTION 2104A. f'm = 2000 psi

B. ASSEMBLY STRENGTH f'm = 2000 psi AT 28 DAYS.

C. UNITS: MEDIUM WEIGHT 2 CELL BLOCKS CONFORMING TO ASTM C90. SHRINKAGE OF BLOCKS SHALL NOT EXCEED .065% WHEN TESTED PER ASTM C426.

D. MORTAR: ASTM C270, TYPE M. f'c = 1800 psi

E. GROUT: ASTM C476. COMPRESSIVE STRENGTH AS REQUIRED TO ATTAIN SPECIFIED ASSEMBLY STRENGTH. ALL CELLS SHALL BE FULLY GROUTED. f'c = 2000 psi

F. USE LOW LIFT CONSTRUCTION WITH MAXIMUM GROUT POUR HEIGHT OF 4'. HIGH LIFT GROUTING IS ACCEPTABLE IF APPROVED IN WRITING BY THE ENGINEER.

G. ALL MASONRY TO BE REINFORCED UNLESS SPECIFICALLY MARKED 'NOT REINFORCED'.

H. SEE PLAN FOR LOCATIONS OF VERTICAL CONTROL JOINTS. HORIZONTAL BOND BEAM AND LINTEL REINFORCING SHALL BE CONTINUOUS ACROSS VERTICAL CONTROL JOINTS.

I. ALL CELLS, SHALL BE GROUTED SOLID. REINFORCING STEEL SHALL BE SECURED IN PLACE BEFORE GROUTING STARTS.

- WOOD

A. FRAMING LUMBER - DOUGLAS FIR U.O.N.;
1. JOISTS AND RAFTERS: NO. 1
2. POSTS, BEAMS, AND HEADERS: NO. 1
3. STUDS, PLATES, BLOCKS, LIGHT FRAMING AND MISC: NO. 1
4. ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY TO BE PRESERVATIVE TREATED.
5. THE MOISTURE CONTENT OF ALL LUMBER 4x OR GREATER SHALL BE VERIFIED BY PROJECT INSPECTOR AT THE TIME OF FRAMING.
6. MOISTURE CONTENT SHALL NOT EXCEED 19% FOR ROOF SUPPORT MEMBERS AND SHALL NOT EXCEED 15% FOR WALL STRUCTURAL MEMBERS (i.e. HEADERS, TOP PLATES, SILLS AND STUDS. 2x MEMBERS SHALL BE STAMPED "S-DRY". RMT PRE-MANUFACTURED MEMBERS PER IR 23-10 IS AN ACCEPTABLE ALTERNATE TO SOLID SAWN LUMBER.

B. SHEATHING:
1. ROOF SHEATHING STRUCTURAL 1. 15/32 INCH APA RATED 24/0 EXPOSURE 1. (4 PLY MIN). S.A.D. WHEN RADIANT BARRIER SHEATHINGS REQUIRED.

C. FRAMING HARDWARE: AS MANUFACTURED BY SIMPSON, OR ALTERNATE APPROVED BY THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT. SIMPSON DESIGNATIONS USED.

D. NAILS:
1. COMMON WIRE GAGE U.O.N. NAILING TO CONFORM TO CBC TABLE 2304.10.1 U.O.N.
2. MACHINE APPLIED NAILS: USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOB SITE DEMONSTRATION FOR EACH PROJECT AND THE APPROVAL BY THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT. THE APPROVAL IS SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE. MACHINE NAILINGS WILL NOT BE APPROVED IN 5/16" PLYWOOD. IF NAIL HEADS PENETRATE THE OUTER PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY. MACHINE NAILING IS PROHIBITED AT DOUBLE SHEATHED PLYWOOD WALLS OR OTHER APPLICATIONS WHERE THE PRESENCE OF "SHINERS" CAN NOT BE DETECTED BY VISUAL OBSERVATION. FOR DOUBLE SIDED PLYWOOD SHEARWALL, USE HAND NAILING FOR SECOND SIDE OF PLYWOOD.
3. GALVANIZED NAILS SHALL BE HOT-DIPPED WHERE OCCURS.

E. BOLTS: ASTM A307. PROVIDE WASHER UNDER HEADS AND NUTS.

F. LAG SCREWS PER ANSI/ ASME STANDARD B18.2.1 PROVIDE LEAD HOLE SAME DIAMETER AND DEPTH AS SHANK AND THEN DRILL HOLE 60% - 70% OF SHANK DIAMETER FOR THREADED PORTIONS.

I. PRESSURE TREATED LUMBER:
1. PRESSURE TREATED D.F. SHALL BE AWPB STAMPED. AMMONIACAL COPPER QUAT (ACQ), COPPER BORON AZOLE (CBA), OR BORATE TREATED AWPA STANDARD C2, MINIMUM 0.40 INCH. PENETRATION INCISED.
2. ALL PRESERVATIVE TREATED LUMBER SHALL BE FIELD-APPLIED WITH PRESERVATIVE WHERE CUT AND DRILLED ON SITE WITH COPPER NAPHATHENATE (2% COPPER AS METAL).
3. USE HOT DIPPED GALVANIZED HARDWARE, IE. BOLTS, NAIL, ETC. FOR ALL ATTACHMENT TO ACQ OR CBA TREATED MEMBERS.

- CONTRACTOR SUBMITTALS

THE FOLLOWING IS A LISTING OF REQUIRED ITEMS TO BE SUBMITTED TO STRUCTURAL ENGINEER OF RECORD (TO BE PROVIDED IF MARKED):

SUBMITTAL	CERTIFICATE	SHOP DRAWINGS (2)	CALCS W/ ENG. STAMP	DEFERRED SUBMITTAL (1)
CONCRETE REINF. STEEL	X	X		
CONCRETE MIX DESIGN		X		
CONCRETE MASONRY UNITS	X	X		
GROUT MIX DESIGN	X			
REINFORCING STEEL	X	X		
STRUCTURAL STEEL	X	X		

(1) DEFERRED SUBMITTALS SHALL FIRST BE SUBMITTED TO THE PROJECT ARCHITECT AND/OR ENGINEER FOR REVIEW AND COORDINATION, THEN SUBMITTED TO THE APPROPRIATE JURISDICTION FOR APPROVAL. THIS SUBMITTAL SHALL INCLUDE HOHBACH-LEWIN'S SHOP DRAWING STAMP INDICATING THE STRUCTURAL REVIEW HAS BEEN COMPLETED AND THAT THE PLANS AND CALCULATIONS FOR THE DEFERRED APPROVAL ITEMS ARE IN GENERAL COMPLIANCE WITH THE INFORMATION PROVIDED WITHIN THE CONTRACT DOCUMENTS.

(2) ELECTRONIC SHOP DRAWINGS ARE TO BE SUBMITTED TO HOHBACH-LEWIN FOR REVIEW. AT HOHBACH-LEWIN'S REQUEST, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HARD COPIES OF SHOP DRAWINGS FOR REVIEW.

(3) PROVIDE CURRENT UNEXPIRED ICC ESR OR IAPMO ER REPORTS FOR ALL PROPRIETARY PRODUCTS USED, INCLUDING ALL SIMPSON STRONG-TIE, INC. AND HILTI, INC. PRODUCTS.

- EPOXY ANCHORS (CONCRETE INSTALLATION ONLY)

A. EPOXY ADHESIVE SHALL BE SIMPSON "SET-XP" ADHESIVE ANCHOR (ESR-2508). ALTERNATE PRODUCTS MUST BE SUBMITTED TO E.O.R. FOR SUBSTITUTION PRIOR TO INSTALLATION PER SPECIFICATIONS.

B. INSTALLATION: INSTALL THE EPOXY ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC ANCHOR.

C. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 1704 OF THE CBC. (1704A OF THE CBC FOR DSA PROJECTS)

D. NOTIFY ARCHITECT IMMEDIATELY IF ELEMENTS WITH EXISTING STRUCTURE PREVENT DRILLING IN THE LOCATIONS SHOWN ON THE DRAWINGS.

E. EPOXIED DOWELS DO NOT SUBSTITUTE FOR HOOKED BARS. CONTRACTOR TO NOTIFY ENGINEER OF EPOXIED DOWEL LOCATIONS.

- EXPANSION ANCHORS (HILTI)

A. EXPANSION BOLTS SHALL BE HILTI KWIK-BOLT TZ (ICC ESR-1917). ALTERNATE PRODUCTS MUST BE SUBMITTED TO E.O.R. FOR SUBSTITUTION PRIOR TO INSTALLATION PER SPECIFICATIONS.

B. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC ANCHOR.

C. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 1704 OF THE CBC. (1704A OF THE CBC FOR DSA PROJECTS)

D. EXPANSION ANCHOR SHALL BE TENSION TESTED. WHEN EXPANSION ANCHORS ARE USED FOR NON-STRUCTURAL APPLICATIONS, 50% OF ANCHORS SHALL BE TENSION TESTED. IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME TYPE NOT PREVIOUSLY TESTED UNTIL 20 CONSECUTIVE ANCHORS PASS. (PER IR-19.1 FOR DSA PROJECTS ONLY)

E. DOWEL/ANCH. TESTING SCHEDULE

REINF. DOWEL	ANCHOR ROD/BOLT	HOLE DIAMETER	MIN. EMBED.	REINF. DOWEL PULL TEST	ANCH. PULL TEST	TENSION TEST VALUE ***
#3	3/8"ø	1/2"	2 3/4"	-	-	1,840#
#4	1/2"ø	5/8"	4"	9,600#	4,090	4,090#
#5	5/8"ø	3/4"	5"	14,880#	6,504	6,504#
#6	3/4"ø	7/8"	6"	21, 120#	9,619	9,619#
#7	7/8"ø	1"	8"	28,800#	13,306	13,306#
#8	1"ø	1 1/8"	8 1/2"	37,920#	17,453	17,453#

NOTE: TEST VALUES BASED ON 0.8*Ase * Fy PER CBC SECTION 1910A.5
*PULL TEST APPARATUS SUPPORTS SHALL NOT RESTRICT CONCRETE TENSION CONE FAILURE, MIN. 1.5 * EMBED. DEPTH AWAY, PER CBC 1910A.5.

MIN. Fc = 2500 PSI (NORMAL WEIGHT CONCRETE) VERIFY MINIMUM EXISTING CONCRETE STRENGTH IN FIELD. *				
DIA.	MIN. EMBED = MIN. HOLE DEPTH	MIN. EDGE DISTANCE	MIN. SPACING	TORQUE TESTING VALUE
				25 FT-LB
1/2"	3 7/8"	7 7/8"	11 5/8"	40 FT-LB
5/8"	5 1/8"	9 5/8"	15 3/8"	60 FT-LB
3/4"	5 3/4"	11 3/4"	17 1/4"	150 FT-LB#
1"	9 3/4"	19 1/2"	29 1/4"	6,900#

STRUCTURAL SHEET INDEX

STRUCTURAL GENERAL NOTES

HOHBACH-LEWIN #15105

11/12/2020 7:51:38 AM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

HOHBACH-LEWIN, INC.
STRUCTURAL & CIVIL ENGINEERS
511 Mission Street
San Francisco, CA 91030
(619) 441-1211

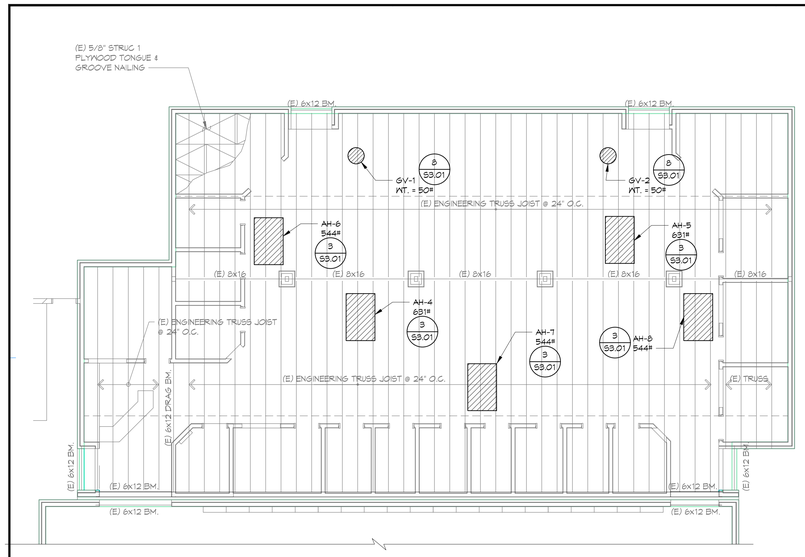
GENERAL NOTES
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION: DATE: DESCRIPTION:

S0.01



2 PARTIAL ROOF FRAMING PLAN

1/8"=1'-0"

NORTH

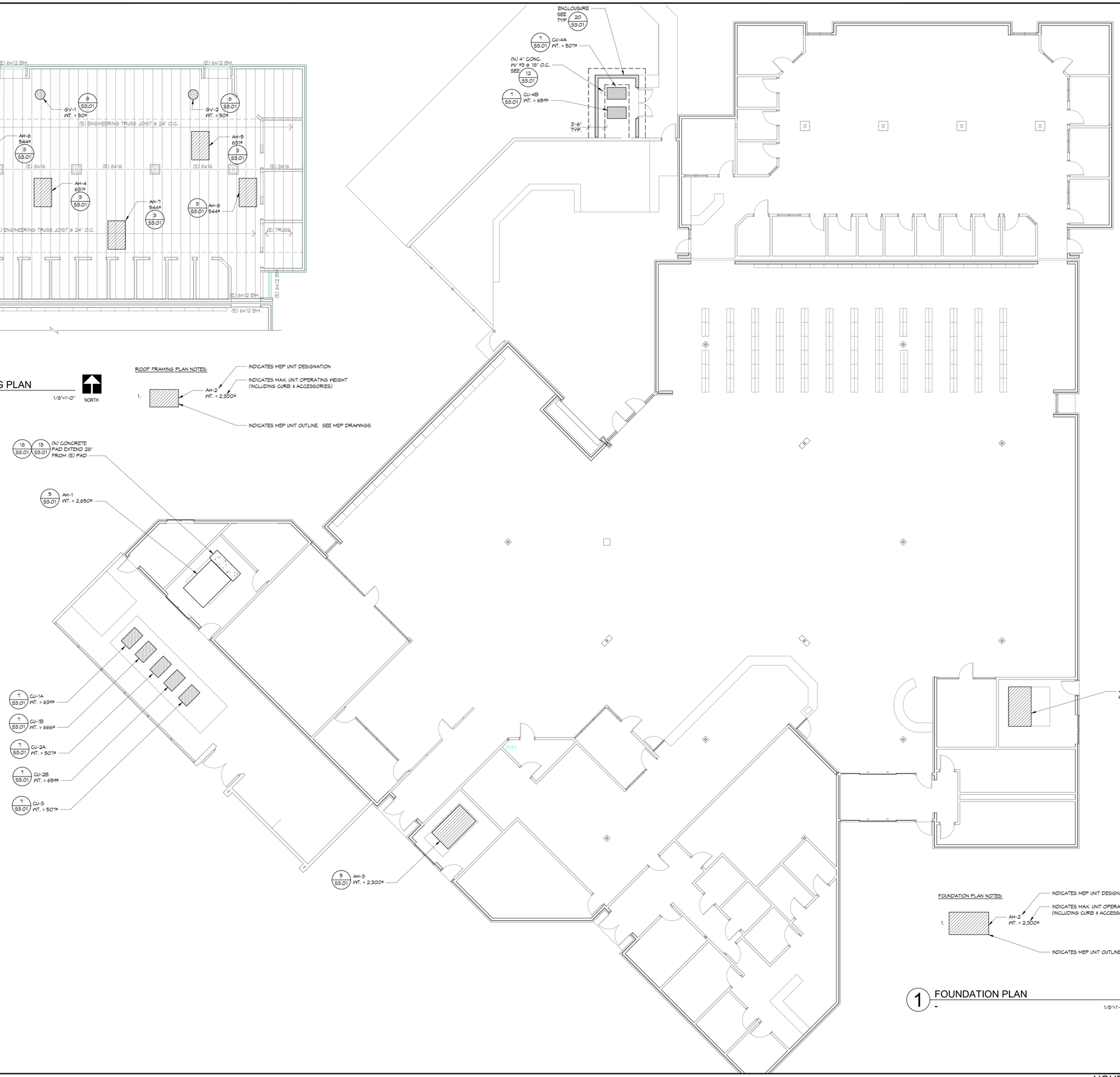
ROOF FRAMING PLAN NOTES:

1. AH-2 WT. = 2,300#

INDICATES MEP UNIT DESIGNATION

INDICATES MAX. UNIT OPERATING WEIGHT (INCLUDING CURB & ACCESSORIES)

INDICATES MEP UNIT OUTLINE. SEE MEP DRAWINGS



FOUNDATION PLAN NOTES:

1. AH-2 WT. = 2,300#

INDICATES MEP UNIT DESIGNATION

INDICATES MAX. UNIT OPERATING WEIGHT (INCLUDING CURB & ACCESSORIES)

INDICATES MEP UNIT OUTLINE. SEE MEP DRAWINGS

1 FOUNDATION PLAN

1/8"=1'-0"

NORTH

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:

HOHBACH-LEWIN, INC.
STRUCTURAL & CIVIL ENGINEERS
511 Mission Street
San Fernando, CA 91300
(626) 441-1211

REGISTERED PROFESSIONAL ENGINEER
LESLIE TSO
No. S-6073
Exp. 6-30-21
STRUCTURAL
STATE OF CALIFORNIA

FOUNDATION PLAN & PARTIAL ROOF FRAMING PLAN

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

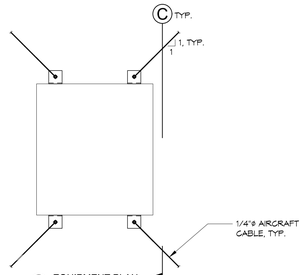
SEALS:

sgh ARCHITECTS

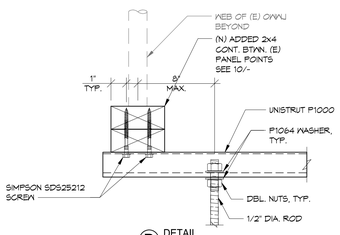
PROJECT NUMBER: 20-53100-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION: DATE: DESCRIPTION:

S2.01

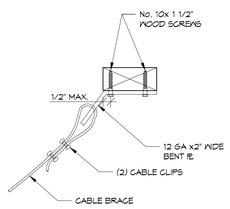
11/12/2020 7:51:38 AM



A EQUIPMENT PLAN

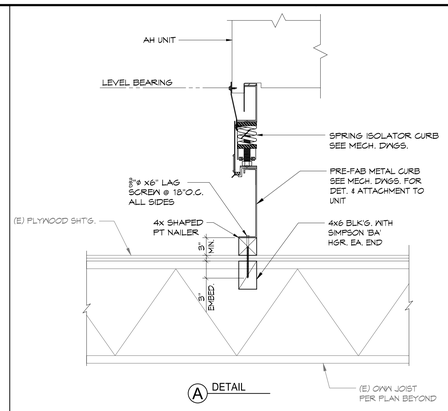


B DETAIL



C DETAIL

DETAILS | N.T.S. | 6



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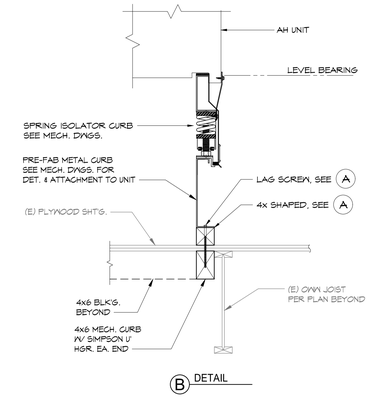


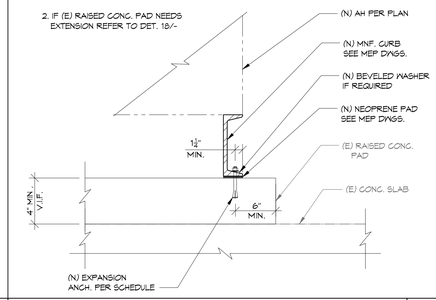
B DETAIL

AH ROOF TOP UNIT ANCHORAGE SECTIONS | 1" | 3

(N) ANCHORAGE SCHEDULE	
MARK	ANCHORS & SPACING
AH-1,-6	3/8"ø x3 1/2" EFF. EMBED HILTI KB-TZ ANCHORS (ICC ESR-1917) @ 18" O.C. & 4" MAX. FROM ENDS
AH-7	3/8"ø x4" EFF. EMBED HILTI KB-TZ ANCHORS (ICC ESR-1917) @ 12" O.C. & 4" MAX. FROM ENDS

NOTE: 1. PROVIDE STAINLESS STEEL ANCHORS & WASHER WHERE UNIT USED AT EXTERIOR APPLICATION.

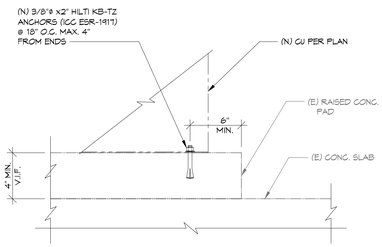
2. IF (E) RAISED CONC. PAD NEEDS EXTENSION REFER TO DET. 18/-



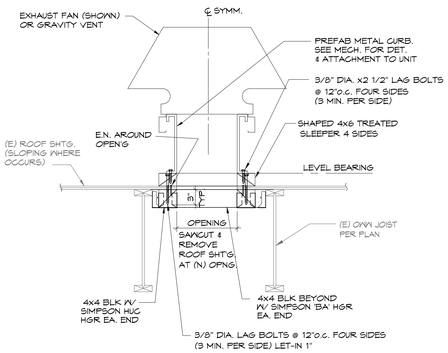
- | 4 | (N) 'AH' ANCHORAGE DETAIL (AT (N) CONC. PAD) | 1 1/2" | 5

NOTE:
1. PROVIDE STAINLESS STEEL ANCHORS WHERE UNIT USED @ EXTERIOR APPLICATION.

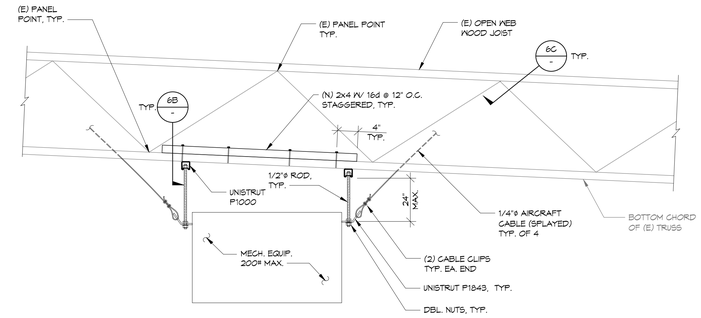
2. IF (E) RAISED CONC. PAD NEEDS EXTENSION REFER TO (18/-)



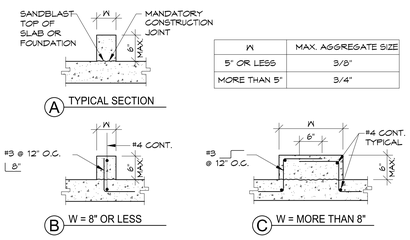
(N) 'CU' ANCHORAGE DETAIL | 1 1/2" | 7



(N) 'GV' ANCHORAGE DETAIL | N.T.S. | 8



ELEVATION | N.T.S. | 10



A TYPICAL SECTION

W	MAX. AGGREGATE SIZE
5" OR LESS	3/8"
MORE THAN 5"	3/4"

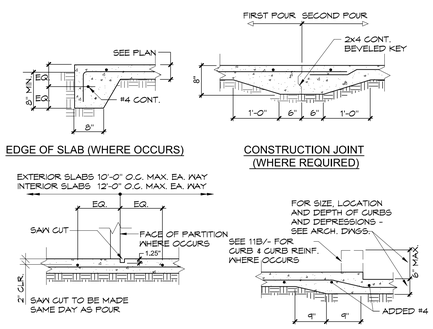
B W = 8" OR LESS

C W = MORE THAN 8"

NOTES:

1. CAST CURBS IN SEPARATE POURS.
2. COORDINATE WIDTH, HEIGHT AND LOCATION OF CURBS WITH ARCHITECTURAL DRAWINGS.

CURB DETAIL | N.T.S. | 11



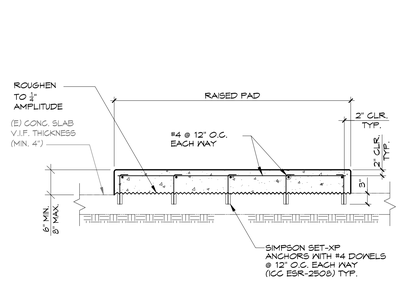
EDGE OF SLAB (WHERE OCCURS)

CONSTRUCTION JOINT (WHERE REQUIRED)

CONTROL JOINT

CURBS AND DEPRESSIONS (WHERE OCCURS)

(N) CONC. SLAB DETAILS @ (N) CMU ENCLOSURE | N.T.S. | 12

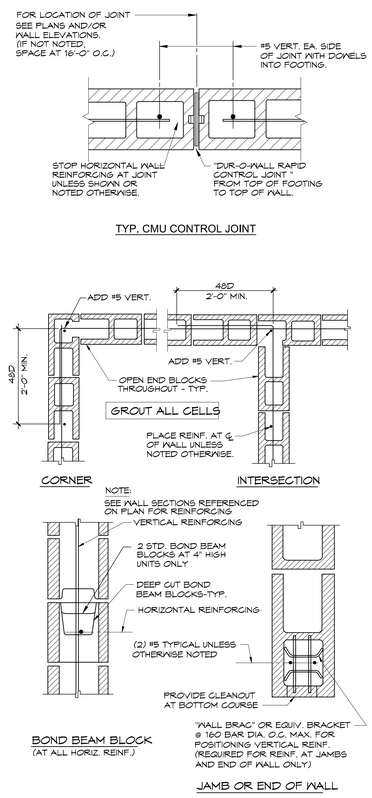


NOTE: 1. FOR SIZE, DEPTH AND LOCATION OF RAISED PADS, SEE ARCH., MECH. OR ELECT. DWGS.

2. DETAIL IS SIMILAR AT SUSPENDED (E) CONC. SLAB

3. WHERE (E) PAD OCCURS AND EXTENSION REQUIRED PER PLAN, SEE 18/-

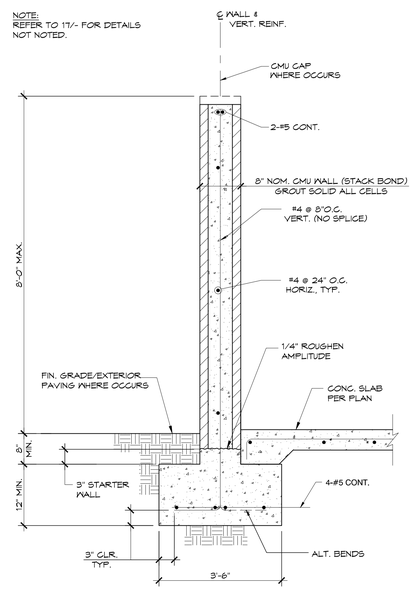
RAISED CONCRETE PAD | N.T.S. | 13



BOND BEAM BLOCK (AT ALL HORIZ. REINF.)

JAMB OR END OF WALL

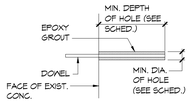
TYP. CMU CONSTRUCTIONS DETAILS | N.T.S. | 19



TYP. FREESTANDING CMU WALL | N.T.S. | 20

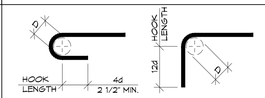
PROCEDURE

1. DRILL HOLE OF PROPER DIAMETER AND DEPTH USING A CARBIDE TIPPED DRILL OR CORING BIT. AVOID CUTTING ANY EXISTING REINFORCING STEEL BY RELOCATING HOLE SLIGHTLY.
2. CLEAN THOROUGHLY BY VACUUM OR AIR PRESSURE AND BRUSHING.
3. MAKE SURE THAT HOLE IS DRY AND CLEAN BEFORE GROUTING.
4. PLACE EPOXY GROUT IN HOLE WITH CAULKING GUN OR SIMILAR EQUIPMENT. START AT BOTTOM, FILL HOLE APPROXIMATELY 1/2 FULL.
5. INSERT CLEAN ANCHOR INTO HOLE, FORCING MATERIAL AROUND THE SIDES OF THE BAR BY TURNING SLOWLY AND COMPLETELY FILLING ALL VOIDS.
6. PROVIDE SUPPORT FOR DOWEL BY TYING TO REBAR OR OTHER ELEMENT UNTIL EPOXY HAS CURED.
7. EPOXY GROUT: AS MANUFACTURED BY HILTI. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.



CONCRETE - "HILTI HY-200" (ICC #ESR 3187)				
ROD SIZE	BAR SIZE	DRILL BIT DIAMETER	MINIMUM DEPTH	FULL TEST
3/8"	#3	1/2"	3"	4400#
1/2"	#4	5/8"	4"	5500#
5/8"	#5	3/4"	5"	6600#

TYP. EPOXY GROUT DETAIL | N.T.S. | 16



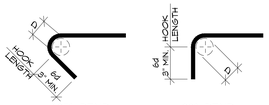
TYP. 180° BEND

TYP. 90° BEND (STD. HK)

NOTE:
d = BAR DIAMETER
D = MINIMUM DIAMETER OF BEND
D = 6d FOR #3 THROUGH #9
D = 8d FOR #4 THROUGH #11

STD. REINF. HOOKS B

BAR SIZE	STANDARD HOOK		
	D (IN.)	HOOK LENGTH (IN.)	
		90°	180°
#3	2 1/4	4 1/2	2 1/2
#4	3	6	2 1/2
#5	3 3/4	7 1/2	2 1/2
#6	4 1/2	9	3
#7	5 1/4	10 1/2	3 1/2
#8	6	12	4
#9	9	13 1/2	4 1/2



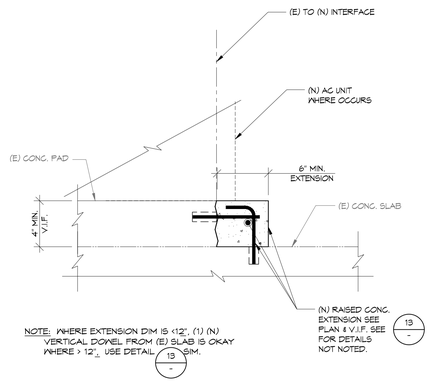
135° BEND @ TIE

90° BEND @ TIE

BAR SIZE	STIRRUP / TIE HOOK		
	D (IN.)	HOOK LENGTH (IN.)	
		90°	135°
#3	1 1/2	3	3
#4	2	3	3
#5	2 1/2	4	4

NOTE:
d = BAR DIAMETER
D = MINIMUM DIAMETER OF BEND
D = 4d FOR #5 AND SMALLER

TYP. (N) REINFORCING BEND DETAILS | N.T.S. | 17



NOTE: WHERE EXTENSION DIM IS <12", (1) (N) VERTICAL DOWEL FROM (E) SLAB IS OKAY WHERE > 12", USE DETAIL 13 - SIM.

(E) RAISED CONCRETE PAD EXTENSION | N.T.S. | 18

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
HOHBACH-LEWIN, INC.
STRUCTURAL & CIVIL ENGINEERS
511 Mission Street
San Francisco, CA 91030
(619) 441-1211

REGISTERED PROFESSIONAL ENGINEER
LESLIE ISO
No. S-6073
Exp. 6/30/21
STATE OF CALIFORNIA
STRUCTURAL

DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: 20-5310-00
PROJECT STATUS: CD
PROJECT ISSUED: 01/21/2021
REVISION DATE: DESCRIPTION:

S3.01

HOHBACH-LEWIN #15105

11/12/2020 7:51:38 AM

SHEET INDEX

GENERAL LEGEND

SYMBOL	DESCRIPTION
	NOTE CALLOUT
	DETAIL CALLOUT - NUMBER ON TOP DENOTES DETAIL NUMBER - NUMBER ON BOTTOM DENOTES SHEET DETAIL IS SHOWN
	MECHANICAL EQUIPMENT CALLOUT, SEE MECHANICAL PLANS FOR EXACT LOCATION AND REQUIREMENTS
	SECTION CALLOUT
	POINT OF CONNECTION
	POINT OF DISCONNECTION
	NEW LINEWORK
	EXISTING LINEWORK
	DEMOLITION LINEWORK
	DIRECTION OF FLOW
10" CD-1 100 CFM	DIFFUSER LABEL - NECK SIZE AND DIFFUSER TYPE - CUBIC FEET PER MINUTE

DUCTWORK LEGEND

SYMBOL	DESCRIPTION
16"x12"	SHEET METAL DUCT
16"x12"	HIDDEN SHEET METAL DUCT
16"x12" (1"L)	INTERNALLY INSULATED SHEET METAL DUCT CLEAR INSIDE DIMENSION SHOWN, LINER THICKNESS IN PARENTHESIS
	STANDARD BRANCH FOR SUPPLY AND RETURN
	ROUND ELBOW DOWN
	ROUND ELBOW UP
	RECTANGULAR TO ROUND TRANSITION
8"	FLEXIBLE DUCT
FC	FLEX CONNECTION
BDD	BACK DRAFT DAMPER
FD	FIRE DAMPER
FSD	COMBINATION FIRE AND SMOKE DAMPER
M	MOTORIZED DAMPER
	SUPPLY DIFFUSER: 2-WAY/3-WAY/4-WAY
	GRILLE: RETURN/EXHAUST
UP DN	SUPPLY AIR DUCT SECTION
UP DN	RETURN AIR DUCT SECTION
UP DN	EXHAUST AIR DUCT SECTION
UC	UNDERCUT DOOR
TG	TRANSFER GRILLE OR LOUVER
DG	DOOR GRILLE OR LOUVER
	SINGLE DUCT VAV BOX WITH REHEAT COIL
	SINGLE DUCT VAV BOX WITHOUT REHEAT COIL
	FILTER
	HUMIDIFIER DISPERSION GRID
	LOUVER
AD	ACCESS DOOR OR ACCESS PANEL (AP) IN DUCTWORK
1"|2"	STATIC PRESSURE CHANGE TAG
	TURNING VANES (RECTANGULAR)

PIPING LEGEND

SYMBOL	DESCRIPTION
4" CHWR	NEW PIPING (SIZE-SERVICE)
(E) 4" CHWR	EXISTING PIPING (SIZE-SERVICE)
	ELBOW FACING AWAY FROM VIEWER
	ELBOW FACING TOWARD VIEWER
	TEE FACING AWAY FROM VIEWER
	TEE FACING TOWARD VIEWER
	PIPE CAP
	TRANSITION, ASYMMETRIC
	TRANSITION, SYMMETRIC
	EXPANSION JOINT (COMPENSATOR)
	PIPE GUIDE
	PIPE ANCHOR
	UNION, SCREWED
	DRAIN, FUNNEL
	PUMP
	BALL VALVE
	BALL VALVE W/ ACTUATOR
	BUTTERFLY VALVE
	BUTTERFLY VALVE W/ ACTUATOR
	GATE VALVE
	GATE VALVE W/ ACTUATOR
	GLOBE VALVE
	GLOBE VALVE W/ ACTUATOR
	THREE-WAY VALVE
	THREE-WAY VALVE W/ ACTUATOR
	CHECK VALVE, SWING
	CHECK VALVE, SPRING LOADED
	MULTI-PURPOSE VALVE
	FLOW MEASURING AND BALANCING VALVE
	HOSE BIBB VALVE
	LOCK SHIELD MANUAL VALVE
	PLUG VALVE
	PRESSURE REGULATOR
	STRAINER, Y-TYPE
	STRAINER WITH HOSE CONNECTION
	PRESSURE GAUGE WITH SHUTOFF COCK
	PRESSURE GAUGE WITH SNUBBER AND SHUTOFF COCK
	SELF-SEALING PRESSURE AND TEMPERATURE TAP
	THERMOMETER
	THERMOWELL
FM	FLOW METER
FL	FLOW REGULATOR AND FLOW LIMITING VALVE
PSD	PUMP SUCTION DIFFUSER
VB	VACUUM BREAKER
	AIR VENT, AUTOMATIC
	FLEXIBLE CONNECTION
	COMBINATION FLEX-VANE STRAIGHTENER
	SAFETY OR RELIEF VALVE
T	STEAM TRAP
S	AIR SEPARATOR

ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AAV	AUTOMATIC AIR VENT	HP	HORSEPOWER
AFF	ABOVE FINISHED FLOOR	HT	HEIGHT
AHU	AIR HANDLING UNIT	HZ	HERTZ
AL	ALUMINUM	ID	INSIDE DIAMETER
AP	ACCESS PANEL	IN	INCHES
APD	AIRSIDE PRESSURE DROP	KW	KILOWATTS
BD	BLOWDOWN	LAT	LEAVING AIR TEMPERATURE
BDD	BACK DRAFT DAMPER	LBS	POUNDS
BFC	BELOW FINISHED CEILING	LF	LINEAR FEET
BFP	BACK FLOW PREVENTER	LWT	LEAVING WATER TEMPERATURE
BHP	BRAKE HORSEPOWER	MAX	MAXIMUM
BLDG	BUILDING	MBH	THOUSAND BTU PER HOUR
BOB	BOTTOM OF BEAM	MC	MECHANICAL CONTRACTOR
BOP	BOTTOM OF PIPE	MCA	MINIMUM CIRCUIT AMPS
BTU	BRITISH THERMAL UNIT	MH	MANHOLE
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CHWR	CHILLED WATER RETURN	MOCP	MAXIMUM OVERLOAD CIRCUIT PROTECTION
CHWS	CHILLED WATER SUPPLY	NFA	NET FREE AREA
CI	CAST IRON	NIC	NOT IN CONTRACT
CL	CENTER LINE	NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
CP	CONDENSATE PUMP	OAT	OUTSIDE AIR TEMPERATURE
CT	COOLING TOWER	OBD	OPPOSED BLADE DAMPER
CU	CONDENSING UNIT	OC	ON CENTER
CV	CONSTANT VOLUME BOX	OD	OUTSIDE DIAMETER
CWR	CONDENSER WATER RETURN	OA	OUTSIDE AIR
CWS	CONDENSER WATER SUPPLY	PD	PRESSURE DROP
CWFR	CONDENSER WATER FILTER RETURN	PERF	PERFORATED
CWFS	CONDENSER WATER FILTER SUPPLY	PH	PHASE
DB	DRY BULB	POD	POINT OF DISCONNECT
DEG	DEGREES	PR	PRESSURE RELIEF
DIA	DIAMETER	PRV	PRESSURE REDUCING VALVE
DL	DOOR LOUVER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DN	DOWN	PSIG	POUNDS PER SQUARE INCH GAUGE
DX	DIRECT EXPANSION	PVC	POLYVINYL CHLORIDE
(E)	EXISTING	RA	RETURN AIR
EA	EACH	RF	RETURN FAN
EAT	ENTERING AIR TEMPERATURE	RLA	RATED LOAD AMPS
EC	ELECTRICAL CONTRACTOR	RPM	REVOLUTIONS PER MINUTE
EFF	EFFICIENCY	SA	SUPPLY AIR
EL	ELEVATION	SF	SUPPLY FAN
ESP	EXTERNAL STATIC PRESSURE	SPEC	SPECIFICATION
EWT	ENTERING WATER TEMPERATURE	SS	STAINLESS STEEL
°F	DEGREES FAHRENHEIT	STD	STANDARD
FC	FLEX CONNECTION		
FD	FIRE DAMPER	TAD	TRANSFER AIR DUCT
FG	FILTER GRILLE	TDH	TOTAL DYNAMIC HEAD
FLA	FULL LOAD AMPS	TEFC	TOTALLY ENCLOSED FAN COOLED
FLR	FLOOR	TSP	TOTAL STATIC PRESSURE
FOB	FLAT ON BOTTOM	TYP	TYPICAL
FOT	FLAT ON TOP	UC	UNDERCUT
FPI	FINS PER INCH	TYP	TYPICAL
FPM	FEET PER MINUTE	V	VOLTS
FSD	FIRE SMOKE DAMPER	VAV	VARIABLE AIR VOLUME
FT	FEET OR FOOT	VD	VOLUME DAMPER
GA	GAUGE	VFD	VARIABLE FREQUENCY DRIVE
GALV	GALVANIZED	VTR	VENT THRU ROOF
GC	GENERAL CONTRACTOR	W/	WITH
GPH	GALLONS PER HOUR	W/O	WITHOUT
GPM	GALLONS PER MINUTE	WB	WET BULB
HB	HOSE BIBB	WC	WATER COLUMN
HD	HEAD	WG	WATER GAUGE
HHWR	HEATING HOT WATER RETURN	WPD	WATER PRESSURE DROP
HHWS	HEATING HOT WATER SUPPLY	WT	WEIGHT
HP	HEAT PUMP		

IN THE EVENT ABBREVIATIONS NOT MENTIONED HEREIN ARE USED, REFERENCE WILL BE MADE TO ANSI Y1.1, MILITARY STANDARD ABBREVIATIONS, AND OTHER STANDARD INDUSTRY CONVENTIONS.

DSA NOTES

1. MEP COMPONENT ANCHORAGE NOTE:

   ALL MECHANICAL 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 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 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 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.

2. PIPING AND DUCTWORK DISTRIBUTION SYSTEM BRACING NOTE:

   PIPING AND DUCTWORK 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 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

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

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

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

   MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) #0043-13 AND #0052-13

3. AIR FILTERS SHALL BE STATE FIRE MARSHAL APPROVED AND LISTED TYPE. PREFORMED FILTERS HAVING COMBUSTIBLE FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY. AIR FILTERS IN ALL OCCUPANCIES SHALL BE CLASS 2 OR BETTER (AS SHOWN IN THE STATE FIRE MARSHAL LISTING). AIR FILTERS SHALL BE ACCESSIBLE FOR CLEANING OR REPLACEMENT PER CMC 304.0.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2019 EDITIONS OF THE CALIFORNIA BUILDING, MECHANICAL, PLUMBING, AND OTHER APPLICABLE FEDERAL, STATE, OR LOCAL CODES AS ADOPTED AND ENFORCED BY THE LOCAL JURISDICTION. IN CASE THE PLANS SHOW MORE STRINGENT REQUIREMENTS, THE PLANS SHALL GOVERN THE DESIGN, YET NOTHING ON THE DESIGN DOCUMENTS SHALL BE INTERPRETED AS AUTHORITY TO VIOLATE CODE(S) OR REGULATION(S).
2. SUBMISSION OF BID IN CONNECTION WITH THIS WORK SHALL IMPLY THAT THE BIDDER HAS EXAMINED THE JOB SITE UNDER WHICH THE CONTRACTOR WILL BE OBLIGATED TO OPERATE UNDER THIS CONTRACT. NO EXTRA CHARGE WILL BE ALLOWED FOR FAILURE OF ANY BIDDER TO EXAMINE THE SITE PRIOR TO BID.
3. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
4. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON DRAWINGS AND SPECIFICATIONS WITH CODE REQUIREMENTS, THE MORE STRINGENT STANDARD SHALL PREVAIL.
5. THIS CONTRACTOR SHALL FURNISH LABOR, MATERIALS, EQUIPMENT, AND TRANSPORTATION AS REQUIRED TO PROPERLY INSTALL ALL NEW HVAC SYSTEMS OR RELATED COMPONENTS AS INDICATED ON PLANS AND SPECIFIED HEREIN.
6. ALL NEW EQUIPMENT AND MATERIAL TO BE INSTALLED AS PART OF THIS PROJECT SHALL BEAR AN UNDERWRITERS' LABORATORIES LABEL (UL), AND INSTALLED IN SUCH A MENNER FOR WHICH THEY ARE DESIGNED AND APPROVED.
7. THIS CONTRACTOR SHALL DOCUMENT AND RELAY ANY MAJOR DEVIATIONS FROM THE DESIGN DOCUMENTS, AND ATTAIN APPROVAL FROM THE MECHANICAL ENGINEER BEFORE PROCEEDING. AS-BUILT COPIES SHALL BE PROVIDED INDICATING ALL CHANGES/DEVIATIONS MADE DURING CONSTRUCTION.
8. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ANY INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE BUILDING WHICH ARE TO REMAIN IN OPERATION. ISOLATE WORK AREAS TO KEEP DUST AND DIRT WITHIN THE CONSTRUCTION AREA.
9. NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE OWNER TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF ANY AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE MUST BE GIVEN TO THE OWNER INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.
10. THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN ON THE DRAWINGS IS BASED UPON INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND IS NOT INTENDED TO SHOW EXACT DIMENSIONS. THIS CONTRACTOR SHALL VERIFY ALL DIMENSIONS AT THE SITE MAKING FIELD MEASUREMENTS AND SHOP DRAWINGS NECESSARY FOR FABRICATION OR ERECTION OF HVAC SYSTEMS. MAKE ALLOWANCE FOR BEAMS, PIPES AND OTHER OBSTRUCTIONS IN BUILDING CONSTRUCTION. CHECK DRAWINGS SHOWING WORK OF OTHER TRADES AND CONSULT WITH THE OWNER'S REPRESENTATIVE IN THE EVENT OF POTENTIAL INTERFERENCE. SHOP DRAWINGS SHALL BE MINIMUM 1/4"=1'-0" SCALE, INDICATING FITTINGS, SIZES, WELDS AND CONFIGURATIONS AND SUBMITTED TO ENGINEER FOR REVIEW.
11. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION, PURCHASE AND/OR INSTALLATION OF ALL WORK.
12. BEFORE COMMENCEMENT OF WORK, THIS CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, ELEVATIONS, AND CHARACTERISTICS OF ALL UTILITIES.
13. CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO THE CONTRACT.
14. EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS, EXCEPT WHERE INDICATED AS BEING RELOCATED.
15. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
16. GALVANIZED SHEET METAL SHALL BE PROVIDED FOR ALL HVAC DUCT SYSTEMS, AND CONSTRUCTED/SUPPORTED/INSTALLED IN ACCORDANCE WITH THE 2019 CALIFORNIA MECHANICAL CODE AND THE LATEST SMACNA STANDARDS.
17. ALL PIPING SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS IN A NEAT WORKMANSHIP-LIKE MANNER AND BE SUPPORTED AS REQUIRED BY CODES. PIPING SHALL BE SET UP AND DOWN AND OFFSET AS REQUIRED TO SUIT FIELD CONDITION. DIELECTRIC COUPLINGS SHALL BE USED WHERE DISSIMILAR METALS ARE JOINED.
18. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS FOR FIXTURES, DUCTWORK, PIPING, AND MECHANICAL EQUIPMENT. IN ORDER TO COMPLY WITH CALIFORNIA BUILDING CODE, SMACNA INSTALLATION STANDARDS, AND ALL RELATED LOCAL ORDINANCES.
19. THIS CONTRACTOR SHALL NOT BORE, NOTCH, CUT, OR PENETRATE INTO A STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL FROM A DESIGNATED STRUCTURAL ENGINEER AND THE OWNER.
20. ALL PIPE ELBOWS SHALL BE LONG RADIUS UNLESS OTHERWISE SPECIFICALLY NOTED ON THE DRAWINGS.
21. INSTALL MANUAL VOLUME DAMPERS WITHIN DUCT BRANCHES TO BALANCE AIRFLOW CFM. ON INSULATED DUCTS, MOUNT DAMPER REGULATOR ON 2" STAND-OFF BRACKET TO CLEAR INSULATION.
22. COORDINATE ACCESS TO EQUIPMENT WITH WORK OF OTHER TRADES. PROVIDE DUCT ACCESS DOORS AND CEILING ACCESS DOORS TO ALLOW ACCESS FOR FILTER CHANGEOUT, CONTROLS ACCESS AND ACCESS TO SERVICE/REMOVE COMPONENTS INCLUDING, BUT NOT LIMITED TO, FANS, PULLEYS, SHEAVES, BELTS, ETC.

PROJECT NOTES

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.
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, MEOR AND OWNER'S REPRESENTITIVE PRIOR TO SUBMITTAL.
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:
   A. DUCT, PIPE AND PLUMBING ELEVATIONS.
   B. DOUBLE LINE DUCTWORK AND PIPING (6" AND LARGER).
   C. ACTUAL SIZE OF PURCHASED EQUIPMENT. PER APPROVED CONTRACTOR'S SHOP DRAWINGS.
   D. ACCESS PANELS INCLUDING CEILING PANELS.
   E. ACCESS CLEARANCES FOR EQUIPMENT.
   F. ACTUAL LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND RETURN REGISTERS.
   G. LOCATIONS OF STRUCTURAL MEMBERS SUCH AS BEAMS.
   H. ACTUAL LOCATIONS OF CONTROL PANELS AND POWER CONNECTIONS TO EQUIPMENT.
   I. COLOR CODED DUCT AND PIPING BASED ON MATERIAL USED.
   J. MINIMUM 1/4"=1'0" SCALE DRAWINGS.
   K. LABEL AND TAG SCHEDULE FOR EQUIPMENT.
   L. DUCT TRANSITIONS TO CLEAR BEAMS OR TIGHT AREAS.
   M. ROOM TEMPERATURE SENSOR LOCATIONS.
   N. POINT OF CONNECTION TO UTILITIES OUTSIDE THE BUILDING.
   O. SECTIONS OR 3-D DRAWINGS OF CONGESTED AREAS.
   P. GRID LINES.
   Q. UTILITY PROFILES FOR UNDERGROUND PIPING.
4. DO NOT COMMENCE WITH ANY INSTALLATION, ORDERING OF ANY EQUIPMENT OR MATERIAL FABRICATION WITHOUT AN APPROVED SHOP DRAWING SUBMITTAL.
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.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

GENERAL NOTES, LEGEND, ABBREVIATIONS, AND SHEET INDEX

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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AIR HANDLING UNIT SCHEDULE

MARK	MANUFACTURER & MODEL	LOCATION	SERVICE	SUPPLY FAN						DX COIL [4]															ELECTRICAL						REFRIGERANT		FILTERS						MINIMUM OUTSIDE AIR CFM SETPOINT	DESIGN OUTSIDE AIR CFM SETPOINT	OPERATING WEIGHT (LBS)	ANCHORAGE DETAIL NO.	REMARKS
										COOLING						HEATING																										
												ENTERING AIR		LEAVING AIR																												
				AIRFLOW (CFM)	TSP (IN WC)	ESP (IN WC)	RPM	BHP	HP	TOTAL (MBH)	SENSIBLE (MBH)	(°F) DB	(°F) WB	(°F) DB	(°F) WB	PD (IN WC)	TOTAL (MBH)	VOLTS	PHASE	HERTZ	FLA	MCA	MOCP	TYPE	QUANTITY (LBS)	TYPE	NO	SIZE (INCHES)	TYPE	NO	SIZE (INCHES)						
AH-1	SCOTT SPRINGFIELD	MECHANICAL 129	LIBRARY 101, CORRIDOR 125, STUDY ROOM 126, STUDY ROOM 128	9000	4.03	2.5	2260	8.8	14	384.5	309.3	85	66	53.18	51.67	0.52	336.20	460	3	60	8.7	20	30	R410A	5	MERV 8 PRE-FILTER	2 4	24X12X2 24X24X2	MERV 13 RIGID FILTER	2 4	24X12X4 24X24X4	2700	2700	2650	2/M601	1 2 3 6
AH-2	SCOTT SPRINGFIELD	MECHANICAL ROOM 106	LIBRARY 101	6800	4.06	2.5	2067	7.0	10	290.6	233.6	85	66	53.19	51.67	0.52	254.61	460	3	60	6.9	14	20	R410A	5	MERV 8 PRE-FILTER	4	24X24X2	MERV 13 RIGID FILTER	4	24X24X4	2108	2108	2300	2/M601	1 2 3 6
AH-3	SCOTT SPRINGFIELD	MECHANICAL 124	LIBRARY OFFICES	3500	4.03	2.5	2720	3.2	7	124.7	105.2	85	66	55.36	53.16	0.39	112.74	460	3	60	4.7	10	15	R410A	5	MERV 8 PRE-FILTER	4	20X20X2	MERV 13 RIGID FILTER	4	20X20X4	788	788	2300	2/M601	1 2 3 4 6
AH-4	AAON RQ006	LIBRARY ADDITION ROOFTOP	LIBRARY 138	2110	1.90	0.7	1615	1.19	2	91.18	80.20	87.61	65.75	51.21	50.11	0.44	107.3	460	3	60	3	4	15	R410A	5	PLEATED PRE-FILTER	2	20X20X2	PLEATED FINAL FILTER	2	20X20X4	665	665	631	2/M601	2 6
AH-5	AAON RQ006	LIBRARY ADDITION ROOFTOP	LIBRARY 138	2140	1.93	0.7	1632	1.23	2	91.96	80.60	87.52	65.73	51.45	50.18	0.45	107.3	460	3	60	3	4	15	R410A	5	PLEATED PRE-FILTER	2	20X20X2	PLEATED FINAL FILTER	2	20X20X4	670	670	631	2/M601	2 6
AH-6	AAON RQ002	LIBRARY ADDITION ROOFTOP	ROOMS 139-145	920	1.16	0.7	1245	0.33	1	43.10	35.42	85.22	65.07	48.48	47.72	0.08	48.7	460	3	60	4	4	15	R410A	5	PLEATED PRE-FILTER	2	20X20X2	PLEATED FINAL FILTER	2	20X20X4	235	235	544	2/M601	2
AH-7	AAON RQ002	LIBRARY ADDITION ROOFTOP	ROOMS 147-154	695	1.06	0.7	1110	0.24	1	36.36	30.31	89.39	66.26	47.46	46.89	0.05	41.1	460	3	60	4	4	15	R410A	5	PLEATED PRE-FILTER	2	20X20X2	PLEATED FINAL FILTER	2	20X20X4	250	250	544	2/M601	2
AH-8	AAON RQ002	LIBRARY ADDITION ROOFTOP	ROOMS 134-137	685	1.06	0.7	1106	0.23	1	34.12	27.58	85.51	65.15	47.07	46.45	0.05	38.2	460	3	60	4	4	15	R410A	5	PLEATED PRE-FILTER	2	20X20X2	PLEATED FINAL FILTER	2	20X20X4	180	180	544	2/M601	2

1. UNITS TO BE SHIPPED IN PIECES AND ASSEMBLED IN THE FIELD.
2. CONTRACTOR TO VERIFY REFRIGERANT LINE SIZES PRIOR TO BID AND PROCUREMENT.
3. PROVIDE WITH EC FAN MOTORS.
4. FOR SUB-ZONE COOLING AND HEATING, SEE ZONE SCHEDULE ON THIS SHEET.
5. FOR SYSTEM REFRIGERANT QUANTITY, SEE SYSTEM PIPING DIAGRAMS.
6. AIR HANDLING UNITS ABOVE 2000 CFM (TOTAL 5) SHALL BE TIED INTO THE EXISTING FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE NEW MONITORING DEVICES, AND TIE INTO NEW UNITS FOR SHUT DOWN.

VARIABLE REFRIGERANT VOLUME HEAT RECOVERY UNITS

MARK	MANUFACTURER & MODEL	NOMINAL TONNAGE	LOCATION	SERVICE	NAMEPLATE				COOLING CAPACITY		HEATING CAPACITY		PIPING CONN INCHES			REFRIGERANT		EFFICIENCY			OPERATING WEIGHT (LBS)	ANCHORAGE DETAIL NO.	REMARKS
					MODULE-1 MCA (A)	MODULE-2 MCA (B)	COMBINED MOCP	V/PH	AMB °F	BTU/H	AMB °F	MBH	LIQUID	SUCTION GAS	DISCHARGE GAS	TYPE	CHARGE (LBS)	COOLING EER / IEER	COP 47	COP 17			
CU-1	LG ARUM384DTE5	32.0	OUTDOOR MECHANICAL YARD 131	AH-1	28.5	38.3	85	460/3	115	384	35	432	3/4	1-5/8	-	R410A	115.4	9.8/19.3	3.22	2.20	1305	1/M601	CU IS A MULTIPLE MODULE SYSTEM. EACH MODULE HAS A LISTED MCA (LABELED A AND B) WITHIN THE SCHEDULE. ALL OTHER INFORMATION REGARDING MODULE A AND B IS A COMBINED CONDENSING UNIT TOTAL.
CU-2	LG ARUM288DTE5	24.0	OUTDOOR MECHANICAL YARD 131	AH-2	16.4	35.7	75	460/3	115	288	35	324	3/4	1-3/8	-	R410A	70.6	11.3/21.0	3.33	2.35	1166	1/M601	CU IS A MULTIPLE MODULE SYSTEM. EACH MODULE HAS A LISTED MCA (LABELED A AND B) WITHIN THE SCHEDULE. ALL OTHER INFORMATION REGARDING MODULE A AND B IS A COMBINED CONDENSING UNIT TOTAL.
CU-3	LG ARUM121DTE5	10.0	OUTDOOR MECHANICAL YARD 131	AH-3	18.4	-	25	460/3	115	120	35	135	1/2	3/4	1-1/8	R410A	39.9	12.5/24.6	3.46	2.53	507	1/M601	-
CU-4	LG ARUM288DTE5	24.0	NEW EQUIPMENT YARD	AH-4, AH-5, AH-6 AH-7, AH-8	16.4	35.7	75	460/3	115	288	35	324	5/8	1-1/8	1-1/8	R410A	70.1	11.3/21.0	3.33	2.35	1166	1/M601	CU IS A MULTIPLE MODULE SYSTEM. EACH MODULE HAS A LISTED MCA (LABELED A AND B) WITHIN THE SCHEDULE. ALL OTHER INFORMATION REGARDING MODULE A AND B IS A COMBINED CONDENSING UNIT TOTAL.

1. PROVIDE HEAT RECOVERY UNITS WITH NEOPRENE WAFFLE TYPE ISOLATION CURBS.
2. VERIFY REFRIGERANT LINE SIZES PRIOR TO BID AND PROCUREMENT.

HEAT RECOVERY BOX

MARK	MANUFACTURER & MODEL	CU	LOCATION	QTY OF PORTS	ELECTRICAL			PIPING CONN TO OUTDOOR UNIT (IN)			REFRIGERANT	OPERATING WEIGHT LBS	ANCHORAGE DETAIL NO.	REMARKS
					V / PH / HZ	MCA	MOCP	LIQUID	SUCTION GAS	DISCHARGE GAS				
HRB 3-1	LG PRHR043A	3	MECHANICAL 124	4	208/1/60	0.17	15	1/2	1-1/8	3/4	R 410-A	40	10/S3.01	-
HRB 4-1	LG PRHR043A	4	CLERICAL 144	4	208/1/60	0.17	15	5/8	1-1/8	7/8	R 410-A	40	10/S3.01	-
HRB 4-2	LG PRHR033A	4	CLERICAL 144	2	208/1/60	0.17	15	3/8	7/8	3/4	R 410-A	33	10/S3.01	-

1. PROVIDE WITH ISOLATION VALVES UPSTREAM AND DOWNSTREAM OF THE HRB'S

ZONE SCHEDULE

AHU	ZONE NO.	AIRFLOW (CFM)	COOLING (MBH)	HEATING (MBH)
AHU-3	1	215	10.1	8.96
	2	940	26.9	24.2
	3	990	42.89	38.61
	4	1350	44.84	40.97

GRAVITY VENT

MARK	MANUFACTURER & MODEL	LOCATION	TYPE	SERVICE	THROAT SIZE	CFM	PRESSURE DROP (IN WC)	MATERIAL	ANCHORAGE DETAIL NO.	REMARKS
GV-1	GREENHECK FGR-14x14	ROOF	RELIEF	LIBRARY ADDITION	14"x14"	500	0.019	ALUMINUM	5/M601	1 2
GV-2	GREENHECK FGR-14x14	ROOF	RELIEF	LIBRARY ADDITION	14"x14"	500	0.019	ALUMINUM	5/M601	1 2

1. PROVIDE WITH ROOF CURB
2. PROVIDE WITH BACKDRAFT DAMPER AND INSECT SCREEN.

GRILLES, REGISTERS, DIFFUSERS

MARK	DESCRIPTION	MATERIAL	FRONT BLADES	DAMPER	FINISH	REMARKS
RG-1	TITUS PAR	STEEL	NONE	NO	STANDARD	-

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DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
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SCHEDULES
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. DIAZ
No. M 28058
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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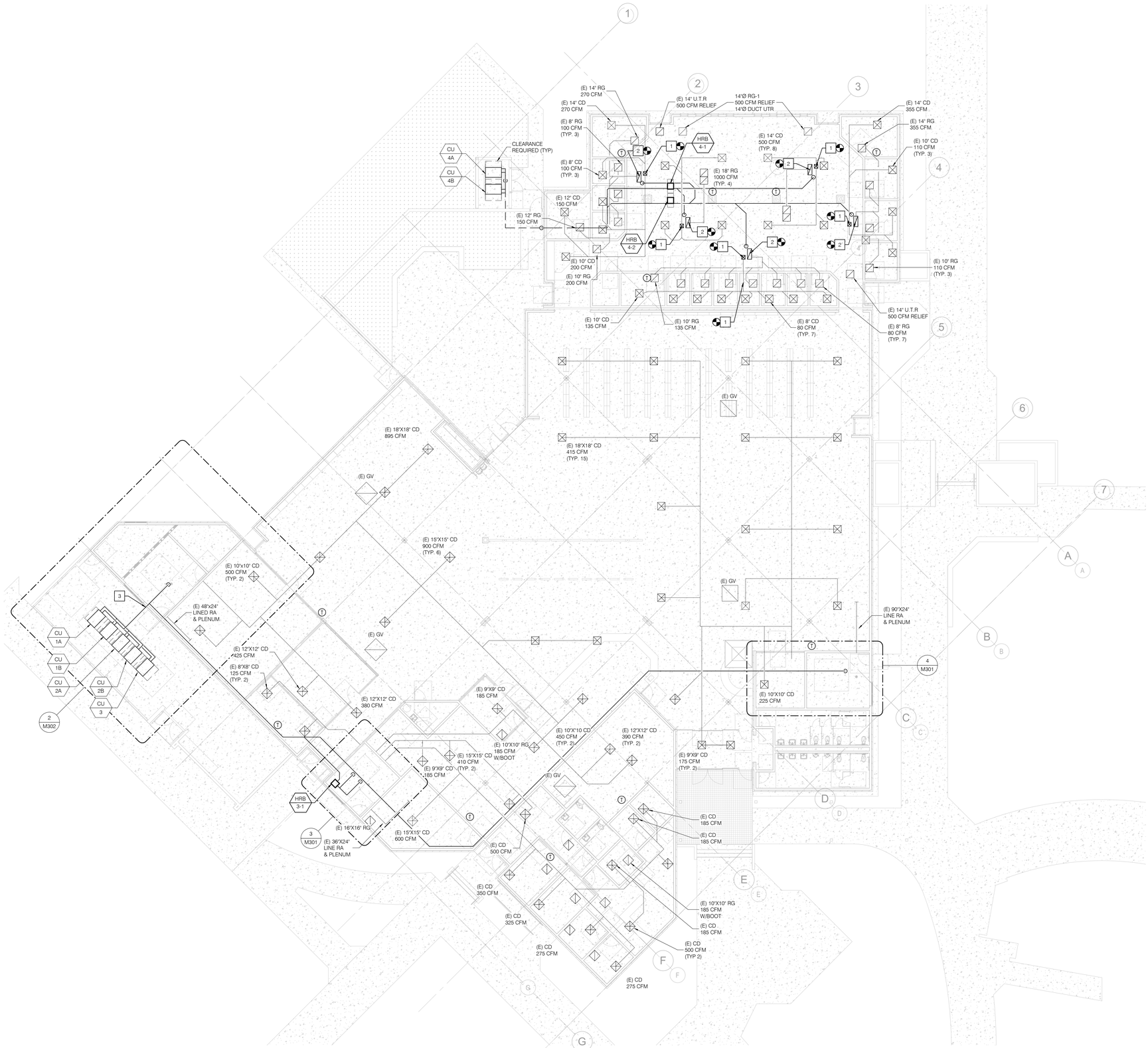

1 LEVEL 1 - RENOVATION PLAN

SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. POC FOR SA DUCT FROM SUPPLY SIDE OF AIR HANDLER (E) SA DISTRIBUTION. EXTEND (E) SA DUCT AS REQUIRED FOR RECONNECTION.
2. POC FOR RA DUCT FROM RETURN SIDE OF AIR HANDLER TO (E) RA DISTRIBUTION. EXTEND (E) RA DUCT AS REQUIRED FOR RECONNECTION.
3. REFRIGERANT PIPING TO BE ROUTED INTO BUILDING THROUGH (E) CORES FOR (E) CHW PIPE TO BE DEMOLISHED.

RENOVATION GENERAL NOTES

1. ROUTE REFRIGERANT PIPING FOR AHU S-1, AHU S-2, AND AHU S-3 ALONG THE SAME ROUTING AS (E) CHW AND HHW PIPING.
2. ROUTE REFRIGERANT PIPING FOR THE EQUIPMENT SERVING THE BUILDING ADDITION UNDERGROUND TO THE EXTERIOR WALL OF OFFICE 143. PIPE TO SURFACE ON THE OUTER FACE OF THAT WALL AND PENETRATE THROUGH THE WALL INTO THE CEILING SPACE OF THE ADDITION TO SERVE THE MECHANICAL EQUIPMENT ON THE ROOF.
3. USE LOW LOSS FITTINGS FOR NEW DUCT CONNECTIONS
4. ALL EXISTING MECHANICAL INFORMATION SHOWN IS BASED ON LIMITED RECORD DRAWINGS, FIELD INVESTIGATION, FACILITY STAFF KNOWLEDGE AND ASSUMPTIONS.
5. MECHANICAL CONTRACTOR SHALL CONFIRM EXACT LOCATION, ROUTING AND SIZE OF MECHANICAL DUCTWORK PRIOR TO COMMENCING ANY NEW WORK.
6. ALL CFM VALUES SHOWN ARE VALUES FOR DIFFUSERS, REGISTERS AND GRILLES TO BE REBALANCED TO.

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CONSULTANT:
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FIRST FLOOR RENOVATION PLAN
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
1 ◁

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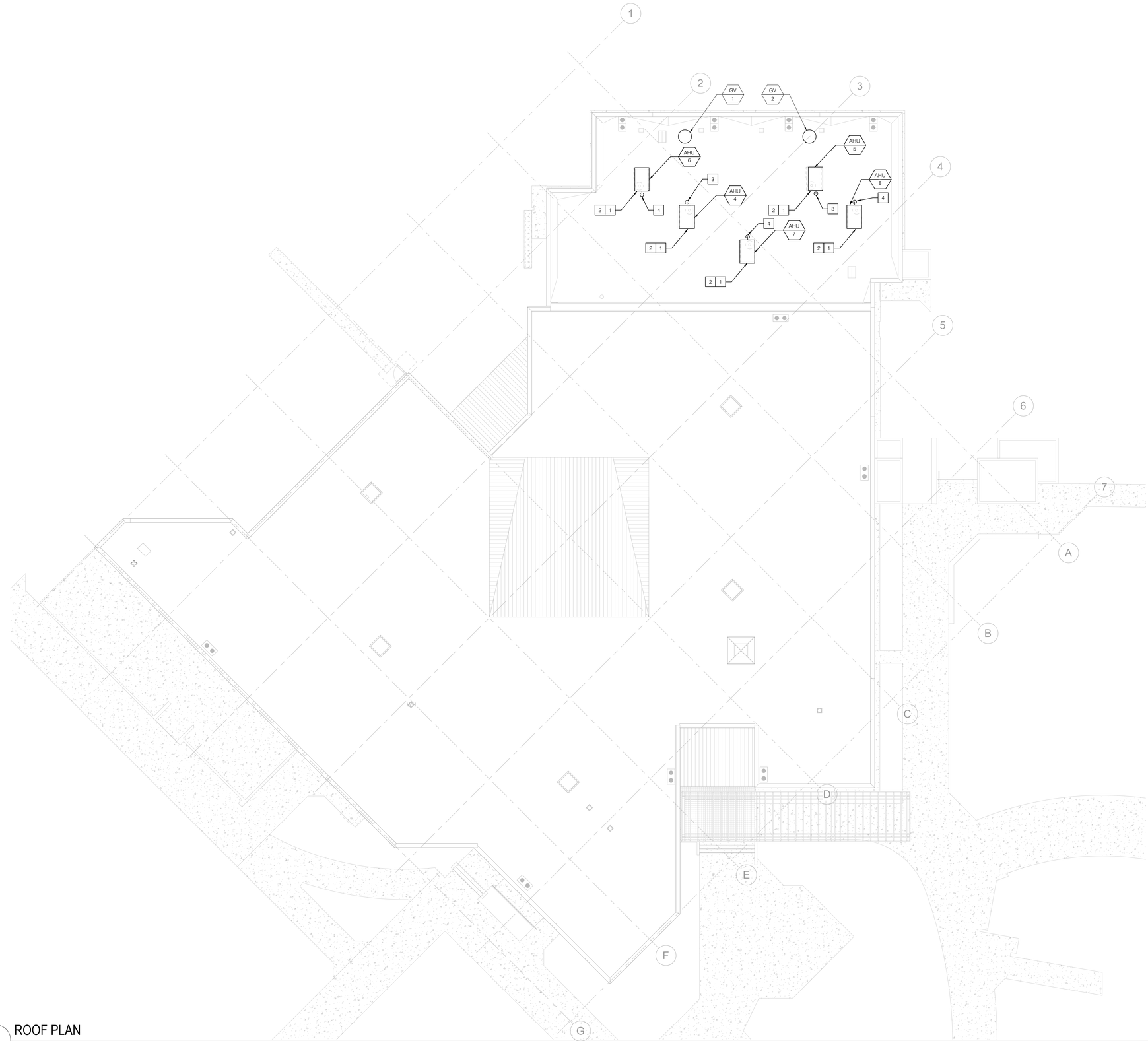

1 ROOF PLAN

SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. MOUNT AIR HANDLING UNIT ON ROOF CURB.
2. RECONNECT (E) CONDENSATE DRAINS TO AHU. PROVIDE NEW P-TRAP PER 1/M603.
3. REFRIGERANT PIPING DOWN THROUGH ROOF TO HRB 4-1.
4. REFRIGERANT PIPING DOWN THROUGH ROOF TO HRB 4-2.

GENERAL NOTES

1. CONTRACTOR TO CLEAN AND BLOW DOWN (E) CONDENSATE PIPING TO ENSURE PROPER DRAINAGE.
2. FOR REFRIGERANT PIPE SIZES, REFER TO SYSTEM PIPING DIAGRAMS ON SHEET M501.
3. ALL EXISTING MECHANICAL INFORMATION SHOWN IS BASED ON LIMITED RECORD DRAWINGS, FIELD INVESTIGATION, FACILITY STAFF KNOWLEDGE AND ASSUMPTIONS.
4. MECHANICAL CONTRACTOR SHALL CONFIRM EXACT LOCATION, ROUTING AND SIZE OF MECHANICAL DUCTWORK PRIOR TO COMMENCING ANY NEW WORK.

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ROOF RENOVATION PLAN
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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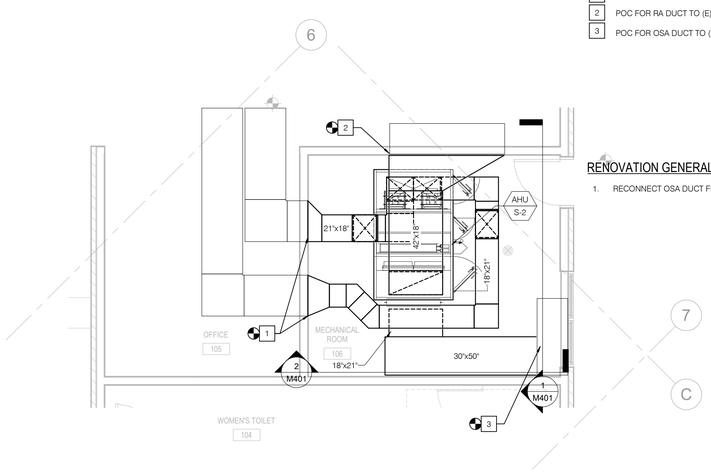
2/5/2021 9:02:48 AM

GENERAL NOTES

1. POC FOR SA DUCT TO (E) 32"x24" SA DUCT.
2. POC FOR RA DUCT TO (E) 90"x24" RA DUCT.
3. POC FOR OSA DUCT TO (E) 60"x96" OSA PLENUM



RENOVATION GENERAL NOTES

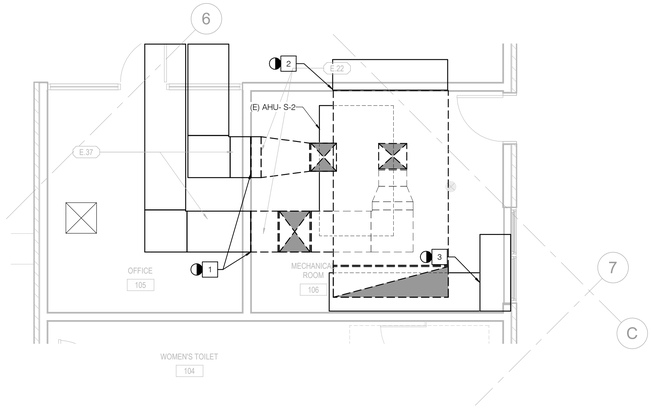
1. RECONNECT OSA DUCT FROM (E) LOUVER TO AHU.

4 LEVEL 1 - RENOVATION - MECH RM 106

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

DEMOLITION NOTES

1. POD FOR SA DUCT FROM (E) 32"x24" SA DUCT.
2. POD FOR RA DUCT FROM (E) 90"x24" RA DUCT.
3. POD FOR OSA DUCT FROM (E) 60"x96" OSA PLENUM.



DEMOLITION GENERAL NOTES

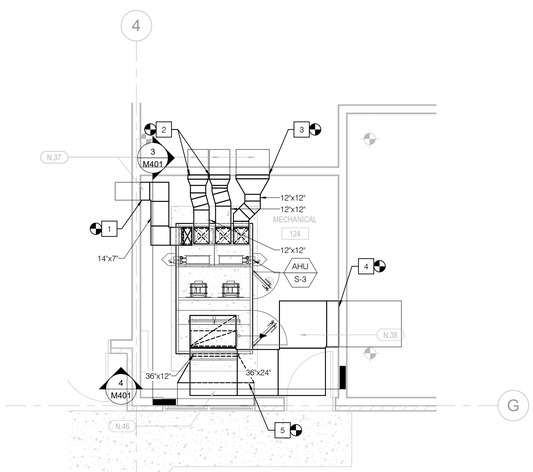
1. DISCONNECT AND DEMOLISH OSA DUCT FROM LOUVER TO AHU.

2 LEVEL 1 - DEMOLITION - MECH RM 106

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

GENERAL NOTES

1. POC FOR SA DUCT TO (E) 14"x7" SA DUCT.
2. POC FOR SA DUCT TO (E) 16"x14" SA DUCT.
3. POC FOR SA DUCT TO (E) 26"x12" SA DUCT.
4. POC FOR RA DUCT TO (E) 32"x24" RA DUCT.
5. POC FOR OSA DUCT TO (E) 60"x48" OSA PLENUM.



RENOVATION GENERAL NOTES

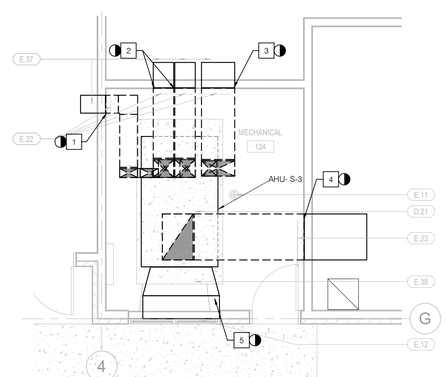
1. RECONNECT OSA DUCT FROM (E) LOUVER TO AHU.

3 LEVEL 1 - RENOVATION - MECH RM 124

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

DEMOLITION NOTES

1. POD FOR SA DUCT FROM (E) 14"x7" SA DUCT.
2. POD FOR SA DUCT FROM (E) 16"x14" SA DUCT.
3. POD FOR SA DUCT FROM (E) 26"x12" SA DUCT.
4. POD FOR RA DUCT FROM (E) 32"x24" RA DUCT.
5. POD FOR OSA DUCT FROM (E) 60"x48" OSA LOUVER.



DEMOLITION GENERAL NOTES

1. DISCONNECT AND DEMOLISH OSA DUCT FROM LOUVER TO AHU.

1 LEVEL 1 - DEMOLITION - MECH RM 124

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

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ENLARGED PLANS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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M301

2/5/2021 9:02:51 AM

GENERAL NOTES

1. POC FOR SA DUCT TO (E) 36"x20" SA DUCT.
2. POC FOR RA DUCT TO (E) 48"x24" RA DUCT.
3. POC FOR OSA DUCT TO (E) 60"x48" OSA PLENUM.

RENOVATION GENERAL NOTES

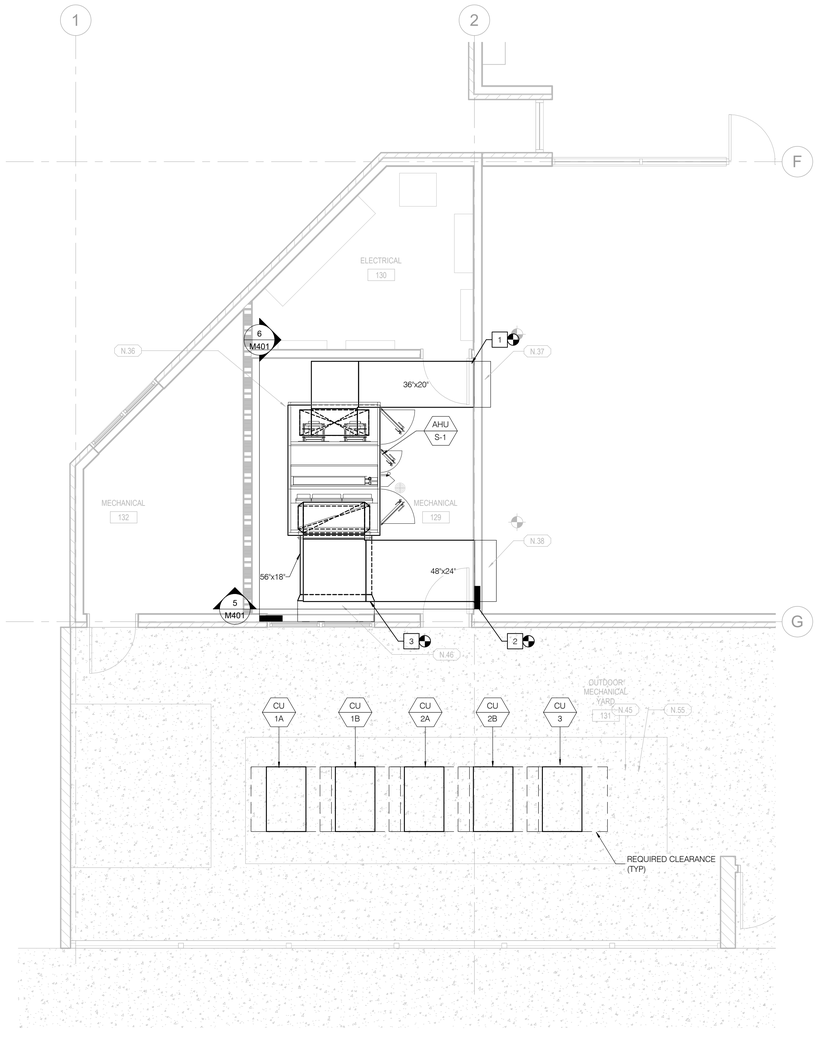
1. RECONNECT OSA DUCT FROM (E) LOUVER TO AHU.

DEMOLITION NOTES

1. POD FOR SA DUCT FROM (E) 36"x20" SA DUCT.
2. POD FOR RA DUCT FROM (E) 48"x24" RA DUCT.
3. DEMOLISH ALL (E) MECHANICAL EQUIPMENT WITHIN ENCLOSED AREA SHOWN.
4. POD FOR OSA DUCT FROM (E) 60"x48" OSA PLENUM.

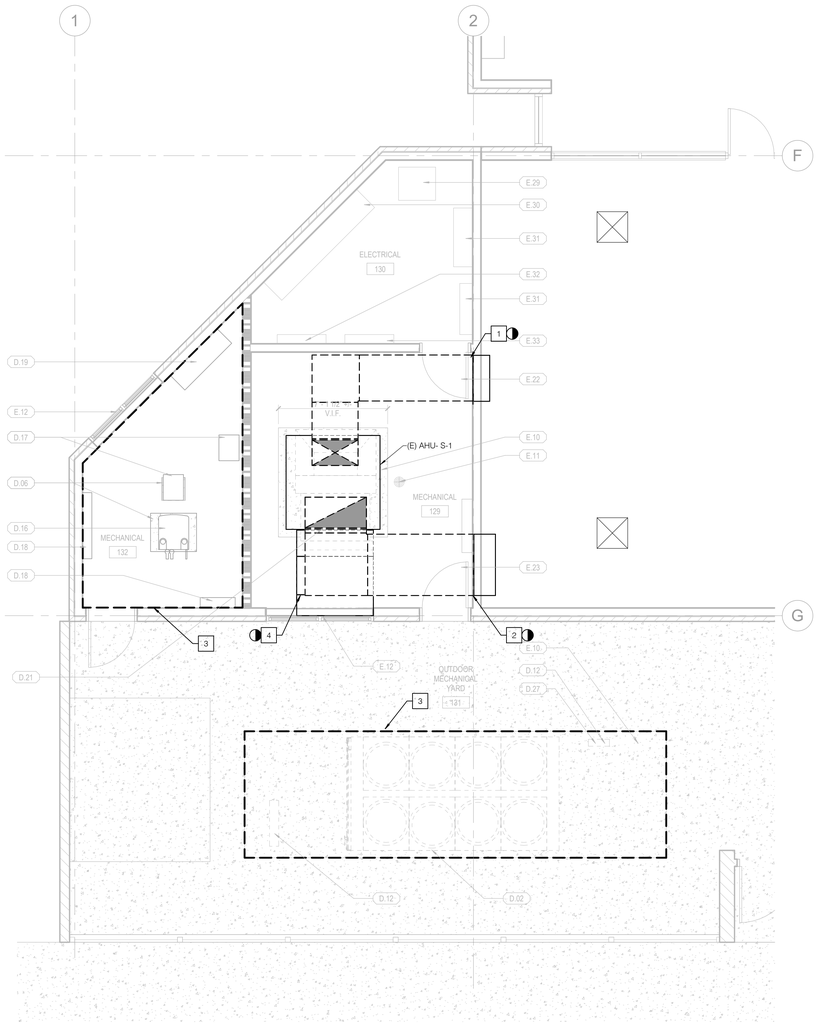
DEMOLITION GENERAL NOTES

1. DISCONNECT AND DEMOLISH OSA DUCT FROM LOUVER TO AHU.



2 LEVEL 1 - RENOVATION - MECH RM 129 / 131 / 132

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



1 LEVEL 1 - DEMOLITION - MECH RM 129 / 131 / 132

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

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APP: 04-119862 INC:
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SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

ENLARGED PLANS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

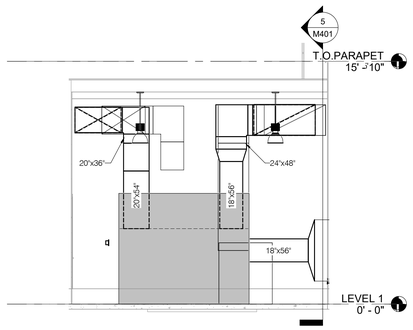
SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

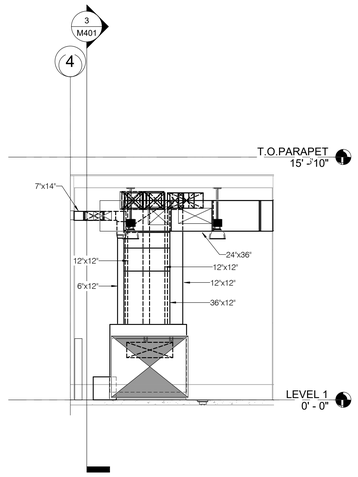
M302

2/5/2021 9:02:53 AM



6 MECH ROOM 129 E SECTION

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



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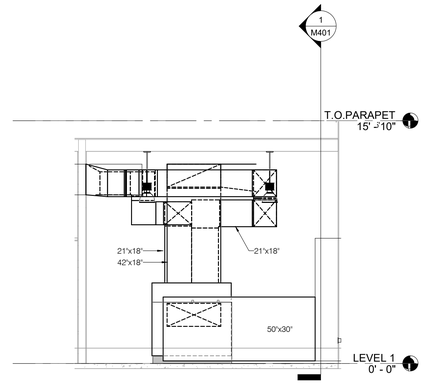

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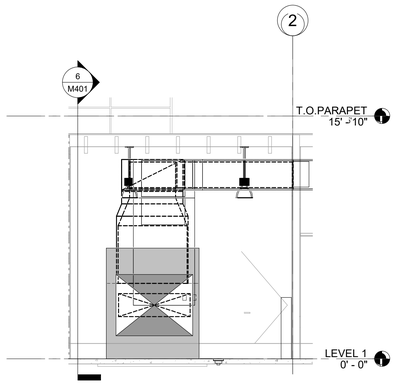

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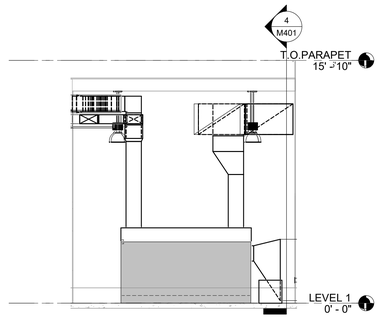

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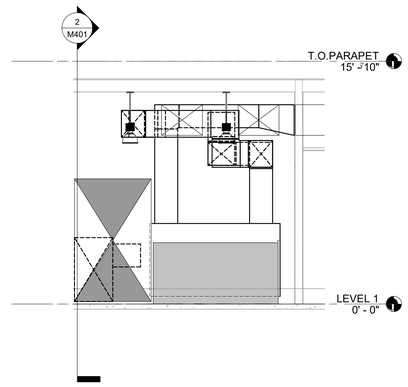


1 MECH ROOM 106 W SECTION

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

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

SECTIONS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

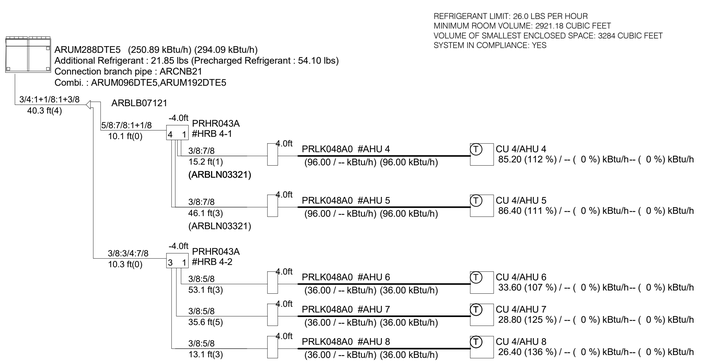
ISEALS:

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:

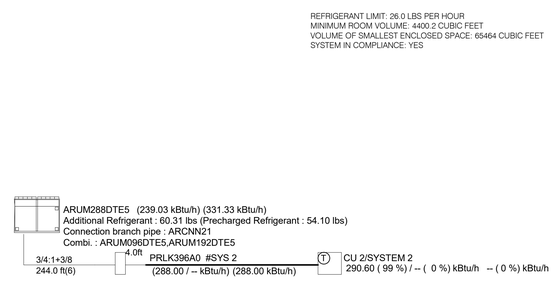
M401

2/5/2021 9:02:56 AM



4 CU-4 PIPING DIAGRAM

NO SCALE



2 CU-2 PIPING DIAGRAM

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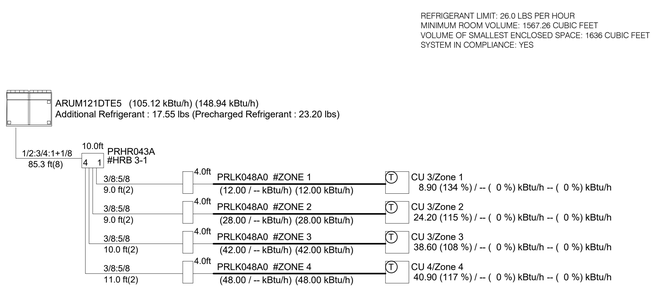

3 CU-3 PIPING DIAGRAM

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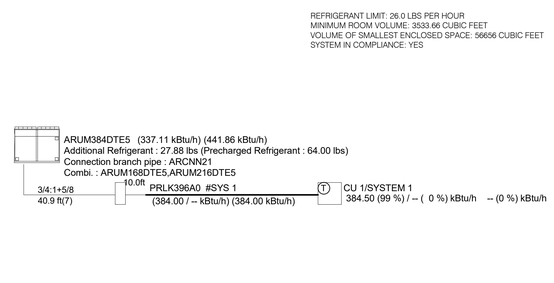


1 CU-1 PIPING DIAGRAM

NO SCALE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

DIAGRAMS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
No. M 28128
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

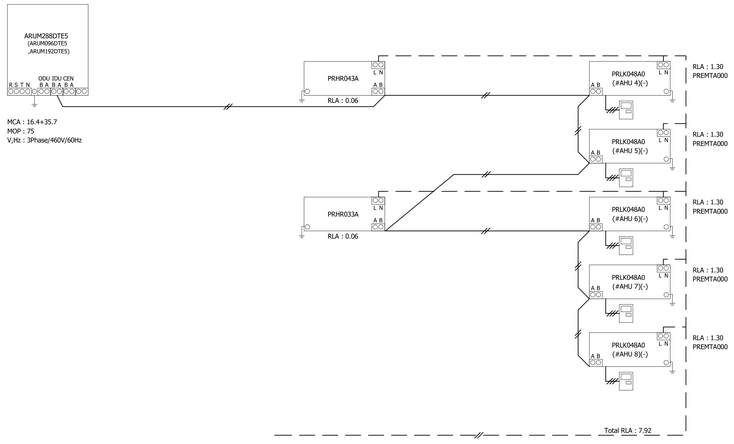
M501

2/5/2021 9:02:57 AM

Note :
Power wiring, breaker size, and disconnects should follow local code and NEC.
Multi-frame outdoor units require a separate power connection for each frame.
Refer to the most up-to-date submittal sheets for applicable electrical data.
See EEV Kit Installation Manual for wiring.

- Power line(Outdoor unit)
- Power line(Indoor unit / HR unit)
- Communication line (ODU-IDU / ODU-ODU) : Stranded and shielded AWG 18 x 2C
- Communication line (ODU-CEN) : Stranded and shielded AWG 18 x 2C
- Communication line(Remote controller) : AWG 22 x 3C

Ground shield wire at ODU only



4 CU-4 WIRING DIAGRAM
NO SCALE

Note :
Power wiring, breaker size, and disconnects should follow local code and NEC.
Multi-frame outdoor units require a separate power connection for each frame.
Refer to the most up-to-date submittal sheets for applicable electrical data.
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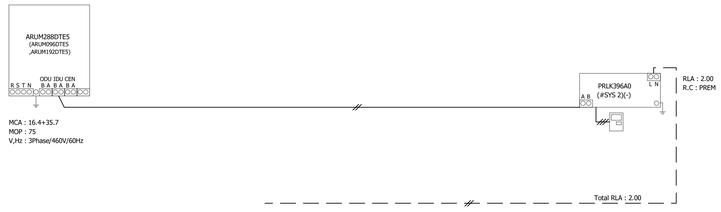
- Communication line(Remote controller) : AWG 22 x 3C

Ground shield wire at ODU only



2 CU-2 WIRING DIAGRAM
NO SCALE

Note :
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See EEV Kit Installation Manual for wiring.

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- Communication line (ODU-IDU / ODU-ODU) : Stranded and shielded AWG 18 x 2C
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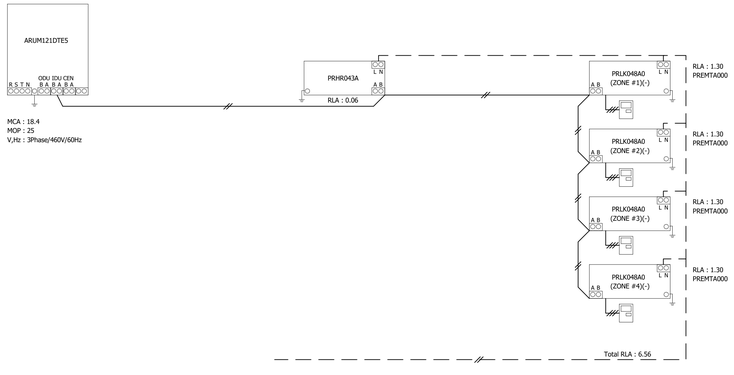
- Communication line(Remote controller) : AWG 22 x 3C

Ground shield wire at ODU only



3 CU-3 WIRING DIAGRAM
NO SCALE

Note :
Power wiring, breaker size, and disconnects should follow local code and NEC.
Multi-frame outdoor units require a separate power connection for each frame.
Refer to the most up-to-date submittal sheets for applicable electrical data.
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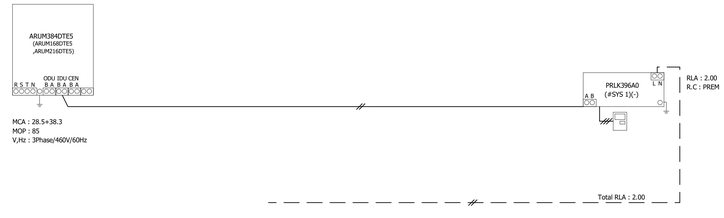
- Power line(Outdoor unit)
- Power line(Indoor unit / HR unit)
- Communication line (ODU-IDU / ODU-ODU) : Stranded and shielded AWG 18 x 2C
- Communication line (ODU-CEN) : Stranded and shielded AWG 18 x 2C
- Communication line(Remote controller) : AWG 22 x 3C

Ground shield wire at ODU only



1 CU-1 WIRING DIAGRAM
NO SCALE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

DIAGRAMS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
No. 31108
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J11160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

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2/5/2021 9:02:58 AM

CONTROLS ABBREVIATIONS

3PDT	3-POLE, DOUBLE THROW
4PDT	4-POLE, DOUBLE-THROW
AC	AIR CONDIONING
ADJ	ADJUSTABLE
AFLW	AIR FLOW
AFM	AIR FLOW METER
AFS	AIR FLOW SWITCH
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
ALM	ALARM
ALS	AMBIENT LIGHT SENSOR
AO	ANALOG OUTPUT
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BD	BACKDRAFT DAMPER
BKR	BREAKER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BSP	BUILDING STATIC PRESSURE
BTU	BRITISH THERMAL UNIT
BPV	BYPASS VALVE
C	CONTRACTOR
°C	DEGREE CELSIUS
CAV	CONSTANT AIR VOLUME
CB	CIRCUIT BREAKER
CD	COLD DECK
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWRT	CHILLED WATER RETURN TEMPERATURE
CHWS	CHILLED WATER SUPPLY
CHWST	CHILLED WATER SUPPLY TEMPERATURE
CHWV	CHILLED WATER VALVE
CLG	COOL
CLS	CLOSE
CMD	COMMAND
CNFG	CONFIGURATION
CTRL	CONTROL
CO1	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COM	COMMON
COMM	COMMUNICATION
CONT	CONTINUE
CS	CURRENT SWITCH
CSR	CURRENT SWITCH W/RELAY
CT	COOLING TOWER OR CURRENT TRANSDUCER
CTR	CURRENT TRANSDUCER W/RELAY
CTR	CENTER
CU	CONDENSING UNIT
CV	VALVE FLOW COEFFICIENT
CV	CONTROL VALVE
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWRT	CONDENSER WATER RETURN TEMPERATURE
CWS	CONDENSER WATER SUPPLY
CWST	CONDENSER WATER SUPPLY TEMPERATURE
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DBC	DESITECH BACNET CONTROLLER
DCO2	DUCT CO2 SENSOR
DDC	DIRECT DIGITAL CONTROL
DDP1	DUCT DIFFERENTIAL PRESSURE TRANSMITTER/TRANSDUCER
DDT	DUCT DEWPOINT TRANSMITTER/TRANSDUCER
DHT	DUCT HUMIDITY TRANSMITTER/TRANSDUCER
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DP	DIFFERENTIAL PRESSURE
DPDT	DOUBLE-POLE, DOUBLE THROW
DMP	DAMPER
DPS	DIFFERENTIAL PRESSURE SWITCH
DPST	DOUBLE POLE, SINGLE THROW
DPT	DIFFERENTIAL PRESSURE TRANSMITTER/TRANSDUCER
DTHT	DUCT TEMP/HUMIDITY TRANSMITTER/TRANSDUCER
DTS	DUCT TEMPERATURE SENSOR
DTT	DUCT TEMPERATURE TRANSMITTER
DWG	DRAWINGS
DX	DIRECT EX
(E)	EXISTING
EA	EXHAUST AIR OR ELECTRIC ACTUATOR
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELVTR	ELEVATOR
EMS	ENERGY MANAGEMENT SYSTEM
EM	EXPANSION MODULE
EN	ENABLE
EO	120VAC ELECTRICAL OUTPUT
EPT	ELECTRIC/PNEUMATIC TRANSDUCER
ERV	ENERGY RECOVERY VENTILATOR
F	FUSE/FLOW
(A)	FUTURE
°F	DEGREE FAHRENHEIT
FA	FIRE ALARM
FB	FEEDBACK
FCU	FAN COIL UNIT
FLR	FLOOR
FLT	FILTER
FM	FLOW METER
FPB	FAN POWERED BOX
FPM	FEET PER MINUTE
FRZR	FREEZER
FS	FLOW SWITCH
FT	FLOW TRANSMITTER
FZ	FREEZE STAT
G	GROUND
GND	GROUND
GUH	GAS-FIRED UNIT HEATER
HD	HOT DECK
HI	HIGH
HOA	HAND-OFF-AUTO
HP	HEAT PUMP OR HORSE POWER
HT	HUMIDITY TRANSMITTER/TRANSDUCER
HTG	HEATING
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWRT	HOT WATER RETURN TEMPERATURE
HWS	HOT WATER SUPPLY
HWST	HOT WATER SUPPLY TEMPERATURE
HWV	HOT WATER VALVE
HX	HEAT EXCHANGER
HZ	FREQUENCY (HERTZ)
"WC	INCH WATER COLUMN
IOM	INPUT/OUTPUT MODULE
IOU	INPUT/OUTPUT UNIT
IPT	CURRENT/PNEUMATIC TRANSDUCER
IRH	INFRARED HEATER
ISV	ISOLATION VALVE
KW	KILOWATT
KWH	KILOWATT-HOUR
LBS	POUNDS
L	LINE VOLTAGE (ABOVE 50 VOLTS)
L1	LINE VOLTAGE (ABOVE 50 VOLTS) - PHASE 1
L2	LINE VOLTAGE (ABOVE 50 VOLTS) - PHASE 2
L3	LINE VOLTAGE (ABOVE 50 VOLTS) - PHASE 3
LC	LOCAL CONTROLLER
LD	LEAD DETECTOR
LGT	LIGHTING
LO	LOW
LS	LEVEL SWITCH
LT	LEVEL TRANSMITTER/TRANSDUCER
LVL	LEVEL
M	MAIN AIR
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MAU	MAKE-UP AIR UNIT
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MDM	MODEM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MZU	MULTI-ZONE UNIT
N	NEUTRAL
(N)	NEW
N/A	NOT APPLICABLE
NC	NORMAL CLOSED
NCM	NETWORK COMMUNICATION MODULE
NEMA	NATIONAL ELEC MFR'S ASSOCIATION
NIC	NOT IN SCOPE/CONTRACT
NO	NORMALLY OPEN
NSNR	NETWORK SENSOR
NSWT	NETWORK SWITCH
OA	OUTSIDE AIR
OADT	OUTSIDE AIR DEWPOINT TRANSMITTER/TRANSDUCER
OAH	OUTSIDE AIR HUMIDITY
OAT	OUTSIDE AIR TEMPERATURE
OATHT	OUTSIDE AIR TEMPERATURE/HUMIDITY TRANSMITTER/TRANSDUCER
OPN	OPEN
OSA	OUTSIDE AIR
OVRD	OVERRIDE
OWS	OPERATOR WORKSTATION
P	PUMP/PRESSURE
PA	PNEUMATIC ACTUATOR
PC	PERSONAL COMPUTER
PD	PRESSURE DROP
PNL	PANEL
POS	POSITION
PS	DC POWER SUPPLY
PSI	POUND PER SQUARE INCH
PSR	PHOTO-SENSITIVE RESISTOR
PT	PRESSURE TRANSMITTER/TRANSDUCER
PWR	POWER
QTY	QUANTITY
R	RELAY
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RCO2	ROOM/SPACE CO2 SENSOR
REV	REVISION
RF	RETURN/RELIEF FAN
RH	RELATIVE HUMIDITY
RHT	ROOM/SPACE HUMIDITY TRANSMITTER
RHW	REHEAT VALVE
RSTR	RESISTOR
RIB	RELAY IN A BOX
RM	ROOM
RT	ROOM TEMPERATURE
RTHT	ROOM TEMPERATURE/HUMIDITY TRANSMITTER/TRANSDUCER
RTS	ROOM TEMPERATURE SENSOR
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SASP	SUPPLY AIR STATIC PRESSURE
SD	SMOKE DETECTOR
SF	SUPPLY FAN
SIG	SIGNAL
SP	STATIC PRESSURE
SPD	SPEED
SPT	STATIC PRESSURE TRANSMITTER/TRANSDUCER
SPDT	SINGLE-POLE, DOUBLE-THROW
SPST	SINGLE-POLE, SINGLE-THROW
SR	SAFETY RELAY
ST	START
STG	STAGE
STP	STOP
STS	STATUS
SV	SOLENOID VALVE
SVR	SERVER
SWT	SWITCH
T	TEMPERATURE
TES	THERMAL ENERGY STORAGE
TR	TRANSFORMER
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES OR UNLIMITED
UPS	UNINTERRUPTABLE POWER SUPPLY
ZN	ZONE
ZD	ZONE DAMPER
V	VOLT
VA	VOLT-AMP
VAC	VOLTS - ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VDC	VOLTS - DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VIBR	VIBRATION
VPT	VELOCITY PRESSURE TRANSDUCER
W	WATT
W/	WITH
W/O	WITHOUT
WD	WATER DETECTOR
WDPT	WATER DIFFERENTIAL PRESSURE TRANSMITTER/TRANSDUCER
WFM	WATER FLOW METER
WLS	WATER LEVEL SWITCH
WLT	WATER LEVEL TRANSMITTER/TRANSDUCER
WS	WORKSTATION
WPSH	WATER SOURCE HEATPUMP
WTR	WATER
WTS	WATER (IMMERSION) TEMPERATURE SENSOR
XFMR	TRANSFORMER

PANEL POWER LABELS

H OR L	HOT (ABOVE 50 VOLTS) (14 AWG) - BLACK (BLK)
N	NEUTRAL (14 AWG) - WHITE (WHT)
⏚	GROUND (14 AWG) - GREEN (GRN)
X#	24VAC (18AWG) - RED (RED)
⊡#	24VAC COMMON (18AWG) - BLACK (BKL)
V+	24VDC POSITIVE (18AWG) - BLUE (BLU)
V-	24VAC NEGATIVE (18AWG) - BLACK (BLK)

WIRE TYPE

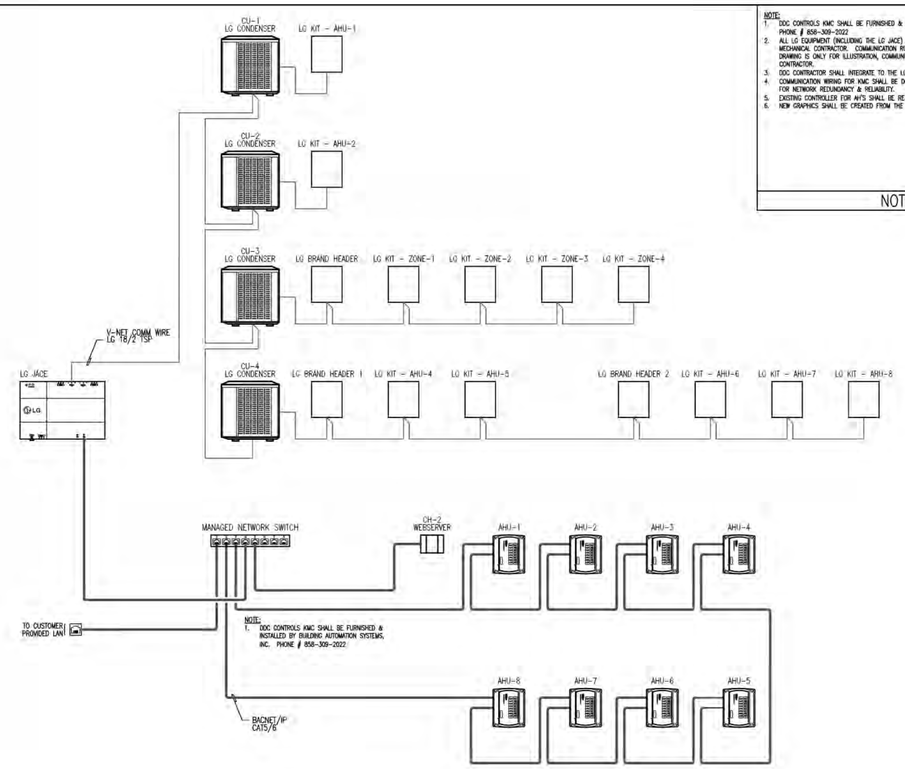
AA/BB-CC
AA = NUMBER OF CONDUCTOR
BB = WIRE SIZE
CC = S = SHELDED
= NS = NON-SHELDED

LEGENDS

- XXX/XXX — DEVICE - PROVIDED BY CONTROL CONTRACTOR
- XXX/XXX — DEVICE - PROVIDED BY OTHERS OR EXISTING (NOT BY CONTROL CONTRACTOR)
- LINE VOLTAGE WIRING (ABOVE 50V)
- LOW VOLTAGE WIRING
- GROUND
- PNEUMATIC LINE (POLY TUBE)
- ETHERNET CABLE
- BACNET CABLE
- NO — REFERENCING TERMINAL BLOCK NUMBER
- NORMALLY OPEN
- NORMALLY CLOSE
- # — NOTE #
- PUMP
- PIPE SENSOR
- FAN
- COIL
- FILTER
- DAMPER

INDEX

CONTROL ABBREVIATIONS, PANEL POWER LABELS, WIRING TYPE, LEGENDS & INDEX (1)



NOTE:
1. DDC CONTROLS KMC SHALL BE FURNISHED & INSTALLED BY BUILDING AUTOMATION SYSTEMS, INC. PHONE # 858-309-2022.

NOTES (2)

NOTE:
1. DDC CONTROLS KMC SHALL BE FURNISHED & INSTALLED BY BUILDING AUTOMATION SYSTEMS, INC. PHONE # 858-309-2022.
2. ALL LG EQUIPMENT (INCLUDING THE LG JACE) AND WIRING ARE FURNISHED & INSTALLED BY MECHANICAL CONTRACTOR. COMMUNICATION RUN FROM THE JACE TO THE LG CONDENSER ON THIS DRAWING IS ONLY FOR ILLUSTRATION, COMMUNICATION WIRING SHALL BE INSTALLED BY MECHANICAL CONTRACTOR.
3. DDC CONTRACTOR SHALL INTEGRATE TO THE LG SYSTEM VIA BACNET/IP ONLY.
4. COMMUNICATION WIRING FOR KMC SHALL BE DONE USING RAPID SPANNING TREE PROTOCOL (RSTP) FOR NETWORK REDUNDANCY & RELIABILITY.
5. EXISTING CONTROLLER FOR AHS SHALL BE RE-USED.
6. NEW GRAPHICS SHALL BE CREATED FROM THE EXISTING CH-2 WEBSERVER.

COMMUNICATION RISER SCHEMATIC (1)

Building Automation Systems Inc.
1851 NEWPORT BLVD, SUITE G
COSTA MESA, CA 92627
PHONE 714-241-0119

IMPERIAL VALLEY COLLEGE
BLDG 1500 - LIBRARY
380 EAST ATEN ROAD
IMPERIAL, CA 92251

REV #	DATE	REVISIONS
1	12/21/20	PRELIMINARY
2	01/05/21	PRELIMINARY - REVISION 1

DATE: 04/02/20
PROJECT NUMBER:
DRAWN BY: FTD
SHEET TITLE: CONTROL ABBREVIATIONS, PANEL POWER LABELS, WIRING TYPE, LEGENDS & INDEX
SHEET NUMBER: MC-01.01

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
p2s ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

DIAGRAMS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

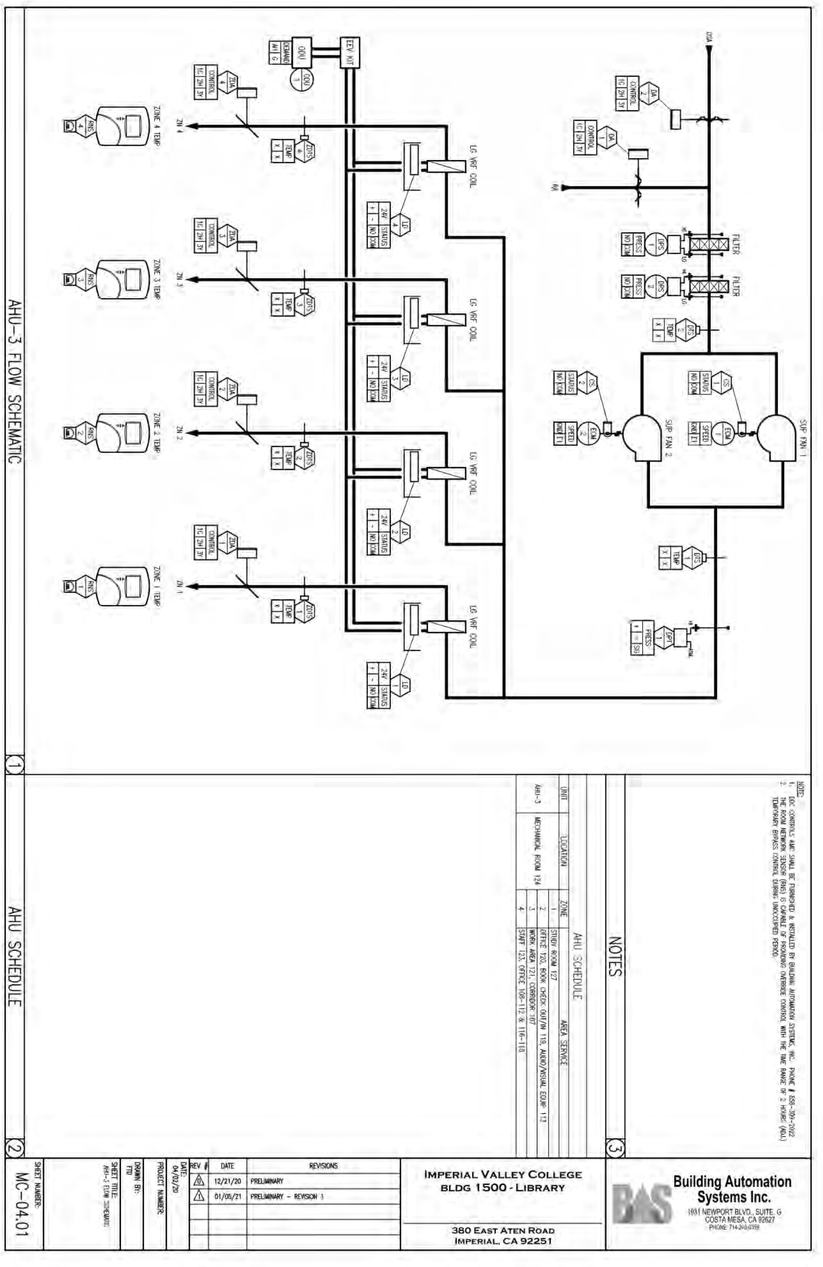
SEALS:
REGISTERED PROFESSIONAL ENGINEER
JOHN D. DEL MONTE
No. 18108
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

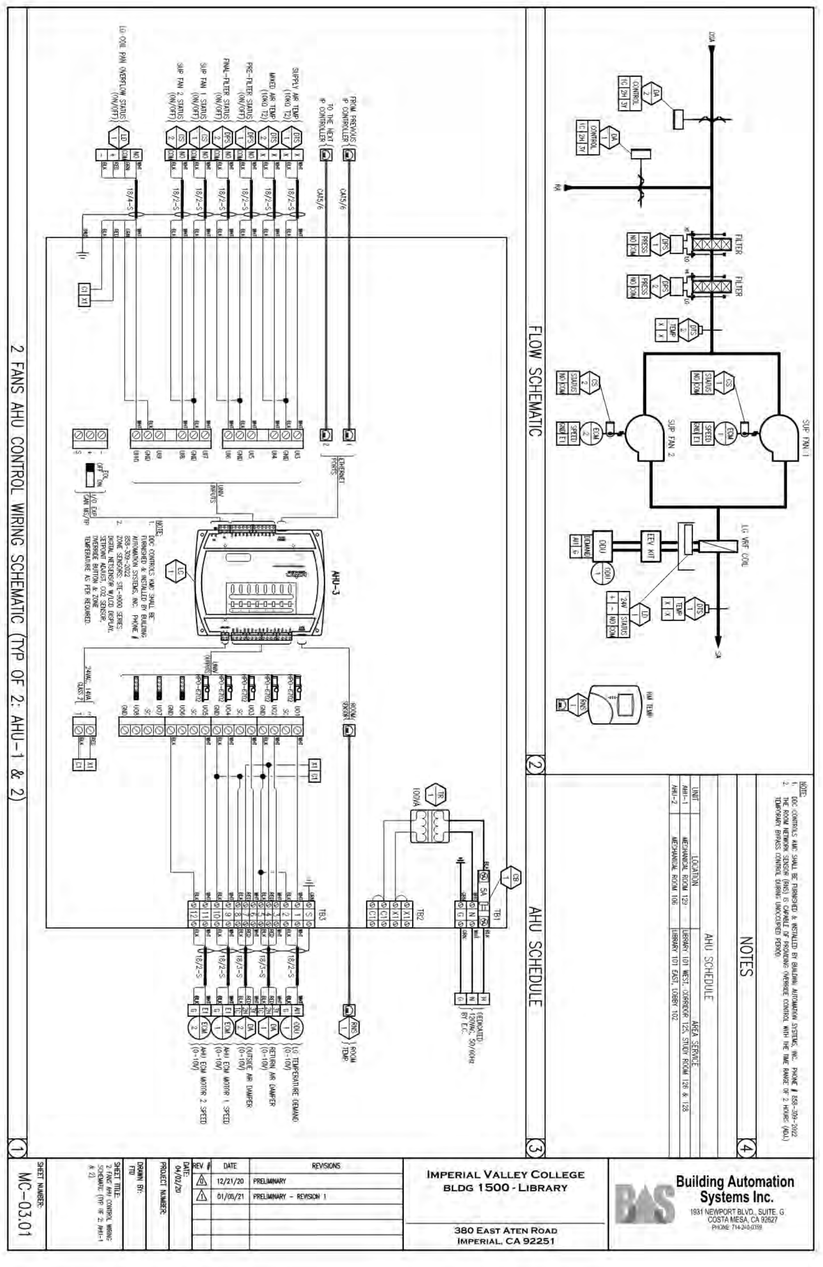
sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
1 △
2 △

M503

2/5/2021 9:03:00 AM





PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

sgh ARCHITECTS

SEALS:

DIAGRAMS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

CONSULTANT:

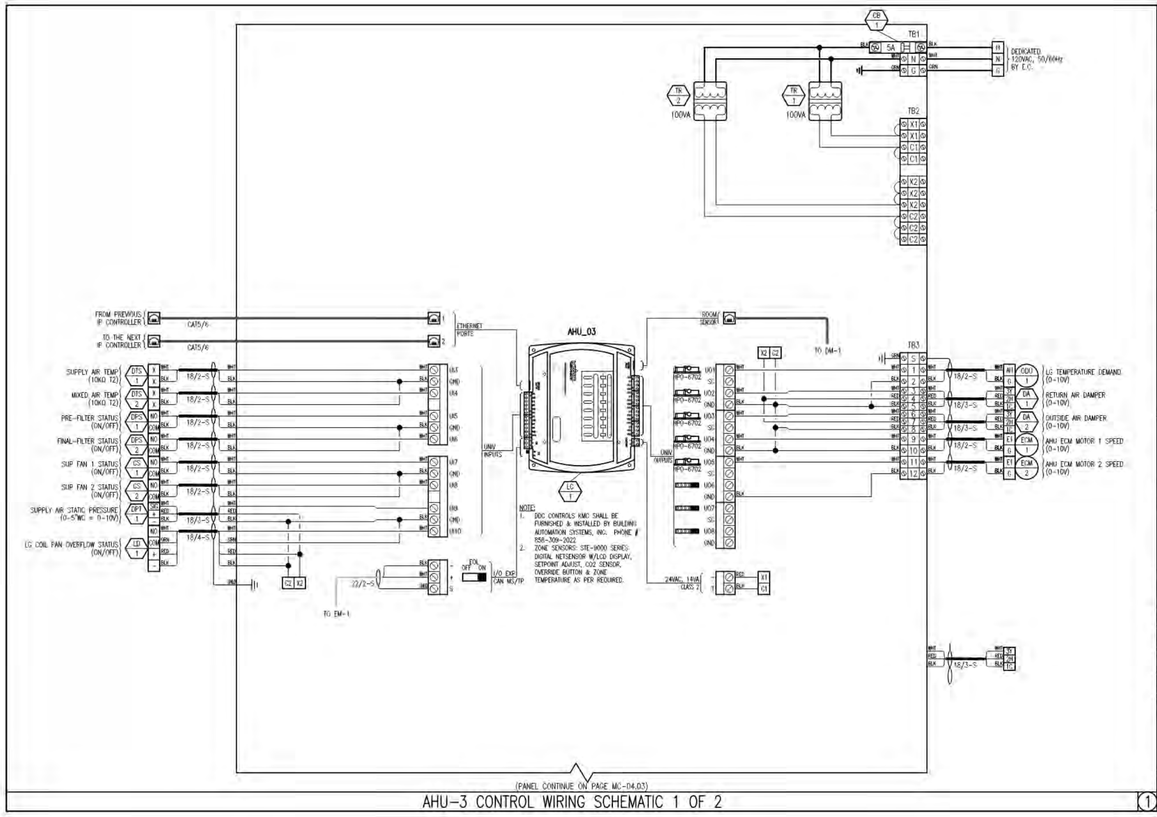
P2S ENG

Long Beach | Los Angeles
San Diego | San Jose

p2sinc.com

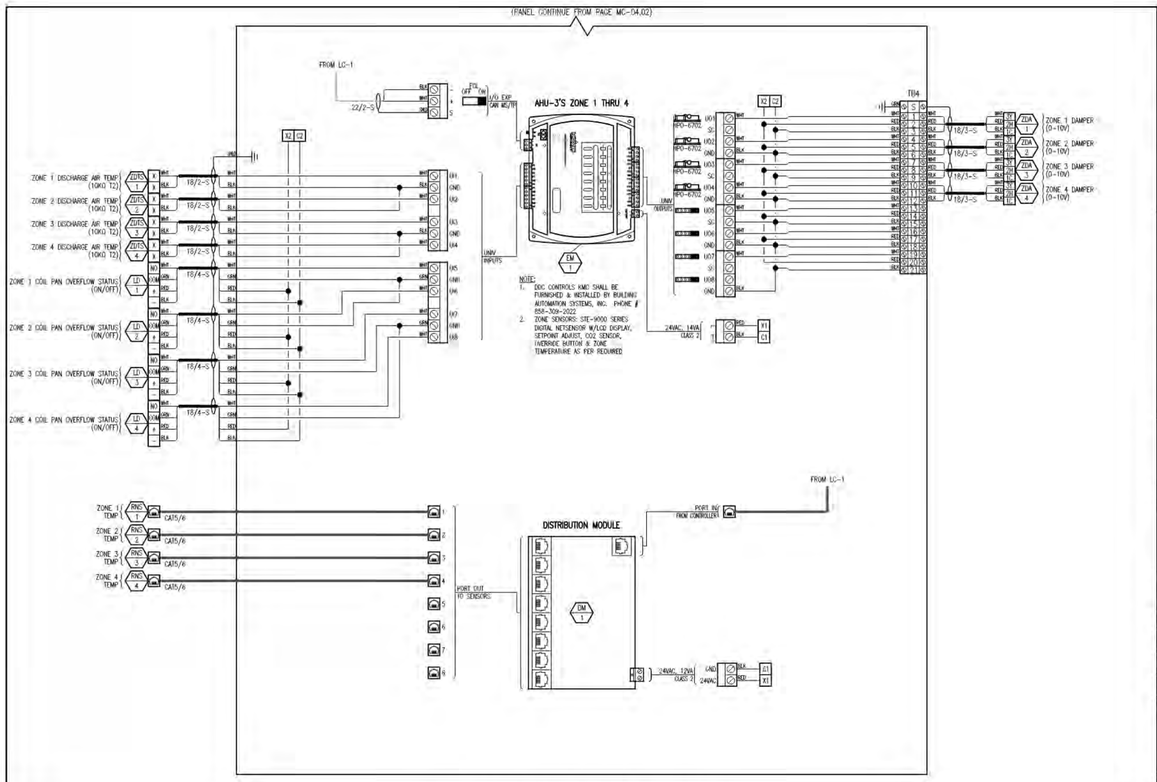
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC: △
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

M504



(PANEL CONTINUE ON PAGE MC-04.03)

AHU-3 CONTROL WIRING SCHEMATIC 1 OF 2



(PANEL CONTINUE FROM PAGE MC-04.02)

AHU-3 CONTROL WIRING SCHEMATIC 2 OF 2

Building Automation Systems Inc.
1851 NEWPORT BLVD, SUITE G
COSTA MESA, CA 92627
PHONE 714-241-0119

IMPERIAL VALLEY COLLEGE
BLDG 1500 - LIBRARY

380 EAST ATEN ROAD
IMPERIAL, CA 92251

REV #	DATE	REVISIONS
1	12/21/20	PRELIMINARY
2	01/06/21	PRELIMINARY - REVISION 1

DATE: 04/02/20

PROJECT NUMBER:

DRAWN BY: FTD

SHEET TITLE: AHU-3 CONTROL WIRING SCHEMATIC 1 OF 2

SHEET NUMBER: MC-04.02

SHEET NUMBER: MC-04.03

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DIAGRAMS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

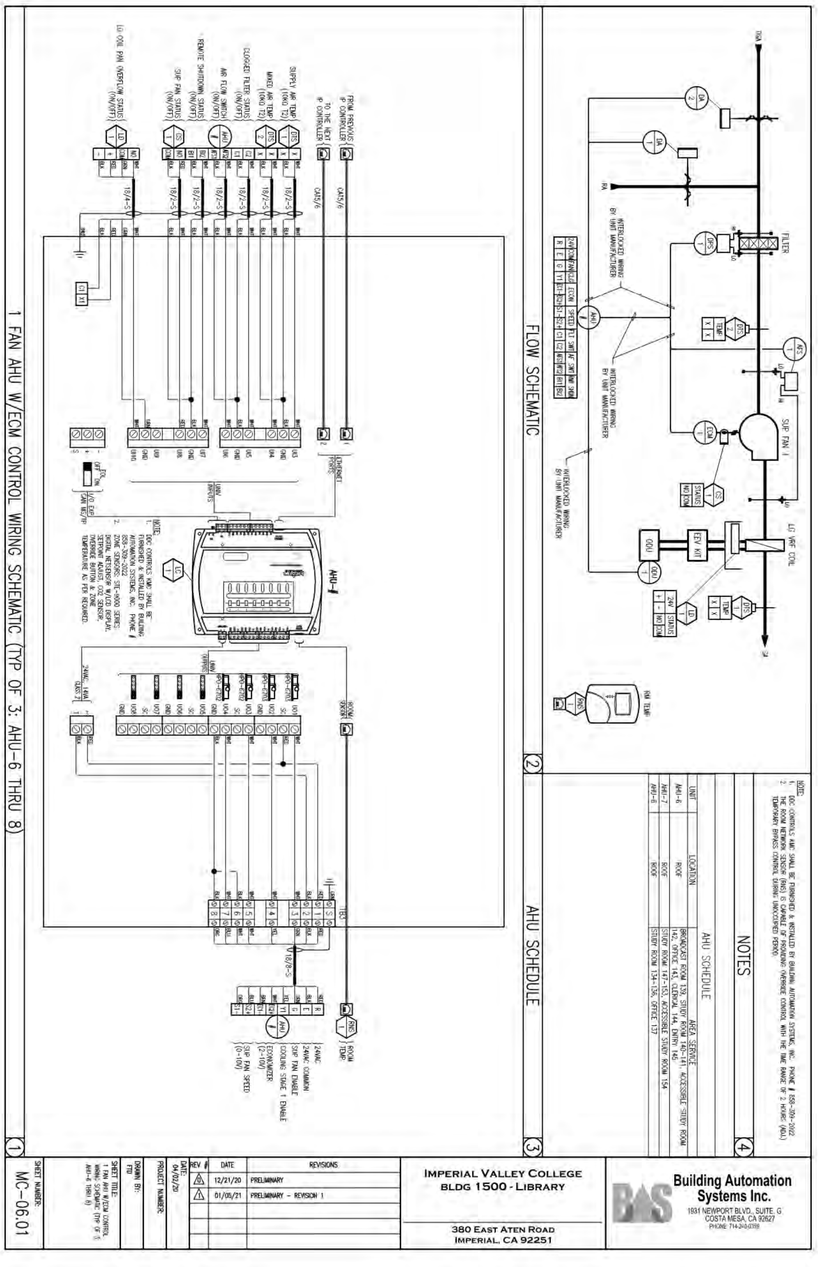
SIGNED: 01/21/2021

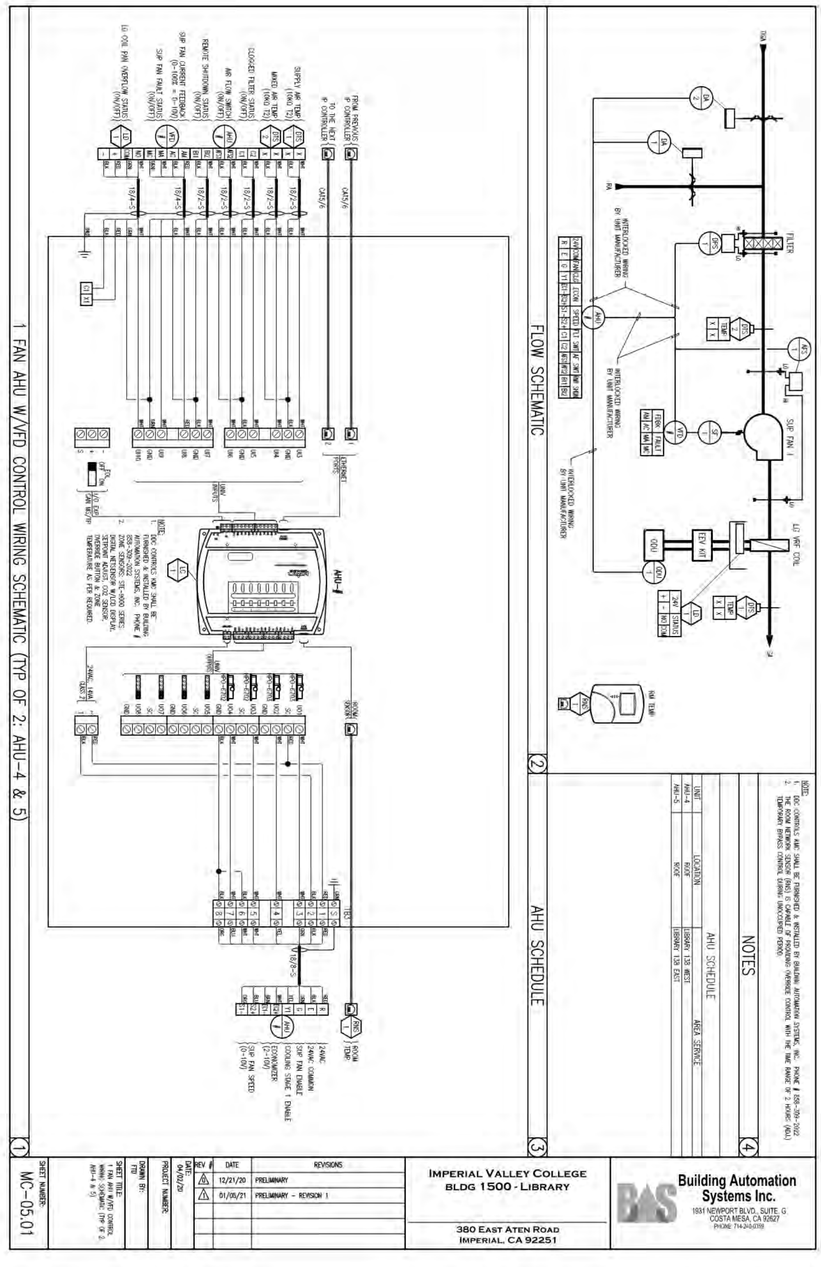
sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:

M505

2/5/2021 9:03:03 AM





PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

sgh ARCHITECTS

SEALS:

DIAGRAMS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

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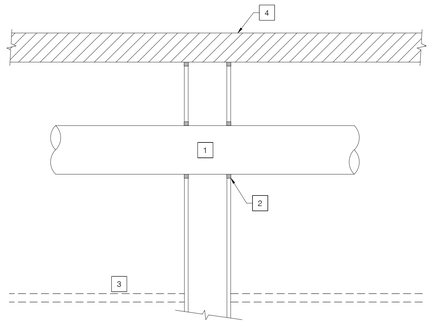
M506

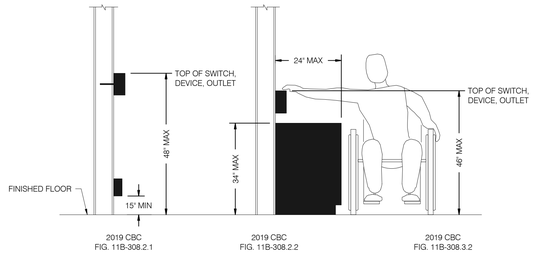


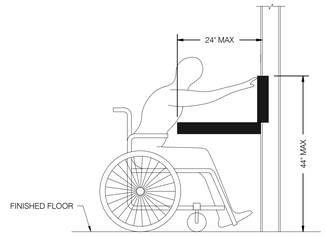
NOTES

1. DUCT, PIPE OR CONDUIT
2. MAX 1/2" GAP FILLED WITH ACOUSTICAL SEALANT (TYP.)
3. CEILING
4. FLOOR OR ROOF STRUCTURE

6 PENETRATION THROUGH ACOUSTICAL PARTITION

NO SCALE



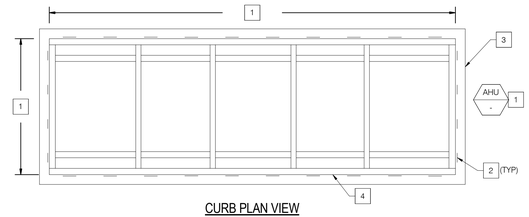


NOTES

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

4 MOUNTING HEIGHT OVER OBSTRUCTION

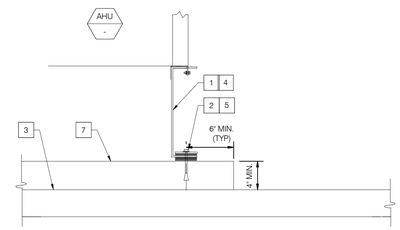
NO SCALE



CURB PLAN VIEW

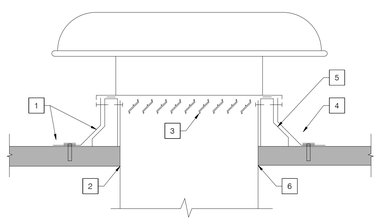
NOTES

1. PROVIDE AIR HANDLING UNIT WITH MANUFACTURER PROVIDED STRUCTURAL STEEL "C" CHANNEL BASE WELDED TO UNIT STRUCTURAL BASE FRAME (MINIMUM SIZE 8" x 2-1/2") AND SECURE ONTO CONCRETE PAD/ROOF DECK. REFER TO MECHANICAL SCHEDULES, FLOOR PLANS AND DRAWINGS FOR AIR HANDLING UNIT DIMENSIONS AND WEIGHTS.
2. SEE STRUCTURAL DETAILS 3 & 5/S3.01 FOR ANCHORAGE.
3. SLAB/FLOOR/STRUCTURE.
4. AIR HANDLING UNIT BASE WITH FACTORY FURNISHED PAD MOUNTING ANGLE FOR MOUNTING ONTO PAD.
5. 3/16 ON EACH SIDE OF pL TO CHANNEL.
6. 1/2" pL (Z CLIP-SEE NOTE 2).
7. CONCRETE PAD FOR AIR HANDLING UNITS MOUNTED ON GRADE.



2 AIR HANDLING UNIT MOUNTING DETAIL

NO SCALE

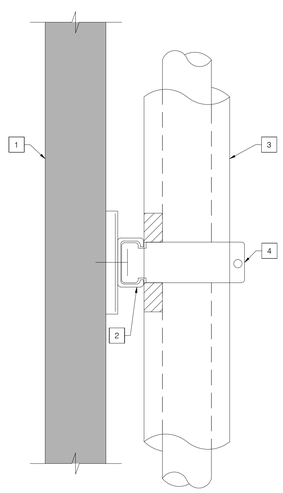


NOTES

1. ROOFING AND FLASHING, REFER TO ARCHITECTURAL DRAWINGS.
2. ROOF OPENING SHALL NOT BE LARGER THAN THE INSIDE DIMENSION OF CURB.
3. BACKDRAFT DAMPER
4. SEE STRUCTURAL DETAIL 8/S3.01 FOR ANCHORAGE.
5. MANUFACTURERS PREFABRICATED CURB
6. FRAMING AT OPENING PER STRUCTURAL DRAWINGS

5 GRAVITY VENT MOUNTING

NO SCALE

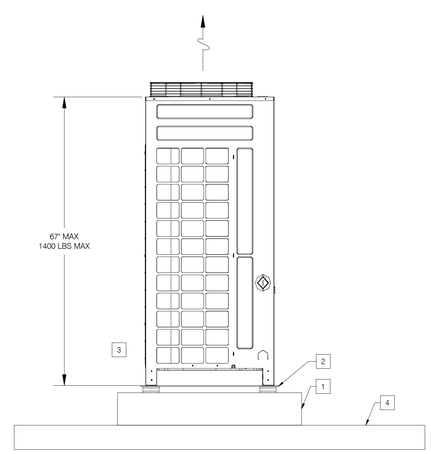


NOTES

1. WALL STRUCTURE
2. UNISTRUT P1000.X 0'-9" WITH 6'-0" MAXIMUM VERTICAL SPACING. AT STEEL STUD WALL, PROVIDE 14 GA TRACK BACKING AND SECURE WITH (4) #12 PAN HEAD SCREWS AT EACH STUD. FOR CMU WALL CONDITION PROVIDE (1) 3/8" DIA. HILTI KB-TZ WITH 2" EMBED EACH END PER ICC ESR-3785.
3. INSULATED CHILLED OR HEATING HOT WATER PIPES
4. SPLIT TYPE PIPE CLAMP

3 VERTICAL PIPE MOUNTING

NO SCALE



NOTES

1. LEVEL PLATFORM. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
2. BASE FRAME MOUNTED ABOVE MASON INDUSTRIES TYPE NK WAFFLE PAD PER STRUCTURAL DETAIL 7 ON SHEET S3.01.
3. ALL PIPING TO CONDENSING UNITS SHALL HAVE FLEXIBLE CONNECTIONS.
4. GRADE.

1 HEAT RECOVERY UNIT MOUNTED ON GRADE

NO SCALE

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DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: P/S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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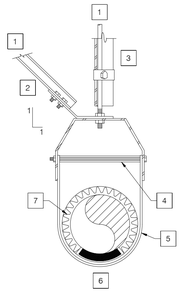
M601

2/5/2021 9:03:05 AM

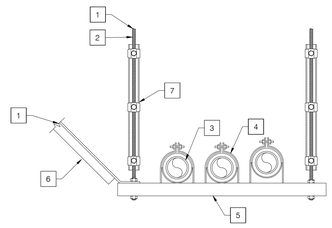


NOTES

1. ATTACH TO STRUCTURE ABOVE PER DETAIL 6/S3.01.
2. PROVIDE DIAGONAL BRACING OR SEISMIC BRACING FOR ALL SUSPENDED PIPING. REFER TO SPECIFICATIONS AND OPM-0052-13 FOR ADDITIONAL SEISMIC BRACING AND SPACING REQUIREMENTS.
3. PROVIDE ALL PIPE SUPPORTS WITH HOT DIP GALVANIZED FINISH AND VERTICAL STIFFENER AT ALL LOCATIONS. PROVIDE HANGER ROD AND CLAMP WITH CLEVIS HANGER.
4. PROVIDE PIPE SLEEVE WITH I.D. 1/4" LARGER THAN O.D. OF BOLT.
5. CLEVIS HANGER
6. PROVIDE CLEVIS HANGER FOR CHILLED OR COLD WATER PIPING AND ROLLER HANGER OF HEATING HOT WATER PIPING.
7. REFER TO SPECIFICATIONS FOR PIPING AND INSULATION REQUIREMENTS.

6 PIPE SUPPORT / BRACING

NO SCALE

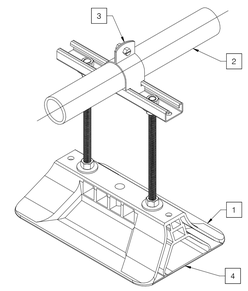


NOTES

1. FOR ATTACHMENT TO ROOF STRUCTURE ABOVE, SEE DETAIL 6/S3.01. PROVIDE UNISTRUT M2037 SWIVEL CONNECTION OR EQUIVALENT WHEREVER DIAGONAL BRACING PER NOTE 6 IS NOT PROVIDED.
2. 3/8" DIA THREADED HANGER ROD.
3. INSULATED PIPING. MAX QTY (3). MAX 1-1/2" DIAMETER. HANGER SPACING 6 FT OC MAX AND WITHIN 2 FT OF DIRECTION CHANGES.
4. UNISTRUT P2558 SERIES PIPE CLAMPS INSTALLED OUTSIDE PIPE INSULATION WITH 6 IN LONG GALVANIZED STEEL PIPE INSULATION SHIELD.
5. P1000 UNISTRUT. 36" MAX LENGTH.
6. PROVIDE DIAGONAL BRACE WHERE REQUIRED TO PREVENT PIPING FROM IMPACTING ADJACENT BUILDING ELEMENTS DURING SEISMIC EVENT. REFER TO SPECIFICATIONS AND OPM-0052-13 FOR ADDITIONAL SEISMIC BRACING AND SPACING REQUIREMENTS.
7. THREADED ROD STIFFENER PER OSHPD OPM-0052-13 DETAIL 4-1 ON SHEET M603. REQUIRED ONLY WHEN DIAGONAL BRACE IS USED.

4 SUSPENDED PIPE TRAPEZE / BRACE

NO SCALE

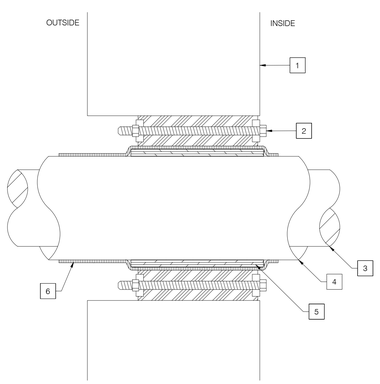


NOTES

1. ERICO CADDY PYRAMID ST SERIES FOR PIPE AND CONDUIT, OR APPROVED EQUAL
2. PIPE AND/OR CONDUIT. MAXIMUM 10 LB/FT OF WEIGHT PER SUPPORT
3. PIPE CLAMP
4. MASTIC

2 CONDENSATE DRAIN PIPE SUPPORT

NO SCALE



NOTES

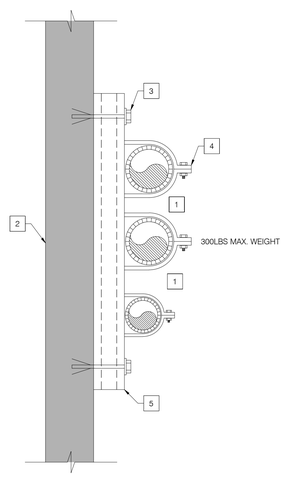
1. EXTERIOR WALL.
2. WATER PROOF LINK SEAL ASSEMBLY
3. CARRIER PIPE
4. INSULATION AND JACKET
5. REINFORCE PIPE JACKET AS NECESSARY TO AVOID COLLAPSING OF JACKET WHEN INSTALLING LINK SEAL.
6. HDPE OR HEAT SHRINK
7. SCHEDULE 40 STEEL PIPE SLEEVE WITH INTEGRAL WATER STOP

GENERAL NOTES

1. PIPE SLEEVE SIZE SHALL CONFORM WITH LINK SEAL MFG'S REQUIREMENTS.

5 PIPE PENETRATION THROUGH WALL

NO SCALE

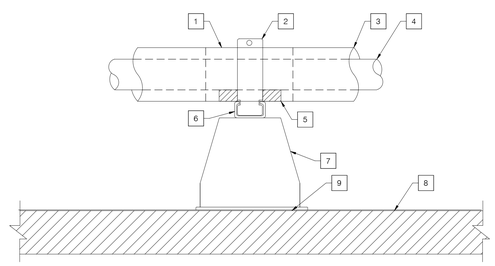


NOTES

1. INSULATED PIPES SUPPORTED TO WALL STRUCTURE
2. WALL STRUCTURE
3. UNISTRUT P100 X 0'-9" WITH 6'-0" MAXIMUM VERTICAL SPACING. BOLT SIZING AND EMBEDMENT PER DETAIL 21/A2.12
4. SPLIT TYPE B-LINE BVT OR EQUAL.
5. 1-5/8" 12-GA STRUT FRAME, 48"O.C.

3 PIPE WALL SUPPORT

NO SCALE



NOTES

1. RIGID INSULATION INSERT
2. UNISTRUT PIPE CLAMP
3. INSULATION
4. PIPE
5. PIPE SADDLE
6. UNISTRUT CHANNEL
7. H-BLOCK PRE-ENGINEERED PIPE SUPPORT SYSTEM. ONE PIPE PER SUPPORT.
8. GRADE
9. PROVIDE MASTIC TO MOUNT PIPE SUPPORT SYSTEM TO GRADE.

1 CONDENSATE DRAIN PIPE SUPPORT

NO SCALE

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DETAILS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
JORGE DEL MONTE
No. M 18108
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

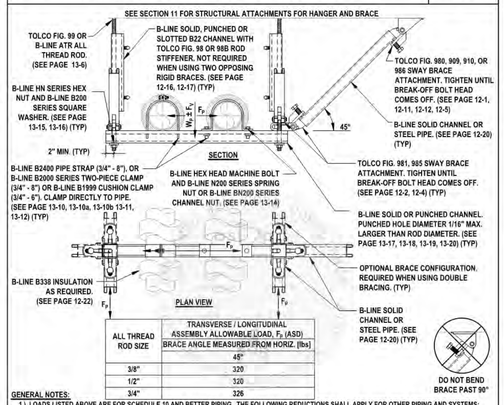
sgh ARCHITECTS

PROJECT NUMBER: P/S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
1

M602

TRANSVERSE AND LONGITUDINAL COMBINATION RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT WITH SINGLE TRAPEZE STRUT

DETAIL 3/4



ALL THREAD ROD SIZE	TRANSVERSE / LONGITUDINAL ASSEMBLY ALLOWABLE LOAD, F_p (ASD) BRACE ANGLE MEASURED FROM HORIZ. [lbs]
	45°
3/8"	320
1/2"	320
3/4"	326

GENERAL NOTES:

1.) LOADS LISTED ABOVE ARE FOR SCHEDULE 10 AND BETTER PIPING. THE FOLLOWING REDUCTIONS SHALL APPLY FOR OTHER PIPING AND SYSTEMS:
   a.) PIPING WITH INSULATION - REDUCE LOADS BY 0%
   b.) THIN WALL PIPING - REDUCE LOADS BY 0%
   c.) CONDUITS INCLUDING EMT - REDUCE LOADS BY 0%
2.) SEE PAGE 4-21, 4-22, 4-23, 4-24, 4-25 FOR OPTIONAL AND/OR ADDITIONAL BRACE CONFIGURATIONS.
3.) BRACES MAY BE INSTALLED IN OPPOSING DIRECTION.
4.) THE ABOVE ASSEMBLY ALLOWABLE LOADS CAN BE APPLIED CONCURRENTLY TO BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS WITHOUT REDUCTION.
5.) VERIFY THE ADEQUACY OF THE SYSTEM ATTACHMENT TO THE STRUT. THE ATTACHMENT MUST BE ADEQUATE TO TRANSFER TRANSVERSE, LONGITUDINAL AND VERTICAL SEISMIC LOADS TO STRUT AS PER SECTION 13.
6.) THE FIG 909 AND FIG 910 ARE FOR USE ONLY WITH STEEL PIPE BRACES. PER PAGES 12-11 AND 12-12.
7.) DESIGN PROFESSIONAL SHALL CONSIDER ECCENTRIC LOAD DISTRIBUTION WHEN DETERMINING THE F_p VALUE USED IN DESIGN.

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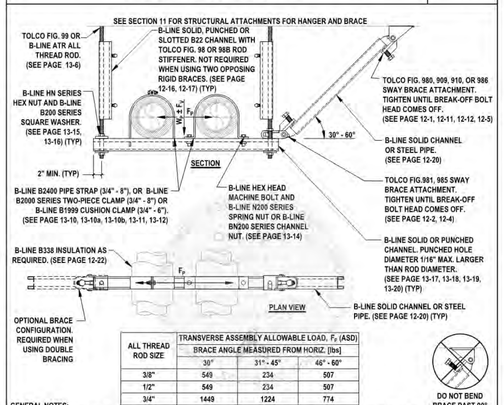
EATON'S B-LINE BUSINESS
509 WEST MONROE STREET | HIGHLAND, IL 62249
P: (888) 853-7415 | F: (888) 268 1438
Structural Engineer: Mohammad Hariri
California SE No. S3545
PAGE: 4-3
DATE: NOVEMBER 29, 2016

12/06/2016 OPM-0052-13: Reviewed for Code Compliance by Jeffrey Kikumoto Page 132 of 501

TRANSVERSE RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT WITH SINGLE TRAPEZE STRUT

DETAIL 3



ALL THREAD ROD SIZE	TRANSVERSE ASSEMBLY ALLOWABLE LOAD, F_p (ASD) BRACE ANGLE MEASURED FROM HORIZ. [lbs]		
	30°	31° - 45°	46° - 60°
3/8"	549	234	507
1/2"	549	234	507
3/4"	1449	1224	774

GENERAL NOTES:

1.) LOADS LISTED ABOVE ARE FOR SCHEDULE 10 AND BETTER PIPING. THE FOLLOWING REDUCTIONS SHALL APPLY FOR OTHER PIPING AND SYSTEMS:
   a.) PIPING WITH INSULATION - REDUCE LOADS BY 25% FOR 1"-2" PIPES, 32% FOR 2.5"-3.5" PIPES AND 43% FOR 4"-8" PIPES.
   b.) THIN WALL PIPING - REDUCE LOADS BY 0%
   c.) CONDUITS INCLUDING EMT - REDUCE LOADS BY 15%
2.) SEE PAGE 4-21, 4-22, 4-23, 4-24, 4-25 FOR OPTIONAL AND/OR ADDITIONAL BRACE CONFIGURATIONS.
3.) TRANSVERSE BRACE MAY BE INSTALLED IN OPPOSING DIRECTION.
4.) VERIFY THE ADEQUACY OF THE SYSTEM ATTACHMENT TO THE STRUT. THE ATTACHMENT MUST BE ADEQUATE TO TRANSFER TRANSVERSE, LONGITUDINAL AND VERTICAL SEISMIC LOADS TO STRUT AS PER SECTION 13.
5.) THE FIG 909 AND FIG 910 ARE FOR USE ONLY WITH STEEL PIPE BRACES, PER PAGES 12-11 AND 12-12.

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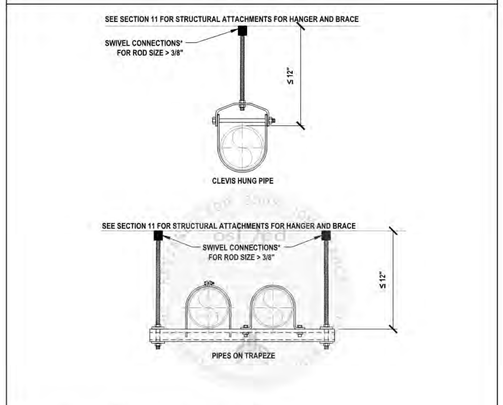
12" RULE FOR SUSPENDED PIPING



*NOTE: CONNECTIONS COMPLYING INCLUDE SWIVEL JOINT, EYE BOLTS, ETC.

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California SE No. S3545
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DATE: NOVEMBER 29, 2016

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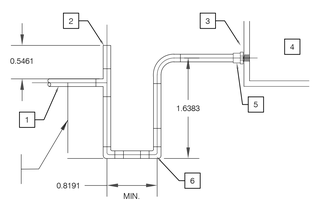


TONS	DRAIN SIZE
0-20	3/4"
21-40	1"

NOTES:

1. ALL INTERIOR CONDENSATE DRAINS SHALL BE INSULATED FOR 1st 12 FEET FROM UNIT

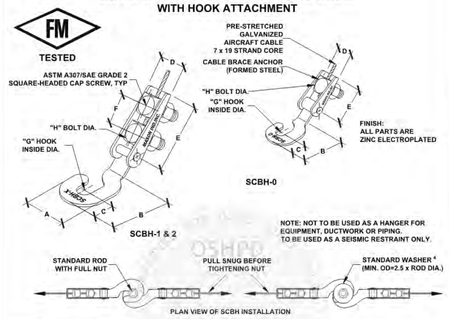
NOTES

1. SLOPE TO APPROVED RECEPTACLE
2. VENT SAME AS SIZE AS DRAIN
3. DRAIN LINE SHALL BE MINIMUM SAME SIZE AS CONNECTION ON THE UNIT
4. AC UNIT
5. MALE ADAPTER
6. TYPE 'M" COPPER TUBING WITH WROUGHT COPPER FITTING

1 CONDENSATE DRAIN TRAP
NO SCALE

MASON IND. N.Y. SCBH - SEISMIC CABLE BRACE WITH HOOK ATTACHMENT

FM TESTED



TYPE SCBH DIMENSIONS (inches mm)

SIZE	FOR USE WITH ROD SIZES	A		B		C		D		E		F		G		H	
SCBH-0	3/8	10	1 3/8	35	2 3/16	52	1 15/16	17	3/8	24	1 3/4	44	-	-	3/8	10	5/8	16
SCBH-1	1/2 *, 5/8	13, 16	1 7/8	48	2 7/8	68	1	25	1	25	3 7/8	86	1 1/2	38	5/8	16	5/8	16
SCBH-2	3/4 *, 7/8	19, 22	2 5/8	73	3 7/8	95	1 1/2	35	1 1/2	32	4 3/8	111	1 3/4	44	7/8	22	3/4	19

TYPE SCBH ASSEMBLY RATINGS (ASD)

SIZE	CABLE DIA.[1]		LATERAL LOAD RATINGS [3]						TORQUE ON BOLTS[5]		
	(in)	(mm)	30° - 45° [2]			46° - 60° [2]					
			lbs	kN	kg	lbs	kN	kg	Ft-lbs	N-m	Kg-m
SCBH-0	3/32	2.4	283	1.3	128	200	0.9	91	30	41	4.2
SCBH-1	1/8	3	565	2.5	256	400	1.8	181	25	34	3.5
SCBH-2	3/16	5	1030	4.6	467	480	2.2	218	45	61	6.2

1. CABLES SHALL MEET THE FOLLOWING SPECIFICATIONS: MIL-DTL-83420M WITH AMENDMENT 2 AND RR-W-410F.
2. BRACE ANGLE MEASURED FROM HORIZONTAL.
3. REFER TO PAGE X4.0 FOR BREAK-OFF NUT (MW-SCB-BON) OPTION TO STANDARD HEX NUT.
4. STANDARD WASHER REQUIRED FOR ROD SIZES SMALLER THAN THE HOOK INSIDE DIAMETER 'G'.
5. ATTACHMENT TO STEEL OR OTHER SUBSTRATES (e.g., CONCRETE, WOOD) MAY GOVERN THE DESIGN OF THE OVERALL BRACE ASSEMBLY AND SHALL BE EVALUATED ON A PROJECT BY PROJECT BASIS PER ATTACHMENT LOAD RATINGS IN SECTION N.

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PAGE X1.1

4/6/2020 OPM-0043-13: Reviewed for Code Compliance by Jeffrey Kikumoto 776 of 837

MASON IND. N.Y. SCB - SEISMIC CABLE BRACE

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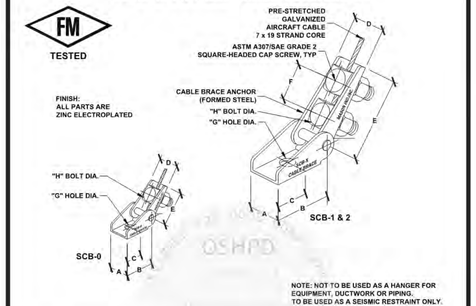

TYPE SCB DIMENSIONS (inches mm)

SIZE	A		B		C		D		E		F		G		H	
SCB-0	1 9/16	33	1 1/2	38	3/4	19	15/16	24	1 3/4	44	-	-	7/16	11	5/8	16
SCB-1	1 3/8	35	2	51	1	25	1	25	3 7/8	86	1 1/2	38	9/16	14	5/8	16
SCB-2	1 3/4	41	2 3/4	70	1 3/8	35	1 1/2	32	4 3/8	111	1 3/4	44	15/16	17	3/4	19

TYPE SCB ASSEMBLY RATINGS (ASD)

SIZE	CABLE DIA.[1]		LATERAL LOAD RATINGS [3]						TORQUE ON BOLTS[5]		
	(in)	(mm)	30° - 45° [2]			46° - 60° [2]					
			lbs	kN	kg	lbs	kN	kg	Ft-lbs	N-m	Kg-m
SCB-0	3/32	2.4	283	1.3	128	200	0.9	91	30	41	4.2
SCB-1	1/8	3	565	2.5	256	400	1.8	181	25	34	3.5
SCB-2	3/16	5	1188	5.3	539	840	3.7	381	45	61	6.2

1. CABLES SHALL MEET THE FOLLOWING SPECIFICATIONS: MIL-DTL-83420M WITH AMENDMENT 2 AND RR-W-410F.
2. BRACE ANGLE MEASURED FROM HORIZONTAL.
3. REFER TO PAGE X4.0 FOR BREAK-OFF NUT (MW-SCB-BON) OPTION TO STANDARD HEX NUT.
4. ATTACHMENT TO STEEL OR OTHER SUBSTRATES (e.g., CONCRETE, WOOD) MAY GOVERN THE DESIGN OF THE OVERALL BRACE ASSEMBLY AND SHALL BE EVALUATED ON A PROJECT BY PROJECT BASIS PER ATTACHMENT LOAD RATINGS IN SECTION N.

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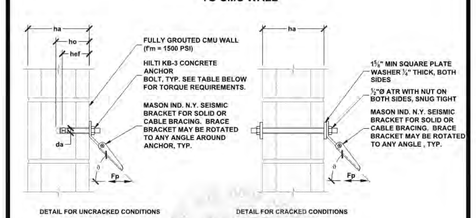
SEISMIC BRACKET ATTACHMENT TO CMU WALL



NOTE:

WHEN USING HILTI KB-3 CONCRETE ANCHOR ATTACHMENT TO CMU WALL, SEOR SHALL VERIFY:

(1) MASONRY IS NOT CRACKED AS DEFINED IN ICC-ES AC01 SECTION 2.3; CALCULATION REQUIRED TO SHOW MASONRY WALL WOULD NOT CRACK UNDER THE DESIGN EARTHQUAKE LOADS UNDER ALL SERVICE LOAD CONDITIONS; WALL HAS TO REMAIN ELASTIC.

(2) MASONRY WALL SHALL BE FULLY GROUTED IN ACCORDANCE WITH ESR-1385 SECTION 3.2.

(3) CONDITION OF USE REQUIREMENTS IN ACCORDANCE WITH ESR-1385 SECTION 5.0 IS SATISFIED.

BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	BRACE BRACKET ATTACHMENT TYPE	D_a = 2.0[1] ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE[2] RANGE R	HILTI KB-3 CONCRETE ANCHOR (ICC ESR-1385) SPECIAL INSPECTION REQ'D MIN. DIA. da INCH	MIN. EFF. EMBED. hef INCH	MIN. HOLE DEPTH ho INCH	MIN. BASE TH. ha INCH	MIN. EDGE Cmin INCH	MIN. SPACING Smin INCH	TORQUE REQ'D FT-LBS
38A TO 38E	390	38A TO 38C	240	30°- 45°	1/4	2 1/2	2 15/16	8	12	8	15
38A TO 38D	310	38A TO 38C	190	46°- 60°							
50A TO 50F	520	50A TO 50D	310	30°- 45°	1/2	3 1/2	4 1/16	8	12	8	25
50A TO 50E	430	50A TO 50D	260	46°- 60°							
63A TO 63H	700	63A TO 63E	420	30°- 45°	5/8	4	4 11/16	8	12	8	65
63A TO 63F	560	63A TO 63D	340	46°- 60°							
75A TO 75J	900	75A TO 75F	540	30°- 45°	3/4	4 1/2	5 5/16	8	12	8	120
75A TO 75H	720	75A TO 75E	430	46°- 60°							

1 SEE DETAIL N0.00 FOR SECTION NOTES
2 HILTI KB-3 MASONRY ANCHOR MUST BE INSTALLED IN THE FACE OF CMU SHELLS A MINIMUM OF 1½" FROM ANY VERTICAL MORTAR JOINT AND LIMITED TO ONE ANCHOR PER CELL.
3 OVERSTRENGTH FACTOR AS REQUIRED FOR ANCHORAGE TO CONCRETE

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IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

DETAILS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
No. M 18658
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S_J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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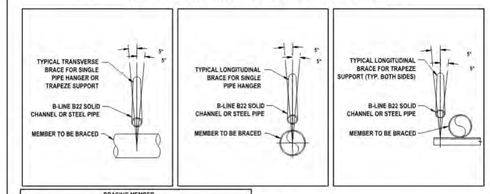
MAXIMUM ALLOWABLE LENGTHS AND AXIAL LOADS FOR BRACE MEMBERS



BRACING MEMBER					
PIPE DIAMETER	MAXIMUM LENGTH	SCHED.	ALLOWABLE HORIZ. SEISMIC LOAD (LBS)(ASD) BRACE ANGLE MEASURED FROM HORIZ.		
			0° - 30°	31° - 45°	46° - 60°
SEISMIC BRACING KL/R = 200					
1"	7'-0"	40	976	792	566
1 1/4"	9'-0"	40	1307	1061	758
1 1/2"	10'-4"	40	1594	1301	920
2"	13'-1"	40	2126	1735	1227
3"	19'-6"	10	4330	3535	2500
3 1/2"	22'-4"	10	5284	4285	3030
4"	25'-0"	10	6235	5091	3600

BRACING MEMBER				
STRUT SIZE	MAXIMUM LENGTH	ALLOWABLE HORIZ. SEISMIC LOAD (LBS)(ASD) BRACE ANGLE MEASURED FROM HORIZ.		
		0° - 30°	31° - 45°	46° - 60°
SEISMIC BRACING K/R = 200				
B-LINE B22	9'-6"	1800	1552	1091
B-LINE B24	9'-6"	1406	1215	859

BRACING MEMBER				
PRE STRETCHED GALVANIZED, 7X19, AIRCRAFT CABLE DIAMETER	MAXIMUM LENGTH	ALLOWABLE HORIZ. SEISMIC LOAD (LBS)(ASD) BRACE ANGLE MEASURED FROM HORIZ.		
		0° - 30°	31° - 45°	46° - 60°
SEISMIC BRACING KL/R = N/A				
1/8"	-	873	689	487
3/16"	-	1774	1449	1024
1/4"	-	2727	2227	1574

NOTES:

1.) ALL LONGITUDINAL AND TRANSVERSE BRACING UTILIZING PIPE OR CHANNEL, AS THE BRACING MEMBER HAS A TOLERANCE OF 5° FROM CENTER IN ANY PLANE WITHOUT AFFECTING THE ALLOWABLE LOADS.
2.) TABULATED LOADS ARE SUBJECT TO LIMITS GOVERNED BY THE CAPACITY OF THE PRIMARY STRUCTURE, INCLUDING BUT NOT LIMITED TO, THE CONCRETE FILL OVER METAL DECK. CAPACITY PER THE CONTRACT DOCUMENTS.
3.) STEEL PIPE PER ASTM A53 TYPE E GRADE B.
4.) "MAXIMUM LENGTH" IS MEASURED FROM ENDS OF PIPE, OR ENDS OF STRUT, OR FROM ATTACHMENTS OF CABLE.
5.) PRE-STRETCHED GALVANIZED , 7 X19, AIRCRAFT CABLE SHALL BE IN COMPLIANCE WITH ASTM A1023.

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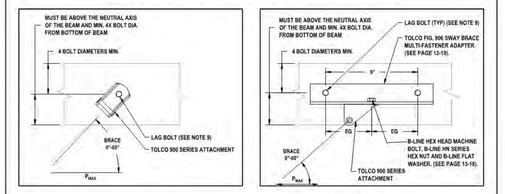
Structural Engineer: Mohammad Hariri
California SE No. S3545

PAGE: 12-20
DATE: NOVEMBER 29, 2016

LAG BOLT STRUCTURAL ATTACHMENTS PARALLEL TO WOOD BEAM



LAG BOLT SIZE DIA. X LENGTH	ALLOWABLE STRENGTH DESIGN (ASD) MAX. HORIZONTAL LOAD (P_{MAX}) BRACE ANGLE MEASURED FROM HORIZONTAL (LB)					
	1 BOLT			2 BOLT		
	0° - 30°	31° - 45°	46° - 60°	0° - 30°	31° - 45°	46° - 60°
1/2" X 3"	122	87	55	150	100	56
5/8" X 4"	190	134	84	237	154	89
3/4" X 5"	279	194	119	347	222	127

LAG BOLT PILOT HOLE SIZES			
BOLT (in)	SHANK (in)	PILOT HOLE SIZES THREADED SECTION	
		SOFT WOOD GROUPS III (in)	MEDIUM WOOD GROUP II (in)
1/2"	1/2"	5/16	5/16
5/8"	5/8"	7/16	7/16
3/4"	3/4"	1/2	1/2

NOTES:

1.) LAG BOLT HOLE SHALL BE BORED TO THE MIN. SIZE LISTED ON LAG BOLT PILOT HOLE SIZES TABLE.
2.) LOADS FOR THRU-BOLT ATTACHMENTS WERE DERIVED FROM CBC 2013 AND NDS 2005 FOR DOUGLAS FIR-LARCH [S.G. = 0.50], CALIFORNIA REDWOOD (CLOSE GRAIN) [S.G. = 0.44] AND SOUTHERN PINE [S.G. = 0.55].
3.) MINIMUM BEAM SIZE FOR 1/2" = 4x; FOR 5/8" AND 3/4" BOLTS = 6x
4.) STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE FOR THE TABULATED ALLOWABLE LOADS, INCLUDING BUT NOT LIMITED TO ANY BLOCKING REQUIREMENTS.
5.) LAG BOLTS SHALL NOT BE USED FOR BRACING FIRE SPRINKLER SYSTEMS.
6.) ADAPTER HOLE SIZE SHALL BE NO LARGER THAN BOLT DIAMETER PLUS 1/16" PER AISI.
7.) HHMB FASTENERS SHALL BE A307 BOLTS OR BETTER.
8.) LAG BOLT SHALL MEET ANSI/ASME STANDARD B18.2.1 MINIMUM MATERIAL SPECIFICATIONS, Fy = 45,000 PSI (MIN.).

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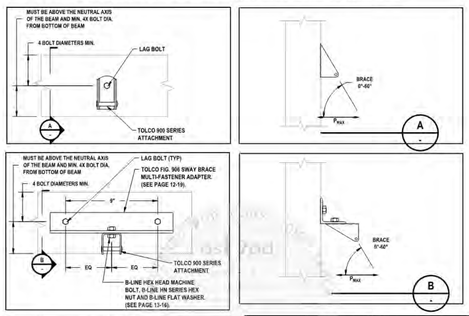
PAGE: 11-65
DATE: NOVEMBER 29, 2016

LAG BOLT STRUCTURAL ATTACHMENTS PERPENDICULAR TO WOOD BEAM



BOLT DIAMETER	ALLOWABLE STRENGTH DESIGN (ASD) MAX. HORIZONTAL LOAD (P_{MAX}) BRACE ANGLE MEASURED FROM HORIZONTAL (LB)					
	1 BOLT			2 BOLT		
	0° - 30°	31° - 45°	46° - 60°	0° - 30°	31° - 45°	46° - 60°
1/2" x 3"	82	69	89	169	151	136
5/8" x 4"	102	192	192	174	174	174
3/4" x 5"	178	193	193	327	327	298

LAG BOLT PILOT HOLE SIZES			
BOLT (in)	SHANK (in)	PILOT HOLE SIZES THREADED SECTION	
		SOFT WOOD GROUPS III (in)	MEDIUM WOOD GROUP II (in)
1/2"	1/2"	5/16	5/16
5/8"	5/8"	7/16	7/16
3/4"	3/4"	1/2	1/2

NOTES:

1.) LAG BOLT HOLE SHALL BE BORED TO THE MIN. SIZE LISTED ON LAG BOLT PILOT HOLE SIZES TABLE.
2.) LOADS FOR THRU-BOLT ATTACHMENTS WERE DERIVED FROM CBC 2013 AND NDS 2005 FOR DOUGLAS FIR-LARCH [S.G. = 0.50], CALIFORNIA REDWOOD (CLOSE GRAIN) [S.G. = 0.44] AND SOUTHERN PINE [S.G. = 0.55].
3.) MINIMUM BEAM SIZE FOR 1/2" = 4x; FOR 5/8" AND 3/4" BOLTS = 6x
4.) STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE FOR THE TABULATED ALLOWABLE LOADS, INCLUDING BUT NOT LIMITED TO ANY BLOCKING REQUIREMENTS.
5.) LAG BOLTS SHALL NOT BE USED FOR BRACING FIRE SPRINKLER SYSTEMS.
6.) ADAPTER HOLE SIZE SHALL BE NO LARGER THAN BOLT DIAMETER PLUS 1/16" PER AISI.
7.) HHMB FASTENERS SHALL BE A307 BOLTS OR BETTER.
8.) LAG BOLT SHALL MEET ANSI/ASME STANDARD B18.2.1 MINIMUM MATERIAL SPECIFICATIONS, Fy = 45,000 PSI (MIN.).

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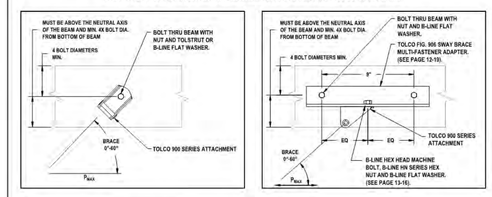
DATE: NOVEMBER 29, 2016

THRU-BOLT STRUCTURAL ATTACHMENTS PARALLEL TO WOOD BEAM



BOLT DIAMETER	ALLOWABLE STRENGTH DESIGN (ASD) MAX. HORIZONTAL LOAD (P_{MAX}) BRACE ANGLE MEASURED FROM HORIZONTAL (LB)					
	1 BOLT			2 BOLT		
	0° - 30°	31° - 45°	46° - 60°	0° - 30°	31° - 45°	46° - 60°
1/2"	260	260	260	440	440	440
5/8"	320	320	320	540	540	460
3/4"	380	380	380	600	600	460

NOTES:

1.) BOLT HOLES SHALL BE BORED 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER.
2.) LOADS FOR THRU-BOLT ATTACHMENTS WERE DERIVED FROM CBC 2013 AND NDS 2005 FOR DOUGLAS FIR-LARCH [S.G. = 0.50], CALIFORNIA REDWOOD (CLOSE GRAIN) [S.G. = 0.44] AND SOUTHERN PINE [S.G. = 0.55].
3.) MINIMUM BEAM SIZE = 4x
4.) STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE FOR THE TABULATED ALLOWABLE LOADS, INCLUDING BUT NOT LIMITED TO ANY BLOCKING REQUIREMENTS.
5.) FASTENERS SHALL BE A307 BOLTS OR BETTER.

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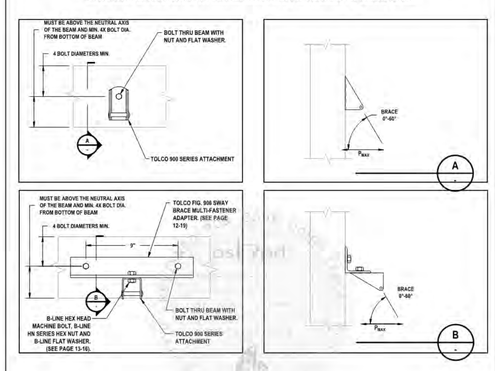
PAGE: 11-63
DATE: NOVEMBER 29, 2016

THRU-BOLT STRUCTURAL ATTACHMENTS PERPENDICULAR TO WOOD BEAM



BOLT DIAMETER	ALLOWABLE STRENGTH DESIGN (ASD) MAX. HORIZONTAL LOAD (P_{MAX}) BRACE ANGLE MEASURED FROM HORIZONTAL (LB)					
	1 BOLT			2 BOLT		
	0° - 30°	31° - 45°	46° - 60°	0° - 30°	31° - 45°	46° - 60°
1/2"	300	300	300	600	600	460
5/8"	360	360	360	720	720	460
3/4"	400	400	400	800	800	460

NOTES:

1.) BOLT HOLES SHALL BE BORED 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER.
2.) LOADS FOR THRU-BOLT ATTACHMENTS WERE DERIVED FROM CCR TITLE 24, PART 2, HOLDING POWER OF BOLTS FOR DOUGLAS FIR, LARCH, CALIFORNIA REDWOOD (CLOSE GRAIN) AND SOUTHERN PINE.
3.) MINIMUM BEAM SIZE = 4x
4.) STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE FOR THE TABULATED ALLOWABLE LOADS, INCLUDING BUT NOT LIMITED TO ANY BLOCKING REQUIREMENTS.

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Structural Engineer: Mohammad Hariri
California SE No. S3545

PAGE: 11-62
DATE: NOVEMBER 29, 2016

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
RICHARD D. HOLLIS
No. M 18
MECHANICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J11160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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Table Continued

									DCV	
									Occ Sensor	

17	Total System Required Min OA CFM		18	Ventilation for this System Complies?

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

K. TERMINAL BOX CONTROLS
This Section Does Not Apply

L. DISTRIBUTION (DUCTWORK AND PIPING)
Table Instructions: Complete the following tables to show compliance with mandatory pipe insulation requirements found in §120.3 and prescriptive requirements found in §140.4(l) for duct leakage testing.

Duct Leakage Sealing

The answers to the questions below apply to the following duct system(s):		ALL AHU DUCT SYSTEMS	Duct leakage testing triggered for these systems?	No
11	No	The scope of the project includes only duct systems serving healthcare facilites.		
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system:		
13	No	The space conditioning system serves less than 5,000 ft² of conditioned floor area.		
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system:		
	☐	Outdoors		

Table Continued

AH-6	Supply	1	920	BHP	0.33	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	920	Total System Design (B)HP:	0.33	**Maximum System Fan Power (B)HP:**			
System Name:	AH-7	**Economizer:[3]**	NA: ≤ 54 kBtu/h cooling	**Economizer Controls:**		**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-7	Supply	1	695	BHP	0.24	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	695	Total System Design (B)HP:	0.24	**Maximum System Fan Power (B)HP:**			
System Name:	AH-8	**Economizer:[3]**	NA: ≤ 54 kBtu/h cooling	**Economizer Controls:**		**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-8	Supply	1	685	BHP	0.23	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	685	Total System Design (B)HP:	0.23	**Maximum System Fan Power (B)HP:**			

Table Continued

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

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

01	02	03	04	05	06	07	08	09
		Heating Mode				Cooling Mode		
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Min Efficiency Required per Tables 110.2/ Title 20	Design Efficiency	Efficiency Unit	Min Efficiency Required per Tables 110.2/ Title 20	Design Efficiency
CU-1/AH-1	≥240,000	47°Fdb/43°Fwb OSA	COP	3.2	3.22	EER	9.5	9.8
						IEER	12.7	19.3
CU-2/AH-2	≥240,000	47°Fdb/43°Fwb OSA	COP	3.2	3.33	EER	9.5	11.3
						IEER	12.7	21
CU-3/AH-3	≥65,000 and <135,000	47°Fdb/43°Fwb OSA	COP	3.3	3.46	EER	11	12.5
						IEER	14.6	24.6
CU-4/AH-4	≥240,000	47°Fdb/43°Fwb OSA	COP	3.2	3.33	EER	9.5	11.3
						IEER	12.7	21

G. PUMPS
This Section Does Not Apply

H. FAN SYSTEMS & AIR ECONOMIZERS
Table Instructions: Complete the following Table for fan systems to demonstrate compliance with prescriptive requirements found in §140.4(c), §140.4(e) and §140.4(m). First document the system details, then add fans within that system to document compliance with fan power requirements. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name:	AH-1	**Economizer:[1]**	Fixed Temperature	**Economizer Controls:**	Designed per §140.4(e) and (m)	**System Fan Type:**	Variable Air Volume

Table Continued

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats §110.2(b) & (c)[2], §120.2(a) or §141.0(b)2F	Shut-Off Controls §120.2(e)	Isolation Zone Controls §120.2(g)	Demand Response §110.12 and §120.2(b)	Supply Air Temp. Reset §140.4(f)	Window Interlocks per §140.4(n)

[1] FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.
** NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.*
EX: System 1: SA Temp Reset: Exempt because zones compliant with §140.4(d); EXCEPTION 1 to §140.4(f)

AH-3	SA Temp Reset: Exempt because zones compliant with 140.4(d); EXCEPTION 1 to 140.4(f)

J. VENTILATION AND INDOOR AIR QUALITY
Table Instructions: Complete the following Table to demonstrate compliance with mandatory ventilation requirements in §120.1 and §120.2(e)1&8 for all nonresidential, high-rise residential and hotel/motel occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☑ Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☐ Check this box if the project includes Nonresidential or Hotel/Motel spaces
	☐ Check this box if the project includes new or altered high-rise residential dwelling units
03	☐ Check the box if the project is using natural ventilation in any spaces to meet required ventilation rates per §120.1(c)2.

Nonresidential and Hotel/ Motel Ventilation Systems

04	05	06	07
System Name:	System Design OA CFM Air Flow[1]:	System Design Transfer Air CFM:	Air Filtration per §120.1(c) and §141.0(b)2[2]

08	09	10	11	12	13	14	15	16
Space Name or Item Tag	Mechanical Ventilation Required per §120.1(c)3[3]				Exh. Vent. per §120.1(c)3			DCV or Occupant Sensor Controls per §120.1(d)3, §120.1(d)5 & §120.2(e)3[4]
	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of showerheads / toilets	# of people[5]	Required Min OA CFM	Required Minimum CFM	Provided per Design CFM	

Table Continued

Table Continued

Total System Design Supply Airflow (CFM):	3,500	Total System Design (B)HP:	3.2	**Maximum System Fan Power (B)HP:**			
System Name:	AH-4	**Economizer:[3]**	Fixed Temperature	**Economizer Controls:**	Designed per §140.4(e) and (m)	**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-4	Supply	1	2,110	BHP	1.19	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	2,110	Total System Design (B)HP:	1.19	**Maximum System Fan Power (B)HP:**			
System Name:	AH-5	**Economizer:[3]**	Fixed Temperature	**Economizer Controls:**	Designed per §140.4(e) and (m)	**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-5	Supply	1	2,140	BHP	1.23	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	2,140	Total System Design (B)HP:	1.23	**Maximum System Fan Power (B)HP:**			
System Name:	AH-6	**Economizer:[3]**	NA: ≤ 54 kBtu/h cooling	**Economizer Controls:**		**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)

Table Continued

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

The permit applicant has indicated on Table J that ventilation calculations have been attached or included elsewhere on the plans.
Table H indicates a Fan Power System Index that exceeds the maximum allowed per §140.4(c). Please revise to demonstrate compliance.
Selections made in Table O have been changed by the permit applicant. See Table E. Additional Remarks for permit applicant's explanation.

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

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Table Instructions: Complete the following equipment schedules to show compliance with mandatory requirements found in §110.1 and §110.2(a) and prescriptive requirements found in §140.4(a), §140.4(b) and §140.4(k) or §141.0(b)2 for alterations.

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

01	02	03	04	05	06	07	08	09	10	11
				Equipment Sizing per Mechanical Schedule (kBtu/h) §140.4 (a&b)						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
Name or Item Tag	Equipment Category per Tables 110.2	Equipment Type per Tables 110.2 & Title 20	Smallest Size Available[1] §140.4(a)	Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
CU-1/AH-1	Variable Refrigerant Flow	VRF heat pump, air cooled	Yes	336.2	432	0	309.3	384		
CU-2/AH-2	Variable Refrigerant Flow	VRF heat pump, air cooled	Yes	254.6	324	0	233.6	288		
CU-3/AH-3	Variable Refrigerant Flow	VRF heat pump, air cooled	Yes	112.7	135	0	105.2	120		
CU-4/AH-4	Variable Refrigerant Flow	VRF heat pump, air cooled	Yes	308.3	324	0	254.1	288		

Table Continued

I. SYSTEM CONTROLS
Table Instructions: Complete the following Table to demonstrate compliance with mandatory controls in §110.2 and §120.2 and prescriptive controls in §140.4(f) and (n) or requirements in §141.0(b)2E for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats §110.2(b) & (c)[2], §120.2(a) or §141.0(b)2E	Shut-Off Controls §120.2(e)	Isolation Zone Controls §120.2(g)	Demand Response §110.12 and §120.2(b)	Supply Air Temp. Reset §140.4(f)	Window Interlocks per §140.4(n)
AH-1	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-2	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-3	multi-zone	≤ 25,000 ft²	EMCS	EMCS	EMCS	EMCS	Exempt*	NA: No operable windows
AH-4	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-5	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-6	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-7	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows
AH-8	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows

Table Continued

01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-1	Supply	1	9,000	BHP	8.8	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	9,000	Total System Design (B)HP:	8.8	**Maximum System Fan Power (B)HP:**	11.7		
System Name:	AH-2	**Economizer:[3]**	Fixed Temperature	**Economizer Controls:**	Designed per §140.4(e) and (m)	**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-2	Supply	1	6,800	BHP	7	None used	
						Calculated Adjustment (in H_2O)	

Total System Design Supply Airflow (CFM):	6,800	Total System Design (B)HP:	7	**Maximum System Fan Power (B)HP:**	8.84		
System Name:	AH-3	**Economizer:[3]**	Fixed Temperature	**Economizer Controls:**	Designed per §140.4(e) and (m)	**System Fan Type:**	Variable Air Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit[2]	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	
						Device	Design Airflow through Device (CFM)
AH-3	Supply	1	3,500	BHP	3.2	None used	
						Calculated Adjustment (in H_2O)	

Table Continued

This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)2 for alterations.

A. GENERAL INFORMATION

01 Project Location (city)	Imperial	04 Total Conditioned Floor Area	23,940
02 Climate Zone	15	05 Total Unconditioned Floor Area	4,827
03 Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	1

☐ Office (B)	☐ Retail (M)	☐ Non-refrigerated Warehouse (S)
☐ Hotel/ Motel Guest Rooms (R-1)	☑ School (E)	☐ Healthcare Facility (I)
☐ High-Rise Residential (R-2/R-3)	☐ Relocatable Class Bldg (E)	☐ Other (Write In):

[1] FOOTNOTES: Climate zone can be determined on the California Energy Commission's website at http://www.energy.ca.gov/maps/renewable/building_climate_zones.html

B. PROJECT SCOPE
Table Instructions: Include any mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)2 for alterations.

My project consists of (check all that apply)

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

C. COMPLIANCE RESULTS
Table Instructions: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

01		02		03		04		05		06		07		08		09
System Summary §110.1, §110.2, §140.4	AND	Pumps §140.4(k)	AND	Fans/ Economizers §140.4(c), §140.4(e)	AND	System Controls §110.2, §120.2, §140.4(f)	AND	Ventilation §120.1	AND	Terminal Box Controls §140.4(d)	AND	Distribution §120.3, §140.4(l)	AND	Cooling Towers §110.2(c)3		Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)		
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND			**COMPLIES**
Mandatory Measures Compliance (See Table Q for Details)																**COMPLIES**

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
p2s ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

TITLE-24 COMPLIANCE FORMS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

M701

2/5/2021 9:03:10 AM

System Name	AH-1	System Design OA CFM Airflow	2,700	System Design Transfer Air CFM	0	Air Filtration per 120.1c and 141.0b2	Yes		
Space Name or Item Tag	Occupancy Type	Conditioned Floor Area (ft^2)	# of showerheads/ toilets	# of people	Required Min OA CFM	Required Min Vent CFM	Vent CFM Provided per Design	DCV	Occ Sensor
AH-1	Library	8,075	-	152	2,280	2,280	2,700	Yes	N/A
	Corridor	250	-	3	45	45		Yes	N/A
	Study Room	385	-	8	120	120		Yes	N/A
	Study Room	845	-	17	255	255		Yes	N/A

System Name	AH-2	System Design OA CFM Airflow	2,108	System Design Transfer Air CFM	0	Air Filtration per 120.1c and 141.0b2	Yes		
Space Name or Item Tag	Occupancy Type	Conditioned Floor Area (ft^2)	# of showerheads/ toilets	# of people	Required Min OA CFM	Required Min Vent CFM	Vent CFM Provided per Design	DCV	Occ Sensor
AH-2	Library	5,300	-	98	1,470	1470	2,108	Yes	N/A
	Office	185	-	2	30	30		Yes	N/A
	Lobby	245	-	2	37	37		Yes	N/A

System Name	AH-3	System Design OA CFM Airflow	788	System Design Transfer Air CFM	0	Air Filtration per 120.1c and 141.0b2	Yes		
Space Name or Item Tag	Occupancy Type	Conditioned Floor Area (ft^2)	# of showerheads/ toilets	# of people	Required Min OA CFM	Required Min Vent CFM	Vent CFM Provided per Design	DCV	Occ Sensor
AH-3	Offices	2,485	-	23	345	345	788	Yes	N/A
	Corridor	1,000	-	20	300	300		Yes	N/A

System Name	AH-(4-8)	System Design OA CFM Airflow	2,000	System Design Transfer Air CFM	0	Air Filtration per 120.1c and 141.0b2	Yes		
Space Name or Item Tag	Occupancy Type	Conditioned Floor Area (ft^2)	# of showerheads/ toilets	# of people	Required Min OA CFM	Required Min Vent CFM	Vent CFM Provided per Design	DCV	Occ Sensor
AH-4	Library	1,240	-	36	663	663	1,000	Yes	N/A
AH-5	Library	1,260	-	36	668	668	1,000	Yes	N/A
AH-6	Library	690	-	20	221	221	-	Yes	N/A
AH-7	Library	480	-	20	246	246	-	Yes	N/A
AH-8	Library	430	-	20	179	179	-	Yes	N/A

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 15 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Jordan Katz	Documentation Author Signature:	
Company:	P2S Inc,	Signature Date:	1/14/2021
Address:	9665 Chesapeake Dr. Suite 230	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	San Diego/CA/92123	Phone:	(619) 618-2347

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

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

Responsible Designer Name:	James Del Monaco	Responsible Designer Signature:	
Company :	P2S Inc.	Date Signed:	1/14/2021
Address:	9665 Chesapeake Dr. Suite 230	License:	M35128
City/State/Zip:	San Diego/CA/92123	Phone:	(619) 618-2347

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 14 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

Table Instructions: Indicate where mandatory measures are documented in the plan set or construction documentation. For any mandatory measures that do not apply, mark the plan sheet or construction document location as "N/A", any active cells that are left blank will result in non-compliance in Table C.

01	02
	Plan sheet or construction document location
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block: Yes	SEE SHEET M002

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 13 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be completed by a HERS Rater and provided to the building inspector during construction. The final documents must be created by a HERS Providers registry, but drafts can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCV/

YES	NO	Form/Title	Field Inspector Pass	Field Inspector Fail
○	◉	NRCV-MCH-04-H Duct Leakage Test *NOTE: Must be completed by a HERS Rater*	☐	☐
○	◉	NRCV-MCH-24 Enclosure Air Leakage Worksheet *NOTE: Must be completed by a HERS Rater*	☐	☐
○	◉	NRCV-MCH-27 High-rise Residential *NOTE: Must be completed by a HERS Rater*	☐	☐
○	◉	NRCV-MCH-32 Local Mechanical Exhaust *NOTE: Must be completed by a HERS Rater*	☐	☐

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 12 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

○	◉	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units		☐	☐
○	◉	NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance		☐	☐
○	◉	NRCA-MCH-14-A Distributed Energy Storage DX AC Systems Acceptance *NOTE: This form does not automatically move to "Yes". If Distributed Energy Storage DX AC Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
○	◉	NRCA-MCH-15-A Thermal Energy Storage (TES) System Acceptance *NOTE: This form does not automatically move to "Yes". If Chilled Water Storage, Ice-on-Coil Internal Melt, ice-on-Coil External Melt, Ice Harvester, Brine, Ice-Slurry, Eutectic Salt, Clathrate Hydrate Slurry (CHS), Cryogenic or Encapulated (Ice Ball) Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
○	◉	NRCA-MCH-16-A Supply Air Temperature Reset Controls		☐	☐
○	◉	NRCA-MCH-17-A Condenser Water Temperature Reset Controls		☐	☐
◉	○	NRCA-MCH-18 Energy Management Control Systems		☐	☐
○	◉	NRCA-MCH-19 Occupancy Sensor Controls		☐	☐
○	◉	NRCA-MCH-20 Multi-Family Ventilation		☐	☐
○	◉	NRCA-MCH-21 Multi-Family Envelope Leakage		☐	☐

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 11 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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

YES	NO	Form/Title	Systems To Be Field Verified	Field Inspector Pass	Field Inspector Fail
◉	○	NRCA-MCH-02-A Outdoor Air must be submitted for all newly installed HVAC units *Note: MCH02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.*		☐	☐
○	◉	NRCA-MCH-03-A Constant Volume Single Zone HVAC *NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
○	◉	NRCA-MCH-04-A Air Distribution Duct Leakage		☐	☐
◉	○	NRCA-MCH-05-A Air Economizer Controls		☐	☐
○	◉	NRCA-MCH-06-A Demand Control Ventilation Systems Acceptance must be submitted for all systems required to employ demand controlled ventilation (refer to §120.1(c3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints.		☐	☐
◉	○	NRCA-MCH-07-A Supply Fan Variable Flow Controls		☐	☐
○	◉	NRCA-MCH-08-A Valve Leakage Test		☐	☐
○	◉	NRCA-MCH-09-A Supply Water Temperature Reset Controls		☐	☐
○	◉	NRCA-MCH-10-A Hydronic System Variable Flow Controls		☐	☐
○	◉	NRCA-MCH-11-A Automatic Demand Shed Controls		☐	☐

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020)
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Building 1500 Library - HVAC Replacement	Report Page:	Page 10 of 15
Project Address: 380 East Aten Road	Date Prepared:	2021-01-14

Table Continued

	☐	In a space directly under a roof that has a U-factor greater than the U-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)1B or if the roof has fixed vents or openings to the outside/ unconditioned spaces
	☐	In an unconditioned crawlspace
	☐	In other unconditioned spaces
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	Yes	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		Duct system shall be sealed in accordance with the California Mechanical Code.

M. COOLING TOWERS

This Section Does Not Apply

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

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

YES	NO	Form/Title	Systems To Be Field Verified	Field Inspector Pass	Field Inspector Fail
◉		NRCI-MCH-01-E - Must be submitted for all buildings.		☐	☐

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

TITLE-24 COMPLIANCE FORMS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S .11160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

M702

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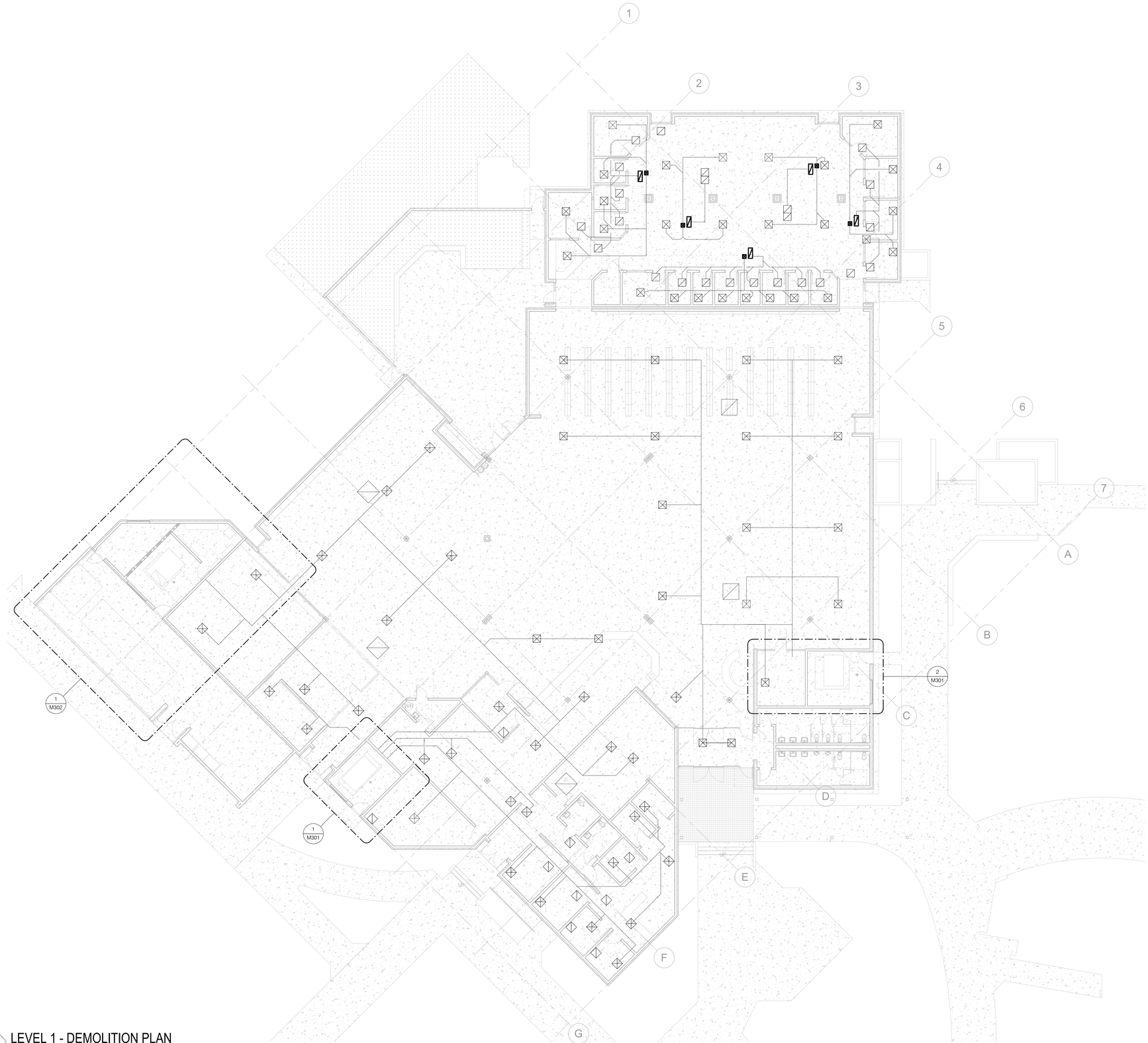
GENERAL NOTES

1. FOR DEMOLITION NOTES, REFER TO ENLARGED PLANS ON SHEET M301 AND M302.



1 LEVEL 1 - DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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DEMO FLOOR PLAN

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

MD201

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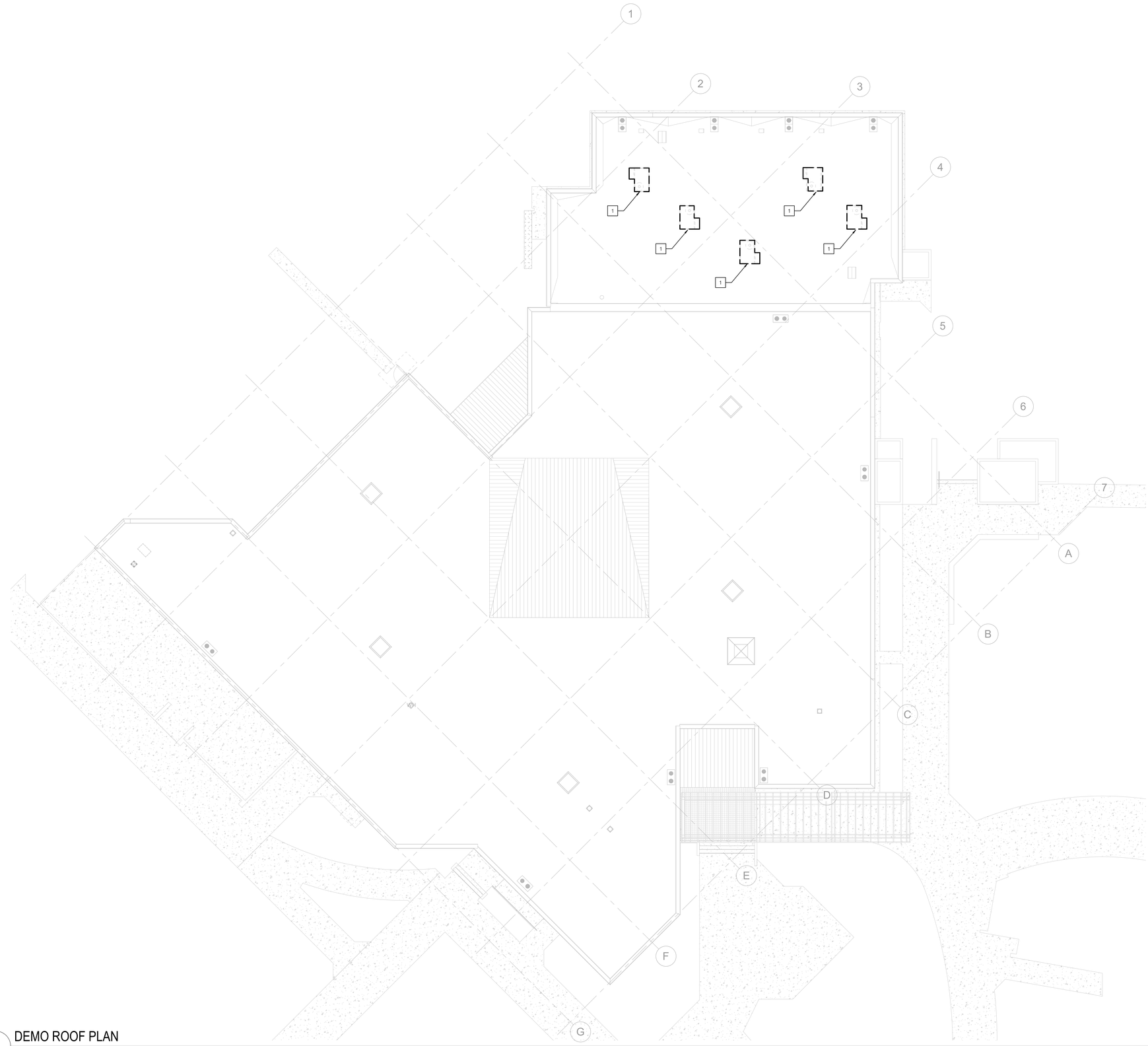

1 DEMO ROOF PLAN

SCALE: 3/32" = 1'-0"

DEMOLITION NOTES

1 REMOVE HEAT PUMP AND ROOF CURB.

GENERAL NOTES

1. ALL EXISTING MECHANICAL INFORMATION SHOWN IS BASED ON LIMITED RECORD DRAWINGS, FIELD INVESTIGATION, FACILITY STAFF KNOWLEDGE AND ASSUMPTIONS.
2. MECHANICAL CONTRACTOR SHALL CONFIRM EXACT LOCATION, ROUTING AND SIZE OF MECHANICAL DUCTWORK PRIOR TO COMMENCING ANY NEW WORK.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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DATE: 02/24/2021

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DEMO ROOF PLAN
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

MD202

2/5/2021 9:03:23 AM

LEGEND

SYMBOL	DESCRIPTION
	NOTE CALLOUT
	DETAIL CALLOUT - NUMBER ON TOP DENOTES DETAIL NUMBER - NUMBER ON BOTTOM DENOTES SHEET DETAIL IS SHOWN
	MECHANICAL EQUIPMENT CALLOUT, SEE MECHANICAL PLANS FOR EXACT LOCATION AND REQUIREMENTS
	SECTION CALLOUT
	FEEDER CALLOUT
	EXISTING FEEDER CALLCOUT
	NEW LINEWORK
	EXISTING LINEWORK
	DEMOLISHED LINEWORK
	CONDUIT CONCEALED IN WALL OR ABOVE CEILING
	CONDUIT EXPOSED
	CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR
	CONDUIT EMERGENCY
W W	MULTI-CHANNEL RACEWAY
	CONDUIT TURNED UP
	CONDUIT CAPPED
A-1	BRANCH CIRCUIT HOMERUN TO PANELBOARD AND CIRCUITS AS INDICATED
	3/4" CONDUIT, TICK MARKS INDICATE QUANTITY OF #12 AWG WIRES (UNLESS NOTED OTHERWISE, NO MARKS INDICATES 2#12 & 1#12 GND WIRES) - SMALL MARK DENOTES HOT WIRE - LARGE MARK DENOTES NEUTRAL WIRE - DIAGONAL DENOTES GROUND WIRE
G	GENERATOR
	SWITCH
	CIRCUIT BREAKER
	2-WAY SWITCH, TRANSFER SWITCH
	FUSE
	TRANSFORMER
	GROUND CONNECTION
	MOTOR - SINGLE PHASE FRACTIONAL OR INTEGRAL HORSEPOWER
M	METER
ECM	ELECTRONIC CIRCUIT MONITOR
	480V DRAWOUT BREAKER
VFD	VARIABLE FREQUENCY DRIVE
	PANEL
	FUSED DISCONNECT SWITCH
	NON-FUSED DISCONNECT SWITCH
	COMBINATION STARTER/DISCONNECT SWITCH
M	SWITCH MOTOR RATED
	SPLICE
	TERMINATION
	EXISTING TERMINATION
52	MEDIUM VOLTAGE - AIR CIRCUIT BREAKER DRAWOUT BREAKER
	MEDIUM VOLTAGE FUSED DISCONNECT SWITCH
	MEDIUM VOLTAGE MODULAR SPLICE
	MEDIUM VOLTAGE EXISTING MODULAR SPLICE
	LIGHTING CONTROL PANEL - SURFACE MOUNTED
	PANELBOARD - RECESSED MOUNTED
	PANELBOARD - SURFACE MOUNTED
	DISTRIBUTION PANEL/ BOARD
	SINGLE POLE SWITCH, DEVICE SHALL BE MOUNTED +48" MAX AND +36" MIN FROM THE CENTER OF DEVICE:

RECESSED ON WALL	G=GFCI, WP=WEATHER PROOF
SURFACE	G=GFCI, WP=WEATHER PROOF
FLOOR OR CEILING	C=CEILING

20A, 125V DUPLEX RECEPTACLE
MOUNTED +15" AFF, UNLESS OTHERWISE NOTED

20A, 125V QUAD RECEPTACLE
MOUNTED +15" AFF, UNLESS OTHERWISE NOTED

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
&	AND
1/C	SINGLE CONDUCTOR
@	AT
A OR AMP	AMPERES
A.C.	ASPHALT CONCRETE
ABV	ABOVE
AF	AMPERE FUSE RATING
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECT; ARCHITECTURAL
AS	AMPERE SWITCH RATING
ASCC	AVAILABLE SHORT CIRCUIT CURRENT
ATC	AIR TERMINAL CHAMBER
ATO	AUTOMATIC THROW-OVER (SWITCH)
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
B.S.	BARE STRANDED
BAT	BATTERY
BEL	BELOW
BKBD	BACKBOARD
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
C.O.	CONDUIT ONLY WITH PULL WIRE
CB	CIRCUIT BREAKER
CC	CONSTANT CURRENT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CP	COMMUNICATION PROCESSOR
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CSFD	COMBINATION SMOKE FIRE DAMPER
CT	CURRENT TRANSFORMER
CU	COPPER
CW	COLD WATER
DIAG	DIAGRAM
DIS	DISCONNECT
DIST.	DISTANCE
DL	DAMP LOCATION LISTING
DM	DIGITAL METER
DMM	DIGITAL METER MODULE
DP	DISTRIBUTION PANEL
DWG	DRAWING
DWP	DEPARTMENT OF WATER & POWER
EA	EACH
ECM	ELECTRIC CIRCUIT MONITOR
ELEC.	ELECTRICAL
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EPR	ETHYLENE PROPYLENE RUBBER
EQUIP	EQUIPMENT
ERR	EXISTING TO BE RELOCATED AND RECONNECTED
EXIST/(E)	EXISTING
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FATC	FIRE ALARM TERMINAL CABINET
FFE	FINISHED FLOOR ELEVATION
FIN.	FINISH
FIP.	FIELD INTERFACE PANEL
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLR	FLOOR
FLUOR	FLUORESCENT
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER OBTIC
FT	FEET
FTG	FOOTING
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GG	GREEN GROUND
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HTR	HEATER
HV	HIGH VOLTAGE
HZ	HERTZ
ICON	INTEGRATED COMMUNICATIONS OPTICAL NETWORK
IE	INVERT ELEVATION
IED	INTELLEGENT ELECTRONIC DEVICE
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCADESCENT
ISC	SHORT CIRCUIT CURRENT
J, JB, J-BOX	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATT

ABBREVIATION	DESCRIPTION
LF	LINEAR FEET
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LGST	LARGEST
LIS	LOAD INTERRUPTER SWITCH
LOC.	LOCATION
LOTO	LOCK-OUT & TAG-OUT
LSI	LONG TERM, SHORT TERM, INSTANTANEOUS
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFGR, MFR	MANUFACTURER
MH	MANHOLE
MI.	MECHANICAL INTERLOCK
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRCT	MULTI-RATIO CURRENT TRANSFORMER
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MTTB	MAIN TELEPHONE TERMINAL BOARD
MV	MEDIUM VOLTAGE
N	NORTH
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT- 24HRS ON
NO.	NUMBER
OC	ON CENTER
OCPD	OVERCURRENT PROTECTIVE DEVICE
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRICAL
OFC	OIL FUSED CUTOUT
OH	OVER HEAD
OL	OIL LEVER SWITCH
P	POLE
PAC	PROGRAMMABLE AUTOMATION CONTROLLER
PB	PULL BOX
PC	PHOTOCELL
PCB	POLYCHLORINATED BIPHENYL
PDS	PRESSURE DIFFERENTIAL SWITCH
PF	POWER FACTOR
PH OR Ø	PHASE
PILC	PAPER INSULATED, LEAD COVER
PIV	POST INDICATING VALVE
PL	PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
POC	POINT OF CONNECTION
PREF.	PREFERRED
PRI.	PRIMARY
PVC	POLY-VINYL CHLORIDE
PWR	POWER
REC/RECEPT	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMC	RIGID METAL CONDUIT
RPBP	REDUCED PRESSURE BACK FLOW PREVENTER
RTAC	REAL TIME
SCCR	SHORT CIRCUIT CURRENT RATING
SCE	SOUTHERN CALIFORNIA EDISON
SF	SQUARE FEET
SHT	SHEET
SIG.	SIGNAL
SP	SPARE
SPECS	SPECIFICATIONS
ST	STREET
STD	STANDARD
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SWST	SWITCHING STATION
T.O.D.	TOP OF DUCTBANK
T.O.M.	TOP OF MANHOLE
TB	TERMINAL BLOCK
TEL./TELE	TELEPHONE
TMH	TELEPHONE MANHOLE
TPS	TWISTED SHIELDED PAIR
TRANSF, XFMR	TRANSFORMER
TS	TAMPER SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPERES
VB	VIBRATION SWITCH
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
Z	IMPEDANCE

IN THE EVENT ABBREVIATIONS NOT MENTIONED HEREIN ARE USED, REFERENCE WILL BE MADE TO ANSI Y1.1, MILITARY STANDARD ABBREVIATIONS AND OTHER STANDARD INDUSTRY CONVENTIONS.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE AND ALL OTHER APPLICABLE FEDERAL AND STATE. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS, THE CONSTRUCTION DOCUMENTS SHALL GOVERN BUT THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATION.

2. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS' LABEL (UL) AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED AND APPROVED.

3. THE CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANY WAY CUT INTO ANY STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT OR STRUCTURAL ENGINEER.

4. 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 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

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

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

   A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
   B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL. THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

5. 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 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

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

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

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

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

SHEET INDEX

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
p2s ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

GENERAL NOTES, LEGEND, ABBREVIATIONS, AND SHEET INDEX

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

E001

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BUILDING INFORMATION

OCCUPANCY CLASSIFICATION PER 2019 CBC	A-2.1, A-3
CONSTRUCTION TYPE	TYPE - V
TOTAL SQUARE FOOTAGE	25,679 SQ FT
TOTAL NUMBER OF FLOORS	ONE
TOTAL BUILDING HEIGHT	15' 10"
AUTOMATIC FIRE SPRINKLERS	YES
STORIES	ONE
SEPARATION REQUIRED	ONE

DEVICE SCHEDULE

SYMBOL	MODEL	MANUFACTURER	DESCRIPTION	C.S.F.M.
ADDRESSABLE MODULES				
C	4090-9051	SIMPLEX	ADDRESSABLE CONTROL MODULE	7300-0026:0223
R	4090-9002	SIMPLEX	ADDRESSABLE RELAY MODULE	7300-0026:0223

WIRE SCHEDULE

DESIGNATION	CIRCUIT TYPE	WIRE/CABLE TYPE	C.S.F.M.
M	SIGNALING LINE CIRCUIT	UNSHIELDED 2#16 FPL; GENESIS CABLE 4111	7161-1487:0100
V	NOTIFICATION APPLIANCE CIRCUIT	UNSHIELDED 2#12 FPL; GENESIS CABLE 4115	7161-1487:0100
S	SPEAKER CIRCUIT	SHIELDED 2#14 FPL; GENESIS CABLE 4208	7161-1487:0100
X	INITIATING CIRCUIT	UNSHIELDED 2#14 FPL; GENESIS CABLE 4113	7161-1487:0100
P	AUXILIARY POWER (24 VDC)	UNSHIELDED 2#14 FPL; GENESIS CABLE 4113	7161-1487:0100
F	FIREFIGHTER'S TELEPHONE	UNSHIELDED 2#16 FPL; GENESIS CABLE 4206	7161-1487:0100
D	NETWORK DATA	UNSHIELDED 2#18 FPL; GENESIS CABLE 4106	7161-1487:0100
A	NETWORK AUDIO	UNSHIELDED 2#18 FPL; GENESIS CABLE 4106	7161-1487:0100

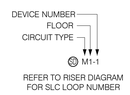
NOTE:
1. ALARM, TROUBLE, AND SUPERVISORY SIGNALS FROM ALL ADDRESSABLE DEVICES SHALL BE ENCODED ON AN NFPA 72 CLASS X SIGNALING LINE CIRCUIT (SLC).
2. INITIATION DEVICE CIRCUITS (IDC) CONTAINING MORE THAN ONE DEVICE SHALL BE WIREDNFPA 72 CLASS X AS PART OF AN ADDRESSABLE DEVICE CONNECTED BY THE SLC.
3. NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE WIRED CLASS X.
4. PROVIDE WET LOCATION RATED CABLES WHERE INSTALLED UNDERGROUND OUTSIDE THE BUILDING.
5. ALARM SIGNALS ARRIVING AT THE FACP SHALL NOT BE LOST FOLLOWING A PRIMARY POWER FAILURE (OR OUTAGE) UNTIL THE ALARM SIGNAL IS PROCESSED AND RECORDED.

LEGEND

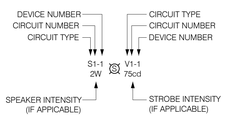
SYMBOL — DESCRIPTION

- NOTE CALLOUT
- DETAIL CALLOUT - NUMBER ON TOP DENOTES DETAIL NUMBER - NUMBER ON BOTTOM DENOTES SHEET DETAIL IS SHOWN
- SECTION CALLOUT
- NEW LINEWORK
- EXISTING LINEWORK
- DEMOLISHED LINEWORK
- CONDUIT CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT EXPOSED
- CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- CONDUIT CAPPED
- A-1 — BRANCH CIRCUIT HOMERUN TO PANELBOARD AND CIRCUITS AS INDICATED
- FIRE ALARM PANEL, SEE PLANS FOR TYPE
- FIRE ALARM TERMINAL CABINET
- JUNCTION BOX

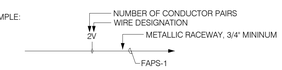
ADDRESSABLE DEVICES/MODULES



NOTIFICATION APPLIANCES



EXAMPLE:



ABOVE EXAMPLE "2V" MEANS "2 PAIRS OF 2#12 UNSHIELDED FPL" (4 CONDUCTORS) ROUTED TO FAPS-1

SCOPE OF WORK

1. SUPPORT MECHANICAL UPGRADES AT IMPERIAL VALLEY BUILDING 1500.

2. AIR HANDLING UNITS ABOVE 2000CFM (TOTAL 5) SHALL BE TIED INTO THE EXISTING SIMPLEX FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE NEW MONITORING DEVICES, AND TIE INTO NEW UNITS, FOR SHUT DOWN.

3. EXISTING FIRE ALARM SYSTEM SHALL REMAIN IN PLACE. REFER TO DSA APPROVED DRAWINGS APPL #04-100260

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
&	AND
@	AT
A OR AMP	AMPERES
ABV	ABOVE
AF	AMPERE FUSE RATING
AF	AMPERE FUSE RATING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AMP	AMPLIFIER
ANN	ANNUNCIATOR
APPROX.	APPROXIMATE
ARCH.	ARCHITECT; ARCHITECTURAL
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BAT	BATTERY
BEL	BELOW
BKBD	BACKBOARD
BLDG	BUILDING
C	CONDUIT
C.O.	CONDUIT ONLY WITH PULL WIRE
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CSFD	COMBINATION SMOKE FIRE DAMPER
CU	COPPER
DD	DUCT DETECTOR
DH	DOOR HOLDER
DIAG	DIAGRAM
DIS	DISCONNECT
DIST	DISTANCE
DWG	DRAWING
DWP	DEPARTMENT OF WATER & POWER
EA	EACH
ELEC.	ELECTRICAL
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EXIST/(E)	EXISTING
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAPS	FIRE ALARM POWER SUPPLY
FATC	FIRE ALARM TERMINAL CABINET
FFE	FINISHED FLOOR ELEVATION
FIN.	FINISH
FIXT	FIXTURE
FLR	FLOOR
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER OBTIC
FP	FIRE PUMP
FT	FEET
FTG	FOOTING
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HTR	HEATER
HZ	HERTZ
IDC	INITIATION DEVICE CIRCUIT
IMC	INTERMEDIATE METAL CONDUIT
J, JB, J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LF	LINEAR FEET
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LGST	LARGEST
LOC.	LOCATION

ABBREVIATION	DESCRIPTION
LOTO	LOCK-OUT & TAG-OUT
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFGR, MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MTTB	MAIN TELEPHONE TERMINAL BOARD
M/	MULTI-VOLTAGE
N	NORTH
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO.	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
P	POLE
PB	PULL BOX
PIV	POST INDICATING VALVE
PL	PLATE
PNL	PANEL
POC	POINT OF CONNECTION
PREF.	PREFERRED
PRI.	PRIMARY
PVC	POLY-VINYL CHLORIDE
PWR	POWER
REC/RECEPT	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMC	RIGID METAL CONDUIT
RPBP	REDUCED PRESSURE BACK FLOW PREVENTER
SCE	SOUTHERN CALIFORNIA EDISON
SF	SQUARE FEET
SHT	SHEET
SIG	SIGNAL
SLC	SIGNALING LINE CIRCUIT
SP	SPARE
SPECS	SPECIFICATIONS
ST	STREET
STD	STANDARD
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
T.O.D.	TOP OF DUCTBANK
T.O.M.	TOP OF MANHOLE
TB	TERMINAL BLOCK
TEL./TELE	TELEPHONE
TMH	TELEPHONE MANHOLE
TPS	TWISTED SHIELDED PAIR
TRANSF,XFMR	TRANSFORMER
TS	TAMPER SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPERES
VAC	VOLTS, ALTERNATING CURRENT
VDC	VOLTS, DIRECT CURRENT
VECP	VOICE/EVACUATION CONTROL PANEL
W	WATTS
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF

IN THE EVENT ABBREVIATIONS NOT MENTIONED HEREIN ARE USED, REFERENCE WILL BE MADE TO ANSI Y1.1, MILITARY STANDARD ABBREVIATIONS, AND OTHER STANDARD INDUSTRY CONVENTIONS.

APPLICABLE CODES

CALIFORNIA BUILDINGS STANDARDS CODE (CALIFORNIA CODE OF REGULATIONS, TITLE 24):

PART 1	2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, TITLE 24 C.C.R.
PART 2	2019 CALIFORNIA CODE, TITLE 24 C.C.R. (2018 INTERNATIONAL BUILDING CODE OF THE INTERNATIONAL CODE COUNCIL, WITH CALIFORNIA AMENDMENTS)
PART 3	2019 CALIFORNIA ELECTRICAL CODE, TITLE 24 C.C.R. (2017 NATIONAL ELECTRICAL CODE OF THE NATIONAL FIRE PREVENTION ASSOCIATION, NFPA)
PART 4	2019 CALIFORNIA MECHANICAL CODE, TITLE 24 C.C.R. (2018 UNIFORM MECHANICAL CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)
PART 5	2019 CALIFORNIA PLUMBING CODE, TITLE 24 C.C.R. (2018 UNIFORM PLUMBING CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)
PART 6	2019 CALIFORNIA ENERGY CODE, TITLE 24 C.C.R.
PART 7	CURRENTLY VACANT
PART 8	2019 CALIFORNIA HISTORICAL BUILDING CODE, TITLE 24 C.C.R.
PART 9	2019 CALIFORNIA FIRE CODE, TITLE 24 C.C.R. (2018 INTERNATIONAL FIRE CODE OF THE INTERNATIONAL CODE COUNCIL)
PART 10	2019 CALIFORNIA EXISTING BUILDING CODE, TITLE 24 C.C.R. (2018 INTERNATIONAL EXISTING BUILDING CODE OF THE INTERNATIONAL CODE COUNCIL, WITH AMENDMENTS)
PART 11	2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), TITLE 24 C.C.R.
PART 12	2019 CALIFORNIA REFERENCED STANDARDS CODE, TITLE 24 C.C.R.

PARTIAL LIST OF APPLICABLE STANDARDS:
2016 CALIFORNIA BUILDING CODE (FOR SFM) REFERENCED STANDARDS CHAPTER 35

NFPA 13	AUTOMATIC SPRINKLER SYSTEMS (CALIFORNIA AMENDED)	2016 EDITION
NFPA 14	STANDPIPE SYSTEMS (CALIFORNIA AMENDED)	2016 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTENS	2017 EDITION
NFPA 17A	WET CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 20	STATIONARY PUMPS	2016 EDITION
NFPA 24	PRIVATE FIRE SERVICE MAINS (CALIFORNIA AMENDED)	2016 EDITION
NFPA 72	NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED) (NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES")	2016 EDITION
NFPA 80	FIRE DOOR AND OTHER OPENINGS PROTECTIVES	2016 EDITION

WIRE FILL CHART

TRADE SIZE	INTERNAL DIAMETER INCHES	AREA - SQUARE INCHES									
		TOTAL 100%	PERCENT REDUCTION PER NUMBER OF 18AWG TWISTED SHIELDED PAIRS								
			OVER 2 COND. 40%	1	2	3	4	5	6	7	8
1/2	0.622	0.30	0.12	33%	66%	99%	X	X	X	X	X
3/4	0.824	0.53	0.21	19%	38%	57%	76%	95%	X	X	X
1	1.049	0.86	0.34	12%	24%	36%	48%	60%	72%	84%	96%
1 1/4	1.380	1.50	0.60	7%	14%	21%	28%	35%	42%	49%	56%
1 1/2	1.610	2.04	0.82	5%	10%	15%	20%	25	30%	35%	40%
2	2.067	3.36	1.34	3.00%	6%	9%	12%	15%	18%	21%	24%

GENERAL NOTES

1. CONTROL CIRCUITS ARE NON POWER LIMITED. MINIMUM RECOMMENDED WIRE SIZE TO BE DETERMINED BY CIRCUIT LOAD.
2. WIRING SHALL NOT BE LOOPED THROUGH DEVICES UPON TERMINATION. WIRE MUST BE CUT FOR IN AND OUT RUNS PRIOR TO DEVICE TERMINATION.
3. WHERE SHIELDED CABLE IS USED, THE SHIELD SHALL BE CONTINUOUS AND GROUNDED ONLY AT THE RESPECTIVE CONTROL PANEL.
4. T-TAPPING OR PARALLEL BRANCHING OF NOTIFICATION APPLIANCE DEVICE CIRCUITS IS PROHIBITED ON CLASS A CIRCUITS.
5. ELECTRICAL CONTRACTOR IS REQUIRED TO USE: COLOR CODE, WIRE NUMBERS, OR AS SPECIFIED IN THE PROJECT SPECIFICATIONS ON ALL CIRCUITS AND SHALL BE CONTINUOUS, OTHERWISE, NO FINAL CONNECTIONS OR TESTING SHALL BE PERFORMED. IF WIRE COLOR CODING IS USED, GREEN WILL BE USED FOR GROUND BONDING ONLY.
6. POINT AND COMMON ANNUNCIATION AND T-TAPPING PROHIBITED.
7. ALL WIRING, INITIATING DEVICES AND ANNUNCIATOR PANELS SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION. (FIRE ALARM CONTROL PANEL(S) TO SUPERVISE ANNUNCIATOR PANEL(S), SUB-PANEL(S), ALL CIRCUITS AND INITIATING DEVICES).
8. FIRE ALARM SIGNAL SHALL MEET ANSI S3.41, AUDIBLE EMERGENCY EVACUATION SIGNAL (TEMPORAL PATTERN).
9. AUDIBILITY OF ALARM SHALL BE NOT LESS THAN 15DB ABOVE AMBIENT SOUND THROUGHOUT THE AREA OF ALARM.
10. ALL STROBE APPLIANCES SHALL BE SYNCHRONIZED IN ACCORDANCE WITH NATIONAL FIRE ALARM CODE (NFPA 72). REFERENCE APPLICABLE EDITIONS UNDER "APPLICABLE CODES & REGULATIONS".
11. STROBE APPLIANCE LOCATIONS ARE BASED ON 10 FOOT CEILING HEIGHTS AND ARE INSTALLED IN ACCORDANCE WITH NATIONAL FIRE ALARM CODE (NFPA 72) UNLESS OTHERWISE NOTED. REFERENCE APPLICABLE EDITIONS UNDER "APPLICABLE CODES & REGULATIONS".
12. WALL-MOUNTED STROBE AND HORN/STROBE APPLIANCES SHALL BE MOUNTED A MINIMUM OF 80 INCHES ABOVE FINISHED FLOOR OR 6 INCHES MINIMUM BELOW THE CEILING, (WHICH EVER IS LOWER). MEASUREMENT ARE TO BE TAKEN FROM BOTTOM OF STROBE.
13. PHOTOELECTRIC DETECTORS SHALL NOT BE IN DIRECT AIR STREAM SUPPLY AIR OUTLETS.
14. REFER TO RESPECTIVE CATALOG CUT SHEETS FOR ELECTRICAL MOUNTING HARDWARE.
15. ALL DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.
16. AUDIBILITY WILL BE DETERMINED BY THE FIELD FIRE MARSHAL.
17. ALL FIRE ALARM CIRCUITS SHALL BE LABELED AT CONNECTIONS AND AT JUNCTION BOXES.
18. DUCT SMOKE DETECTORS SHALL BE TESTED FOR DUCT VELOCITY AND PRESSURE DIFFERENTIAL IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
19. DIFFERENTIAL PRESSURE SWITCHES SHALL BE SUPPLIED AND INSTALLED BY A LICENSED MECHANICAL CONTRACTOR. THE ELECTRICAL CONNECTION TO THE DIFFERENTIAL PRESSURE SWITCH SHALL BE MADE BY THE FIRE ALARM CONTRACTOR.
20. UNLESS OTHERWISE NOTED ALL WIRING AND INSTALLATION METHODS SHALL CONFORM TO CALIFORNIA ELECTRICAL CODE (CEC), ARTICLE 760. SEE APPLICABLE EDITION UNDER "APPLICABLE CODES & REGULATIONS".
21. ALL WIRE CONDUCTORS SHALL BE POWER LIMITED COPPER WIRING AND INSTALLED WITHIN A METALLIC RACEWAY.
22. PER SPECIFICATION CONDUIT RISERS SHALL BE INSTALLED INSIDE A TWO HOUR FIRE RATED ENCLOSURE PROVIDED BY OTHERS. HORIZONTAL OFFSET CONDUITS AND JUNCTION BOXES SHALL BE PROTECTED BY TWO HOUR FIRE RATED ENCLOSURES PROVIDED BY OTHERS.
23. ALL RACEWAY RUNS INDICATED WITHIN THIS DRAWING PACKAGE ARE SHOWN DIAGRAMMICALLY AND ARE FOR CIRCUITING PURPOSES ONLY. ALL RUNS SHOWN SHOULD NOT SERVE IN ANY WAY AS AN ACTUAL ROUTING GUIDE FOR INSTALLATION OF RACEWAYS. EXACT INSTALL LOCATION SHALL BE FIELD DETERMINED.
24. ADDITIONAL JUNCTION BOXES NOT SHOWN MAY BE REQUIRED TO ACCOMMODATE PROPER RACEWAY INSTALLATIONS. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO DETERMINE THE NECESSARY AMOUNT OF JUNCTION BOXES REQUIRED.
25. SUBMITTED DRAWING PACKAGE MUST BE REVIEWED BY UNIVERSITY REPRESENTATIVE AND ONE COPY OF THE REVIEWED DRAWING AND SUBMITTAL MUST BE RETURNED TO MANUFACTURER BEFORE ANY EQUIPMENT IS SHIPPED OR INSTALLED. CUSTOM ANNUNCIATORS WILL NOT BE FABRICATED UNTIL WRITTEN APPROVAL OF LAYOUT AND/OR ARTWORK IS RECEIVED.
26. FOR INSPECTION AND OR TESTING THE FIRE MARSHAL SHALL BE NOTIFIED FOR SCHEDULING AN APPOINTMENT.
27. A CERTIFICATE OF COMPLIANCE SHALL BE PREPARED BY THE INSTALLER AND GIVEN TO THE FIRE MARSHAL UPON COMPLETION OF THE INSTALLATION.
28. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OF RECORD. THE STRICTER REQUIREMENT WILL PREVAIL.
29. A STAMPED SET OF APPROVED FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FROM APPROVED PLANS, INCLUDING THE SUBSTITUTION OF DEVICES SHALL BE APPROVED BY THE FIRE MARSHAL.
30. UPON COMPLETION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE FIRE MARSHAL.
31. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBERS SHALL BE CUT, DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DISTRICT STRUCTURAL ENGINEER FROM THE DIVISION OF THE STATE ARCHITECT.
32. REFER TO THE SPECIFICATIONS BOOK FOR ADDITIONAL REQUIREMENTS.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

FIRE ALARM GENERAL NOTES, LEGEND AND ABBREVIATIONS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

E002

2/9/2021 11:11:53 AM

PANEL: M1

LOCATION: OUTDOOR YARD | VOLTAGE/PHASE: 277/480 WYE,3PH,4W | FED FROM: (E)SWB 'M'
FLOOR: LEVEL 1 | BUS AMPS: 225 A | RATING: 14 KAIC
MOUNTING: SURFACE | MAIN BREAKER: MLO

CKT	TYPE	LOAD	BKR/POLE		A	B	C	A	B	C	BKR/POLE		LOAD	TYPE	CKT
1	M	CU-1A	100 A	3	7900 VA			4547 VA			3	100 A	CU-2A	M	2
3	--	--	--	--		7900 VA			4547 VA		--	--	--	--	4
5	--	--	--	--			7900 VA			4547 VA	--	--	--	--	6
7	M	CU-1B	20 A	3	10617...			9895 VA			3	20 A	CU-2B	M	8
9	--	--	--	--		10617...			9895 VA		--	--	--	--	10
11	--	--	--	--			10617...			9895 VA	--	--	--	--	12
13	M	CU-3	30 A	3	5100 VA			0 VA			--	--	SPACE	--	14
15	--	--	--	--		5100 VA			0 VA		--	--	SPACE	--	16
17	--	--	--	--			5100 VA			0 VA	--	--	SPACE	--	18
19	--	SPACE	--	--	0 VA			0 VA			--	--	SPACE	--	20
21	--	SPACE	--	--		0 VA			0 VA		--	--	SPACE	--	22
23	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	24
25	--	SPACE	--	--	0 VA			0 VA			--	--	SPACE	--	26
27	--	SPACE	--	--		0 VA			0 VA		--	--	SPACE	--	28
29	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	30
31	--	SPACE	--	--	0 VA			0 VA			--	--	SPACE	--	32
33	--	SPACE	--	--		0 VA			0 VA		--	--	SPACE	--	34
35	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	36
37	--	SPACE	--	--	0 VA			0 VA			--	--	SPACE	--	38
39	--	SPACE	--	--		0 VA			0 VA		--	--	SPACE	--	40
41	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	42

LOAD TYPE KEY:
N=NON CONTINUOUS M=MECH EQUIP
P=POWER R=RECEPTACLE
L=LIGHTING K=KITCHEN

TOTAL A: 38058 VA 137 A
TOTAL B 38058 VA 137 A
TOTAL C: 38058 VA 137 A

LOAD TYPE	CONNECTED	DEMAND FACTOR	ESTIMATED	PANEL TOTALS		
M	114175 VA	100.00%	114175 VA			
				TOTAL CONNECTED LOAD:	114175 VA	137 A
				TOTAL DEMAND LOAD:	114175 VA	137 A

PANEL: (E)LB

LOCATION: EQUIP. 146 | VOLTAGE/PHASE: 277/480 WYE,3PH,4W | FED FROM: (E)SWB 'M'
FLOOR: LEVEL 1 | BUS AMPS: 225 A | RATING: 14 KAIC
MOUNTING: SURFACE | MAIN BREAKER: MLO

	CKT	TYPE	LOAD	BKR/POLE		A	B	C	A	B	C	BKR/POLE		LOAD	TYPE	CKT	
	1	M	(E)TRANSFORMER/ PNL 'D'	60 A	3	0 VA			1107 VA			3	30 A	AHU-5	M	2	2
	3	--	--	--	--		0 VA			1107 VA		--	--	--	--	4	
	5	--	--	--	--			0 VA			1107 VA	--	--	--	--	6	
	7	M	SPARE	40 A	3	0 VA			1107 VA			3	30 A	AHU-4	M	8	2
	9	--	--	--	--		0 VA			1107 VA		--	--	--	--	10	
	11	--	--	--	--			0 VA			1107 VA	--	--	--	--	12	
	13	M	SPARE	40 A	3	0 VA			1107 VA			3	30 A	AHU-8	M	14	2
	15	--	--	--	--		0 VA			1107 VA		--	--	--	--	16	
	17	--	--	--	--			0 VA			1107 VA	--	--	--	--	18	
	19	--	(E)LIGHTING	20 A	1	1000 VA			1000 VA			1	20 A	(E)NLIGHT LIGHT, EM., EXITS	--	20	
	21	--	(E)LIGHTING	20 A	1		1000 VA			1000 VA		1	20 A	(E)EXTERIOR	--	22	
1	23	M	AHU-6	30 A	3			1107 VA			4539 VA	3	30 A	CU-4A	M	24	1
	25	--	--	--	--	1107 VA			4539 VA			--	--	--	--	26	
	27	--	--	--	--		1107 VA			4539 VA		--	--	--	--	28	
1	29	M	AHU-7	30 A	3			1107 VA			9882 VA	3	60 A	CU-4B	M	30	1
	31	--	--	--	--	1107 VA			9882 VA			--	--	--	--	32	
	33	--	--	--	--		1107 VA			9882 VA		--	--	--	--	34	
	35	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	36	
	37	--	SPACE	--	--	0 VA			0 VA			--	--	SPACE	--	38	
	39	--	SPACE	--	--		0 VA			0 VA		--	--	SPACE	--	40	
	41	--	SPACE	--	--			0 VA			0 VA	--	--	SPACE	--	42	

LOAD TYPE KEY:
N=NON CONTINUOUS M=MECH EQUIP
P=POWER R=RECEPTACLE
L=LIGHTING K=KITCHEN

TOTAL A: 21956 VA 80 A
TOTAL B 21956 VA 80 A
TOTAL C: 19956 VA 72 A

LOAD TYPE	CONNECTED	DEMAND FACTOR	ESTIMATED	PANEL TOTALS		
M	59868 VA	100.00%	59868 VA			
				TOTAL CONNECTED LOAD:	63868 VA	77 A
				TOTAL DEMAND LOAD:	63868 VA	77 A

PANEL: (E)D

LOCATION: EQUIP. 146 | VOLTAGE/PHASE: 120/208 WYE,3PH,4W | FED FROM: (E)LB
FLOOR: LEVEL 1 | BUS AMPS: 150 A | RATING: 10 KAIC
MOUNTING: SURFACE | MAIN BREAKER: 150 A

CKT	TYPE	LOAD	BKR/POLE		A	B	C	A	B	C	BKR/POLE		LOAD	TYPE	CKT	
1	--	(E) LOAD	20 A	1	1000 VA			1000 VA			1	20 A	(E) STUDY ROOMS	--	2	
3	--	(E) LOAD	20 A	1		1000 VA			1000 VA		1	20 A	(E) STUDY ROOMS	--	4	
5	--	(E) LOAD	20 A	1			1000 VA			1000 VA	1	20 A	(E) STUDY ROOMS	--	6	
7	--	(E) LOAD	20 A	1	1000 VA			1000 VA			1	20 A	(E) STUDY ROOMS	--	8	
9	--	(E) STUDY ROOMS	20 A	1		1000 VA			1000 VA		1	20 A	(E) STUDY ROOMS	--	10	
11	--	(E) STUDY ROOMS	20 A	1			1000 VA			1000 VA	1	20 A	(E) STUDY ROOMS	--	12	
13	--	(E) STUDY ROOMS	20 A	1	1000 VA			1000 VA			1	20 A	(E) STUDY ROOMS	--	14	
15	--	(E) STUDY ROOMS	20 A	1		1000 VA			1000 VA		1	20 A	(E) STUDY ROOMS	--	16	
17	--	(E) STUDY ROOMS	20 A	1			1000 VA			1000 VA	1	20 A	(E) STUDY ROOMS	--	18	
19	--	(E) STUDY ROOMS	20 A	1	1000 VA			1000 VA			1	20 A	(E) OFFICE	--	20	
21	--	(E) STUDY ROOMS	20 A	1		1000 VA			1000 VA		1	20 A	(E) OFFICE	--	22	
23	--	(E) STUDY ROOMS	20 A	1			1000 VA			1000 VA	1	20 A	(E) OFFICE	--	24	
25	--	(E) LOAD	20 A	1	0 VA			0 VA			1	20 A	(E) LOAD	--	26	
27	--	(E) LOAD	20 A	1		0 VA			0 VA		1	20 A	(E) OFFICE	--	28	
29	--	(E) LOAD	20 A	1			0 VA			0 VA	1	20 A	(E) LOAD	--	30	
31	--	(E) TIME CLOCK	20 A	1	0 VA			0 VA			1	20 A	SPARE	--	32	
33	--	(E) TIME CLOCK	20 A	1		0 VA			0 VA		1	20 A	SPARE	--	34	
35	R	RECEPTACLE	20 A	1			180 VA			0 VA	1	20 A	SPARE	--	36	
37	--	SPARE	20 A	1	0 VA			824 VA			2	15 A	LIBRARY HRB, ROOF AHU(4-8)	M	38	1
39	--	SPARE	20 A	1		0 VA			824 VA		--	--	--	--	40	
41	--	SPARE	20 A	1			0 VA			0 VA	--	--	SPACE	--	42	

LOAD TYPE KEY:
N=NON CONTINUOUS M=MECH EQUIP
P=POWER R=RECEPTACLE
L=LIGHTING K=KITCHEN

TOTAL A: 8824 VA 74 A
TOTAL B 8824 VA 74 A
TOTAL C: 8180 VA 68 A

LOAD TYPE	CONNECTED	DEMAND FACTOR	ESTIMATED	PANEL TOTALS		
R	180 VA	100.00%	180 VA			
M	1647 VA	100.00%	1647 VA			
				TOTAL CONNECTED LOAD:	25827 VA	72 A
				TOTAL DEMAND LOAD:	25827 VA	72 A

MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE

TYPE	ID	VOLTAGE	PHASE	HP	KW	FLA/MCA	DISCONNECT	FUSE	FEEDER	PANEL	CIRCUIT	REMARKS
AHU	1	480	3	-	-	8.7/20	3P30A	25A	SEE SLD	SEE SLD	SEE SLD	
AHU	2	480	3	-	-	6.9/13.11	3P30A	15A	SEE SLD	SEE SLD	SEE SLD	
AHU	3	480	3	-	-	4.7/10	3P30A	10A	SEE SLD	SEE SLD	SEE SLD	
AHU	4	480	3	-	-	3/15	3P30A	20A	3/4"C - 3#10, 1#12G	(E)LB	8,10,12	NOTE 1
AHU	5	480	3	-	-	3/15	3P30A	20A	3/4"C - 3#10, 1#12G	(E)LB	2,4,6	NOTE 1
AHU	6	480	3	-	-	4/15	3P30A	20A	3/4"C - 3#10, 1#12G	(E)LB	7,9,11	NOTE 1
AHU	7	480	3	-	-	4/15	3P30A	20A	3/4"C - 3#10, 1#12G	(E)LB	13,15,17	NOTE 1
AHU	8	480	3	-		4/15	3P30A	20A	3/4"C - 3#10, 1#12G	(E)LB	14,16,18	NOTE 1
CU	1A	480	3	-	-	28.5	3P100A	85	1-1/4"C - 2#10, 1#8G	(E)M1	1,3,5	
CU	1B	480	3	-	-	38.3	3P60A	85	1"C - 3#6, 1#10G	(E)M1	7,9,11	
CU	2A	480	3	-	-	16.4	3P30A	75	3/4"C - 3#10, 1#10G	(E)M1	2,4,6	
CU	2B	480	3	-	-	35.7	3P60A	75	1"C - 3#6, 1#10G	(E)M1	8,10,12	
CU	3	480	3	-	-	18.4	3P30A	25	3/4"C - 3#10, 1#10G	(E)M1	13,15,17	
CU	4A	480	3	-	-	16.4	3P30A	25A	3/4"C - 3#10, 1#10G	(E)LB	24, 26, 28	
CU	4B	480	3	-	-	35.7	3P60A	50A	1"C - 3#6, 1#10G	(E)LB	30, 32, 34	
HRB	3-1	208	1	-	-	0.17	-	-	3/4"C - 2#12, 1#12G	(E)A	--	NOTE 3
HRB	4-1	208	1	-	-	0.17	-	-	3/4"C - 2#12, 1#12G	(E)LB	38,40	NOTE 2
HRB	4-2	208	1	-	-	0.17	-	-	3/4"C - 2#12, 1#12G	(E)LB	38,40	NOTE 2

GENERAL NOTES :

1. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

NOTES :

1. PROVIDE NEW FEEDER IN EXISTING RACEWAY.
2. EXTEND CIRCUIT TO ROOF UNITS. REFER TO E211 FOR ADDITIONAL INFORMATION.
3. PROVIDE 15A/2P BREAKER AT EXISTING PANEL 'A' TO SERVE HEAT RECOVERY BOX. MANUFACTURER, RATING AND TYPE TO MATCH EXISTING.

NOTES

1. PROVIDE NEW BREAKER, SIZE AS NOTED ON PANEL SCHEDULE. MANUFACTURER, RATING, AND TYPE SHALL MATCH EXISTING.
2. REPLACE 40A/3P BREAKER WITH 30A/3P BREAKER. MANUFCTURER RATING, AND TYPE SHALL MATCH EXISTING.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/24/2021

CONSULTANT:
P2S ENG
Long Beach | Los Angeles
San Diego | San Jose
p2sinc.com

SCHEDULES
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S .J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

E003

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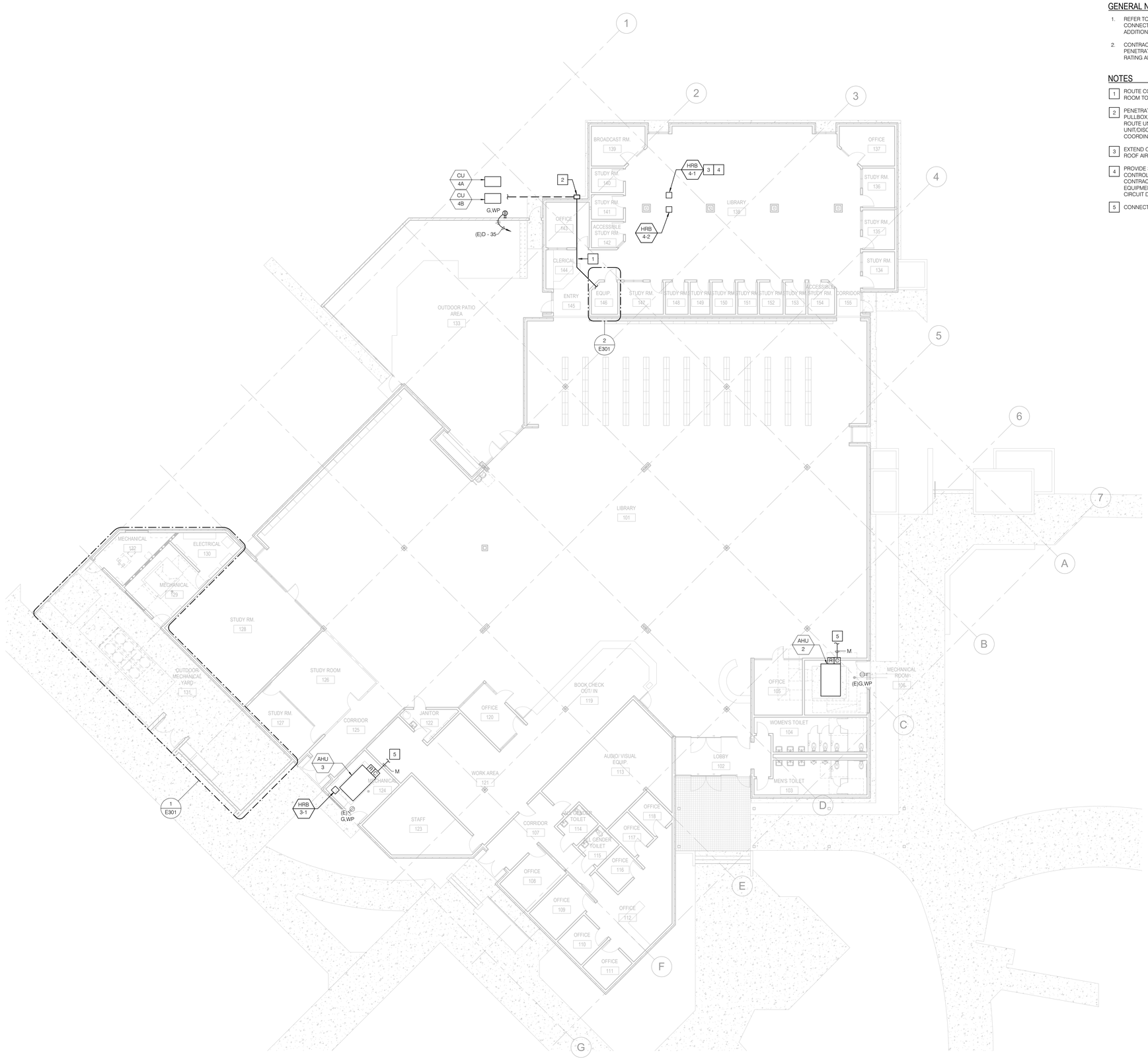

1 LEVEL 1 - RENOVATION PLAN

SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. REFER TO MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE, ON SHEET E003, FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL CORE DRILL ALL WALL/CEILING PENETRATIONS AND SEAL CONDUIT TO MAINTAIN FIRE RATING AND WEATHERPROOFING RATINGS.

NOTES

1. ROUTE CONDUIT, ABOVE CEILING, FROM ELECTRICAL ROOM TO NORTH EXTERIOR WALL.
2. PENETRATE CONDUIT THROUGH NORTH WALL. PROVIDE PULLBOX, ROUTE CONDUIT DOWN EXTERIOR WALL, AND ROUTE UNDERGROUND TO UNIT/DISCONNECT/RECEPTACLE LOCATION. FIELD COORDINATE STUB UP LOCATIONS.
3. EXTEND CIRCUIT SERVING HEAT RECOVERY BOXES TO ROOF AIR HANDLER UNITS (4-8).
4. PROVIDE 3/4"C-2#10, 1#10G AND CONNECT TO AHU 4-8 CONTROL BOARDS. COORDINATE WITH MECHANICAL CONTRACTOR FOR POC. REFER TO MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE FOR CIRCUIT DESIGNATION.
5. CONNECT TO NEAREST FIRE ALARM JUNCTION BOX.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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CONSULTANT:
P2S ENG
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POWER PLAN - RENOVATION
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
△

E211

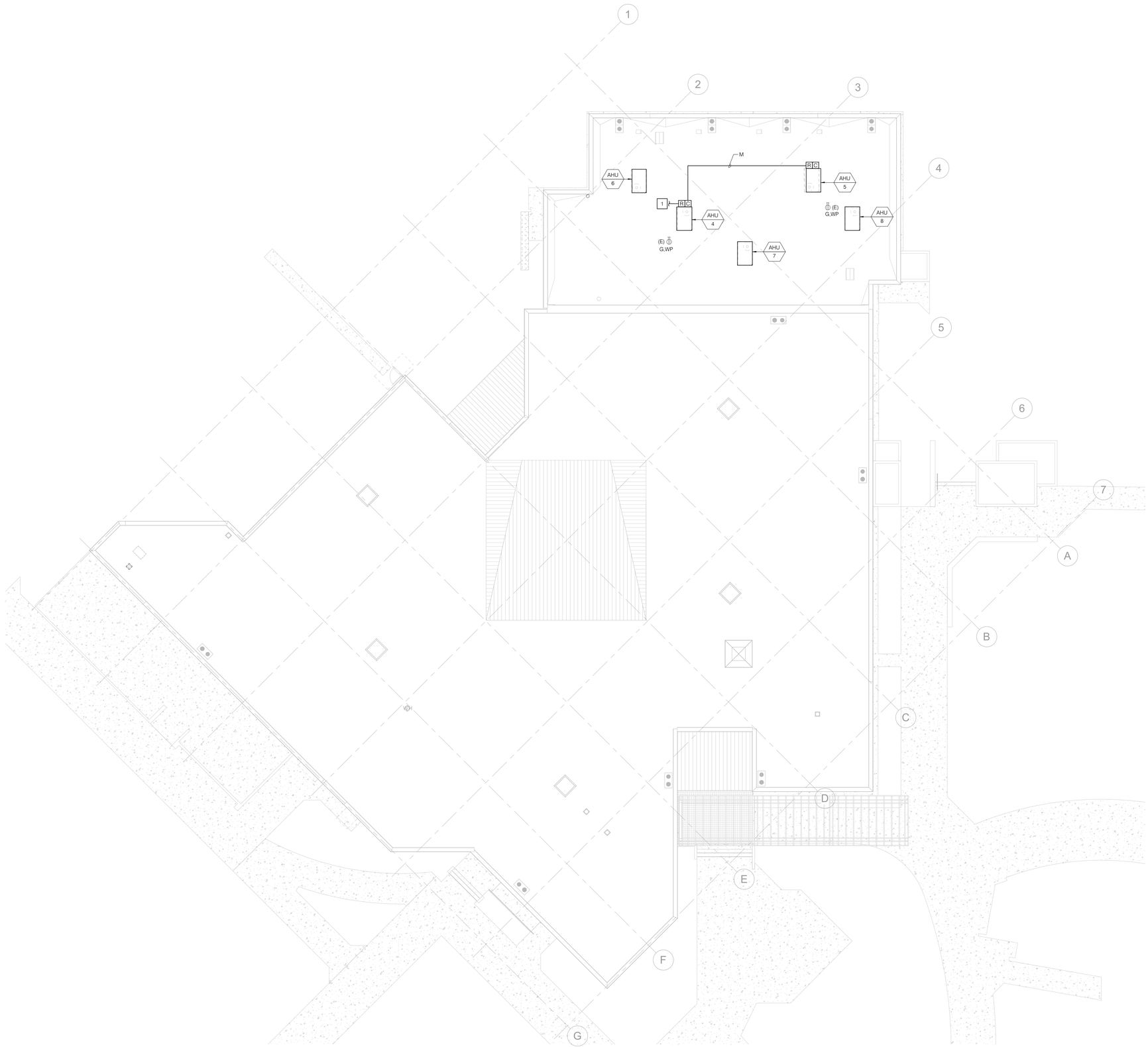
20/2021 11:11:59 AM

GENERAL NOTES

1. REFER TO MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE, ON SHEET E003, FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL PROVIDE CONTINUOUS FIRE WATCH WHEN FIRE ALARM SYSTEM IS DOWN DUE TO DEMOLITION AND RENOVATIONS. FIRE WATCH SHALL BE MAINTAINED. DURING AND AFTER BUSINESS HOURS UNTIL SYTEM IS FULLY OPERATIONAL.

NOTES

1 CONNECT TO NEAREST FIRE ALARM JUNCTION BOX.



1 ROOF PLAN RENOVATION

SCALE: 3/32" = 1'-0"

N

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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POWER ROOF PLAN - RENOVATION
BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:

E212

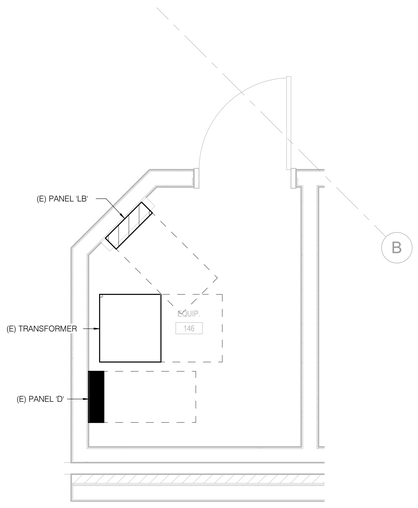
2/9/2021 11:12:02 AM

GENERAL NOTES

1. REFER TO SINGLE LINE DIAGRAM, ON SHEET E501, FOR ADDITIONAL INFORMATION.

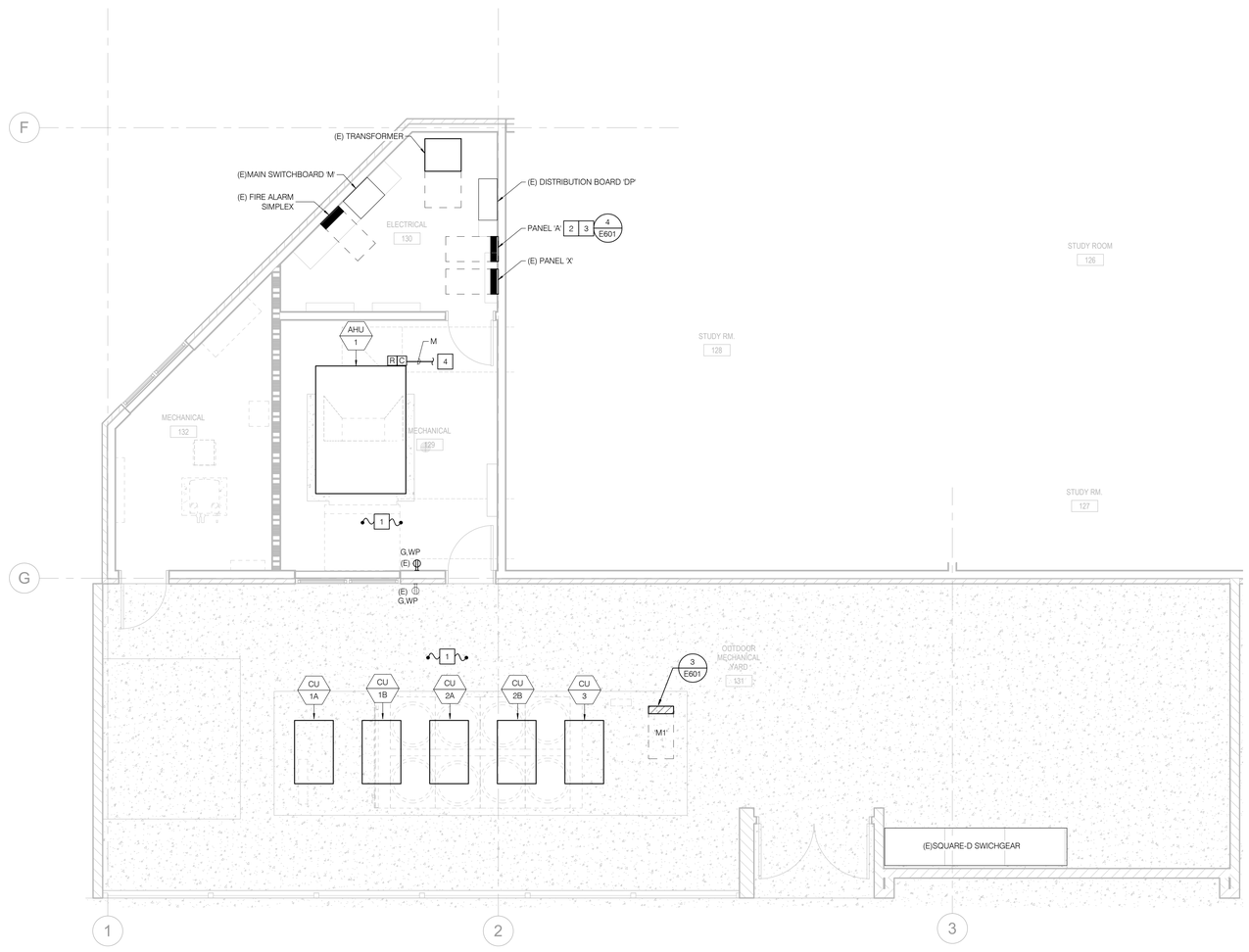
NOTES

1. REFER TO SHEETS E003 AND E211 FOR ADDITIONAL INFORMATION.
2. REPLACE EXISTING PANEL, KAIC, BREAKER SIZE AND QUANTITY TO MATCH EXISTING.
3. ALL EXISTING BRANCH CIRCUITS SHALL BE RECONNECTED TO NEW PANEL.
4. CONNECT TO NEAREST FIRE ALARM JUNCTION BOX.



2 ENLARGED EQUIPMENT ROOM 146

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



1 ELECTRICAL ROOM, MECHANICAL ROOMS, MECHANICAL YARD

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

IDENTIFICATION STAMP
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ENLARGED PLANS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
MONICO CARRILLO
No. E17508
ELECTRICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J11160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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E301

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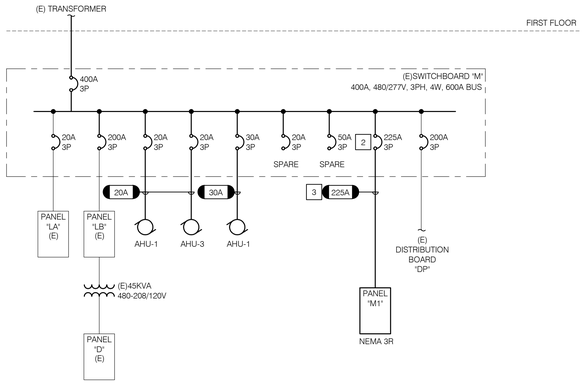
NOTES

1. DISCONNECT MECHANICAL EQUIPMENT TO BE DEMOLISHED. REMOVE CONDUIT AND FEEDERS BACK TO SOURCE PANEL.
2. CONNECT NEW PANEL TO EXISTING 225A BREAKER.
3. PROVIDE NEW FEEDERS IN EXISTING RACEWAY.

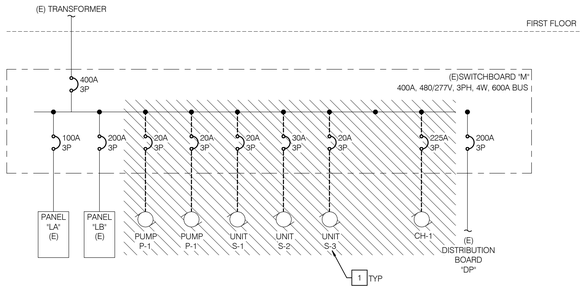
FEEDER SCHEDULE

FEEDER AMPS / DESIGNATION	COPPER (75°C THHN/THWN-2)	
	CONDUIT & WIRE SIZES	GROUND SIZE
20A	3/4"C-1#12	#12 GND
30A	3/4"C-1#10	#10 GND
225A	4#4/0	1#4 GND



2 SINGLE LINE - RENOVATION

SCALE: NONE



1 SINGLE LINE - DEMOLITION

SCALE: NONE

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APP: 04-119862 INC:
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DATE: 02/24/2021

CONSULTANT:
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SINGLE LINE DIAGRAM
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J11160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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E501

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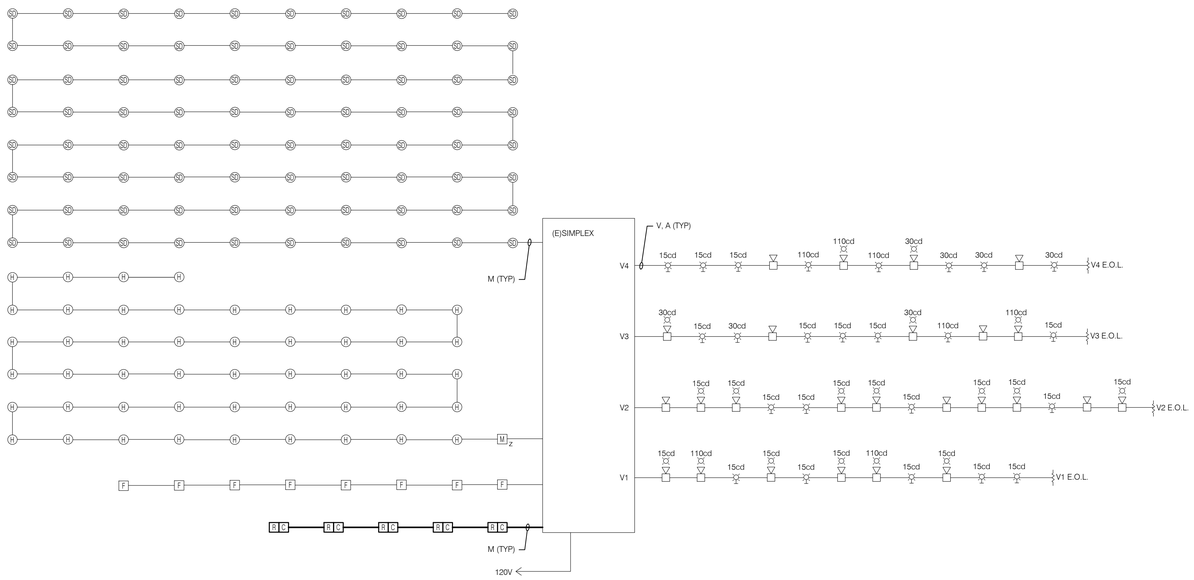

REFERENCE #APPL 04-100260

2 FIRE ALARM - RISER DIAGRAM

SCALE: NONE

Battery Capacity Calculation Sheet
(Existing 4020 FACP)

Quantity	Description	Unit Standby Current (A)	Total Standby Current (A)	Unit Alarm Current (A)	Total Alarm Current (A)
	PANEL EQUIPMENT - FIRE ALARM				
1	(E) 4020 Master Controller	0.500000	0.500000	0.640000	0.640000
	PANEL EQUIPMENT - EMERGENCY VOICE/EVACUATION				
0	DIGITAL VOICE COMMAND	0.000000	0.000000	0.000000	0.000000
0	DIGITAL KEYPAD DISPLAY	0.000000	0.000000	0.000000	0.000000
0	REMOTE MICROPHONE	0.000000	0.000000	0.000000	0.000000
0	REMOTE AMPLIFIER	0.000000	0.000000	0.000000	0.000000
	INITIATING DEVICES				
2	(N) DUCT DETECTOR	0.003000	0.006000	0.015000	0.030000
2	(N)ADDRESSABLE CONTROL MODULE	0.000000	0.000000	0.000000	0.000000
2	(N)RELAY MODULE	0.000000	0.000000	0.000000	0.000000
1	(E) ADDRESSABLE MONITOR	0.020000	0.020000	0.0910000	0.090000
	NOTIFICATION DEVICES				
11	(E) INDOOR STROBE/HORN 15/75cd	0.000000	0.000000	0.111000	1.221000
3	(E) OUTDOOR STROBE/HORN 30/75cd	0.000000	0.000000	0.141000	0.423000
7	(E) INDOOR STROBE/HORN 110cd	0.000000	0.000000	0.236000	1.652000
18	(E) WALL MOUNTED STROBE 15/75cd	0.000000	0.000000	0.095000	1.710000
3	(E) WALL MOUNTED STROBE 110cd	0.000000	0.000000	0.220000	0.660000
2	(E) CEILING STROBE 110cd	0.000000	0.000000	0.220000	0.440000
4	(E) WALL MOUNTED STROBE 30/75cd	0.000000	0.000000	0.125000	0.500000
8	(E) OUTDOOR HORN	0.000000	0.000000	0.065000	0.520000
	SUB TOTAL		0.526		7.886

BATTERY CALCULATIONS

ASSUMPTIONS:

A - BATTERY BACKUP - STANDBY (HOURS)	24
B - BATTERY ALARM (MINUTES)	15
C - ALLOWABLE ERROR (%)	20%
D - TOTAL STANDBY BACKUP (AMP-HOUR)	12.624
E - TOTAL ALARM BACKUP (AMP-HOUR)	1.972
F - ALLOWABLE ERROR (C x (D + E))	2.919
TOTAL AMP-HOUR REQUIRED (D+E+F)	17.515
BATTERY SUBMITTED	110 AH

1 FIRE ALARM - BATTERY CALCULATIONS

SCALE: NONE

GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE CONTINUOUS FIRE WATCH WHEN FIRE ALARM SYSTEM IS DOWN DUE TO DEMOLITION AND RENOVATIONS. FIRE WATCH SHALL BE MAINTAINED DURING AND AFTER BUSINESS HOURS UNTIL SYTEM IS FULLY OPERATIONAL.

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APP: 04-119862 INC:
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CONSULTANT:
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FIRE ALARM RISER DIAGRAM AND CALCULATIONS
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

IMPERIAL VALLEY COLLEGE Est. 1962

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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E502

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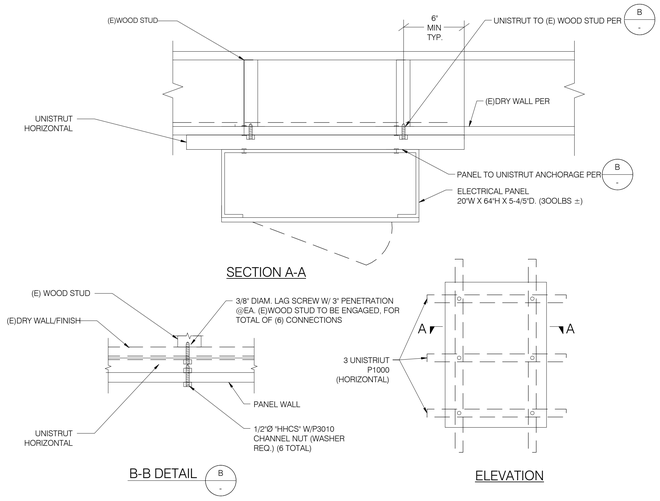
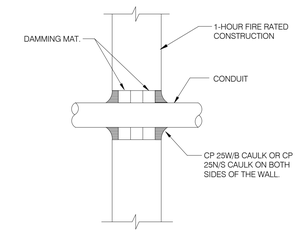


4 SURFACE MOUNTED PANELBOARD

NO SCALE



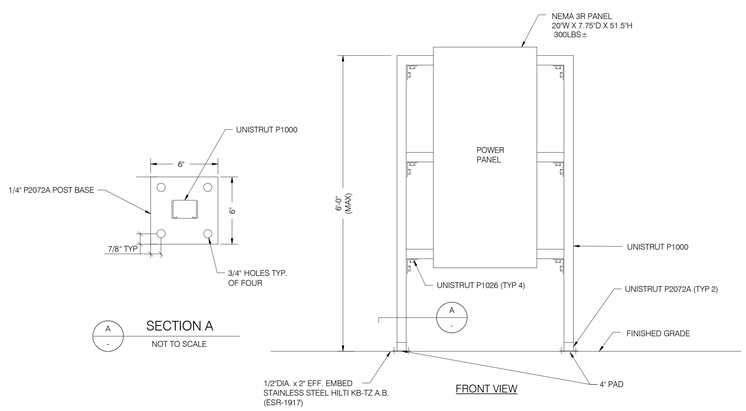
NOTES

1. THIS IS UL STD #49 FOR CONCRETE WALLS OR UL SYSTEM #1479 FOR 1HR. TYPE X GYPSUM BOARD WALL.
2. THE MAXIMUM ANNULAR SPACE TO BE FILLED IS 2". THE MINIMUM ANNULAR SPACE IS 3/4".
3. FOR SOLID CONCRETE WALLS. THE NON-SAG CP 25 CAULK MAY BE CENTERED IN THE WALL WITH DAMMING MATERIAL ON BOTH SIDES OF THE CAULK.
4. USE CP 25S (SELF LEVELING) CAULK ON HORIZONTAL SURFACES WHEN SEALING OPENING FROM ABOVE THE PENETRATION. USE CP25N (NO SAG) CAULK ON VERTICAL SURFACES AND ON HORIZONTAL SURFACES WHEN SEALING OPENING FROM BELOW. USE NON-SAG CP 25WB CAULK ON EITHER APPLICATION.
5. SHRINKAGE OF NON-SAG CP 25 CAULKS IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
6. THE DEPTH OF THE NON-SAG CP 25 CAULKS DEPENDS ON THE INSULATION THICKNESS,

CAULK DEPTH (MIN.)	INSULATION
1"	1" THICK
2"	2-3" THICK

2 TYPICAL CONDUIT PENETRATION

NO SCALE

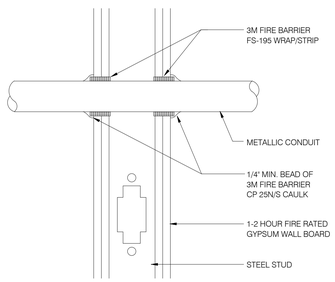


NOTES

1.	UNISTRUT SHALL BE HOT DIPPED GALVANIZED.

3 UNISTRUT MOUNTED PANEL

NO SCALE



NOTES

1. THE SPACE BETWEEN THE PENETRATING ITEM AND WALL BOARD MUST ACCOMMODATE AT LEAST ONE WRAP (1/4") OF 3M FIRE BARRIER FS-195 WRAP/STRIP.
2. IF THE ANNULAR SPACE IS LESS THAN 1/2", ONE WRAP OF FS-195 WRAP/STRIP IS REQUIRED. IF THE ANNULAR SPACE IS 1/2" OR GREATER, FILL WITH ADDITIONAL WRAPS OF FS-195 WRAP/STRIP UNTIL THE ANNULAR SPACE IS LESS THAN 1/4". FS-195 WRAP/STRIP MAY BE FRICTION FIT INTO OPENING, SECURED WITH FOIL TAPE OR 16 GAUGE STEEL TIE WIRE.
3. SLIDE THE FS-195 WRAP/STRIP INTO THE OPENING, LEAVING A MAXIMUM 3/4" EXPOSED WRAP BEYOND THE WALL SURFACE.
4. SEAL THE FS-195 WRAP/STRIP EDGES AND SEAMS WITH A 1/4" MINIMUM BEAD OF 3M FIRE BARRIER NON-SAG CP 25 CAULK.
5. INSTALL 3M FIRESTOP ON BOTH SIDES OF THE WALL.
6. THESE RECOMMENDATIONS ARE BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479-03) FIRE TEST AND UL THROUGH-PENETRATION FIRESTOP SYSTEM # WL-2385.

1 CONDUIT THROUGH 1-2 HOUR RATED WALL

NO SCALE

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DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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DATE: 02/24/2021

CONSULTANT:
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p2sinc.com

DETAILS

BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:

E601

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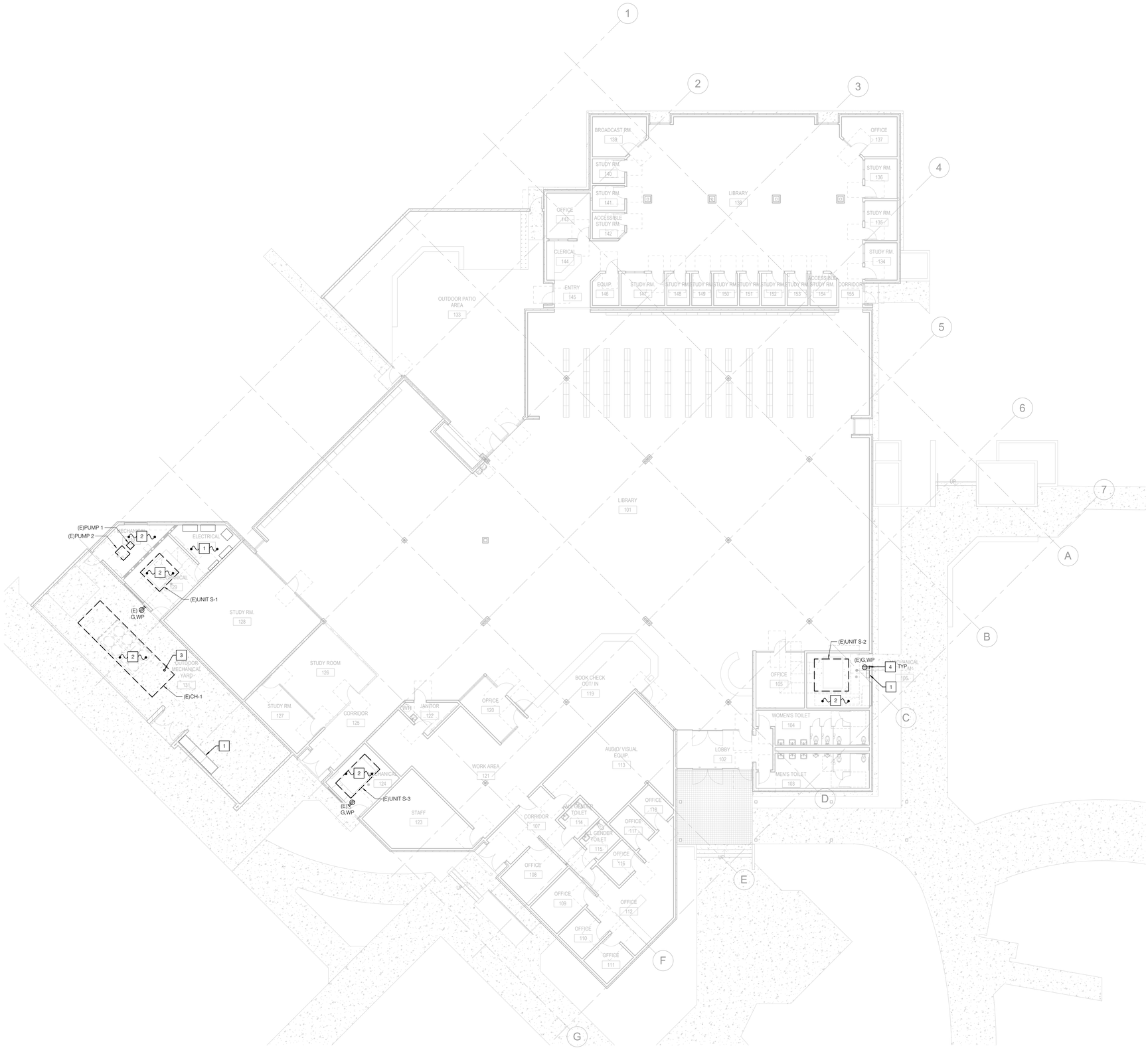

GENERAL NOTES

1. REFER TO SINGLE LINE DIAGRAM, ON SHEET E501, FOR ADDITIONAL INFORMATION.

NOTES

1. EXISTING ELECTRICAL EQUIPMENT SHALL BE PROTECTED IN PLACE.
2. DISCONNECT EXISTING EQUIPMENT TO BE DEMOLISHED. REMOVE CONDUIT AND CONDUCTORS BACK TO SOURCE PANEL. CONCEALED CONDUIT CAN BE ABANDONED IN PLACE.
3. EXISTING CONDUIT STUB UP TO BE USED IN RENOVATION. PROTECT IN PLACE.
4. EXISTING RECEPTACLES SHALL BE PROTECTED IN PLACE.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119862 INC:
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DATE: 02/24/2021

CONSULTANT:
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POWER FLOOR PLAN - DEMOLITION
BUILDING 1500 LIBRARY - HVAC REPLACEMENT
IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:
REGISTERED PROFESSIONAL ENGINEER
MONICO CARRILLO
No. E17508
ELECTRICAL
STATE OF CALIFORNIA
SIGNED: 01/21/2021

sgh ARCHITECTS

PROJECT NUMBER: P2S: J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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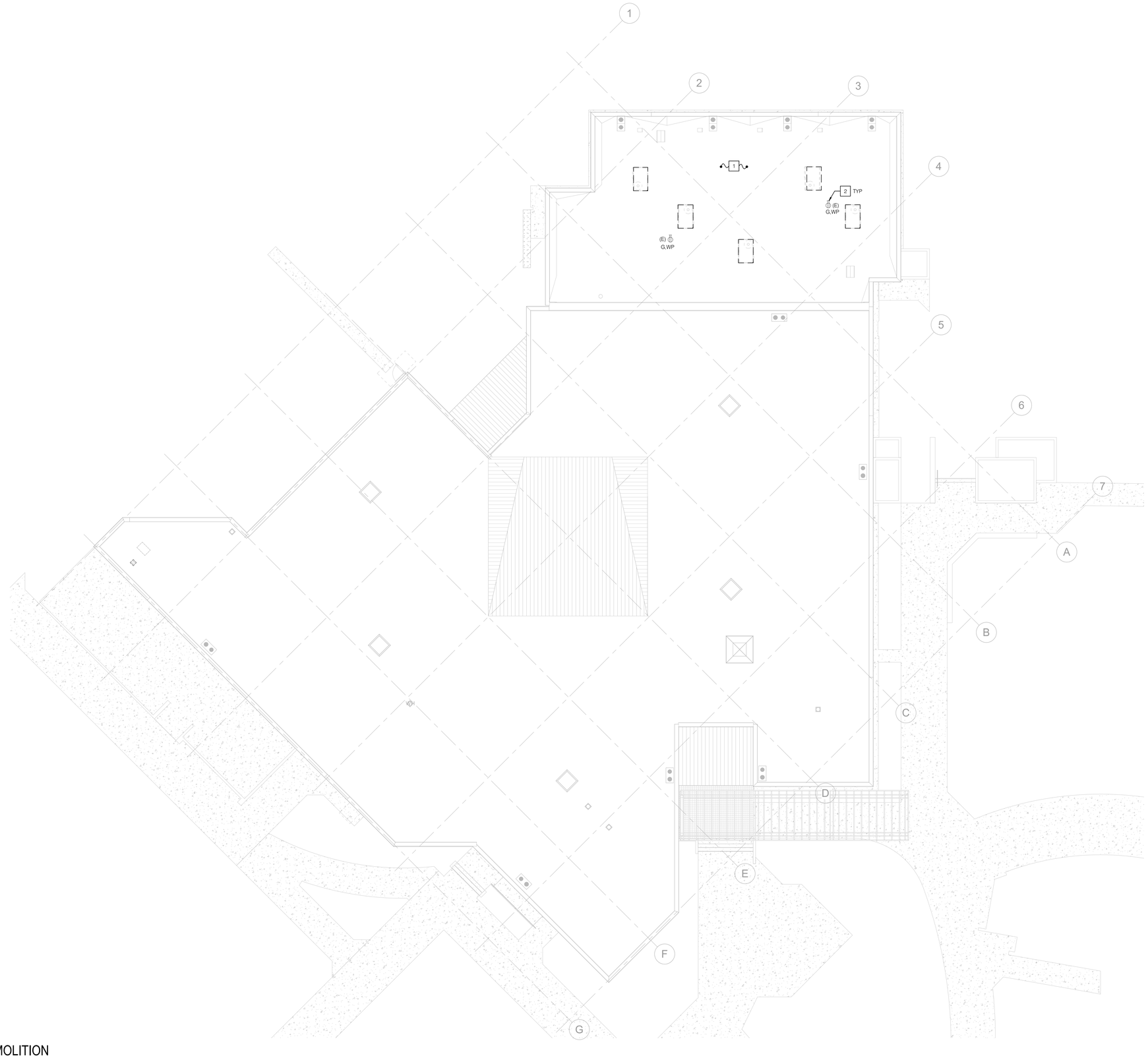
ED211

20/2021 11:12:11 AM

NOTES

1. EXISTING MECHANICAL EQUIPMENT TO BE DEMOLISHED. PROTECT CONDUIT IN PLACE AND REMOVE CONDUTORS TO SOURCE PANEL.
2. EXISTING RECEPTACLES SHALL BE PROTECTED IN PLACE.



1 ROOF PLAN DEMOLITION

SCALE: 3/32" = 1'-0"

N

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APP: 04-119862 INC:
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DATE: 02/24/2021

CONSULTANT:
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POWER ROOF PLAN - DEMOLITION
BUILDING 1500 LIBRARY - HVAC REPLACEMENT

IMPERIAL VALLEY COLLEGE
BUILDING 1500 LIBRARY
380 EAST ATEN ROAD, IMPERIAL, CA 92251

SEALS:

sgh ARCHITECTS

PROJECT NUMBER: P2S- J1160
PROJECT STATUS: DD
PROJECT ISSUED: 12/14/2020
REVISION: DATE: DESCRIPTION:
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ED212

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