PIMA COMMUNITY COLLEGE

TRANSPORTATION CENTER ADDITIONAL EQUIPMENT

1255 N STONE AVE
TUCSON, AZ

CONSTRUCTION DOCUMENTS - 100%

MARCH 29, 2024

SHEET INDEX

PROJECT TEAM

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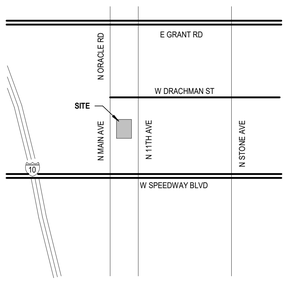
VICINITY MAP



DLR GROUP
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47864
SHANE J. CHISM
ARIZONA, U.S.A.

KC MECHANICAL ENGINEERING, L.L.C.

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TUCSON AZ

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03/29/2024
REVISIONS

30-19128-04

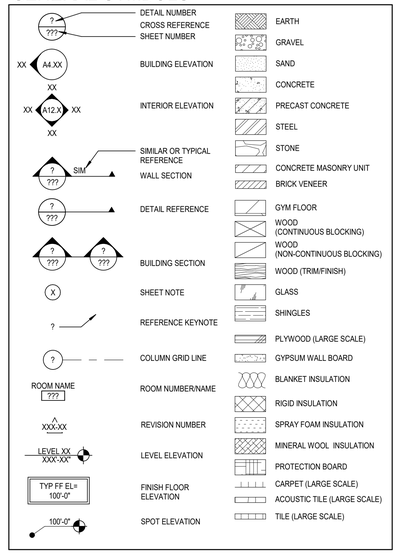
COVER SHEET

G0.1

GENERAL ABBREVIATIONS

#	NUMBER
&	AND
@	AT
ADA	AMERICANS WITH DISABILITY ACT
ADDN	ADDITION OR ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BLDG	BUILDING
BSMT	BASEMENT
CL	CENTER LINE
CLG	CEILING
CM	CENTIMETER
CONC	CONCRETE
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACT(OR)
CTR	CENTER
D	DEPTH
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DIA	DIAMETER
DIM	DIMENSION
DIV	SPECIFICATION DIVISION
DN	DOWN
DTL	DETAIL
DWG(S)	DRAWING(S)
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACTOR
EL	ELEVATION
ELEC	ELECTRICAL
ENG	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EXST	EXISTING
EXT	EXTERIOR
FIN	FINISHED
FL	FLOOR
FT	FEET
FUT	FUTURE
GC	GENERAL CONTRACTOR
GOVT	GOVERNMENT
H	HEIGHT
HORIZ	HORIZONTAL
HT	HEIGHT
i.e.	THAT IS
IBC	INTERNATIONAL BUILDING CODE
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
M	METER
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
N	NORTH
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
OVHD	OVERHEAD
PAR	PARALLEL
PENT	PENTHOUSE
PLYWD	PLYWOOD
QTY	QUANTITY
REQ(D)	REQUIRE(D)
REV	REVISION(S)
RM	ROOM
RND	ROUND
S	SOUTH
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION(S)
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SYM	SYMETRICAL
TEMP	TEMPORARY
TYP	TYPICAL
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
W	WEST
W/	WITH
W/O	WITHOUT

GENERAL SYMBOLS



SITE SYMBOLS

GENERAL NOTES

A. GENERAL NOTES APPLY TO ALL SHEETS.
B. DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF CONCRETE WALLS, FACE OF CMU WALLS, FACE OF FRAMES, OR CENTERLINE OF COLUMNS, UNLESS NOTED OTHERWISE.
C. THE OWNER SHALL FURNISH AND INSTALL THE FOLLOWING ITEMS: 1.???, 2.???
D. INCLUDE ALL OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER-FURNISHED AND CONTRACTOR-INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND SHALL COORDINATE WITH THE OWNER TO ACCOMMODATE THESE ITEMS.
E. COORDINATE ALL MECHANICAL CHASE SIZES WITH THE MECHANICAL CONTRACTOR.
F. ARCHITECTURAL FINISH FLOOR ELEVATION 0'-0" EQUALS EXISTING FINISH FLOOR ELEVATION.
G. ALL PENETRATIONS THROUGH WALLS SHALL BE SEALED WITH PENETRATION FIRE STOPPING MATERIAL AS REQUIRED TO ACHIEVE THE RESPECTIVE FIRE-RESISTANCE RATING AND SMOKE STOPPAGE. SEE SPECIFICATION SECTION 078413.
H. COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS THE SIZE AND LOCATION OF EQUIPMENT PADS SHOWN ON PLANS.
I. CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. SEE DRAWING FOR QUANTITIES AND LOCATION OF WORK. SEE SPECIFICATIONS FOR QUALITIES AND CONDITIONS OF WORK.
J. WORK: ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AND INDICATED IN THE CONTRACTOR'S BID.
K. GENERAL SHEET NOTES ONLY APPLY TO PARTICULAR DRAWING OR SERIES OF DRAWINGS.
L. NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
M. DO NOT SCALE DRAWINGS. DIMENSIONS NOTED PREVAIL. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.
N. HORIZONTAL AND VERTICAL DIMENSIONS ARE MINIMUM DIMENSIONS. CLEARANCES ARE GIVEN TO FINISH SURFACES. GC TO VERIFY ALL CLEARANCES. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.

DLR GROUP

47864
SHANE J. CHISM
REGISTERED ARCHITECT
03/29/24

KC MECHANICAL ENGINEERING, L.L.C.

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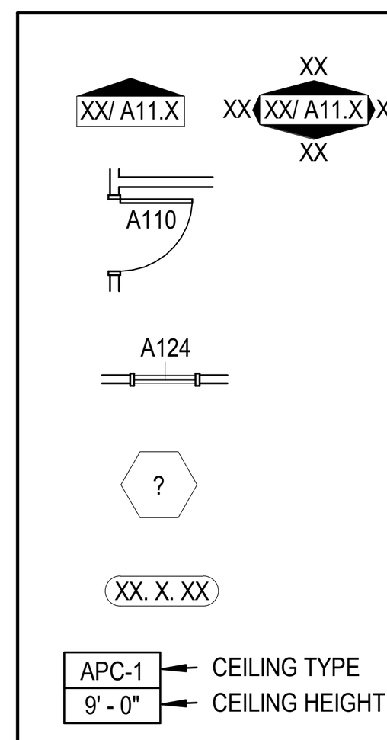
GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

G1.1

ARCHITECTURAL ABBREVIATIONS

A/E	ARCHITECT/ENGINEER
AB	AIR BARRIER
ABS	ASBESTOS
ACC	ADA ACCESSIBLE
ACR	ACRYLIC
ACT	ACOUSTIC CEILING TILE
AD	ACCESS DOOR
ADJ	ADJUSTABLE
ADJT	ADJACENT
ADMIN	ADMINISTRATION
AEC	AUTOMATED EXTERNAL DEFIBRILLATORS
AL	ALUMINUM
ALUM	ALUMINUM
AP	ACCESS PANEL
APC	ACOUSTIC PANEL CEILING
ASPH	ASPHALT
AUTO	AUTOMATIC
AVG	AVERAGE
AWP	ACOUSTIC WALL PANEL
B.O.	BOTTOM OF
BCS	BABY CHANGING STATION
BD	BOARD
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM(S)	BEAM(S)
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BT	BATHTUB
BTWN	BETWEEN
CAB	CABINET
CBD	CHALKBOARD
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFMF	COLD-FORMED METAL FRAMING
CG	CLEAR FLOAT GLASS
CGD	CORNER GUARD
CI	CAST IRON
CIG	CLEAR INSULATING GLASS
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJA	CONTROL JOINT ABOVE
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COM	COMMON
COMB	COMBINATION
COMM	COMMUNICATIONS
COMPR	COMPRESSIBLE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CORR	CORRIDOR
CP	COVER PLATE
CPT	CARPET
CR	CHAIR RAIL
CS	COUNTERSINK
CSTJ	CONSTRUCTION JOINT
CSWK	CASEWORK
CT	CERAMIC TILE
CTG	CLEAR TEMPERED FLOAT GLASS
CTIG	CLEAR TEMPERED INSULATING GLASS
CU	COPPER
CU	COMBINATION UNIT
CV	CONDOM VENDOR
CY	CUBIC YARD
CYL	CYLINDER
DB	DECIBEL
DBL	DOUBLE
DC	DUST COLLECTOR
DEPR	DEPRESS(ION)(ED)
DEPT	DEPARTMENT
DET	DETENTION
DF	DRINKING FOUNTAIN
DG	DOOR GRILLE
DIAG	DIAGONAL
DPFG	DAMPROOFING
DR	DOOR
DSN	DOWNSPOUT NOZZLE
DW	DISHWASHER
DWL(S)	DOWEL(S)
DWR	DRAWER
EB	EXPANSION BOLT
EE	EACH END
EEW	EMERGENCY EYE WASH
EEWS	EMERGENCY EYE WASH SHOWER
EFF	EFFICIENCY
EJ	EXPANSION JOINT
ELAS	ELASTOMERIC
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
ERF	EPOXY RESIN FLOORING
EUI	ENERGY USE INTENSITY
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXP	EXPANSION
EXP	EXPOSED
F	FABRIC
F.O.	FACE OF
FAB	FABRICATE(D)
FB	FACE BRICK
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIX	FIXTURE
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FLUOR	FLUORESCENT
FO	FINISH OPENING
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FP	FIREPROOFING
FR	FIRE RESISTANT
FRP	FIBERGLASS REINFORCED PANEL
FRT	FIRE RESISTANCE TREATED
FS	FLOOR SINK
FSS	FOLDING SHOWER SEAT
FTG	FOOTING
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	GROUT
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GD	GARBAGE DISPOSAL
GEN	GENERAL
GFA	GROSS FLOOR AREA
GL	GLUE LAMINATED
GL	GLASS
GMP	GUARANTEED MAXIMUM PRICE
GR	GUARD RAIL
GR	GRADE
GRS	GALVANIZED RIGID STEEL
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
HC	HOLLOW CORE
HD	HAND DRYER
HDF	HIGH DENSITY FIBERBOARD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HR	HOUR
HR	HANDRAIL
HS	HARDWARE SET
HSS	HOLLOW STRUCTURAL SHAPE
HVAC	HEATING VENTILATING AND AIR CONDITIONING
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IF	INSIDE FACE
IIP	INSULATED INFILL PANEL GLASS
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
INC	INCLUDE(ING)
INSUL	INSULATION
JAN	JANITOR
JBE	JOIST BEARING ELEVATION
JBX	JUNCTION BOX
JCT	JUNCTION
JFB	JOINT FILLER BOARD
JST	JOIST
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KD	KNOCKDOWN
KH	KITCHEN HOOD
KIT	KITCHEN
L	ANGLE
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LBR	LUMBER
LDG	LOADING
LF	LINEAR FOOT
LG	LENGTH (LONG)
LG	LAMINATED GLASS
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LOC	LOCATION
LONG	LONGITUDINAL
LSC	LIFE SAFETY CODE
LTG	LIGHTING
LV	LOUVER
LVT	LUXURY VINYL TILE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MB	MOP BASIN
MBD	MARKER BOARD
MBH	MOP/BROOM HOLDER
MC	MEDICINE CABINET
MEMB	MEMBRANE
MH	MANHOLE
MR/S	MIRROR WITH SHELF
MTD	MOUNTED
MTG	MOUNTING
MUL	MULLION
NC	NOISE CRITERIA
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOM	NOMINAL
O to O	OUT TO OUT
OA	OVERALL
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OPPOSITE HAND
OPG(S)	OPENING(S)
OSHA	OPERATIONAL SAFETY AND HEALTH ADMINISTRATION
OTB	OPEN TO BELOW
OVFL	OVERFLOW
P	PAINT
PAN B	PANIC BOLT
PB	PARTICLE BOARD
PC	PRECAST CONCRETE
PCD	PAPER CUP DISPENSER
PCT	PORCELAIN CERAMIC TILE
PD	PANIC DEVICE
PERF	PERFORATED
PERP	PERPENDICULAR
PG	PATTERN GLASS
PIC	PORTABLE INSTRUMENT CONNECTION
PIG	PATTERN INSULATING GLASS
PL	PLATE
PL	PROPERTY LINE
PL	PLASTIC LAMINATE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECT(OR) (ION)
PS	PROJECTION SCREEN
PT	POINT
PT	POINT OF TANGENCY
PTD	PAPER TOWEL DISPENSER
PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWL	SOUND POWER LEVEL
QGV	QUAD GAS VALVE
QT	QUARRY TILE
QTR RND	QUARTER ROUND
R	RISER
RAD	RADIUS
RB	RUBBER BASE
RC	REMOTE CONTROL
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REFL	REFLECTED
REM	REMOVABLE
RESIL	RESILIENT
RF	RESILIENT FLOORING
RF	RUBBER FLOOR
RFM	RECESSED FLOOR MAT
RH	ROBE HOOK
RI&C	ROUGH IN AND CONNECT
S	SINK
SAT	SPRAYED ACOUSTIC TREATMENT
SAW	SOUND ABSORBING WALL UNITS
SB	SPLASH BLOCK
SC	SOLID CORE
SC	SHOWER CURTAIN
SCD	SEAT COVER DISPENSER
SCH	SHOWER CURTAIN HOOK
SCR	SHOWER CURTAIN ROD
SCT	STRUCTURAL CLAY TILE
SD	SOAP DISPENSER
SECY	SECRETARY
SF	SQUARE FEET
SG	SPANDREL GLASS
SG	SPECIALTY GLASS
SGL	SINGLE
SGV	SINGLE GAS VALVE
SH	SHOWER
SHM	SECURITY HOLLOW METAL
SLNT	SEALANT
SM	SHEET METAL
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SO	SENSOR OPERATED
SPL	SOUND PRESSURE LEVEL
SQ	SQUARE
SR	SURFACE MOUNTED ELECTRICAL RACEWAY
SS	SOLID SURFACE
SSA	STORM SHELTER AREA
SSM	SOLID SURFACE
SSS	STAINLESS STEEL SHELF
SST	STAINLESS STEEL
ST	STONE
ST	STAIR
STAG'D	STAGGERED
STC	SOUND TRANSMISSION CLASS
STGR	STRINGER
SUBFL	SUBFLOOR
SUL	SULPHUR
SURF	SURFACE
SUSP	SUSPENDED
SVF	SHEET VINYL FLOORING
SVF	SERVICE FIXTURE
SVG	SERVICE FIXTURE GROUP
T	TREAD
T&G	TONGUE AND GROOVE
T.O.	TOP OF
TAN	TANGENT
TB	TOWEL BAR
TBD	TACK BOARD
TCP	TOILET COMPARTMENT PARTITION
TERR	TERRAZZO
TFG	TINTED FLOAT GLASS
TG	TEMPERED GLASS
TH	THRESHOLD
THK	THICK(NESS)
TI	TENANT IMPROVEMENT
TIG	TINTED INSULATING GLASS
TMR	TILT MIRROR UNIT
TOIL	TOILET
TOP	TOP OF PAVING
TRANS	TRANSVERSE
TT	TERRAZZO TILE
TTD	TOILET TISSUE DISPENSER
TTG	TINTED TEMPERED FLOAT GLASS
TTIG	TINTED TEMPERED INSULATING GLASS
TW	TACK WALL
UL	UNDERWRITERS LABORATORIES
UR	URINAL
US	UTILITY SHELF
UTIL	UTILITY
VB	VAPOR BARRIER
VB	VINYL BASE
VCB	VENTED COVE BASE
VF	VINYL FLOOR
VOC	VOLITILE ORGANIC COMPOUND
VOL	VOLUME
VP	VENEER PLASTER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	WIDE
WB	WALL BASE
WC	WATER CLOSET
WC	WALL COVERING
WCL	WATER CLOSET/LAVATORY COMBINATION
WD	WOOD
WDF	WOOD FLOORING
WDW	WINDOW
WG	POLISHED WIRE GLASS
WI	WROUGHT IRON
WOM	WALK OFF MAT
WR	WASTE RECEPTACLE
WRB	WEATHER RESISTANT BARRIER
WW	WARM WHITE
WWF	WELDED WIRE FABRIC
YD	YARD

ARCHITECTURAL SYMBOLS



CASEWORK ELEVATION
DOOR NUMBER
INTERIOR WINDOW NUMBER
EXTERIOR WINDOW / CURTAIN WALL NUMBER
WALL TYPE
CEILING TYPE

GENERAL ARCHITECTURAL NOTES

DLRGROUP

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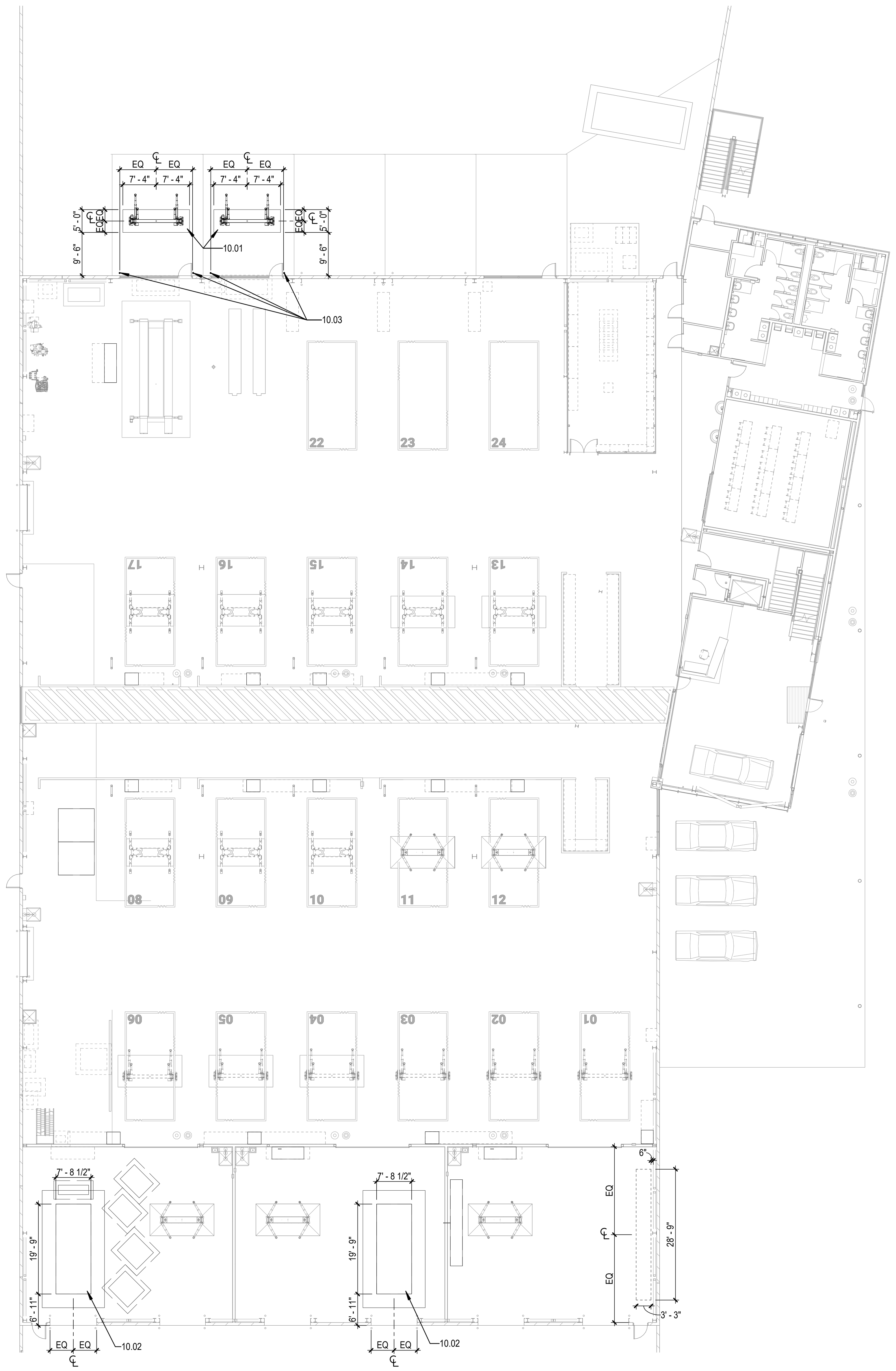
GENERAL ARCHITECTURAL NOTES

REFERENCE KEYNOTES

10.01	VEHICLE LIFT FOUNDATION AT EXTERIOR SITE PAVING, SEE STRUCTURAL.
10.02	DEPRESSED VEHICLE LIFT FOUNDATION, SEE STRUCTURAL.
10.03	POST BARRICADE - PAG STD DTL 106, TYPE A



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OVERALL FLOOR PLAN, LEVEL 1

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

DLRGROUP
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OVERALL FLOOR PLAN

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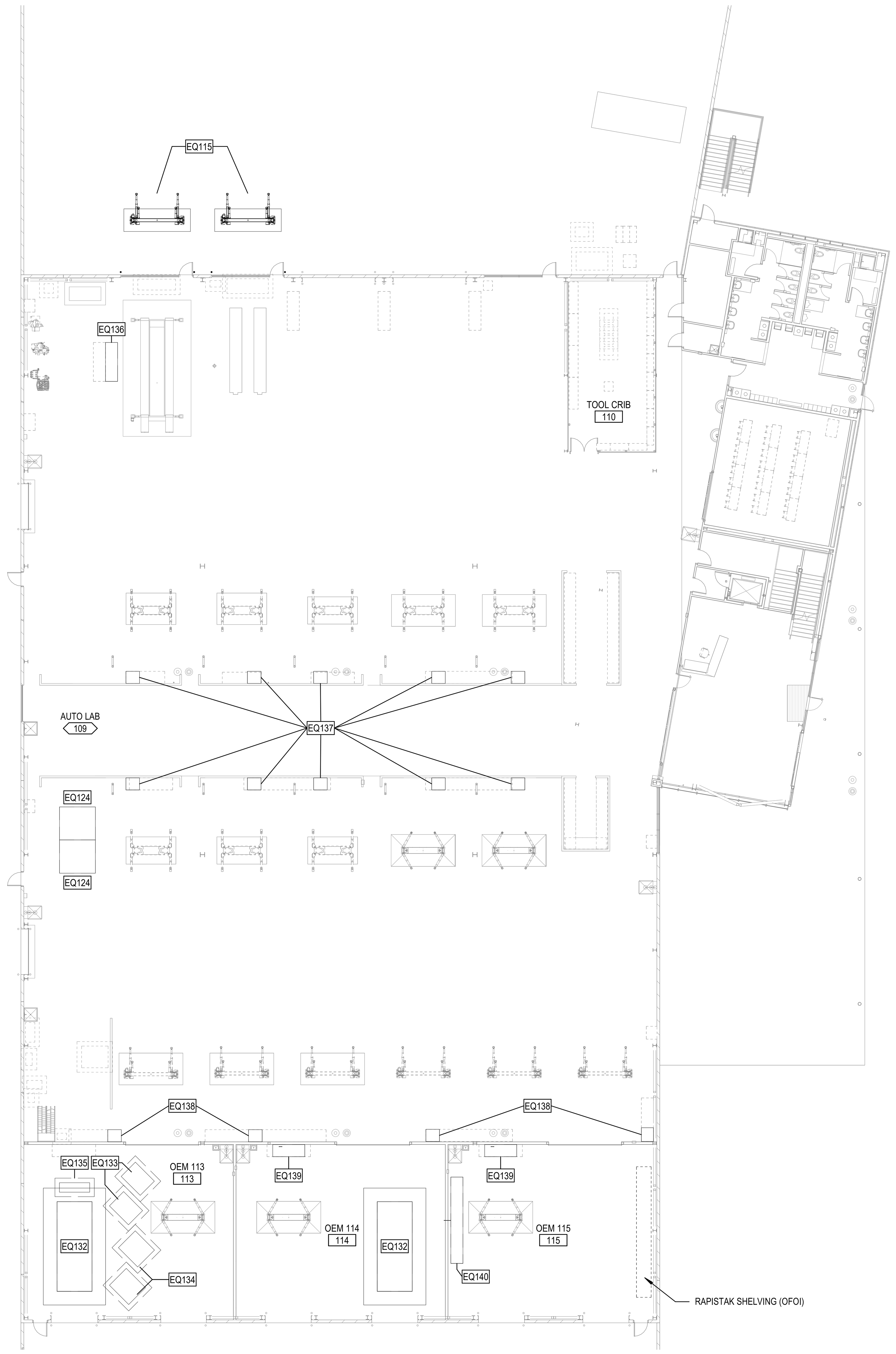
New Equipment Schedule											
Type	Description	Manufacturer	Model	Voltage	Amperage	Phase	Required Gasses	Count	Data	OI/CI	Comments
EQ115	2-POST LIFT	FORWARD	DP10A	208 V	30 A	1	-	2	-	OFOI	DEDICATED DOUBLE POLE BREAKER, DISCONNECT
EQ124A	TRANSMISSION DYNO	MAE MUSTANG	LDU-40	208 V	110 A	3	-	1	-	OFOI	DYNO MOTOR
EQ124B	TRANSMISSION DYNO	MAE MUSTANG	LDU-40	208 V	110 A	3	-	1	-	OFOI	DYNO DYNE CONTROL
EQ132	SCISSOR LIFT	HUNTER	RX16KLFIS	208 V	26 A	1	AIR 125 - 150 PSI	2	-	OFOI	
EQ133	TIRE CHANGER	HUNTER	MAVERICK	208 V	0 A	1	AIR 100 - 150 PSI	2	-	OFOI	NEMA L6-20 PROVIDED
EQ134	TIRE BALANCER	HUNTER	ROAD FORCE ELITE	208 V	0 A	1	AIR 100 - 175 PSI	2	YES	OFOI	NEMA L6-20 PROVIDED
EQ135	ALIGNER	HUNTER	WINALIGN WA600	120 V	0 A	1	-	1	YES	OFOI	
EQ136	N TIRE BALANCING UNIT	SNAP-ON	-	120 V	0 A	1	AIR	1	-	OFOI	INSTALL IN SNAP ON CAB
EQ137	CENTER AISLE UNIT	SNAP-ON	-	120 V	0 A	1	AIR	10	-	OFOI	INSTALL IN EXISTING SNAP ON CAB, ALSO 208-230V 17A LIFT POWER
EQ138	S WALL UNIT	SNAP-ON	-	120 V	0 A	1	AIR	4	-	OFOI	INSTALL IN EXISTING SNAP ON CAB, PROVIDE USB
EQ139	N OEM BAY UNIT	SNAP-ON	-	208 V	17 A	1	AIR	2	-	OFOI	INSTALL IN SNAP ON CAB
EQ140	OEM 115 UNIT	SNAP-ON	-	120 V	0 A	1	AIR	1	-	OFOI	INSTALL IN SNAP ON CAB, PROVIDE LED LIGHTING, USB



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EQUIPMENT PLAN, LEVEL 1

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

REFERENCE KEYNOTES

DLRGROUP

© DLR Group

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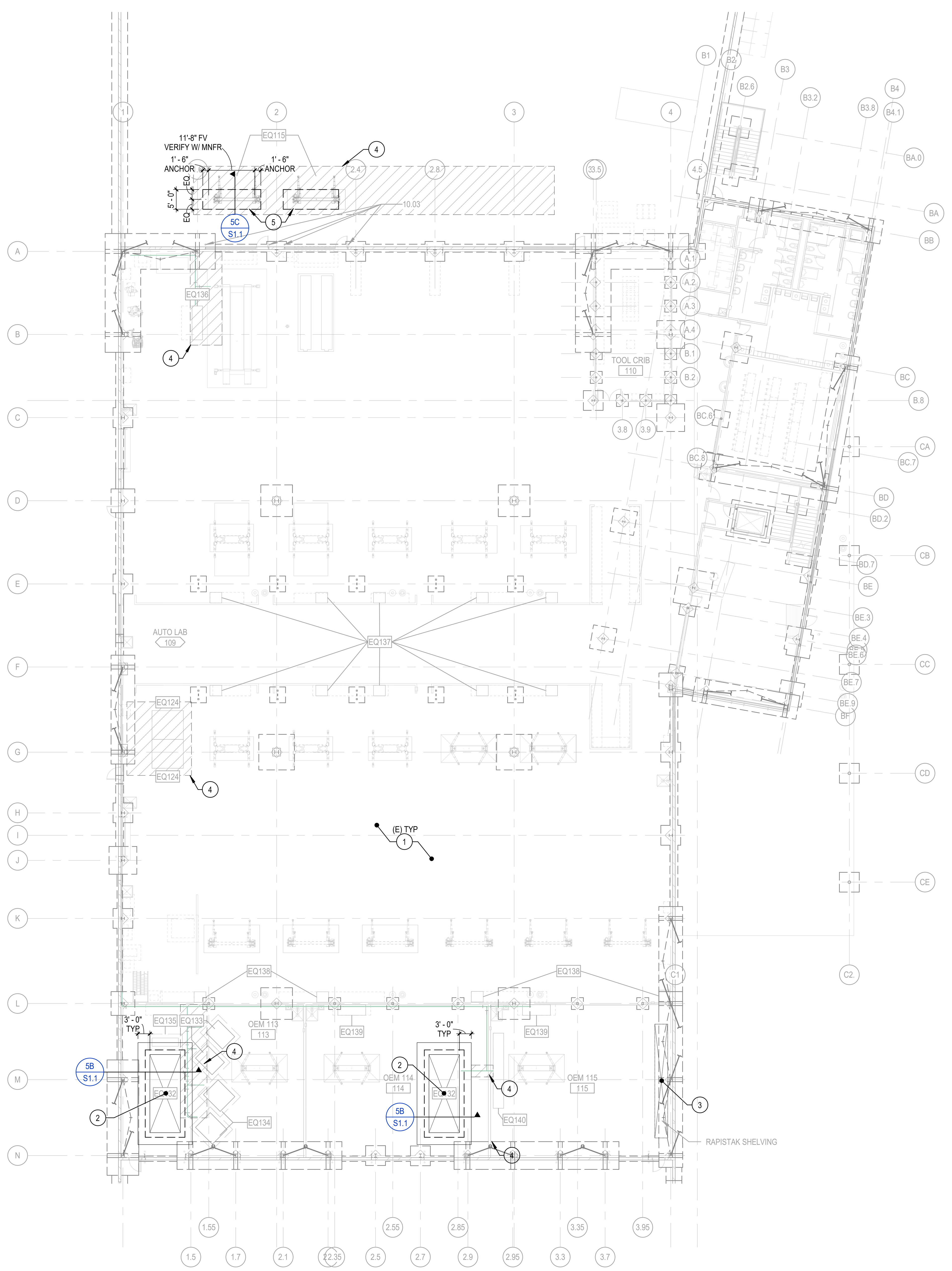
OVERALL EQUIPMENT PLAN

A14.1

Autodesk Docs://30-19128-04 Pima CC-Transportation Building/30-19128-00 PCC Transportation Bldg_AR_2024.rvt
3/29/2024 10:37:11 AM

SHEET NOTES

1. (E) EXISTING 6" CONCRETE SLAB-ON-GRADE WITH SYNTHETIC FIBERS AND #4 @1'-6" OC E.W. (MID DEPTH) OVER VAPOR RETARDER ON 4" AGGREGATE BASE COURSE (ABC). FINISH FLOOR=100'-0". SEE ARCH. PLANS FOR DEPRESSED SLAB LOCATIONS.
2. NEW VEHICLE LIFT FOUNDATON AND SLAB-ON-GRADE REPAIR. SEE DETAIL 5B/S1.1 AND SEE ARCH DRAWING FOR LOCATION. VERIFY SIZE AND DEPTH OF FLOOR RECESS WITH MNFR PRIOR TO INSTALLATION.
3. SHELVING UNITS ANCHORED TO EXISTING SLAB-ON-GRADE. VERIFICATION OF (E) SLAB-ON-GRADE TO SUPPORT SHELVING UNITS TO OCCUR UPON SUBMISSION OF OF FINAL PRODUCT INFORMATION AND ENGINEERING FOR APPLIED LOADING. (BASIS OF DESIGN: RAPISTAK SHELVING)
4. GENERAL AREA FOR BELOW SLAB UTILITY ROUTING. SAWCUT AND REMOVE EXISTING SLAB-ON-GRADE AS REQUIRED. COORDINATE WITH PLUMBING AND ELECTRICAL DRAWINGS FOR SPECIFIC LOCATIONS AND ROUTING. PATCH RENOVATED AREA PER DETAIL 5A/S1.1
5. NEW VEHICLE LIFT FOUNDATON AT EXTERIOR SITE PAVING. SEE DETAIL 5C/S1.1 AND ARCH DRAWING FOR LOCATION. BASIS OF DESIGN PER "ROTARY FORWARDLIFT - DP10A". FOUNDATON DESIGN LIMITED TO BASE REACTIONS PER POST OF 5,500 LB AXIAL, 1,250 LB SHEAR AND 10,000 #-FT MOMENT. INFORMATION AND VALUES TO BE VERIFIED / CONFIRMED BY OWNER PRIOR TO INSTALLATION.



LEVEL 1 - FOUNDATION PLAN

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

SPECIAL STRUCTURAL INSPECTIONS:

1. IN ACCORD WITH IBC, SECTION 1704, AS NOTED BELOW. TESTING AND INSPECTION SHALL BE BY AN INDEPENDENT TESTING/INSPECTION FIRM UNDER THE SUPERVISION OF A LICENSED ENGINEER EMPLOYED BY THAT FIRM. THIS ENGINEER SHALL BE DEEMED THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS PERFORMED BY HIS FIRM OR HIS CONSULTANTS. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
2. THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL BE RESPONSIBLE FOR DEFINING THE ACTIVITIES OF THE INSPECTORS, FOR CERTIFYING THE QUALIFICATIONS OF THE INSPECTORS WITH THE BUILDING OFFICIAL, AND TO ATTEND THE PRE-CONSTRUCTION MEETING TO DEFINE THEIR SCOPE OF SERVICES AND THE TESTING OR TEST PROCEDURES THAT ARE REQUIRED AS OUTLINED IN THE INTERNATIONAL BUILDING CODE.
3. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE LOCAL DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY IBC SECTION 110 OF THE INTERNATIONAL BUILDING CODE.
4. CONCRETE: PER IBC SECTION 1705.3 AND TABLE 1705.3 WITH EXCEPTIONS. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION: ALL CONCRETE, EXCEPT; SLAB-ON-GRADES, SIDE WALKS, AND DRIVEWAYS.
5. GRADING, EXCAVATION AND FILLING: PER IBC SECTION 1705.6 AND TABLE 1705.6. SEE CIVIL DRAWINGS AND SPECIFICATION DIVISION 2.
6. EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHOR: INSTALLATION TO VERIFY INSTALLATION IN ACCORD WITH ICBO REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL.
7. THE INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY CONFORMANCE TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
8. THE INSPECTOR SHALL FURNISH DAILY INSPECTION REPORTS ON THE WORK TO THE BUILDING OFFICIAL AND TO THE ENGINEER. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND, IF UNCORRECTED, TO THE ENGINEER AND THE BUILDING OFFICIAL.
9. THE TESTING/INSPECTION FIRM'S ENGINEER SHALL COMPLETE, SIGN AND SEAL A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

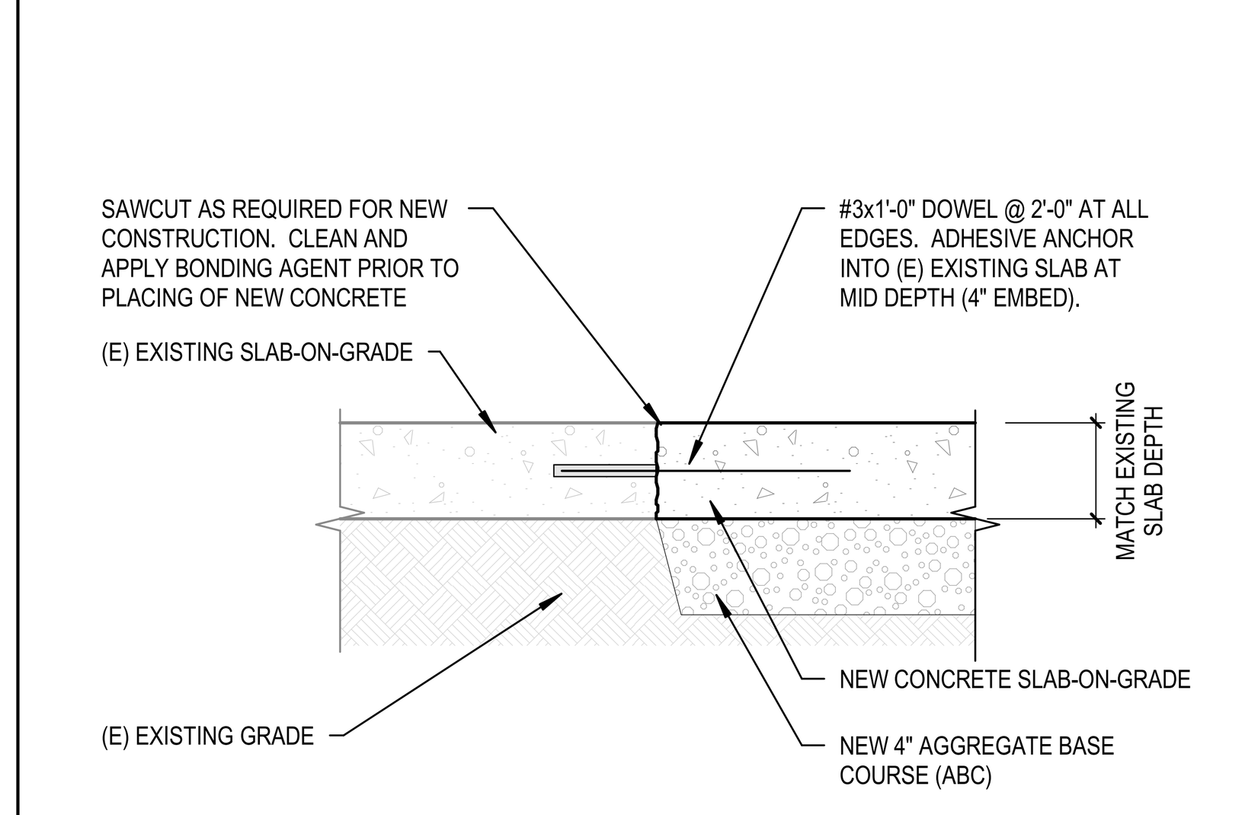
TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement.	-	X	ACI 318: Ch. 20, 25.2, 25.3,26.6.1-26.6.3	1908.4
2. Inspection of reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706; b. Inspect single-pass fillet welds, maximum 5/16"; and c. Inspect all other welds	-	X	AWS DI.4 ACI 318: 26.6.4	-
3. Inspect anchors cast in concrete	-	X	ACI 318: 17.8.2	-
4. Inspect anchors post-installed in hardened concrete members. 2 a. Adhesive anchors installed horizontally or upwardly inclined orientations to resiste tension loads. b. Mechanical anchors and adhesive anchors not defined in 4.a.	-	X	ACI 318: 17.8.2.4	-
5. Verify use of required design mix.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1,1904.2, 1908.2,1908.3
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.5, 26.12	1908.10
7. Inspect concrete and shotcrete placement for proper application techniques.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. Verify maintenance of specified curing temperature and techniques.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9. Inspect prestressed concrete for: a. Application of prestressing forces. b. Grouting of bonded prestressing tendons	X	-	ACI 318: 26.10	-
10. Inspect erection of precast concrete members.	-	X	ACI 318: 26.9	-
11. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	-	X	ACI 318: 26.11.2	-
12. Inspect formwork for shape, location, and dimensions of the concrete member being formed.	-	X	ACI 318: 26.11.1.2(b)	-

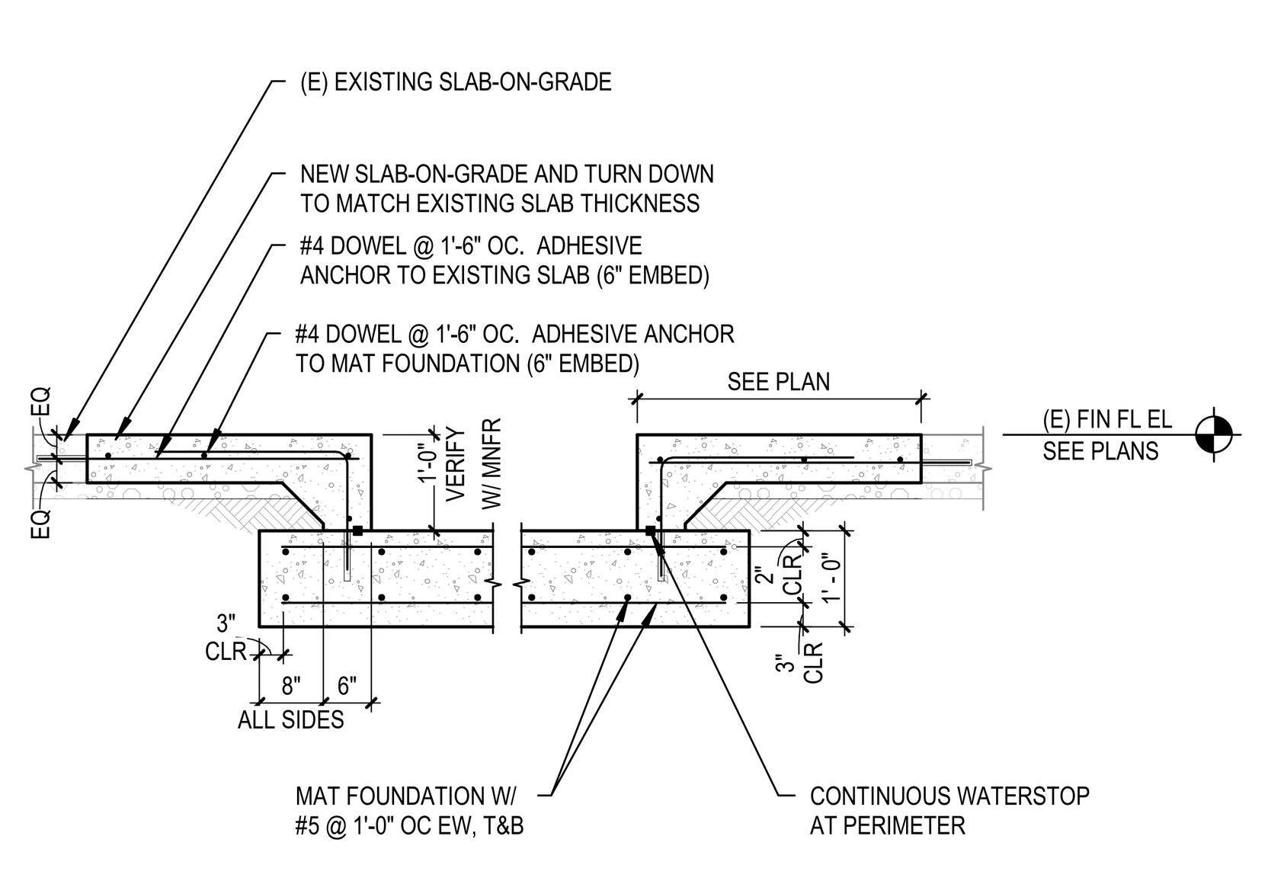
For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.12, Special inspections for seismic resistance.
b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318 or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

TABLE 1705.6
REQUIRED SPECIAL INSPECTION AND TESTS OF SOILS

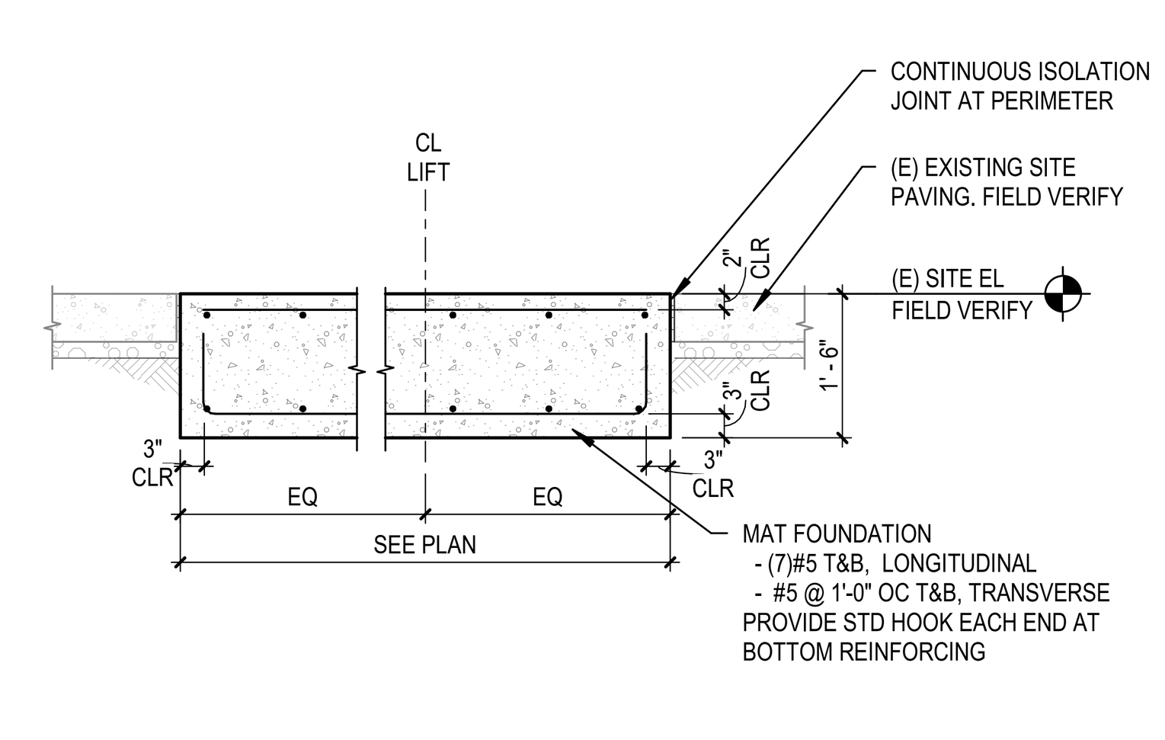
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
I. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X
2. Verify excavations are extended to proper depth and have reached proper material.	-	X
3. Perform classification and testing of compacted fill materials.	-	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	-
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	-	X



5A S1.1 TYP PATCH AT EXISTING SLAB-ON-GRADE
NO SCALE (AT EXISTING SLAB-ON-GRADE)



5B S1.1 VEHICLE LIFT FOUNDATION DETAIL
NO SCALE (AT INTERIOR CONDITION)



5C S1.1 VEHICLE LIFT FOUNDATION DETAIL
NO SCALE (AT EXTERIOR CONDITION)

STRUCTURAL NOTES

CODE:
INTERNATIONAL BUILDING CODE, 2018 EDITION WITH CITY OF TUCSON, AZ AMENDMENTS.

GENERAL NOTES:
1. THE DRAWINGS REPRESENT THE FINISHED STRUCTURE, NOT THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, BRACING, SHORING FOR CONSTRUCTION LOADS AND EQUIPMENT, ETC. THE ARCHITECT-ENGINEER IS NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS AND METHODS, SEQUENCES OF CONSTRUCTION, OR THE SAFETY PROGRAM. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT-ENGINEER WILL NOT INVOLVE REVIEW OF THESE ITEMS.
2. CONTRACTOR IS TO ESTABLISH AND VERIFY OPENINGS AND INSERTS FOR ITEMS TO BE INSTALLED BY OTHER TRADES PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND CONSTRUCTION.
3. CONSTRUCTION MATERIAL AND EQUIPMENT PLACED ON FRAMED CONSTRUCTIONS SHALL BE SUCH THAT THE LOAD DOES NOT EXCEED THE DESIGN LIVE LOAD OF THE CONSTRUCTION. PROVIDE SHORING OF CONSTRUCTIONS WHERE NECESSARY FOR LOADS.
4. DETAILS THAT ARE NOTED AS "TYP." ON DETAIL TITLES ARE TO BE APPLIED TO THE PROJECT CONSTRUCTION AS GENERAL CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. THESE DETAILS ARE NOT CUT AT ALL LOCATIONS THEY OCCUR AND MAY NOT BE CUT AT ALL.
5. STRUCTURAL DRAWINGS SHALL NOT BE CONSTRUCTED AS STAND-ALONE DRWINGS AND ARE DEPENDENT UPN INFORMATION COMMUNICATED THROUGHOUT THE OVERALL DRAWING SET. CONTRACTOR SHALL COORDINATE AND CROSS REFERENCE INFORMATION ACCORDINGLY.

STRUCTURAL RENOVATION SCOPE
1. PROJECT STRUCTURAL SCOPE IS LIMITED TO THE FOLLOWING:
   A. NEW FOUNDATIONS FOR VEHICLE LIFTS WHERE INDICATED ON PLANS
   B. EXISTING SLAB-ON-GRADE SUPPORT FOR NEW PREMANUFACTURED SHELVING UNITS WHERE INDICATED ON PLANS
   C. PATCH AND REPAIR OF EXISTING SLAB-ON-GRADE FOR NEW UTILITY ROUTING AND VEHICLE LIFT INSTALLATIONS.

EXISTING CONDITIONS:
1. CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. ALL WORK AND MATERIALS NECESSARY TO INSTALL NEW WORK IN EXISTING BUILDING(S) SHALL BE INCLUDED.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AND SHALL CONTACT THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BEFORE PROCEEDING. NOTIFY ENGINEER IMMEDIATELY IF EXISTING CONDITIONS DO NOT MATCH, OR SEEM IN CONFLICT WITH, INFORMATION SHOWN ON DRAWINGS.
3. DIMENSIONS INDICATED ON PLAN AS FIELD VERIFY, OR "FV", ARE DIMENSIONS THAT MAY BE REQUIRED FOR FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF DIMENSIONS IN THE FIELD NECESSARY FOR FABRICATION OF MEMBERS AND PRIOR TO SUBMISSION OF SHOP DRAWINGS.
4. CONTRACTOR TO PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT TO REMAIN FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION OPERATIONS PERFORMED UNDER THIS CONTRACT.
5. THE SEQUENCE OF CONSTRUCTION SHALL BE THE RESPONSIBILITY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TEMPORARY GUYS, BRACING, AND OTHER SUPPORTS AS NEEDED TO SAFELY RESIST ALL GRAVITY AND LATERAL LOADS TO WHICH THE EXISTING OR PROPOSED STRUCTURE MAY BE SUBJECTED, INCLUDING LOADS FROM ERECTION EQUIPMENT AND ERECTION OPERATIONS, AND WIND OR SEISMIC FORCES COMPARABLE IN INTENSITY FOR WHICH THE STRUCTURE IS DESIGNED. LOAD VERIFICATION OF EXISTING MEMBERS TO RECEIVE TEMPORARY SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S ENGINEER.
6. ALL ERECTION AND CONSTRUCTION PROCEDURES SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE CODES AND ORDINANCES.
7. ALL FRAMING CONNECTIONS TO EXISTING STRUCTURE SHALL BE FIELD VERIFIED PRIOR TO SHOP DRAWING PRODUCTION AND FABRICATION. FIELD VERIFIED DIMENSIONS SHALL BE INCLUDED ON FIRST SHOP DRAWING SUBMITTAL AND NOTED AS SUCH.
8. EXISTING UTILITY LINES SHALL BE PROBED PRIOR TO CONSTRUCTION OF FOUNDATIONS. NOTIFY ENGINEER IF THE TOP OF ANY UTILITY PIPE COMES WITHIN 3'-0" OF THE BOTTOM OF ANY FOUNDATION. DETERMINE THE LOCATION OF ALL NEW AND EXISTING UNDERGROUND UTILITIES IN AND ADJACENT TO THE AREA OF WORK PRIOR TO EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES WHICH MAY RESULT FROM FAILURE TO EXACTLY LOCATE, PROTECT, AND PRESERVE ALL EXISTING UNDERGROUND UTILITIES.
9. EXCAVATION UNDER OR NEAR IN-PLACE FOOTINGS WHICH DISTURBS THE COMPACTED SOIL BENEATH THE FOOTINGS IS NOT PERMITTED.
10. CONTRACTOR SHALL LOCATE REBAR IN EXIST. CONSTRUCTION PRIOR TO DRILLING OF HOLES AND SHALL TAKE CARE NOT TO DAMAGE EXIST. BARS. IF DAMAGE TO EXIST. REBAR OCCURS DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE. REPAIR PROCEDURES NOT DETAILED IN THE CONTRACT DOCUMENTS WILL REQUIRE PREPARATION BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND MUST BE APPROVED BY THE ENGINEER.
11. CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. ALL WORK AND MATERIALS NECESSARY TO INSTALL NEW WORK IN EXISTING BUILDING(S) SHALL BE INCLUDED.
12. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AND SHALL CONTACT THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BEFORE PROCEEDING. NOTIFY ENGINEER IMMEDIATELY IF EXISTING CONDITIONS DO NOT MATCH, OR SEEM IN CONFLICT WITH, INFORMATION SHOWN ON DRAWINGS.
13. DIMENSIONS INDICATED ON PLAN AS FIELD VERIFY, OR "FV", ARE DIMENSIONS THAT MAY BE REQUIRED FOR FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF DIMENSIONS IN THE FIELD NECESSARY FOR FABRICATION OF MEMBERS AND PRIOR TO SUBMISSION OF SHOP DRAWINGS.
14. CONTRACTOR TO PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT TO REMAIN FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION OPERATIONS PERFORMED UNDER THIS CONTRACT.
15. THE SEQUENCE OF CONSTRUCTION SHALL BE THE RESPONSIBILITY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TEMPORARY GUYS, BRACING, AND OTHER SUPPORTS AS NEEDED TO SAFELY RESIST ALL GRAVITY AND LATERAL LOADS TO WHICH THE EXISTING OR PROPOSED STRUCTURE MAY BE SUBJECTED, INCLUDING LOADS FROM ERECTION EQUIPMENT AND ERECTION OPERATIONS, AND WIND OR SEISMIC FORCES COMPARABLE IN INTENSITY FOR WHICH THE STRUCTURE IS DESIGNED. LOAD VERIFICATION OF EXISTING MEMBERS TO RECEIVE TEMPORARY SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S ENGINEER.
16. ALL ERECTION AND CONSTRUCTION PROCEDURES SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE CODES AND ORDINANCES.
17. ALL FRAMING CONNECTIONS TO EXISTING STRUCTURE SHALL BE FIELD VERIFIED PRIOR TO SHOP DRAWING PRODUCTION AND FABRICATION. FIELD VERIFIED DIMENSIONS SHALL BE INCLUDED ON FIRST SHOP DRAWING SUBMITTAL AND NOTED AS SUCH.
18. EXISTING UTILITY LINES SHALL BE PROBED PRIOR TO CONSTRUCTION OF FOUNDATIONS. NOTIFY ENGINEER IF THE TOP OF ANY UTILITY PIPE COMES WITHIN 3'-0" OF THE BOTTOM OF ANY FOUNDATION. DETERMINE THE LOCATION OF ALL NEW AND EXISTING UNDERGROUND UTILITIES IN AND ADJACENT TO THE AREA OF WORK PRIOR TO EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES WHICH MAY RESULT FROM FAILURE TO EXACTLY LOCATE, PROTECT, AND PRESERVE ALL EXISTING UNDERGROUND UTILITIES.
19. EXCAVATION UNDER OR NEAR IN-PLACE FOOTINGS WHICH DISTURBS THE COMPACTED SOIL BENEATH THE FOOTINGS IS NOT PERMITTED.
20. CONTRACTOR SHALL LOCATE REBAR IN EXIST. CONSTRUCTION PRIOR TO DRILLING OF HOLES AND SHALL TAKE CARE NOT TO DAMAGE EXIST. BARS. IF DAMAGE TO EXIST. REBAR OCCURS DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE. REPAIR PROCEDURES NOT DETAILED IN THE CONTRACT DOCUMENTS WILL REQUIRE PREPARATION BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND MUST BE APPROVED BY THE ENGINEER.

EXISTING DOCUMENTATION
1. THE FOLLOWING DOCUMENTS WERE USED TO REPRESENT EXISTING STRUCTURE IN THE CONSTRUCTION DOCUMENTS. NOT ALL ELEMENTS AND INFORMATION HAS BEEN PROVIDED. COPIES OF THE EXISTING DRAWINGS MAY BE AVAILABLE AT THE CONTRACTOR'S REQUEST.
   A. ORIGINAL DESIGN DOCUMENTS LABELED "PIMA COMMUNITY COLLEGE, DOWNTOWN CAMPUS - TRANSPORTATION CENTER, DATED SEPTEMBER 13, 2019 BY DLR GROUP.

ABBREVIATIONS:
ABBREVIATIONS ARE AS SHOWN IN THE CONTRACT DOCUMENTS WITH THE FOLLOWING EXCEPTIONS:

1. UNO UNLESS NOTED OTHERWISE
2. HS HEADED ANCHOR STUD
3. CP COMPLETE PENETRATION WELD
4. ABC AGGREGATE BASE COURSE
5. TOS TOP OF STEEL
6. BOS BOTTOM OF STEEL
7. TYP TYPICAL
8. EOD EDGE OF DECK
9. BFF BELOW FINISH FLOOR
10. AFF ABOVE FINISH FLOOR
11. PLF POUNDS PER LINEAL FOOT
12. PRS PER ROOF SLOPE
13. SIM SIMILAR
14. TOF TOP OF FOOTING
15. BOF BOTTOM OF FOOTING
16. FV FIELD VERIFY
17. WP WORK POINT
18. BOD BOTTOM OF DECK
19. AB'S ANCHOR BOLTS
20. EOS EDGE OF SLAB
21. SOG SLAB ON GRADE
22. FIN FINISHED
23. FLR FLOOR
24. EL ELEVATION
25. WF WIDE FLANGE
26. CL CENTERLINE
27. TOC TOP OF COLUMN
28. CJ CONTROL JOINT
29. BOTT BOTTOM
30. ABV ABOVE
31. (E) EXISTING

GEOTECHNICAL INVESTIGATION:
1. GEOTECHNICAL INVESTIGATION FOR ORIGINAL DESIGN DOCUMENTS WAS PERFORMED BY TERRACON CONSULTANTS, INC, PROJECT NO. 63195041, DATED JULY 12, 2019. COPY OF GEOTECHNICAL INVESTIGATION IS INCLUDED IN SPECIFICATIONS.
   A. ALLOWABLE BEARING PRESSURE
      2,000 PSF (BEARING ON MINIMUM 6'-0" COMPACTED, ENGINEERED FILL). MINIMUM DEPTH FROM GRADE TO BOTTOM OF FOOTING IS 1'-6"
      2,500 PSF (BEARING ON MINIMUM 6'-0" COMPACTED, ENGINEERED FILL). MINIMUM DEPTH FROM GRADE TO BOTTOM OF FOOTING IS 2'-0"
      3,000 PSF (BEARING ON MINIMUM 6'-0" COMPACTED, ENGINEERED FILL). MINIMUM DEPTH FROM GRADE TO BOTTOM OF FOOTING IS 2'-6"
   B. EQUIVALENT ACTIVE FLUID PRESSURE (DOES NOT INCLUDE SAFETY FACTOR)
      45 PSF/FT
   C. EQUIVALENT PASSIVE FLUID PRESSURE (DOES NOT INCLUDE SAFETY FACTOR)
      345 PSF/FT
   D. EQUIVALENT AT-REST FLUID PRESSURE (DOES NOT INCLUDE SAFETY FACTOR)
      65 PSF/FT
   E. COEFFICIENT OF FRICTION (DOES NOT INCLUDE SAFETY FACTOR)
      0.45 CONCRETE TO SOIL
      0.30 WHEN USED IN CONJUNCTION WITH PASSIVE PRESSURE

CAST-IN PLACE CONCRETE:
1. THESE NOTES APPLY TO CONCRETE USED IN BUILDING CONSTRUCTION ONLY. SEE SITE WORK DRAWINGS AND SPECIFICATIONS FOR CONCRETE REQUIREMENTS OUTSIDE OF BUILDING.

LOCATION	28-DAY F'c	AIR	MAX W/C RATIO	MAX SLUMP
FOOTINGS	3000 PSI	-	0.63	4"
SLABS ON GRADE	3500 PSI	-	0.45*	4"
ALL OTHER BLDG ITEMS	3500 PSI	-	0.58	4"

*LOW W/C RATIOS ARE SPECIFIED TO REDUCE AMOUNT OF WATER IN THE CONCRETE TO MINIMIZE SHRINKAGE CRACKING. CONSIDER LOWER WATER CONTENT IN COMBINATION OF SUPER-PLASTICIZERS AND OTHER ADMIXTURES TO MAINTAIN WORKABILITY.

2. CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 3" PRIOR TO ADDING ADMIXTURE AND NOT EXCEEDING 8" AT PLACEMENT.
3. THE ADDITION OF WATER TO A CONCRETE BATCH WITH INSUFFICIENT SLUMP SHALL NOT BE PERMITTED.

CONCRETE CONSTRUCTION:
1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 301 AND ACI 318.
2. PROVIDE A FORMED CONSTRUCTION KEYWAY PER TYPICAL DETAIL AT ALL HORIZONTAL AND VERTICAL POUR EDGES EXCEPT CONCRETE TOPPING SLABS.
3. CONCRETE SHALL BE MECHANICALLY CONSOLIDATED IN ACCORD WITH ACI 309.
4. CONTROL (CONTRACTION OR CONSTRUCTION) JOINTS SHALL BOUND ALL CONCRETE SLABS ON GRADE AS SHOWN ON THE DRAWINGS. WHERE NOT SHOWN ON THE DRAWINGS, CONTROL JOINTS SHALL BE LOCATED SUCH THAT THE ENCLOSED AREA IS RELATIVELY SQUARE AND DOES NOT EXCEED 150 SQUARE FEET. KEYED JOINTS NEED ONLY OCCUR AT CONSTRUCTION JOINTS. ALL CONTRACTION JOINTS MAY BE SAWCUT. DO NOT PROVIDE CONTROL JOINTS IN STRUCTURAL CONCRETE SLABS AND CONCRETE TOPPINGS UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.

CONCRETE REINFORCEMENT:
1. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60. REINFORCING STEEL TO BE WELDED SHALL BE ASTM A706, GRADE 60.
2. CONCRETE COVER REQUIREMENTS FOR CAST-IN-PLACE, NON-PRESTRESSED CONCRETE UNLESS OTHERWISE NOTED ON DETAILS:
   a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   b. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER: 2"
      #5 BARS AND SMALLER: 1-1/2"
   c. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:
      SLABS, WALLS, JOISTS:
         #14 AND #18 BARS: 1-1/2"
         #11 BARS AND SMALLER: 3/4"
      BEAMS, COLUMNS:
         PRIMARY REINFORCEMENT: 2"
         TIES, STIRRUPS, SPIRALS: 1-1/2"
3. REINFORCING BAR SPLICES SHALL BE IN ACCORD WITH THE REQUIREMENTS OF ACI 318-14 AND THE REINFORCING SPLICE LENGTH TABLE SHOWN ON THE DRAWINGS.
4. WHERE INDICATED, INSTALL WELDED WIRE REINFORCEMENT AT VERTICAL POSITION AS INDICATED ON DRAWINGS. SUPPORT ON CHAIRS OR BAR SUPPORTS SPACED TO MINIMIZE SAGGING.

POST-INSTALLED ANCHORS
1. UNO, THE FOLLOWING APPLIES TO ALL POST-INSTALLED ANCHORAGE INTO HARDENED CONCRETE OR MASONRY WHICH INCLUDES TYPES SUCH AS EXPANSION, WEDGE, SLEEVE, ADHESIVE / EPOXY, SHOT-PIN, SCREW AND UNDERCUT.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED.
3. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER OF RECORD PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING, DAMAGED OR MISPLACED CAST-IN-PLACE ANCHORS.
4. CARE SHALL BE GIVEN TO AVOID CONFLICTS WITH EXISTING REBAR OR EMBEDDED CONDUIT WHEN DRILLING HOLES. HOLES SHALL BE DRILLED AND CLEANED PER THE MANUFACTURER'S INSTRUCTIONS.
5. MAINTAIN A MINIMUM OF 2 INCHES FROM EXISTING REINFORCEMENT, CONDUIT, POST-TENSIONING (WHERE OCCURS), ETC. USE NON-DESTRUCTIVE TESTING TO LOCATE PRIOR TO DRILLING, CORING OR SHOOTING PINS INTO THE EXISTING CONCRETE OR MASONRY. FOR INSTALLATION DEEPER THAN 3 INCHES USE GROUND PENETRATING RADAR OR X-RAY METHODS.
6. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS AND ALL APPLICABLE ICC-ES REPORTS, INCLUDING, BUT NOT LIMITED TO, ALL ANCHOR SPACINGS, EMBEDMENTS AND EDGE DISTANCES.
7. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE AND INSTALLATION TEMPERATURES.
8. EMBEDMENT REFERS TO THE FINAL INSTALLED EFFECTIVE DEPTH "Hef". ALL ANCHORS SHALL HAVE EMBEDMENT NOTED OR EMBEDMENT AS RECOMMENDED BY MANUFACTURER WHERE NO EMBEDMENT IS SHOWN. REQUIRED ANCHOR HOLE DEPTH FOR INSTALLATION MAY BE DEEPER.
9. IF THE FULL ANCHOR EMBEDMENT DEPTH, SPACING OR EDGE DISTANCE CANNOT BE ACHIEVED, NOTIFY THE ENGINEER.
10. STEEL ANCHORING ELEMENTS SHALL BE THE SIZE AND GRADE SHOWN ON THE DRAWINGS AND MUST BE CLEAN, DRY AND FREE OF ANY OIL CONTAMINANTS. DO NOT INCREASE OR DECREASE SIZE OF ANCHOR WITHOUT APPROVAL OF ENGINEER.
11. ALL PERSONNEL INSTALLING POST-INSTALLED ANCHORS SHALL BE TRAINED BY THE MANUFACTURER ON PROPER INSTALLATION TECHNIQUE. TRAINING DOCUMENTATION FROM THE MANUFACTURER SHALL BE AVAILABLE UPON REQUEST.
    a. INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI AND IN ACCORDANCE WITH ACI 318. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
12. EXPANSION BOLTS IN CONCRETE SHALL BE ONE OF THE FOLLOWING:
    a. HILTI KWIK BOLT TZ2 CONCRETE ANCHORS (ICC ESR-4266)
    b. DEWALT POWER-STUD+SD1 (ICC ESR-2818), POWER STUD +SD2 (ICC ESR-2502)
    c. SIMPSON STRONG-TIE STRONG-BOLT 2 WEDGE ANCHORS (ICC ESR-3037)
13. SCREW ANCHORS IN CONCRETE SHALL BE ONE OF THE FOLLOWING:
    a. HILTI HUS-EZ SCREW ANCHORS (ICC ESR-3027)
    b. DEWALT SCREW BOLT+, SCREW ANCHORS (ICC ESR-3889)
    c. SIMPSON STRONG-TIE TITEN HD SCREW ANCHORS (ICC ESR-2713)
14. ADHESIVE ANCHORS IN CONCRETE SHALL BE ONE OF THE FOLLOWING:
    a. HILTI HIT-HY 200 V3 ADHESIVE ANCHORING SYSTEM WITH SAFESET (ESR-4868) (FAST CURE APPLICATIONS)
    b. HILTI RE-500 V3 ADHESIVE ANCHORING SYSTEM (ESR-3814)
    c. DEWALT AC200+ ADHESIVE ANCHORING SYSTEM (ICC ESR-4027) (FAST CURE APPLICATIONS)
    d. SIMPSON STRONG-TIE AT-XP ADHESIVE ANCHORING SYSTEM (IAPMO UES ER-263)
15. ANCHORS ARE NOT TO BE INSTALLED UNTIL CONCRETE OR GROUT HAS REACHED IT'S DESIGN STRENGTH. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE WITH A MIN. AGE OF 21 DAYS.
16. USE INSTALLATION PROCEDURES FOR CRACKED CONCRETE CONDITIONS. DO NOT CORE DRILL FOR ANCHOR HOLES WITHOUT ENGINEER APPROVAL.
17. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT DRY INTERIOR LOCATIONS AND STAINLESS-STEEL TYPE 304 OR 316 AT EXTERIOR / DAMP INTERIOR LOCATIONS. ANCHORS SHALL BE CLEAN AND FREE OF DEBONDING SUBSTANCES.
18. PATCH ABANDONED HOLES AND SPALLS USING NON-SHRINK GROUT AND REPAIR FINISHES AS REQUIRED. ANCHORS PENETRATING THROUGH WATERPROOFING OR VAPOR MEMBRANES SHALL BE SEALED OR FLASHED.
19. ADHESIVE / EPOXY ANCHORS ON THIS PROJECT ARE NOT DESIGNED TO SUPPORT OR INTENDED TO RESIST SUSTAINED TENSION LOADS.

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LEVEL 1 - FOUNDATION PLAN

S1.1

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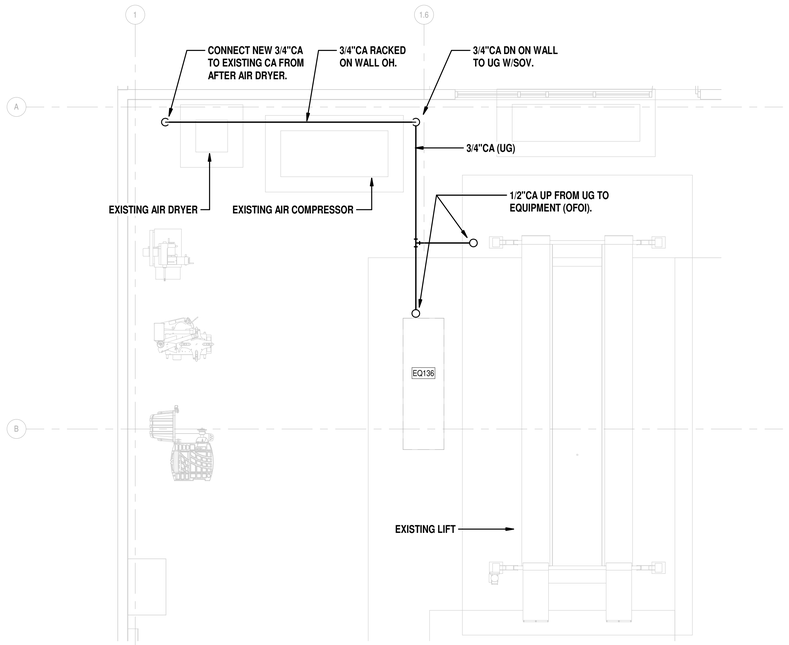


PLUMBING PLAN NORTHWEST

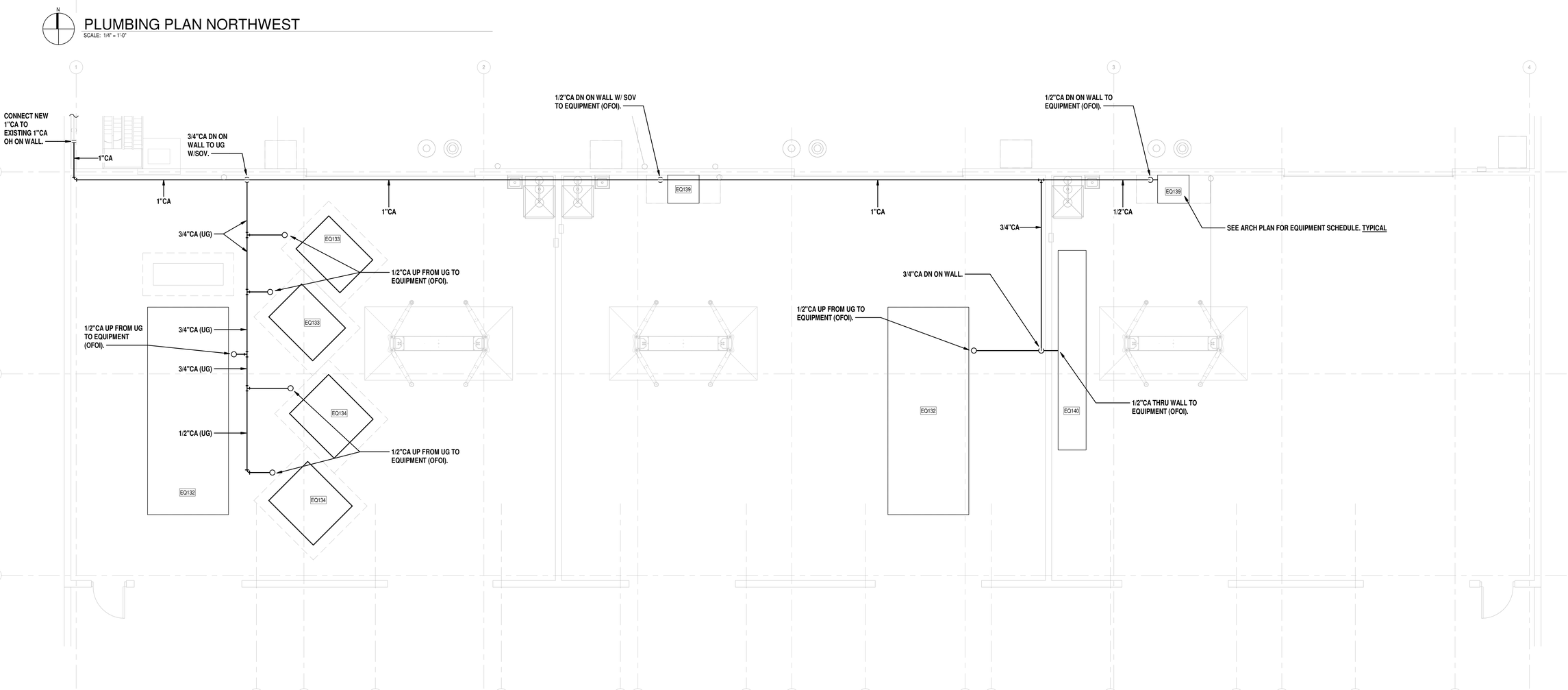
SCALE: 1/4" = 1'-0"

NOTES:

1. SEE ARCH PLAN FOR EQUIPMENT SCHEDULE.
2. RACK COMPRESSED AIR PIPING OH ON WALL UNLESS NOTED OTHERWISE.
3. PROVIDE SOV, UNION, & QUICK DISCONNECT AT EACH EQUIPMENTS' COMPRESSED AIR CONNECTION.
4. COORDINATE FINAL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S REQUIREMENTS.
5. FILTERS, REGULATORS, & FLEX HOSES TO BE OFOI AS REQUIRED.

PLUMBING GENERAL NOTES

1. COORDINATE ALL WORK WITH ALL OTHER TRADES. EXACT ROUTING OF ALL PIPING SHALL BE CAREFULLY COORDINATED WITH ALL STRUCTURAL CONDITIONS.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS INCLUDING PIPING LOCATIONS, SIZES, INVERTS AND DIRECTION OF FLOW BEFORE THE START OF WORK.
3. THE PLUMBING CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL CONNECTIONS TO EQUIPMENT AND MAKE ROUGHING AND FINAL CONNECTIONS.



PLUMBING PLAN SOUTH

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

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PROJECT# 24-144 DESIGNER: MT

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OVERALL PLUMBING PLAN

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MECHANICAL GENERAL REQUIREMENTS

CODES: CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE FOLLOWING CODES: INTERNATIONAL BUILDING CODE (2018 EDITION), INTERNATIONAL PLUMBING CODE (2018 EDITION), AND INTERNATIONAL FUEL GAS CODE (2018 EDITION).

GENERAL: THE WORK COVERED BY THIS SPECIFICATION SHALL INCLUDE THE FURNISHING OF ALL MATERIALS, LABOR, TRANSPORTATION, TOOLS, PERMITS, FEES, INSPECTIONS, UTILITIES AND INCIDENTALS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL WORK REQUIRED BY THE CONTRACT DRAWINGS.

DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND CANNOT SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE IN ITS EXACT LOCATION. THESE DETAILS ARE SUBJECT TO THE REQUIREMENTS OF ORDINANCES AND ALSO STRUCTURAL AND ARCHITECTURAL CONDITIONS. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AND SHALL COORDINATE WITH THE SEPARATE TRADES IN ORDER TO AVOID INTERFERENCE BETWEEN THE VARIOUS PHASES OF WORK. WORK SHALL BE LAID OUT SO THAT IT WILL BE CONCEALED IN FURRED CHASES OR ABOVE CEILINGS, ETC., IN FINISHED PORTIONS OF THE BUILDING, UNLESS SPECIFICALLY NOTED OR INDICATED TO BE EXPOSED. WORK SHALL BE INSTALLED TO AVOID CRIPPLING OF STRUCTURAL MEMBERS. ALL WORK SHALL BE RUN PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING UNLESS OTHERWISE NOTED. THE APPROXIMATE LOCATION OF EACH ITEM IS INDICATED ON THE DRAWINGS. THESE DRAWINGS ARE NOT INTENDED TO GIVE COMPLETE AND EXACT DETAILS IN REGARD TO LOCATION. EXACT LOCATIONS ARE TO BE DETERMINED BY ACTUAL MEASUREMENTS OF THE BUILDING.

EQUIPMENT INSTALLATION: PROVIDE AND INSTALL UNIONS AT PROPER POINTS TO PERMIT REMOVAL OF PIPE AND EQUIPMENT WITHOUT DAMAGE TO OTHER PARTS OF THE SYSTEM. ALL EQUIPMENT SHALL BE INSTALLED IN A MANNER TO PERMIT ACCESS TO PARTS REQUIRING SERVICE WITHOUT DISASSEMBLY OF OTHER EQUIPMENT.

EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ALL EXCAVATION REQUIRED FOR THE INSTALLATION OF THE WORK. CONTRACTOR SHALL BACKFILL, COMPACT AND REPAIR CONCRETE OR PAVING TO MATCH EXISTING FINISH AS CLOSELY AS POSSIBLE.

EXISTING FACILITIES: LOSS OR DAMAGE TO EXISTING FACILITY CAUSED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE OWNER'S SATISFACTION AT NO COST TO THE OWNER. THE CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED IN EXISTING AREAS WITH THE OWNER AND SHALL ARRANGE FOR ALL TEMPORARY UTILITY SERVICES, PROTECTION OF THE FACILITY AND ITS CONTENTS, BARRICADES, SAFETY DEVICES, ETC., REQUIRED TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL REMOVE AND REINSTALL EXISTING CONSTRUCTION IF REQUIRED TO ACCOMPLISH THE WORK. NOTIFY THE OWNER AT LEAST TWO DAYS IN ADVANCE OF ALL REQUIRED SERVICE OUTAGES.

SUBSTITUTIONS: EQUIPMENT OF EQUAL QUALITY TO THAT SPECIFIED MAY BE SUBSTITUTED PROVIDED IT MEETS OR EXCEEDS THE CAPACITY SCHEDULED, IS OF SIMILAR CONSTRUCTION, AND WILL FIT IN THE SPACE ALLOTTED WITH AMPLE SERVICE CLEARANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION WITH ALL OTHER TRADES (SUCH AS ELECTRICAL AND STRUCTURAL) OF ANY PRODUCT REQUIRING A CHANGE IN THE WORK OF THAT TRADE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY ADDITIONAL COSTS ASSOCIATED WITH SUCH A CHANGE. MATERIALS OF CONSTRUCTION SHALL BE AS SPECIFIED.

SUPPORTS, ANCHORS AND SLEEVES: SUPPORT HORIZONTAL PIPING WITH STEEL CLEVIS HANGERS AND VERTICAL PIPING WITH RISER CLAMPS. PROVIDE COPPER PLATED HANGERS AND CLAMPS FOR COPPER PIPING OR WRAP THE COPPER PIPE AT HANGERS WITH TWO LAYERS OF PVC TAPE OR EQUIVALENT. HANGER SPACING AND ROD SIZE SHALL BE IN ACCORDANCE WITH THE LOCAL CODE AND/OR ASHRAE STANDARDS. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS. THROUGH PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE PER MANUFACTURER'S UL LISTED DETAILS AND INSTRUCTIONS, EQUAL OF HILTI. PIPING SHALL BE PROVIDED WITH STANDARD WEIGHT STEEL PIPE OF SIZE TO PASS PIPE AND INSULATION. PIPE SLEEVES ARE NOT REQUIRED IF PENETRATIONS ARE CORE DRILLED. PIPING SHALL NOT BE SUPPORTED FROM PENETRATION.

SHOP DRAWINGS: PROVIDE SHOP DRAWINGS AND MANUFACTURER'S DATA ON ALL PLUMBING ITEMS FOR APPROVAL.

WARRANTY: PROVIDE TWO YEAR WARRANTY FROM DATE OF FINAL ACCEPTANCE ON ALL LABOR AND MATERIALS PROVIDED UNDER THIS CONTRACT.

CLEAN-UP: CONTRACTOR SHALL MAINTAIN PREMISES IN CLEAN CONDITION AT END OF EACH DAY AND THOROUGHLY CLEAN-UP AT END OF CONSTRUCTION.

PLUMBING:

PIPING:

COMPRESSED AIR PIPING ABOVE GRADE SHALL BE TYPE "L" HARD TEMPER COPPER PIPE WITH WROUGHT FITTINGS AND 95-5 LEAD FREE SOLDER JOINTS.

COMPRESSED AIR PIPING BELOW SLAB SHALL BE TYPE "K" SOFT TEMPER COPPER PIPE WITH NO JOINTS WHERE POSSIBLE OR WROUGHT COPPER FITTINGS AND SILVER BRAZED JOINTS.

PIPE IDENTIFICATION SHALL BE PROVIDED FOR ALL NEW PIPING. PROVIDE SEATON, BRADY OR EQUAL PIPE MARKERS PER ANSI STANDARDS.

PIPING SPECIALTIES: CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS OR FLANGES AT ALL LOCATIONS WHERE COPPER OR BRASS PIPING CONNECTS TO FERROUS PIPING OR EQUIPMENT.

VALVES: VALVES FOR COMPRESSED AIR PIPING SHALL BE LEAD-FREE AND AS MANUFACTURED BY KITZ, STOCKHAM, NIBCO, APOLLO, MILWAUKEE OR JENKINS.

BALL VALVES SHALL BE BRONZE, TWO PIECE BODY, FULL PORT FORGED BRASS BALL, SILICON BRONZE STEM, PTFE OR HDPE SEAT, PACKING AND GASKET; THREADED OR SOLDERED ENDS. VALVES SHALL CONFORM TO MSS SP-110

ALL PIPING SHALL BE INSTALLED AT RIGHT ANGLES TO THE BUILDING LINES AND PLUMB.

WRAP METALLIC PIPE IN CONTACT WITH CONCRETE BLOCK, SLABS OR STUCCO WITH 10 MIL THICK PVC TAPE TO PREVENT CORROSION.

FLUSH PIPING CLEAN WITH WATER AFTER INSTALLATION.

TEST ALL PIPING PRIOR TO COVERING OR BACKFILLING.

TEST COMPRESSED AIR PIPING AT 30 PSIG FOR A CONTINUOUS PERIOD OF NOT LESS THAN FOUR (4) HOURS. DURING THIS TIME, CAREFULLY INSPECT THE SYSTEM FOR LEAKS. CONTRACTOR SHALL REPAIR ALL LEAKS IF NECESSARY AND TEST AGAIN UNTIL NO LEAKAGE IS DETECTED.

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MECHANICAL SPECIFICATIONS

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ABBREVIATIONS

Ø	PHASE
A AMP	AMPERE
AC	ABOVE COUNTER
AF	AMP FRAME (CIRCUIT BREAKER)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AP	WIRELESS ACCESS POINT
AT	AMP TRIP (CIRCUIT BREAKER OR FUSE)
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO-VIDEO, AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BJ	BONDING JUMPER
BKR	BREAKER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CKT	CIRCUIT
CLG	CEILING
CU	COPPER
DB	DECIBEL
DC	DIRECT CURRENT
DISC	DISCONNECT
DIV	SPECIFICATION DIVISION
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
ECS	EMERGENCY COMMUNICATION SYSTEM
EGB	ELECTRICAL GROUNDING BUSBAR
ELEC	ELECTRICAL
EMD	ESTIMATED MAXIMUM DEMAND
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EP	EXPLOSION PROOF
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXISTING (TO BE) RELOCATED
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
FT	FEET
G	EQUIPMENT GROUNDING CONDUCTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFPE	GROUND FAULT PROTECTION OF EQUIPMENT
GND	EQUIPMENT GROUNDING CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
IC	INTERCOM
IG	ISOLATED GROUND
IN	INCH
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CIRCUIT
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LT	LIGHT
LTG	LIGHTING
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRTS	MOTOR RATED TOGGLE SWITCH
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MAIN TRANSFER SWITCH
N	NEUTRAL
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OS&Y	OUTSIDE SCREW AND YOKE
P	POLE(S)
PA	PUBLIC ADDRESS
PB	PULL BOX
PH	PHASE
PIV	POST INDICATOR VALVE
PWR	POWER
QTY	QUANTITY
RCP	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
REF	REFERENCE
REV	REVISION(S)
RM	ROOM
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
STD	STANDARD
SWBD	SWITCHBOARD
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TIME CLOCK
TGB	TELECOMMUNICATIONS GRONDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GRONDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TR	TELECOMMUNICATIONS ROOM
TS	TAMPER SWITCH
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WA	TELECOMMUNICATIONS WORK AREA
WG	WIRE GUARD
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER

NOTES

GENERAL LIGHTING NOTES

(TYPICAL ALL LIGHTING SHEETS)

1. SEE LIGHT FIXTURE SCHEDULE AND SYMBOLS LEGEND FOR MOUNTING HEIGHTS, UNLESS NOTED OTHERWISE.
2. PROVIDE #10AWG MINIMUM CONDUCTORS FOR ALL EXTERIOR LIGHTING CIRCUITS.
3. SEE ARCHITECTURAL BUILDING ELEVATIONS FOR LOCATION OF BUILDING MOUNTED EXTERIOR LIGHT FIXTURES.
4. PROVIDE BEAD OF SILICON SEALANT AROUND RECESSED BACK BOX PERIMETER AT ALL BUILDING MOUNTED EXTERIOR LIGHT FIXTURE LOCATIONS.
5. CIRCUIT FIXTURES DENOTED WITH 'NL' AS UNSWITCHED NIGHT LIGHTS.
6. FIXTURES DENOTED WITH LOWER CASE LETTERS SHALL BE CONTROLLED BY SWITCHES DENOTED WITH THE SAME LOWER CASE LETTER IN EACH ROOM.
7. FOR EXACT LOCATION OF RECESSED LUMINAIRES, SEE ARCHITECTURAL REFLECTED CEILING PLANS AND FOR EXACT LOCATION OF WALL MTD. LUMINAIRES, SEE ARCHITECTURAL ELEVATIONS AND DETAILS.
8. ALL EXIT SIGNS AND GENERATOR TRANSFER DEVICES ON NORMAL POWER CIRCUITS SHALL BE CONNECTED AHEAD OF ANY LOCAL SWITCHING. PROVIDE CIRCUIT BREAKER LOCK-ON DEVICES ON ANY CIRCUIT CONTAINING EMERGENCY LOADS.
9. PROVIDE CONTROL WIRING BETWEEN OCCUPANCY SENSORS AND POWER PACKS PER MANUFACTURER'S RECOMMENDATIONS.
10. PROVIDE WIRING BETWEEN OCCUPANCY SENSOR POWER PACK RELAY AND MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL PROVIDE WIRING AND TERMINATIONS BETWEEN OCCUPANCY SENSOR POWER PACK RELAY AND MECHANICAL EQUIPMENT.
11. INSTALL SURFACE MOUNTED EMERGENCY LIGHTING FIXTURES AND/OR EXIT SIGNS ON EITHER WALL OR CEILING SURFACE AS DIRECTED BY THE ARCHITECT. FIELD VERIFY MOUNTING LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
12. SHADED SYMBOL INDICATES EMERGENCY LUMINAIRE CONNECTED TO EMERGENCY POWER SOURCE. WIRE AHEAD OF ANY LOCAL SWITCHING PER NEC ART. 700.
13. NL INDICATES AN UNSWITCHED LUMINAIRE SERVING AS A NIGHT LIGHT. PROVIDE CIRCUIT BREAKER LOCK-ON DEVICES FOR CIRCUITS CONTAINING NIGHT LIGHTS.
14. PROVIDE LUMINAIRES AS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL DRAWINGS. VERIFY EXACT LOCATIONS OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS. COORDINATE LUMINAIRE HOUSINGS AND TRIMS WITH CEILING TYPE. PROVIDE REQUIRED ACCESSORIES FOR VARIOUS CEILING TYPES.
15. LIGHTING CONTROLS SHALL BE LOCATED AT OR NEAR DOORS. INSTALL ON SIDE OPPOSITE HINGE. REFER TO ARCHITECTURAL DETAILS FOR EXACT LOCATION. VERIFY FINAL DOOR HINGE LOCATION IN FIELD PRIOR TO INSTALLATION.
16. ALL FLUORESCENT LAMPS SHALL BE ENERGY SAVING TYPE, 4100K COLOR TEMPERATURE, PHILLIPS, G.E. OR OSRAM-SYLVANIA, WATTAGES AND TYPES AS LISTED IN LUMINAIRE SCHEDULE.
17. ALL FLUORESCENT BALLASTS SHALL BE ENERGY SAVING, HIGH POWER FACTOR, TOTAL HARMONIC DISTORTION OF LESS THAN 10%, U.L. LISTED, CLASS P, ELECTRONIC TYPE, ADVANCE, PHILLIPS, MAGNETEK, MOTOROLA OR APPROVED EQUAL.
18. SUPPORT GRID TYPE LUMINAIRES INDEPENDENTLY OF THE SUSPENDED CEILING SYSTEM, WITH A MINIMUM OF TWO (2) RODS OF WIRE PER LUMINAIRE, LOCATED NOT MORE THAN SIX (6) INCHES FROM LUMINAIRE OPPOSITE CORNERS.
19. FIXTURES OF SIZES LESS THAN CEILING GRID SHALL BE INSTALLED AS INDICATED ON REFLECTED CEILING PLANS OR CENTERED IN ACOUSTICAL PANEL. SUPPORT LUMINAIRES INDEPENDENTLY WITH AT LEAST TWO(2)3/4-INCH METAL CHANNELS SPANNING AND SECURED TO CEILING TEES. PROVIDE 1- SUPPORT WIRE FROM STRUCTURE FOR SMALLER FIXTURES.
20. FASTEN SUPPORT CLIPS TO LUMINAIRES AND TO CEILING GRID MEMBERS AT OR NEAR EACH LUMINAIRE CORNER WITH CLIPS THAT ARE UL LISTED FOR THE APPLICATION.
21. LUMINAIRE SUBSTITUTIONS SHALL INCLUDE THE FOLLOWING INFORMATION FOR ENGINEER'S APPROVAL: LUMINAIRE PRODUCT DATA SHEETS, PHOTOMETRIC DATA, POINT BY POINT CALCULATIONS OF FOOT-CANDLE LEVELS ON A PER ROOM BASIS.
22. EXIT SIGNS ARE NORMALLY ILLUMINATED AT ALL TIMES AND PROVIDED WITH AN EMERGENCY ELECTRICAL SYSTEM FROM STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR SET TO INSURE CONTINUED ILLUMINATION FOR AT LEAST 1.5 HOURS IN CASE OF PRIMARY POWER LOSS.

SITE NOTES

1. VERIFY LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES IN AREA OF WORK AND COORDINATE SAME WITH NEW UNDERGROUND WORK AS REQUIRED.
2. ALL WORK ASSOCIATED WITH THE UNDERGROUND INCOMING ELECTRIC SERVICE SHALL BE COORDINATED AND SCHEDULED WITH UNR FACILITIES REPRESENTATIVE.
3. ALL WORK ASSOCIATED WITH THE UNDERGROUND INCOMING TELEPHONE SERVICE SHALL BE COORDINATED AND SCHEDULED WITH UNR FACILITIES REPRESENTATIVE.
4. ALL UNDERGROUND BRANCH CIRCUITS SHALL BE ROUTED WITHIN MINIMUM 1" SCHEDULE 40 PVC CONDUIT AND #10 AWG WIRE SIZE, COVER REQUIREMENTS PER NEC TABLE 300.5.
5. ALL SITE UNDERGROUND CONDUIT PENETRATIONS THRU BUILDING FOUNDATION WALLS SHALL BE SLEEVED AND SEALED WITH A WATERPROOF UL LISTED SEALANT.
6. ALL SITE UNDERGROUND CONDUITS SHALL PASS ABOVE AND CLEAR OTHER SITE UTILITIES OR OBSTRUCTIONS INCLUDING STORM, SEWER, GAS BY 12" MINIMUM, UNLESS OTHERWISE NOTED.
7. PROVIDE TRENCHING, BACKFILL, AND EQUIPMENT FOUNDATIONS FOR SITE EQUIPMENT PER UNR STANDARDS AND SPECIFICATIONS.
8. TRENCH BOTTOMS SHALL BE SMOOTH, FLAT, AND WITHOUT SURFACE IRREGULARITIES, OTHERWISE PROVIDE A SUFFICIENT QUANTITY OF BEDDING MATERIAL TO PROVIDE THE REQUIRED SURFACE. BEDDING MATERIAL SHALL BE SAND. BEDDING MATERIAL SHALL FILL ALL VOIDS AND BE CLEAR OF ANY DEBRIS AND ORGANIC MATERIAL.
9. REFER TO ELECTRICAL SITE PLAN FOR LOCATIONS OF TRANSFORMERS AND PRIMARY CABLE ROUTING. CONFIRM EXACT LOCATION OF ALL UNDERGROUND FACILITIES AND EQUIPMENT WITH UNR REPRESENTATIVES PRIOR TO BID.

GENERAL POWER NOTES

(TYPICAL ALL POWER SHEETS)

1. REVIEW MECHANICAL SUBMITTALS AND VERIFY ANY NEUTRAL WIRES REQUIRED ON 1Ø OR 3Ø MECHANICAL UNITS FURNISHED UNDER DIVISION 23. IF REQUIRED, PROVIDE NEUTRAL.
2. PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 20/1 BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
3. FOR MECHANICAL EQUIPMENT TYPE, ELECTRICAL REQUIREMENTS AND CIRCUIT INFORMATION, REFER TO MECHANICAL EQUIPMENT SCHEDULE.
4. IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
5. FIELD VERIFY EXACT LOCATION OF ALL MECHANICAL AND PLUMBING EQUIPMENT PROVIDED BY OTHER TRADES PRIOR TO ROUGH-IN. COORDINATE INSTALLATION AND WIRING REQUIREMENTS, INCLUDING EXACT LOCATION OF POINT OF CONNECTION, WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
6. LOCATE SWITCHES FOR CONTROL OF FANS IN TWO-GANG BOX WITH LIGHT SWITCH WHERE APPLICABLE.
7. PROVIDE #10AWG CONDUCTORS FOR ALL WARM AIR DRYER CIRCUITS. PROVIDE LOCKOUT DEVICE AT ALL BREAKERS SERVING WARM AIR DRYERS.
8. PROVIDE GFCI PROTECTION FOR ALL CIRCUITS SERVING KITCHEN EQUIPMENT.1. FOR EXACT LOCATION OF ELECTRICAL EQUIPMENT, SEE ARCHITECTURAL ELEVATIONS AND DETAILS.
9. PROVIDE AND MAINTAIN ELECTRICAL SAFETY AND WORKING CLEARANCES IN FRONT OF AND AROUND ALL ELECTRICAL PANELS AND DISTRIBUTION EQUIPMENT IN ACCORDANCE WITH NEC ARTICLE 110.26.
10. PROVIDE RELATED DISCONNECT SWITCHES AND FINAL POWER CONNECTIONS FOR ELEVATOR MACHINE AND CAB LIGHTING PER MFR'S REQUIREMENTS AS WELL AS LOCAL, STATE AND NATIONAL CODES. IN ADDITION, ALL RELATED ELECTRICAL EQUIPMENT LOCATED LESS THAN 4 FT. ABOVE PIT FLOORS SHALL BE WEATHERPROOF AND IDENTIFIED FOR USE IN WET LOCATIONS PER LATEST EDITION OF ASME A17.1 INCLUDING ADDENDA AND ANY AMENDMENTS.
11. MOUNT EQUIPMENT SAFETY SWITCHES DIRECTLY ON UNIT SERVED WHERE REQUIRED. SWITCHES SHALL BE ACCESSIBLE AND MTD. SUCH THAT DOOR HINGE OPENS AT LEAST 90 DEGREES WITHOUT OBSTRUCTION.
12. PROVIDE NEW TYPE WRITTEN DIRECTORIES FOR ALL PANELBOARDS INSTALLED OR MODIFIED UNDER THIS CONTRACT.
13. VERIFY EQUIPMENT FAULT CURRENT INTERRUPTING CAPACITY REQUIREMENTS PRIOR TO ORDERING ANY RELATED ELECTRICAL DISTRIBUTION EQUIPMENT.
14. MULTIWIRE BRANCH CIRCUITS WITH SHARED NEUTRAL CONDUCTORS SHALL NOT BE PERMITTED ON THIS PROJECT.
15. WHERE NEW CIRCUIT BREAKERS ARE INDICATED ON THE DRAWINGS TO BE PROVIDED IN EXISTING PANELBOARDS, CIRCUIT BREAKERS SHALL MATCH EXISTING PANELBOARD MANUFACTURER, STYLE AND INTERRUPTING RATING.
16. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AS NOTED, NEMA 1 OR NEMA 3R AS INDICATED, HEAVY DUTY, EXTERNALLY OPERATED WHERE NOT FURNISHED WITH STARTING EQUIPMENT AND AT ALL OTHER POINTS REQUIRED BY CODE. FUSES SHALL BE BUSSMAN, GOULD OR LITTELFUSE CURRENT LIMITING TYPE, MINIMUM 200,000 AIC. CIRCUIT BREAKERS SHALL HAVE A MINIMUM 10,000 AIC FOR 208Y/120V SYSTEMS AND A MINIMUM OF 14,000 AIC FOR 480Y/277V SYSTEMS UNLESS OTHERWISE NOTED.

DEVICE BOX NOTES

1. SEE SYMBOLS LEGEND THIS SHEET FOR MOUNTING HEIGHTS UNLESS NOTED OTHERWISE ON DRAWINGS.
2. ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF BOXES UNLESS NOTES OTHERWISE.
3. PROVIDE BOX EXTENDER FOR FLUSH INSTALLATION OF DEVICES LOCATED IN ARCHITECTURAL CASEWORK THAT IS FLUSH WITH ADJACENT WALL (SUCH AS RECEPTACLES FOR GARBAGE DISPOSERS).
4. FLOOR BOXES: OBTAIN OWNER APPROVAL OF ALL BOX LOCATIONS PRIOR TO ROUGH IN. PROVIDE DEVICE PLATES AT DEVICES AND BLANK PLATES AT ALL UNUSED COMPARTMENTS.
5. COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH MARKERBOARDS. ADJUST BOX LOCATIONS TO AVOID MARKERBOARDS.
6. COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH TACKBOARDS. ADJUST BOX LOCATIONS TO AVOID TACKBOARDS. PROVIDE BOX EXTENDER FOR A FLUSH INSTALLATION WHERE DEVICES MUST BE MOUNTED AT TACKBOARD/TACKWALL.
7. CEILING MOUNTED RECEPTACLES: AT SUSPENDED CEILINGS, ROUTE POWER TO RECEPTACLE VIA FLEXIBLE METALLIC CONDUIT WITH 6-FOOT SERVICE LOOP. FEED FMC FROM A J-BOX RIGIDLY SUPPORTED A MAXIMUM OF 24-INCHES ABOVE SUSPENDED CEILING OR AT BOTTOM OF STRUCTURE ABOVE, WHICHEVER IS LOWER. LOCATE J-BOX DIRECTLY ABOVE RECEPTACLE AND SUPPORT VIA STRUCTURE, OR VIA THREAD ROD AND UNISTRUT HUNG FROM STRUCTURE ABOVE IN HIGH STRUCTURE APPLICATIONS.
8. DEVICES RECESSED IN MULLIONS: BACK BOXES TO BE RECESSED FOR FLUSH NSTALLATION OF DEVICE AND WALLPLATE. EXTEND CONCEALED CONDUIT IN MULLION UP TO WALL ABOVE AND STUB OUT ABOVE ACCESSIBLE CEILING. IN AREAS WITH NO CEILING, EXTEND CONDUIT TOWARDS CABLING SOURCE TO ABOVE NEAREST ACCESSIBLE CEILING.

GENERAL SYSTEMS NOTES

DIVISION 26 WORK

(TYPICAL ALL SPECIAL SYSTEMS PLANS)

1. TELECOMMUNICATIONS OUTLETS: PROVIDE FOUR-GANG BOX (2.75-INCH DEEP MINIMUM) WITH SINGLE-GANG STRAP MOUNT PLASTER RING AND 1-INCH CONDUIT STUBBED INTO ACCESSIBLE SPACE ABOVE FINISHED CEILING (EXCEPTION: VOICE-ONLY OR VIDEO-ONLY OUTLETS PER NOTE BELOW).
2. TELECOMMUNICATIONS OUTLET INDICATED AS ROUGH IN ONLY (NO SUBSCRIPTS): INSTALL PER NOTE ABOVE, WITH BLANK 302SS SINGLE-GANG WALLPLATE.
3. VOICE-ONLY OR VIDEO-ONLY TELECOMMUNICATIONS OUTLET: PROVIDE SINGLE-GANG BOX WITH 1-INCH CONDUIT STUBBED INTO ACCESSIBLE SPACE ABOVE FINISHED CEILING.
4. MISCELLANEOUS LOW VOLTAGE OUTLETS (CALL STATIONS, HANDSETS, VOLUME CONTROL, MICROPHONE OUTLETS, SURFACE-MOUNT WALL SPEAKERS AND FIRE ALARM DEVICES): PROVIDE SINGLE-GANG BOX WITH 3/4-INCH CONDUIT STUBBED INTO ACCESSIBLE SPACE ABOVE FINISHED CEILING.
5. INSULATED BUSHINGS: PROVIDE BUSHINGS ON ALL CONDUIT STUB UPS, INCLUDING BUT NOT LIMITED TO, OUTLETS FOR TELECOMMUNICATIONS, FIRE ALARM, SECURITY, ACCESS CONTROL, MASS NOTIFICATION, PUBLIC ADDRESS, ALL OTHER LOW VOLTAGE INTERCOMMUNICATIONS AND UNUSED STUB-UPS OR STUB-UPS INDICATED FOR FUTURE USE.
6. FLOOR BOXES CONTAINING TELECOMMUNICATIONS OUTLETS: FOR EACH LOW-VOLTAGE COMPARTMENT, ROUTE 1-INCH CONDUIT WITH PULL STRING UNDERFLOOR, UP NEAREST WALL, AND STUB INTO ACCESSIBLE SPACE ABOVE FINISHED CEILING. LABEL CONDUIT END 'FLOOR BOX'
7. SLEEVES FOR LOW VOLTAGE CABLES: PROVIDE 2-INCH SLEEVES UNLESS NOTED OTHERWISE. COORDINATE WITH PATH OF DUCTWORK AND GWB CEILING TO ENSURE ACCESSIBILITY, EXTEND SLEEVES AS REQUIRED. INSTALL ALL SLEEVES 4-INCHES ABOVE HIGHER CEILING OF TWO ADJACENT SPACES. REFER TO ROOM FINISH SCHEDULES AND REFLECTED CEILING PLANS FOR CEILING HEIGHTS. STUB SLEEVES INTO JOIST SPACE OF FINISHED ROOMS WITH EXPOSED STRUCTURE. PROVIDE INSULATED BUSHINGS ON BOTH ENDS OF ALL SLEEVES, INCLUDING UNUSED SLEEVES. PROVIDE GROUT OR ESCUTCHEONS TO SECURE SLEEVES TO WALL. PROVIDE FIRE-RATED SLEEVES AT ALL FIRE-RATED WALLS.
8. PROVIDE ADDITIONAL CONDUIT, BOXES, CONDUCTORS AND OVERCURRENT PROTECTION FOR 120-VOLT BRANCH CIRCUITS NOT SPECIFICALLY COVERED UNDER DIVISION 26 WORK, BUT REQUIRED TO COMPLETE DIVISION 08 AND 28 WORK. DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO, POWER SUPPLIES FOR DOOR HARDWARE, ACCESS CONTROL, FIRE ALARM AND VIDEO SURVEILLANCE.
9. CARD READERS: PROVIDE RECESSED SINGLE-GANG BOX WITH GASKETED BLANK COVERPLATE AND EMPTY 1-INCH CONDUIT STUBBED INTO NEAREST ACCESSIBLE SPACE ABOVE FINISHED CEILING OR JOIST SPACE OF ADJACENT EXPOSED STRUCTURE. LABEL CONDUIT END 'CARD READER'.
10. PROVIDE WATERFALL DROPOUTS AT ALL CABLE TRAY LOCATIONS ABOVE RUNWAYS, WALL/FLOOR MOUNTED RACKS, AND EQUIPMENT ENCLOSURES.
11. AUDIO VISUAL (AV) SYSTEMS: PROVIDE RECESSED BOXES, CONDUIT AND PULL STRINGS FOR ALL SYSTEM COMPONENTS.

GENERAL SYSTEMS NOTES

DIVISION 28 WORK

(TYPICAL ALL SPECIAL SYSTEMS PLANS)

1. PROVIDE MINIMUM CANDELA RATINGS FOR ROOMS WITH WALL MOUNTED VISUAL NOTIFICATION APPLIANCES AS FOLLOWS:
   - <20'x20' = 15cd
   - <28'x28' = 30cd
   - <40'x40' = 60cd
   - >40'x40' = 110cd
2. PROVIDE MINIMUM CANDELA RATINGS FOR ROOMS WITH CEILING MOUNTED VISUAL NOTIFICATION APPLIANCES ON MAXIMUM 10' HIGH CEILING AS FOLLOWS:
   - <20'x20' = 15cd
   - <30'x30' = 30cd
   - <40'x40' = 60cd
   - >40'x40' = 110cd
3. INCREASE DEVICE RATINGS/SETTINGS WHEN LOCATED OFF-CENTER IN ROOMS TO MAINTAIN NFPA COVERAGE.
4. VISUAL DEVICES IN CORRIDORS SHALL BE 15cd. VISUAL DEVICES LOCATED IN OTHER AREAS SHALL BE 110cd UNLESS NOTED OTHERWISE.
5. IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR FIRE ALARM SYSTEM DEVICES CONNECTIONS TO MECHANICAL EQUIPMENT.
6. PROVIDE FIRE ALARM MONITORING OF ALL FLOW AND TAMPER SWITCHES. CONFIRM QUANTITIES AND LOCATION WITH DIVISION 21.
7. UTILIZE SLEEVES AND FIRE RATED SLEEVES AT RATED WALLS PROVIDED UNDER DIVISION 26 FOR INSTALLATION OF ALL LOW VOLTAGE CABLING. FOLLOW INDUSTRY STANDARDS TO MAINTAIN 40% FILL REQUIREMENTS IN ALL SLEEVES (SUPERSEDES NEC - DO NOT FILL SLEEVES TO CAPACITY). PROVIDE ADDITIONAL SLEEVES MEETING DIVISION 26 REQUIREMENTS AS REQUIRED.
8. SYSTEM PANEL LOCATIONS: AUXILIARY SYSTEM PANELS, POWER SUPPLIES OR OTHER EQUIPMENT ENCLOSURES SHALL NOT BE LOCATED IN TELECOM ROOMS UNLESS NOTED OTHERWISE. IF DRAWINGS DO NOT DEPICT LOCATIONS FOR AUXILIARY COMPONENTS, CONSULT OWNER OR A/E PRIOR TO EQUIPMENT INSTALLATION.
9. DUCT SMOKE DETECTION: DETERMINE QUANTITY AND PLACEMENT OF DETECTORS REQUIRED FOR COVERAGE OF DUCTWORK BASED ON NFPA REQUIREMENTS. PROVIDE MECHANICAL EQUIPMENT FAN SHUTDOWN RELAY AT ALL DUCT DETECTORS. SEE HVAC PLANS FOR EQUIPMENT LOCATIONS. COORDINATE SHUTDOWN CONTROL WITH DIVISION 23.
10. SMOKE DAMPERS AND FIRE-SMOKE DAMPERS: PROVIDE FIRE ALARM CONNECTION AND 120-VOLT POWER TO EACH FIRE/SMOKE DAMPER SHOWN ON HVAC PLANS. PROVIDE DEDICATED CIRCUIT TO DAMPERS, ROUTED THROUGH NORMALLY CLOSED FIRE ALARM RELAY, MOUNTED ON WALL IN NEAREST ELECTRICAL ROOM. COORDINATE WITH DAMPER MANUFACTURER FOR SPECIFIC DAMPER LOAD REQUIREMENTS. RELAY SHALL BE CONTROLLED BY FACP, SUCH THAT, ON GENERAL ALARM DAMPERS CLOSE. FIRE ALARM CONNECTION TO DAMPER SHALL BE A SUPERVISORY CIRCUIT MONITORING STATUS OF INTEGRAL SMOKE DETECTOR, AND SHALL PROVIDE REMOTE FIRE/SMOKE DAMPER RESET. FACP SHALL INITIATE A SUPERVISORY SIGNAL WHEN INTEGRAL DETECTOR GOES INTO ALARM. FIRE/SMOKE DAMPERS MAY BE GROUPED TOGETHER ON SUPERVISORY CIRCUITS TO SIMPLIFY WIRING. COORDINATE REQUIREMENTS WITH FIRE/SMOKE DAMPER MANUFACTURER. UTILIZE SPARE 20/1 BREAKERS. LABEL TYPED PANEL DIRECTORY 'FIRE/SMOKE DAMPERS - (INDICATE AREA SERVED)'.
11. PROVIDE WIREGUARDS ON ALL FIRE ALARM STROBES AND HORN/STROBES IN GYMNASIUMS.

GENERAL SYSTEMS NOTES

DIVISION 27 WORK

(TYPICAL ALL SPECIAL SYSTEMS PLANS)

1. ALL SPEAKERS AND HORN-TYPE SPEAKERS ARE PART OF THE INTERCOM SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE SURFACE MOUNT ENCLOSURE AND BAFFLE FOR ALL SPEAKERS IN FINISHED SPACES WITH NO CEILINGS (EXPOSED STRUCTURE).
3. UTILIZE SLEEVES AND FIRE RATED SLEEVES AT RATED AND VAPOR BARRIER WALLS PROVIDED UNDER DIVISION 26 FOR INSTALLATION OF ALL LOW VOLTAGE CABLING. FOLLOW INDUSTRY STANDARDS TO MAINTAIN 40% FILL REQUIREMENTS IN ALL SLEEVES (SUPERSEDES NEC - DO NOT FILL SLEEVES TO CAPACITY). PROVIDE ADDITIONAL SLEEVES MEETING DIVISION 26 REQUIREMENTS AS REQUIRED.
4. SYSTEM PANEL LOCATIONS: AUXILIARY SYSTEM PANELS, POWER SUPPLIES OR OTHER EQUIPMENT ENCLOSURES SHALL NOT BE LOCATED IN TELECOM ROOMS UNLESS NOTED OTHERWISE. IF DRAWINGS DO NOT DEPICT LOCATIONS FOR AUXILIARY COMPONENTS, CONSULT OWNER OR A/E FOR APPROVED LOCATIONS PRIOR TO EQUIPMENT INSTALL.
5. CONTRACTOR SHALL SUBMIT CONDUIT ROUTING PLAN FOR ALL EXPOSED AREAS. ALL CONDUIT AND JUNCTION BOXES SHALL BE ROUTED AS CLOSE TO THE CEILING AS POSSIBLE. CONDUITS AND BOXES EXITING FROM AN AREA WITH A LOWER CEILING SHALL ENTER THE EXPOSED CEILING SPACE AS CLOSE AS POSSIBLE TO THE ROOF DECK. CONTRACTOR SHALL PAINT SUPPORTS, BOXES, CONDUITS AND ALL ASSOCIATED EQUIPMENT PER THE ARCHITECTS DIRECTION. COORDINATE COLORS AND ROUTING WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.

GENERAL SYMBOLS

- ? SIM / ??? — DETAIL NUMBER, CROSS REFERENCE, SHEET NUMBER
- ? SIM / ??? — DETAIL REFERENCE
- ? East / ? — BUILDING ELEVATION, INTERIOR ELEVATION
- ? — KEYED NOTE
- ? — COLUMN GRID LINE
- ROOM NAME ??? — ROOM NAME / ROOM NUMBER
- ? — DOOR NUMBER
- X — EQUIPMENT TAG
- DESCRIPTION — REVISION NUMBER

ELECTRICAL SYMBOLS

LIGHTING

LIGHTING FIXTURE TAG

- XXX — FIXTURE TYPE
- XXX-X — CKT DESIGNATION (PNL - CKT NO.)
- XXX-X — RELAY PANEL - RELAY NO. OR LOCAL SWITCH DESIGNATION

LIGHTING FIXTURES

- LIGHTING FIXTURE
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- CEILING FIXTURE, SURFACE, RECESSED OR PENDANT
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- LIGHTING TRACK, TRACK MOUNTED LIGHT FIXTURES
- LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- WALL WASHER
- HIGH BAY LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- SELF CONTAINED EMERGENCY LIGHTING UNIT MOUNT 94-INCHES AFF, UNO
- EXIT SIGN, CEILING MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED
- EXIT SIGN, WALL MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED. MOUNT 94-INCHES AFF, UNO

AREA LIGHTING

- SITE LIGHTING - POLE
- POLE MOUNTED AREA LIGHTING FIXTURE
- POLE WITH POLE MOUNTED AREA LIGHTING FIXTURE
- WALL MOUNTED AREA LIGHTING FIXTURE
- IN GRADE LIGHT FIXTURE
- BOLLARD LIGHT FIXTURE

LIGHTING CONTROL DEVICES

- RPx — LIGHTING CONTROL PANEL
- CVx — CENTRAL INVERTER
- R — LOW VOLTAGE RELAY
- PC — PHOTOELECTRIC CELL
- LC — LIGHTING CONTACTOR
- BAT — REMOTE EMERGENCY BATTERY PACK

SWITCHES AND WALL-BOX CONTROLS

SWITCHES: MOUNT 42-INCHES AFF UNO

- SUPERSCRIPT , SWITCH SHALL CONTROL FIXURE DENOTED WITH SAME LOWER CASE LETTER
- SWITCH SYMBOL
- SUBSCRIPT, SWITCH TYPE - SEE BELOW
- LINE THRU SWITCH INDICATES A KEY OPERATED SWITCH

S	SWITCH, SINGLE POLE
S_2	SWITCH, DOUBLE POLE
S_3	SWITCH, 3-WAY
S_4	SWITCH, 4-WAY
S_D	SWITCH, DIMMER
S_E	SWITCH, EMERGENCY
S_L	SWITCH, LOW VOLTAGE
S_M	SWITCH, MASTER
S_O	SWITCH, WALL-BOX OCCUPANCY SENSOR
S_{O2}	SWITCH, WALL-BOX OCCUPANCY SENSOR, 2-POLE
S_P	SWITCH WITH PILOT LIGHT
S_R	SWITCH, LOW VOLTAGE, ASSOCIATED WITH RELAY PANEL
S_T	SWITCH, TIMER
S_V	SWITCH, WALL-BOX VACANCY SENSOR
S_X	SWITCH, EXPLOSION-PROOF

CEILING MOUNTED LIGHTING CONTROL DEVICES

MAXIMUM MOUNTING HEIGHT OF 10-FEET AFF

- OS — OCCUPANCY SENSOR
- VS — VACANCY SENSOR

WALL MOUNTED LIGHTING CONTROL DEVICES:

MOUNT 94-INCHES AFF, UNO

- OS — OCCUPANCY SENSOR
- VS — VACANCY SENSOR

THEATRICAL LIGHTING DEVICES:

- LCD — THEATRICAL LIGHTING LCD STATION MOUNT 50-INCHES AFF, UNO
- E — THEATRICAL LIGHTING ENTRY STATION MOUNT 42-INCHES AFF, UNO
- TO — THEATRICAL OUTLET BOX MOUNT 18-INCHES AFF, UNO
- TN — THEATRICAL NETWORK OUTLET MOUNT 18-INCHES AFF, UNO
- TC — THEATRICAL CONTROL CONSOLE OUTLET MOUNT 18-INCHES AFF, UNO

POWER

- CIRCUIT HOME RUN
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT STUB-UP
- CONDUIT SLEEVE
- CONDUIT SEAL
- CONDUIT CONCEALED IN CEILING OR WALLS, POWER
- CONDUIT CONCEALED IN CEILING OR WALLS, OTHER (* = SEE ABBREVIATIONS)
- CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, POWER
- CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, OTHER (* = SEE ABBREVIATIONS)
- EXPOSED CONDUIT, POWER
- EXPOSED CONDUIT, OTHER (* = SEE ABBREVIATIONS)
- FRS — FIRE RATED SLEEVE
- T — TRANSFORMER
- XXX — BRANCH CIRCUIT PANELBOARD MOUNT 72-INCHES TO TOP
- XXX — DISTRIBUTION PANELBOARD MOUNT 72-INCHES TO TOP
- EQUIPMENT CABINET, AS NOTED
- XXX — SWITCHBOARD
- MOTOR STARTER OR DRIVE
- DISCONNECT SWITCH
- COMBINATION STARTER / DISCONNECT SWITCH
- CT — CURRENT TRANSFORMER ENCLOSURE
- M — METER
- GEN — GENERATOR
- ATS — AUTOMATIC TRANSFER SWITCH
- SYSTEM GROUND ELECTRODE
- T — THERMOSTAT
- MUSHROOM SWITCH
- MH — ELECTRICAL MANHOLE
- HH — ELECTRICAL HAND HOLE
- M — MOTOR CONNECTION, HORSEPOWER AS INDICATED
- S_F — FUSE AND SWITCH ASSEMBLY
- S_T — MANUAL CONTROLLER WITH THERMAL OVERLOAD
- S_M — MANUAL CONTROLLER W/O THERMAL OVERLOAD
- B — CIRCUIT BREAKER ENCLOSURE
- PB — PULL BOX
- EQUIPMENT CONNECTION
- CABLE TRAY, LADDER TYPE OR RUNWAY
- CABLE TRAY
- MULTI-OUTLET ASSEMBLIES MOUNT 18-INCHES AFF, UNO WHERE DENOTED 'AC', MOUNT ABOVE COUNTER
- DIVIDED SURFACE RACEWAY MOUNT 18-INCHES AFF, UNO WHERE DENOTED 'AC', MOUNT ABOVE COUNTER

PUSHBUTTON STATION: MOUNT 42-INCHES AFF UNO

- SWITCH, PUSH BUTTON, SINGLE
- SWITCH, PUSH BUTTON, DOUBLE
- SWITCH, PUSH BUTTON, TRIPLE

RECEPTACLES: MOUNT 18-INCHES AFF, UNO

DIAGONAL LINE THROUGH SYMBOL OR DENOTED 'AC' INDICATES MOUNT DEVICE ABOVE COUNTER. WHERE INDICATED AS 'MOUNT ABOVE COUNTER' MOUNT BOTTOM OF BOX 2-INCHES ABOVE TOP OF BACKSPLASH OR 6-INCHES ABOVE COUNTERTOP IF NO BACKSPLASH EXISTS.

LABELS SHALL BE MACHINE PRINTED, UNO

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE, GFI TYPE
- DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- FOURPLEX RECEPTACLE
- FOURPLEX RECEPTACLE, GFI TYPE
- FOURPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- FOURPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, FLUSH IN CEILING
- DUPLEX RECEPTACLE, HORIZONTALLY MOUNTED
- DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE
- DUPLEX RECEPTACLE, HORIZ. MTD, ABOVE COUNTER
- DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE, MOUNT ABOVE COUNTER
- R — WEATHER RESISTANT GFI DUPLEX RECEPTACLE, ROOF MOUNT 18-INCHES ABOVE ADJACENT STRUCTURE WITH A WEATHERPROOF, IN-USE COVER
- WP — WEATHER RESISTANT GFI DUPLEX RECEPTACLE, MOUNT 18-INCHES AFF WITH A WEATHERPROOF, IN-USE COVER
- EWC — STD DUPLEX RECEPTACLE TO SERVE ELECTRIC WATER COOLER, MOUNT AT HEIGHT PER EQUIPMENT MANUFACTURER'S INSTALLATION GUIDELINES. WIRE TO GFCI BKR IN PANELBOARD.
- TV — DUPLEX RECEPTACLE TO SERVE TELEVISION, MOUNT AT SAME HEIGHT AND WITHIN 8-INCHES OF ADJACENT TV OUTLET
- DUPLEX RECEPTACLE, EMERGENCY
- FOURPLEX RECEPTACLE, EMERGENCY
- DUPLEX RECEPTACLE, LOWER SWITCH
- DUPLEX RECEPTACLE, SWITCHED
- RANGE RECEPTACLE, MOUNT 8-INCHES AFF
- SPECIAL RECEPTACLE, DEEP WELL BOX
- FLUSH FLOOR OUTLET BOX UNO
- FLUSH FLOOR BOX WITH DUPLEX RECEPTACLE UNO
- MULTI-DEVICE FLOOR BOX WITH DUPLEX RECEPTACLE AND TELECOMMUNICATIONS OUTLETS
- USB ONLY RECEPTACLE
- RECEPTACLE WITH USB PORTS
- FLUSH JUNCTION BOX, CEILING MOUNTED
- P — JUNCTION BOX FOR FUTURE PROJECTOR POWER MOUNT 24-INCHES ABOVE SUSPENDED CEILING MOUNT TIGHT TO CEILING AT EXPOSED STRUCTURE LABEL BOX COVER 'PROJECTOR POWER'
- JUNCTION BOX ABOVE SUSPENDED CEILING WITH FLEX CONNECTION
- FLUSH JUNCTION BOX, WALL MOUNTED
- SURFACE JUNCTION BOX, WALL MOUNTED
- SURFACE JUNCTION BOX, CEILING MOUNTED
- HAND DRYER, INSTALL HAND DRYER SPECIFIED IN DIV. 11

COMMUNICATIONS

TELECOMMUNICATIONS OUTLETS: MOUNT 18-INCHES AFF, UNO, AND WITHIN 8-INCHES OF ADJACENT RECEPTACLE WHERE DENOTED 'AC', MOUNT ABOVE COUNTER WHERE DENOTED 'C', MOUNT FLUSH IN CEILING

- TELECOMMUNICATIONS OUTLET PROVIDE JACKS UNDER A COMMON FACEPLATE: TWO CAT6A DATA
- 1 — TELECOMMUNICATIONS OUTLET PROVIDE JACKS UNDER A COMMON FACEPLATE: TWO CAT6A DATA/ ONE CAT6A VOICE
- 2 — TELECOMMUNICATIONS OUTLET PROVIDE JACKS UNDER A COMMON FACEPLATE: TWO CAT6A DATA/ TWO CAT6A VOICE
- TELECOMMUNICATIONS OUTLET MOUNTED IN FLOOR BOX
- AP — WIRELESS ACCESS POINT (ONE CAT6A)
- AP 2 — WIRELESS ACCESS POINT (TWO CAT6A)
- AP — WIRELESS ACCESS POINT, WALL MOUNTED (TWO CAT6A)
- ANALOG VOICE ONLY TELECOM OUTLET (TELEPHONE OUTLET) MOUNT 18-INCHES AFF, UNO. EQUIVALENT TO WHERE DENOTED 'W' MOUNT 50-INCHES AFF
- TV — VIDEO ONLY TELECOM OUTLET (TELEVISION OUTLET) MOUNT 94-INCHES AFF, UNO. EQUIVALENT TO
- TV — TELEVISION OUTLET, FLUSH IN CEILING
- AV — AV OUTLET. PROVIDE TWO BOXES PER DETAIL 23 / E6.03.
- FLOOR MOUNTED TELECOMMUNICATIONS RACK

CLOCKS: MOUNT 94-INCHES AFF, UNO

- CLOCK - WALL MOUNT
- DS — CLOCK - DOUBLE FACE
- C — CLOCK - OUTLET

BELLS, BUZZERS, CHIMES AND WALL SPEAKERS: MOUNT 94-INCHES AFF, UNO

- CLASS PROGRAM BELL
- BUZZER
- C — CHIME
- S — SPEAKER, WALL
- S — SPEAKER, FLUSH IN CEILING, ENCLOSED IN BACKBOX WHERE EXPOSED
- S PA — PUBLIC ADDRESS (A/V) SYSTEM SPEAKER, FLUSH IN CEILING
- H — SPEAKER/HORN, WALL
- IC — INTERCOM CALLBACK STATION MOUNT 42-INCHES AFF
- IC 2 — TWO-WAY INTERCOM/CALL STATION COMBINATION UNIT MOUNT 42-INCHES AFF
- IC M — INTERCOM MASTER STATION OUTLET MOUNT 18-INCHES AFF
- H — INTERCOM HANDSET MOUNT 50-INCHES AFF
- V — VOLUME CONTROL, WALL MOUNT 42-INCHES AFF
- M — MICROPHONE OUTLET, WALL MOUNT 18-INCHES AFF
- M — FLUSH FLOOR BOX WITH MICROPHONE OUTLET
- D — DIRECTORS HEADSET
- M — CLOCK - MASTER
- DS — CLOCK - CEILING MOUNT, DOUBLE FACE

SAFETY

- FACP — FIRE ALARM CONTROL PANEL MOUNT CENTER OF DISPLAY 54-INCHES AFF
- FAA — FIRE ALARM ANNUNCIATOR PANEL MOUNT CENTER OF DISPLAY 54-INCHES AFF
- LOC — LOCAL OPERATOR'S CONSOLE MOUNT CENTER OF DISPLAY 54-INCHES AFF
- NAC — NOTIFICATION APPLIANCE CIRCUIT CABINET MOUNT CENTER OF DISPLAY 54-INCHES AFF
- F — MANUAL FIRE ALARM PULL STATION MOUNT 42-INCHES AFF

FIRE ALARM A/V DEVICES: MOUNT 94-INCHES AFF, OR 6-INCHES BELOW CEILING, WHICEVER IS HIGHER, UNO

- F — FIRE ALARM BELL
- F — FIRE ALARM HORN
- F — FIRE ALARM VISUAL WARNING SIGNAL
- F — FIRE ALARM BELL WITH VISUAL WARNING SIGNAL
- F — FIRE ALARM HORN WITH VISUAL WARNING SIGNAL
- F — MINI FIRE ALARM HORN WITH VISUAL WARNING SIGNAL
- F — FIRE ALARM SPEAKER WITH VISUAL WARNING SIGNAL
- F — FIRE ALARM SPEAKER, FLUSH IN CEILING
- F — FIRE ALARM SPEAKER WITH VISUAL WARNING SIGNAL, CEILING
- F — FIRE ALARM VISUAL WARNING SIGNAL, CEILING
- E — ECS SPEAKER, FLUSH IN CEILING
- E — ECS SPEAKER WITH VISUAL WARNING SIGNAL, CEILING
- E — ECS VISUAL WARNING SIGNAL, CEILING
- S — SPRINKLER SYSTEMS ELECTRIC BELL ALARM
- D — FIRE ALARM MAGNETIC DOOR HOLDER MOUNT 74-INCHES AFF
- L — REMOTE INDICATOR LAMP
- OSY — OS&Y VALVE
- FS — WATER FLOW ALARM SWITCH
- TS — TAMPER SWITCH
- T — BEAM TRANSMITTER
- R — BEAM RECEIVER
- FF — FIRE FIGHTERS TELEPHONE MOUNT 54-INCHES AFF
- DAS ANTENNA
- I D — SMOKE DETECTOR - IONIZATION TYPE (D = DUCT)
- P D — SMOKE DETECTOR - PHOTOELECTRIC TYPE (D = DUCT)
- I — SMOKE DETECTOR - IONIZATION TYPE
- P — SMOKE DETECTOR - PHOTOELECTRIC TYPE
- HEAT DETECTOR RATE-OF-RISE AND FIXED TEMPERATURE, 135 F
- HEAT DETECTOR, RATE-OF-RISE AND FIXEDTEMPERATURE, 200 F
- HEAT DETECTOR, FIXED TEMPERATURE ONLY, 135 F
- HEAT DETECTOR, FIXED TEMPERATURE ONLY, 200 F

SECURITY

INTRUSION DETECTION

- ID — INTRUSION DETECTOR, CEILING
- ID — INTRUSION DETECTOR, WALL
- MD LR — MOTION DETECTOR - LONG RANGE
- MD BR — MOTION DETECTOR - BROAD RANGE
- MD 360 — MOTION DETECTOR - 360 DEGREES
- GB — GLASS BREAK DETECTOR
- K — SECURITY KEYPAD MOUNT 48-INCHES AFF

VIDEO SURVEILLANCE

- XXX — VIDEO CAMERA - CEILING (2) CAT6A BLUE CABLES
- XXX — VIDEO CAMERA - WALL (2) CAT6A BLUE CABLES

ACCESS CONTROL

- XXX — DOOR TAG
- ACP — ACCESS CONTROL SYSTEM CONTROL PANEL
- P — DOOR POSITION SWITCH
- PS — POWER SUPPLY, 120V INPUT
- CR — CARD READER MOUNT 36-INCHES AFF (2) CAT6A CABLES
- EL — DOOR WITH ELECTRIFIED DOOR HARDWARE. REFER TO DOOR HARDWARE SPECIFICATIONS.

ONE-LINE DIAGRAM

- X — ENCLOSED CONTROLLER (ACROSS-THE-LINE UNO) MOUNT 60-INCHES AFF TO TOP
  - X = STARTER NEMA SIZE
- XX/X, XXAF, XX — ENCLOSED SWITCH; MOUNT 60-INCHES AFF TO TOP
  - XX/X = AMP RATING / NO. OF POLES
  - XXAF = FUSE SIZE; AF=AMP FUSE; NF=NO FUSE
  - X = STARTER NEMA SIZE
- XX/X, XXAF, XX — COMBINATION CONTROLLER \ DISCONNECT; MOUNT 60-INCHES AFF TO TOP
  - XX/X = AMP RATING / NO. OF POLES
  - XXAF = FUSE SIZE; AF=AMP FUSE; NF=NO FUSE
  - XX = ENCLOSURE NEMA RATING; BLANK=NEMA 1; WP=NEMA 3R
- M — METER SOCKET/METER
- SPD — SURGE PROTECTION DEVICE
- T, XX — TRANSFORMER
  - T = TRANSFORMER ID
  - XX = SIZE
- XXX/X, LSIG — BREAKER
  - XXX/X = AMP RATING / POLES
  - LSIG = ADJUSTABLE SETTINGS (WHERE NOTED)
    - L = LONG TIME
    - S = SHORT TIME
    - I = INSTANTANEOUS
    - G = GROUND FAULT PROTECTION OF EQUIPMENT
  - GFPE = GROUND FAULT PROTECTION OF EQUIPMENT
  - ERMS = ENERGY REDUCTION MAINTENANCE SWITCH
- XXX/3, XXX — FUSIBLE SWITCH
  - XXX/X = SWITCH AMP RATING / POLES
  - XXX = FUSE SIZE
- GROUNDING ELECTRODE SYSTEM

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KC MECHANICAL ENGINEERING, L.L.C.
Registered Professional Engineer (ELECTRICAL) CERTIFICATE NO. 73678 SEAN AVERY DATE SIGNED 03/29/2024 ARIZONA U.S.A.

PIMA COMMUNITY COLLEGE
TRANSPORTATION CENTER ADDITIONAL EQUIPMENT
1255 N STONE AVE
TUCSON AZ

CONSTRUCTION DOCUMENTS - 100%
03/29/2024
REVISIONS

30-19128-04

ELECTRICAL SYMBOLS AND ABBREVIATIONS

E0.1

GENERAL

ALL ELECTRICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE CURRENTLY EFFECTIVE EDITION OF THE NEC AS ADOPTED BY THE LOCAL JURISDICTION INCLUDING ANY LOCAL AMENDMENTS, ORDINANCES, AND INTERPRETATIONS. ELECTRICAL WORK SHALL ALSO COMPLY WITH ANY APPLICABLE FEDERAL AND STATE REGULATIONS.

AS A QUALITY ASSURANCE, PERFORM WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION (NECA) "STANDARD OF INSTALLATION." ALL EQUIPMENT SHALL BE NEW, U.L. LISTED AND APPROVED.

ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. SIZE AND LOCATION OF EQUIPMENT AND WIRING ARE SHOWN TO SCALE WHERE POSSIBLE BUT, MAY BE DISTORTED FOR CLARITY ON THE DRAWINGS. FINAL LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE SHOWN IN ENLARGED DETAILS OR AS APPROVED BY THE ARCHITECT OR HIS REPRESENTATIVE. IT IS NOT WITHIN THE SCOPE OF THESE DRAWINGS TO SHOW ALL THE NECESSARY BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND SHALL COMPARE THE DRAWINGS WITH EXISTING ELECTRICAL INSTALLATIONS, AND SHALL THOROUGHLY FAMILIARIZE ONESELF WITH ALL EXISTING CONDITIONS WITHIN THE SCOPE OF THE WORK. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR WILL HAVE DEEMED TO HAVE MADE SUCH EXAMINATION AND TO HAVE ACCEPTED SUCH CONDITIONS AND TO HAVE MADE ALLOWANCE THEREFORE IN PREPARING HIS BID.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL TRADES AND FOR ALL ELECTRICAL REFERENCES INDICATING ADDITIONAL WORK ON ARCHITECTURAL DRAWINGS.

DISCREPANCIES BETWEEN DIFFERENT DESIGN DRAWINGS, ACTUAL EXISTING CONDITIONS AND THE CONTRACT DRAWINGS, OR DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO SUBMITTING FINAL BID.

VERIFY LOCATIONS OF ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL DRAWINGS AND INTERIOR DETAILS AND FINISHES. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS, AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE, AND CORRECT ANY INACCURACIES RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.

FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON DRAWINGS. COORDINATE WITH OTHER TRADES OR DETAILS FOR INSTALLATION. THE TERM "WIRING", AS USED HEREIN, INCLUDES FURNISHING AND INSTALLING CONDUIT, WIRE, JUNCTION BOXES, DISCONNECTS AND MAKING CONNECTIONS. CHECK ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE INSTALLED BY OTHERS. BE RESPONSIBLE FOR PROPER WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS TO EQUIPMENT TO CONFORM TO SPECIFIED REQUIREMENTS OF THE EQUIPMENT.

INSTALL BLACK PHENOLIC NAMEPLATES WITH WHITE ENGRAVED DESIGNATIONS FOR PANEL BOARDS, PANEL BOARD FEEDER DEVICES, JUNCTION BOXES AND PULL BOXES.

SECURE AND PAY ALL PERMITS AND FEES NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK SHOWN ON THESE DRAWINGS.

TEMPORARY ELECTRICAL SERVICE, LIGHTING, AND RELATED WIRING SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR TO OSHA REQUIREMENTS FOR THE USE OF ALL TRADES DURING CONSTRUCTION. TEMPORARY POWER MAY BE EXTENDED FROM THE OWNER'S EXISTING ELECTRICAL SERVICE. THE POINT OF CONNECTION AND METHOD OF EXTENSION SHALL BE APPROVED BY THE OWNER.

THE EXISTING ELECTRICAL DISTRIBUTION SHALL REMAIN ACTIVE FOR THE DURATION OF CONSTRUCTION. IF SHUTDOWN TIME IS REQUIRED, IT SHALL BE AT THE CONTRACTOR'S EXPENSE AND AT A TIME DIRECTED BY THE OWNER.

DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT IS A PART OF THE ELECTRICAL WORK AND IS DESCRIBED ON THE DRAWINGS.

THE CONTRACTOR SHALL DO ALL CUTTING AND PATCHING OF THE EXISTING CONSTRUCTION WORK WHICH MAY BE REQUIRED FOR THE PROPER INSTALLATION OF THE ELECTRICAL WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP, AND FINISH AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK.

AFTER COMPLETION OF WORK UNDER THIS SECTION, CLEAN UP RESULTANT DEBRIS FROM THIS WORK AND REMOVE FROM THE SITE. DISCONNECT AND REMOVE ALL TEMPORARY POWER INCLUDING BUT, NOT NECESSARILY LIMITED TO PANELS, FIXTURES, BOXES AND WIRING.

DISTRIBUTION EQUIPMENT

ALL PANELBOARDS SHALL BE ENCLOSED TYPE, FLUSH OR SURFACE MOUNTED AS REQUIRED, INSTEEL CABINETS CODE GAUGE, WITH STEEL TRIM CONCEALED HINGES, DOORS AND FLUSH TYPE LOCKS, ALL KEYED ALIKE. APPROVED MANUFACTURES SHALL BE SQUARE D, CUTLER-HAMMER, GENERAL ELECTRIC OR SIEMENS.

ALL BUSING, INCLUDING NEUTRAL AND GROUND BUS, SHALL BE MINIMUM 98% CONDUCTIVITY, HARD DRAWN COPPER, SILVER OR TIN-PLATED JOINTS, AND SIZED ON THE BASIS OF 1000 AMPERES PER SQUARE INCH CROSS-SECTIONAL AREA. BUSING SHALL BE ARRANGED FOR SEQUENCING PHASING.

PANELBOARDS SHALL BE EQUIPPED WITH BOLT-ON, MOLDED CASE CIRCUIT BREAKERS OF THE TYPE, NUMBER OF POLES, TRIP SIZES, AND INTERRUPTING RATINGS AS SHOWN ON THE DRAWINGS.

EQUIPMENT INTERRUPTING RATINGS INDICATED ON THE DRAWINGS ARE BASED ON PRELIMINARY INFORMATION AND ARE SHOWN FOR BIDDING PURPOSES ONLY. VERIFY EQUIPMENT INTERRUPTING CAPACITY REQUIREMENTS PRIOR TO ORDERING ANY RELATED ELECTRICAL DISTRIBUTION EQUIPMENT.

CABINETS SHALL BE OF SUFFICIENT SIZE TO ALLOW A GUTTER SPACE OF AT LEAST 6" ON SIDES, TOP AND BOTTOM.

BACK BOXES SHALL BE CONSTRUCTED OF CODE GAUGE SHEET STEEL. GALVANIZED TRIMS SHALL BE PRIMED FOR FINISH PAINTING BY OTHERS.

DOORS AND TRIMS SHALL EACH BE IN ONE PIECE SO DESIGNATED THAT DOORS WILL OPEN 180^. TRIMS SHALL BE FASTENED TO BACK BOXES BY SCREWS.

SEAL ALL EXISTING PANEL KNOCKOUTS NOT BEING UTILIZED.

WHERE CIRCUIT BREAKERS ARE INDICATED ON THE DRAWINGS TO BE PROVIDED IN EXISTING PANELBOARDS, CIRCUIT BREAKERS SHALL MATCH EXISTING PANELBOARD MANUFACTURER, CIRCUIT BREAKER STYLE AND PANEL INTERRUPTING RATING (AIC).

SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE (AS NOTED OR AS REQUIRED) NEMA 1, HEAVY DUTY, EXTERNALLY OPERATED WHERE NOT FURNISHED WITH STARTING EQUIPMENT AND AT ALL OTHER POINTS REQUIRED BY CODE. FUSES SHALL BE BUSSMAN, GOULD OR LITTELFUSE CURRENT LIMITING TYPE, MINIMUM 200,000 AIC. CIRCUIT BREAKERS SHALL HAVE A MINIMUM 10,000 AIC FOR 208Y/120V SYSTEMS AND A MINIMUM OF 14,000 AIC FOR 480Y/277V SYSTEMS UNLESS OTHERWISE NOTED ON THE DRAWINGS.

TRANSFORMERS SHALL BE INDOOR, DRY-TYPE, VENTILATED, AND SOUND LEVELS NOT TO EXCEED NEMA STANDARDS. APPROVED MANUFACTURERS SHALL BE SQUARE D, ACME, CUTLER-HAMMER, GENERAL ELECTRIC OR SIEMENS.

POWER SYSTEM STUDY

A REPORT CONTAINING THE FOLLOWING INFORMATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND SHALL BE SECURED BEFORE EQUIPMENT IN QUESTION IS ORDERED, BUILT OR INSTALLED:

FAULT CURRENT STUDY - USE COMPUTER BASED SOFTWARE COMPLYING WITH IEEE 399. HAND CALCULATIONS ARE NOT ACCEPTABLE. CALCULATE MAXIMUM SHORT CIRCUIT CURRENT AVAILABLE AT EACH SYSTEM NODE. CALCULATIONS SHALL BE BASED UPON A THREE-PHASE BOLTED FAULT AT EACH NODE. MOTOR FAULT CURRENT CONTRIBUTION SHALL BE INCLUDED. NORMAL AND ALTERNATE POWER SYSTEMS SHALL BE INCLUDED. CALCULATIONS SHALL COMPLY WITH IEEE AND ANSI STANDARDS FOR A FAULT CURRENT STUDY.

COORDINATION STUDY - USE COMPUTER BASED SOFTWARE COMPLYING WITH IEEE 399. HAND CALCULATIONS ARE NOT ACCEPTABLE. CALCULATE HALF-CYCLE, 5-CYCLE AND 2 SECOND MAXIMUM AND MINIMUM SHORT CIRCUIT CURRENTS AND GROUND FAULT CURRENTS. PROVIDE SETTINGS SELECTED FOR OVER CURRENT PROTECTIVE DEVICES. PROVIDE COORDINATION CURVES IN FULL COLOR FORMAT. CALCULATIONS SHALL COMPLY WITH IEEE AND ICEA.

ARC FLASH STUDY - USE COMPUTER BASED SOFTWARE COMPLYING WITH IEEE 399. HAND CALCULATIONS ARE NOT ACCEPTABLE. DETERMINE APPROPRIATE FIELD MARKING OF SUBSTATIONS, SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, CONTROL PANELS AND MOTOR CONTROL PANELS. PROVIDE A WRITTEN REPORT INDICATING DEVICE TAG, APPROPRIATE PPE LEVEL, FLASH HAZARD BOUNDARY, CAL/SQ. CM FLASH HAZARD VALUE AT 18 INCHES AND KV AVAILABLE WHEN COVER IS REMOVED. PROVIDE 3 INCH WIDE BY 2 INCH HIGH BLACK ON YELLOW, WARNING PLACARD ON EQUIPMENT INDICATING INCH FLASH HAZARD BOUNDARY, CAL/SQ. CM. FLASH HAZARD AT 18 INCHES, PPE LEVEL, (PPE EQUIPMENT DESCRIPTION), KV SHOCK HAZARD WHEN COVER IS REMOVED, KA BOLTED FAULT CURRENT AND EQUIPMENT NAME.CALCULATIONS SHALL COMPLY WITH IEEE 1584.

LUMINAIRES

FURNISH AND INSTALL LUMINAIRES AS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL DRAWINGS. VERIFY EXACT LOCATIONS OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS. COORDINATE LUMINAIRE HOUSINGS AND TRIMS WITH CEILING TYPE. PROVIDE REQUIRED ACCESSORIES FOR CEILING TYPES.

SUPPORT GRID TYPE LUMINAIRES FROM SUSPENDED CEILING SYSTEM AND WITH A MINIMUM OF FOUR (4) RODS OF WIRE PER LUMINAIRE, LOCATED NOT MORE THAN SIX (6) INCHES FROM LUMINAIRE CORNERS.

LUMINAIRE SUBSTITUTIONS SHALL INCLUDE THE FOLLOWING INFORMATION FOR ENGINEER'S APPROVAL: LUMINAIRE PRODUCT DATA SHEETS, PHOTOMETRIC DATA, POINT BY POINT CALCULATIONS OF FOOT-CANDLE LEVELS ON A PER ROOM BASIS.

ALL LUMINAIRE TYPES DENOTED AS "EMERGENCY" LUMINAIRES SHALL BE FURNISHED WITH EMERGENCY BATTERY PACKS INTEGRAL TO THE LUMINAIRE, OR CIRCUITED THROUGH AN INVERTER, AS REQUIRED FOR EMERGENCY EGRESS ILLUMINATION PER IBC.

WIRING DEVICES

SPECIFICATION GRADE DUPLEX RECEPTACLES SHALL BE 2 POLE, 3 WIRE, GROUNDING TYPE, 20 AMPERE, NEMA 5-20R TAMPER-RESISTANT AS MANUFACTURED BY ONE OF THE FOLLOWING:

- HUBBEL
- ARROW-HART
- BRYANT
- PASS & SEYMOUR

SINGLE POLE TOGGLE SWITCHES SHALL BE 20 AMPERE, 120/277 VAC AS MANUFACTURED BY ONE OF THE FOLLOWING:

- HUBBEL
- ARROW-HART
- BRYANT
- PASS & SEYMOUR

TOGGLE SWITCHES WITH OVERLOAD PROTECTION AND INDICATOR LIGHT SHALL BE PROVIDED FOR EXHAUST FANS, WITH HEATER ELEMENT SIZE AS REQUIRED, UNLESS OTHERWISE NOTED.

WHERE MULTIPLE DEVICES ARE INDICATED IN A COMMON LOCATION, GANG INTO A SINGLE COVER PLATE.

COLORS OF ALL WIRING DEVICES AND ASSOCIATED COVER PLATES SHALL BE PER ARCHITECT'S DIRECTION.

DEVICE COVERPLATES SHALL BE STEEL, WHITE, PAINTED AS DIRECTED BY ARCHITECT.

RECEPTACLES INSTALLED IN WET OR DAMP LOCATIONS SHALL BE LISTED WEATHERPROOF, TAMPER RESISTENT AND SHALL BE INSTALLED WITH AMETALLIC, HEAVY-DUTY, WP WHILE-IN-USE COVER.

LIGHTED TOGGLE SWITCHES SHALL BE FURNISHED WITH LIGHT-ON/LOAD-OFF AND PILOT LIGHT TOGGLE SWITCHES SHALL BE FURNISHED WITH LIGHT-ON/LOAD-ON.

RECEPTACLES AND SWITCHES CONNECTED TO OR CONTROLLING EMERGENCY CIRCUITS SHALL BE RED COLOR WITH COVER PLATE AS DIRECTED BY ARCHITECT.

RACEWAYS

RACEWAYS SHALL BE HEAVY WALL RIGID GALVANIZED STEEL CONDUIT IN CONCRETE, UNDER THE LOWEST FLOOR SLABS OF BUILDINGS, IN WET/DAMP LOCATIONS, AND ALL EXPOSED AREAS.

GALVANIZED STEEL ELECTRICAL METALLIC TUBING SHALL BE USED IN DRY LOCATIONS, WALLS AND CONCEALED CEILING SPACES.

FLEXIBLE METALLIC CONDUIT SHALL BE USED FROM OUTLET BOX TO RECESSED LIGHT FIXTURES IN SUSPENDED CEILINGS.

PVC SCHEDULE 40 CONDUIT SHALL BE USED FOR EXTERIOR UNDERGROUND APPLICATIONS 3/4" MINIMUM SIZE. ENCASE SUCH CONDUITS IN 3" OF CONCRETE IF BELOW PARKING OR DRIVE AREAS, MINIMUM COVER REQUIREMENTS PER NEC.

RUN RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3" OF STEAM OR HOT WATER PIPES, OR APPLIANCES, EXCEPT CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 1" FROM PIPE COVER.

RUN ALL RACEWAYS PARALLEL AND/OR PERPENDICULAR TO BUILDING WALLS. HORIZONTAL OR CROSS RUNS IN FULL HEIGHT PARTITIONS AND WALLS SHALL NOT BE PERMITTED.

RUN ALL CONDUIT CONCEALED IN FINISHED AREAS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

IF SPACE LIMITATION IS ENCOUNTERED IN ROUTING OF EMT CONDUITS, TYPE "MC" CABLE WITH GREEN INSULATED GROUNDING CONDUCTOR MAY BE USED WITH SPECIFIC APPROVAL FROM LOCAL AUTHORITIES, OWNER'S PROJECT MANAGER AND BUILDING OWNER.

CONNECT RACEWAY TO MOTOR TERMINAL BOXES WITH FLEXIBLE CONDUIT, MINIMUM 18 INCHES IN LENGTH AND 50% SLACK. DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.

SURFACE MOUNT METAL RACEWAY IN REMODELED AREAS WHERE CONDUIT CANNOT BE CONCEALED. ROUTING AND LOCATIONS TO BE APPROVED BY AND COORDINATED WITH ARCHITECT BEFORE ROUGH IN.

TELEPHONE, DATA AND TELEVISION CONDUITS SHALL BE 1" MINIMUM IN SIZE.

FIRE ALARM CONDUITS SHALL BE PAINTED WITH A RED ONE INCH BAND EVERY 25 FEET OF RUN, MINIMUM ONE (1) BAND PER STRAIGHT RUN.

RACEWAY FITTINGS SHALL BE STEEL, THREADED OR COMPRESSION, LISTED FOR USE IN ENVIROMENT USED.

CONDUCTORS

CONDUCTORS SHALL BE COPPER, SIZES AS INDICATED ON DRAWINGS AND SHALL NOT BE LESS THAN NO. 12 AWG. ALL NO. 8 AWG WIRE AND LARGER SHALL BE STRANDED. ALL NO. 10 AWG WIRE AND SMALLER SHALL BE SOLID OR STRANDED. VOLTAGE RATING OF INSULATION SHALL BE 600 VOLTS.

TYPE THHN/THWN-2 INSULATION SHALL BE USED FOR ALL BRANCH CIRCUIT WIRING. THE AMPACITIES OF THHN WIRE SHALL BE BASED ON THE ALLOWABLE AMPACITIES OF THW WIRE.

CONDUCTORS SERVING EQUIPMENT ON ROOFS SHALL HAVE XHHW-2 INSULATION.

RECESSED LUMINAIRES IN HUNG CEILING SHALL BE SUPPLIED WITH TYPE "AF" INSULATED WIRE IN FLEXIBLE METALLIC CONDUIT, LENGTHS NOT EXCEEDING 6 FEET FROM ADJACENT JUNCTION BOXES.

COLOR CODING OF BRANCH CIRCUIT CABLES SHALL BE TO MATCH THE COLORS USED IN THE EXISTING BUILDING (CURRENT BUILDING STANDARD).

ALL GROUNDING CONDUCTORS SHALL BE GREEN COLORED.

REQUEST IN WRITING PERMISSION FOR OVERLAP COLOR TAPING CONDUCTORS (MINIMUM LENGTH 6') IN ACCESSIBLE LOCATIONS. COLOR CODING, ONCE SELECTED, MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.

LEAVE WIRE SUFFICIENTLY LONG TO PERMIT MAKING FINAL CONNECTIONS. IN RACEWAYS OVER 10 FEET IN WHICH WIRING IS NOT INSTALLED, FURNISH NYLON PULL STRINGS.

RECEPTACLES AND EQUIPMENT 120 VOLT BRANCH CIRCUIT HOMERUN WIRING LESS THAN 100 FEET SHALL BE #12 AWG., AND GREATER THAN 100 FEET SHALL BE #10 AWG. OR LARGER TO ALLOW FOR VOLTAGE DROP.

LIGHTING 120 VOLT BRANCH CIRCUIT HOMERUN WIRING LESS THAN 40 FEET SHALL BE #12 AWG., 40 TO 100 FEET SHALL BE #10 AWG. AND GREATER THAN 100 FEET SHALL BE #8 AWG. OR LARGER TO ALLOW FOR VOLTAGE DROP.

ALL WIRES SHALL BE IDENTIFIED BY CIRCUIT NUMBERS IN ALL CABINETS, BOXES, WIRING TROUGHS, OTHER ENCLOSURES, AT ALL SPLICES, TERMINATION POINTS, ETC.

OUTLET, JUNCTION AND PULL BOXES

ALL OUTLET BOXES SHALL BE CODE GAUGE, HOT DIPPED GALVANIZED STAMPED STEEL UNLESS OTHERWISE NOTED.

OUTLET BOXES FOR RECEPTACLES AND SWITCHES IN DRY WALL PARTITIONS SHALL BE 4" SQUARE, 2-1/8" MINIMUM DEPTH UNLESS WALL CONSTRUCTION DICTATES OTHERWISE AND SHALL BE FITTED WITH SQUARE CORNERED DEVICE COVERS AND DEPTH EQUAL TO THE DRY WALL THICKNESS. SECTIONAL BOXES ARE NOT ACCEPTABLE.

JUNCTION AND PULL BOXES: LOCATE GENERALLY NOT EXPOSED IN FINISHED SPACE. WHERE NECESSARY, REROUTE RACEWAY OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. PROVIDE PULL BOXES AS INDICATED AND WHERE EVER NECESSARY TO FACILITATE PULLING OF WIRE AND COORDINATE LOCATIONS WITH OTHER TRADES. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE. FOR EMPTY RACEWAY RUNS, PROVIDE PULL BOXES EVERY 100 FEET AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES.

SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. ROUGH-IN WALL AND SWITCH OUTLET BOXES IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRONS.

LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS. AT OR NEAR DOORS INSTALL SWITCH, IN SIDE OPPOSITE HINGE, VERIFY FINAL DOOR HINGE LOCATION IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.

LOCATIONS INDICATED FOR LOCAL WALL SWITCHES, CONTROLLERS, RECEPTACLES, ETC. ARE SUBJECT TO MODIFICATIONS. HEIGHTS OF OUTLETS ARE DEFINED FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS, AS PER ARCHITECTURAL DRAWINGS. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, MOLDING, BREAK IN WALL SURFACE, MASONRY GROUT LINES, OR IN VIOLATION OF CODE REQUIREMENTS.

OFFSET BACK-TO-BACK OUTLETS TO MAINTAIN INTEGRITY OF WALL ACOUSTICS AND FIRE RATING. THROUGH THE WALL TYPE, SHALL NOT BE PERMITTED.

THE INSIDE COVER OF ALL RECEPTACLE OUTLET COVER PLATES, PULL BOXES, AND JUNCTION BOXES SHALL BE PERMANENTLY MARKED TO INDICATE THE PANEL AND CIRCUIT NUMBER.

GROUNDING

GROUND ALL CONDUITS, CABINETS, MOTORS, PANELS, AND OTHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ALL PROVISIONS OF THE NATIONAL ELECTRICAL CODE, OR LOCAL CODES THAT MAY APPLY.

GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITH FEEDER AND BRANCH CIRCUIT CONDUCTORS IN ALL CONDUITS WHETHER OR NOT INDICATED ON THE DRAWINGS. EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC ARTICLE 250, TABLE 250.122.

SUPPORTING DEVICES

SECURE ALL SUPPORTS TO BUILDING STRUCTURE AS REQUIRED. DO NOT SUPPORT FROM CEILING HANGERS. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FEET APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALL CONSTRUCTION.

SUPPORT PANEL, JUNCTION AND PULL BOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAY.

ALL ANCHORS, FASTENERS, CLAMPS, ETC. SHALL BE MADE OF STEEL AND SHALL NOT CONTAIN ANY LEAD, WOOD, PLASTIC, ETC.

SLEEVES

PROVIDE WATERPROOF SLEEVES, AS APPROVED FOR ROOF, FLOOR AND WALL PENETRATIONS. ALL PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS OR PARTITIONS SHALL BE SEALED TO PREVENT THE SPREAD OF SMOKE AND FIRE THROUGH THEM. THE FIRE RATING OF THE PENETRATION SEAL SHALL BE AT LEAST THAT OF THE FLOOR OR WALL INTO WHICH IT IS INSTALLED BY NEC ARTICLE #300.21.

FIRE STOPPING MATERIALS SHALL CONFORM TO FLAME (F) AND TEMPERATURE (T) RATINGS REQUIRED BY LOCAL BUILDING CODE AND AS TESTED BY NATIONALLY ACCEPTED TEST AGENCIES PER ASTM E-814 OR UL 1479 FIRE TESTS IN A CONFIGURATION THAT IS REPRESENTATIVE OF FIELD CONDITIONS. THE (F) RATING SHALL BE A MINIMUM OF ONE (1) HOUR BUT NOT LESS THAN THE FIRE RESISTANCE OF THE ASSEMBLY BEING PENETRATED.

CIRCUITING

NO MORE THAN EIGHT (8) GENERAL POWER RECEPTACLES SHALL BE CONNECTED TO A CIRCUIT, UNLESS OTHERWISE NOTED.

NO MORE THAN FOUR (4) ISOLATED GROUND POWER RECEPTACLES SHALL BE CONNECTED TO A CIRCUIT, UNLESS OTHERWISE NOTED.

LIGHTING AND CONVENIENCE RECEPTACLE CIRCUITS MAY BE GROUPED FOR HOMERUNS TO PANELBOARDS WITH A MAXIMUM OF THREE (3) CIRCUITS PER HOMERUN.

TELEPHONE/DATA SYSTEM

OUTLET BOXES FOR TELEPHONE AND DATA RECEPTACLES IN DRY WALL PARTITIONS SHALL BE 4-11/16" SQ x 2-1/8" MINIMUM DEPTH UNLESS WALL CONSTRUCTION DICTATES OTHERWISE AND SHALL BE FITTED WITH SQUARE CORNERED DEVICE COVERS AND DEPTH EQUAL TO THE DRY WALL THICKNESS. SECTIONAL BOXES ARE NOT ACCEPTABLE. PROVIDE BLANK COVER PLATE.

CONDUIT SIZES SHALL BE AS DETAILED ON DRAWING STUBBED AND TERMINATED INTO ACCESSIBLE CEILING SPACE MINIMUM 6" AND TERMINATED WITH INSULATED THROAT CONNECTOR. PROVIDE PULL WIRE TO FACILITATE COMMUNICATION CABLING BY OTHERS.

HVAC CONTROLS

MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL CONTROL WIRING INCLUDING CONDUITS, RELAYS, TIME CLOCK, CONTROL TRANSFORMERS, ETC., FOR ALL HVAC EQUIPMENT, UNLESS OTHERWISE NOTED.

ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ONLY LINE VOLTAGE POWER WIRING WITH SAFETY SWITCHES AS SHOWN ON THE ELECTRICAL DRAWINGS.

CONNECTION TO EXISTING WORK

PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFACE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER.

CONNECT NEW WORK TO EXISTING IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY BUILDING OWNER.

DISCONNECT, REMOVE, OR RELOCATE ELECTRICAL MATERIALS AND EQUIPMENT AS NOTED AND AS REQUIRED BY CHANGES IN CONSTRUCTION.

REMOVE CONDUCTORS FROM EXISTING RACEWAYS TO BE RE-WIRED. CLEAN RACEWAY AS REQUIRED PRIOR TO RE-WIRING.

ALARM, LIFE SAFETY AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED.

TEMPORARY SHUTDOWNS WHEN REQUIRED SHALL BE MADE ONLY WITH WRITTEN CONSENT OF OWNER AND SHALL OCCUR AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION AND AT NO ADDITIONAL CHARGE.

ALL REQUIRED WORK FOR TIE-IN TO THE EXISTING EQUIPMENT SHALL BE ACCOMPLISHED AFTER HOURS. THE EXACT DAY AND TIME SHALL BE AS DIRECTED BY OWNER, AND AT NO ADDITIONAL CHARGE.

TESTS AND GUARANTEES

UPON COMPLETION OF ALL ELECTRICAL WORK, CONTRACTOR SHALL TEST FOR GROUNDS AND SHORTS, TO INSURE PROPER OPERATION OF ELECTRICAL EQUIPMENT. REPAIR OR REPLACE FAULTY EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.

DEMONSTRATE TO THE OWNER'S SATISFACTION, THE PROPER OPERATION OF EACH SYSTEM COMPRISING THIS CONTRACT BEFORE FINAL PAYMENT.

GUARANTEE FOR ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER OF ALL WORKMANSHIP AND MATERIALS FURNISHED.

EQUIPMENT AND MATERIAL SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR UNTIL FORMALLY ACCEPTED BY THE OWNER.

LOAD BALANCING

ELECTRICAL CONTRACTOR SHALL BALANCE THE LOAD WITH AMMETER ON ALL PANELS AFFECTED UNDER THIS CONTRACT, SUBSEQUENT TO COMPLETION OF INSTALLATION, WITH ALL EQUIPMENT OPERATING SIMULTANEOUSLY. ELECTRICAL CONTRACTOR SHALL SUBMIT LOAD BALANCING REPORT TO THE ENGINEER FOR APPROVAL.

ELECTRICAL CONTRACTOR SHALL FIELD VERIFY WITH AMMETER THAT NEW EQUIPMENT CAN BE ADDED TO EXISTING BRANCH CIRCUITS SUCH THAT CONTINUOUS LOADS AS DEFINED IN NEC, ARTICLE 100 DO NOT EXCEED 80% OF EXISTING OVERCURRENT DEVICE RATING PROTECTING CIRCUIT CONDUCTORS.

FIRE ALARM SYSTEM

OBTAIN APPROVAL ON SYSTEM LAYOUT AND OPERATION FROM THE LOCAL FIRE DEPARTMENT AND OTHER AUTHORITIES HAVING JURISDICTION, AS REQUIRED, PRIOR TO COMMENCING WORK. PREPARE AND SUBMIT PROPER DOCUMENTATION IN THE QUANTITY DESIRED BY THE AUTHORITIES, WITH ONE (1) COPY EACH TO OWNER AND ARCHITECT.

EXISTING FIRE ALARM EQUIPMENT (PULL STATIONS, SMOKE/HEAT DETECTORS, A/V APPLIANCES, FIREMAN PHONE JACKS, ETC.) SHALL REMAIN OR BE RELOCATED TO ACCOMMODATE NEW CONDITIONS. ALL WORK SHALL BE COORDINATED WITH BUILDING AUTHORITIES. FINAL CONNECTIONS TO BUILDING FIRE ALARM SYSTEM SHALL BE DONE BY BUILDING APPROVED CONTRACTOR. INSTALL NEW FIRE ALARM DEVICES AS INDICATED ON FLOOR PLANS AND RISER DIAGRAMS.

THE BASE BUILDING FIRE ALARM CONTROL PANEL SHALL BE UPGRADED TO HANDLE THE NEW FIRE ALARM DEVICES AS SHOWN ON THE PLANS. PROVIDE ADDITIONAL POWER SUPPLIES AND ASSOCIATED CONTROL PANELS TO ASSURE ADEQUATE POWER IS AVAILABLE FOR SYSTEM. PROVIDE A 20 AMPERE, 120 VOLT CIRCUIT FROM EMERGENCY POWER PANELS (IF APPLICABLE) TO NEW FIRE ALARM EQUIPMENT.

ALL WORK AFFECTING THE EXISTING BUILDING FIRE ALARM SYSTEM SHALL BE PERFORMED IN STRICT ACCORDANCE WITH BUILDING RULES AND REGULATIONS. ALL DEVICES SHALL MEET ADA CRITERIA AND SHALL BE REPLACED IF THEY DO NOT.

SUBMITTALS

MANUFACTURER'S PRODUCT DATA SHEETS AND SHOP DRAWINGS OF THE FOLLOWING EQUIPMENT, GIVING FULL DESCRIPTION AND OTHER PERTINENT FACTS, SHALL BE SUBMITTED TO ARCHITECT/ENGINEER FOR APPROVAL AND SHALL BE SECURED BEFORE EQUIPMENT IS ORDERED, BUILT OR INSTALLED:

1. LUMINAIRES, LAMPS, BALLASTS.
2. DISTRIBUTION EQUIPMENT, PANELBOARDS, SAFETY SWITCHES, TRANSFORMERS, AND RELATED POWER SYSTEM STUDY INCLUDING SHORT CIRCUIT, COORDINATION, ARC FLASH COMPONENTS.
3. WIRING DEVICES, TOGGLE SWITCHES, RECEPTACLES, DIMMERS, COVER PLATES.
4. FIRE ALARM, NURSE CALL, SECURITY, INTERCOM, OTHER SPECIALTY SYSTEMS.
5. ADDITIONAL EQUIPMENT AS REQUESTED BY OWNER, ARCHITECT, ENGINEER.

CONFORM TO SUBMITTAL REQUIREMENTS OUTLINED IN THE ARCHITECTURAL SPECIFICATIONS. WHERE CONTENTS OF SUBMITTAL LITERATURE INCLUDES DATA NOT PERTINENT TO THE SUBMITTAL, CLEARLY INDICATE WHICH PORTION OF CONTENT IS BEING SUBMITTED FOR REVIEW. WHERE ONLY ONE MAKE OF EQUIPMENT IS NAMED, IT SHALL BE PROVIDED AS SPECIFIED.
SHOULD CONTRACTOR PROPOSE TO FURNISH MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED, SUBMIT WRITTEN REQUEST FOR SUBSTITUTIONS TO ARCHITECT TEN (10) DAYS PRIOR TO BID OPENING. REQUEST SHALL BE AN ALTERNATIVE TO THE ORIGINAL BID AND SHALL BE ACCOMPANIED WITH COMPLETE DESCRIPTIVE AND TECHNICAL DATA FOR ALL ITEMS (MANUFACTURER, BRAND NAME, CATALOG NUMBER, ETC.) INDICATING ANY ADDITIONS OR DEDUCTIONS TO THE CONTRACT PRICE. VERBAL REQUESTS OR APPROVALS FOR ANY SUBSTITUTIONS SHALL NOT BE BINDING ON THE OWNER, ARCHITECT, OR ENGINEER.

A MINIMUM OF ONE (1) SET OF RECORD DRAWINGS SHALL BE GIVEN TO THE ARCHITECT OR OWNER AT THE COMPLETION OF THE WORK. THESE DRAWINGS SHALL SHOW EXACT EQUIPMENT LOCATIONS, CONCEALED FEEDER ROUTINGS, AND SHALL INDICATE THE "AS-BUILT" CONDITION.

ADDITIONAL SPECIFICATION REQUIREMENTS

ALL LABOR AND MATERIAL FURNISHED UNDER THIS CONTRACT SHALL BE IN STRICT ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS AS WELL AS THE RELATED UNIVERSITY HOSPITAL, BANNER HOSPITAL, CLEVELAND CLINIC FOUNDATION FACILITIES DEPARTMENT MASTER SPECIFICATIONS AND GENERAL CONDITIONS.

DLRGROUP

Registered Professional Engineer (Electrical)
CERTIFICATE NO. 73678
SEAN AVERY
DATE SIGNED 03/29/2024
ARIZONA U.S.A.

KC MECHANICAL ENGINEERING, L.L.C.

PIMA COMMUNITY COLLEGE
TRANSPORTATION CENTER ADDITIONAL EQUIPMENT

1255 N STONE AVE
TUCSON AZ

CONSTRUCTION DOCUMENTS - 100%
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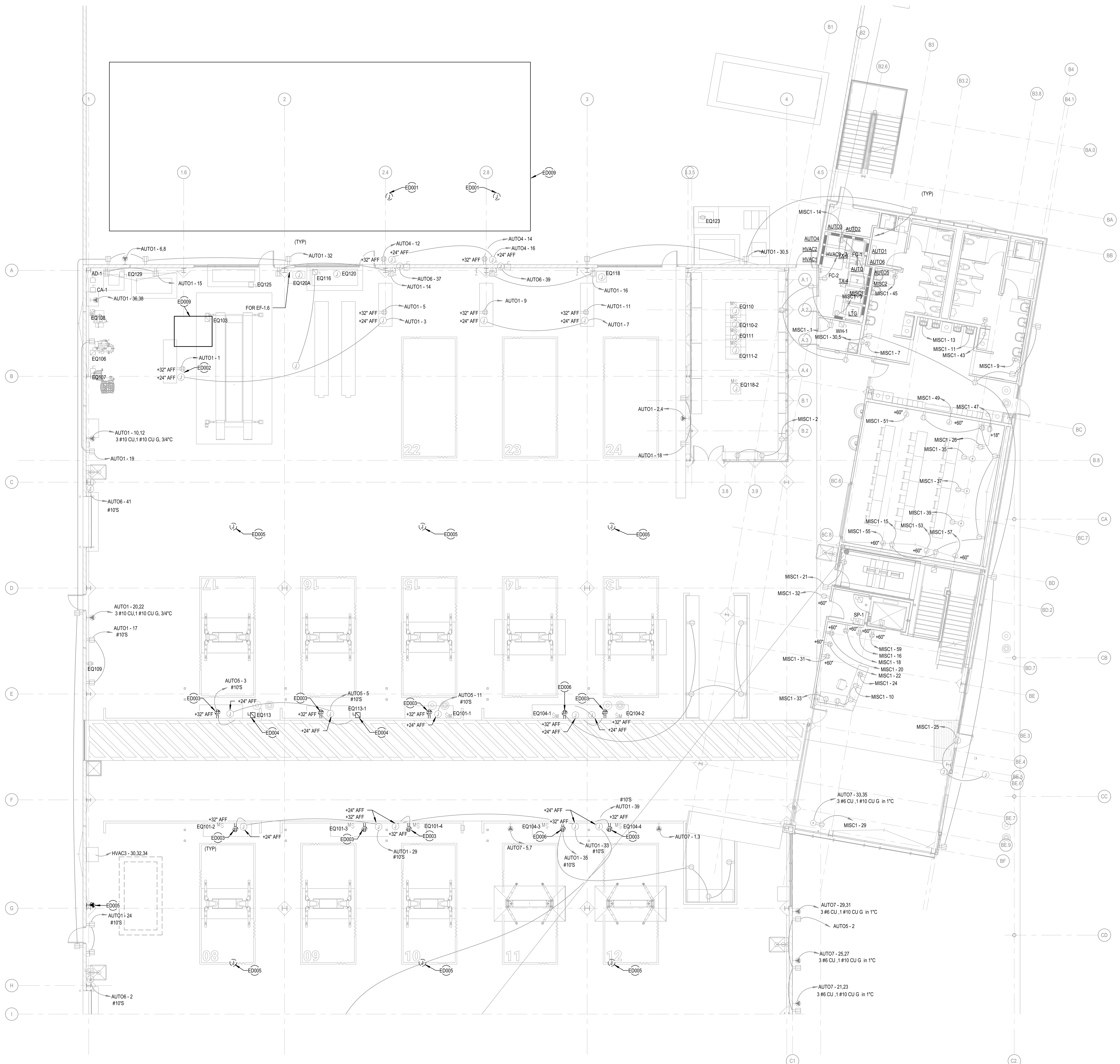
ELECTRICAL SPECIFICATIONS

E0.2



DEMO POWER PLAN, FIRST LEVEL - AREA A

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

NORTH

SHEET NOTES

ED001 DEMO CONNECTIONS TO EXISTING LIFTS. DESIGN INTENT IS TO REUSE CIRCUIT VIA HANDHOLES TO NEW LIFTS AT NEW LOCATIONS. AREA AROUND LIFTS TO BE SAW CUT AND REPOURED. CONTRACTOR TO REMOVE CIRCUIT WITHIN AREA OF SLAB CUT AND MAINTAIN EXISTING INFRASTRUCTURE BEYOND. REINSTALL HANDHOLE IN PROXIMITY TO NEW LIFT LOCATION SIMILAR TO EXISTING CONDITIONS. CONTRACTOR TO VERIFY WHETHER CONDITION OF EXISTING HANDHOLE IS SUITABLE FOR RESUSE OR REQUIRES REPLACEMENT. IF CONDITION IS INADEQUATE FOR REUSE, DEMO HANDHOLE TO ALLOW FOR REPLACEMENT.

ED002 DISCONNECT EXISTING CIRCUIT FEEDING EXISTING EQUIPMENT. KEEP CONTINUITY OF EXISTING CIRCUIT FOR FUTURE USE.

ED003 DEMO EXISTING DOUBLE DUPLEX. KEEP CONTINUITY OF EXISTING CIRCUIT FOR FUTURE WORK.

ED004 DISCONNECT EXISTING CIRCUIT FEEDING EXISTING EQUIPMENT. DEMO CIRCUIT AND CONDUCTORS BACK TO NEAREST UPSTREAM JUNCTION BOX.

ED005 DISCONNECT EXISTING CIRCUIT FEEDING EXISTING EQUIPMENT. DEMO CIRCUIT AND CONDUCTORS BACK TO SOURCE.

ED006 DISCONNECT FROM CIRCUIT. REMOVE CONDUCTORS BACK TO NEAREST UPSTREAM JUNCTION BOX

ED009 APPROXIMATE AREA OF WHERE AREA OF SLAB IS REMOVED.

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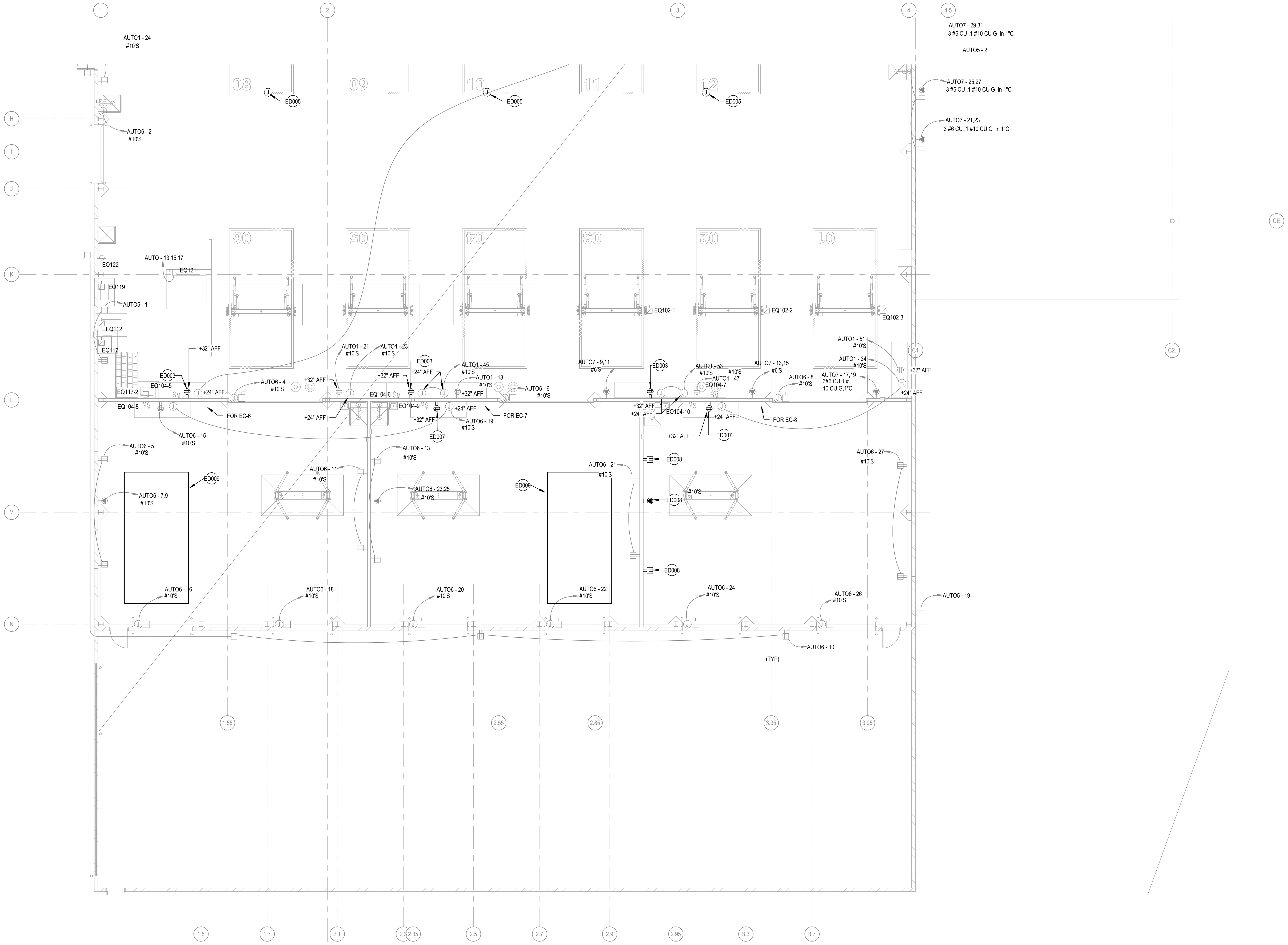
DEMO POWER PLAN, FIRST LEVEL - AREA A

ED1.2A



DEMO POWER PLAN, FIRST LEVEL - AREA B

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

NORTH

SHEET NOTES

ED003 DEMO EXISTING DOUBLE DUPLEX. KEEP CONTINUITY OF EXISTING CIRCUIT FOR FUTURE WORK.

ED005 DISCONNECT EXISTING CIRCUIT FEEDING EXISTING EQUIPMENT. DEMO CIRCUIT AND CONDUCTORS BACK TO SOURCE.

ED007 DEMO EXISTING DOUBLE DUPLEX. REMOVE CONDUIT BACK TO UPSTREAM JUNCTION BOX. REMOVE CONDUCTORS BACK TO SOURCE.

ED008 RECEPTACLE IS TO BE RELOCATED PER E2.1 DISCONNECT CIRCUIT MAINTAIN CONTINUITY FOR NEW LOCATION.

ED009 APPROXIMATE AREA OF WHERE AREA OF SLAB IS REMOVED.

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DEMO POWER PLAN, FIRST LEVEL - AREA B

ED1.2B

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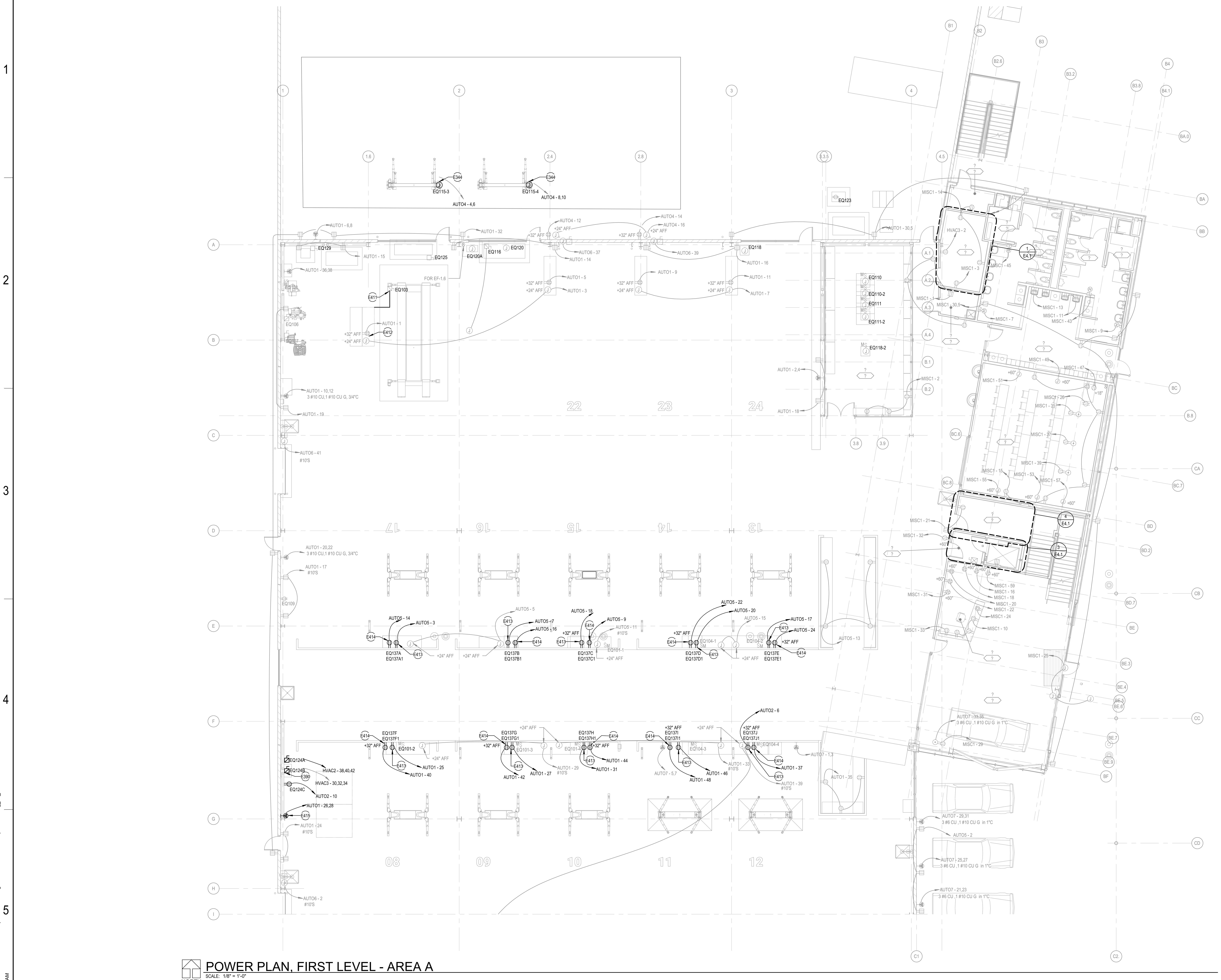

POWER PLAN, FIRST LEVEL - AREA A

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

NORTH

GENERAL POWER NOTES

(TYPICAL ALL POWER SHEETS)

1. FOR AUTO AND MECHANICAL POWER REQUIREMENT. REFER TO SHEET E7.2 FOR MORE INFORMATION.
2. REVIEW MECHANICAL SUBMITTALS AND VERIFY ANY NEUTRAL WIRES REQUIRED ON 1Ø OR 3Ø MECHANICAL UNITS FURNISHED UNDER DIVISION 23. IF REQUIRED, PROVIDE NEUTRAL.
3. PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 20/1 BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
4. REFER TO STRUCTURAL DRAWINGS FOR ALL SLAB CUT LOCATIONS.

SHEET NOTES

E344 IF EXISTING HAND HOLE IS IN GREAT CONDITION, REUSE AND REINSTALL IN NEW CONCRETE. IF NOT PROVIDE NEW HAND HOLE. EXTEND EXISTING CIRCUIT

E390 CURRENT UNDERSTANDING IS THAT UNIT IS DUAL RATED FOR 208/230V. CONTRACTOR TO VERIFY UNIT VOLTAGE WILL ACCEPT 208V. IF NOT, PROVIDE BUCK BOOST TRANSFORMER AS REQUIRED.

E411 REROUTE EXISTING CIRCUIT TO UNDERGROUND IN SAME TRENCH AS AIR TO THE DISCONNECT FEEDING LIFT. REFER TO STRUCTURAL FOR SLAB CUT LOCATION.

E412 EXTEND EXISTING CIRCUIT TO NEW RECEPTACLE MOUNTED IN NEW EQUIPMENT.

E413 PROVIDE RECEPTACLE AT A MINIMUM OF 6" FROM NEW RECEPTACLE.

E414 PROVIDE NEW RECEPTACLE MOUNTED NEXT TO EXISTING RECEPTACLE.

E415 PROVIDE NEW RECEPTACLE FOR THE DYNO CONTROLLER. COORDINATE WITH OWNER FOR EXACT NEMA CONFIGURATION OF THE DYNAMO PLUG PRIOR TO ROUGH-IN.

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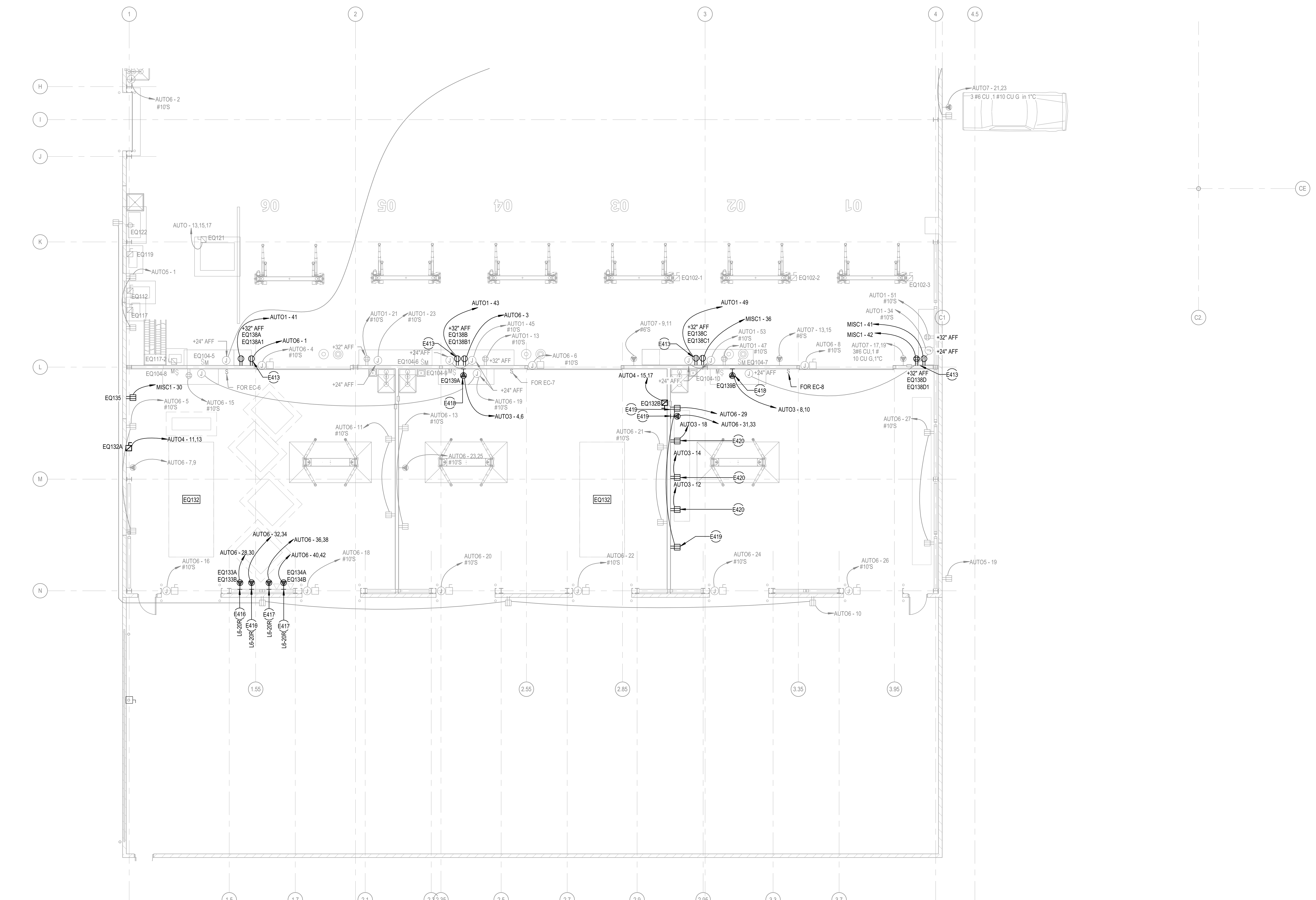
POWER PLAN, FIRST LEVEL - AREA A

E2.1A1



POWER PLAN, FIRST LEVEL - AREA B

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

GENERAL POWER NOTES

(TYPICAL ALL POWER SHEETS)

1. FOR AUTO AND MECHANICAL POWER REQUIREMENT. REFER TO SHEET E7.2 FOR MORE INFORMATION.
2. REVIEW MECHANICAL SUBMITTALS AND VERIFY ANY NEUTRAL WIRES REQUIRED ON 1Ø OR 3Ø MECHANICAL UNITS FURNISHED UNDER DIVISION 23. IF REQUIRED, PROVIDE NEUTRAL.
3. PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 20/1 BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
4. REFER TO STRUCTURAL DRAWINGS FOR ALL SLAB CUT LOCATIONS.

SHEET NOTES

E413 PROVIDE RECEPTACLE AT A MINIMUM OF 6" FROM NEW RECEPTACLE.

E416 PROVIDE RECEPTACLE FOR NEW TIRE CHANGERS. COORDINATE WITH RESPECTIVE VENDOR ON POWER REQUIREMENTS AND PROVIDE AS NEEDED

E417 PROVIDE RECEPTACLE FOR NEW TIRE BALANCERS. COORDINATE WITH RESPECTIVE VENDORS ON POWER REQUIREMENTS AND PROVIDE AS NEEDED.

E418 PROVIDE 208V/1PH RECEPTACLE TO FEED NEW SNAP ON BENCH. COORDINATE WITH SYSTEM MANUFACTURER FOR CORRECT POWER REQUIREMENTS PRIOR TO ROUGH-IN.

E419 EXTEND EXISTING CIRCUIT TO NEW LOCATION.

E420 PROVIDE DEDICATED CIRCUIT TO EQUIPMENT.

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POWER PLAN, FIRST LEVEL - AREA B

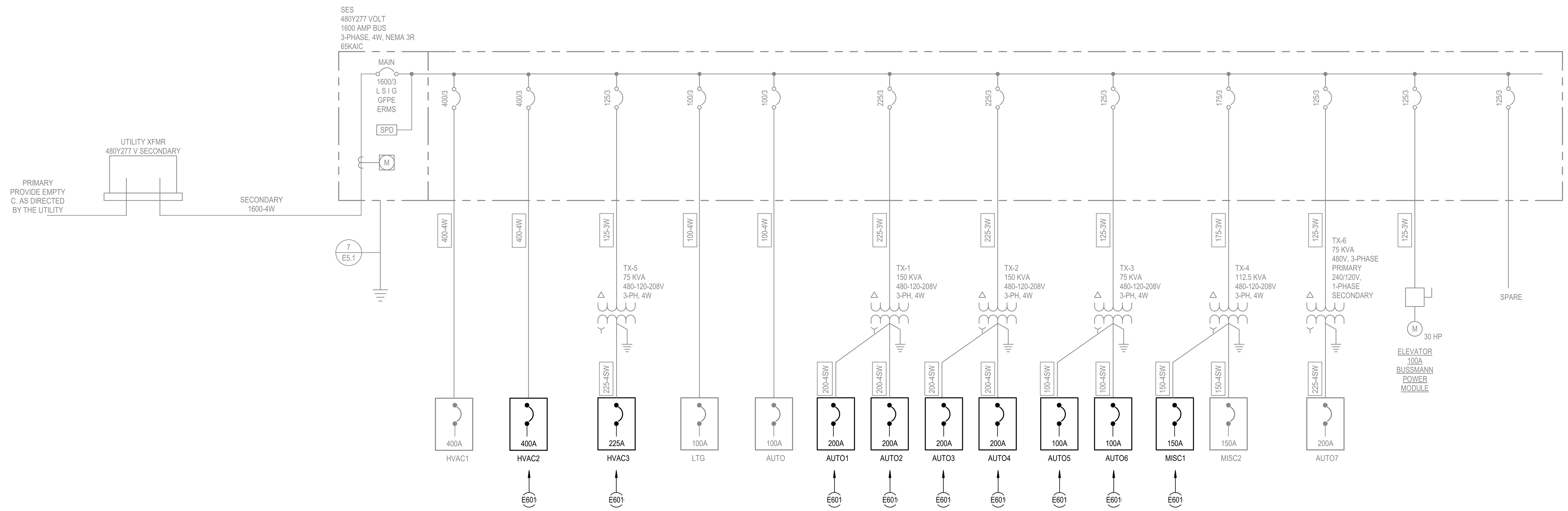
E2.1B2

A B C D E F

1 2 3 4 5

SHEET NOTES

E601 EXISTING PANEL WITH MODIFIED CIRCUITS OR LOADS.



1 E6.1A **ELECTRICAL SINGLE LINE DIAGRAM - SES**
NO SCALE

EE- AUTO EQUIPMENT SCHEDULE ADDITION- PIMACC

TAG	LOCATION	SERVICE	DESCRIPTION	PANEL	CIRCUIT NUMBER	INPUT POWER	VOLTAGE	PHASE	DISC SW	FUSED DISC SW	COMB STARTER	VFD	JB	RECEPTACLE	MOTOR RATED SWITCH	COMB STARTER NEMA SIZE	DISC SW AMP	DISC SW POLE	DISC SW FUSE	PHASE & NEUTRAL SET	PHASE & NEUTRAL NO.	PHASE & NEUTRAL AWG-TEXT	GND NO.	GND AWG-T EXT	CONDUIT SET	CONDUIT SIZE-TEXT	SPECIFIC NOTES
EQ115-3	EXTERIOR	AUTO LAB 109	VEHICLE LIFT - 2-POST LIFT	AUTO4	4,6	6240 VA	208 V	1	No	No	No	No	Yes	No	No	0	30 A	2	25 A	1	2	#8	1	#10	1	3/4"	DEDICATED DOUBLE POLE BREAKER, DISCONNECT
EQ115-4	EXTERIOR	AUTO LAB 109	VEHICLE LIFT - 2-POST LIFT	AUTO4	8,10	6240 VA	208 V	1	No	No	No	No	Yes	No	No	0	30 A	2	25 A	1	2	#8	1	#10	1	3/4"	DEDICATED DOUBLE POLE BREAKER, DISCONNECT
EQ124A	FIRST LEVEL	AUTO LAB 109	DYNAMOMETER	HVAC2	38,40,42	43212 VA	480 V	3	No	Yes	No	No	No	No	No	0	110 A	3	110 A	1	3	#4	1	#8	1	1"	
EQ124B	FIRST LEVEL	AUTO LAB 109	DYNAMOMETER CONTROL BOX	HVAC3	30,32,34	14440 VA	208 V	3	No	Yes	No	No	No	No	No	0	110 A	3	110 A	1	3	#6	1	#10	1	3/4"	
EQ124C	FIRST LEVEL	AUTO LAB 109	COMPUTER ROLLAROUND CABINET	AUTO2	10	1000 VA	120 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ132A	FIRST LEVEL	AUTO LAB 109	SCISSOR LIFT 113	AUTO4	11,13	5408 VA	208 V	1	No	Yes	No	No	No	No	No	0	110 A	2	110 A	1	2	#8	1	#10	1	3/4"	
EQ132B	FIRST LEVEL	AUTO LAB 109	SCISSOR LIFT 114	AUTO4	15,17	5408 VA	208 V	1	No	Yes	No	No	No	No	No	0	110 A	2	110 A	1	2	#8	1	#10	1	3/4"	
EQ133A	FIRST LEVEL	EV BAY AREA	TIRE CHANGER 113	AUTO6	28,30	3000 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ133B	FIRST LEVEL	EV BAY AREA	TIRE CHANGER 114	AUTO6	32,34	3000 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ134A	FIRST LEVEL	EV BAY AREA	WHEEL BALANCER 113	AUTO6	36,38	2080 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ134B	FIRST LEVEL	EV BAY AREA	WHEEL BALANCER 114	AUTO6	40,42	2080 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ135	FIRST LEVEL	EV BAY AREA	ALIGNER	MISC1	30	1440 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ136	FIRST LEVEL	AUTO LAB 109	SNAP - ON N TIRE BALANCING UNIT	AUTO1	1	1800 VA	120 V	1	No	No	No	No	Yes	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ137A	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	14	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137A1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	3	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137B	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	7	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137B1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	16	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137C	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	18	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137C1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	9	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137D	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	22	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137D1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	20	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137E	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	17	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137E1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO5	24	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137F	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	40	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137F1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	25	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137G	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	42	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137G1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	27	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137H	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	31	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137H1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	44	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137I	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	48	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137I1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	46	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137J	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO2	6	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ137J1	FIRST LEVEL	AUTO LAB 109	SNAP - ON CENTER AISLE UNIT	AUTO1	37	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	MOUNT AT 24" AFF
EQ138A	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO1	41	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138A1	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO6	1	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138B	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO1	43	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138B1	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO6	3	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138C	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO1	49	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138C1	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	MISC1	36	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138D	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	MISC1	42	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ138D1	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	MISC1	41	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ139A	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO3	4,6	3536 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#10	1	3/4"	NEMA L6-20R
EQ139B	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO3	8,10	3536 VA	208 V	1	No	No	No	No	No	No	No	0	0 A	2	0 A	1	2	#10	1	#10	1	3/4"	NEMA L6-20R
EQ140A	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO3	12	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ140B	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO3	14	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	
EQ140C	FIRST LEVEL	EV BAY AREA	SNAP - ON CENTER AISLE UNIT	AUTO3	18	1800 VA	120 V	1	No	No	No	No	No	Yes	No	0	0 A	2	0 A	1	2	#10	1	#12	1	3/4"	

NOTES: 1. VERIFY ELECTRICAL REQUIREMENTS FOR ALL AUTO REPAIR EQUIPMENT WITH MANUFACTURER AND WITH OWNER FOR OWNER PROVIDED EQUIPMENT PRIOR TO BEGINNING WORK.

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KC MECHANICAL ENGINEERING, L.L.C.

PIMA COMMUNITY COLLEGE
TRANSPORTATION CENTER ADDITIONAL EQUIPMENT
1255 N STONE AVE
TUCSON AZ

CONSTRUCTION DOCUMENTS - 100%
03/29/2024
REVISIONS

30-19128-04

ELECTRICAL ONE-LINE DIAGRAM

E6.1A

SWITCHBOARD: SES

LOCATION
BUS RATING: 1600 A
MAIN BREAKER: 1600A

VOLTAGE: 480Y / 277
PHASES: 3
WIRES: 4
SCCR: 65000

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	LOAD (kVA)	NOTES
1	TX-1	225 A	3		O	96	
2	TX-2	225 A	3		O	107	
3	TX-3	125 A	3		O	64	
4	TX-4	175 A	3		O	80	
5	TX-5	125 A	3		O	41	
6	HVAC1	400 A	3		M	260	
7	HVAC2	400 A	3		M	287	
8	AUTO	100 A	3		O	6	
9	LTG	100 A	3		M	44	
10	ELEVATOR CONTROLLER (ELEV-1)	100 A	3		M	45	
11	TX-6	125 A	3		O	46	
12	SPARE	125 A	1		--	0	
13							
14							
15							
16							
17							
18							
19							
20							
					TOTAL LOAD:	1,076 kVA	
					TOTAL AMPS:	1294 A	

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAND...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	41949 VA	125.00%	52437 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	205602 VA	52.43%	107801 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	CONNECTED LOAD: 1,076 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN EQUIPMENT, NEC ART. 220	ST = SHUNT TRIP	ESTIMATED DEMAND: 989 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	CONNECTED CURRENT: 1294 A
M	MOTOR	577184 VA	100.00%	577184 VA			EMD CURRENT: 1189 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	242581 VA	100.00%	242581 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NOTES:

Pima CC Tranportation - Load Calc Summary

*Existing load is based of 10/14/2019 DLR Group drawings.
**Per peak damand from meter #157598215 supplied by TEP is 275.75kW.

		kVA	A
Existing load:			
	**SES	430.86	518.48
	*HVAC3	26	72.02
	*AUTO2	62	171.75
	*AUTO3	56	155.12
	*AUTO6	23	63.71
	*MISC1	24	66.48
	*AUTO1	24	66.48
	*AUTO4	66	182.83
	*HVAC2	243	292.42
	*AUTO5	13	36.01
Demo Load:			
	AUTO6	2	5.54
	AUTO1	16.28	45.10
	AUTO4	8.32	23.05
	AUTO5	4.5	12.47
	AUTO2	18	49.86
	AUOT3	10	27.70
Added Load:			
	HVAC3	17	47.09
	AUTO2	0	0.00
	AUTO3	6	16.62
	AUTO6	18	49.86
	MISC1	11.6	32.13
	AUTO1	27.28	76.03
	HVAC2	44	52.95
	AUTO5	10.5	29.09
Total Load			
	HVAC3	41	113.57
	AUTO2	44	121.88
	AUTO3	52	144.04
	AUTO6	39	108.03
	MISC1	35.6	98.61
	AUTO1	35	97.41
	HVAC2	287	345.37
	AUTO5	19	52.63
	SES	849.08	1,021.76

NET LOAD HAS INCREASED BY 503.27 AMPS ON A 1.600A BOARD.

PANEL: HVAC2

LOCATION:
BUS RATING: 400 A
MAIN BREAKER: 400 A

VOLTS: 480Y / 277
PHASES: 3
WIRES: 4
SCCR: 35000

MOUNTING: SURFACE
FED FROM: SES
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	DOAS-1	100	3		M	24,930	3,324					M		3	15	AC-2.3 - ROOF - AREA A	2
3	--	--	--	--	--			24,930	3,324			--	--	--	--	--	4
5	--	--	--	--	--					24,930	3,324	--	--	--	--	--	6
7	DOAS-2	100	3		M	24,930	3,324					M		3	15	AC-2.4 - ROOF - AREA A	8
9	--	--	--	--	--			24,930	3,324			--	--	--	--	--	10
11	--	--	--	--	--					24,930	3,324	--	--	--	--	--	12
13	SPACE ONLY	--	1			--	3,324					M		3	15	AC-2.5 - ROOF - AREA A	14
15	SPACE ONLY	--	1					--	3,324			--	--	--	--	--	16
17	SPACE ONLY	--	1							--	3,324	--	--	--	--	--	18
19	SPACE ONLY	--	1			--	0					Spare		1	20	SPARE	20
21	SPACE ONLY	--	1					--	0			Spare		1	20	SPARE	22
23	SPACE ONLY	--	1							--	0	Spare		1	20	SPARE	24
25	SPACE ONLY	--	1			--	0					Spare		1	20	SPARE	26
27	SPACE ONLY	--	1					--	0			Spare		1	20	SPARE	28
29	SPACE ONLY	--	1							--	0	Spare		1	20	SPARE	30
31	EC-6 - ROOF AREA B	15	3		M	21,329	0					Spare		1	20	SPARE	32
33	--	--	--	--	--			21,329	0			Spare		1	20	SPARE	34
35	--	--	--	--	--					21,329	0	Spare		1	20	SPARE	36
37	SPACE ONLY	--	1			--	**14,404**					**O**		**3**	**80**	**EQ124A DYNOMETER**	**38**
39	SPACE ONLY	--	1					--	**14,404**			**--**	**--**	**--**	**--**	**--**	**40**
41	SPACE ONLY	--	1							--	**14,404**	**--**	**--**	**--**	**--**	**--**	**42**
					TOTAL LOAD:	95565 VA		95565 VA		95565 VA							
					TOTAL AMPS	345 A		345 A		345 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAND...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	CONNECTED LOAD: 287 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	ESTIMATED DEMAND: 287 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	CONNECTED CURRENT: 345 A
M	MOTOR	243483 VA	100.00%	243483 VA			EMD CURRENT: 345 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	43212 VA	100.00%	43212 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: HVAC3

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 225 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10000

MOUNTING: SURFACE
FED FROM: TX-5
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	A		B		C		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	ROOF RECEPTACLES	20	1		R	720	180					R		1	20	EMCS PANEL - ELETRICAL 108	2
3	FC-1, FC-2 ELECTRICAL 108	20	2		M			416									4
5	--	--	--	--	--					416	180	R		1	20	RECEPTACLE ELEVATOR	6
7	FC-3, FC-4 IDF 102, ELEV 101	20	2		M	416	--							1	--	SPACE ONLY	8
9	--	--	--	--	--			416	--					1	--	SPACE ONLY	10
11	SPARE	20	1		Spare					0	--			1	--	SPACE ONLY	12
13	SPARE	20	1		Spare	0	2,496					M		2	35	CU-3 - ROOF A	14
15	SPARE	20	1		Spare			0	2,496			--	--	--	--	--	16
17	SPARE	20	1		Spare					0	2,496	M		2	35	CU-4 - ROOF A	18
19	SPARE	20	1		Spare	0	2,496					--	--	--	--	--	20
21	SPARE	20	1		Spare			0	2,496			M		2	35	CU-1 - ROOF A	22
23	EF-2.2 - ROOF - AREA A	20	1		M					264	2,496	--	--	--	--	--	24
25	EF-2.3 - ROOF - AREA A	20	1		M	264	2,496					M		2	35	CU-2 - ROOF A	26
27	EF-2.1 - ROOF - AREA A	15	1		M			264	2,496			--	--	--	--	--	28
29	SPARE	20	1		Spare					0	**4,813**	**O**		**3**	**60**	**EQ124B - DYNNO CONTROL BOX**	**30**
31	ROOF RECEPTACLES	20	1		R	900	**4,813**					**--**	**--**	**--**	**--**	**--**	**32**
33	SPACE ONLY	--	1					--	**4,813**			**--**	**--**	**--**	**--**	**--**	**34**
35	SPACE ONLY	--	1							--	0	Spare		1	20	SPARE	36
37	WATER HEATER (WH-1) - JAN. FACILITIES 107	20	1		M	180	0					Spare		1	20	SPARE	38
39	SUMP PUMP (SP--1) - ELEVATOR MAINT. 101	15	2		M			756	0			Spare		1	20	SPARE	40
41	--	--	--	--	--					756	0	Spare		1	20	SPARE	42
					TOTAL LOAD:	14961 VA		14153 VA		11421 VA							
					TOTAL AMPS	128 A		121 A		95 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAND...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	1980 VA	100.00%	1980 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	CONNECTED LOAD: 41 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	ESTIMATED DEMAND: 41 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	CONNECTED CURRENT: 113 A
M	MOTOR	24116 VA	100.00%	24116 VA			EMD CURRENT: 113 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	14440 VA	100.00%	14440 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: MISC1

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 150 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-4
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	GEN. RECEPTACLE - TOOL CRIB 110/109/108	20	1		R	720	540					R		1	20	GEN. RECEPTACLE - TOOL CRIB 110	2
3	TAMPER SWITCH - FIRE RISER 112	20	1		O			500	1,200			R		1	20	4PLEX RECPT IDF 102 RACK #1	4
5	GEN. RECEPT - CORR....	20	1		R					1,080	1,200	R		1	20	4PLEX RECPT IDF 102 RACK #2	6
7	HAND DRYER - WOMENS RR 106	20	1		O	1,400	720					R		1	20	RECEPTACLE IDF 102	8
9	HAND DRYER - MENS RR 105	20	1		O			1,400	540			R		1	20	RECEPT DESK - SCHD/CHECK-IN 100A	10
11	DRINKING FOUTAIN - CORRIDOR 104	20	1		R					450	360	R		1	20	RECEPTACLE IDF 102	12
13	DRINKING FOUTAIN - CORRIDOR 104	20	1		R	450	540					R		1	20	RECEPTACLE - ELECTRICAL 108	14
15	GEN. RECEPTACLE - CLASSROOM 103	20	1		R			1,080	360			R		1	20	VIDEO DISPALY 2 - SCHD/CHECK-IN 100A...	16
17	SPARE	20	1		Spare					0	360	R		1	20	VIDEO DISPALY 3 - SCHD/CHECK-IN 100A...	18
19	SPARE	20	1		Spare	0	360					R		1	20	VIDEO DISPALY 1- SCHD/CHECK-IN 100A...	20
21	SCHEDULING/CHECK-IN 100A,109	20	1		R			360	360			R		1	20	VIDEO DISPALY 2 - SCHD/CHECK-IN 100A...	22
23	ACCESS CONTROL PANEL - ELEV. MAIN. 101	20	1		R					180	360	R		1	20	4PLEX RECPT DESK - SCHD/CHECK-IN 100A...	24
25	AUTO DOOR ACTUATOR - LOBBY/GALLERY...	20	1		O	1,140	1,800					O		1	20	CAMERA - CLASSROOM 103	26
27	SPARE	20	1		Spare			0	1,200			R		1	20	4PLEX RECPT IDF 102 RACK #3	28
29	GEN. RECEPTACLE - LOBBY / GALLERY 100	20	1		R					180	**1,440**	**R**		**1**	**20**	**EQ135 - NEW ALIGNER**	**30**
31	VIDEO DISPLAY - SCHD/CHECK-IN 100A...	20	1		R	360	180					R		1	20	VIDEO DISPALY - AUTO LAB 109 (NORTH)	32
33	COPIER - SCHEDULING/CHECK-IN 100A	20	1		R			1,000	0			Spare		1	20	SPARE	34
35	FURNITURE #1 - CLASSROOM 103	20	1		R					1,080	**1,800**	**R**		**1**	**20**	**EQ138C1 - SNAP ON BENCH**	**36**
37	FURNITURE #2 - CLASSROOM 103	20	1		R	1,080	0					Spare		1	20	SPARE	38
39	FURNITURE #3 - CLASSROOM 103	20	1		R			1,080	0			Spare		1	20	SPARE	40
41	**EQ138D1 - SNAP ON BENCH**	**20**	**1**		**R**					**1,800**	**1,800**	**R**		**1**	**20**	**EQ138D - SNAP ON BENCH**	**42**
43	HAND DRYER - MENS RR 105	20	1		O	1,400	0					Spare		1	20	SPARE	44
45	HAND DRYER - WOMENS RR 106	20	1		O			1,400	0			Spare		1	20	SPARE	46
47	VIDEO DISPLAY 1 - CLASSROOM 103 (NORTH)	20	1		R					180	0	Spare		1	20	SPARE	48
49	VIDEO DISPLAY 2 - CLASSROOM 103 (NORTH)	20	1		R	360	0					Spare		1	20	SPARE	50
51	VIDEO DISPLAY 3 - CLASSROOM 103 (NORTH)	20	1		R			360	--					1	--	SPACE ONLY	52
53	VIDEO DISPLAY 4 - CLASSROOM 103 (SOUTH)	20	1		R					360	--			1	--	SPACE ONLY	54
55	VIDEO DISPLAY 5 - CLASSROOM 103 (SOUTH)	20	1		R	360	--							1	--	SPACE ONLY	56
57	VIDEO DISPLAY 6 - CLASSROOM 103 (SOUTH)	20	1		R			360	--					1	--	SPACE ONLY	58
59	VIDEO DISPALY 1 - SCHD/CHECK-IN 100A...	20	1		R					360	--			1	--	SPACE ONLY	60
					TOTAL LOAD:	11410 VA		11200 VA		12990 VA							
					TOTAL AMPS	95 A		93 A		109 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAND...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	26560 VA	68.83%	18280 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	CONNECTED LOAD: 36 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	ESTIMATED DEMAND: 27 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	CONNECTED CURRENT: 99 A
M	MOTOR	0 VA	0.00%	0 VA			EMD CURRENT: 76 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	8660 VA	100.00%	8660 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NEW OR REVISED LOADS SHOWN IN BOLD.

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1255 N STONE AVE
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CONSTRUCTION DOCUMENTS - 100%
03/29/2024
REVISIONS

30-19128-04

ELECTRICAL SCHEDULES

E7.2A

PANEL: AUTO1

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 200 A - CONFIRIMED

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-1
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	**EQ136 RECEPT**	**20**	**1**		**R**	**1,800**	1,040		R		2	20	RECEPT. 208V - AUTO LAB 109 (NORTH EAST)	2
3	RECEPTACLE POWER REEL - LIGHT DIESEL	20	1		O		800	1,040	--	--	--	--	--	4
5	QUAD RECEPTACLE BENCH - LIGHT DIESEL	20	1		R			1,000	1,040		2	20	RECEPTACLE 208V - OUTDOOR BAY 128	6
7	RECEPTACLE POWER REEL -ALIGNMENT LIFT	20	1		O	800	1,040		--	--	--	--	--	8
9	QUAD RECEPTACLE BENCH - LIGHT DIESEL	20	1		R		1,000	0	R		2	20	RECEPT. 208V - AUTO LAB 109 (NORTH WEST)	10
11	QUAD RECEPTACLE BENCH - LIGHT DIESEL	20	1		R			1,000	0	--	--	--	--	12
13	QUAD RECEPTACLE BENCH - LIGHT DIESEL	20	1		R	1,000	360		R		1	20	GEN. RECEPTACLE - AUTO LAB 109 (NORTH...	14
15	GEN. RECEPTACLE - AUTO LAB 109	20	1		R		360	360	R		1	20	GEN. RECEPTACLE - AUTO LAB 109 (NORTH...	16
17	GEN. RECEPTACLE - AUTO LAB 109	20	1		R			360	360	R	1	20	GEN. RECEPTACLE - AUTO LAB 109 (NORTH...	18
19	GEN. RECEPTACLE - AUTO LAB 109	20	1		R	360	1,040		R		2	20	RECEPT. 208V - AUTO LAB 109 (NORTH WEST)	20
21	QUAD RECEPTACLE BENCH - AUTO LAB 109	20	1		R		1,000	1,040	--	--	--	--	--	22
23	POWER REEL - AUTO LAB 109	20	1		O			400	360	R	1	20	GEN. RECEPTACLE - AUTO LAB 109	24
25	**EQ137F SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	**1,040**				**2**	**20**	**RECEPT. 208V - AUTOLAB 109 (NORTH WEST)**	**26**
27	**EQ137G SNAP ON BENCH**	**20**	**1**		**R**		**1,800**	**1,040**	**--**	**--**	**--**	**--**	**--**	**28**
29	RECEPTACLE POWER REEL - AUTO LAB 109	20	1		O			800	540	R	1	20	RECEPTACLE OUTDOOR BAY - 31,32,33	30
31	**EQ137H SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	900				1	20	RECEPTACLE OUTDOOR BAY - 28,30	32
33	RECEPTACLE POWER REEL - AUTO LAB 109	20	1		O		800	800			1	20	RECEPTACLE POWER REEL - EV BAY, OEM...	34
35	GEN. RECEPTACLES - AUTO LAB 109	20	1		R			540	1,040	R	2	20	RECEPT. 208V - AUTO LAB 109 (NORTH WEST)	36
37	**EQ137J SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	1,040		--	--	--	--	--	38
39	RECEPTACLE POWER REEL - AUTO LAB 109	20	1		O		800	**1,800**			**R**		**EQ137F1 SNAP ON BENCH**	**40**
41	**EQ138A SNAP ON BENCH**	**20**	**1**		**R**				1,800	**1,800**	**R**		**EQ137G1 SNAP ON BENCH**	**42**
43	**EQ138B SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	**1,800**				**R**		**EQ137H1 SNAP ON BENCH**	**44**
45	POWER REEL - AUTO LAB 109	20	1		O		800	**1,800**			**R**		**EQ137I1 SNAP ON BENCH**	**46**
47	QUAD RECEPTACLE BENCH - AUTO LAB 109	20	1		R				1,000	**1,800**	**R**		**EQ137J SNAP ON BENCH**	**48**
49	**EQ138C SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	--						SPACE ONLY	50
51	QUAD RECEPTACLE BENCH - AUTO LAB 109	20	1		R			1,000	--		1	--	SPACE ONLY	52
53	RECEPTACLE POWER REEL - AUTO LAB 109	20	1		O				800	--	1	--	SPACE ONLY	54
					TOTAL LOAD:	21220 VA		16240 VA		14640 VA				
					TOTAL AMPS	179 A		137 A		122 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	45300 VA	61.04%	27650 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 52 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 34 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 145 A
M	MOTOR	0 VA	0.00%	0 VA			**EMD CURRENT:** 96 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	6800 VA	100.00%	6800 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: AUTO2

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 200 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-1
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	LIFT - IN GROUND (EQ101-1) - AUTO LAB 109	30	2		O	2,060	0						Spare	
3	--	--	--	--	--		2,060	0					Spare	
5	LIFT - IN GROUND (EQ101-2) - AUTO LAB 109	30	2		O			2,060	**1,800**				**R**	**6**
7	--	--	--	--	--	2,060	0						Spare	
9	LIFT - IN GROUND (EQ101-3) - AUTO LAB 109	30	2		O		2,060	**1,000**					**R**	**10**
11	--	--	--	--	--			2,060	0				Spare	
13	LIFT - IN GROUND (EQ101-4) - AUTO LAB 109	30	2		O	2,060	0						Spare	
15	--	--	--	--	--		2,060	0					Spare	
17	2-POST LIFT (EQ102-1) - AUTO LAB 109	30	2		O			2,060	0				Spare	
19	--	--	--	--	--	2,060	0						Spare	
21	2-POST LIFT (EQ102-2) - AUTO LAB 109	30	2		O		2,060	0					Spare	
23	--	--	--	--	--			2,060	0				Spare	
25	2-POST LIFT (EQ102-3) - AUTO LAB 109	30	2		O	2,060	0						Spare	
27	--	--	--	--	--		2,060	--						
29	LIFT - IN GROUND (EQ104-1) - AUTO LAB 109	30	2		O			2,060	--					
31	--	--	--	--	--	2,060	--							
33	LIFT - IN GROUND (EQ104-2) - AUTO LAB 109	30	2		O		2,060	--						
35	--	--	--	--	--			2,060	--					
37	LIFT - IN GROUND (EQ104-3) - AUTO LAB 109	30	2		O	2,060	--							
39	--	--	--	--	--		2,060	--						
41														
					TOTAL LOAD:	14420 VA		15420 VA		14160 VA				
					TOTAL AMPS	121 A		129 A		118 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	2800 VA	100.00%	2800 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 44 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 44 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 122 A
M	MOTOR	0 VA	0.00%	0 VA			**EMD CURRENT:** 122 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	41200 VA	100.00%	41200 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: AUTO3

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 200 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-2
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	LIFT - IN GROUND (EQ104-4) - AUTO LAB 109	30	2		O	2,060	**1,440**		O		1	15	A/C MACHINE 1234YF (EQ111-2) - TOOL CRIB...	2
3	--	--	--	--	--		2,060	**1,768**	**R**		**2**	**20**	**EQ139A - SNAP ON BENCH - 114**	**4**
5	LIFT - IN GROUND (EQ104-5) - AUTO LAB 109	30	2		O			2,060	**1,768**	**--**	**--**	**--**	**--**	**6**
7	--	--	--	--	--	2,060	**1,768**		**R**		**2**	**20**	**EQ139B - SNAP ON BENCH - 115**	**8**
9	LIFT - IN GROUND (EQ104-6)- AUTO LAB 109	30	2		O		2,060	**1,768**	**--**	**--**	**--**	**--**	**--**	**10**
11	--	--	--	--	--			2,060	**1,800**	**R**		**1**	**20**	**EQ140A - SNAP ON BENCH - 115**	**12**
13	LIFT - IN GROUND (EQ104-7) - AUTO LAB 109	30	2		O	2,060	**1,800**			**R**		**1**	**20**	**EQ140B - SNAP ON BENCH - 115**	**14**
15	--	--	--	--	--		2,060	0	Spare			1	20	SPARE	16
17	LIFT - IN GROUND (EQ104-8) - AUTO LAB 109	30	2		O			2,060	**1,800**	**R**		**1**	**20**	**EQ140C - SNAP ON BENCH - 115**	**18**
19	--	--	--	--	--	2,060	0		Spare			1	20	SPARE	20
21	LIFT - IN GROUND (EQ104-9) - AUTO LAB 109	30	2		O		2,060	0	Spare			1	20	SPARE	22
23	--	--	--	--	--			2,060	0	Spare		1	20	SPARE	24
25	LIFT - IN GROUND (EQ104-10) - AUTO LAB 109	30	2		O	2,060	--					1	--	SPACE ONLY	26
27	--	--	--	--	--		2,060	--				1	--	SPACE ONLY	28
29	TIRE CHANGER (EQ106) - AUTO LAB 109	15	2		O			1,664	--			1	--	SPACE ONLY	30
31	--	--	--	--	--	1,664	--					1	--	SPACE ONLY	32
33	WHEEL BALANCER (EQ107)- AUTO LAB 109	15	2		O		1,560	--				1	--	SPACE ONLY	34
35	--	--	--	--	--			1,560	1,440	O		1	15	A/C MACHINE R134A (EQ110-1) - TOOL CRIB...	36
37	SPACE ONLY	--	1			--	--					1	--	SPACE ONLY	38
39	SPACE ONLY	--	1					--	1,440		O	1	15	A/C MACHINE R134A (EQ110-2) - TOOL CRIB...	40
41	A/C MACHINE 1234YF (EQ111-1) - TOOL CRIB...	15	1		O			1,440	--			1	--	SPACE ONLY	42
					TOTAL LOAD:	16972 VA		16836 VA		19712 VA				
					TOTAL AMPS	142 A		140 A		164 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	12472 VA	90.09%	11236 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 54 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 52 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 149 A
M	MOTOR	0 VA	0.00%	0 VA			**EMD CURRENT:** 149 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	41048 VA	100.00%	41048 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: AUTO4

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 200 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-2
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	ALIGNMENT LIFT (EQ103) - AUTO LAB 109	40	2		O	2,060	1,664						O	
3	--	--	--	--	--		2,060	3,120					O	
5	PRESS (EQ109) - AUTO LAB 109	20	1		O			1,080	3,120				--	--
7	DRILL PRESS (EQ112) - AUTO LAB 109	45	2		O	3,120	3,120						O	
9	--	--	--	--	--		3,120	3,120					--	--
11	**EQ132A - SCISSOR LIFT 113**	**40**	**2**		**O**			**2,704**	1,000	R		1	20	QUAD RECEPTACLE (FUTURE) - AUTO BAY 31
13	**--**	**--**	**--**	**--**	**--**	**2,704**	1,000			R		1	20	QUAD RECEPTACLE (FUTURE) - AUTO BAY 32
15	**EQ132B - SCISSOR LIFT 114**	**40**	**2**		**O**		**2,704**	800		O		1	20	RCPT POWER REE L(FUTURE)-AUTO BAY...
17	**--**	**--**	**--**	**--**	**--**			**2,704**	0	Spare		1	20	SPARE
19	**SPARE**	**40**	**2**		**Spare**	**0**	0			Spare		1	20	SPARE
21	**--**	**--**	**--**	**--**	**--**		**0**	0		Spare		1	20	SPARE
23	**SPARE**	**40**	**2**		**Spare**			**0**	0	Spare		1	20	SPARE
25	**--**	**--**	**--**	**--**	**--**	**0**	0			Spare		1	20	SPARE
27	FLUSH MOUNT ALIGN. LIFT (EQ116) - AUTO...	40	2		O			3,120	0	Spare		1	20	SPARE
29	--	--	--	--	--			3,120	0	Spare		1	20	SPARE
31	EXHAUST FAN (EQ118-1) - AUTO LAB 109	20	1		O	264	--					1	--	SPACE ONLY
33	CHOP SAW (EQ119) - AUTO LAB 109	25	2		O			2,080	--			1	--	SPACE ONLY
35	--	--	--	--	--			2,080	--			1	--	SPACE ONLY
37	EXHAUST FAN (EQ118-2) - TOOL CRIB 110	20	1		O	264	--					1	--	SPACE ONLY
39	ALIGNER (EQ120-2) - AUTO ALB109	20	1		O			1,800	--			1	--	SPACE ONLY
41	ALIGNER (EQ120-1) - AUTO LAB109	20	1		O				1,800	--		1	--	SPACE ONLY
					TOTAL LOAD:	14196 VA		21924 VA		17608 VA				
					TOTAL AMPS	118 A		187 A		151 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	2000 VA	100.00%	2000 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 54 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 54 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 149 A
M	MOTOR	0 VA	0.00%	0 VA			**EMD CURRENT:** 149 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	51728 VA	100.00%	51728 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: AUTO5

LOCATION:
BUS RATING: 125 A
MAIN BREAKER: 100A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-3
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	A	B	C	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	GEN. RECEPTACLE - AUTO LAB 109	20	1		R	360	540		R		1	20	GEN. RECEPTACLE (EXTERIOR) NORTH EAST	2
3	**EQ137A SNAP ON BENCH**	**20**	**1**		**R**			**1,800**	0		Spare			SPARE	4
5	RECEPTACLE POWER REEL - QUICK SERVI...	20	1		O				800	0	--	--	--	--	6
7	**EQ137B SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	0				--	--	--	--	8
9	**EQ137C SNAP ON BENCH**	**20**	**1**		**R**			**1,800**	900		O	2	20	ALIGNMENT MACHINE (EQ125) - AUTO LAB...	10
11	RECEPTACLE POWER REEL - QUICK SERVI...	20	1		O				400	900	--	--	--	--	12
13	**GEN. RECEPTACLES - AUTO LAB 109**	**20**	**1**		**R**	**720**	**1,800**						**EQ137A1 SNAP ON BENCH**	**14**
15	RECEPTACLE POWER REEL - QUICK SERVI...	20	1		O		800	**1,800**			**R**		**EQ137B1 SNAP ON BENCH**	**16**
17	**EQ137E SNAP ON BENCH**	**20**	**1**		**R**			**1,800**	**1,800**		**R**		**EQ137C1 SNAP ON BENCH**	**18**
19	LANDSCAPE CONTROLLER - SOUTH EAST	20	1		R	180	**1,800**				**R**		**EQ137D1 SNAP BENCH**	**20**
21	SPARE	20	1		Spare		0	**1,800**			**R**		**EQ137D SNAP ON BENCH**	**22**
23	SPARE	20	1		Spare				0	**1,800**	**R**		**EQ137E1 SNAP ON BENCH**	**24**
25	SPARE	20	1		Spare	0	0				Spare		SPARE	26
27	SPARE	20	1		Spare		0	0			Spare		SPARE	28
29	SPARE	20	1		Spare				0	0	Spare		SPARE	30
31	SPARE	20	1		Spare	0	0				Spare		SPARE	32
33	SPARE	20	1		Spare		0	0			Spare		SPARE	34
35	SPACE ONLY	--	1						--	--			SPACE ONLY	36
37	SPACE ONLY	--	1			--	--						SPACE ONLY	38
39	SPACE ONLY	--	1				--	--					SPACE ONLY	40
41	SPACE ONLY	--	1						--	--			SPACE ONLY	42
					TOTAL LOAD:	7200 VA		8900 VA		7500 VA				
					TOTAL AMPS	60 A		75 A		63 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	19800 VA	75.25%	14900 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 24 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 19 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 66 A
M	MOTOR	0 VA	0.00%	0 VA			**EMD CURRENT:** 52 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	3800 VA	100.00%	3800 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

PANEL: AUTO6

LOCATION:
BUS RATING: 225 A
MAIN BREAKER: 200 A

VOLTS: 208Y / 120
PHASES: 3
WIRES: 4
SCCR: 10,000

MOUNTING: SURFACE
FED FROM: TX-4
INTEGRAL SPD: NO
LUG ACCESSORIES: NONE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	A	B	C	LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	**EQ138A1 - SNAP ON BENCH**	**20**	**1**		**R**	**1,800**	1,656						O	
3	**EQ138B1 - SNAP ON BENCH**	**20**	**1**		**R**			**1,800**	1,656				O	
5	GEN. RECEPTACLE - OEM 113	20	1		R					360	1,656		O	
7	RECEPTACLE - 208V - OEM 113	20	2		R	540	1,656						O	
9	--	--	--	--	--			540	720				R	
11	GEN. RECEPTACLE - OEM 113	20	1		R					360	1,040	M		2
13	GEN. RECEPTACLE - OEM 114	20	1		R	360	1,040					--	--	--
15	POWER REEL - OEM 113	20	1		R			1,000	1,656				O	
17	**SPARE**	**20**	**1**		**Spare**					**0**	1,656	0	O	
19	RECEPTACLE BENCH - OEM 113, 114	20	1		O	800	1,656						O	
21	GEN. RECEPTACLE - OEM 114	20	1		R			360	1,656				O	
23	RECEPTACLE - 208V - OEM 114	20	2		R					540	1,656	0	O	
25	--	--	--	--	--	540	1,656						O	
27	GEN. RECEPTACLE - OEM 115	20	1		R			360	**1,500**				**R**	
29	GEN. RECEPTACLE - OEM 115	20	1		R					360	**1,500**	**--**	**--**	**--**
31	RECEPTACLE - 208V - OEM 115	20	2		R	0	**1,500**						**R**	**2**
33	--	--	--	--	--			0	**1,500**				**--**	**--**
35	**SPARE**	**20**	**1**		**Spare**					**0**	**1,040**	**R**	**2**	**20**
37	OVERHEAD DOOR - AUTO ALB 109 (NORTH)	20	1		O	1,656	**1,040**						**--**	**--**
39	OVERHEAD DOOR - AUTO ALB 109 (NORTH)	30	1		O			1,656	**1,040**				**R**	**2**
41	OVERHEAD DOOR - AUTO ALB 109 (NORTH...	20	1		O					1,656	**1,040**	**--**	**--**	**--**
					TOTAL LOAD:	15900 VA		15444 VA		12864 VA				
					TOTAL AMPS	136 A		132 A		107 A				

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	19800 VA	75.25%	14900 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 44 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 39 kVA
LM	LARGEST MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 123 A
M	MOTOR	2080 VA	100.00%	2080 VA			**EMD CURRENT:** 109 A
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	20672 VA	100.00%	20672 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NEW OR REVISED LOADS SHOWN IN BOLD.

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PIMA COMMUNITY COLLEGE
TRANSPORTATION CENTER ADDITIONAL EQUIPMENT
1255 N STONE AVE
TUCSON AZ

CONSTRUCTION DOCUMENTS - 100%
03/29/2024
REVISIONS

30-19128-04

ELECTRICAL SCHEDULES

E7.3A