2nd District Juvenile Courthouse

OGDEN, UTAH
DFCM PROJECT 08284150
BID DOCUMENTS

August 15, 2013
VOLUME II

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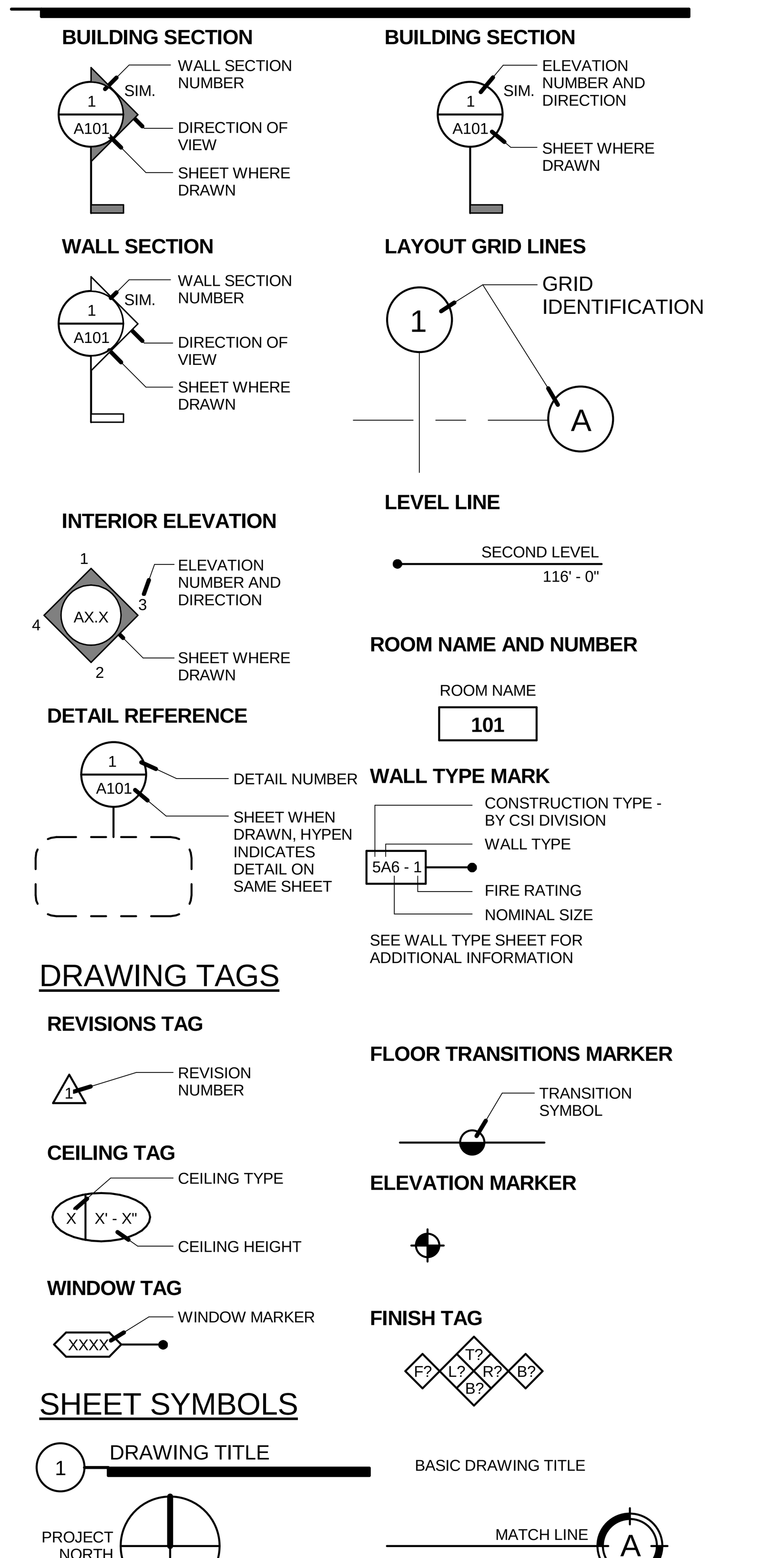
801-533-5561

ABBREVIATIONS

NOT ALL ABBREVATIONS MAY BE USED

&	AND
@	AT
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
AL/ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BD	BOARD
BLDG	BUILDING
BLK	BLOCK (ING)
BO	BOTTOM OF
BRG	BEARING
BSMT	BASEMENT
BS	BOTH SIDES
BW	BOTH WAYS
CAB	CABINET
CB	CATCH BASIN
CCSA	CUSTOM COLOR SELECTED BY ARCHITECT
CG	CORNER GUARD
CHAM	CHAMFER
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CM	CONSTRUCTION MANAGER
COL	COLUMN
COMP	COMPUTER
CONC	CONCRETE
CONT	CONTINUOUS
CMU	CONCRETE MASONRY UNIT
CSBA	COLOR SELECTED BY ARCHITECT
CT	CERAMIC TILE
D	DEPTH
DB	DECK BEARING
DBL	DOUBLE
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DRN	DRAIN
DTL/ DET	DETAIL
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EIFS	EXTERIOR INSULATION SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EVAP	EVAPORATIVE
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FG	FINISH GRADE
FH	FIRE HYDRANT
FIN	FINISHED
FLR	FLOOR
F.O.	FACE OF
FT	FOOT, FEET
FRP	FIBER REINFORCED PANEL
FRT	FIRE RETARDANT TREATED WOOD
FTG	FOOTING
FV	FIELD VERIFY
GA.	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GFRC	GLASSFIBER REINFORCED PANEL
GYP	GYPSUM
GWB	GYPSUM WALLBOARD
HB	HOSE BIBB
HC	HANDICAP ACCESSIBLE
HDW	HARDWARE
HDF	HIGH DENSITY FIBERBOARD
HM	HOLLOW METAL
H	HEIGHT
HOR	HORIZONTAL
ID	INSIDE DIAMETER
ICF	INSULATED CONCRETE FORM
IN	INCH
INCL	INCLUDE
INFO	INFORMATION
INT	INTERIOR
INSUL	INSULATE, (D), (ION)
INV	INVERT
JST	JOIST
JT	JOINT
LAV	LAVATORY
LB/ LBS	POUND (S)
MAT	MATERIAL (S)
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTURER
MGR	MANAGER
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNT, (ED)
MTL	METAL
MW	MICROWAVE
N	NORTH
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFD	OVERFLOW DRAIN
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD
OZ	OUNCE
PERI	PERIMETER
PERM	PERMENANT
PL	PLATE
PLAM	PLASTIC LAMINATE
PNL	PANEL
P.O.	POINT OF
PR	PAIR
PT	POST TENSIONED
PART	PARTITION
PLY	PLYWOOD
QT	QUARRY TILE
R / RAD	RADIUS
RCP	REFLECTED CEILING PLAN
REC	RECESSED
REF	REFERENCE
REFG	REFRIGERATOR
REINF	REINFORCE (ED)
REM	REMOVE (ED)
REPL	REPLACE
REQD	REQUIRED
REV	REVISION (S)
RM	ROOM
RO	ROUGH OPENING
S	SOUTH
SALV	SALVAGE (ED)
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SLNT	SEALANT
SPEC	SPECIFICATION (S)
SQ	SQUARE
SS	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUC	STRUCTURE (AL)
SUSP	SUSPENDED
SYM	SYMMETRY (ICAL)
T	THICKNESS
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
TBD	TO BE DETERMINED
TEMP	TEMPORARY
THRU	THROUGH
T.O.	TOP OF
TRANS	TRANSFORMER
TS	TUBE STEEL
TYP	TYPICAL
UNF	UNFINISHED
UNO	UNLESS OTHERWISE NOTED
VAR	VARIES
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VWC	VINYL WALLCOVERING
W	WEST
W	WIDTH
W/	WITH
WC	WATER CLOSET
WD	WOOD
W/O	WITHOUT
WSCT	WAINSCOT
WWF	WELDED WIRE FABRIC

REFERENCE SYMBOL LEGEND



NOTES TO BIDDERS

1. THIS SHEET CONTAINS A LIST OF DRAWINGS WHICH COMPRISE A FULL SET OF DRAWINGS FOR THIS PROJECT. ANY CONTRACTOR, SUBCONTRACTOR, VENDOR OR ANY OTHER PERSON PARTICIPATING IN OR BIDDING ON THIS PROJECT SHALL BE RESPONSIBLE FOR THE INFORMATION CONTAINED IN ANY AND ALL SHEETS OF DRAWINGS AND SPECIFICATIONS. IF ANY PERSON, PARTY OR ENTITY ELECTS TO SUBMIT BIDS FOR ANY PORTION, OR ALL, OF THIS PROJECT, THAT PERSON, PARTY OR ENTITY SHALL BE RESPONSIBLE FOR ANY AND ALL INFORMATION CONTAINED IN THESE DRAWINGS AND SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY SUBSEQUENT ADDENDUMS OR CLARIFICATIONS THAT MAY BE ISSUED.
2. THESE DOCUMENTS SHOW THE DESIGN INTENT. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE EVERYTHING SHOWN ON THE DRAWINGS OR SPECIFIED REGARDLESS OF WHERE IT IS SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS. FOR EXAMPLE; SOME MILLWORK DETAILS HAVE STEEL FRAMES WHICH MAY BE PROVIDED BY DIVISION 05 OR WITH THE MILLWORK AT THE CONTRACTOR'S DISCRETION, BUT IT SHALL BE PROVIDED AS PART OF THE CONTRACT.
3. EVERYTHING CALLED FOR IN THESE DOCUMENTS SHALL BE "NEW" AND PROVIDED BY THE CONTRACTOR, SUBCONTRACTOR, VENDOR OR ANY OTHER PERSON PARTICIPATING IN OR BIDDING ON THIS PROJECT UNLESS NOTED OTHERWISE AS EXISTING (EXIST), NOT IN CONTRACT (NIC) OR FOR REFERENCE ONLY. FURNISHINGS SHOWN DASHED SHALL BE FOR REFERENCE ONLY.

DEFERRED SUBMITTALS - DFCM

CONTRACTOR IS RESPONSIBLE TO SUBMIT DEFERRED SUBMITTALS IN ACCORDANCE WITH IBC 106.3.4.2. AS PART OF THE SUBMITTAL PROCESS, THE CONTRACTOR IS TO SUBMIT ALL ICC ERS REPORTS FOR ITEMS NOTED.

03 4100 PRECAST STRUCTURAL CONCRETE PANEL DESIGN AND ATTACHMENTS
03 4910 GLASS FIBER REINFORCED CONCRETE PANEL ATTACHMENTS
05 4200 COLD FORM METAL FRAMING
05 5000 METAL FABRICATIONS (STAIRS AND LADDERS)
05 7300 ORNAMENTAL HANDRAILS AND RAILINGS (GLASS RAILS)
07 4246 COMPOSITE METAL WALL PANELS
07 8400 THROUGH-PENETRATION FIRE STOPS
07 8443 FIRE RESISTANT FIRESTOPS AND JOINT SYSTEMS
08 4413 GLAZED ALUMINUM CURTAIN WALLS
09 6903 ACCESS FLOORING
20 0548 MECHANICAL SYSTEMS SEISMIC CONTROL
21 1000 FIRE SPRINKLING AND FIRE PROTECTION SERVICES
26 0548 ELECTRICAL SYSTEMS SEISMIC CONTROL
28 3111 FIRE ALARM BATTERY AND VOLTAGE DROP CALCULATIONS

STRUCTURAL DESIGN FOR SEISMIC SUPPORT OF CURTAINWALL, GFRC PANELS, ACM PANELS, ACCESS FLOOR, FIRE SPRINKLER, MECHANICAL EQUIPMENT AND ELECTRICAL EQUIPMENT IS TO BE PROVIDED BY THE CONTRACTOR SHOWING COMPLIANCE WITH ASCE 7-05. SEE NONSTRUCTURAL COMPLIANCE CHECKLIST AND GENERAL NOTES ON SHEET G003

CODE ANALYSIS

APPLICABLE CODES

BOOK	YEAR	BOOK	YEAR
International Building Code	2009 IBC	National Electrical Code	NEC 2011
International Mechanical Code	2009 IMC	Uniform Code for Building Conservation	ICCPC 2009
International Plumbing Code	2009 IPC	ADA Accessibility Guidelines	ANSI A117.1 2006
International Fire Code	2009 IFC		
International Energy Conservation Code	2009 IEC		

A. Occupancy and Group: Assembly A3, Buisness B, Institutional I3 (Condition 5)
Change in Use: Yes ______ No __X__ Mixed Occupancy: Yes __X__ No ______
B. Special Use and Occupancy (e.g. High Rise, Covered Mall): None

C. Seismic Design Category: D Design Wind Speed: 90 MPH

Type of Construction (circle one):

I/A, (I/B) circled, II/A, II/B, III/A, III/B, IV/HT, V/A, V/B

D. Fire Resistance Rating: Requirments for the Exterior Walls based on the fire separation distance (in hours):

North: 0 Hours South: 0 Hours East: 0 Hours West: 0 Hours-

E. Mixed Occupancies: Yes Nonseparated Uses: Yes

F. Sprinklers: IBC Section 903.3.1
Required: Yes Provided: Yes Type of Sprinkler System: WET AND DRY SYSTEMS

G. Number of Stories: Five Building Height: 117'-4"

H. Actual Area per floor (square feet):
1 25631 SQ. FT.
2 16601 SQ. FT.
3 16431 SQ. FT.
4 14772 SQ. FT.
5 14772 SQ. FT.

I. Tabular Area: TYPE 1B - UNLIMITED

K. Fire Resistance Requirements for Building Elements (hours). Table 601

Element	Hours	Assembly Listing	Element	Hours	Assembly Listing
Exterior Bearing Walls	0	-	Floors - Ceiling Floors	2	D916
Interior Bearing Walls	0	-	Roofs - Ceiling Roofs	1	P701
Exterior Non-Bearing Walls	0	-	Exterior Doors and Windows	0	-
Structural Frame	2		Shaft Enclosures	2	U415
Partitions - Permanent	0	-	Fire Walls	-	-
Fire Barriers	2	U419	Fire Partitions	-	-
Strucural Columns	2	X772 / X642	Smoke Partitions	0	-

L. **BUILDING OCCUPANT LOAD**

LEVEL (1)
Design Occupant Load: Secure Area 274 + Public Area 312 = 586
Secure Area - Width Required: 54.8" Exit Width Provided: 216"
Public Area - Width Required: 62.4" Exit Width Provided: 216"
Total Exit Width Required: 117.2" Exit Width Provided: 432"

LEVEL (2)
Design Occupant Load: Secure Area 170 + Public Area 275 = 445
Secure Area - Width Required: 34" Exit Width Provided: 72"
Public Area - Width Required: 55" Exit Width Provided: 72"
Total Exit Width Required: 89" Exit Width Provided: 144"

LEVEL (3)
Design Occupant Load: Secure Area 86 + Public Area 319 = 405
Secure Area - Width Required: 17.5" Exit Width Provided: 72"
Public Area - Width Required: 63.8" Exit Width Provided: 72"
Exit Width Required: 81.3" Exit Width Provided: 144"

LEVEL (4)
Design Occupant Load: Secure Area 60 + Public Area 276 = 336
Secure Area - Width Required: 12" Exit Width Provided: 72"
Public Area - Width Required: 55.2" Exit Width Provided: 72"
Exit Width Required: 67.2" Exit Width Provided: 144"

LEVEL (5)
Design Occupant Load: Secure Area 60 + Public Area 276 = 336
Secure Area - Width Required: 12" Exit Width Provided: 72"
Public Area - Width Required: 55.2" Exit Width Provided: 72"
Exit Width Required: 67.2" Exit Width Provided: 144"

Total Design Occupant Load = 2108

M. Minimum Number of Required Plumbing Facilities:
See adjacent table

FOOTNOTES:
1) In case of conflict with the U.S. Department of Justice Federal Registers Parts I through V - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.
2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
a) High Rise Requirements.
b) Atriums.
c) Performance Based Criteria.
d) Means or Egress Analysis.
e) Fire Assembly Locator Sheet.
f) Exterior and Interior Accessibility Route.
g) Fire Stopping, Including Tested Design Number.

PLUMBING FIXTURE COUNT

PUBLIC ACCESS SPACES

		Assembly Male	Assembly Female	Business Male	Business Female	TOTALS
OCCUPANT COUNT		1120		242		1362
WATER CLOSETS	REQUIRED	3.7	7.4	2.9	2.9	16.9
WATER CLOSETS	PROVIDED	6	8	5	3	22
LAVS	REQUIRED	5.5		4.03		9.5
LAVS	PROVIDED	7		7		14
SHOWERS	REQUIRED	0		0		0
SHOWERS	PROVIDED	0		0		0
DRINKING FOUNTAINS	REQUIRED	1.1		2.4		3.5
DRINKING FOUNTAINS	PROVIDED	5		5		10
SERVICE SINKS	REQUIRED	1		1		2
SERVICE SINKS	PROVIDED	2.5		2.5		5

SECURE ACCESS SPACES

		Assembly Male	Assembly Female	Business Male	Business Female	TOTALS
OCCUPANT COUNT		195		304		499
WATER CLOSETS	REQUIRED	.65	1.3	3.5	3.5	8.95
WATER CLOSETS	PROVIDED	6	7	5	5	23
LAVS	REQUIRED	.98		4.75		5.73
LAVS	PROVIDED	13		10		23
SHOWERS	REQUIRED	0		0		0
SHOWERS	PROVIDED	1		1		2
DRINKING FOUNTAINS	REQUIRED	.2		3		3.2
DRINKING FOUNTAINS	PROVIDED	5		5		10
SERVICE SINKS	REQUIRED	1		1		2
SERVICE SINKS	PROVIDED	2.5		2.5		5

HOLDING

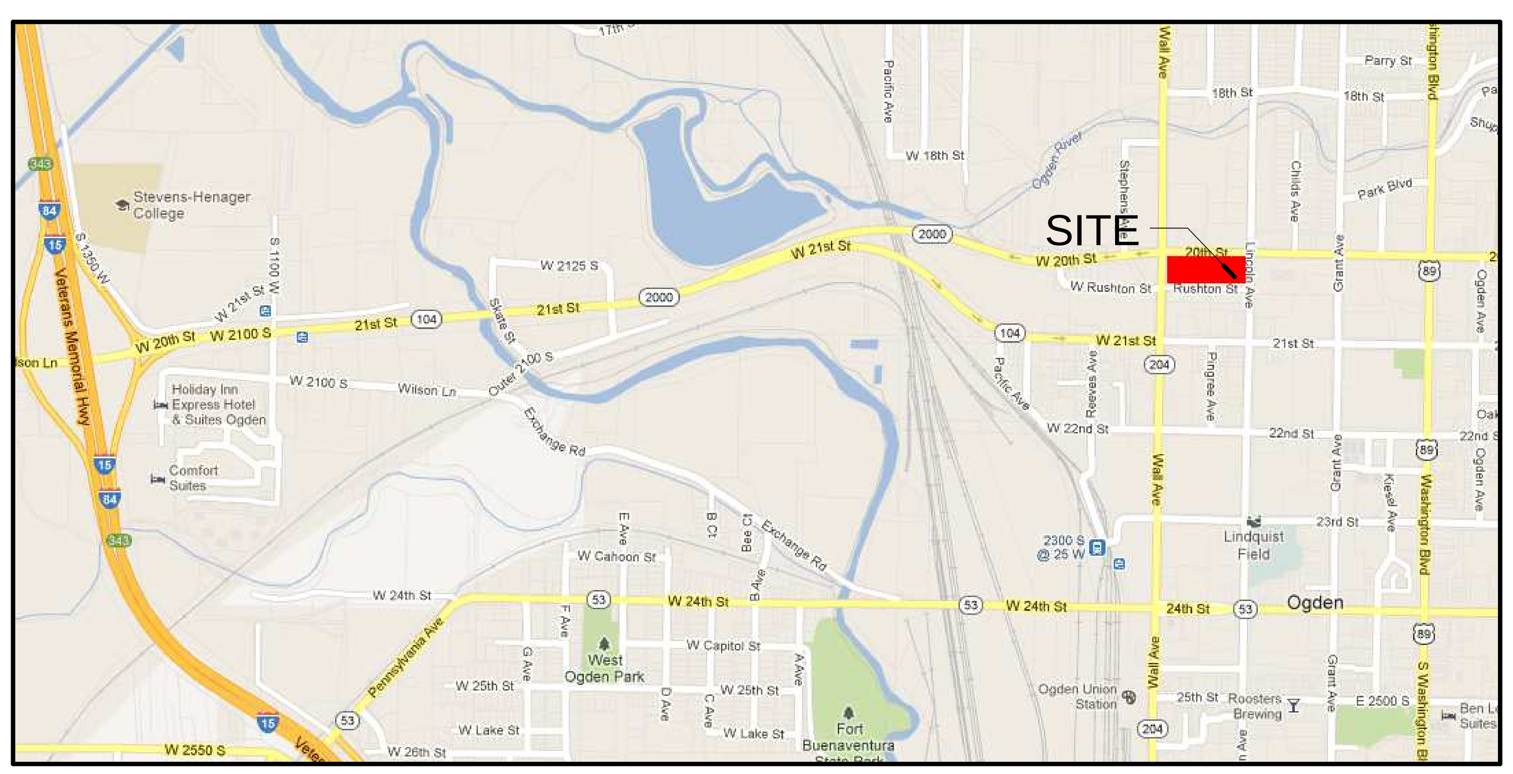
		OCCUPANCY TYPE: INSTITUTIONAL I3
OCCUPANT COUNT		247
WATER CLOSETS	REQUIRED	1 PER CELL (24)
WATER CLOSETS	PROVIDED	24
LAVS	REQUIRED	1 PER CELL (24)
LAVS	PROVIDED	24
SHOWERS	REQUIRED	16.4
SHOWERS	PROVIDED	0
DRINKING FOUNTAINS	REQUIRED	2.47
DRINKING FOUNTAINS	PROVIDED	0
SERVICE SINKS	REQUIRED	1
SERVICE SINKS	PROVIDED	0

BUILDING TOTALS

OCCUPANT COUNT		2108
WATER CLOSETS	REQUIRED	49.85
WATER CLOSETS	PROVIDED	69
LAVS	REQUIRED	39.23
LAVS	PROVIDED	61
SHOWERS	REQUIRED	16.4
SHOWERS	PROVIDED	2
DRINKING FOUNTAINS	REQUIRED	9.17
DRINKING FOUNTAINS	PROVIDED	20
SERVICE SINKS	REQUIRED	5
SERVICE SINKS	PROVIDED	10

NOTE: SHOWERS FOR PRISONERS ARE NOT PROVIDED IN A STATE COURTHOUSES DUE TO THE TEMPORARY NATURE OF COURTHOUSE PRISONER HOLDING. NO OVER-NIGHT HOLD IS ALLOWED

VICINITY MAP



UTILITY CONTACTS

POWER
ROCKY MOUNTAIN POWER
201 South Main Street #2300
Salt Lake City, UT 84111
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WATER
OGDEN CITY WATER UTILITIES
133 West 29th Street
Ogden, UT 84401
p: 801 629 8321

NATURAL GAS
QUESTAR GAS
2974 Washington Blvd
Ogden, UT 84401
p: 801 621 3262

TELEPHONE
CENTURYLINK
2601 Industrial Drive
Ogden, UT 84401
p: 888 997 9378

UTILITY LOCATOR
COMMON GROUND ALLIANCE
National Hotline: 811

Blue Stakes: 800 662 4111

SEWER
OGDEN CITY WATER UTILITIES
133 West 29th Street
Ogden, UT 84401
p: 801 629 8321

SHEET INDEX

SHEET NUMBER	SHEET NAME
GENERAL	
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C2	COVER
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G002	SPECIAL INSPECTIONS
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G005	FIRE PROTECTION AND OCCUPANCY LOADS
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G201	UL LISTINGS
G202	UL LISTINGS
G203	UL LISTINGS
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G400	MOCKUP
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CS1.01	SITE PLAN
CG1.01	GRADING PLAN
ADA1.01	ADA PLAN
CU1.01	UTILITY PLAN
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CD5.02	DETAILS
CD5.03	UDOT DETAILS
PP1.01	20TH STREET STRIPING PLAN A
PP1.02	20TH STREET STRIPING PLAN B
PP1.03	WALL STREET PLAN
CW1.01	SWPP PLAN
SG-00	TRAFFIC SIGNAL COVER
SG-1A	TRAFFIC SIGNAL PLANS
SG-2A	TRAFFIC SIGNAL DETAILS
SG-3A	TRAFFIC SIGNAL DETAILS
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L-L501	LANDSCAPE DETAILS
L-R101	IRRIGATION PLAN
L-R501	IRRIGATION SCHEDULES AND DETAILS
L-R502	IRRIGATION DETAILS
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AS101	ENLARGED SITE PLANS
AS500	SITE DETAILS
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A020	LEVEL 3, 4 AND FIVE OVERALL PLANS
A030	GAS VAPOR BARRIER PLAN AND DETAILS
A031	LEVEL 1 SLAB EDGE PLAN
A032	LEVEL 2 SLAB EDGE PLAN
A033	LEVEL 3 SLAB EDGE PLAN
A034	LEVEL 4 SLAB EDGE PLAN
A035	LEVEL 5 SLAB EDGE PLAN
A036	ROOF DECK EDGE PLAN
A111.1A	LEVEL 1, ANNOTATED
A111.1B	LEVEL 1, ANNOTATED
A111.2A	LEVEL 1, DIMENSION AND WALL TYPES
A111.2B	LEVEL 1, DIMENSION AND WALL TYPES
A111.3A	LEVEL 1, AREA A FINISH PLAN
A111.3B	LEVEL 1, AREA B FINISH PLAN
A111.4A	LEVEL 1, REFLECTED CEILING
A111.4B	LEVEL 1, REFLECTED CEILING
A121.1	LEVEL 2, ANNOTATED
A121.2	LEVEL 2, DIMENSION AND WALL TYPES
A121.3	LEVEL 2, FINISH PLAN
A121.4	LEVEL 2, REFLECTED CEILING
A131.1	LEVEL 3, ANNOTATED
A131.2	LEVEL 3, DIMENSION AND WALL TYPES
A131.3	LEVEL 3, FINISH PLAN
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A141.1	LEVEL 4, ANNOTATED
A141.1alt	LEVEL 4, ANNOTATED ALT.
A141.2	LEVEL 4, DIMENSION AND WALL TYPES
A141.2alt	LEVEL 4, DIMENSION AND WALL TYPES ALT.
A141.3	LEVEL 4, FINISH PLAN
A141.3alt	LEVEL 4, FINISH PLAN ALT.
A141.4	LEVEL 4, REFLECTED CEILING
A141.4alt	LEVEL 4, REFLECTED CEILING ALT.
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A413	STAIR PLANS, ELEVATIONS & SECTIONS
A414	STAIR PLANS, ELEVATIONS & SECTIONS
A415	STAIR PLANS, ELEVATIONS & SECTIONS
A416	STAIR PLANS, ELEVATIONS & SECTIONS
A417	STAIR PLANS, ELEVATIONS & SECTIONS
A418	STAIR PLANS, ELEVATIONS & SECTIONS
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A421	ENLARGED PLANS AND ELEVATIONS
A422	ENLARGED PLANS AND ELEVATIONS
A423	ENLARGED PLANS AND ELEVATIONS
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A425	ENLARGED PLANS AND ELEVATIONS
A426	ENLARGED COURT CEILINGS
A427	ENLARGED PLANS AND ELEVATIONS
A428	ENLARGED PLANS AND ELEVATIONS
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A430	ENLARGED PLANS AND ELEVATIONS
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A432	ENLARGED PLANS AND ELEVATIONS
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A501	WALL TYPES AND GENERAL NOTES
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A504	DETAILS - EXTERIOR
A505	DETAILS - EXTERIOR
A506	DETAILS - DOOR AND WINDOW
A507	DETAILS - DOOR AND WINDOW
A508	DETAILS - DOOR AND WINDOW
A509	DETAILS - DOOR AND WINDOW
A510	DETAILS - DOOR AND WINDOW
A511	DETAILS - INTERIOR - TYPICAL INTERIOR FRAMING DETAILS
A512	DETAILS - INTERIOR
A513	DETAILS - INTERIOR
A514	DETAILS - CEILING
A515	DETAILS - CEILING
A516	DETAILS - VERTICAL CIRCULATION
A517	DETAILS - VERTICAL CIRCULATION
A518	DETAILS - CASEWORK
A519	DETAILS - COLUMN FRAMING
A520	DETAILS - COLUMN FRAMING
A521	DETAILS - COLUMN FRAMING
A522	DETAILS - BEAM FRAMING
A523	DETAILS - BEAM FRAMING
A524	DETAILS - FLOOR
A601	DOOR SCHEDULES
A602	DOOR AND FRAME TYPES
A603	CURTAIN WALL FRAME TYPES
A604	CURTAIN WALL FRAME TYPES
A605	CURTAIN WALL FRAME TYPES
A606	CURTAIN WALL FRAME TYPES
A607	CURTAIN WALL FRAME TYPES
A608	CURTAIN WALL FRAME TYPES
A609	STOREFRONT TYPES
A700	SIGNAGE SCHEDULE
A701	SIGNAGE SCHEDULE - 4TH FLOOR ALTERNATE
A702	ARCHITECTURAL SIGNAGE TYPES & DETAILS
A703	ARCHITECTURAL SIGNAGE TYPES & DETAILS
A704	ARCHITECTURAL SIGNAGE TYPES & DETAILS
A705	ARCHITECTURAL SIGNAGE TYPES & DETAILS
A711A	LEVEL 1 AREA A SIGNAGE PLANS
A711B	LEVEL 1 AREA B SIGNAGE PLAN
A721	LEVEL 2 SIGNAGE PLAN
A731	LEVEL 3 SIGNAGE PLAN
A741	LEVEL 4 SIGNAGE PLAN
A741alt	LEVEL 4 SIGNAGE PLAN ALT.
A751	LEVEL 5 SIGNAGE PLAN
A901	3D PERSPECTIVES
A902	3D PERSPECTIVES
A903	3D PERSPECTIVES
ARCHITECTURAL: 139	
STRUCTURAL	
SE001	GENERAL STRUCTURAL NOTES
SE002	GENERAL STRUCTURAL NOTES
SE003	GENERAL STRUCTURAL NOTES
SB101	FOOTING & FOUNDATION PLAN
SB501	TYPICAL FOOTING & FOUNDATION DETAILS
SB502	TYPICAL FOOTING & FOUNDATION DETAILS
SB601	STRUCTURAL SCHEDULES
SB602	STRUCTURAL SCHEDULES
SF101	LEVEL 2 FLOOR FRAMING PLAN
SF102	LEVEL 3 FLOOR FRAMING PLAN
SF103	LEVEL 4 FLOOR FRAMING PLAN
SF104	LEVEL 5 FLOOR FRAMING PLAN
SF105	ROOF FRAMING PLAN
SF106	PARAPET FRAMING PLAN
SF107	MISC FRAMING PLANS
SF110	HOLDING CELL ROOF FRAMING PLANS
SF111	RAISED FLOOR PLANS
SF201	MOMENT FRAME ELEVATIONS
SF202	MOMENT FRAME ELEVATIONS
SF205	COOLING TOWER PARAPET & FRAME ELEVATIONS
SF210	SIDEPLATE GENERAL NOTES
SF211	SIDEPLATE GENERAL NOTES
SF212	SIDEPLATE A TYPE & B TYPE TYPICAL DETAILS
SF213	SIDEPLATE C TYPE TYPICAL DETAILS
SF214	SIDEPLATE HSS A&B TYPE TYPICAL DETAILS
SF215	SIDEPLATE TYPICAL BEAM DETAILS
SF216	SIDEPLATE MISC DETAILS
SF401	STAIR FRAMING PLANS
SF402	STAIR FRAMING PLANS
SF404	STAIR FRAMING DETAILS
SF501	FLOOR FRAMING DETAILS
SF502	FLOOR FRAMING DETAILS
SF503	FLOOR FRAMING DETAILS
SF504	FLOOR FRAMING DETAILS
SF515	ROOF FRAMING DETAILS
SF516	ROOF FRAMING DETAILS
SF517	ROOF FRAMING DETAILS
SF518	ROOF FRAMING DETAILS
SF601	STRUCTURAL SCHEDULES
SF602	STRUCTURAL SCHEDULES
STRUCTURAL: 40	
MECHANICAL	
M001	MECHANICAL LEGEND, SYMBOLS & ABBREVIATIONS
FP101	LEVEL 1 FIRE PROTECTION
FP102	LEVEL 2 FIRE PROTECTION
FP103	LEVEL 3 FIRE PROTECTION
FP104	LEVEL 4 FIRE PROTECTION
FP105	LEVEL 5 FIRE PROTECTION
FP106	FIRE PROTECTION ROOF ACCESS PLAN
FP501	FIRE PROTECTION DETAILS
MH101	LEVEL 1 MECHANICAL PLAN
MH102	LEVEL 2 MECHANICAL PLAN
MH103	LEVEL 3 MECHANICAL PLAN
MH104	LEVEL 4 MECHANICAL PLAN
MH104ALT	LEVEL 4 MECHANICAL PLAN ALT
MH105	LEVEL 5 MECHANICAL PLAN
MH106	MECHANICAL ROOF ACCESS LEVEL PLAN
MH301	MECHANICAL BUILDING SECTIONS
MH302	MECHANICAL BUILDING SECTIONS
MH303	MECHANICAL BUILDING SECTIONS
MH501	MECHANICAL DETAILS
MH502	MECHANICAL DETAILS
MH503	MECHANICAL DETAILS
MH601	MECHANICAL DETAILS
MH602	MECHANICAL SCHEDULES
MH603	MECHANICAL SCHEDULES
MH604	MECHANICAL SCHEDULES
MH801	CONTROL DIAGRAM/SEQUENCE
MH802	CONTROL DIAGRAM/SEQUENCE
MP101	LEVEL 1 MECHANICAL PIPING PLAN
MP102	LEVEL 2 MECHANICAL PIPING PLAN
MP103	LEVEL 3 MECHANICAL PIPING PLAN
MP104	LEVEL 4 MECHANICAL PIPING PLAN
MP104ALT	LEVEL 4 MEHCANICAL PIPING PLAN ATL
MP105	LEVEL 5 MECHANICAL PIPING PLAN
MP201	MECHANICAL HOT WATER PIPING SCHEMATIC
MP202	MECHANICAL CHILLED WATER PIPING SCHEMATIC
MZ101	LEVEL 1 TEMPERATURE CONTROL ZONE PLAN
MZ102	LEVEL 2 TEMPERATURE CONTROL ZONE PLAN
MZ103	LEVEL 3 TEMPERATURE CONTROL ZONE PLAN
MZ104	LEVEL 4 TEMPERATURE CONTROL ZONE PLAN
MZ105	LEVEL 5 TEMPERATURE CONTROL ZONE PLAN
PL101	LEVEL 1 PLUMBING PLAN
PL102	LEVEL 2 PLUMBING PLAN
PL103	LEVEL 3 PLUMBING PLAN
PL104	LEVEL 4 PLUMBING PLAN
PL104ALT	LEVEL 4 PLUMBING PLAN ATL
PL105	LEVEL 5 PLUMBING PLAN
PL201	PLUMBING SCHEMATIC
PL301	WASTE & VENT SCHEMATICS
PL401	LEVEL 1 ENLARGED PLUMBING PLANS
PL402	LEVEL 2 ENLARGED PLUMBING PLANS
PL403	LEVEL 3 ENLARGED PLUMBING PLANS
PL404	LEVEL 4 ENLARGED PLUMBING PLANS
PL405	LEVEL 5 ENLARGED PLUMBING PLANS
PL501	PLUMBING DETAILS
PL601	PLUMBING SCHEDULES
MECHANICAL: 55	
ELECTRICAL	
EE001	SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES
EE501	DETAILS
EE502	DETAILS
EE701	TYPICAL MOUNTING HEIGHT DETAILS
ES101	SITE DEMOLITION PLAN
ES102	SITE ELECTRICAL PLAN
ES501	TRANSFORMER AND TRANSFORMER PADVAULT DETAILS
EP101A	LEVEL 1 POWER PLAN - AREA A
EP101B	LEVEL 1 POWER PLAN - AREA B
EP102A	LEVEL 2 POWER PLAN - AREA A
EP102B	LEVEL 2 POWER PLAN - AREA B
EP103	LEVEL 3 POWER PLAN
EP104	LEVEL 4 POWER PLAN
EP104ALT	LEVEL 4 POWER PLAN - ALTERNATE
EP105	LEVEL 5 POWER PLAN
EP106	ROOF/PENTHOUSE POWER PLAN
EP601	ONE-LINE DIAGRAM
EP602	ONE-LINE DIAGRAM - CONT.
EP603	MECHANICAL ELEC EQUIP LOAD SCHEDULE
EP604	MECHANICAL ELEC EQUIP LOAD SCHEDULE
EP605	PANEL SCHEDULES
EP606	PANEL SCHEDULES
EP607	PANEL SCHEDULES
EP608	PANEL SCHEDULES
EP609	PANEL SCHEDULES
EL101A	LEVEL 1 LIGHTING PLAN - AREA A
EL101B	LEVEL 1 LIGHTING PLAN - AREA B
EL102A	LEVEL 2 LIGHTING PLAN - AREA A
EL102B	LEVEL 2 LIGHTING PLAN - AREA B
EL103	LEVEL 3 LIGHTING PLAN
EL104	LEVEL 4 LIGHTING PLAN
EL104ALT	LEVEL 4 LIGHTING PLAN - ALTERNATE
EL105	LEVEL 5 LIGHTING PLAN
EL106	ROOF/PENTHOUSE LIGHTING PLAN
EL501	LIGHTING DETAILS
EL601	FIXTURE SCHEDULE
EL602	LIGHTING SCHEDULES
EL603	DIMMING ONE-LINE AND SCHEDUELS
EL604	RELAY DETAIL AND CONTROL SCHEMATICS
ET101A	LEVEL 1 TELECOMMUNICATIONS PLAN - AREA A
ET101B	LEVEL 1 TELECOMMUNICATIONS PLAN - AREA B
ET102A	LEVEL 2 TELECOMMUNICATIONS PLAN - AREA A
ET102B	LEVEL 2 TELECOMMUNICATIONS PLAN - AREA B
ET103	LEVEL 3 TELECOMMUNICATIONS PLAN
ET104	LEVEL 4 TELECOMMUNICATIONS PLAN
ET105	LEVEL 5 TELECOMMUNICATIONS PLAN
ET601	TELECOMMUNICATIONS RISER AND GROUNDING DIAGRAMS
EY101A	LEVEL 1 AUXILIARY PLAN - AREA A
EY101B	LEVEL 1 AUXILIARY PLAN - AREA B
EY102A	LEVEL 2 AUXILIARY PLAN - AREA A
EY102B	LEVEL 2 AUXILIARY PLAN - AREA B
EY103	LEVEL 3 AUXILIARY PLAN
EY104	LEVEL 4 AUXILIARY PLAN
EY104ALT	LEVEL 4 AUXILIARY PLAN - ALTERNATE
EY105	LEVEL 5 AUXILIARY PLAN
EY401	MANUAL SWITCH CONTROL DETAIL
EY601	SECURITY SYSTEM RISER DIAGRAMS
EY602	SECURITY SYSTEM RISER DIAGRAMS
EJ001	AV ROUGH-IN SCHEDULE AND NOTES
EJ101A	LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A
EJ101B	LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B
EJ102A	LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A
EJ102B	LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B
EJ103	LEVEL 3 AUDIO VIDEO ROUGH-IN CEILING PLAN
EJ104ALT	LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN - ALTERNATE
EJ105	LEVEL 5 AUDIO VIDEO ROUGH-IN CEILING PLAN
EJ111A	LEVEL 1 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA A
EJ111B	LEVEL 1 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA B
EJ112A	LEVEL 2 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA A
EJ112B	LEVEL 2 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA B
EJ113	LEVEL 3 AUDIO VIDEO ROUGH-IN FLOOR PLAN
EJ114	LEVEL 4 AUDIO VIDEO ROUGH-IN FLOOR PLAN
EJ114ALT	LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN - ALTERNATE
EJ115	LEVEL 5 AUDIO VIDEO ROUGH-IN FLOOR PLAN
EJ301	AV SECTIONS
EJ501	AV SYSTEMS DETAILS
EJ601	AV ROUGH IN RISER AND SCHEDULE
EK101	LIGHTNING PROTECTION PLAN
EK501	LIGHTNING PROTECTION DETAILS
FA101A	LEVEL 1 FIRE ALARM PLAN - AREA A
FA101B	LEVEL 1 FIRE ALARM PLAN - AREA B
FA102A	LEVEL 2 FIRE ALARM PLAN - AREA A
FA102B	LEVEL 2 FIRE ALARM PLAN - AREA B
FA103	LEVEL 3 FIRE ALARM PLAN
FA104	LEVEL 4 FIRE ALARM PLAN
FA104ALT	LEVEL 4 FIRE ALARM PLAN ALTERNATE
FA105	LEVEL 5 FIRE ALARM PLAN
FA106	ROOF FIRE ALARM PLAN
FA601	FIRE ALARM RISER
TA001	AV EQUIPMENT LIST, NOTES, DEFINITIONS AND SHEET INDEX
TA002	AV SYSTEM SINGLE LINE DIAGRAM
TA101	LEVEL 1 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA102	LEVEL 2 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA103	LEVEL 3 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA104ALT	LEVEL 4 AUDIO VISUAL SYSTEMS FLOOR PLAN ALTERNATE
TA105	LEVEL 5 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA111	LEVEL 1 AUDIO VISUAL SYSTEMS CEILING PLAN
TA112	LEVEL 2 AUDIO VISUAL SYSTEMS CEILING PLAN
TA113	LEVEL 3 AUDIO VISUAL SYSTEMS CEILING PLAN
TA114ALT	LEVEL 4 AUDIO VISUAL SYSTEMS CEILING PLAN ALTERNATE
TA115	LEVEL 5 AUDIO VISUAL SYSTEMS CEILING PLAN
TA401	AV EQUIPMENT ROOM PLANS AND ELEVATIONS
TA501	AV SYSTEM DETAILS
TA601	AV SYSTEM SINGLE LINE DIAGRAMS
TA602	AV SYSTEM SINGLE LINE DIAGRAMS AND MATRIX
TA603	AV SYSTEM SINGLE LINE DIAGRAMS
TA701	AV SYSTEM CONNECTION PANEL DETAILS
TA702	AV SYSTEM CONNECTION PANNEL DETAILS
ELECTRICAL: 108	
Grand total: 376	

BUILDING BOARD APPEAL LETTER

UTAH BUILDING CODE APPEALS BOARD

In the Matter of Consideration of Appeal of Utah Administrative Office of the Courts regarding the Building Code and Delayed Egress Doors, State Courthouses, hearing on April 25, 2006 : **RESOLUTION NO: 2006-1**

It appearing that Utah Building Code Appeals Board (hereinafter "Board") that the above-entitled matter came before this Board for hearing on April 25, 2006 at 3:00 p.m., Room 4112, State Office Building, Salt Lake City, Utah 84114;

It appearing that the following Board members were appointed by the Director of the Division of Facilities Construction and Management of the Utah Department of Administrative Services (hereinafter "DFCM") and were present throughout the hearing and deliberation of the above-entitled matter; Judge Sandra Peuler, Third District Court, as Chair of the Board; Ron Ivie, Building Official/Fire Marshall, Park City, Utah; Roger Evans, Plans Examiner, Park City, Utah; Jack Robertson, Architect, Salt Lake City; and Brad W. Slater, Weber County Sheriff;

It appearing that a presentation was made at the hearing by officials from DFCM as well as the Utah Administrative Office of the Courts (hereinafter "AOC") regarding the above-entitled matter; and

After considering all presentations at said hearing, documents presented and expertise provided from Board members; the following is hereby:

RESOLVED, by the Board, that it finds and declares that:

Occupancy in courtrooms in Courthouses under the jurisdiction of the State of Utah AOC shall have occupancy limits posted at 49 people. When so posted for all Courtrooms in a particular Courthouse, then the occupancy rating under the Building Code is a Class B occupancy which allows for the subject control devices of delayed egress on doors. However, if at any time a Courtroom in such a courthouse exceeds 49 people, then the AOC is responsible to take special precautions to manage safe evacuation procedures; and

State of Utah Courthouses may have delayed egress doors including, but not limited to, doors related to stairwells and exiting. However, when a courtroom exceeds the 49 person occupancy limit, the AOC is responsible to take special precautions to manage safe evacuation procedures.

DATED THIS 21 day of July, 2006.

UTAH BUILDING CODE APPEALS BOARD

By: [signature]
Judge Sandra Peuler
Board Chair

STATE OF UTAH · THIRD DISTRICT COURT · SALT LAKE CITY

[signature]
F. Keith Stepan, Director of DFCM
Administrator for the Board

APPROVED AS TO FORM:
[signature]
ALAN S. BACHMAN
Assistant Attorney General

GENERAL NOTES

1. IT IS THE CONTRACTORS RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS, WHICH MIGHT AFFECT THE WORK OF THAT PARTY.
2. AS PART OF THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS, THE CONTRACTOR SHALL ENDEAVOR TO IDENTIFY AND NOTIFY THE ARCHITECT OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS TO ALLOW REASONABLE AND ADEQUATE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING THE WORK. ALL DEVIATIONS FROM THAT WHICH IS REQUIRED BY THE CONTRACT DOCUMENTS MUST BE APPROVED IN ADVANCE BY THE ARCHITECT.
3. THE ARCHITECTURAL DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND EXACT LOCATION OF ALL EXPOSED ELEMENTS OF THE WORK OF ALL THE TRADES, INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES. QUANTITIES ARE TO BE PROVIDED AS SHOWN ON DRAWINGS OF OTHER DISCIPLINES BUT LOCATIONS SHOWN ON OTHER DRAWINGS ARE SCHEMATIC, UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS. THE ARCHITECTURAL DRAWINGS TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND EXACT LOCATION OF ALL PARTS OF THE WORK.
4. EXCEPT WHERE DIRECTED TO PLACE ITEMS OF WORK AT THE APPROXIMATE LOCATION SHOWN; DO NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION. ALL ELEMENTS OF THE DRAWINGS MAY NOT BE DRAWN TO EXACT SCALE. ALL DIMENSIONS REQUIRED ARE SHOWN OR MAY BE DERIVED FROM THOSE SHOWN ON THE FLOOR PLANS, DETAIL PLANS, ELEVATIONS, SECTIONS, DETAILS, SCHEDULES AND SPECIFICATIONS. IF DIMENSIONS ARE NOT PRESENT, THE ARCHITECT IS TO BE NOTIFIED SO THAT A CLARIFICATION CAN BE ISSUED.
5. CONTRACTOR TO FOLLOW ANSI 117-1 2003 AS REPRESENTED ON SHEET G2.1 FOR ACCESSIBILITY GUIDELINES. NOTIFY ARCHITECT IF THE DESIGN DRAWINGS CONFLICT WITH THIS SHEET.

ALTERNATE BIDS

ALTERNATE 1
ADDITIVE ALTERNATE TO CONSTRUCT THE COURTROOMS AND OFFICE AREAS ON LEVEL 4. SEE THE ALTERNATE SHEETS FOR A FULL DESCRIPTION. ALTERNATE SHEETS ARE DESIGNATED BY AN "ALT" SUFFIX TO THE SHEET NAME.

ALTERNATE 2
ADDITIVE ALTERNATE FOR PROVIDEING CERTIFIED WOOD THROUGHOUT PROJECT PER LEED CREDIT MR 7. SEE DIVISION 6 SPECIFICATIONS FOR MORE INFORMATION.

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
Phone: (801) 575-8800
Fax: (801) 531-9850
Web: vcbo.com

LICENSED ARCHITECT
No. 133912
BRENT R. TIPPETS
STATE OF UTAH

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description
1	4/30/2013	Fire Marshal Response

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

GENERAL INFORMATION AND INDEX

G001

8/14/2013 11:18:52 AM

ABBREVIATIONS

Ø	ROUND OR DIAMETER	LWT	LEAVING WATER TEMPERATURE
AD	ACCESS DOOR	MAX	MAXIMUM
AF	AIRFOIL	MBH	THOUSAND BRITISH THERMAL UNITS/HOUR
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
ALT	ALTERNATE	MIN	MINIMUM
BI	BACKWARD INCLINED	NC	NOISE CRITERIA OR NORMALLY CLOSED
BOD	BOTTOM OF DUCT	NIC	NOT IN CONTRACT
BOP	BOTTOM OF PIPE	NO	NUMBER
BTU/H	BRITISH THERMAL UNITS PER HOUR	NOM	NOMINAL
CAP	CAPACITY	NTS	NOT TO SCALE
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
CV	CONSTANT VOLUME	OBD	OPPOSED BLADE DAMPER
DB	DRY BULB	OD	OVERFLOW DRAIN
DN	DOWN	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
DIA	DIAMETER	OFOI	OWNER FURNISHED, OWNER INSTALLED
DCW	DOMESTIC COLD WATER	PD	PRESSURE DROP
DHW	DOMESTIC HOT WATER	POC	POINT OF CONNECTION
DHWC	DOMESTIC HOT WATER CIRC.	PRV	PRESSURE REDUCING VALVE
DSN	DOWN SPOUT NOZZLE	PSI	POUNDS PER SQUARE INCH
DW	DISHWASHER	PSIG	POUNDS PER SQUARE INCH GAUGE
(E)	EXISTING	RA	RETURN AIR
EA	EXHAUST AIR	RAD	RADIUS
EAT	ENTERING AIR TEMPERATURE	RD	ROOF DRAIN
EFF	EFFICIENCY	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
ELEV	ELEVATION	SA	SUPPLY AIR OR SHOCK ARRESTOR
ENCL	ENCLOSURE	SEN	SENSIBLE
ESP	EXTERNAL STATIC PRESSURE	SIM	SIMILAR
ET	EXPANSION TANK	SL	SEA LEVEL
EWC	ELECTRIC WATER COOLER	SP	STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE	SF	SQUARE FEET
FCO	FLOOR CLEANOUT	SS	SERVICE SINK OR STAINLESS STEEL
FD	FLOOR DRAIN	TOD	TOP OF DUCT
FO	FLAT OVAL	TSP	TOTAL STATIC PRESSURE
FPM	FEET PER MINUTE	TYP.	TYPICAL
FS	FLOOR SINK	U	URINAL
FT	FEET	V	VENT
FV	FACE VELOCITY	VAV	VARIABLE AIR VOLUME
GA	GAUGE	VD	VOLUME DAMPER
GAL	GALLON	VFD	VARIABLE FREQUENCY DRIVE
GD	GARAGE DRAIN	VOL	VOLUME
GPM	GALLONS PER MINUTE	VTR	VENT THROUGH ROOF
HP	HORSEPOWER	W/	WITH
HR	HOUR	W/O	WITHOUT
HT	HEIGHT	WB	WET BULB
IN	INCH	WC	WATER CLOSET
INWC	INCHES OF WATER COLUMN	MVD	MANUAL VOLUME DAMPER
INWG	INCHES OF WATER GAUGE	WCO	WALL CLEANOUT
L	LAVATORY OR LOUVER	WPD	WATER PRESSURE DROP
LAT	LEAVING AIR TEMPERATURE	WT	WEIGHT
LBS	POUNDS		

MECHANICAL LEGEND

NOTE: ALL ITEMS MAY NOT APPEAR ON DRAWINGS

GATE VALVE
OS & Y PATTERN GATE VALVE
BALL VALVE
BUTTERFLY VALVE
MOTORIZED VALVE OPERATOR
GAS COCK
PLUG VALVE
CHECK VALVE (SWING OR LIFT AS REQ'D)
SOLENOID VALVE
AUTOMATIC CONTROL VALVE (2-WAY)
AUTOMATIC CONTROL VALVE (3-WAY)
PRESSURE REDUCING VALVE
P & T RELIEF VALVE
AIR VENT (AUTOMATIC)
CURB COCK
THERMAL EXPANSION VALVE
STRAINER
CALIBRATED BALANCE VALVE
VENTURI FLOW METER
REDUCER
PET COCK OR GAUGE COCK
PRESSURE GAUGE W/GAUGE COCK
THERMOMETER
TEMPERATURE & PRESSURE TEST PLUG
IN-LINE PUMP
FLOW SWITCH
AQUASTAT
TEMPERATURE SENSING WELL
HOSE BIBB OR SILLCOCK
YARD HYDRANT
FLOOR DRAIN
FLOOR SINK
MANHOLE
WALL CLEANOUT
FLOOR OR GRADE CLEANOUT
GRADE CLEANOUT W/ CONCRETE PAD
VENT THROUGH ROOF (ISOMETRIC)
POST TYPE FDC CONNECTION
WALL TYPE FDC CONNECTION
FIRE HOSE CABINET
FIRE DEPT. HORN & LIGHT
EXPANSION JOINT
FLEXIBLE PIPE CONNECTION
REDUCED PRESSURE BACKFLOW PREVENTER — RPBP
DIRECTION OF FLOW
ELBOW DOWN
ELBOW UP
PIPE CAP
TEE DOWN
UNION
DOMESTIC COLD WATER
DOMESTIC HOT WATER
HOT WATER CIRC.
TEMPERED WATER — T
SANITARY (PLBG) VENT
SANITARY SEWER ABOVE GRADE
SANITARY SEWER BELOW GRADE
GREASE WASTE ABOVE GRADE — GW
GREASE WASTE BELOW GRADE — GW
DRAIN — D
ROOF DRAIN — RD
OVERFLOW DRAIN — OD
STORM DRAIN ABOVE GRADE — SD
STORM DRAIN BELOW GRADE — SD
COMPRESSED AIR — CA
INDUSTRIAL WATER (NON-POTABLE) — IW

DEIONIZED WATER — DI
DEIONIZED WATER RETURN — DIR
FIRE SERVICE — F
NATURAL GAS — G
PROPANE — P
HEAT TRACING
CHILLED WATER SUPPLY — CHS
CHILLED WATER RETURN — CHR
CONDENSER WATER SUPPLY — CS
CONDENSER WATER RETURN — CR
GROUND LOOP SUPPLY — GLS
GROUND LOOP RETURN — GLR
HEATING WATER SUPPLY — HWS
HEATING WATER RETURN — HWR
RADIANT FLOOR SUPPLY — RFS
RADIANT FLOOR RETURN — RFR
SNOW MELT SUPPLY — SMS
SNOW MELT RETURN — SMR
STEAM — S
STEAM CONDENSATE RETURN — SCR
REFRIGERANT LIQUID — RL
REFRIGERANT SUCTION — RS
HOT GAS — HG
HOT GAS BYPASS — HGBP
DUCT SIZE (IN), FIRST FIGURE IS SIDE SHOWN — 18/12
BURIED OR UNDERFLOOR DUCT
FLEXIBLE DUCT (HELICAL)
SPIN-IN FITTING W/ MVD
FLEXIBLE DUCT CONNECTION
SUPPLY SLOT DIFFUSER
SUPPLY DIFFUSER
RETURN GRILLE
RADIAL SUPPLY DIFFUSERS
RETURN AIR DUCT SECTION
RETURN AIR DUCT UP
RETURN AIR DUCT DOWN
SUPPLY AIR DUCT SECTION
SUPPLY AIR DUCT UP
SUPPLY AIR DUCT DOWN
EXHAUST AIR DUCT SECTION
EXHAUST AIR DUCT UP
EXHAUST AIR DUCT DOWN
ACCESS PANEL
MANUAL VOLUME DAMPER
GRAVITY BACKDRAFT DAMPER
MOTORIZED DAMPER
AIR FLOW STATION
FIRE DAMPER
SMOKE DAMPER
COMBINATION FIRE/SMOKE DAMPER
DUCT TRANSITION
ELBOW W/ TURNING VANES
TEE W/ 45° ENTRY
WYE W/ 45° ENTRY
THERMOSTAT OR TEMP SENSOR
HUMIDISTAT OR HUMIDITY SENSOR
CARBON MONOXIDE SENSOR
CARBON DIOXIDE SENSOR
NITROGEN DIOXIDE SENSOR
POINT OF REMOVAL FROM EXISTING
POINT OF CONNECTION TO EXISTING
DETAIL TAG — DETAIL NO. / DRAWING NO.
KEYED NOTE — NOTE NO.
SECTION CUT LINE — SECTIONS NO. / DRAWING NO.

DRAWING INDEX

#	SHEET NAME
M001	MECHANICAL LEGEND, SYMBOLS & ABBREVIATIONS
FP101	LEVEL 1 FIRE PROTECTION
FP102	LEVEL 2 FIRE PROTECTION
FP103	LEVEL 3 FIRE PROTECTION
FP104	LEVEL 4 FIRE PROTECTION
FP105	LEVEL 5 FIRE PROTECTION
FP106	FIRE PROTECTION ROOF ACCESS PLAN
FP501	FIRE PROTECTION DETAILS
MH101	LEVEL 1 MECHANICAL PLAN
MH102	LEVEL 2 MECHANICAL PLAN
MH103	LEVEL 3 MECHANICAL PLAN
MH104	LEVEL 4 MECHANICAL PLAN
MH104alt	LEVEL 4 MECHANICAL PLAN ALT.
MH105	LEVEL 5 MECHANICAL PLAN
MH106	MECHANICAL ROOF ACCESS LEVEL PLAN
MH301	MECHANICAL BUILDING SECTIONS
MH302	MECHANICAL BUILDING SECTIONS
MH303	MECHANICAL BUILDING SECTION
MH501	MECHANICAL DETAILS
MH502	MECHANICAL DETAILS
MH503	MECHANICAL DETAILS
MH601	MECHANICAL SCHEDULES
MH602	MECHANICAL SCHEDULES
MH603	MECHANICAL SCHEDULES
MH604	MECHANICAL SCHEDULES
MH801	CONTROL DIAGRAM/SEQUENCE
MH802	CONTROL DIAGRAM/SEQUENCE
MP101	LEVEL 1 MECHANICAL PIPING PLAN
MP102	LEVEL 2 MECHANICAL PIPING PLAN
MP103	LEVEL 3 MECHANICAL PIPING PLAN
MP104	LEVEL 4 MECHANICAL PIPING PLAN
MP104alt	LEVEL 4 MECHANICAL PIPING PLAN ALT.
MP105	LEVEL 5 MECHANICAL PIPING PLAN
MP201	MECHANICAL HOT WATER PIPING SCHEMATIC
MP202	MECHANICAL CHILLED WATER PIPING SCHEMATTIC
MZ101	LEVEL 1 TEMPERATURE CONTROL ZONE PLAN
MZ102	LEVEL 2 TEMPERATURE CONTROL ZONE PLAN
MZ103	LEVEL 3 TEMPERATURE CONTROL ZONE PLAN
MZ104	LEVEL 4 TEMPERATURE CONTROL ZONE PLAN
MZ105	LEVEL 5 TEMPERATURE CONTROL ZONE PLAN
PL101	LEVEL 1 PLUMBING PLAN
PL102	LEVEL 2 PLUMBING PLAN
PL103	LEVEL 3 PLUMBING PLAN
PL104	LEVEL 4 PLUMBING PLAN
PL104alt	LEVEL 4 PLUMBING PLAN ALT.
PL105	LEVEL 5 PLUMBING PLAN
PL201	PLUMBING SCHEMATIC
PL301	WASTE & VENT SCHEMATICS
PL401	LEVEL 1 ENLARGED PLUMBING PLANS
PL402	LEVEL 2 ENLARGED PLUMBING PLANS
PL403	LEVEL 3 ENLARGED PLUMBING PLANS
PL404	LEVEL 4 ENLARGED PLUMBING PLANS
PL405	LEVEL 5 ENLARGED PLUMBING PLANS
PL501	PLUMBING DETAILS
PL601	PLUMBING SCHEDULES

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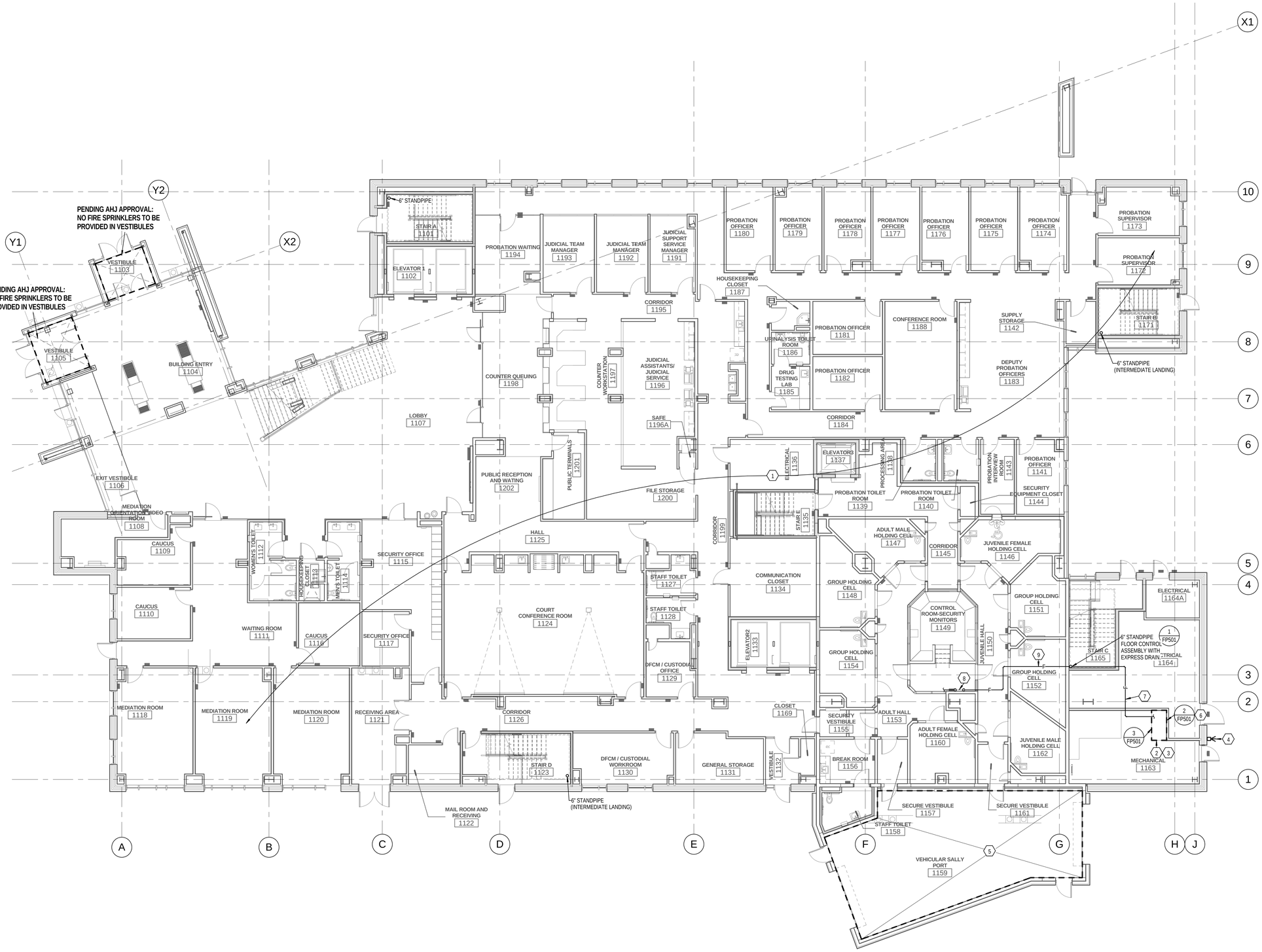
MECHANICAL LEGEND, SYMBOLS & ABBREVIATIONS

M001



1 LEVEL 1 FIRE PROTECTION PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. PROTECT ENTIRE FLOOR WITH WET FIRE SPRINKLING SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE 2" MAIN TEST PORT AND DRAIN. PIPE DRAIN TO FLOOR SINK AND TERMINATE WITH 2-1/2" FIRE HOSE CONNECTION. PROVIDE 100 FEET OF 2-1/2" FIRE HOSE TO BE STORED BY OWNER. HOSE CAN BE USED DURING FLOW TESTS TO CARRY WATER OUT OF THE BUILDING TO THE CURB.
3. FIRE DEPARTMENT CONNECTION WILL BE PROVIDED AT A REMOTE LOCATION. REFER TO TO CIVIL PLANS FOR FDC INSTALLTION DETAIL AND EXACT LOCATION OF FDC.
4. LOCATION OF HORN AND STROBE, 10'-0" ABOVE GRADE. COORDINATE WITH ELECTRICAL.
5. PROTECT VEHICHLAR SALLYPORT WITH A DRY SPRINKLER SYSTEM. SALLYPORT WILL BE EXPOSED TO FREEZING TEMPERATURES. LOCATE DRY VALVE, AIR COMPRESSOR, AND ALL DRY SYSTEM APPURTENANCES IN MECHANICAL ROOM 1163 ON THIS LEVEL.
6. KEEP 3' X 6' AREA CLEAR FOR FIRE RISER ASSEMBLY. SITE UTILITIES CONTRACTOR TO ROUTE 8" FIRE LINE INTO BUILDING BELOW SLAB AND TERMINATE 12" ABOVE THE FINISHED FLOOR WITH A BLIND FLANGE. THIS IS THE POINT OF CONNECTION FOR THE FIRE PROTECTION CONTRACTOR. COORDINATE EXACT ENTRY LOCATION WITH PLUMBING CONTRACTOR TO AVOID CONFLICT WITH PRV PIPING.
7. SUGGESTED ROUTE THROUGH ELECTRICAL ROOM. PER NEC, OFFSET AS REQUIRED TO AVOID ROUTING OVER THE TOP OF ELECTRICAL PANELS, TRANSFORMERS, AND OTHER ELECTRICAL EQUIPMENT.
8. PROVIDE A SPRINKLER FLOOR CONTROL ASSEMBLY FOR THE HOLDING CELL AREA IN THIS APPROXIMATE LOCATION. INCLUDE A ZONE CHECK ASSEMBLY WITH A TESTING PUMP FOR TESTING THE FLOW SWITCH. COORDINATE LOCATION WITH ALL OTHER DISCIPLINES AND OWNER.
9. ROUTE IN INTERSTITIAL SPACE.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.
C. PROVIDE SEISMIC BRACING AND FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION.
D. COORDINATE WITH ALL OTHER DISCIPLINES AND PROVIDE ADDITIONAL FITTINGS AND OFFSET AS REQUIRED FOR INSTALLATION.
E. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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LEVEL 1 FIRE PROTECTION

FP101

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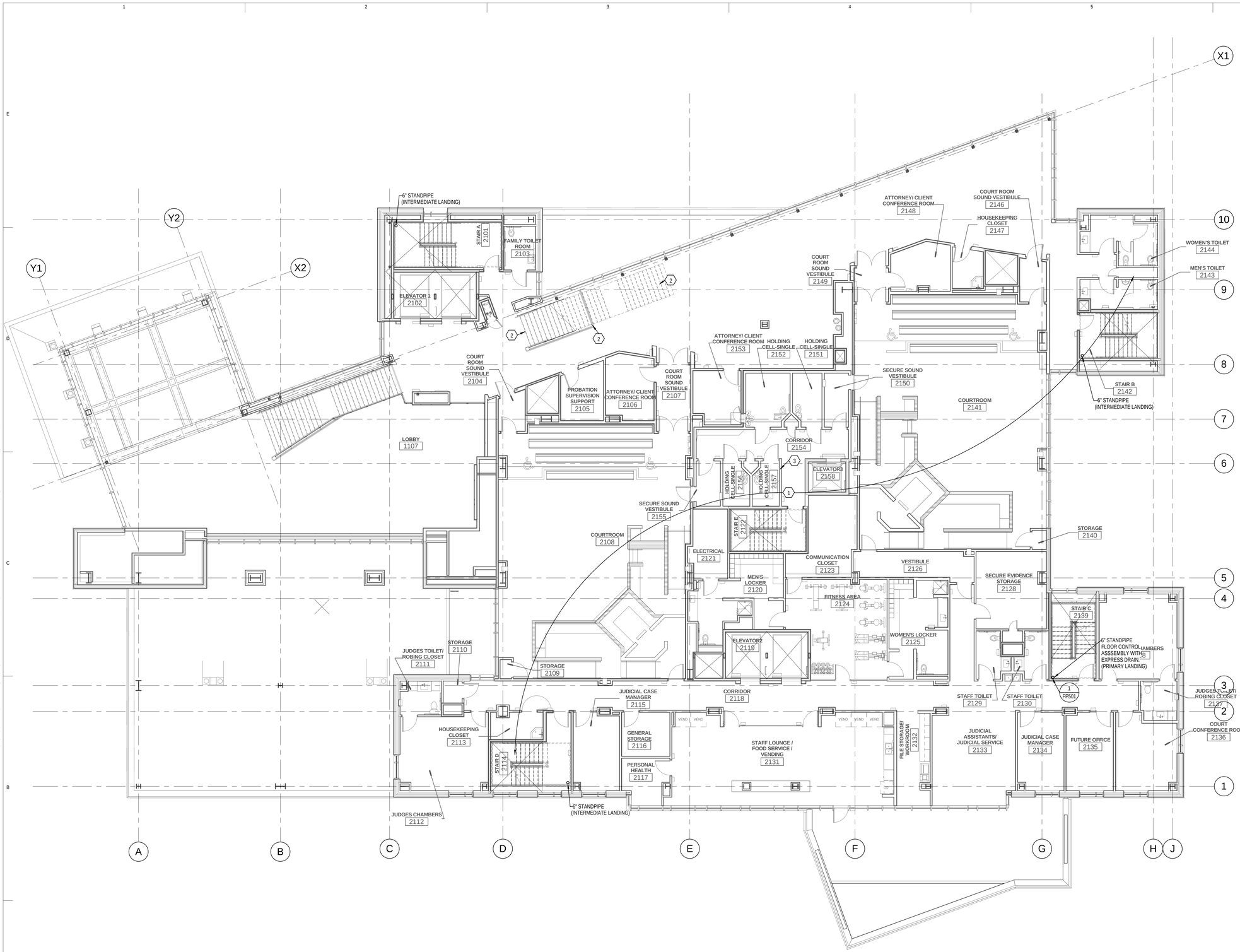

1 LEVEL 2 FIRE PROTECTION PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. PROTECT ENTIRE FLOOR WITH WET FIRE SPRINKLING SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE CLOSELY SPACED FIRE SPRINKLER HEADS AROUND THE PERIMETER OF THE STAIR OPENING. SPACE HEADS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE, SECTION 708.2, EXCEPTION 2.1, AND NFPA.
3. PROVIDE A SPRINKLER FLOOR CONTROL ASSEMBLY FOR THE HOLDING CELL AREA IN THIS APPROXIMATE LOCATION. INCLUDE A ZONE CHECK ASSEMBLY WITH A TESTING PUMP FOR TESTING THE FLOW SWITCH. COORDINATE LOCATION WITH ALL OTHER DISCIPLINES AND OWNER.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.
C. PROVIDE SEISMIC BRACING AND FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION.
D. COORDINATE WITH ALL OTHER DISCIPLINES AND PROVIDE ADDITIONAL FITTINGS AND OFFSET AS REQUIRED FOR INSTALLATION.
E. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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LEVEL 2 FIRE PROTECTION

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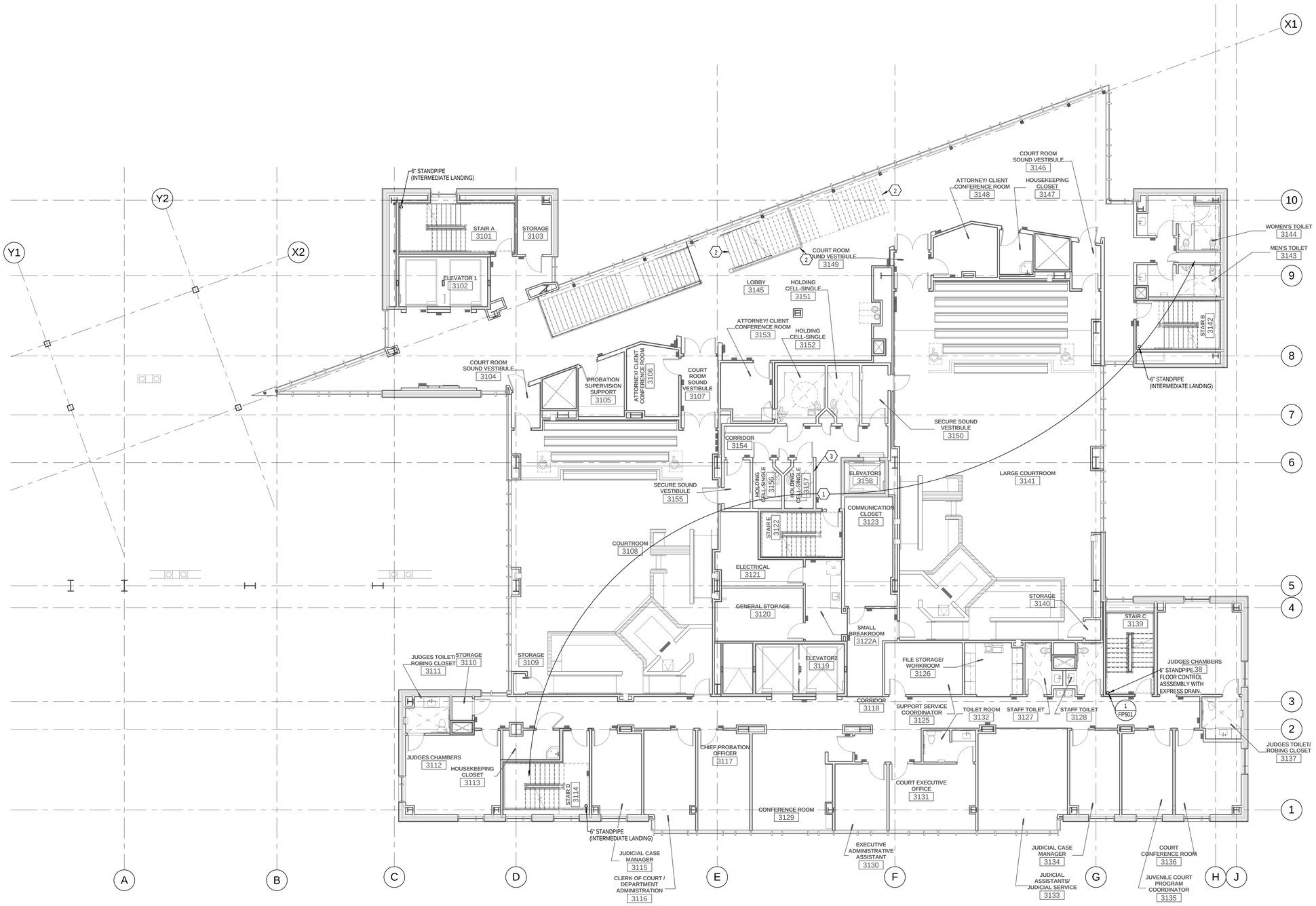

1 LEVEL 3 FIRE PROTECTION PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. PROTECT ENTIRE FLOOR WITH WET FIRE SPRINKLING SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE CLOSELY SPACED FIRE SPRINKLER HEADS AROUND THE PERIMETER OF THE STAIR OPENING. SPACE HEADS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE, SECTION 708.2, EXCEPTION 2.1, AND NFPA.
3. PROVIDE A SPRINKLER FLOOR CONTROL ASSEMBLY FOR THE HOLDING CELL AREA IN THIS APPROXIMATE LOCATION. INCLUDE A ZONE CHECK ASSEMBLY WITH A TESTING PUMP FOR TESTING THE FLOW SWITCH. COORDINATE LOCATION WITH ALL OTHER DISCIPLINES AND OWNER.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.
C. PROVIDE SEISMIC BRACING AND FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION.
D. COORDINATE WITH ALL OTHER DISCIPLINES AND PROVIDE ADDITIONAL FITTINGS AND OFFSET AS REQUIRED FOR INSTALLATION.
E. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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LEVEL 3 FIRE PROTECTION

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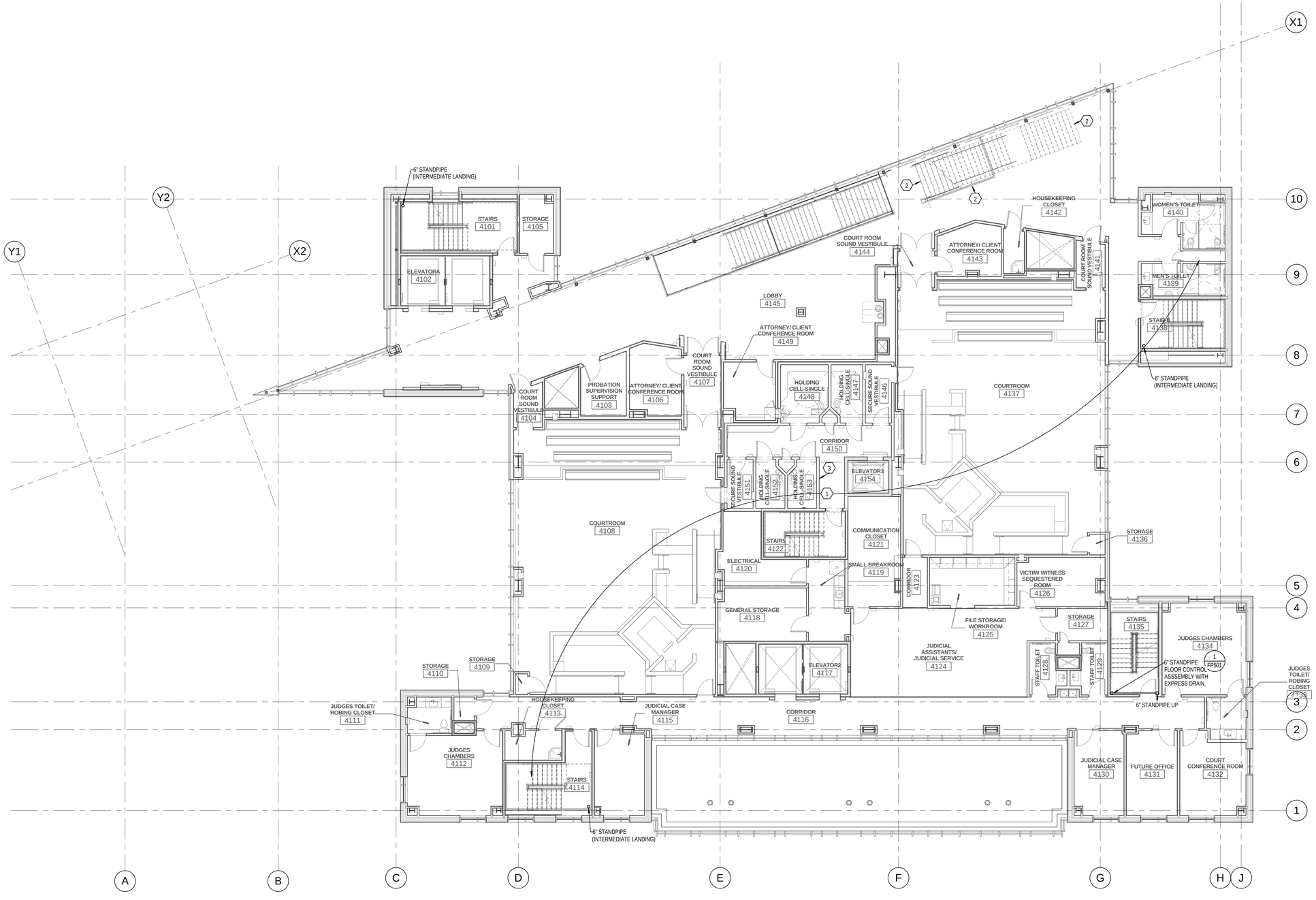

1 LEVEL 4 FIRE PROTECTION PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. PROTECT ENTIRE FLOOR WITH WET FIRE SPRINKLING SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE CLOSELY SPACED FIRE SPRINKLER HEADS AROUND THE PERIMETER OF THE STAIR OPENING. SPACE HEADS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE, SECTION 708.2, EXCEPTION 2.1, AND NFPA.
3. PROVIDE A SPRINKLER FLOOR CONTROL ASSEMBLY FOR THE HOLDING CELL AREA IN THIS APPROXIMATE LOCATION. INCLUDE A ZONE CHECK ASSEMBLY WITH A TESTING PUMP FOR TESTING THE FLOW SWITCH. COORDINATE LOCATION WITH ALL OTHER DISCIPLINES AND OWNER.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.

B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.

C. PROVIDE SEISMIC BRACING AND FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION.

D. COORDINATE WITH ALL OTHER DISCIPLINES AND PROVIDE ADDITIONAL FITTINGS AND OFFSET AS REQUIRED FOR INSTALLATION.

E. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

BID-ALT NOTES

A. LEVEL 4 WILL BE PARTIALLY SHELLED AS A PART OF THE BASE BID. FIRE PROTECTION COVERAGE IS REQUIRED FOR ALL SPACES PER NFPA 13, BUT COVERAGE FOR THE BASE BID SHELLED SPACES CAN BE ACCOMPLISHED WITH UPRIGHT PENDANTS SPRINKLER HEADS. THE BASE BID PRICE SHOULD REFLECT THIS LEVEL OF COMPLETION.

B. PROVIDE A BID-ALTERNATE PRICE FOR COMPLETE FINISH WORK. THE FIRE PROTECTION LAYOUT FOR THE BID-ALTERNATE WILL BE TYPCIAL OF THE 2ND, 3RD, AND 5TH LEVEL FULLY FINISHED SPACES. REFER TO THE 211000 SPECIFICATIONS AND ARCHITECTURAL FINISH PLANS FOR SPRINKLER HEAD TYPE AND LOCATION.

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LEVEL 4 FIRE PROTECTION

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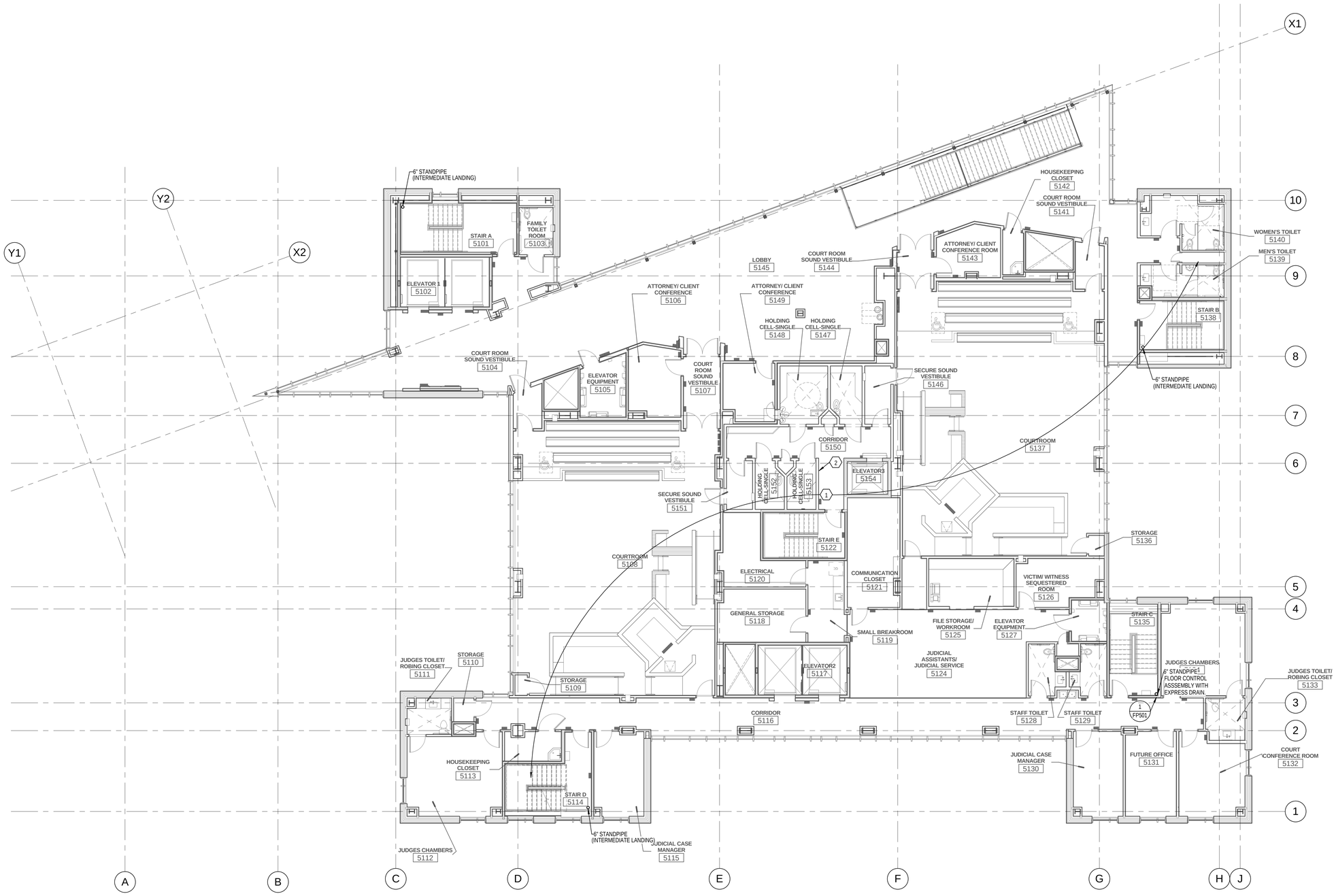

1 LEVEL 5 MECHANICAL PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. PROTECT ENTIRE FLOOR WITH WET FIRE SPRINKLING SYSTEM, UNLESS NOTED OTHERWISE.
2. PROVIDE A SPRINKLER FLOOR CONTROL ASSEMBLY FOR THE HOLDING CELL AREA IN THIS APPROXIMATE LOCATION. INCLUDE A ZONE CHECK ASSEMBLY WITH A TESTING PUMP FOR TESTING THE FLOW SWITCH. COORDINATE LOCATION WITH ALL OTHER DISCIPLINES AND OWNER.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.
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LEVEL 5 FIRE PROTECTION

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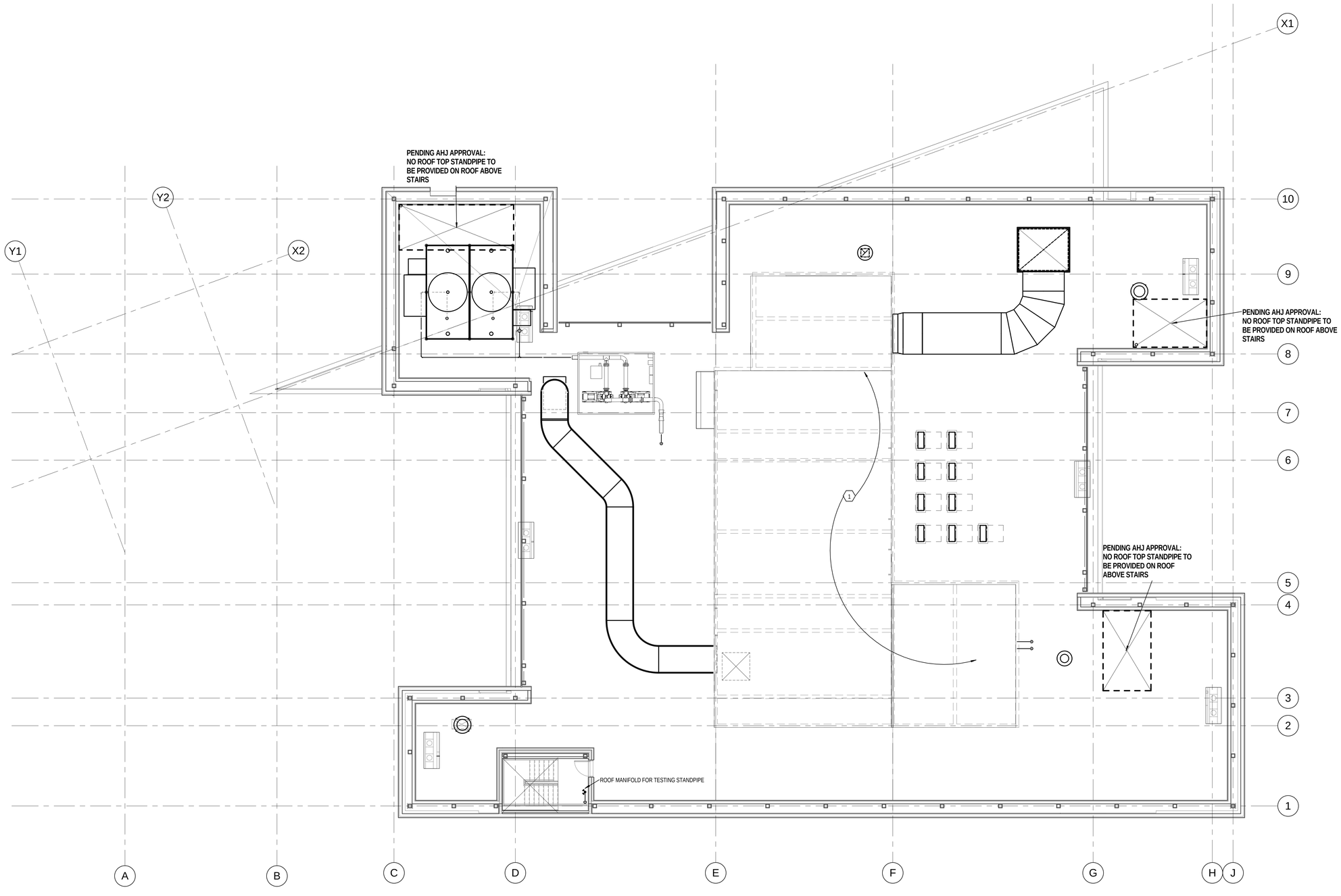

KEYED NOTES

1 PROTECT INTERIOR OF MECHANICAL SKID WITH WET FIRE SPRINKLING SYSTEM. THE INTERIOR OF THE AIR HANDLER DOES NOT REQUIRE COVERAGE. COORDINATE FIRE PROTECTION PIPE RISERS INTO THE BOTTOM OF THE SKIDS WITH MECHANICAL CONTRACTOR AND SKID MANUFACTURER.

GENERAL NOTES

A. PERFORM HYDRAULIC CALCULATIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
B. PROVIDE THREADED, WELDED, OR GROOVED FITTINGS THAT CONFORM TO NFPA 13 REQUIREMENTS.
C. PROVIDE SEISMIC BRACING AND FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION.
D. COORDINATE WITH ALL OTHER DISCIPLINES AND PROVIDE ADDITIONAL FITTINGS AND OFFSET AS REQUIRED FOR INSTALLATION.
E. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

1 FIRE PROTECTION ROOF ACCESS PLAN
SCALE: 1/8" = 1'-0"

6' 0' 4' 8' 12' 16'

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FIRE PROTECTION
ROOF ACCESS PLAN

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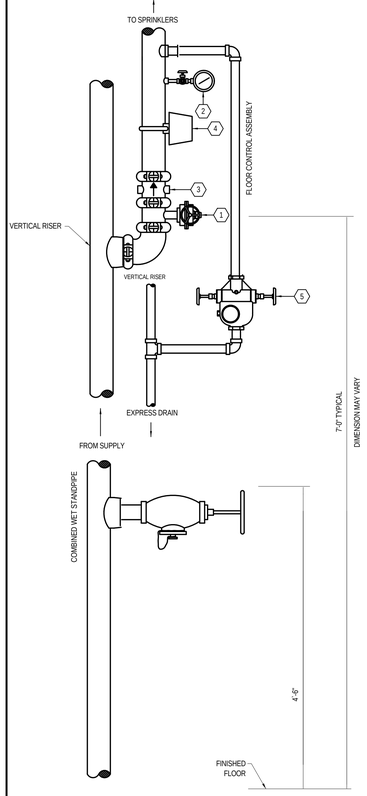
NOTES

1. INDICATING TYPE FLOOR CONTROL VALVE ASSEMBLY WITH SUPERVISORY SWITCH.
2. PRESSURE GAUGE, AND THREE-WAY VALVE WITH PLUG AND NIPPLES.
3. CHECK VALVE.
4. VANE TYPE WATERFLOW SWITCH.
5. DRAIN/ TEST VALVE WITH ADJUSTABLE ORIFICE.



1 FLOOR CONTROL ASSEMBLY DETAIL
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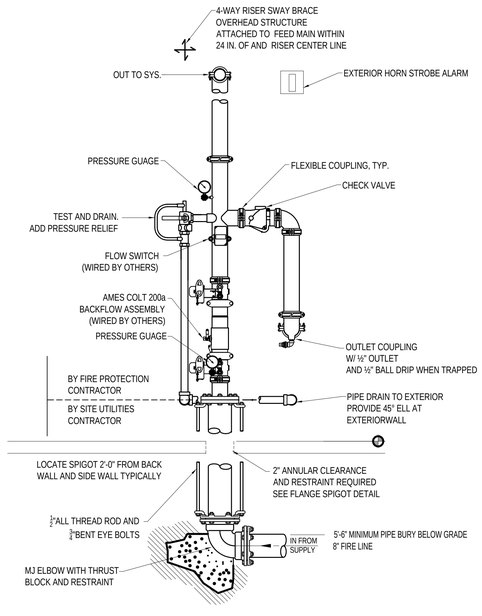
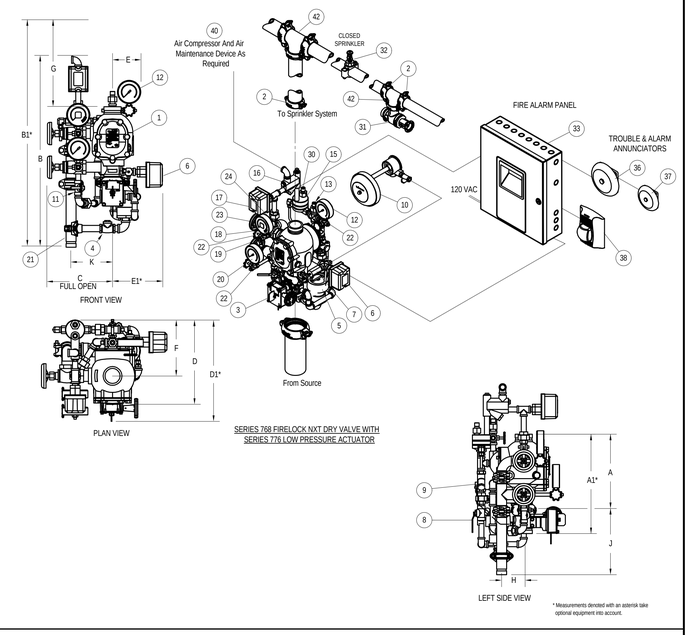


2 SYSTEM RISER DETAIL
NO SCALE

PRODUCT LEGEND	
1.	SERIES 768 FIRELOCK NXT DRY VALVE (SEE SUBMITTAL 30.80) VIC QUICK RISER.
2.	FIRELOCK RIGID COUPLINGS 005, 009, 009V.
3.	SERIES 705W BUTTERFLY VALVE (OPTIONAL).
4.	DRAIN SWING CHECK VALVE.
5.	DRIP CUP.
6.	SYSTEM SENSOR EPS10-2 ALARM PRESSURE SWITCH
7.	SERIES 729 DRIP CHECK VALVE.
8.	DIAPHRAGM-CHARGE-LINE BALL VALVE (NORMALLY OPEN)
9.	3-IN-1 STRAINER/CHECK/RESTRICTOR ASSEMBLY.
10.	SERIES 760 WATER MOTOR ALARM (OPTIONAL).
11.	ALARM TEST BALL VALVE.
12.	DIAPHRAGM-CHARGE-LINE PRESSURE GAUGE (0-300PSI/0-2068KPA).
13.	SERIES 749 AUTO DRAIN.
14.	SERIES 746-LPA DRY ACCELERATOR ASSEMBLY (OPTIONAL)(NOT SHOWN).
15.	SERIES 776 LOW-PRESSURE ACTUATOR.
16.	AIR MANIFOLD.
17.	EPS-45-2V SUPERVISORY SWITCH (OPTIONAL).
18.	SYSTEM PRESSURE GAUGE (0-80 PSI/0-552KPA WITH RETARD).
19.	WATER SUPPLY MAIN DRAIN VALVE - FLOW TEST.
20.	WATER SUPPLY PRESSURE GAUGE (0-300PSI/0-2068KPA).
21.	DRAIN CONNECTION KIT (OPTIONAL).
22.	GAUGE VALVE.
23.	SYSTEM MAIN DRAIN VALVE.
24.	SERIES 748 BALL CHECK VALVE.
25.	
26.	AIR FEED VALVE ASSEMBLY (NOT SHOWN).
27.	SYSTEM AIR LINE STRAINER (NOT SHOWN)
28.	
29.	
30.	AUTO VENT FOR 776 LOW PRESSURE ACTUATOR.
31.	SERIES 720 TESTMASTER.
32.	UPRIGHT SPRINKLER - VICTAULIC MODEL V2703/V2704.
33.	SYSTEM SENSOR PDRP 1001/PDRP 2001 CONTROL PANEL
34.	
35.	
36.	8" SUPERVISORY BELL: SYSTEM SENSOR SSM24-8, 24VDC, POLARIZED.
37.	6" TROUBLE BELL: SYSTEM SENSOR SS24-6, 24VDC, POLARIZED.
38.	HORN/STROBE: (WATERFLOW) SYSTEM SENSOR P1224MC (RED), 24VDC, POLARIZED.
39.	
40.	AIR MAINTENANCE DEVICE VICTAULIC 757/757P WITH PRESSURE SWITCH.
41.	(OPTIONAL SERIES 75D WATER COLUMN DRAIN KIT) NOT SHOWN.
42.	FIRELOCK TEE 002

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS OF APPROVALS ULFM
APPROVED NYC MEA-248-98-E Volume 3



SERIES 768 FIRELOCK NXT DRY VALVE WITH
SERIES 776 LOW PRESSURE ACTUATOR

* Measurements denoted with an asterisk take optional equipment into account.

3 DRY RISER/VALVE DETAIL
NO SCALE

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10
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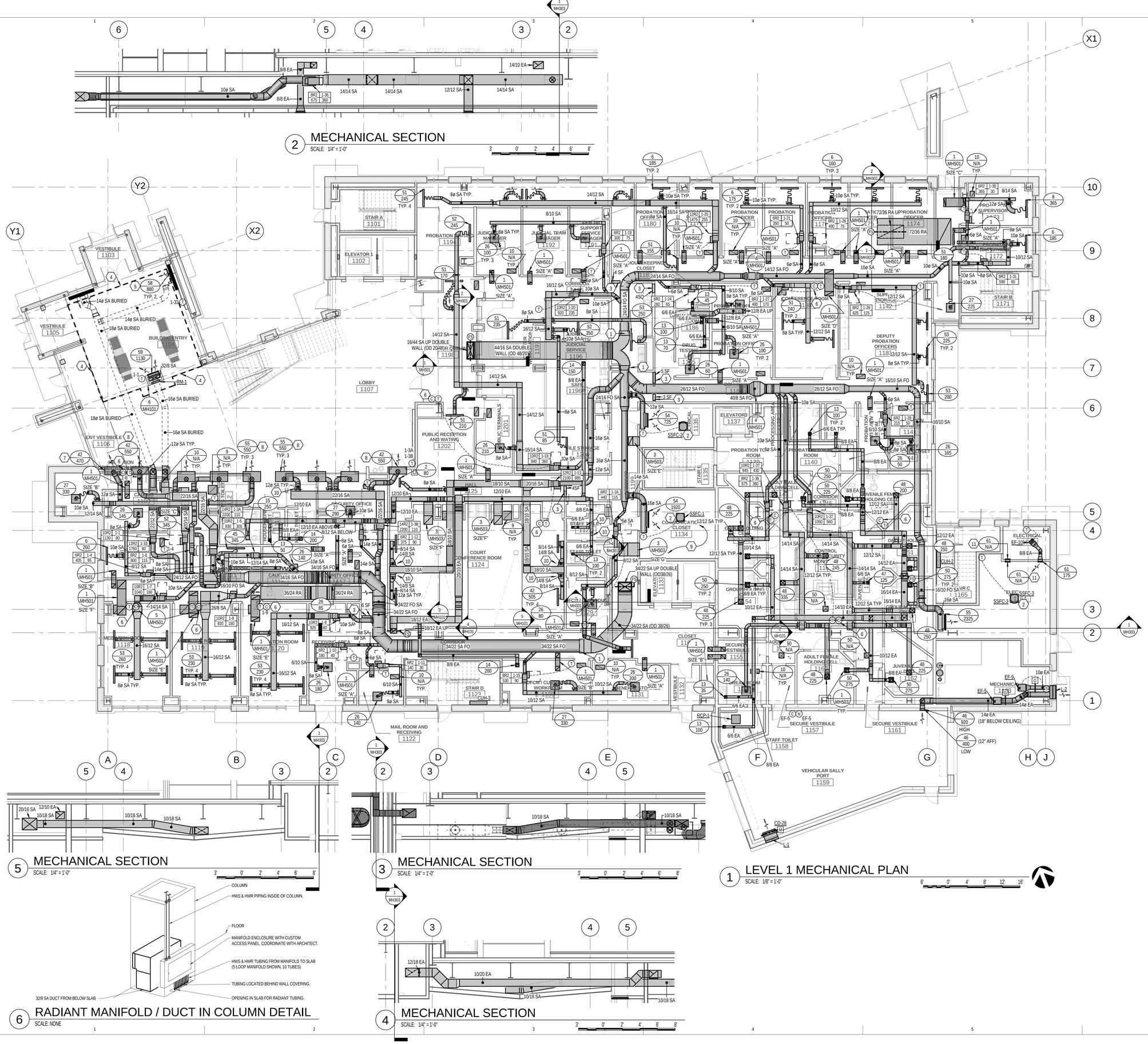
FIRE PROTECTION DETAILS

FP501



KEYED NOTES

1. TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.
2. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
3. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
4. PROVIDE THERMAL BREAK IN SLAB BETWEEN HEATED AND UNHEATED AREAS.
5. INSTALL AIR DIFFUSERS OUTSIDE OF RADIANT FLOOR AREA.
6. PROVIDE CARBON DIOXIDE SENSOR AT THIS APPROXIMATE LOCATION. DEVICE MUST BE LOCATED BETWEEN 3' AND 6' ABOVE THE FINISHED FLOOR SURFACE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ELECTRICAL DETAILS FOR WALL MOUNTED DEVICES. SEE SHEET MH802 FOR CONTROL SEQUENCE.
7. CONTRACTOR TO MODIFY PLENUM BOX SIZE TO BE ABLE TO FIT IN WALL CAVITY.
8. REFER TO ARCHITECTURAL LOBBY ELEVATIONS AND DETAILS FOR EXACT DEVICE ELEVATIONS, LOCATION, AND INSTALLATION.
9. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
10. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 7 DAMPERS ON THIS LEVEL.
11. MOUNT TRANSFER GRILLES 6" ABOVE FINISHED FLOOR.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.
B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.
C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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LEVEL 1 MECHANICAL PLAN

MH101

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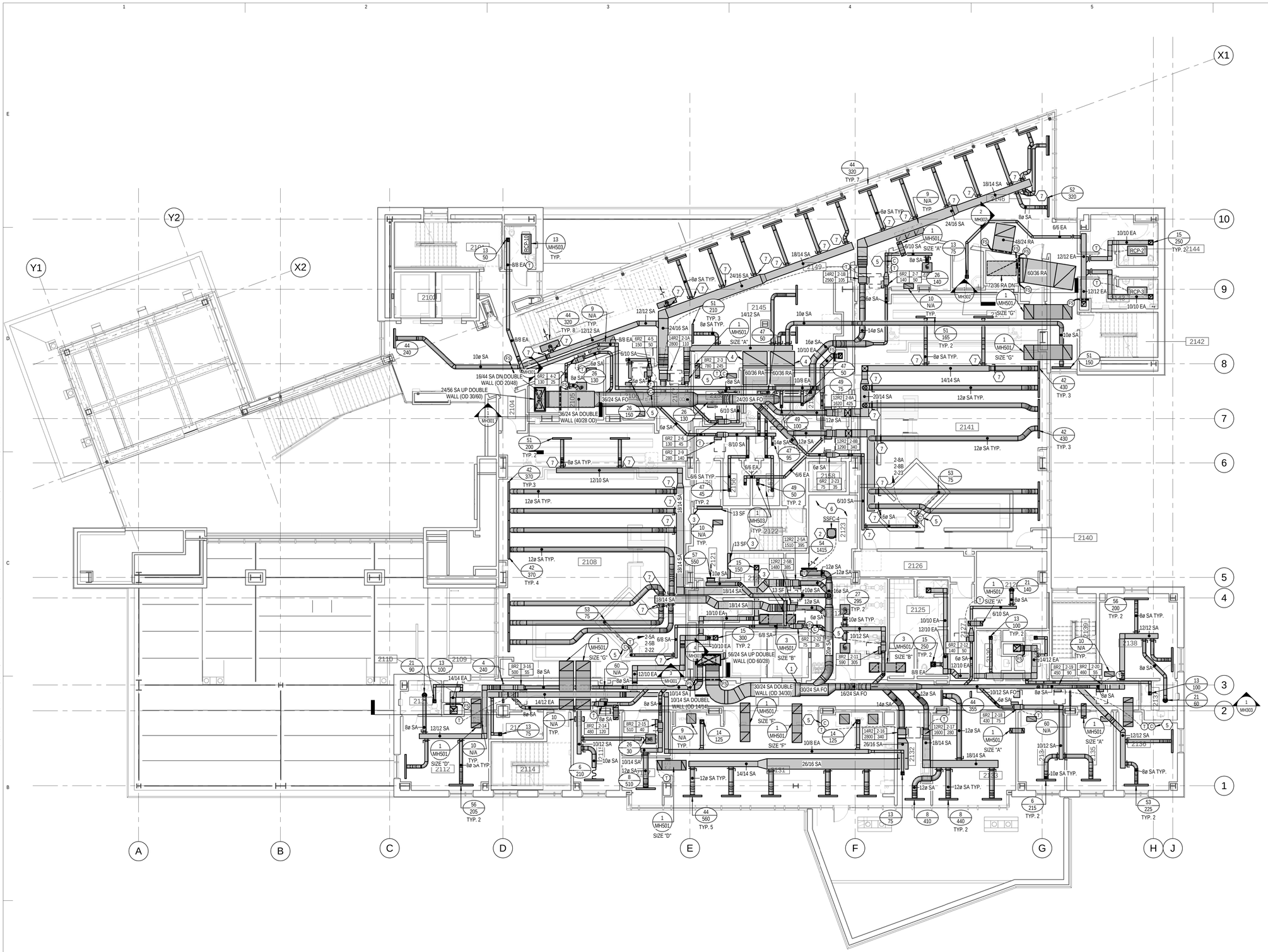

1 LEVEL 2 MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

KEYED NOTES

1. TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.
2. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
3. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
4. 60" X 36" HOLE ON TOP OF DUCT.
5. PROVIDE CARBON DIOXIDE SENSOR AT THIS APPROXIMATE LOCATION. DEVICE MUST BE LOCATED BETWEEN 3' AND 6' ABOVE THE FINISHED FLOOR SURFACE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ELECTRICAL DETAILS FOR WALL MOUNTED DEVICES. SEE SHEET MH802 FOR CONTROL SEQUENCE.
6. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
7. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 36 DAMPERS ON THIS LEVEL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.
B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.
C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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LEVEL 2 MECHANICAL PLAN

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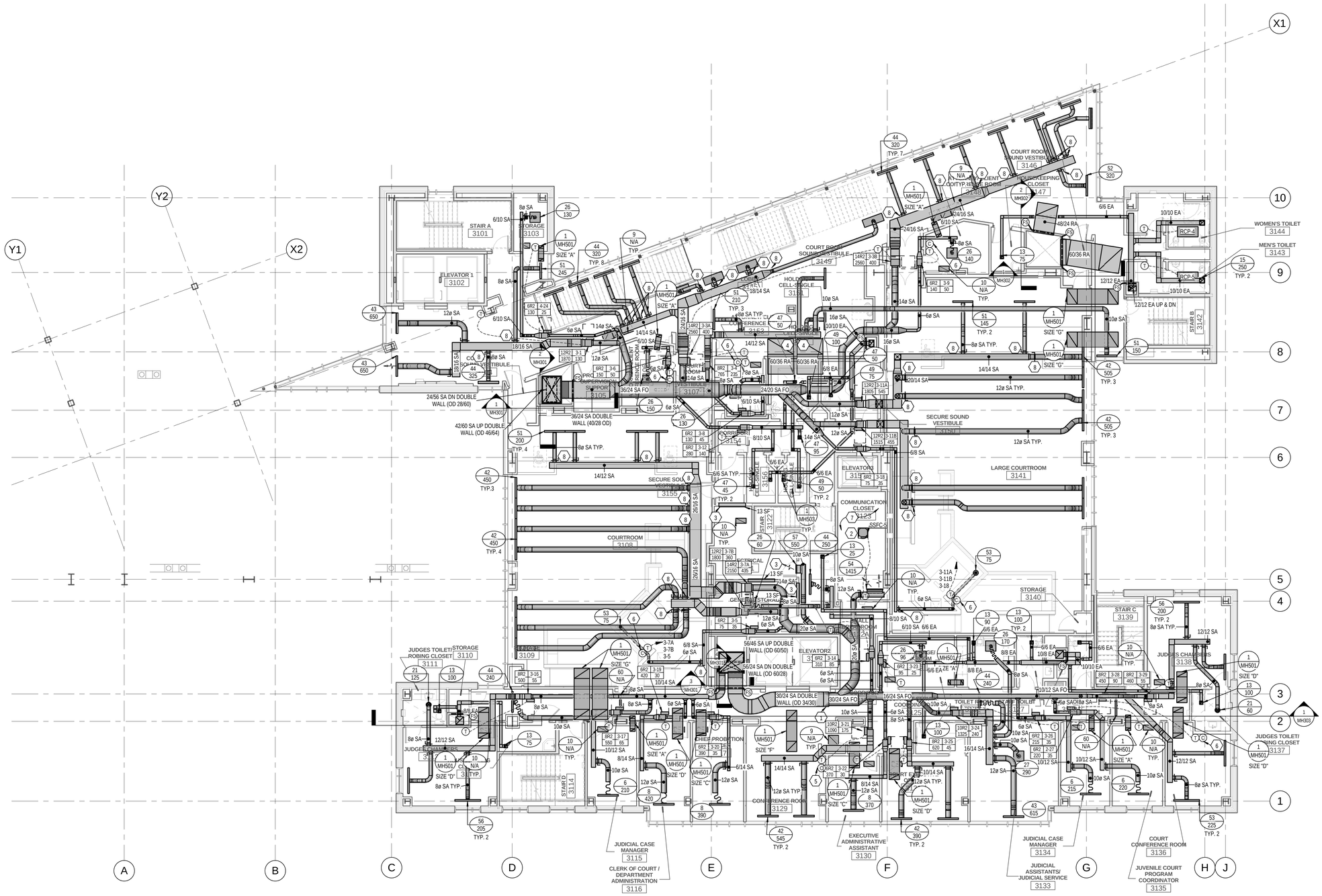

1 LEVEL 3 MECHANICAL PLAN

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

KEYED NOTES

1. TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.
2. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
3. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
4. 60" X 36" HOLE ON TOP OF DUCT.
5.
6. PROVIDE CARBON DIOXIDE SENSOR AT THIS APPROXIMATE LOCATION. DEVICE MUST BE LOCATED BETWEEN 3' AND 6' ABOVE THE FINISHED FLOOR SURFACE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ELECTRICAL DETAILS FOR WALL MOUNTED DEVICES. SEE SHEET MH802 FOR CONTROL SEQUENCE.
7. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
8. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 39 DAMPERS ON THIS LEVEL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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LEVEL 3 MECHANICAL PLAN

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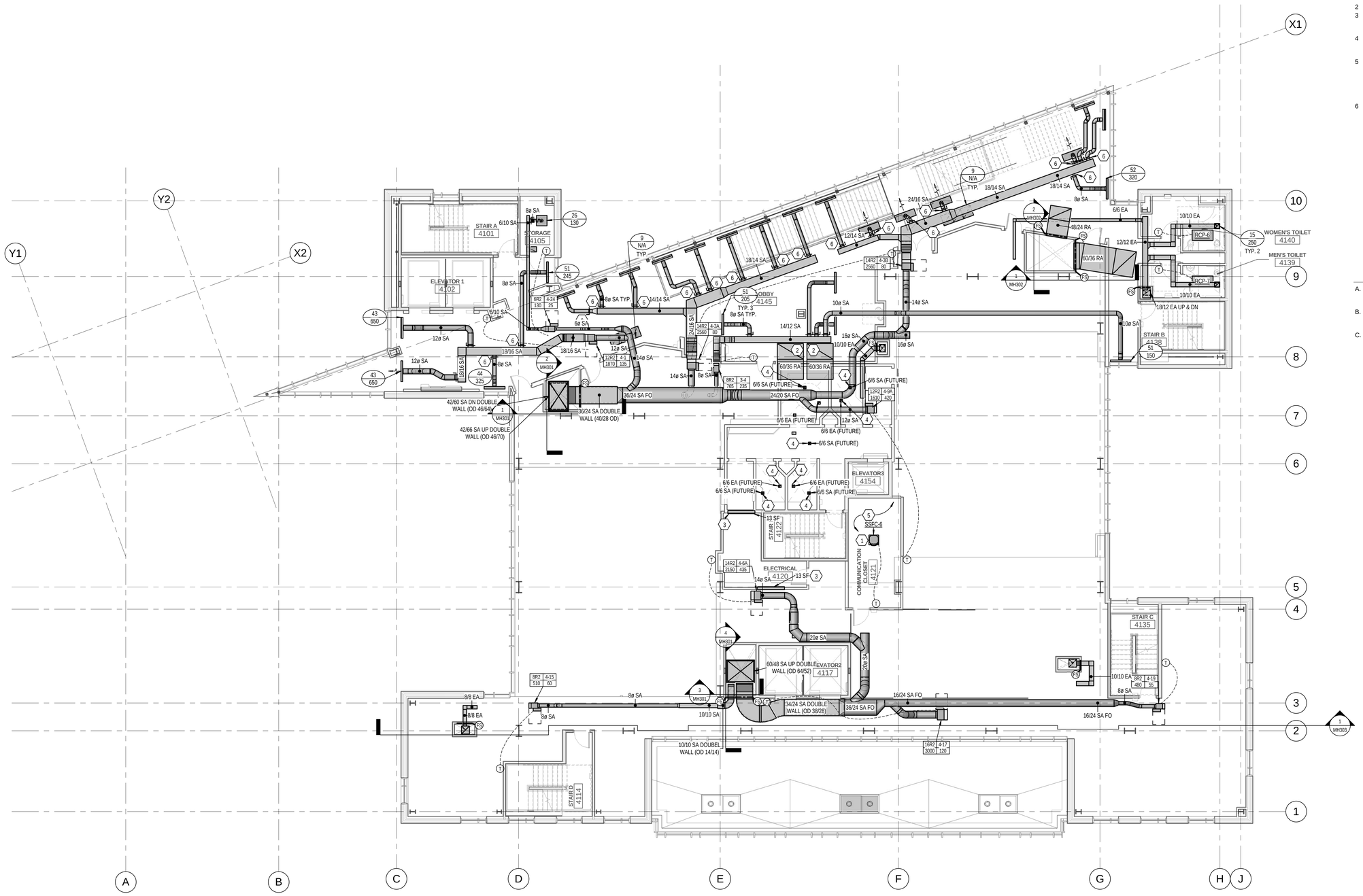

1 LEVEL 4 MECHANICAL PLAN

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

KEYED NOTES

1. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
2. 60" X 36" HOLE ON TOP OF DUCT.
3. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
4. PROVIDE SLEEVE THROUGH STRUCTUAL DECK ABOVE HOLDING CEILING FOR FUTURE DUCTWORK.
5. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
6. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 18 DAMPERS ON THIS LEVEL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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LEVEL 4 MECHANICAL PLAN

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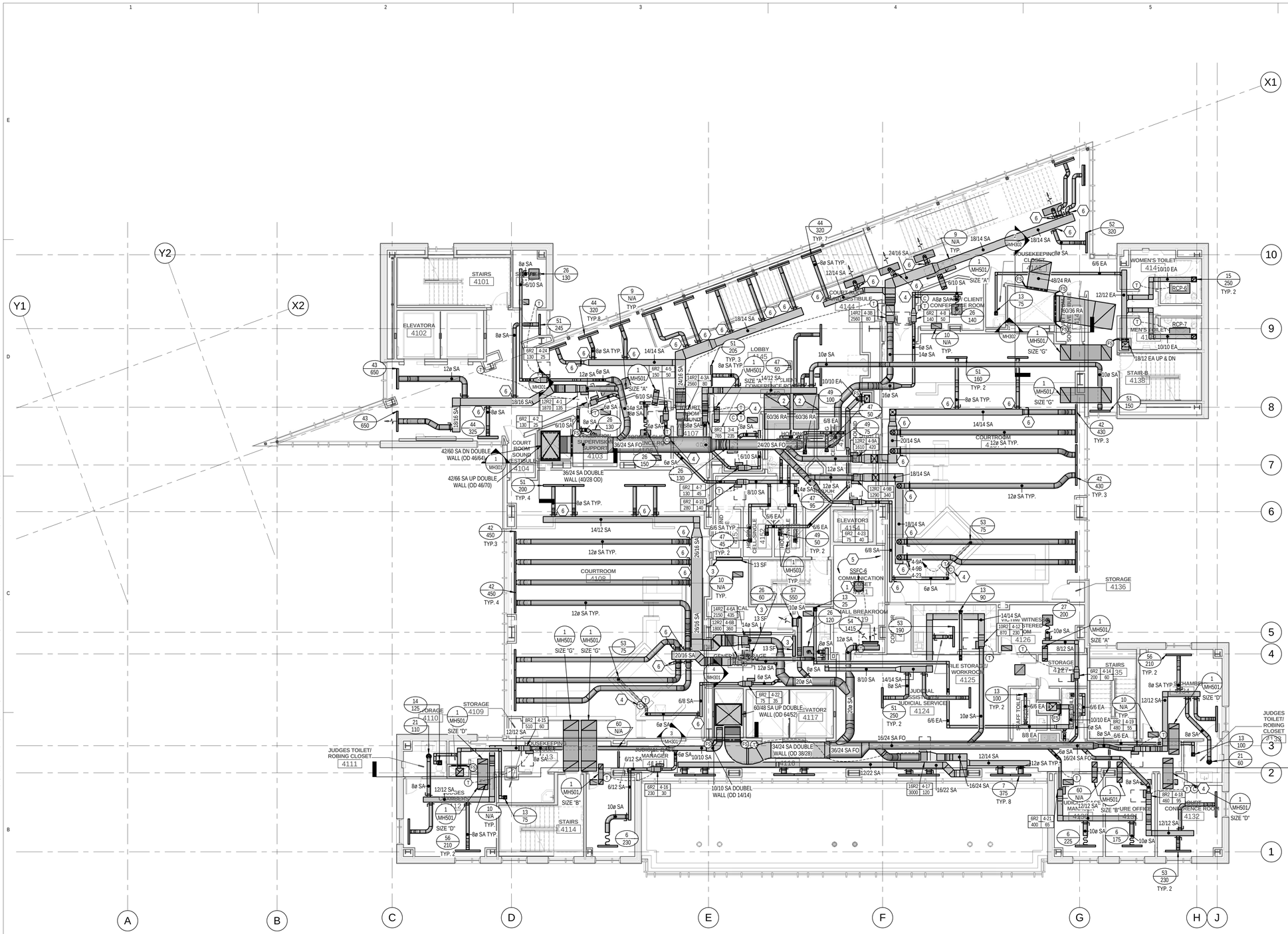

1 LEVEL 4 MECHANICAL PLAN ALTERNATE

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

KEYED NOTES

1. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
2. 60" X 36" HOLE ON TOP OF DUCT.
3. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
4. PROVIDE CARBON DIOXIDE SENSOR AT THIS APPROXIMATE LOCATION. DEVICE MUST BE LOCATED BETWEEN 3' AND 6' ABOVE THE FINISHED FLOOR SURFACE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ELECTRICAL DETAILS FOR WALL MOUNTED DEVICES. SEE SHEET MH802 FOR CONTROL SEQUENCE.
5. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
6. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 39 DAMPERS ON THIS LEVEL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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LEVEL 4 MECHANICAL PLAN ALT.

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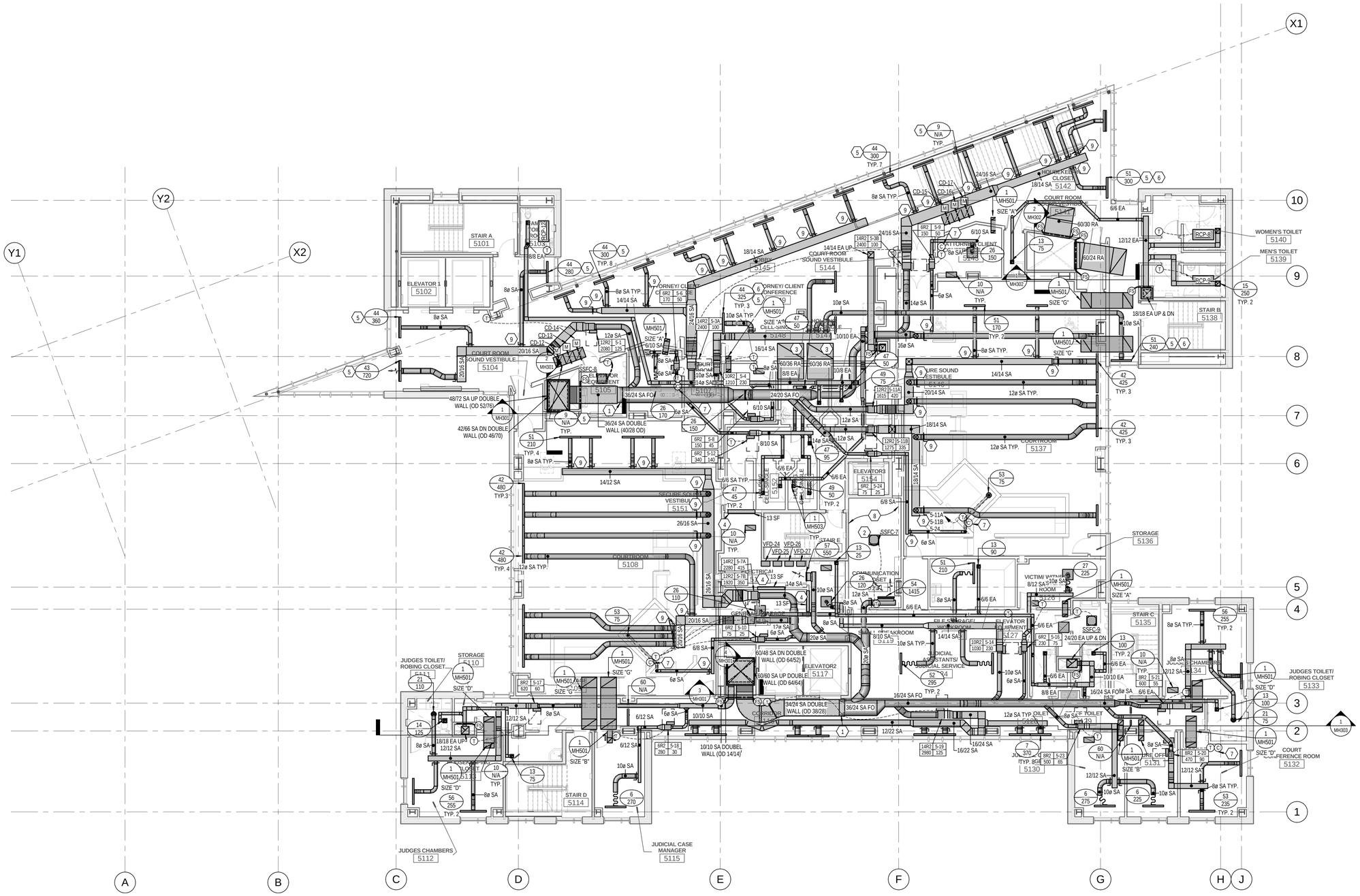

KEYED NOTES

1. TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.
2. INSTALL INDOOR SPLIT SYSTEM UNIT SO THAT IT IS NOT OVER ANY ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION ON SITE.
3. 60" X 36" HOLE ON TOP OF DUCT.
4. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.
5. SEAL AROUND ALL LOBBY CEILING PENETRATIONS AIR TIGHT.
6. PROVIDE EXTENDED PLENUM BOX TO ABOVE HARD CEILING.
7. PROVIDE CARBON DIOXIDE SENSOR AT THIS APPROXIMATE LOCATION. DEVICE MUST BE LOCATED BETWEEN 3' AND 6' ABOVE THE FINISHED FLOOR SURFACE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ELECTRICAL DETAILS FOR WALL MOUNTED DEVICES. SEE SHEET MH802 FOR CONTROL SEQUENCE.
8. 230900 CONTRACTOR TO COORDINATE WITH DIVISION 26 AND OWNER'S CONTROLS ENGINNER FOR ADEQUATE SPACE IN ROOM FOR BAS CONTROL PANELS. PANELS AND STEP-DOWN TRANSFORMER'S FOR CONTROLS ARE REQUIRED ON EACH FLOOR BY OWNER.
9. PROVIDE AND INSTALL POTTORF MODEL RCS-10R REMOTE BALANCING DAMPER. GROUP CONTROL POINTS FOR MULTIPLE CONTROL DAMPERS WHEN POSSIBLE IN CONSPICUOUS AND ACCESSIBLE LOCATION. TYPICAL FOR 38 DAMPERS ON THIS LEVEL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

1 LEVEL 5 MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

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LEVEL 5 MECHANICAL PLAN

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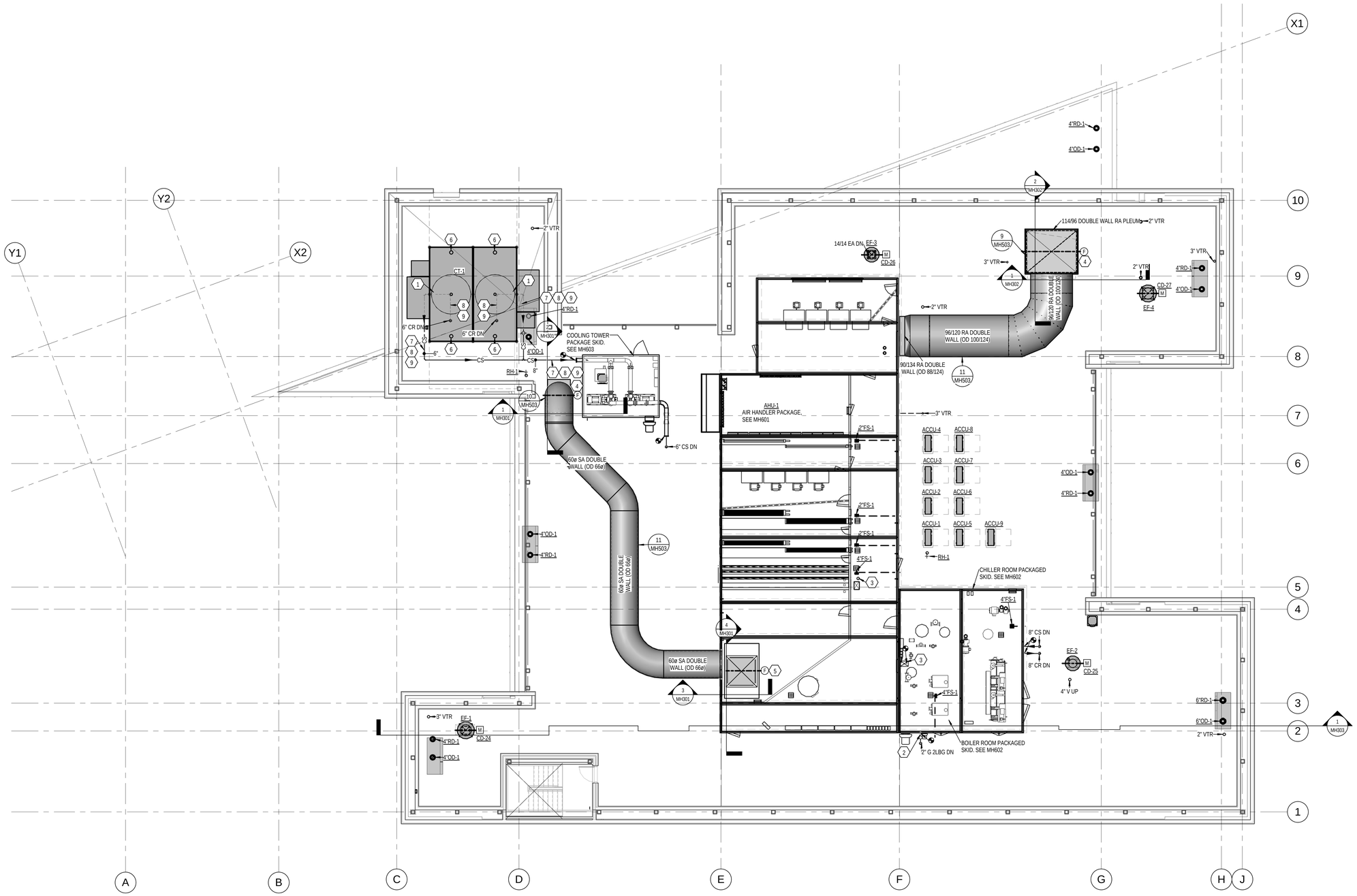

1 HVAC ROOF ACCESS LEVEL

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. CONNECT 6" CONDENSER WATER RETURN LINE TO COOLING TOWER PROVIDED DISTRIBUTION PIPING SYSTEM.
2. CONNECT 2" GAS LINE TO CONNECTION AT SKID PACKAGE SIDEWALL. COORDINATE EXACT CONNECTION LOCATION WITH SKID MANUFACTURER.
3. 230900 CONTRACTOR TO PROVIDE TOTALIZING METERS ON THE DIRECT EVAPORATIVE COOLING MAKE-UP WATER, COOLING TOWER MAKE-UP WATER AND THE DOMESTIC COLD WATER LINES. METERS SHALL BE TIED INTO THE BUILDING DDC SYSTEM.
4. INSTALL FIRE DAMPER AT ROOF OPENING. PROVIDE AND INSTALL A WATER TIGHT ACCESS DOOR FOR FIRE DAMPER ACCESS.
5. INSTALL DAMPER AT ROOF OPENING. ACCESS TO BE THROUGH AIR HANDLER.
6. MANUFACTURER PROVIDED CALIBRATED BALANCING VALVE AT THIS LOCATION.
7. CONTINUOUSLY SLOPE ALL CONDENSER WATER SUPPLY PIPING FROM COOLING TOWERS TO CONDENSER WATER PUMPS IN THE DIRECTION OF FLOW. NO INTERMEDIATE HIGH POINTS IN THE PIPING ARE ALLOWED. PROVIDE 6' OF STRAIGHT PIPE AT THE INLETS OF P-1/P-2.
8. PROVIDE DRAINS AT ALL LOW POINTS IN OUTDOOR CONDENSER WATER LINES THAT CANNOT BE DRAINED INSIDE THE PENTHOUSE. NO CONDENSER WATER CAN BE TRAPPED IN THE OUTDOOR PIPING.
9. PROVIDE INSULATION WITH PROTECTIVE CORRUGATED ALUMINUM JACKET ON ALL EXTERIOR CONDENSER WATER SUPPLY PIPING EXPOSED TO THE ATMOSPHERE IN THE COOLING TOWER YARD.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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MECHANICAL ROOF ACCESS LEVEL PLAN

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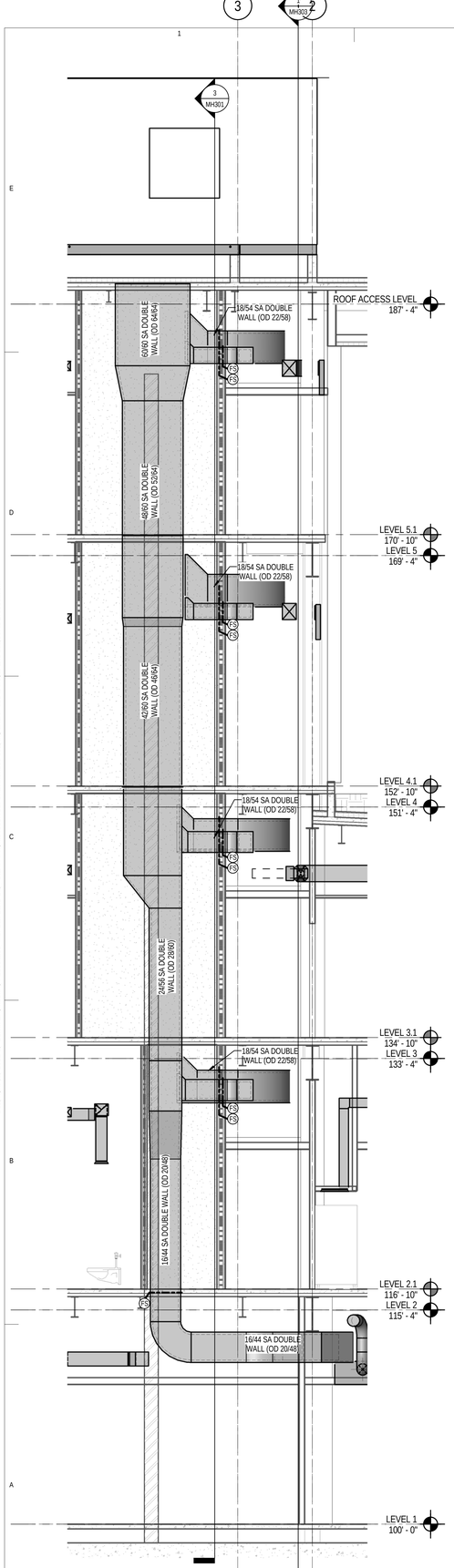
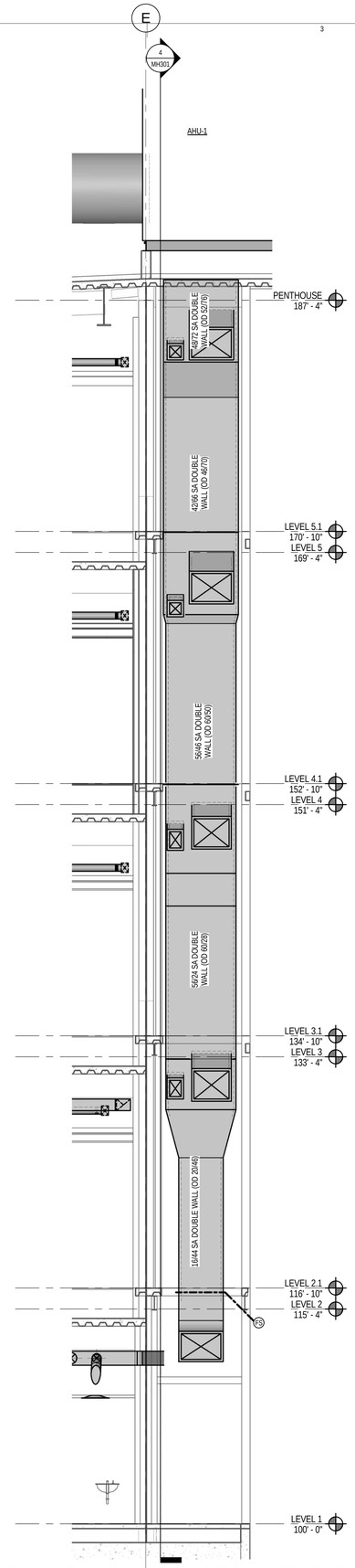
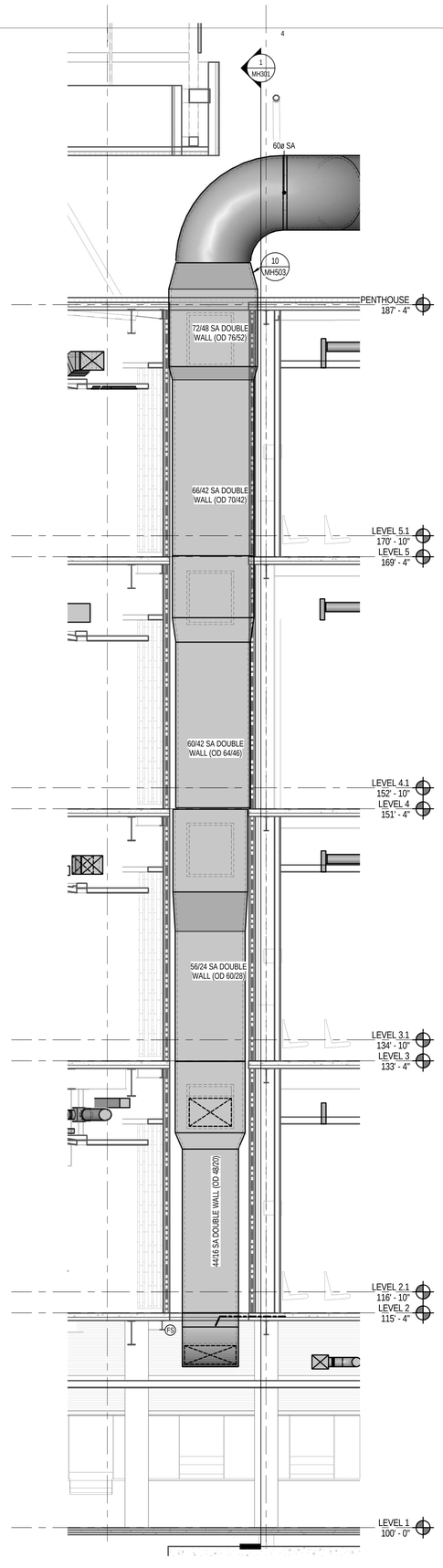


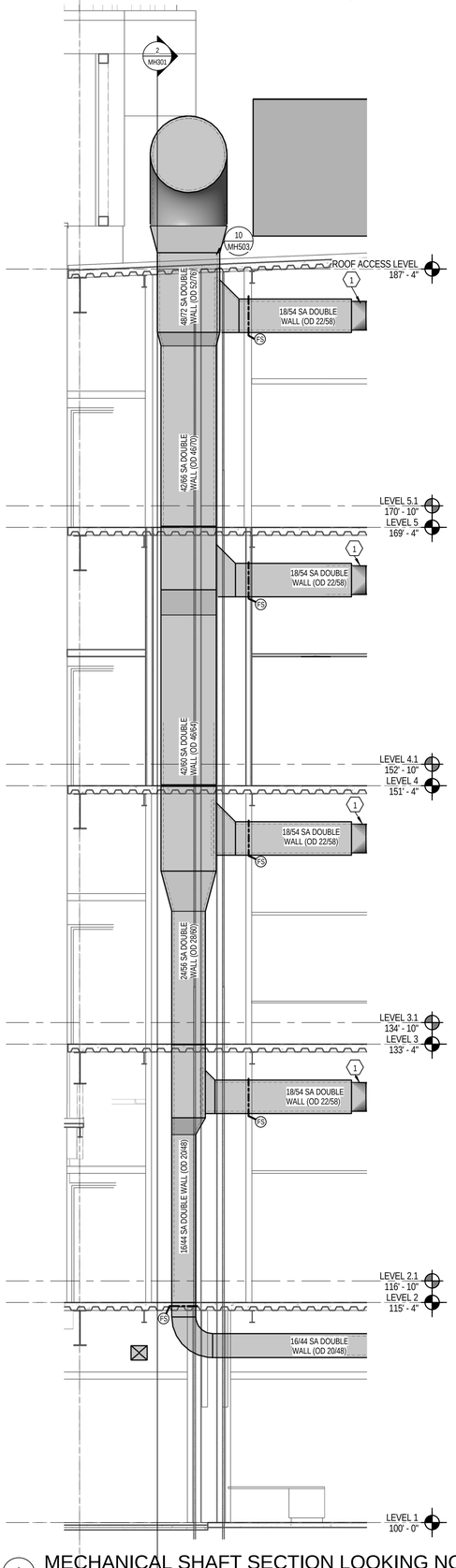
4 MECHANICAL SHAFT SECTION LOOKING EAST
SCALE: 1/4" = 1'-0"



3 MECHANICAL SHAFT SECTION LOOKING NORTH
SCALE: 1/4" = 1'-0"



2 MECHANICAL SHAFT SECTION LOOKING EAST
SCALE: 1/4" = 1'-0"



1 MECHANICAL SHAFT SECTION LOOKING NORTH
SCALE: 1/4" = 1'-0"

KEYED NOTES

1 TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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MECHANICAL BUILDING SECTIONS

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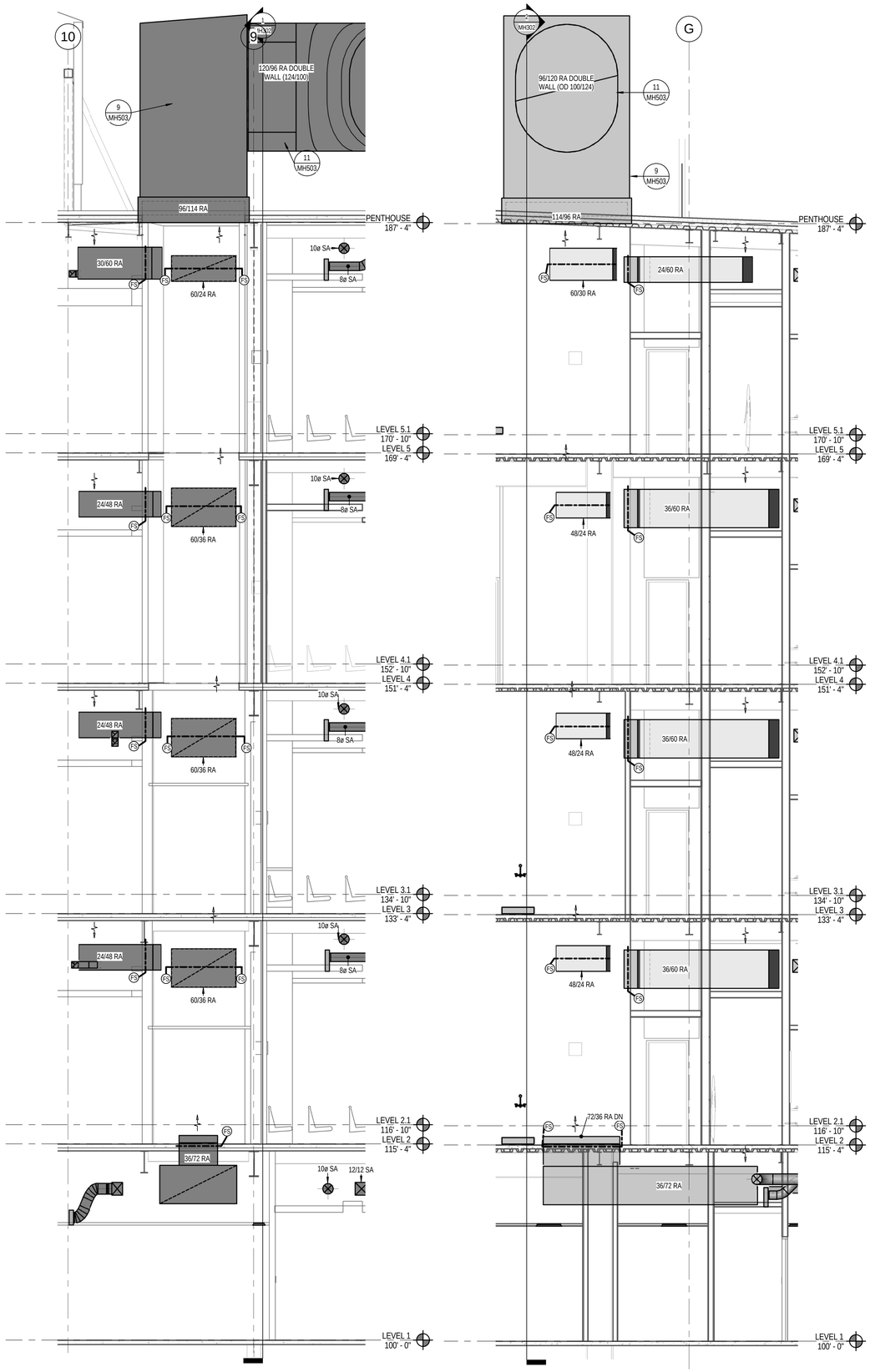

1 MECHANICAL SHAFT SECTION LOOKING NORTH
SCALE: 1/4" = 1'-0"

2 MECHANICAL SHAFT SECTION LOOKING EAST
SCALE: 1/4" = 1'-0"

KEYED NOTES

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.
B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.
C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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MECHANICAL BUILDING SECTIONS

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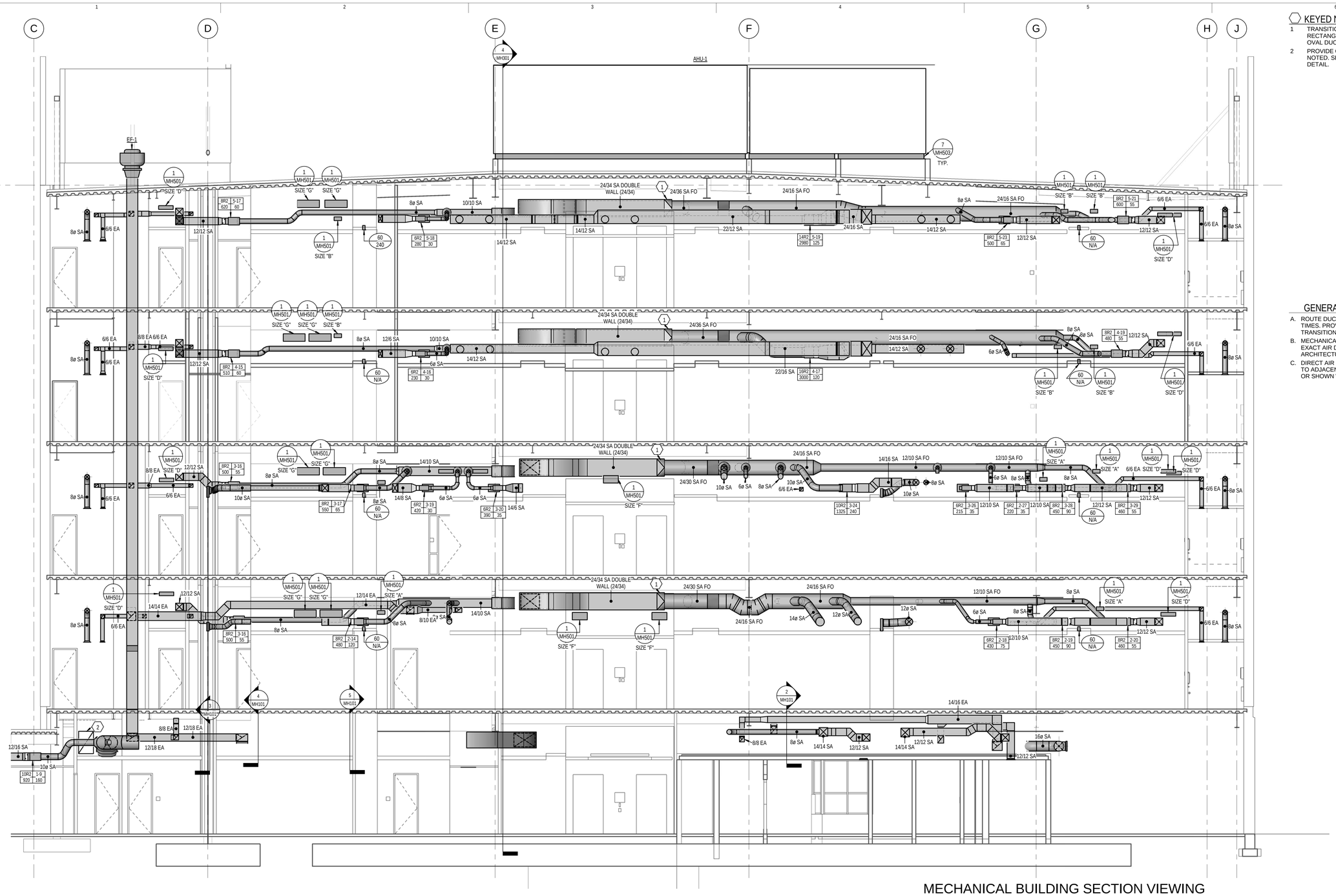

1 MECHANICAL BUILDING SECTION VIEWING NORTH

SCALE: 3/16" = 1'-0"

KEYED NOTES

1. TRANSITION FROM DOUBLE-WALL RECTANGULAR DUCT TO SINGLE-WALL FLAT OVAL DUCT AT THIS LOCATION.
2. PROVIDE OPENING IN WALL WITH THE AREA NOTED. SEE ARCHITECTURAL PLANS FOR DETAIL.

GENERAL NOTES

A. ROUTE DUCTWORK AS HIGH AS POSSIBLE AT ALL TIMES. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS TO MAXIMIZE SPACE BELOW DUCT.

B. MECHANICAL CONTRACTOR TO COORDINATE EXACT AIR DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS.

C. DIRECT AIR FLOW FROM ALL LINEAR DIFFUSERS TO ADJACENT WALL UNLESS NOTED OTHERWISE OR SHOWN WITH FLOW ARROWS.

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BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

MECHANICAL BUILDING SECTION

MH303

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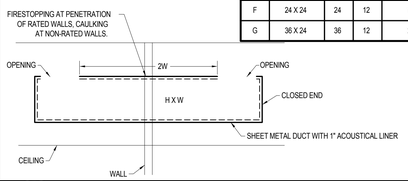
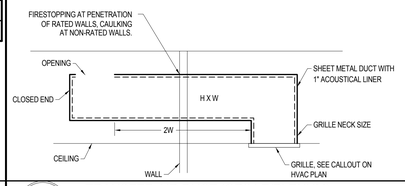
SIZE	OPENING (INXIN)	W (IN)	H (IN)	MAX. TRANSFER (CFM)	APPROX. ΔP (INWC)
A	12 X 6	12	6	230	0.02
B	12 X 12	12	6	380	0.02
C	24 X 6	24	6	400	0.02
D	24 X 12	24	6	680	0.02
E	24 X 12	24	12	920	0.02
F	24 X 24	24	12	1500	0.02
G	36 X 24	36	12	2500	0.02



1 TRANSFER AIR DUCT (PLENUM/PLENUM)

NO SCALE

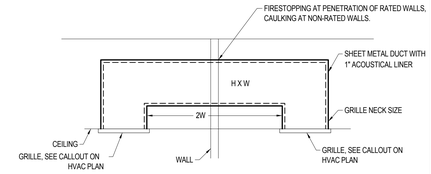
SIZE	OPENING (INXIN)	W (IN)	H (IN)	GRILLE NECK (INXIN)	MAX. TRANSFER (CFM)	APPROX. ΔP (INWC)
A	22 X 8	22	6	22 X 10	400	0.05
B	22 X 16	22	12	22 X 22	850	0.05



2 TRANSFER AIR DUCT (GRILLE/PLENUM)

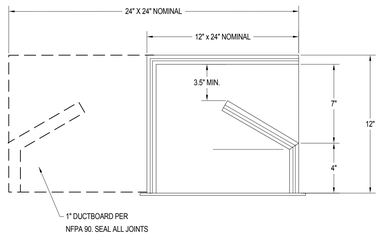
NO SCALE

SIZE	GRILLE NECK (INXIN)	W (IN)	H (IN)	MAX. TRANSFER (CFM)	APPROX. ΔP (INWC)
A	22 X 10	22	6	300	0.05
B	22 X 22	22	12	650	0.05



3 TRANSFER AIR DUCT (GRILLE/GRILLE)

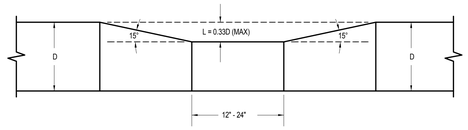
NO SCALE



TYPICAL OF ALL RETURN AIR GRILLES

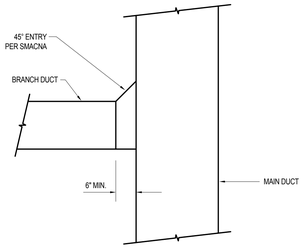
4 RETURN AIR GRILLE DUCTBOARD SOUND BOOT DETAIL

NO SCALE



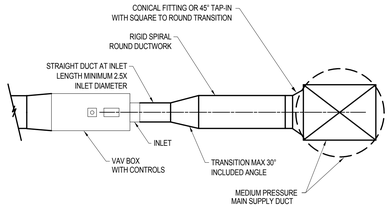
5 TYPICAL DUCT SLICE DETAIL

NO SCALE



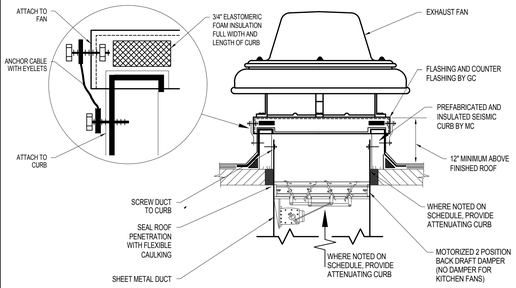
6 TYPICAL DUCT TAKEOFF DETAIL

NO SCALE



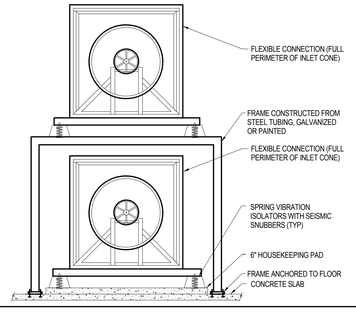
7 TYPICAL MEDIUM PRESSURE TAKE-OFF VAV DETAIL

NO SCALE



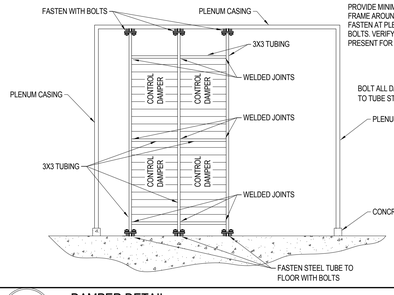
8 ROOF MOUNTED RELIEF/EXHAUST FAN CURB DETAIL

NO SCALE



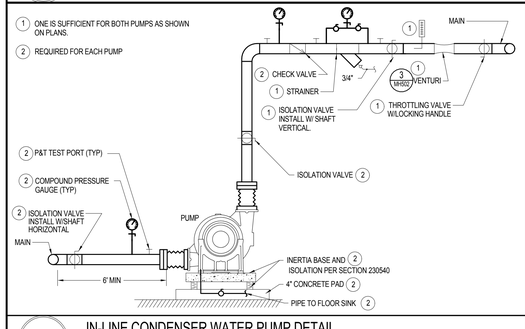
9 PLENUM FAN INSTALLATION DETAIL

NO SCALE



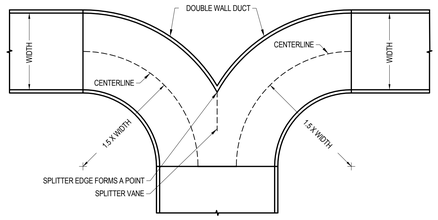
10 DAMPER DETAIL

NO SCALE



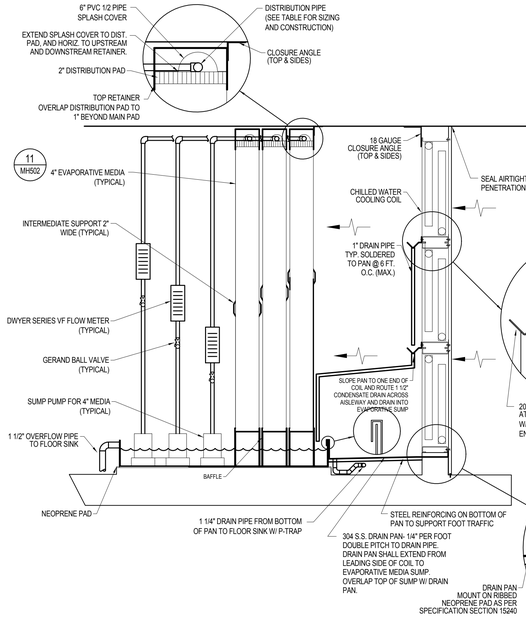
11 IN-LINE CONDENSER WATER PUMP DETAIL

NO SCALE



12 DOUBLE WALL DUCT PAIR-OF-PANTS FITTING

NO SCALE



RECOMMENDED DISTRIBUTION PIPE DESIGN FOR FULL FACE COVERAGE					
MEDIA DEPTH (INCHES)	PIPE LENGTH (FEET) 1	PIPE DESIGN DISCHARGE FLOW (GPM/SQFT)	PIPE DIAMETER (INCHES)	HOLE DIAMETER (INCHES)	HOLE SPACING (INCHES)
8/4	8-16	1.50	1	5/32	3
1 HEADER SHALL BE CENTER FED, THIS IS THE DISTANCE FROM THE "T" TO THE END OF THE PIPE.					

GENERAL NOTES:

A M.C. SHALL COVER BOTH SIDES OF ALL COILS WITH 1/4" PLYWOOD DURING CONST.

13 COOLING COIL AND EVAPORATIVE COOLER DETAIL

NO SCALE

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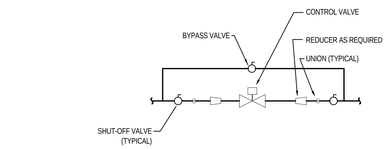
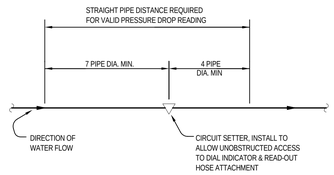
MECHANICAL DETAILS

MH501



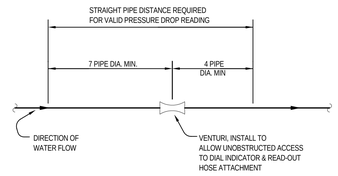
1 CONTROL VALVE INSTALLATION

NO SCALE



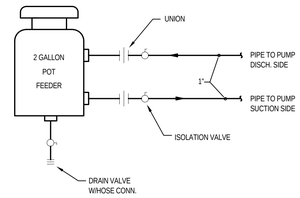
2 CIRCUIT SETTER DETAIL

NO SCALE



3 VENTURI INSTALLATION DETAIL

NO SCALE



4 POT FEEDER DETAIL

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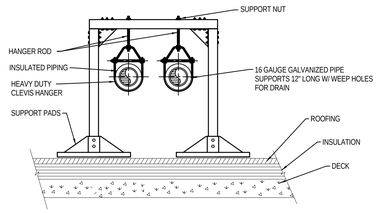
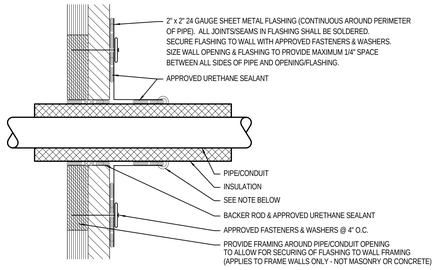


USE PIPING SUPPORTS SYSTEM ON ROOF BY MIRO: 6-H, 8-H, OR 16-H SYSTEM.
FOLLOW MANUFACTURER'S RECOMMENDATIONS

5 ROOF TOP PIPE SUPPORT DETAIL

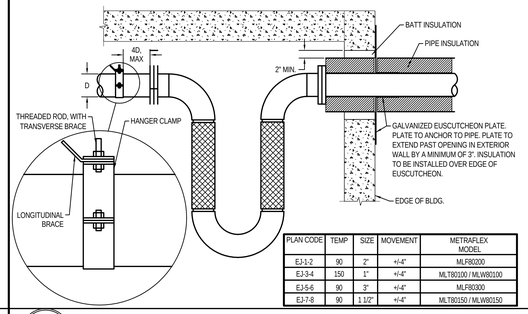
NO SCALE



NOTE: ALSO SEAL JOINT BETWEEN FLASHING AND PIPE WITH EXTERIOR WEATHER-PROOFING SEALANT.
SEALANT SHALL BE DESIGN POLYMERICS DP-1020 FIBER-REINFORCED DUCT SEALANT.
APPLY SEALANT IN STRICT CONFORMANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

6 PIPE SLEEVE FOR INSULATED PIPE THRU WALL

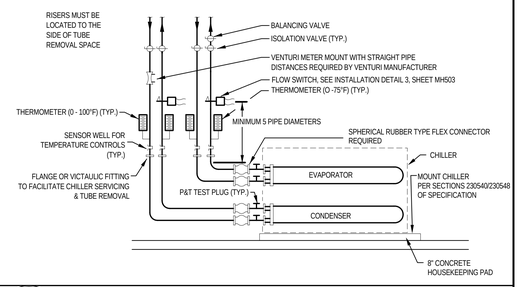
NO SCALE



PLAN CODE	TEMP	SIZE	MOVEMENT	METRAFLEX MODEL
EJ-1-2	90	2"	+/-4"	MLFR0200
EJ-3-4	150	1"	+/-4"	MLTR0100 / MLWR0100
EJ-5-6	90	3"	+/-4"	MLFR0300
EJ-7-8	90	1 1/2"	+/-4"	MLTR0150 / MLWR0150

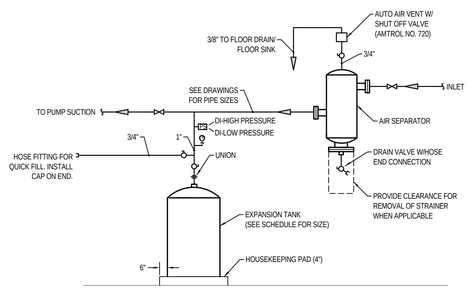
7 EXPANSION JOINT

NO SCALE



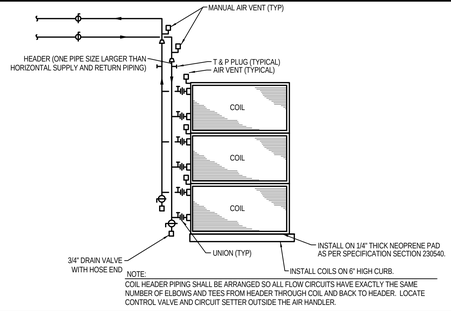
8 CHILLER PIPING DETAIL (CH-1)

NO SCALE



9 AIR SEPARATOR/EXPANSION TANK PIPING DETAIL (NO GLYCOL)

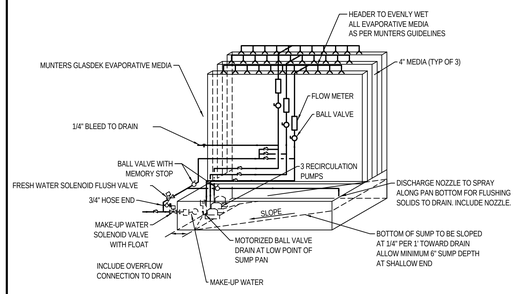
NO SCALE



NOTE:
COIL HEADER PIPING SHALL BE ARRANGED SO ALL FLOW CIRCUITS HAVE EXACTLY THE SAME NUMBER OF ELBOWS AND TEES FROM HEADER THROUGH COIL AND BACK TO HEADER. LOCATE CONTROL VALVE AND CIRCUIT SETTER OUTSIDE THE AIR HANDLER.

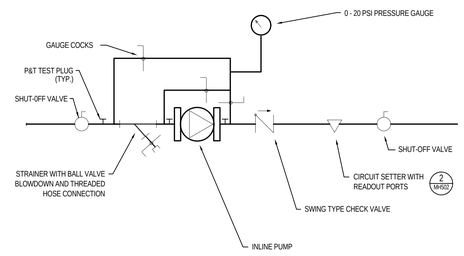
10 COIL BANK CONNECTION DETAIL

NO SCALE



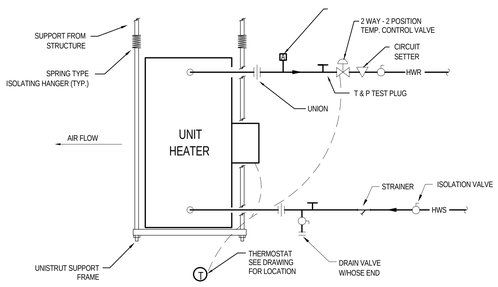
11 PIPING OF DIRECT EVAPORATIVE COOLER

NO SCALE



12 IN-LINE PUMP PIPING DETAIL

NO SCALE



13 UNIT HEATER PIPING DETAIL (W/ ATC VALVE)

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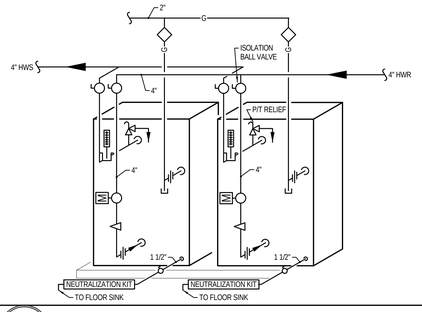
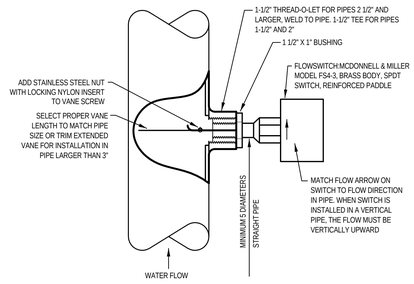


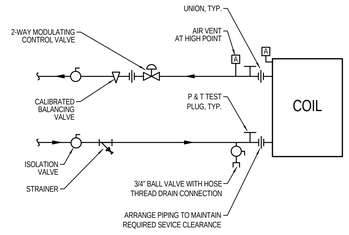
14 BOILER INSTALLATION

NO SCALE



15 FLOW SWITCH INSTALLATION DETAIL

NO SCALE



16 COIL PIPING DIAGRAM (2-WAY VALVE)

NO SCALE

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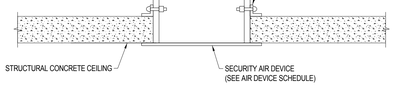
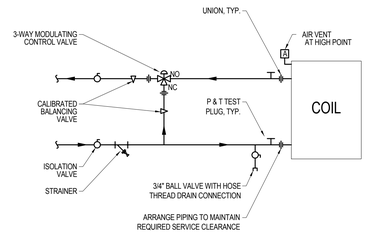
MECHANICAL DETAILS

MH502



1 SECURITY AIR DEVICE INSTALLATION

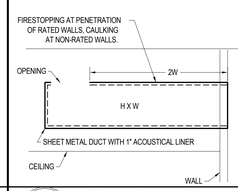
NO SCALE



2 COIL PIPING DIAGRAM (3-WAY VALVE)

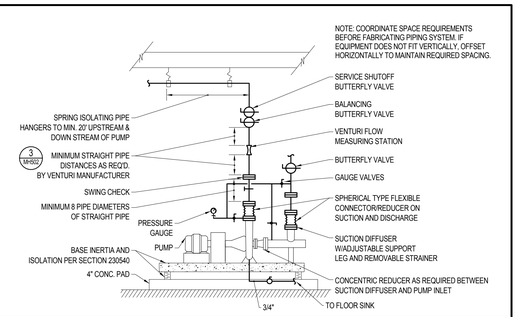
NO SCALE

SIZE	OPENING (INXIN)	W (IN)	H (IN)	MAX. TRANSFER (CFM)	APPROX. ΔP (INWC)
A	12 X 6	12	6	230	0.02
B	12 X 12	12	6	380	0.02
C	24 X 6	24	6	400	0.02
D	24 X 12	24	6	680	0.02
E	24 X 12	24	12	920	0.02
F	24 X 24	24	12	1500	0.02
G	36 X 24	36	12	2500	0.02



3 TRANSFER AIR DUCT (PLENUM/WALL)

NO SCALE

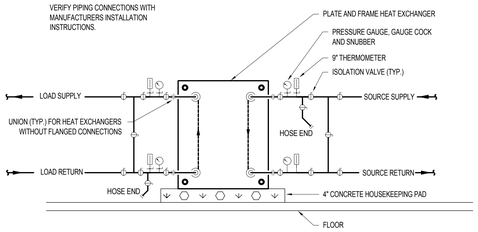


4 TYPICAL BASE MOUNTED PUMP INSTALLATION DETAIL

NO SCALE

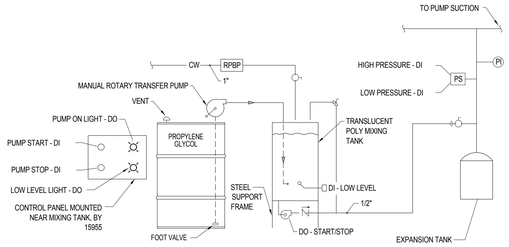
NOTE:

VERIFY PIPING CONNECTIONS WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.



5 PLATE AND FRAME HEAT EXCHANGER DETAIL

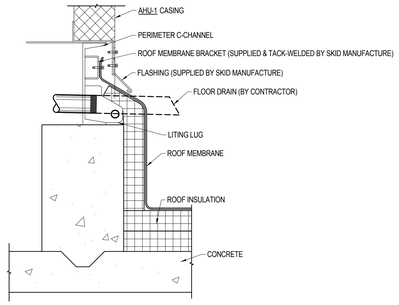
NO SCALE



CONTROL SEQUENCE: ADJUSTABLE LOW PRESSURE SWITCH SHALL INITIATE A SOFTWARE ALARM THROUGH THE DDC CONTROL SYSTEM. MOMENTARY PUSH BUTTON SHALL START MAKE-UP PUMP. PUMP SHALL BE STOPPED BY ADJUSTABLE HIGH PRESSURE SWITCH OR MOMENTARY PUSH BUTTON STOP SWITCH. FLOAT SWITCH IN MIXING TANK SHALL INITIATE A SOFTWARE ALARM AND TURN ON AN INDICATOR LIGHT ON THE PUMP CONTROL PANEL, WHEN LEVEL DROPS BELOW 1/4 FULL.

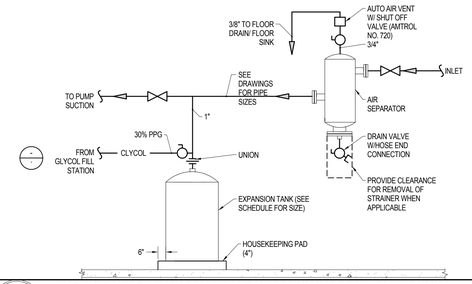
6 GLYCOL MAKE-UP SYSTEM DETAIL - DDC CONTROLS

NO SCALE



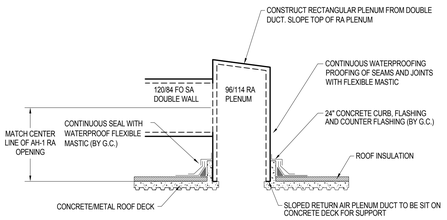
7 AIR HANDLER ROOF CURB DETAIL

NO SCALE



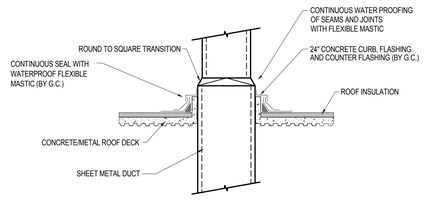
8 AIR SEPARATOR/EXPANSION TANK PIPING DETAIL (W/GLYCOL)

NO SCALE



9 RETURN DUCT ROOF PENETRATION DETAIL

NO SCALE



10 SUPPLY DUCT ROOF PENETRATION DETAIL

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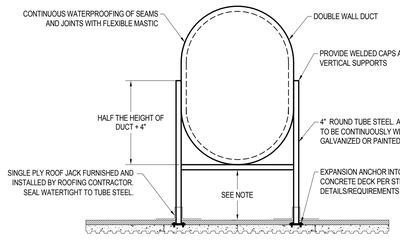
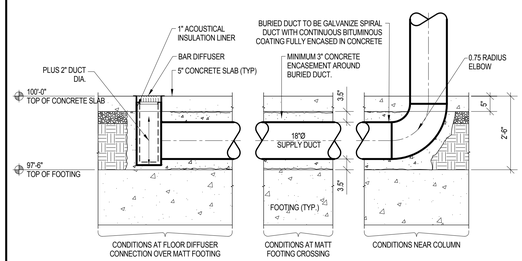


NOTE: COORDINATE HEIGHT OF BOTTOM SUPPORT ON SITE SO THAT CENTER LINE OF DUCT LINES UP WITH CENTERLINE OPENING INTO AIR HANDLER.

11 ROOF MOUNTED DUCT SUPPORT DETAIL

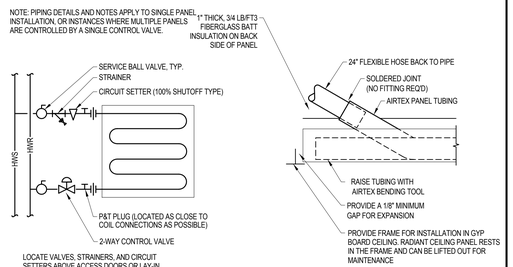
NO SCALE



12 FLOOR BAR GRILLE CONNECTION DETAIL

NO SCALE

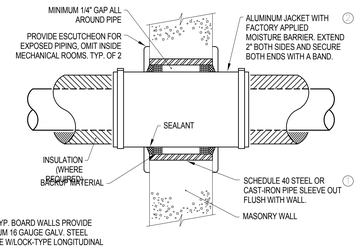
NOTE: PIPING DETAILS AND NOTES APPLY TO SINGLE PANEL INSTALLATION, OR INSTANCES WHERE MULTIPLE PANELS ARE CONTROLLED BY A SINGLE CONTROL VALVE.



LOCATE VALVES, STRAINERS, AND CIRCUIT SETTERS ABOVE ACCESS DOORS OR LAY-IN CEILING TILES WHERE ACCESSIBLE

13 HYDRONIC RADIANT PANEL PIPING AND INSTALLATION

NO SCALE

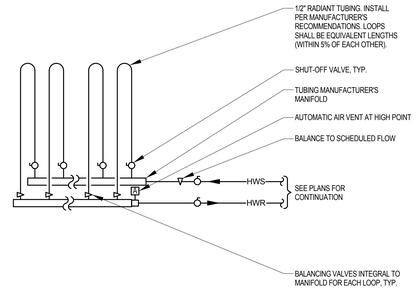


1 FOR GYP. BOARD WALLS PROVIDE MINIMUM 16 GAUGE GALV. STEEL SLEEVE W/LOCK-TYPE LONGITUDINAL SEAM

2 OMIT ALUMINUM JACKET IF PIPING IS UNINSULATED

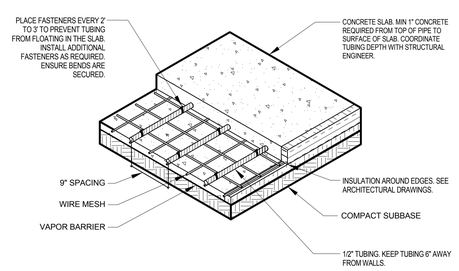
14 PIPE SLEEVE FOR INSULATED PIPE THROUGH WALL

NO SCALE



15 RADIANT MANIFOLD PIPING SCHEMATIC

NO SCALE



16 RADIANT TUBING INSTALLATION DETAIL

NO SCALE

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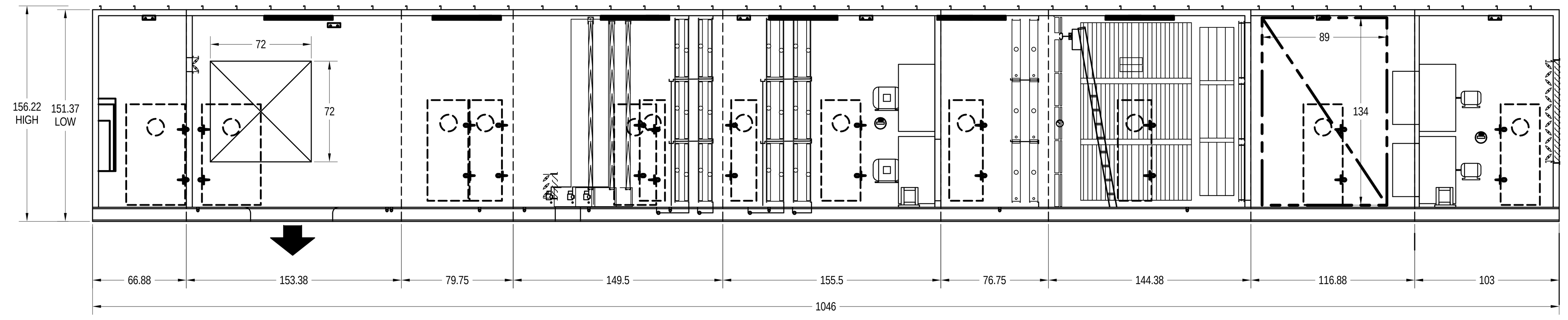
BID DOCUMENTS

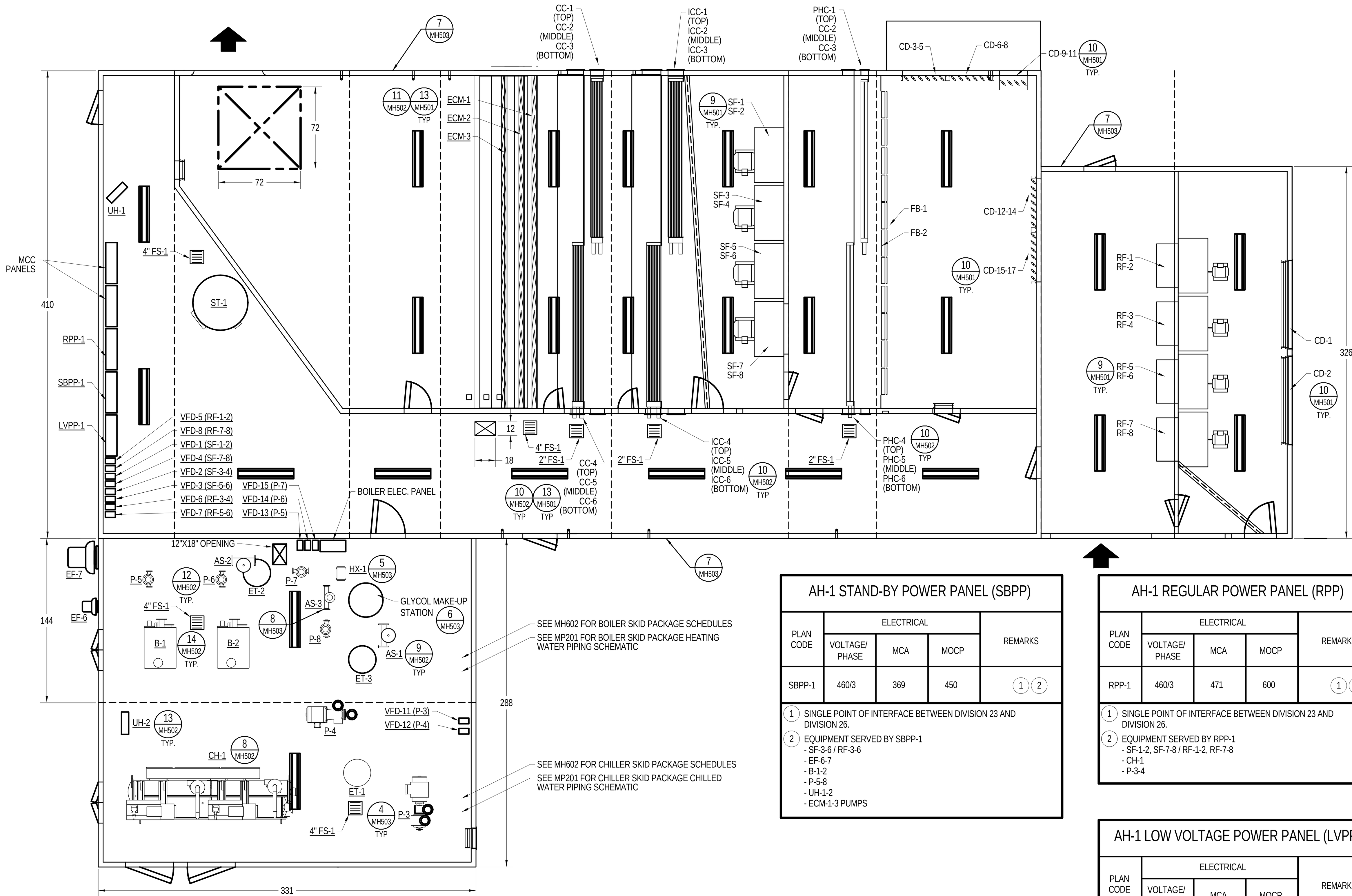
Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

MECHANICAL DETAILS

MH503





FACTORY BUILT INDOOR AIR HANDLER SCHEDULE (AH)

PLAN CODE	AREA SERVED	SINGLE POINT REGULAR POWER ELECTRICAL CONNECTION	SINGLE POINT STAND-BY POWER ELECTRICAL CONNECTION	SINGLE POINT LOW VOLTAGE ELECTRICAL CONNECTION	TOTAL SUPPLY CFM (LEAVING AH)	RELIEF FANS	FILTER BANK	PRE-HEAT COIL	SUPPLY FANS	INDIRECT EVAPORATIVE COOLING COILS	CHILLED WATER COOLING COILS	DIRECT EVAP COOLER	MAX WEIGHT (LBS)	REMARKS
AH-1	FLOOR 1 THRU FLOOR 5	RPP-1	SBPP-1	LVPP-1	105,000	RF-1 THROUGH RF-8	FB-1 / FB-2	PHC-1 THROUGH PHC-6	SF-1 THROUGH SF-8	ICC-1 THROUGH ICC-6	CC-1 THROUGH CC-6	ECM-1 THROUGH ECM-4	-	BASIS OF DESIGN MANUFACTURER = HAAKON SEE NOTES BELOW

AIR HANDLER NOTES:
-VERIFY EXACT DIMENSIONS WITH ON-SITE MEASUREMENTS BEFORE FABRICATING AIR HANDLER. HEIGHT DIMENSION LISTED DOES NOT INCLUDE THE 4" CONCRETE HOUSE KEEPING PAD. TOTAL OVERALL DIMENSION TO THE TOP OF THE AIR HANDLER CEILING IS 159" (13'-3").
-CONSTRUCT AIR HANDLER ON A MINIMUM 6" TALL BASE RAIL SUB-FRAME. FANS AND PUMPS INSIDE THE AIR HANDLER ARE TO BE VIBRATIONALLY ISOLATED FROM THE BASE RAIL.
-CONSTRUCT ALL AIR HANDLER WALLS, DOORS, AND ROOF OF 4" DOUBLE WALL GALVANIIZED SHEET METAL. THE INTERIOR LINER OF THE MIXING PLENUM, FILTER SECTION, AND SUPPLY AND RELIEF FAN SECTION IS TO BE PERFORATED LINER. ALL OTHER SECTIONS OF THE AIR HANDLER ARE TO HAVE A SOLID SHEETMETAL INTERIOR LINER.
-PROVIDE MEANS OF LIFTING/REMOVING AND REPLACING THE FAN MOTORS, SUCH AS A STEEL BEAM OR ANCHOR HOOK THAT CAN SUPPORT THE WEIGHT OF THE FAN MOTOR AND A MOTORIZED CHAIN FALL.
-PROVIDE WITH A FILTER CHANGING LADDER AND RAIL THAT RUNS THE LENGTH OF THE FILTER SECTION.
-PROVIDE WITH PRESSURE RELIEF DOORS AS REQUIRED BY SPECIFICATION SECTION 237410.
-PROVIDE A SINGLE-WALL, 12 GAUGE BLANK OFF PLATE TO PLACE ACROSS THE INLET OF A FAN THAT HAS FAILED, ALLOWING THE OTHER FANS TO CONTINUE OPERATION WITHOUT SHORT-CIRCUITING AIR. PLATE TO BE FASTENED ACROSS THE INLET OPENING BY MEANS OF THREADED METAL STUDS PROTRUDING FROM THE FAN PLENUM WALL THAT PASS THROUGH HOLES IN ALL FOUR CORNERS OF THE PLATE. WING NUTS CAN BE USED TO HOLD THE PLATE IN PLACE. STORE THE PLATE ON AN ADJACENT WALL.
-PROVIDE SAFETY SCREENS OR RAILS ACROSS THE SUPPLY AIR OUTLET OPENINGS.
-PROVIDE A 120 V/1 PH/20 AMP CIRCUIT FOR AIR HANDLER LIGHITING BACK TO A SINGLE POINT FOR ELECTRICAL CONNECTION. INCLUDE (1) 120 V JUNCTION BOX FOR CONTROL POWER ON THAT SAME CIRCUIT. COORDINATE WITH ELECTRICAL AND 230900 CONTRACTOR.
-ECM SUMP TO EXTEND 24" DOWNSTREAM OF LAST EVAP MEDIA SECTION.

RELIEF AIR FAN SCHEDULE (RF)

PLAN CODE	SYSTEM SERVED	TYPE	CFM @ ELEV	TSP @ ELEV (IN WC)	FAN RPM	MOTOR (2)					MAXIMUM ALLOWABLE SOUND POWER									AIR VOLUME CONTROL	METHOD OF CONTROL	FAN DIAMETER (IN)	MANUFACTURER & MODEL NO	REMARKS
						HP	BHP	MIN EFF	KW/CFM	VOLTAGE/ PHASE	OCTAVE BAND	1	2	3	4	5	6	7	8					
											HZ	63	125	250	500	1K	2K	4K	8K					
RF-1 THROUGH RF-8	AH-1	DIRECT DRIVE AIR FOIL PLENUM	12,940	2	1750	10	7.2	91.7	.0004	460/3	INLET	85	83	92	80	79	84	82	76	ATC/VFD	ATC SYSTEM/ DUCT STATIC	27	ACOUSTIFLO 27686Q4S	PROVIDE WITH INLET AND FAN SAFETY SCREENS, ALUMINUM FAN WHEEL
											OUTLET	93	90	85	88	84	84	79	75					

(1) RF-3-6 TO BE ON STAND-BY POWER

FILTER BANK (FB)

PLAN CODE	ASHRAE 52 EFFICIENCY	FILTER SIZE (IN)			NO OF FILTERS	MAX INITIAL PD (INWC)	MAX FACE VELOCITY (FPM)	MANUFACTURER & MODEL NO
		HEIGHT	WIDTH	THICK				
FB-1	MERV 7	24	24	2	66	-	380	FARR 30/30 (1)
FB-1	MERV 13 (85%)	24	24	4	66	0.36	380	FARR OPTI-PACK (85%)

(1) PROVIDE THE FRAME ONLY

PRE-HEAT COIL SCHEDULE (PHC)

PLAN CODE	AREA OR SYSTEM SERVED	CFM (ALT)	CAPACITY (MBH)	AIR SIDE				WATER SIDE				ROWS	FINS PER INCH	PASSES	FINNED AREA SIZE			MANUFACTURER	REMARKS
			TOTAL	EAT (°F) db	LAT (°F) db/wb	MAX FACE VELOCITY (FPM)	MAX PD (IN WC)	EWT / LWT (°F)	GPM	MAX PD (FT HD)	PPG %				WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)		
PHC-1 THRU PHC-6	AH-1	17,500	182	44	56	440	0.04	120 / 95.9	14.6	4.0	40	1	6	TBD	137	42	3	HAAKON (HEATCRAFT)	MAX 1.5" CHANNEL AROUND FINNED AREA ON ALL SIDES

SUPPLY AIR FAN SCHEDULE (SF)

PLAN CODE	SYSTEM SERVED	TYPE	CFM @ ELEV	TSP @ ELEV (IN WC)	FAN RPM	MOTOR (2)					MAXIMUM ALLOWABLE SOUND POWER (1)									AIR VOLUME CONTROL	METHOD OF CONTROL	FAN DIAMETER (IN)	MANUFACTURER & MODEL NO	REMARKS
						HP	BHP	MIN EFF	KW/CFM	VOLTAGE/ PHASE	OCTAVE BAND	1	2	3	4	5	6	7	8					
											HZ	63	125	250	500	1K	2K	4K	8K					
SF-1 THROUGH SF-8	AH-1	DIRECT DRIVE AIR FOIL PLENUM	13,937	6.5	1750	25	20.1	93.6	.0010	460/3	INLET	87	91	106	100	92	91	91	86	ATC/VFD	ATC SYSTEM/ DUCT STATIC	27	ACOUSTIFLO 27686Q1	PROVIDE WITH INLET AND FAN SAFETY SCREENS, ALUMINUM FAN WHEEL
											OUTLET	97	96	101	95	90	86	86	80					

(1) SOUND LEVELS OF ALL 8 FANS COMBINED. (2) SF-3-6 TO BE ON STAND-BY POWER.

INDIRECT EVAPORATIVE COOLING COIL SCHEDULE (ICC)

PLAN CODE	AREA OR SYSTEM SERVED	DESIGN CONDITION (1)	CFM (ALT)	CAPACITY (MBH)		AIR SIDE				WATER SIDE				ROWS	FINS PER INCH	PASSES	FINNED AREA SIZE			MANUFACTURER & MODEL NO	REMARKS
				SENS	TOTAL	EAT (°F) db/wb	LAT (°F) db/wb	MAX FACE VELOCITY (FPM)	MAX PD (IN WC)	EWT/ LWT (°F)	GPM	MAX PD (FT HD)	PPG %				WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)		
ICC-1 THRU ICC-6	AH-1	DRYBULB	19,167	501	501	96.3/62.1	68.0/52.4	480	0.5	65.1/72.6	135	8	NONE	8	10	4	137	42	13	HAAKON HEATCRAFT	MAX 1.5" CHANNEL AROUND FINNED AREA ON ALL SIDES
		WETBULB	17,833	265	265	87.5/65.9	70.6/60.8	450	0.5	68.9/72.8	135	8	NONE								

(1) COIL MUST BE CAPABLE OF PROVIDING THE LISTED PERFORMANCE AT BOTH DESIGN CONDITIONS.

CHILLED WATER COOLING COIL SCHEDULE (CC)

PLAN CODE	AREA OR SYSTEM SERVED	CFM (ALT) (1)	CAPACITY (MBH)		AIR SIDE				WATER SIDE				ROWS	FINS PER INCH	PASSES	FINNED AREA SIZE			MANUFACTURER & MODEL NO	REMARKS
			SENS	TOTAL	EAT (°F) db/wb	LAT (°F) db/wb	MAX FACE VELOCITY (FPM)	MAX PD (INWC)	EWT / LWT (°F)	GPM	MAX PD (FT HD)	PPG %				WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)		
CC-1 THRU CC-6	AH-1	16,450	282	373	70.6/60.8	51.7/51.4	480	0.4	44.0/56.3	65	9.5	NONE	6	9	6	137	42	13	HAAKON HEATCRAFT	MAX 1.5" CHANNEL AROUND FINNED AREA ON ALL SIDES

(1) AIRFLOW AT DESIGN WETBULB CONDITIONS ENTERING COIL, RESULTS IN 105,000 CFM OF 54 °F SUPPLY AIR LEAVING THE AIR HANDLER.

EVAPORATIVE COOLING MEDIA SCHEDULE (ECM)

PLAN CODE	UNIT SERVED	AIR WASHER											REMARKS
		CFM (ALT) (1)	MAX AIR VELOCITY (FPM)	MAX AIR PD (INWC)	MEDIA THICKNESS (IN)	COOLING EFFECTIVENESS	GPM EACH	HP (3)	VOLTAGE/ PHASE	OVERALL UNIT SIZE (IN) (2) MIN WIDTH	MAX DEPTH	HEIGHT	
ECM-1	AH-1	105,500	470	0.28	4	53%	25 PER PUMP	1/3	120/1	290	12	120	MUNTERS GLASDEK MEDIA WITH MI-T-EDG, TWO PUMPS PER UNIT
ECM-2	AH-1	105,500	470	0.28	4	53%	25 PER PUMP	1/3	120/1	290	12	120	MUNTERS GLASDEK MEDIA WITH MI-T-EDG, TWO PUMPS PER UNIT
ECM-3	AH-1	105,500	470	0.28	4	53%	25 PER PUMP	1/3	120/1	290	12	120	MUNTERS GLASDEK MEDIA WITH MI-T-EDG, TWO PUMPS PER UNIT

(1) AIRFLOW AT DESIGN DRYBULB CONDITIONS ENTERING MEDIA, RESULTS IN 105,000 CFM OF 55 °F SUPPLY AIR LEAVING THE AIR HANDLER.
(2) MINIMUM EFFECTIVE MEDIA FACE AREA = (4) x 150" x 50" OF EXPOSED MEDIA = 208 FT^2. (3) PUMPS TO BE ON STAND-BY POWER.

AH-1 STAND-BY POWER PANEL (SBPP)

PLAN CODE	ELECTRICAL			REMARKS
	VOLTAGE/ PHASE	MCA	MOCP	
SBPP-1	460/3	369	450	(1) (2)

(1) SINGLE POINT OF INTERFACE BETWEEN DIVISION 23 AND DIVISION 26.
(2) EQUIPMENT SERVED BY SBPP-1
- SF-3-6 / RF-3-6
- EF-6-7
- B-1-2
- P-5-8
- UH-1-2
- ECM-1-3 PUMPS

AH-1 REGULAR POWER PANEL (RPP)

PLAN CODE	ELECTRICAL			REMARKS
	VOLTAGE/ PHASE	MCA	MOCP	
RPP-1	460/3	471	600	(1) (2)

(1) SINGLE POINT OF INTERFACE BETWEEN DIVISION 23 AND DIVISION 26.
(2) EQUIPMENT SERVED BY RPP-1
- SF-1-2, SF-7-8 / RF-1-2, RF-7-8
- CH-1
- P-3-4

AH-1 LOW VOLTAGE POWER PANEL (LVPP)

PLAN CODE	ELECTRICAL			REMARKS
	VOLTAGE/ PHASE	MCA	MOCP	
LVPP-1	120/1	-	-	(1) (2) (3)

(1) SINGLE POINT OF INTERFACE BETWEEN DIVISION 23 AND DIVISION 26.
(2) THIS PANEL IS TO BE ON STAND-BY POWER.
(3) PANEL TO HAVE (4) 15 AMP CIRCUITS.

CONTROL DAMPER SCHEDULE (CD)

PLAN CODE	SERVICE	TYPE (1)	AIR FLOW VOLUME (CFM)	DIMENSIONS		MAX FACE VELOCITY (FPM)	METHOD OF CONTROL	BLADE ORIENTATION	MANUFACTURER & MODEL NO
				WIDTH (IN)	HEIGHT (IN)				
CD-1-2	AH-1 RELIEF AIR	MOTORIZED MODULATING	51,760	78	72	1350	DDC BUILDING STATIC 2-POSITION	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000
CD-3-8	AH-1 OUTSIDE AIR	MOTORIZED MODULATING	15,250	39	39	1450	DDC/AIRFLOW SETPOINT	HORIZONTAL PARALLEL/BLADES ORIENTED UP	TA MORRISON 1000
CD-9-11	AH-1 MINIMUM OUTSIDE AIR	MOTORIZED MODULATING	6,667	24	36	1150	DDC/AIRFLOW MONITOR TO MAINTAIN MIN OSA	HORIZONTAL PARALLEL/BLADES ORIENTED UP	GREENHECK AMD42 (2)
CD-12-17	AH-1 RETURN AIR	MOTORIZED MODULATING	17,500	45	39	1450	DDC BUILDING STATIC	HORIZONTAL PARALLEL/BLADES ORIENTED UP	TA MORRISON 1000

(1) PROVIDE END SWITCHES ON DAMPER.
(2) DAMPERS/AIR FLOW MONITORING STATIONS WILL BE PROVIDED BY THE AIR HANDLER MANUFACTURER. THIS INCLUDES ACTUATORS, PRESSURE TRANSDUCERS, AND ALL ACCESSORIES FOR COMPLETE AND OPERATING MONITORS/DAMPERS. 230900 CONTRACTOR TO PROVIDE LOW VOLTAGE POWER , CONNECTIONS TO THE BUILDING AUTOMATION SYSTEM, AND ALL REQUIRED PROGRAMMING.

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD) (1) (2)

PLAN CODE	SERVICE	CONTROL OF VFD			CONTROL SYS INTERFACE	HARMONICS ISOLATION	MANUFACTURER & MODEL NO	REMARKS
		METHOD	MAXIMUM RESPONSE TIME	CONTROLLER INPUT				
VFD-1	SUPPLY FAN SF-1-2	ATC	<150 MILLISECONDS	DUCT STATIC	BACNET	INPUT REACTORS	TRANE TR200	PASSWORD PROTECTED KEYPAD, LOCKING DISCONNECT
VFD-2	SUPPLY FAN SF-3-4	ATC	<150 MILLISECONDS	DUCT STATIC	BACNET	INPUT REACTORS	TRANE TR200 (3)	
VFD-3	SUPPLY FAN SF-5-6	ATC	<150 MILLISECONDS	DUCT STATIC	BACNET	INPUT REACTORS	TRANE TR200 (3)	
VFD-4	SUPPLY FAN SF-7-8	ATC	<150 MILLISECONDS	DUCT STATIC	BACNET	INPUT REACTORS	TRANE TR200	
VFD-5	RELIEF FAN RF-1-2	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	TRANE TR200	
VFD-6	RELIEF FAN RF-3-4	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	TRANE TR200 (3)	
VFD-7	RELIEF FAN RF-5-6	ATC	<150 MILLISECONDS	BUILDING STATIC	BACNET	INPUT REACTORS	TRANE TR200 (3)	
VFD-8	RELIEF FAN RF-7-8	ATC	<150 MILLISECONDS	BUILDING STATIC	BACNET	INPUT REACTORS	TRANE TR200	

(1) PROVIDE WITH PULSE WIDTH MODULATION DRIVE TYPE, NO BYPASS, RATED FOR 4,787 FT ELEVATION AND 105 °F AMBIENT TEMPERATURE.
(2) VFDs 1 THROUGH 16 WILL BE SUPPLIED BY THE AIR HANDLER MANUFACTURER.
(3) VFD TO BE ON STAND-BY POWER

UNIT HEATER SCHEDULE (UH) — HORIZONTAL BLOW

PLAN CODE	CFM (ALT)	HEATING CAP (MBH) (LOW SPD)	GPM	WPD (FT)	EWT/ LWT (°F)	EAT (°F)	MOTOR		MOUNTING	MANUFACTURER & MODEL NO	REMARKS
							HP	VOLT/ PH			
UH-1	1160	55.1	5.7	1.5	180 / 160	60	1/8	115/1	(1)	TRANE UHSA-090-W2	(2) HORIZONTAL BLOW INTEGRAL THERMOSTAT
UH-2	1160	55.1	5.7	1.5	180 / 160	60	1/8	115/1	(1)	TRANE UHSA-090-W2	(2) HORIZONTAL BLOW INTEGRAL THERMOSTAT

(1) WALL BRACKET (2) UNIT TO BE ON STAND-BY POWER

JOB SITE ELEVATION = 4,787 FT
JOB SITE PRESSURE = 12.33 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

VCBO ARCHITECTURE
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524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
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165 West 20th Street, Ogden, Utah
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Date August 15, 2013
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MECHANICAL SCHEDULES

MH601

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BTU METER (BTUM)

PLAN CODE	SYSTEM SERVED	SHEET REFERENCE	FLUID	TEMP RANGE °F	PIPE SIZE	TYPE	MANUFACTURER & MODEL NO	OUTPUT
		SCHEMATIC						
BTUM-1	CHILLED WATER	MP202	FW	50-190	8"	TURBINE	ONICON SYSTEM-10	4 - 20 AM 0 - 10V DIGITAL DISPLAY
BTUM-2	CONDENSER WATER	MP202	FW	40-70	5"	TURBINE	ONICON SYSTEM-10	4 - 20 AM 0 - 10V DIGITAL DISPLAY

WATER-COOLED CHILLER SCHEDULE (CH)

PLAN CODE	CAPACITY (TONS)	COMPRESSOR TYPE (NO)	FULL LOAD EFF/ NPLV (KW/TON) MINIMUMS	REFRIGERANT TYPE	REFRIGERANT QUANTITY (LB)	CHILLED WATER				FOULING FACTOR	CONDENSER WATER				FOULING FACTOR	ELECTRICAL			MAX DIMENSIONS (IN)			MAX OPERATING WT (LBS)	SOUND PERFORMANCE DATA (dB)								MANUFACTURER & MODEL NO
						EWT (°F)	LWT (°F)	GPM	MAX PD (FT HD)		EWT (°F)	LWT (°F)	GPM	MAX PD (FT HD)		MCA (AMPS)	VOLT/ PH	MOCP (AMPS)	LENGTH	WIDTH	HEIGHT		OCTAVE BAND	1	2	3	4	5	6	7	
																							HZ	63	125	250	500	1000	2000	4000	
																							FULL LOAD	69	69	82	69	75	73	60	
																							50% LOAD	64	67	76	65	73	70	57	
CH-1	196	ROTARY SCREW (2)	0.717/0.627	R-134a	277.8	56	44	390	18	0.00010	73	83	535	22	0.00025	213	460/3	300	144	48	76	9000									TRANE RTWD 180 HE

STORAGE TANK SCHEDULE (ST)

PLAN CODE	SERVICE	VOLUME (GALLONS)	INLET / OUTLET (IN)	DIA (IN)	HEIGHT (IN)	OPERATING WEIGHT (LBS)	MAKE / MODEL
ST-1	CHILLED WATER	750	6 / 6	48	105	8500	AO SMITH HD48-750

PUMP SCHEDULE (P)

PLAN CODE	DUTY	GPM	FEET OF HEAD	NOMINAL PUMP RPM	% EFF MIN	% PROPYLENE GLYCOL	MOTOR					METHOD OF CONTROL	MAX WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	EFFICIENCY %	W/GPM	VOLTAGE/ PHASE				
P-3	CHILLER CH-1 CONDENSER	535	50	1750	75	NONE	8.3	10	81	11.5	460/3	ATC/VFD-21 CH-1 HEAD PRESSURE	500 (W/ INERTIA BASE)	B & G 1531 4BC	BASE MOUNTED PROVIDE WITH SUCTION DIFFUSER
P-4	CHILLER CH-1 EVAPORATOR	390	60	1750	75	NONE	7.5	10	79	14.3	460/3	ATC	550 (W/ INERTIA BASE)	B & G 1531 3BC	BASE MOUNTED PROVIDE WITH SUCTION DIFFUSER

CONTROL VALVE (V)

PLAN CODE	DUTY	SHEET REFERENCE		FLOW (GPM)	TYPE	PRESSURE DROP (PSI)	REMARKS
		PLAN	SCHEMATIC				
V-1	INDIRECT EVAP COOLING COILS, ICC-1 THROUGH 6	MH401	MP202	810	LINKED BUTTERFLY MODULATING	3-5	- -
V-2	CHILLED WATER COOLING COILS CC-1 THROUGH 6	MH401	MP202	390	LINKED BUTTERFLY MODULATING	3-5	- -
V-3	COOLING TOWER MAKE-UP	MH401	MP202	N/A	TWO - WAY MODULATING	3-5	LINE SIZED
V-4	COOLING TOWER MAKE-UP SAFETY	MH401	MP202	N/A	TWO - WAY 2-POSITION (SOLENOID)	-	LINE SIZED
V-7	CONDENSER WATER SUPPLY TEMP	MH401	MP202	535	LINKED BUTTERFLY MODULATING	3-5	- -

EXPANSION TANK SCHEDULE (ET)

PLAN CODE	SYSTEM SERVED	WATER TEMP (°F)	% GLYCOL	TANK VOL (GAL)	ACCEPTANCE VOL (GAL)	PRE-CHARGE (PSI)	MAX DIMENSIONS			MANUFACTURER & MODEL NO	REMARKS
							DIA (IN)	HEIGHT (IN)	OPERATING WT (LBS)		
ET-1	CHILLED WATER	95	0	44.5	22.6	10	24	28	520	AMTROL AX-80V	1" NPT SYSTEM CONNECTION

AIR SEPARATOR (AS)

PLAN CODE	SYSTEM SERVED	CONNECTION SIZE (IN)	MAX GPM	PD (FT)	MAX DIMENSIONS			DRY WT (LBS)	MAX OPERATING WEIGHT (LBS)	MANUFACTURER 1 2 & MODEL NO
					DIA (IN)	HEIGHT (IN)	FLANGE TO FLANGE (IN)			
AS-1	CHILLED WATER	8	390	0.5	16	39	34	250	350	SPIROVENT SENIOR

1 MAXIMUM TEMPERATURE = 270° F @ 145 PSIG
2 SALT LAKE CITY REPRESENTATIVE IS LUNDQUIST SALES, (801) 487-5709

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD) 1 2 3

PLAN CODE	SERVICE	CONTROL OF VFD			CONTROL SYS INTERFACE	HARMONICS ISOLATION	MANUFACTURER & MODEL NO	REMARKS
		METHOD	MAXIMUM RESPONSE TIME	CONTROLLER INPUT				
VFD-11	PUMP P-3	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	PASSWORD PROTECTED KEYPAD, LOCKING DISCONNECT
VFD-12	PUMP P-4	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	

1 PROVIDE WITH PULSE WIDTH MODULATION DRIVE TYPE, NO BYPASS, RATED FOR 4,815 FT ELEVATION AND 105 °F AMBIENT TEMPERATURE.
2 VFD FOR BALANCING PURPOSES ONLY.
3 PROVIDE WITH SHAFT GROUNDING KIT.

EXHAUST FAN SCHEDULE (EF)

PLAN CODE	AREA SERVED	TYPE	DRIVE TYPE	CFM @ ELEV	ESP @ ELEV	FAN RPM	MOTOR					SONES	DAMPER (GRAVITY OR MOTOR)	METHOD OF CONTROL	OPENING SIZE	MAX OPERATING WT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	EFFICIENCY %	KW / CFM	VOLT/ PH							
EF-6	CHILLER NORMAL-VENTILATION	DOWNBLAST CENTRIFUGAL	DIRECT DRIVE	320	0.1	904	60 W	1/25	PREM	0.000187	115/1	3.1	GRAVITY	BAS	14 X 14	50	COOK 90C10DH	PROVIDE WITH PRE-WIRED FSC
EF-7	CHILLER EMERGENCY VENTILATION	DOWNBLAST CENTRIFUGAL	DIRECT DRIVE	1180	0.25	1279	0.123	1/4	PREM	0.000077	115/1	9.2	GRAVITY	REFRIGERATION SENSOR	16 X 16	100	COOK 120C15D	PROVIDE WITH PRE-WIRED FSC

UNIT HEATER SCHEDULE (UH) HORIZONTAL BLOW

PLAN CODE	CFM (ALT)	HEATING CAP (MBH) (LOW SPD)	GPM	WPD (FT)	EWT/ LWT (°F)	EAT (°F)	MOTOR		MOUNTING	MANUFACTURER & MODEL NO	REMARKS
							HP	VOLT/ PH			
UH-2	1160	55.1	5.7	1.5	180 160	60	1/8	115/1	1	TRANE UHSA-090-W2	HORIZONTAL BLOW INTEGRAL THERMOSTAT

1 WALL BRACKET

AH-1 CHILLER SKID PACKAGE. BASIS OF DESIGN = JOHNSON THERMAL SYSTEMS

EXPANSION TANK SCHEDULE (ET)

PLAN CODE	SYSTEM SERVED	WATER TEMP (°F)	% GLYCOL	TANK VOL (GAL)	ACCEPTANCE VOL (GAL)	PRE-CHARGE (PSI)	MAX DIMENSIONS			MANUFACTURER & MODEL NO	REMARKS
							DIA (IN)	HEIGHT (IN)	CONN. (IN)	OPERATING WT (LBS)	
ET-2	HEATING WATER	180	0	68	35	55	24	44	1-1/4" NPT	1000	AMTROL ST-120VC	1 3
ET-3	PRE-HEAT COIL GLYCOL	120	40	6.4	3.2	55	12	12	3/4" NPT	100	AMTROL ST-12C	1 2

1 ASME RATED 2 PIPE MOUNT 3 FLOOR MOUNT

CONDENSING BOILER SCHEDULE (B)

PLAN CODE	MBH CAPACITY 2		ASME PRESS. RATING (PSI)	OPERATING PRESSURE (PSI)	OPERATING EFFICIENCY %	EWT (°F)	LWT (°F)	AIR INLET	FLUE SIZE	FLUE TYPE	FLUID %	FLOW (GPM)	FLOW RANGE (GPM)	PRESS. DROP (FT.HD.)	MAX. SIZE				BURNER			MAKE & MODEL	REMARKS
	OUTPUT @ SITE	INPUT @ SL													LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	OPERATING WT.(LBS)	FLA	VOLTAGE & PHASE	GAS PRESSURE		
B-1	1531	2000	160	50	86	140	180	8"	8"	AL29-4C	FW	80	25-80	1	46	28	79	1650	15	120/1	14" W.C.	AERCO BENCHMARK BMK-2.0LN	1 2 3
B-2	1531	2000	160	50	86	140	180	8"	8"	AL29-4C	FW	80	25-80	1	46	28	79	1650	15	120/1	14" W.C.	AERCO BENCHMARK BMK-2.0LN	1 2 3

1 ACID NEUTRALIZATION KIT 2 890 BTU/CF GAS CAPACITY 3 FURNISH WITH MULTIPLE UNIT CONTROLLER, BACNET COMMUNICATION GATEWAY.

AIR SEPARATOR (AS)

PLAN CODE	SYSTEM SERVED	CONNECTION SIZE (IN)	RECOM. FLOW (GPM)	PD (FT)	MAX DIMENSIONS			DRY WT (LBS)	MAX OPERATING WEIGHT (LBS)	MANUFACTURER 1 2 & MODEL NO
					DIA (IN)	HEIGHT (IN)	FLANGE TO FLANGE (IN)			
AS-2	HEATING WATER	4	170	0.5	9	24	21	110	150	SPIROVENT SENIOR
AS-3	PRE-HEAT COIL GLYCOL	3	95	0.5	9	24	21	95	135	SPIROVENT SENIOR

1 MAXIMUM TEMPERATURE = 270° F @ 145 PSIG
2 SALT LAKE CITY REPRESENTATIVE IS LUNDQUIST SALES, (801) 487-5709

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD) 1

PLAN CODE	SERVICE	CONTROL OF VFD			CONTROL SYS INTERFACE	HARMONICS ISOLATION	MANUFACTURER & MODEL NO	REMARKS
		METHOD	MAXIMUM RESPONSE TIME	CONTROLLER INPUT				
VFD-13	PUMP P-5	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	PASSWORD PROTECTED KEYPAD, LOCKING DISCONNECT
VFD-14	PUMP P-6	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	
VFD-15	PUMP P-7	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	

1 PROVIDE WITH PULSE WIDTH MODULATION DRIVE TYPE, NO BYPASS, RATED FOR 4,815 FT ELEVATION AND 105 °F AMBIENT TEMPERATURE.

PUMP SCHEDULE (P)

PLAN CODE	DUTY	GPM	FEET OF HEAD	NOMINAL PUMP RPM	% EFF MIN	% PROPYLENE GLYCOL	MOTOR					METHOD OF CONTROL	MAX WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	EFFICIENCY %	W / GPM	VOLTAGE/ PHASE				
P-5	BOILER B-1	80	65	3450	59	0	2.27	3	85	21.15	460/3	ATC / VFD-13	75	B & G 90 1-1/2AA	IN-LINE
P-6	BOILER B-2	80	50	3450	55	0	2.27	3	86	21.15	460/3	ATC / VFD-14	75	B & G 90 1-1/2AA	IN-LINE
P-7	PRE-HEAT COIL SOURCE SIDE	50	20	1725	60	0	0.42	3/4	-	6.26	460/3	ATC / VFD-15	75	B & G 90 2AA	IN-LINE
P-8	PRE-HEAT COIL LOAD SIDE	88	35	1750	64	40	1.27	2	86	10.76	460/3	ATC	125	B & G 90 2A	IN-LINE

BTU METER (BTUM)

PLAN CODE	SYSTEM SERVED	SHEET REFERENCE	FLUID	TEMP RANGE °F	PIPE SIZE	TYPE	MANUFACTURER & MODEL NO	OUTPUT
		SCHEMATIC						
BTUM-3	HEATING WATER	MP201	FW	50-190	4"	TURBINE	ONICON SYSTEM-10	4 - 20 AM 0 - 10V DIGITAL DISPLAY

HEAT EXCHANGER SCHEDULE (HX)

PLAN CODE	SYSTEM SERVED	SOURCE SIDE			LOAD SIDE				FOULING FACTOR	TYPE	MANUFACTURER
		GPM	EWT / LWT (°F)	MAX PD (PSI)	CAP (MBH)	EWT / LWT (°F)	FLUID TYPE	GPM	MAX PD (PSI)		
HX-1	AH-1 PRE-HEAT COILS	50	140 / 100	2	984	95/120	40% PG	88	5	0.001	PLATE & FRAME	ARMSTRONG

AH-1 BOILER SKID PACKAGE. BASIS OF DESIGN = JOHNSON THERMAL SYSTEMS

JOB SITE ELEVATION = 4,787FT
JOB SITE PRESSURE = 12.33 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

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2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

MECHANICAL SCHEDULES

MH602

VAV REHEAT BOXES

PLAN CODE — BOX NO. / MAX COOLING CFM — MIN. COOLING CFM

PLAN CODE	INLET SIZE	MAX (PRIMARY CFM)	MIN OPER PD (IN. WC)	MIN (PRIMARY CFM)	REHEAT (CFM)	EAT °F	LAT °F	EWT °F	LWT °F	FIUID FLOW (GPM)	COIL CAPACITY (MBH)	MBH TO SPACE AT 15F TD	FLUID PD (FT.WG)	ROWS	MAX DISCHARGE NC	MAX RADIATED NC
6R2	6	450	0.4	60	450	55	88	180	137	0.7	14	6	0.1	2	<20	20
8R2	8	800	0.4	120	800	55	88	180	141	1.3	25	11	0.3	2	<20	22
10R2	10	1350	0.5	200	1350	55	88	180	141	2.2	42	19	1.1	2	<20	<20
12R2	12	2100	0.7	275	2100	55	88	180	143	3.7	66	29	3.7	2	<20	<20
14R2	14	3000	0.6	400	3000	55	88	180	143	5.1	94	41	3.7	2	<20	25
16R2	16	3800	0.7	525	3400	55	88	180	138	5.1	106	47	4.6	2	<20	26

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD) (1)

PLAN CODE	SERVICE	CONTROL OF VFD			CONTROL SYS INTERFACE	HARMONICS ISOLATION	MANUFACTURER & MODEL NO	REMARKS
		METHOD	MAXIMUM RESPONSE TIME	CONTROLLER INPUT				
VFD-24	EXHAUST FAN EF-1	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	PASSWORD PROTECTED KEYPAD, LOCKING DISCONNECT
VFD-25	EXHAUST FAN EF-2	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	
VFD-26	EXHAUST FAN EF-3	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	
VFD-27	EXHAUST FAN EF-4	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	

(1) PROVIDE WITH PULSE WIDTH MODULATION DRIVE TYPE, NO BYPASS, RATED FOR 4,815 FT ELEVATION AND 105 °F AMBIENT TEMPERATURE.

CABINET UNIT HEATER SCHEDULE (CUH)

PLAN CODE	AREA SERVED	CFM @ ELEV	HEATING CAP (MBH) (LOW SPD)	GPM	WPD (FT)	EWT/LWT (°F)	EAT (°F)	MOTOR		MOUNTING	MANUFACTURER & MODEL NO.	REMARKS
								WATTS	VOLTAGE & PHASE			
CUH-1	TCZ-1-17 STAIRS	220	17	1.2	7.0	180 / 150	60	60	115/1	(1)	TRANE FFNB02	INVERTED FLOW INTEGRAL THERMOSTAT
CUH-2	TCZ-1-35 STAIRS	220	17	1.2	7.0	180 / 150	60	60	115/1	(1)	TRANE FFNB02	INVERTED FLOW INTEGRAL THERMOSTAT
CUH-3	TCZ-1-14 STAIRS	220	17	1.2	7.0	180 / 150	60	60	115/1	(1)	TRANE FFNB02	INVERTED FLOW INTEGRAL THERMOSTAT
CUH-4	TCZ-1-32 STAIRS	220	17	1.2	7.0	180 / 150	60	60	115/1	(1)	TRANE FFNB02	INVERTED FLOW INTEGRAL THERMOSTAT

(1) WALL MOUNTED FULLY RECESSED.

COOLING TOWER SCHEDULE (CT)

PLAN CODE	FLOW (GPM)	MIN FLOW (GPM) (1)	TOTAL HEAT REJECTED (MBH)	EWT (°F)	LWT (°F)	OSA WB (°F)	NO OF CELLS	MIN FAN EFF (%)	ELECTRICAL				MAX DIMENSIONS (5)			MAX OPERATING WT (LBS) (5)	MANUFACTURER & MODEL NO (2) (4) (3)
									MAX BHP	MOTOR HP	CONTROL	VOLT/ PH	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)		
CT-1	810	450	5662	83	69	66	2	70	24.8 EACH	25 EACH	VFD	460/3	205	218	144	33,150	MARLEY NC8403RLN2

(1) PROVIDE HOT WATER DAM OR NOZZLE CUPS FOR LOW FLOW OPTION.
(2) GALVANIZED STEEL CASING AND FRAMING. SERIES 300 STAINLESS STEEL DISTRIBUTION BASINS AND COVERS, SERIES 300 STAINLESS STEEL COLLECTION BASIN.
(3) COOLING TOWER TO INCLUDE MANUFACTURER PROVIDED INTERNAL DISTRIBUTION PIPING FOR EACH CELL FOR SINGLE POINT CONNECTION AND CIRCUIT SETTER AT ALL 4 INLET LOCATIONS.
(4) PROVIDE WITH MAKE UP WATER FLOAT VALVE. PROVIDE WITH 6" MARLEY HC VALVE AT COOLING TOWER INLET.
(5) COOLING TOWER MAX DIMENSION DO NOT INCLUDE THE SIZE OF THE SUPPORT STEEL. COOLING TOWER OPERATING WEIGHT DOES NOT INCLUDE THE WEIGHT OF THE SUPPORT STEEL.

CONTROL VALVE (V)

PLAN CODE	DUTY	SHEET REFERENCE		FLOW (GPM)	TYPE	PRESSURE DROP (PSI)	REMARKS
		PLAN	SCHEMATIC				
V-5	SOLIDS SEPARATOR BLOWDOWN	N/A	MP202	N/A	TWO - WAY 2-POSITION	-	LINE SIZED

PUMP SCHEDULE (P)

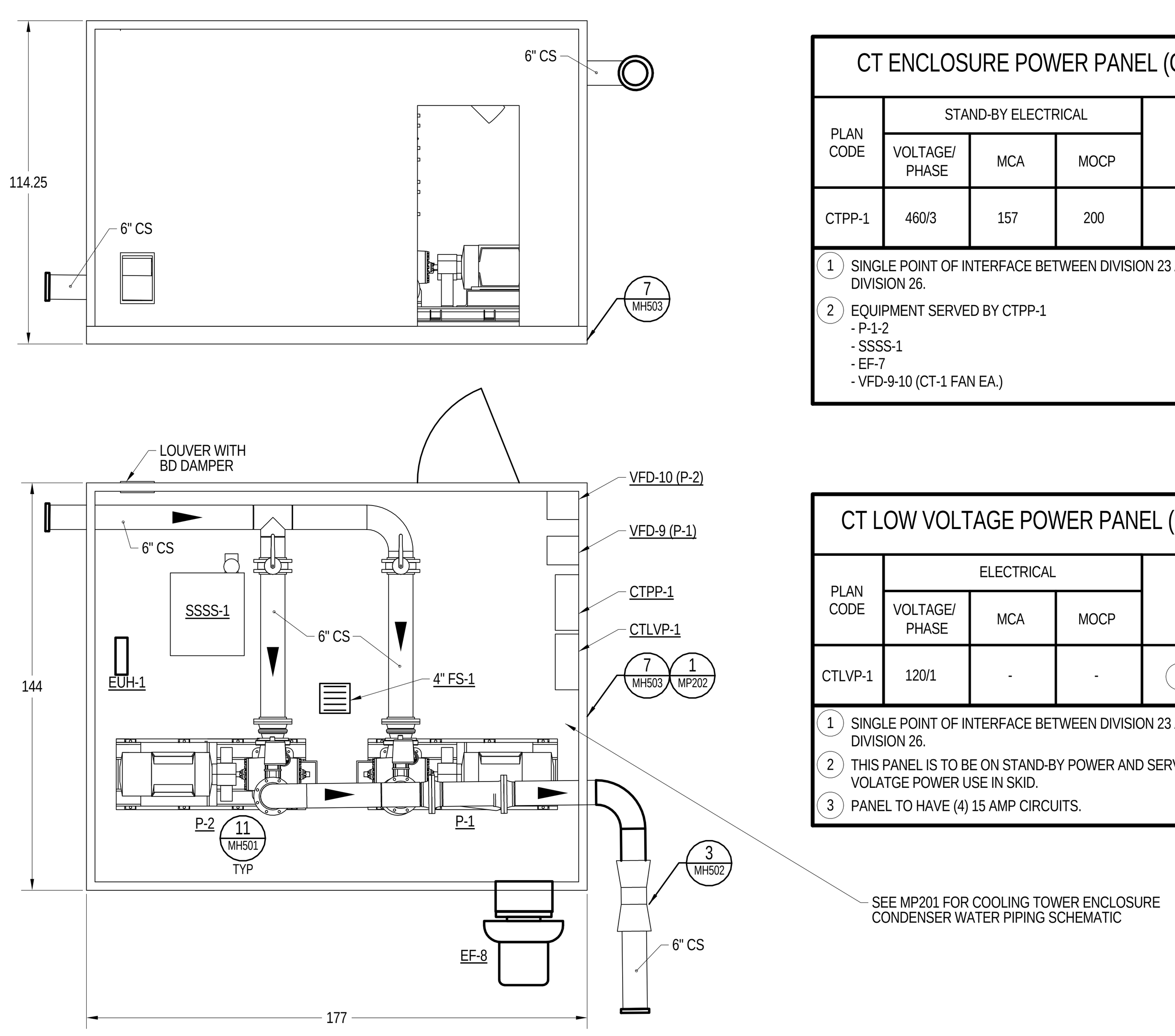
PLAN CODE	DUTY	GPM	FEET OF HEAD	NOMINAL PUMP RPM	% EFF MIN	% PROPYLENE GLYCOL	MOTOR (1)					METHOD OF CONTROL	MAX WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	EFFICIENCY %	W/GPM	VOLTAGE/ PHASE				
P-1	CONDENSER WATER	810	60	1780	75	NONE	15.9	20	78.3	14.6	460/3	ATC	2000 (W/ INERTIA BASE)	B & G VSH 4X6X10 1/2A	BASE MOUNTED, SIDE HORIZONTAL INLET, XX HAND ROTATION CONFIGURATION
P-2	CONDENSER WATER	810	60	1780	75	NONE	15.9	20	78.3	14.6	460/3	ATC	2000 (W/ INERTIA BASE)	B & G VSH 4X6X10 1/2A	BASE MOUNTED, SIDE HORIZONTAL INLET, XX HAND ROTATION CONFIGURATION

(1) PUMPS TO BE ON STAND-BY POWER.

EXHAUST FAN SCHEDULE (EF)

PLAN CODE	AREA SERVED	TYPE	DRIVE TYPE	CFM @ ELEV	ESP @ ELEV	FAN RPM	MOTOR (1)					SONES	DAMPER (GRAVITY OR MOTOR)	METHOD OF CONTROL	OPENING SIZE	MAX OPERATING WT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	EFFICIENCY %	KW / CFM	VOLT/ PH							
EF-8	COOLING TOWER PUMP SKID	DOWNBLAST CENTFIFUGAL	DIRECT DRIVE	320	0.1	904	60 W	1/25	PREM	0.000187	115/1	3.1	GRAVITY	BAS	14 X 14	50	COOK 90C10DH	PROVIDE WITH PRE-WIRED FSC

(1) UNIT TO BE ON STAND-BY POWER



CT ENCLOSURE POWER PANEL (CTPP)

PLAN CODE	STAND-BY ELECTRICAL			REMARKS
	VOLTAGE/ PHASE	MCA	MOCP	
CTPP-1	460/3	157	200	(1)

(1) SINGLE POINT OF INTERFACE BETWEEN DIVISION 23 AND DIVISION 26.
(2) EQUIPMENT SERVED BY CTPP-1
- P-1-2
- SSSS-1
- EF-7
- VFD-9-10 (CT-1 FAN EA.)

SIDE-STREAM SOLIDS SEPARATOR (SSSS)

PLAN CODE	SYSTEM	FLOW (GPM)	PUMP HEAD (PSI)	INLET/ OUTLET	PUMPS			OPERATING WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
					AMPS	VOLTAGE/ PHASE	HP			
SSSS-1	CONDENSER WATER	90	40	2" / 2"	4.3	460/3	2	550	GRISWOLD CSS-200-LH	PROVIDE WITH PURGE FUNCTION, INLET STRAINER, AND INLET/OUTLET VALVE KIT, PREMIUM EFFICIENCY MOTOR (1) (2)

(1) CONTROL OF PURGE FUNCTION TO BE BY INTERLOCK BETWEEN SSSS CONTROLLER (BY DIVISION 232500) AND MOTORIZED BALL VALVE (BY 232500 CONTRACTOR). VALVE WILL BE INSTALLED AT PURGE OUTLET OF SSSS AND WIRED TO THE DDC CONTROL SYSTEM BY THE DIVISION 230900 CONTRACTOR. DO NOT CONTROL VALVE OFF ANY TIMER THAT MAY BE DELIVERED WITH SSSS-1.
(2) INCLUDE FULLY OPERATIONAL CONTROL PANEL, IN NEMA 4 ENCLOSURE, MOUNTED ON SSSS SKID. PANEL SHALL INCLUDE MOTOR STARTER, H-O-A SWITCH, DISCONNECTS, AND DRY CONTACT FOR USE BY DDC SYSTEM TO INDICATE ERROR STATUS.
(3) UNIT TO BE ON STAND-BY POWER.

CT LOW VOLTAGE POWER PANEL (CTLVP)

PLAN CODE	ELECTRICAL			REMARKS
	VOLTAGE/ PHASE	MCA	MOCP	
CTLVP-1	120/1	-	-	(1) (2) (3)

(1) SINGLE POINT OF INTERFACE BETWEEN DIVISION 23 AND DIVISION 26.
(2) THIS PANEL IS TO BE ON STAND-BY POWER AND SERVE ALL LOW VOLATGE POWER USE IN SKID.
(3) PANEL TO HAVE (4) 15 AMP CIRCUITS.

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD) (1)

PLAN CODE	SERVICE	CONTROL OF VFD			CONTROL SYS INTERFACE	HARMONICS ISOLATION	MANUFACTURER & MODEL NO	REMARKS
		METHOD	MAXIMUM RESPONSE TIME	CONTROLLER INPUT				
VFD-9	COOLING TOWER FAN CT-1	ATC	<150 MILLISECONDS	DUCT STATIC	BACNET	INPUT REACTORS	ABB ACH550	PASSWORD PROTECTED KEYPAD, LOCKING DISCONNECT (2) (3) (4)
VFD-10	COOLING TOWER FAN CT-1	ATC	<150 MILLISECONDS	DIFFERENTIAL PRESSURE	BACNET	INPUT REACTORS	ABB ACH550	

(1) PROVIDE WITH PULSE WIDTH MODULATION DRIVE TYPE, NO BYPASS, RATED FOR 4,815 FT ELEVATION AND 105 °F AMBIENT TEMPERATURE.
(2) VFD-9-10 WILL BE SUPPLIED BY THE COOLING TOWER ENCLOSURE MANUFACTURER AND PRE-WIRED TO A SINGLE POINT ELECTRICAL CONNECTION. COMPLY WITH SPECIFICATION SECTION 230810.
(3) ELECTRICAL CONTRACT TO PROVIDE AND INSTALL WIRING BETWEEN VFD AND COOLING TOWER FANS.
(4) VFD'S TO BE ON STAND-BY POWER

ELECTRIC UNIT HEATER SCHEDULE (EUH)

PLAN CODE	ELECTRICAL				CFM (ALT)	MOUNTING	EAT (°F)	MANUFACTURER & MODEL NO
	TOTAL KW	NO OF STEPS	VOLT/ PH	FAN HP				
EUH-1	1.5	2	120/1	-	650	(1)	60	BROAN 6201

(1) WALL BRACKET (2) UNIT TO BE ON STAND-BY POWER

COOLING TOWER ENCLOSURE PACKAGED SKID EQUIPMENT. BASIS OF DESIGN = JOHNSON THERMAL SYSTEMS

UNIT HEATER SCHEDULE (UH) HORIZONTAL BLOW

PLAN CODE	CFM (ALT)	HEATING CAP (MBH) (LOW SPD)	GPM	WPD (FT)	EWT/ LWT (°F)	EAT (°F)	MOTOR		MOUNTING	MANUFACTURER & MODEL NO	REMARKS
							HP	VOLT/ PH			
UH-3	315	8	.8	.02	180 / 160	60	1/25	115/1	(1) OR (2)	TRANE UHSA-020-W2	HORIZONTAL BLOW

(1) WALL BRACKET (2) UNIT TO BE ON STAND-BY POWER

SPLIT SYSTEM DIRECT EXPANSION FAN COIL (SSFC)

PLAN CODE	AREA SERVED	CFM	COOLING CAPACITY (MBH) (1)	ELECTRICAL					WEIGHT LBS	MANUFACTURER & MODEL NO
				MCA	WATTS	VOLTS	PH	HZ		
SSFC-1	FIRST LEVEL COMM. ROOM	950	42	2	120	208/230	1	60	75	(2) (3) MITSUBISHI PLA-A42BA
SSFC-2	FIRST LEVEL ELEC. ROOM	600	30	1	50	208/230	1	60	70	(2) (3) MITSUBISHI PLA-A30BA
SSFC-3	FIRST LEVEL ELEC. ROOM	600	30	1	50	208/230	1	60	70	(2) (3) MITSUBISHI PLA-A30BA
SSFC-4	SECOND LEVEL COMM. ROOM	880	36	2	120	208/230	1	60	75	(2) (3) MITSUBISHI PLA-A36BA
SSFC-5	THIRD LEVEL COMM. ROOM	880	35	2	120	208/230	1	60	75	(2) (3) MITSUBISHI PLA-A36BA
SSFC-6	FOURTH LEVEL COMM. ROOM	880	35	2	120	208/230	1	60	75	(2) (3) MITSUBISHI PLA-A36BA
SSFC-7	FIFTH LEVEL COMM. ROOM	880	35	2	120	208/230	1	60	75	(2) (3) MITSUBISHI PLA-A36BA
SSFC-8	FIFTH LEVEL ELEVATOR ROOM	390	12	1	50	208/230	1	60	70	(2) (3) MITSUBISHI PLA-A12BA
SSFC-9	FIFTH LEVEL ELEVATOR ROOM	390	12	1	50	208/230	1	60	70	(2) (3) MITSUBISHI PLA-A12BA

(1) RATING AT 97° F DB / 63° F WB ENTERING EVAPORATOR. (2) UNIT TO BE ON STAND-BY POWER
(3) ROUTE AND SIZE REFRIGERANT LINES FROM CONDENSING UNIT TO SPLIT SYSTEM FAN COIL PER MANUFACTURERS REQUIREMENTS.

AIR COOLED CONDENSING UNIT SCHEDULE (ACCU)

PLAN CODE	SYSTEM SERVED	NET COOLING MBH	AMBIENT TEMP (°F)	SEER	REFRIGERANT TYPE	ELECTRICAL			DIMENSIONS				MANUFACTURER & MODEL NO	REMARKS
						VOLTAGE/ PHASE	MCA	MOCP	LENGTH	WIDTH	HEIGHT	OPERATING WEIGHT (LBS)		
ACCU-1	SSFC-1	42	100	14.4	R410A	208/230 / 1	26	30	14	38	59	300	MITSUBISHI PUY-A42NHA	(1) (2) (3) (4)
ACCU-2	SSFC-2	30	100	13.6	R410A	208/230 / 1	25	30	11	34	34	200	MITSUBISHI PUY-A30NHA	(1) (2) (3) (4)
ACCU-3	SSFC-3	30	100	13.6	R410A	208/230 / 1	25	30	11	34	34	200	MITSUBISHI PUY-A30NHA	(1) (2) (3) (4)
ACCU-4	SSFC-4	35	100	14.2	R410A	208/230 / 1	25	30	14	38	38	200	MITSUBISHI PUY-A36NHA	(1) (2) (3) (4)
ACCU-5	SSFC-5	35	100	14.2	R410A	208/230 / 1	25	30	14	38	38	200	MITSUBISHI PUY-A36NHA	(1) (2) (3) (4)
ACCU-6	SSFC-6	35	100	14.2	R410A	208/230 / 1	25	30	14	38	38	200	MITSUBISHI PUY-A36NHA	(1) (2) (3) (4)
ACCU-7	SSFC-7	35	100	14.2	R410A	208/230 / 1	25	30	14	38	38	200	MITSUBISHI PUY-A36NHA	(1) (2) (3) (4)
ACCU-8	SSFC-8	12	100	13.5	R410A	208/230 / 1	13	15	14	32	24	200	MITSUBISHI PUY-A12NHA	(1) (2) (3) (4)
ACCU-9	SSFC-9	12	100	13.5	R410A	208/230 / 1	13	15	14	32	24	200	MITSUBISHI PUY-A12NHA	(1) (2) (3) (4)

(1) MOUNT UNIT ON MINIMUM 14" SEISMIC ROOF CURB. (2) PROVIDE WITH LOW AMBIENT KIT DOWN TO 0°F. (3) UNIT TO BE ON STAND-BY POWER
(4) ROUTE AND SIZE REFRIGERANT LINES FROM CONDENSING UNIT TO SPLIT SYSTEM FAN COIL PER MANUFACTURERS REQUIREMENTS.

CONTROL DAMPER SCHEDULE (CD)

PLAN CODE	SERVICE	TYPE (1)	AIR FLOW VOLUME (CFM)	DIMENSIONS		MAX FACE VELOCITY (FPM)	METHOD OF CONTROL	BLADE ORIENTATION	MANUFACTURER & MODEL NO
				WIDTH (IN)	HEIGHT (IN)				
CD-18-23	5TH LEVEL RETURN AIR	MOTORIZED MODULATING	-	24	24	1350	DDC BUILDING STATIC	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000 (3)
CD-24	EF-1	MOTORIZED 2-POSITION	2725	(2)	(2)	1000	INTERLOCK TO FAN	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000
CD-25	EF-2	MOTORIZED 2-POSITION	4475	(2)	(2)	1000	INTERLOCK TO FAN	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000
CD-26	EF-3	MOTORIZED 2-POSITION	1615	(2)	(2)	1000	INTERLOCK TO FAN	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000
CD-27	EF-4	MOTORIZED 2-POSITION	2300	(2)	(2)	1000	INTERLOCK TO FAN	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000
CD-28	LOUVER L-1	MOTORIZED 2-POSITION	800	36	18	400	INTERLOCK TO EF-5	HORIZONTAL OPPOSED BLADE	TA MORRISON 1000

(1) PROVIDE END SWITCHES ON DAMPER. (2) MATCH SUPPLIED FAN DIMENSIONS (3) DAMPER ACTUATOR TO BE ACCESSIBLE THROUGH FACE OF RETURN AIR GRILLE.

EXHAUST FAN SCHEDULE (EF)

PLAN CODE	AREA SERVED	TYPE	DRIVE TYPE	CFM @ ELEV	ESP @ ELEV	FAN RPM	MOTOR					SONES	DAMPER (GRAVITY OR MOTOR)	METHOD OF CONTROL	OPENING SIZE	MAX OPERATING WT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP (W)	HP	EFFICIENCY %	KW / CFM	VOLT/ PH							
EF-1	EXHAUST SHAFT 1	UPBLAST CENTFIFUGAL	BELT DRIVE	2725	2.0	1596	1.70	2	PREM	0.000465	460/3	23	MOTOR CD-24	VFD-13	26 x 26	300	COOK 225RX9B	(1) (2)
EF-2	EXHAUST SHAFT 2	UPBLAST CENTFIFUGAL	BELT DRIVE	4475	2.0	1143	2.61	3	PREM	0.000435	460/3	24	MOTOR CD-25	VFD-14	32 x 32	375	COOK 300RX10B	(1) (2)
EF-3	EXHAUST SHAFT 3	UPBLAST CENTFIFUGAL	DIRECT DRIVE	1615	2.0	2377	1.17	1-1/2	PREM	0.000540	460/3	24	MOTOR CD-26	VFD-15	20 x 20	125	COOK 165RX8B	(1) (2)
EF-4	EXHAUST SHAFT 4	UPBLAST CENTFIFUGAL	BELT DRIVE	2300	2.0	1463	1.37	1-1/2	PREM	0.000444	460/3	20	MOTOR CD-27	VFD-16	26 x 26	300	COOK 225RX9B	(1) (2)
EF-5	SALLYPORT EXHAUST	INLINE CENTFIFUGAL	BELT DRIVE	800	0.75	1948	0.26	1/3	PREM	0.000242	460/3	10.6	GRAVITY	CO / NOX SENSORS	18 x 18	150	COOK 90SQIB	
EF-9	MECHANICAL ROOM	INLINE CENTFIFUGAL	DIRECT DRIVE	400	0.2	950	195	-	PREM	0.000488	115/1	0.8	GRAVITY	COOLING THERMOSTAT	17 x 12	45	COOK GN-620	
EF-10	ELECTRICAL ROOM	INLINE CENTFIFUGAL	DIRECT DRIVE	175	0.25	1108	62 W	1/6	PREM	0.000354	115/1	3.8	GRAVITY	COOLING THERMOSTAT	12 x 12	100	COOK 90SQN12D	

(1) MOUNT UNIT ON MINIMUM 14" SEISMIC ROOF CURB. (2) FAN SHALL BE ON STAND-BY POWER AND SHALL OPERATE DURING CONTINUOUS COURTS OPERATION.

JOB SITE ELEVATION = 4,787 FT
JOB SITE PRESSURE = 12.33 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

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BID DOCUMENTS

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Date August 15, 2013
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MECHANICAL SCHEDULES

MH603

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RADIANT CEILING PANEL SCHEDULE (RCP)

CIRCUIT PLAN CODE	AREA SERVED	BTUH/ PANEL	PD/ PANEL (FT HD)	GPM/ PANEL	MEAN WATER TEMPERATURE	EWT	PANEL SIZE (LAY-IN)	MANUFACTURER & MODEL NO
RCP-1	HOLDING AREA STAFF RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-2	2ND FLOOR WOMEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-3	2ND FLOOR MEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-4	3RD FLOOR WOMEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-5	3RD FLOOR MEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-6	4TH FLOOR WOMEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-7	4TH FLOOR MEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-8	5TH FLOOR WOMEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-9	5TH FLOOR MEN'S RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-10	2ND FLOOR FAMILY RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-11	4TH FLOOR FAMILY RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL
RCP-12	5TH FLOOR FAMILY RESTROOM	1216	0.37	0.5	165	180	48" X 24"	AERO TECH FORMED METAL

LOUVER SCHEDULE (L)

PLAN CODE	CFM	INTAKE / EXHAUST	VELOCITY (FPM)	FREE AREA (SF)	MAX DIMENSIONS (WxH) (IN)	MANUFACTURER & MODEL NO
L-1	800	INTAKE	450	1.8	36 X 18	GREENHECK ESD-403
L-2	1200	EXHAUST	400	3	36 X 24	GREENHECK ESD-403

CONTROL VALVE (V)

PLAN CODE	DUTY	SHEET REFERENCE		FLOW (GPM)	TYPE	PRESSURE DROP (PSI)	REMARKS
		PLAN	SCHEMATIC				
V-8	RADIANT FLOOR MIXING VALVE	MP101	MP201	2	THREE-WAY MODULATING	3-5	LINE SIZED
V-9	HEATING WATER BYPASS VALVE	MP101	MP201	25	TWO-WAY MODULATING	3-5	LINE SIZED

PUMP SCHEDULE (P)

PLAN CODE	DUTY	GPM	FEET OF HEAD	NOMINAL PUMP RPM	% EFF MIN	% PROPYLENE GLYCOL	MOTOR			METHOD OF CONTROL	MAX WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
							BHP	HP	VOLTAGE/ PHASE				
P-9	RADIANT FLOOR (RM-1)	2	20	2650	-	0	-	1/6	115/1	ATC	15	B & G PL-30	IN-LINE

RADIANT MANIFOLD SCHEDULE (RM)

PLAN CODE	EFFECTIVE AREA (SF)	LOAD (MBH)	BTUH / SF	FLOW (GPM)	TUBE CENTERS	NUMBER OF LOOPS	LOOP LENGTHS (FT)	GPM / LOOP	PRESSURE DROP (FT.)	HEADER SIZE	REMARKS
RM-1	675	10,125	15	1.7	9"	5	200	0.35	1.2	3/4"	1 2 3 4

1 FLOW METER WITH ISOLATION VALVE (PER LOOP) 2 BALANCE VALVE CAPS (PER LOOP) 3 VENT / PURGE ASSEMBLY 4 TRUNK ISOLATION VALVES

AIR DEVICE SCHEDULE 3

PLAN CODE — GRILLE CFM

PLAN CODE	TYPE & DUTY	FACE SIZE	NECK SIZE	CEILING TYPE 2	MAX CFM	MAX TP (IN WC)	NC LEVEL MAX.	MIN THROW (FT) (T50)	MANUFACTURER & MODEL NO	REMARKS 3
1	LINEAR-SUPPLY	24"L	6"ø	MATCH CEILING	80	0.08	32	12	TEMP0 L.D.	1 @ 1" SLOT
2	LINEAR-SUPPLY	24"L	8"ø	MATCH CEILING	160	0.09	33	13	TEMP0 L.D.	2 @ 1" SLOT
3	LINEAR-SUPPLY	24"L	8"ø	MATCH CEILING	240	0.10	34	14	TEMP0 L.D.	3 @ 1" SLOT
4	LINEAR-SUPPLY	24"L	10"ø	MATCH CEILING	320	0.11	35	15	TEMP0 L.D.	4 @ 1" SLOT
5	LINEAR-SUPPLY	48"L	8"ø	MATCH CEILING	160	0.08	32	12	TEMP0 L.D.	1 @ 1" SLOT
6	LINEAR-SUPPLY	48"L	10"ø	MATCH CEILING	320	0.09	33	13	TEMP0 L.D.	2 @ 1" SLOT
7	LINEAR-SUPPLY	48"L	12"ø	MATCH CEILING	480	0.10	34	14	TEMP0 L.D.	3 @ 1" SLOT
8	LINEAR-SUPPLY	48"L	12"ø	MATCH CEILING	640	0.11	35	15	TEMP0 L.D.	4 @ 1" SLOT
9	PERFORATED RETURN	24" X 24"	22" X 22"	MATCH CEILING	1200	0.05	17	-	TITUS PAR	-
10	PERFORATED RETURN	24" X 12"	22"X 10"	MATCH CEILING	600	0.06	10	-	TITUS PAR	-
13	PERFORATED EXHAUST GRILLE	8" X 8"	6" X 6"	MATCH CEILING	120	0.12	10	-	TITUS 8F	PROVIDE FACE ADJUSTABLE BALANCING DAMPER
14	PERFORATED EXHAUST GRILLE	10" X 10"	8" X 8"	MATCH CEILING	225	0.12	12	-	TITUS 8F	PROVIDE FACE ADJUSTABLE BALANCING DAMPER
15	PERFORATED EXHAUST GRILLE	12" X 12"	10" X 10"	MATCH CEILING	360	0.12	14	-	TITUS 8F	PROVIDE FACE ADJUSTABLE BALANCING DAMPER
16	PERFORATED EXHAUST GRILLE	14" x 14"	12" X 12"	MATCH CEILING	550	0.12	16	-	TITUS 8F	PROVIDE FACE ADJUSTABLE BALANCING DAMPER
21	RADIAL BLADE DIFFUSER	12"ø	8"ø	SURFACE	210	0.14	29	8 1	AIR DIFFUSION PRODUCTS DNR	-
22	RADIAL BLADE DIFFUSER	15"ø	10"ø	SURFACE	330	0.14	29	10 1	AIR DIFFUSION PRODUCTS DNR	-
23	RADIAL BLADE DIFFUSER	18"ø	12"ø	SURFACE	470	0.14	30	12 1	AIR DIFFUSION PRODUCTS DNR	-
26	RADIAL BLADE DIFFUSER	24" X 24"	8"ø	GRID	210	0.14	29	8 1	AIR DIFFUSION PRODUCTS DNR	-
27	RADIAL BLADE DIFFUSER	24" X 24"	10"ø	GRID	330	0.14	29	10 1	AIR DIFFUSION PRODUCTS DNR	-
28	RADIAL BLADE DIFFUSER	24" X 24"	12"ø	GRID	470	0.14	30	12 1	AIR DIFFUSION PRODUCTS DNR	-
42	LINEAR-SUPPLY	48"L	12ø	MATCH CEILING	630	0.03	20	28	PRICE ASP	2 @ 3" SLOT, PLENUM BOX, TYPE 22 CONCEALED FRAME
43	LINEAR-SUPPLY	60"L	12ø	MATCH CEILING	720	0.05	21	28	PRICE ASP	2 @ 3" SLOT, PLENUM BOX, TYPE 22 CONCEALED FRAME
44	LINEAR-SUPPLY	48"L	10ø	MATCH CEILING	360	0.05	22	25	PRICE ASP	2 @ 2" SLOT, PLENUM BOX, TYPE 22 CONCEALED FRAME
45	LINEAR-SUPPLY	48"L	10ø	MATCH CEILING	400	0.14	26	34	PRICE ASP	2 @ 1" SLOT, PLENUM BOX, TYPE 51F SURFACE MOUNT FRAME
46	HEAVY-DUTY RETURN	12" x 12"	-	-	550	0.12	30	-	TITUS 63F	-
47	MAXIMUM SECURITY SUPPLY	8" x 8"	6" x 6"	-	135	0.17	-	15	PRICE MSRRCD	2-WAY THROW PROVIDE WITH EXTENDED NECK FOR INSTALLATION
48	MAXIMUM SECURITY SUPPLY	14" x 14"	12" x 12"	-	350	0.15	23	23	PRICE MSRRCD	2-WAY THROW PROVIDE WITH EXTENDED NECK FOR INSTALLATION
49	MAXIMUM SECURITY RETURN / EXH	8" x 8"	6" x 6"	-	125	0.15	-	-	PRICE MSRRP	PROVIDE WITH EXTENDED NECK FOR INSTALLATION
50	MAXIMUM SECURITY RETURN / EXH	14" x 14"	12" x 12"	-	400	0.10	-	-	PRICE MSRRP	PROVIDE WITH EXTENDED NECK FOR INSTALLATION
51	LINEAR-SUPPLY	48"L	8"ø	GRID	270	0.11	22	28	PRICE ASP	1 @ 2" SLOT, PLENUM BOX, TYPE 21 T-BAR FRAME
52	LINEAR-SUPPLY	48"L	10"ø	GRID	390	.09	22	34	PRICE ASP	1 @ 2" SLOT, PLENUM BOX, TYPE 21 T-BAR FRAME
53	PUNKAH LOUVER	8ø	6ø	FLOOR MOUNTED	75	0.08	17	21	AIR CONCEPTS APL-A-RD	- -
54	DRUM SUPPLY	14" X 38"	12" X 36"	DUCT MOUNTED	2780	0.06	39	47	PRICE SDG	WITH POLE OPERATOR BRACKET
55	LINEAR-SUPPLY	48"L	12ø	MATCH CEILING	630	0.03	20	28	PRICE ASP	2 @ 3" SLOT, PLENUM BOX, TYPE 21 EXPOSED FRAME
56	LINEAR-SUPPLY	60"L	8ø	MATCH CEILING	300	0.08	17	21	PRICE ASP	2 @ 1 1/2" SLOT, PLENUM BOX, TYPE 22 CONCEALED FRAME
57	LOUVERED SUPPLY	20" X 10"	18" X 8"	MATCH CEILING	630	0.03	23	23	PRICE ASP	2 @ 1 1/2" SLOT, PLENUM BOX, TYPE 22 CONCEALED FRAME
58	LINEAR BAR SUPPLY	74" X 10"	72" X 8"	MATCH CEILING	630	0.03	23	23	PRICE ASP	- -
59	LOUVERED SUPPLY	32" X 16"	30" X 14"	MATCH CEILING	1390	0.02	17	14	PRICE 520S	LOUVERS TO RUN PARALLEL TO SHORT DIMENSION
60	LINEAR-RETURN	48"L	-	MATCH CEILING	360	0.05	22	-	PRICE ASP	2 @ 2" SLOT TYPE 22 CONCEALED FRAME
61	LOUVERED SUPPLY/TRANSFER	14" X 14"	12" X 12"	- -	195	0.07	21	15	PRICE 530	- -

1 RECOMMENDED MINIMUM DISTANCE BETWEEN DIFFUSERS IN 9' CEILING.
2 VERIFY FRAME TYPE OF ALL AIR DEVICES WITH ARCHITECTURAL REFLECTED CEILING PLAN/CEILING VENDOR BEFORE ORDERING. GRID CEILING AIR DEVICES ARE BASED ON A 15/16" GRID. THE ARCHITECT HAS INDICATED THAT THERE MAY BE 9/16" GRID IN SOME PLACES AS WELL AS TEGULAR TYPE CEILING GRIDS. ADJUST THE MODEL NUMBERS TO OBTAIN THE CORRECT AIR DEVICE.
3 COORDINATE CLOSELY WITH GENERAL CONTRACTOR, MILLWORK CENDOR AND ARCHITECTURAL DETAILS FOR AIR DEVICE INSTALLATION IN AREAS OF "FINE FINISHES".

JOB SITE ELEVATION = 4,787 FT
JOB SITE PRESSURE = 12.33 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

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Date August 15, 2013
Owner # 08284150
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MECHANICAL SCHEDULES

MH604

EVAPORATIVE COOLING MEDIA SECTION START-UP AND SHUT-DOWN SEQUENCE

START-UP
FOR THE FIRST TIME DURING AN OCCUPIED PERIOD, PROCEED AS FOLLOWS:
1) VERIFY THAT DIRECT EVAPORATIVE COOLER SUMP DRAIN MOTORIZED BALL VALVE IS FULLY CLOSED.
2) OPEN THE MAKE-UP WATER SOLENOID VALVE.
3) 5 MINUTES LATER (ADJUSTABLE, AFTER SUMP HAS FILLED) ENABLE THE DIRECT EVAPORATIVE COOLER RECIRCULATION PUMP ON THE FIRST 4" MEDIA SECTION (ECM-1).
4) IF DISCHARGE AIR TEMPERATURE REMAINS ABOVE DAT SETPOINT FOR 15 MINUTES, ENABLE THE DIRECT EVAPORATIVE COOLER RECIRCULATION PUMP ON THE SECOND 4" MEDIA (ECM-2).
5) IF DISCHARGE AIR TEMPERATURE REMAINS ABOVE DAT SETPOINT FOR 15 MINUTES, ENABLE THE DIRECT EVAPORATIVE COOLER RECIRCULATION PUMP ON THE THIRD 4" MEDIA (ECM-3).
6) UTILIZE STEPS 3) 4) AND 5) TO STAGE CAPACITY OF THE DIRECT EVAPORATIVE MEDIA SECTION TO MATCH THE LOAD. ONCE THE THIRD 4" MEDIA HAS STARTED, ALL SECTIONS ARE TO REMAIN OPERATING, ACTING AS A 12" MEDIA FOR REST OF THE OCCUPIED PERIOD.

REFER (230900 CONTRACTOR) TO DETAILS 13/MH501 AND 11/MH502 TO REVIEW VALVE LAYOUT AND PIPING OF THE EVAPORATIVE COOLING MEDIA.

SHUTDOWN
THE END OF ONE (ADJUSTABLE) PROGRAMMED OCCUPIED PERIOD DURING WHICH THE SUMP WAS FULL OF WATER WILL RESULT IN A EVAPORATIVE MEDIA RINSE CYCLE AS FOLLOWS:
1) CLOSE THE MAKE-UP WATER SOLENOID VALVE.
2) OPEN THE MOTORIZED BALL VALVE AT THE SUMP DRAIN.
3) 15 MINUTES LATER (AFTER SUMP HAS DRAINED, ADJUSTABLE) OPEN THE FRESH WATER SOLENOID FLUSH VALVE. ALLOW VALVE TO REMAIN OPEN FOR 15 MINUTES (ADJUSTABLE) BEFORE SHUTTING.
4) CLOSE MOTORIZED BALL VALVE AT SUMP DRAIN 10 MINUTES (ADJUSTABLE AFTER SUMP HAS DRAINED) AFTER FRESH WATER SOLENOID FLUSH VALVE HAS CLOSED. THE SUPPLY FANS SHALL CONTINUE TO RUN FOR 15 MINUTES (ADJUSTABLE) AFTER THE FLUSH SEQUENCE IS COMPLETE TO AID IN DRYING OUT THE MEDIA.
5) PERFORM THIS OPERATION FOR ALL OF THE 4" MEDIA SECTIONS (ECM-1, ECM-2, ECM-3) AT THE SAME TIME.

SEQUENCE OF OPERATION FOR IDEC SYSTEMS:

MECHANICAL EQUIPMENT IS CONTROLLED BY THE BUILDING AUTOMATION DDC SYSTEM. SUPPLY FANS OPERATE SUBJECT TO THE BUILDING AUTOMATION DDC SYSTEM. ALL TIME PERIODS AND SET POINTS SHALL BE ADJUSTABLE FROM THE OPERATOR WORKSTATION.
COORDINATE EXACT DAT SETPOINT RESET SCHEDULE WITH THE OWNER'S CONTROLS ENGINEER.

MODE	OSA TEMP	DAT SETPOINT	SENSOR USED FOR CONTROL	MODE DESCRIPTION			
				MODE SWITCH	EQUIPMENT ACTION	ECONOMIZER ACTION	RELIEF FAN(S) ACTION
ECONOMIZER	BELOW DAT	RESET CURVE OSA DAT 0°F 62°F 50°F 54°F	DISCHARGE AIR TEMP SENSOR	OPERATE IN ECONOMIZER MODE WHEN OUTSIDE AIR IS BELOW DISCHARGE AIR SETPOINT.	ALL COOLING TOWER WATER AND CHILLED WATER CIRCULATION PUMPS "OFF". SUPPLY FAN SPEED CONTROLLED BY DUCT STATIC PRESSURE SETPOINT	MODULATE ECONOMIZER TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.	FIRST STAGE OF RELIEF IS TO OPEN THE 2-POSITION DAMPERS AT THE RELIEF FANS. IF BUILDING STATIC REMAINS TOO HIGH, MODULATE RELIEF FAN VFDs IN UNISON TO MAINTAIN BUILDING STATIC PRESSURE DIFFERENTIAL SETPOINT.
DIRECT EVAP	ABOVE DAT	54°	DISCHARGE AIR TEMP SENSOR	START (SEE SEQUENCE ON THIS SHEET): DIRECT EVAP SECTION WHEN DISCHARGE AIR IS ABOVE SETPOINT FOR 15 MINUTES. STOP (SEE SEQUENCE ON THIS SHEET): OPERATE DIRECT EVAP FOR THE REST OF THE OCCUPIED PERIOD.	RUN DIRECT EVAP MEDIA PUMPS (SEE SEQUENCE ON THIS SHEET).	OSA DAMPERS 100% OPEN RA DAMPERS 100% CLOSED	FIRST STAGE OF RELIEF IS TO OPEN THE 2-POSITION DAMPERS AT THE RELIEF FANS. IF BUILDING STATIC REMAINS TOO HIGH, MODULATE RELIEF FAN VFDs IN UNISON TO MAINTAIN BUILDING STATIC PRESSURE DIFFERENTIAL SETPOINT.
DIRECT EVAP PLUS INDIRECT EVAP	ABOVE DAT	54°	DISCHARGE AIR TEMP SENSOR AND OSA SENSOR	START: (INDIRECT) WHEN OUTSIDE AIR IS ABOVE DISCHARGE AIR SETPOINT FOR 15 MINUTES STOP: WHEN OUTSIDE AIR IS 3°F BELOW DISCHARGE AIR SETPOINT FOR 30 MINUTES, MINIMUM MODE RUN TIME: 30 MINUTES	DIRECT EVAP CONTINUES TO RUN ENABLE THE LEAD COOLING TOWER WATER PUMP (NO WATER FLOW THROUGH CHILLER). MODULATE COOLING TOWER FAN SPEED TO PRODUCE 55°F WATER. MODULATE AH ICC VALVE (V-1) TO MAINTAIN DAT (SEE SHEET MP202)	OSA DAMPERS 100% OPEN RA DAMPERS 100% CLOSED	FIRST STAGE OF RELIEF IS TO OPEN THE 2-POSITION DAMPERS AT THE RELIEF FANS. IF BUILDING STATIC REMAINS TOO HIGH, MODULATE RELIEF FAN VFDs IN UNISON TO MAINTAIN BUILDING STATIC PRESSURE DIFFERENTIAL SETPOINT.
DIRECT EVAP PLUS INDIRECT EVAP PLUS MECHANICAL COOLING (CHILLED WATER)	ABOVE DAT	54°	DISCHARGE AIR TEMP SENSOR RETURN AIR RH SENSOR	START: (CHILLER) WHEN DISCHARGE AIR TEMPERATURE IS ABOVE SETPOINT (54°F) FOR 15 MINUTES AND INDIRECT EVAP AND DIRECT EVAP MODES ARE OPERATING. START: (CHILLER) WHEN RETURN AIR RELATIVE HUMIDITY IS OVER 45%. STOP: WHEN DISCHARGE AIR TEMPERATURE REMAINS BELOW SETPOINT FOR 15 MINUTES, AND RETURN AIR RELATIVE HUMIDITY IS BELOW 45%	DIRECT EVAP CONTINUES TO RUN. INDIRECT EVAP CONTINUES TO RUN. ENABLE THE CHILLED WATER AND CONDENSER BARREL PUMPS. MODULATE THE AIR HANDLER CC VALVE (V-2)TO MAINTAIN DAT SETPOINT.	OSA DAMPERS 100% OPEN RA DAMPERS 100% CLOSED	FIRST STAGE OF RELIEF IS TO OPEN THE 2-POSITION DAMPERS AT THE RELIEF FANS. IF BUILDING STATIC REMAINS TOO HIGH, MODULATE RELIEF FAN VFDs IN UNISON TO MAINTAIN BUILDING STATIC PRESSURE DIFFERENTIAL SETPOINT.

AHU SEQUENCES OF OPERATION:

BUILDING OCCUPANCY SCHEDULE:
THE AIR HANDLER SHALL OPERATE DURING BUILDING OCCUPIED PERIODS AS DETERMINED BY THE OPERATING SCHEDULE ON THE CENTRAL CONTROL SYSTEM. THE FOLLOWING HARD-WIRED SAFETY INTERLOCKS SHALL DISABLE THE AIR HANDLER: SMOKE DETECTORS IN SUPPLY AND RETURN AIR STREAMS, DUCT STATIC PRESSURE HIGH LIMIT SWITCH, FREEZE STAT, AND FIRE ALARM SYSTEM INTERLOCKS.

FAN SPEED CONTROL:
1) INPUT DEVICE: DUCT PRESSURE SENSOR
2) OUTPUT DEVICE: FAN MOTOR VFDs
2) ACTION: MAINTAIN DUCT PRESSURE SETPOINT WITH VFDs (COMMON INPUT SIGNAL). ALL SUPPLY FANS SHALL START TOGETHER AND INITIALLY RUN AT LOW SPEED. FAN SPEED OF ALL SUPPLY FANS SHALL MODULATE TOGETHER TO MAINTAIN THE PROGRAMMED SETPOINT AT THE DUCT STATIC PRESSURE SENSOR. THE SENSOR IS TO BE LOCATED ON THE FIRST FLOOR. THE CONTROL SYSTEM SHALL POLL ALL TERMINAL UNITS THROUGHOUT THE BUILDING TO DETERMINE THE GREATEST DEMAND FOR COOLING. THE COOLING DEMAND SHALL RESET THE DUCT STATIC PRESSURE SO THAT THE MINIMUM STATIC PRESSURE IS USED TO MAINTAIN THE GREATEST DEMAND FOR COOLING. SEE RE-HEAT VAV BOX CONTROL SEQUENCE DESCRIPTION ON SHEET MH802 FOR MORE INFORMATION.

DUCT PRESSURE SETPOINT RESET:
1) INPUT DEVICE: VAV CONTROL DAMPERS
2) OUTPUT DEVICE: DUCT PRESSURE SETPOINT
3) ACTION: RESET PRESSURE SETPOINT IN INCREMENTS OF 0.25" WC:
   A) CONTINUOUSLY LOG DAMPER POSITIONS. ADJUST PRESSURE SETPOINT IF EITHER CONDITION PERSISTS FOR MORE THAN 10 MINUTES:
      a. REDUCE PRESSURE SETPOINT IF NO DAMPER >90% OPEN
      b. INCREASE PRESSURE SETPOINT IF ANY DAMPER IS 100% OPEN

FILTER BANK PRESSURE:
THE CONTROL SYSTEM SHALL MONITOR THE PRESSURE DROP ACROSS THE FILTER BANK IN THE AIR HANDLER. THE INSTANTANEOUS PRESSURE DROP SHALL BE INDICATED ON THE CONTROL SYSTEM GRAPHICAL INTERFACE AS ACTUAL PRESSURE DROP IN INCHES OF WATER COLUMN AND AS ESTIMATED PRESSURE DROP AT FULL AIR FLOW CALCULATED AS FOLLOWS: (FULL AIR FLOW CFM/ACTUAL AIR FLOW CFM)^2 X ACTUAL PRESSURE DROP. GENERATE AN ALARM CALLING FOR FILTERS TO BE CHANGED ONCE THE PRESSURE DROP MEASURED ACROSS THE FILTERS EXCEEDS 0.85" W.C. (ADJUSTABLE)

DAT RESET BASED ON VAV COOLING PERCENTAGE (ECONOMIZER MODE)
1) INPUT DEVICE: VAV COOLING PERCENTAGE
2) OUTPUT DEVICE: DAT SETPOINT
3) ACTION: RESET DAT SETPOINT IN INCREMENTS OF 1°F
   A) CONTINUOUSLY MONITOR MAXIMUM VAV COOLING PERCENTAGE. ADJUST DAT SETPOINT IF EITHER CONDITION PERSISTS FOR MORE THAN 10 MINUTES:
      a. INCREASE DAT SETPOINT IF NO VAV COOLING PERCENTAGE IS GREATER THAN 90%
      b. DECREASE DAT SETPOINT IF ANY VAV COOLING PERCENTAGE IS 100%

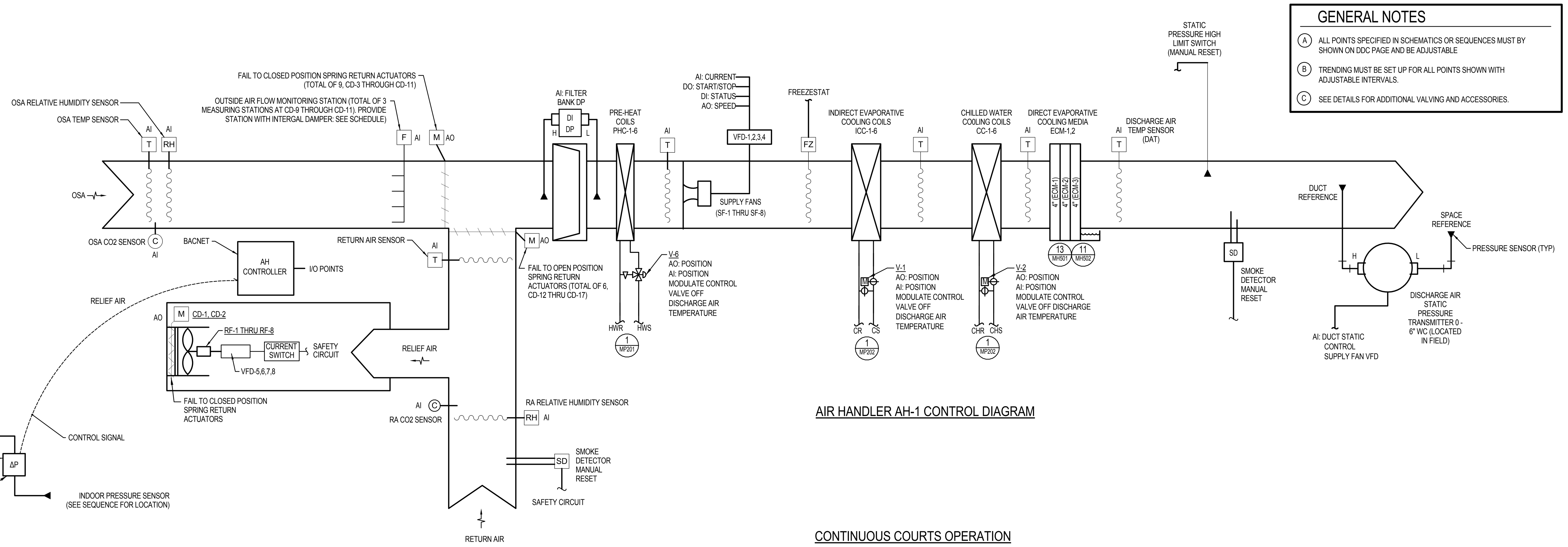
MORNING WARM-UP (OR DAT RESET PRE-HEAT COIL CONTROL SEQUENCE:
IF OAT IS 45°F OR BELOW AND THE DAT DROPS BELOW SETPOINT:
1) VERIFY THAT THE BOILERS ARE OPERATING TO PROVIDE HEAT
2) START THE PRE-HEAT PUMP (P-3) ON THE HEATING WATER SIDE (SOURCE SIDE) OF THE HEAT EXCHANGER
3) START THE PRE-HEAT PUMP (P-8) ON THE GLYCOL WATER SIDE (LOAD SIDE) OF THE HEAT EXCHANGER
4) RESET THE PRE-HEAT COIL SUPPLY WATER TO MAINTAIN DAT SETPOINT
5) VARY THE POSITION OF THE PRE-HEAT COIL VALVE (V-7) TO MAINTAIN THE PRE-HEAT COIL SUPPLY WATER TEMP
6) DISABLE PUMPS P-3 AND P-8 WHEN THE OAT REACHES 55°F OR WHEN DAT IS SATISFIED FOR 30 MINUTES

MINIMUM OSA REQUIREMENTS:
1) MAINTAIN A MINIMUM OUTOOR AIR FLOW VOLUME OF 20,000 CFM DURING OCCUPIED PERIODS.
2) POLL ROOM CO2 SENSORS AND IF ANY SENSOR EXCEEDS 800 PPM FOR MORE THAN 15 MINUTES MODULATE THE OUTSIDE AIR DAMPERS OPEN UNTIL ROOM CO2 SENSOR IS SATISFIED.
3) DURING OCCUPIED MODE, THE CONTROL SYSTEM SHALL MONITOR THE OUTSIDE AIR FLOW RATE ACROSS THE AIRFLOW MEASURING STATIONS AT CD-9 THROUGH CD-11. DIVISION 230900 CONTRACTOR IS TO MONITOR PRESSURE SIGNAL FROM PRESSURE AND CONVERT THIS READING TO AN EQUIVALENT CFM FLOW RATE AND DISPLAY IN GRAPHICS.

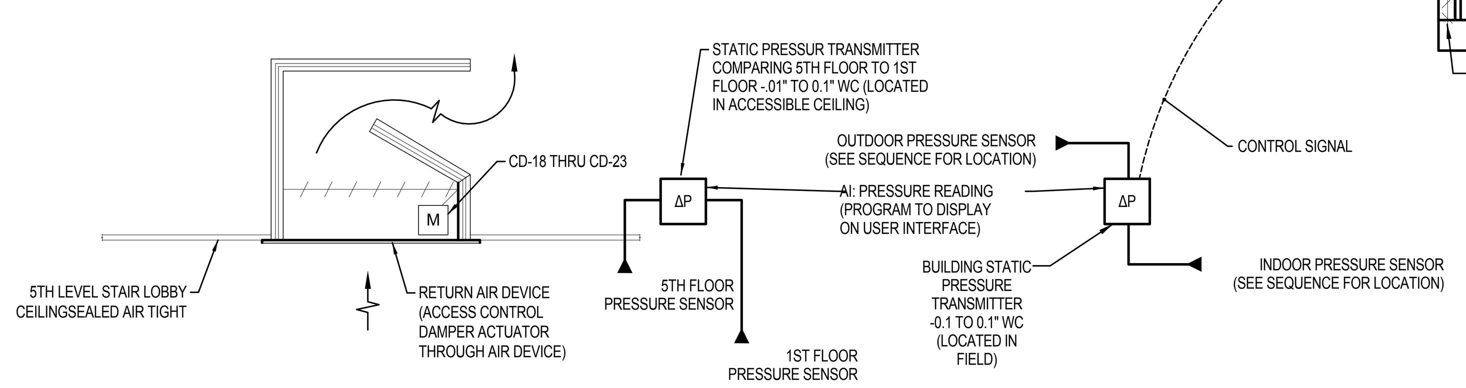
SAFETIES / ALARMS (HARDWIRED) :
1) LOW TEMPERATURE:
   A) INPUT DEVICE: FREEZESTAT SET AT 40°F
   B) OUTPUT: ALARM, OA AND RA DAMPERS, SUPPLY FANS
   C) ACTION: WHEN FREEZESTAT CONTACT OPENS, OPEN THE RA DAMPER AND CLOSE THE OA DAMPER TO PROVIDE 100% RA. STOP THE SUPPLY FANS. ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER.
2) SMOKE DETECTOR:
   A) INPUT DEVICE: RETURN OR SUPPLY SIDE SMOKE DETECTORS
   B) OUTPUT DEVICE: FAN VFDS
   C) ACTION: SHUT DOWN ALL FANS ON SMOKE DETECTION. ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER.
3) HIGH PRESSURE:
   A) INPUT DEVICE: DUCT PRESSURE SENSOR SET AT 5.0" WC
   B) OUTPUT DEVICE: FAN VFDS
   C) ACTION: SHUT DOWN ALL FANS ON HIGH PRESSURE. ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER.
4) FILTER PRESSURE DROP:
   A) INPUT DEVICE: FILTER BANK DP SENSOR
   B) OUTPUT DEVICE: NONE
   C) ACTION: ALARM AT THE BUILDING AUTOMATION DDC SYSTEM WHEN THE PRESSURE DIFFERENTIAL ACROSS THE FILTER BANK REACHES THE HIGH LIMIT OF 0.85" WC (ADJUSTABLE).
5) RETURN AIR CO2:
   A) INPUT DEVICE: RETURN AIR CO2 SENSOR
   B) OUTPUT DEVICE: NONE
   C) ACTION: ALARM AT THE BUILDING AUTOMATION DDC SYSTEM IF THE RETURN AIR CO2 LEVEL REACHES 880 PPM (10% GREATER THAN SET POINT - ADJUSTABLE)
6) EQUIPMENT FAILURE:
   A) MONITOR OPERATION OF SUPPLY FANS, RELIEF FANS AND EVAPORATIVE COOLER CIRCULATING PUMPS WITH ADJUSTABLE SETPOINT CURRENT SWITCHES. ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER WHENEVER A FAILURE IS DETECTED.
7) MINIMUM OSA:
   A) INPUT DEVICE: OUTDOOR AIR MONITORING STATIONS AT CD-9, CD-10 AND CD-11
   B) ACTION: IF OUTDOOR AIR FLOW FALLS BELOW 18,000 CFM (10% BELOW MINIMUM SET-POINT GENERATE AN ALARM TO BAS.

GENERAL NOTES

(A) ALL POINTS SPECIFIED IN SCHEMATICS OR SEQUENCES MUST BY SHOWN ON DDC PAGE AND BE ADJUSTABLE
(B) TRENDING MUST BE SET UP FOR ALL POINTS SHOWN WITH ADJUSTABLE INTERVALS.
(C) SEE DETAILS FOR ADDITIONAL VALVING AND ACCESSORIES.



AIR HANDLER AH-1 CONTROL DIAGRAM



BULDING PRESSURE RELIEF SEQUENCE:
MEASURE THE BUILDING PRESSURE WITH RESPECT TO THE OUTDOOR PRESSURE. INDOOR PRESSURE SENSOR TO BE LOCATED AT THE CEILING IN THE FIRST FLOOR LOBBY. OUTDOOR PRESSURE SENSOR TO BE LOCATED IN THE GROUND FLOOR EXTERIOR SOFFIT. BUILDING PRESSURE SHALL BE MAINTAINED AT POSITIVE 0.05" WC (ADJUSTABLE) WITH THE FOLLOWING SEQUENCE:
1) FIRST STAGE OF PRESSURE RELIEF: OPEN AND CLOSE THE 2-POSITION RELIEF AIR DAMPERS (CD-1 & CD-2). BOTH DAMPERS SHALL OPERATE TOGETHER.
2) SECOND STAGE OF PRESSURE RELIEF: START ALL RELIEF FANS (RF-1 THRU 8) AT LOW SPEED AND MODULATE FAN SPEED TO MAINTAIN BUILDING PRESSURE SETPOINT. ALL FANS SHALL MODULATE TOGETHER.
3) MODULATE 5TH FLOOR RETURN AIR DAMPERS (CD-18 THRU CD-23) TO MAINTAIN A POSITIVE 0.05" WC (ADJUSTABLE) IN THE 5TH FLOOR STAIR LOBBY, TO REDUCE STACK EFFECT.

RELIEF FAN BUILDING PRESSURE CONTROL DIAGRAM / SEQUENCE

CONTINUOUS COURTS OPERATION

MAINTAIN OPERATION OF THE FOLLOWING EQUIPMENT DURING CONTINUOUS COURTS OPERATION:
- SUPPLY FANS SF-3-4 (VFD-2), AND SF-5-6 (VFD-7)
- RELIEF FANS RF-3-4 (VFD-6), AND RF-5-6 (VFD-7)
- DIRECT EVAP SUMP PUMPS
- ALL CONTROL VALVES

DISABLE THE FOLLOWING EQUIPMENT DURING CONTINUOUS COURTS OPERATION:
- SUPPLY FANS SF-1-2 (VFD-1), AND SF-7-8 (VFD-4)
- RELIEF FANS RF-1-2 (VFD-5), AND RF-7-8 (VFD-8)

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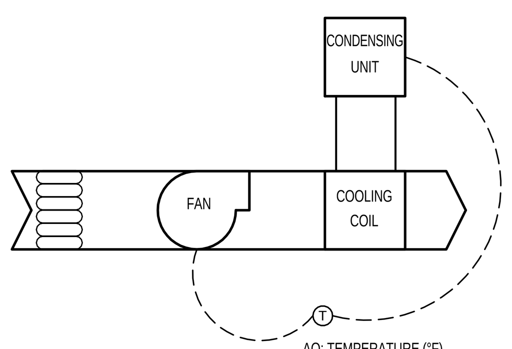
2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

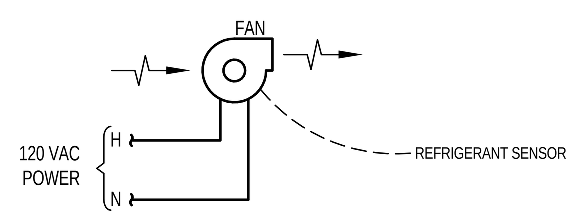
Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

CONTROL DIAGRAM/SEQUENCE



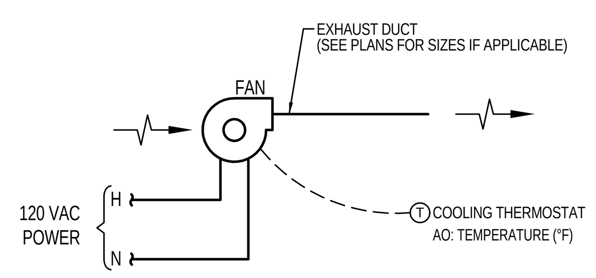
SPLIT SYSTEM FAN COIL SEQUENCE:
1) START CONDENSING UNIT ON THE ROOF AND THE SINGLE DX FAN COIL UNIT IT SERVES WHENEVER SPACE TEMPERATURE RISES ABOVE SETPOINT (85ºF, 5º DEAD BAND, OFF AT 80ºF, ALL SET POINTS ADJUSTABLE).
2) GENERATE AN ALARM IF SPACE TEMPERATURE EXCEEDS 90ºF FOR 15 MINUTES.

DX SPLIT SYSTEM CONTROL SCHEMATIC / SEQUENCE



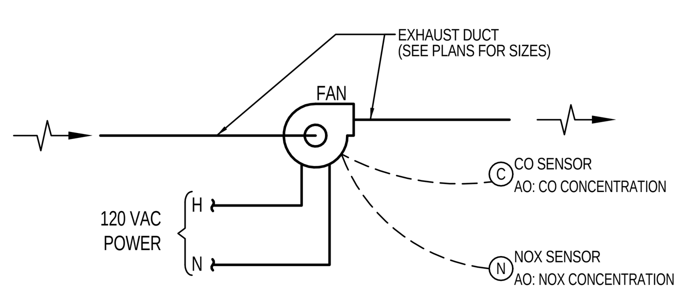
EF-7 SEQUENCE:
UPON DETECTION OF REFRIGERANT BY REFRIGERANT SENSOR:
1) START FAN.
2) GENERATE AN ALARM AT THE BUILDING AUTOMATION DDC SYSTEM.
3) FAN SHALL CONTINUE TO RUN UNTIL IT IS MANUALLY SHUT DOWN (THROUGH THE BUILDING DDC SYSTEM).

EMERGENCY EXHAUST FAN (EF-7) CONTROL SCHEMATIC / SEQUENCE



EF-6, 8, 9 SEQUENCE:
1) OPERATE FAN BASED ON A CALL FROM A WALL MOUNTED COOLING THERMOSTAT, SET AT 90°F (ADJUSTABLE).
2) GENERATE AN ALARM AT THE BUILDING AUTOMATION DDC SYSTEM IF THE SPACE SERVED REMAINS ABOVE SETPOINT FOR MORE THAN 30 MINUTES (ADJUSTABLE).

EXHAUST FAN (EF-6, 8, 9) CONTROL SCHEMATIC / SEQUENCE



EF-5 SEQUENCE:
FAN SHALL RUN IN BOTH OF THE FOLLOWING SCENARIOS:
GARAGE DOOR OPERATION:
1) INTERLOCK FAN WITH GARAGE DOORS.
2) FAN SHALL RUN FOR 15 MINUTES (ADJUSTABLE) AFTER ANY GARAGE DOOR ACTIVITY (OPENING OR CLOSING). OPERATION PERIOD SHALL BE RESET BY THE MOST RECENT GARAGE DOOR ACTIVITY.
3) PROVIDE THE OWNER WITH THE ABILITY TO DISABLE FAN OPERATION BASED ON GARAGE DOOR ACTIVITY.
GAS DETECTION:
1) FAN SHALL RUN UPON DETECTION OF ELEVATED LEVELS CO OR NOX. ACTIVATION CONCENTRATIONS SHALL BE INITIALLY SET TO THE FOLLOWING:
CO - 50 PPM (ADJUSTABLE)
NOX - 50 PPM (ADJUSTABLE)
2) FAN SHALL CONTINUE TO RUN FOR 15 MINUTES (ADJUSTABLE) AFTER GAS DETECTION SENSORS HAVE BEEN STAISFIED.

EXHAUST FAN (EF-5) CONTROL SCHEMATIC / SEQUENCE

REHEAT VAV BOX CONTROL SEQUENCE

VAV BOX OCCUPANCY SCHEDULE:
THE VAV BOXES SHALL OPERATE DURING OCCUPIED PERIODS AS DETERMINED BY THE OPERATING SCHEDULE ON THE CENTRAL CONTROL SYSTEM. THIS OCCUPANCY SCHEDULE SHALL BE OWNER DETERMINED, ADJUSTABLE AND SHALL BE INDEPENDENT OF THE AIR HANDLER OCCUPANCY SCHEDULE.

OCCUPIED MODE
IF AN INDIVIDUAL ZONE REQUIRES COOLING:
1) THE AIR VOLUME DAMPER SHALL BE MODULATED BETWEEN THE MINIMUM AND MAXIMUM CFM SETPOINTS AS REQUIRED TO MAINTAIN THE CURRENT ROOM TEMPERATURE SETPOINT. INITIAL COOLING SETPOINTS SHALL BE AS FOLLOWS:
OFFICE AREAS: 73°F (ADJUSTABLE), WITH A 3°F DEADBAND
COURTROOMS & JUDGE'S CHAMBERS: 71°F (ADJUSTABLE), WITH A 3°F DEADBAND

IF AN INDIVIDUAL ZONE REQUIRES HEATING:
2) MODULATE VAV DAMPER POSITION FROM MINIMUM TO HEATING MAXIMUM. MODULATE THE HEATING WATER VALVE POSITION TO MAINTAIN THE LEAVING AIR TEMPERATURE AT 15°F GREATER THAN THE ROOM SETPOINT. INITIAL HEATING SETPOINTS SHALL BE AS FOLLOWS:
OFFICE AREAS: 73°F (ADJUSTABLE), WITH A 2°F DEADBAND
COURTROOMS & JUDGE'S CHAMBERS: 71°F (ADJUSTABLE), WITH A 2°F DEADBAND

3) MONITOR VAV BOX DISCHARGE AIR TEMPERATURE ON CONTROL SYSTEM GRAPHICS.
4) IF THE ZONE BECOMES UNOCCUPIED (DETERMINED BY THE ZONE OCCUPANCY SENSOR) ALLOW THE ZONE GO INTO STANDBY MODE.

STANDBY MODE
A ZONE SHALL ONLY BE IN STANDBY MODE WHEN THE BUILDING IS IN OCCUPIED MODE AND EITHER OF THE FOLLOWING CONDITIONS APPLY:
VAV BOX IS IN UNOCCUPIED MODE (AS DETERMINED BY THE VAV BOX OCCUPANCY SCHEDULE).
OR
NO OCCUPANCY IS SENSED (BY THE ZONE OCCUPANCY SENSOR) IN THE ZONE.
1) ALLOW THE VAV BOX TO CLOSE PAST THE PROGRAMMED BOX MINIMUM TO 0% OPEN.
2) WHEN LOAD IS SENSED IN THE ROOM (VIA ZONE OCCUPANCY SENSOR), MODULATE VAV BOX DAMPER FROM THE 0% OPEN POSITION TO THE PROGRAMMED BOX MINIMUM AND VAV BOX SHALL RESUME OCCUPIED MODE AS DESCRIBED ABOVE.

ENERGY DEMAND MODE
PROVIDE A MEANS FOR TOGGLING THE VAV BOXES FROM NORMAL OPERATING MODE TO ENERGY DEMAND MODE AT ONE LOCATION IN THE BAS FOR EACH CATEGORY OF VAV BOXES (OFFICE AND COURTROOM).
WHEN ENERGY DEMAND MODE IS SELECTED:
1) RESET TEMPERATURE SETPOINTS FOR ALL OFFICE AREAS AS FOLLOWS:
HEATING: 67°F (ADJUSTABLE)
COOLING: 78°F (ADJUSTABLE)
2) RESET TEMPERATURE SETPOINTS FOR ALL COURTROOMS AS FOLLOWS:
HEATING: 71°F (ADJUSTABLE, INITIALLY THE SAME AS THE NORMAL OPERATING SETPOINT)
COOLING: 71°F (ADJUSTABLE, INITIALLY THE SAME AS THE NORMAL OPERATING SETPOINT)

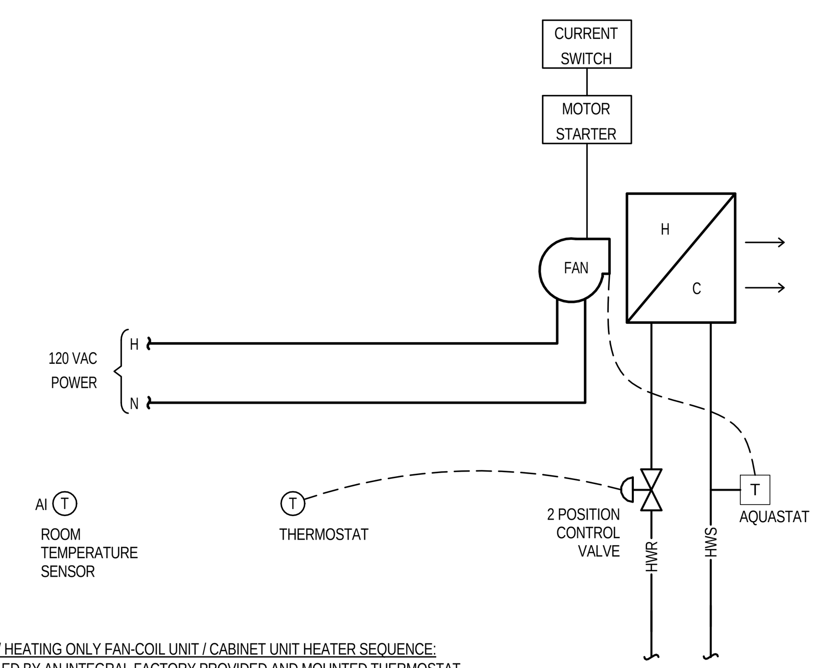
BUILDING UNOCCUPIED HEATING MODE
WHENEVER ANY ROOM TEMPERATURE FALLS BELOW THE UNOCCUPIED MODE HEATING SETPOINT (55°F SETPOINT WITH A 5°F DIFFERENTIAL, OFF AT 60°F):
1) ENABLE SUPPLY FANS IN AIR HANDLING UNIT. THE AIR HANDLING UNIT SUPPLY AIR TEMPERATURE SHALL BE RESET TO 60°F (ADJUSTABLE), AND THE UNIT SHALL OPERATE WITH 100% RETURN AIR.
2) AT THE TIME OF THE CALL FOR HEATING THE VAV TERMINALS SHALL BE SEPARATED INTO TWO GROUPS.
3) THE FIRST GROUP (VAV TERMINALS SERVING ZONES THAT ARE BELOW THE UNOCCUPIED HEATING SETPOINT DIFFERENTIAL - BELOW 60°F) SHALL CONTROL TO THE OCCUPIED MODE HEATING SETPOINT (SUCH THAT THOSE VAV TERMINALS OPERATE AT THEIR REHEAT CFM WITH THE REHEAT VALVE FULLY OPEN). ONCE ANY ZONE TEMPERATURE RISES ABOVE THE HEATING SETPOINT DIFFERENTIAL (ABOVE 60°F) THAT VAV TERMINAL SHALL OPERATE AT THE MINIMUM CFM (WITH THE REHEAT VALVE FULLY CLOSED).
4) THE SECOND GROUP (VAV TERMINALS SERVING ZONES THAT ARE ABOVE THE UNOCCUPIED HEATING SETPOINT DIFFERENTIAL (ABOVE 60F) AT THE TIME OF THE CALL FOR UNOCCUPIED HEATING) SHALL OPERATE AT THEIR MINIMUM CFM (WITH THE REHEAT VALVE FULLY CLOSED).
5) THE UNOCCUPIED HEATING MODE SHALL BE TERMINATED WHEN ALL ZONES HAVE REACHED THE TOP END OF THE UNOCCUPIED HEATING SETPOINT DIFFERENTIAL (60°F).

BUILDING UNOCCUPIED COOLING MODE
WHENEVER ANY ZONE TEMPERATURE RISES ABOVE THE UNOCCUPIED MODE COOLING SETPOINT (85°F SETPOINT WITH A 5°F DIFFERENTIAL, OFF AT 80°F) :
1) ENABLE SUPPLY FANS IN AIR HANDLING UNIT.
2) AT THE TIME OF THE CALL FOR COOLING THE VAV TERMINALS SHALL BE SEPARATED INTO TWO GROUPS.
3) THE FIRST GROUP (VAV TERMINALS SERVING ZONES THAT ARE ABOVE THE UNOCCUPIED COOLING SETPOINT DIFFERENTIAL - ABOVE 80F) SHALL CONTROL TO THE OCCUPIED MODE COOLING SETPOINT (SUCH THAT THOSE VAV TERMINALS OPERATE AT THEIR MAXIMUM COOLING CFM). ONCE ANY ZONE TEMPERATURE FALLS BELOW THE COOLING SETPOINT DIFFERENTIAL (BELOW 80F) THAT VAV TERMINAL SHALL OPERATE AT THE MINIMUM CFM.
4) THE SECOND GROUP (VAV TERMINALS SERVING ZONES THAT ARE BELOW THE UNOCCUPIED COOLING SETPOINT DIFFERENTIAL (BELOW 80F) AT THE TIME OF THE CALL FOR UNOCCUPIED COOLING) SHALL OPERATE AT THEIR MINIMUM CFM.
5) THE UNOCCUPIED COOLING MODE SHALL BE TERMINATED WHEN ALL ZONES HAVE REACHED THE BOTTOM END OF THE UNOCCUPIED COOLING SETPOINT DIFFERENTIAL (80°F).

OPTIMUM START MODE (MORNING WARM-UP AND MORNING COOL-DOWN MODES)
DURING MORNING WARM-UP AND/OR MORNING COOL-DOWN MODES THE AIR HANDLING UNIT SHALL OPERATE IN ACCORDANCE WITH THE APPROPRIATE UNOCCUPIED MODE SEQUENCE (UNOCCUPIED HEATING MODE OR UNOCCUPIED COOLING MODE). THE OPTIMUM START PERIOD SHALL BE LIMITED TO A MAXIMUM OF 4 HOURS (ADJUSTABLE) PRIOR TO THE OCCUPIED TIME.

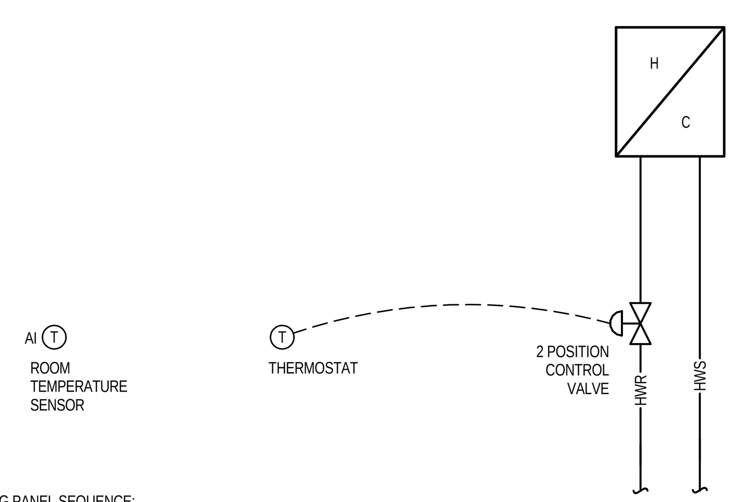
UNOCCUPIED OVERRIDE MODE
AIR HANDLING UNIT SHALL BE ENABLED AND CONTROLLED IN THE NORMAL OCCUPIED MODE FOR A PERIOD OF TWO HOURS (ADJUSTABLE) IN OVERRIDE MODE. ALL VAV TERMINALS ON THE FLOOR ON WHICH THE ACTIVATED OVERRIDE BUTTON IS LOCATED SHALL CONTROL TO THE OCCUPIED MODE ROOM TEMPERATURE SETPOINT. THIS FEATURE SHALL BE CAPABLE OF BEING INDIVIDUALLY ENABLED/DISABLED FOR EACH THERMOSTAT VIA A SOFTWARE SWITCH.

DENSELY OCCUPIED SPACES
IN SPACES EQUIPPED WITH CARBON DIOXIDE (CO2) SENSORS:
1) MONITOR THE CO2 CONCENTRATION IN DENSELY OCCUPIED SPACES. CO2 SENSORS WILL BE LOCATED AT THE CEILING OF EACH DENSELEY OCCUPIED SPACE.
2) NORMAL OPERATING RANGE OF ACCEPTABLE CO2 CONCENTRATION IS 400-800 PPM. IF CO2 SENSOR DETECTS CONCENTRATION GREATER THAN 600 PPM, OPEN VAV BOX DAMPER UNTIL CO2 CONCENTRATION DROPS AND REMAINS BELOW 600 PPM FOR 15 MINUTES. THEN ALLOW VAV BOX DAMPER TO RETURN TO REQUIRED POSITION BASED ON THE HEATING OR COOLING REQUIREMENT.
3) IF ANY DENSELY OCCUPIED ZONE CO2 SENSOR READS CONCENTRATIONS HIGHER THAN 800 PPM FOR MORE THAN 15 MINUTES, SEND SIGNAL TO AIR HANDLER TO INCREASE OSA DAMPER POSITION. SEE AIR HANDLER SEQUENCE OF OPERATION ON SHEET MH801 FOR FURTHER INFORMATION.
4) GENERATE AN ALARM IF ANY CO2 CONCENTRATION IS ABOVE 1000 PPM.



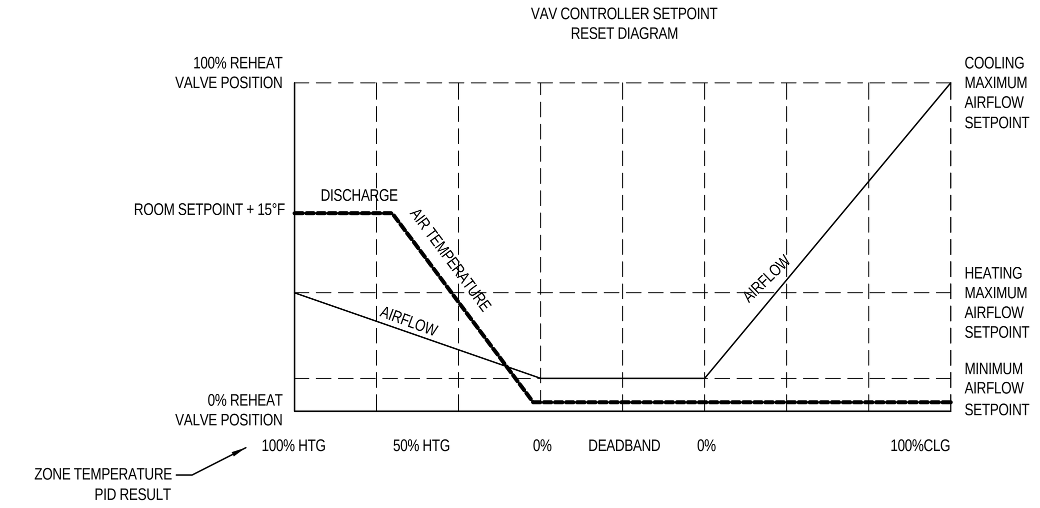
UNIT HEATER / HEATING ONLY FAN-COIL UNIT / CABINET UNIT HEATER SEQUENCE:
CONTROLLED BY AN INTEGRAL FACTORY PROVIDED AND MOUNTED THERMOSTAT
1) OPEN THE HOT WATER CONTROL VALVE ON A CALL FOR HEATING. (SETPOINT INITIALLY 65°F, ADJUSTABLE, WITH 5°F DEAD BAND, ON AT 65°F AND OFF AT 70°F).
2) AQUASTAT WILL ALLOW THE FAN TO OPERATE IF HOT WATER (120°F MIN) IS AVAILABLE.
3) UNIT HEATERS: GENERATE AN ALARM WHEN SPACE TEMPERATURE DROPS BELOW 40°F FOR 15 MINUTES.
4) FAN-COIL UNIT/CABINET UNIT HEATER: GENERATE AN ALARM WHEN SPACE TEMPERATURE DROPS BELOW 60°F FOR 15 MINUTES.

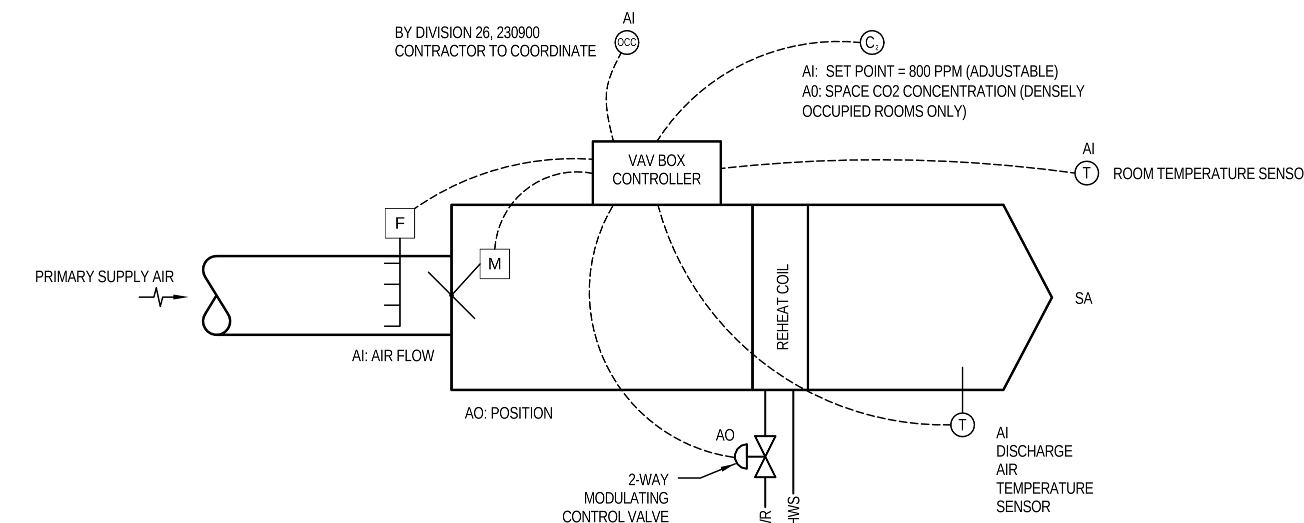
UNIT HEATER / HEATING ONLY FAN COIL / CABINET UNIT HEATER CONTROL SCHEMATIC / SEQUENCE



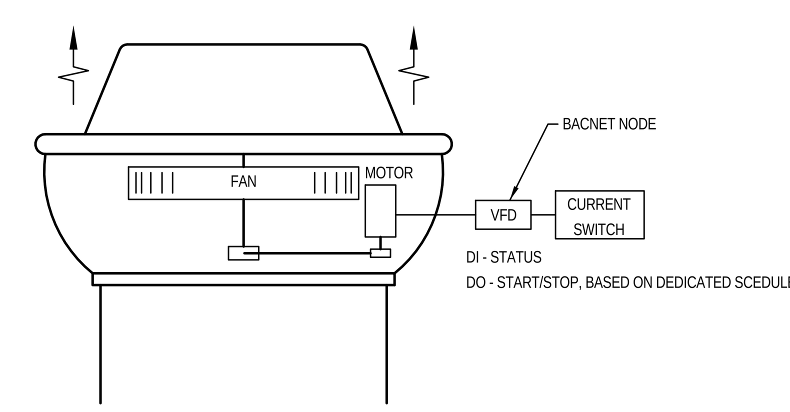
RADIANT CEILING PANEL SEQUENCE:
CONTROLLED BY AN INTEGRAL FACTORY PROVIDED THERMOSTAT
1) OPEN THE HOT WATER CONTROL VALVE ON A CALL FOR HEATING. (SETPOINT INITIALLY 65°F, ADJUSTABLE, WITH 5°F DEAD BAND, ON AT 65°F AND OFF AT 70°F).
2) GENERATE AN ALARM WHEN SPACE TEMPERATURE DROPS BELOW 60°F FOR 15 MINUTES.

RADIANT CEILING PANEL CONTROL SCHEMATIC / SEQUENCE



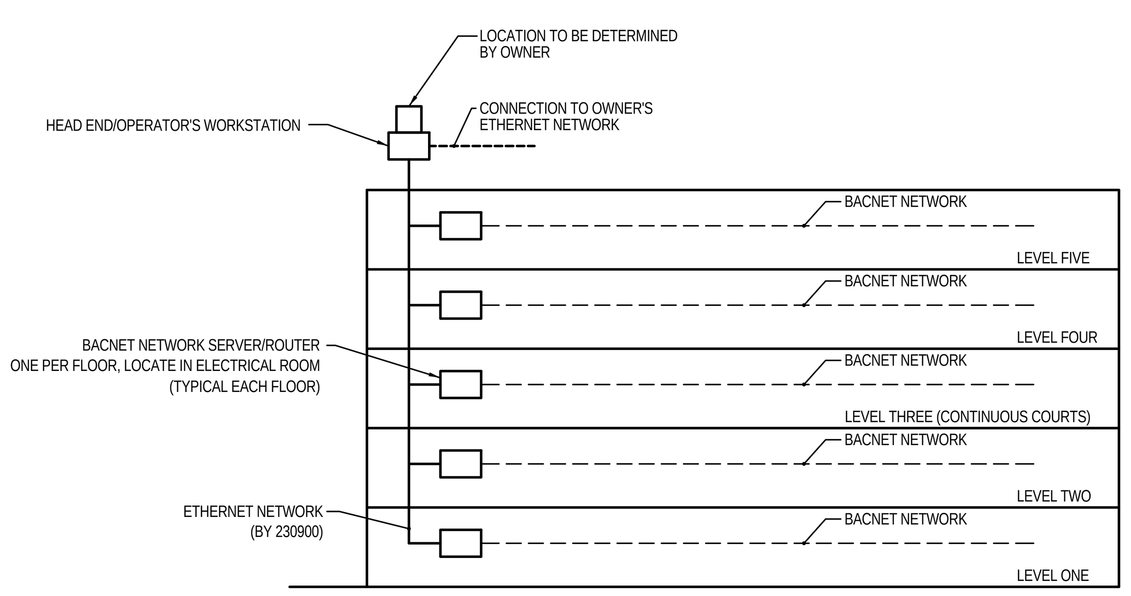


VAV REHEAT CONTROL SCHEMATIC



CONTROL SEQUENCE:
1) FAN SHALL RUN CONTINUOUSLY DURING SCHEDULED OCCUPIED HOURS. FAN SHALL HAVE ITS OWN DEDICATED SCHEDULE, WHICH SHALL BE DETERMINED BY THE OWNER. INTERLOCK MOTORIZED 2-POSITION DAMPER WITH FAN OPERATION.
2) BALANCE FAN WITH VFD TO SCHEDULED AIR FLOW AT BUILDING COMPLETION.
3) GENERATE AN ALARM UPON FAN FAILURE OR AN UNCOMMANDED CHANGE OF STATUS.
4) COMMON EXHAUST FANS SHALL RUN DURING CONTINUOUS COURTS OPERATION.

COMMON EXHAUST FAN CONTROL SCHEMATIC / SEQUENCE



BUILDING CONTROL SYSTEM NETWORK SCHEMATIC

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Rev #	Date	Description

Job # 12500
Date August 15, 2013
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CONTROL DIAGRAM/SEQUENCE

MH802

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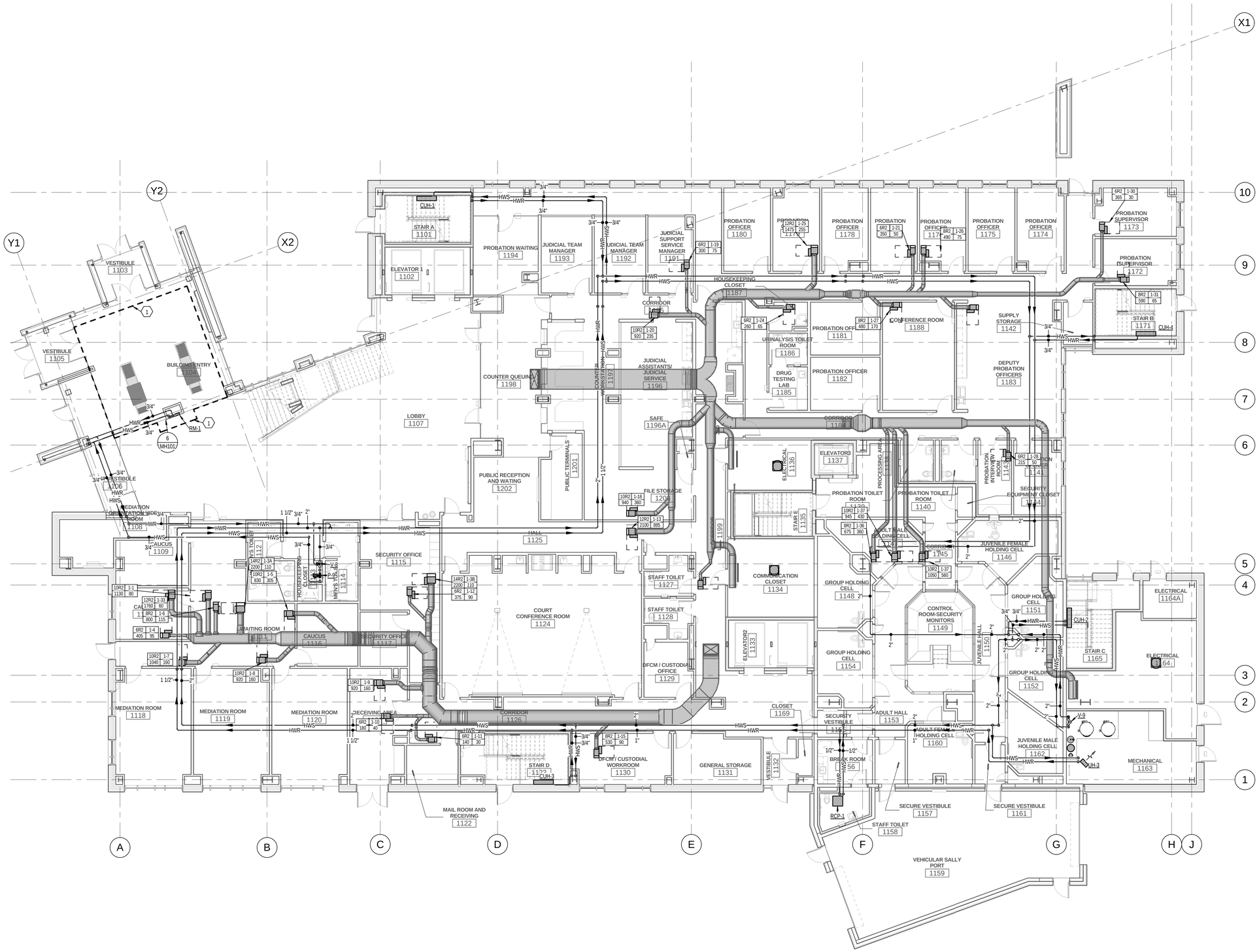

1 LEVEL 1 MECHANICAL PIPING PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1 PROVIDE THERMAL BREAK IN SLAB BETWEEN HEATED AND UNHEATED AREAS.

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES	
GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 1 MECHANICAL PIPING PLAN

MP101

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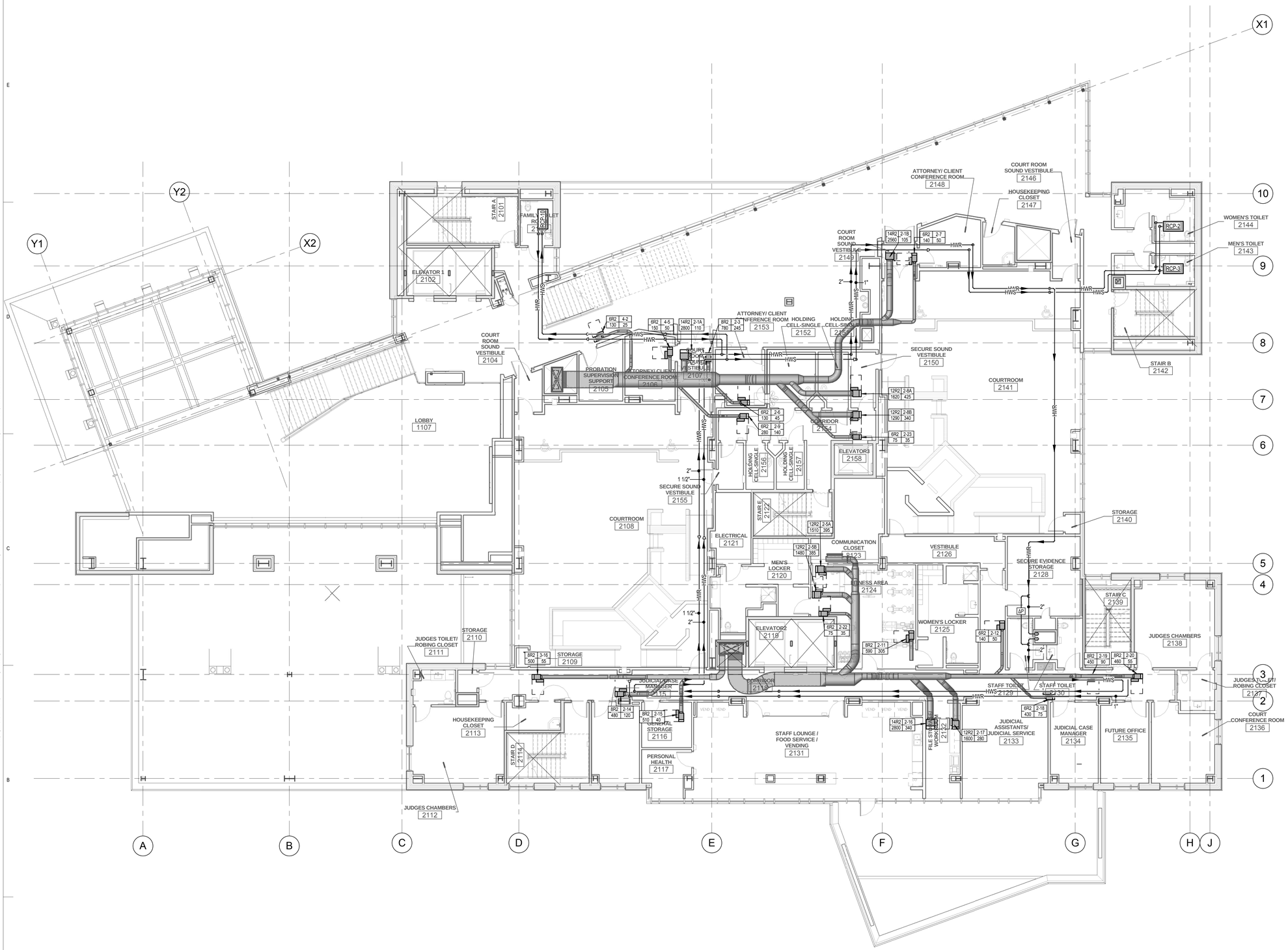

1 LEVEL 2 MECHANICAL PIPING PLAN

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

KEYED NOTES

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 2 MECHANICAL PIPING PLAN

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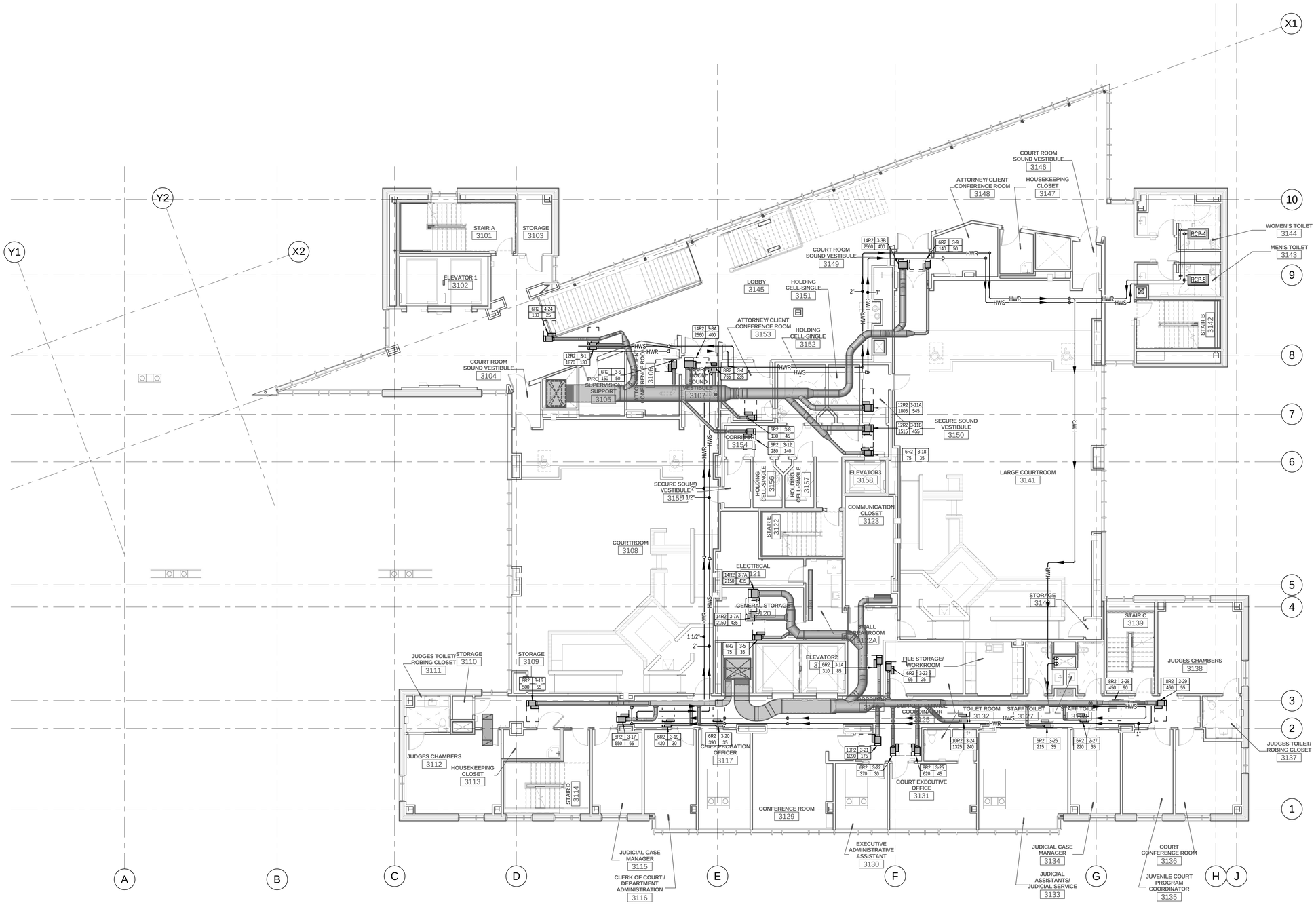

1 LEVEL 3 MECHANICAL PIPING PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 3 MECHANICAL PIPING PLAN

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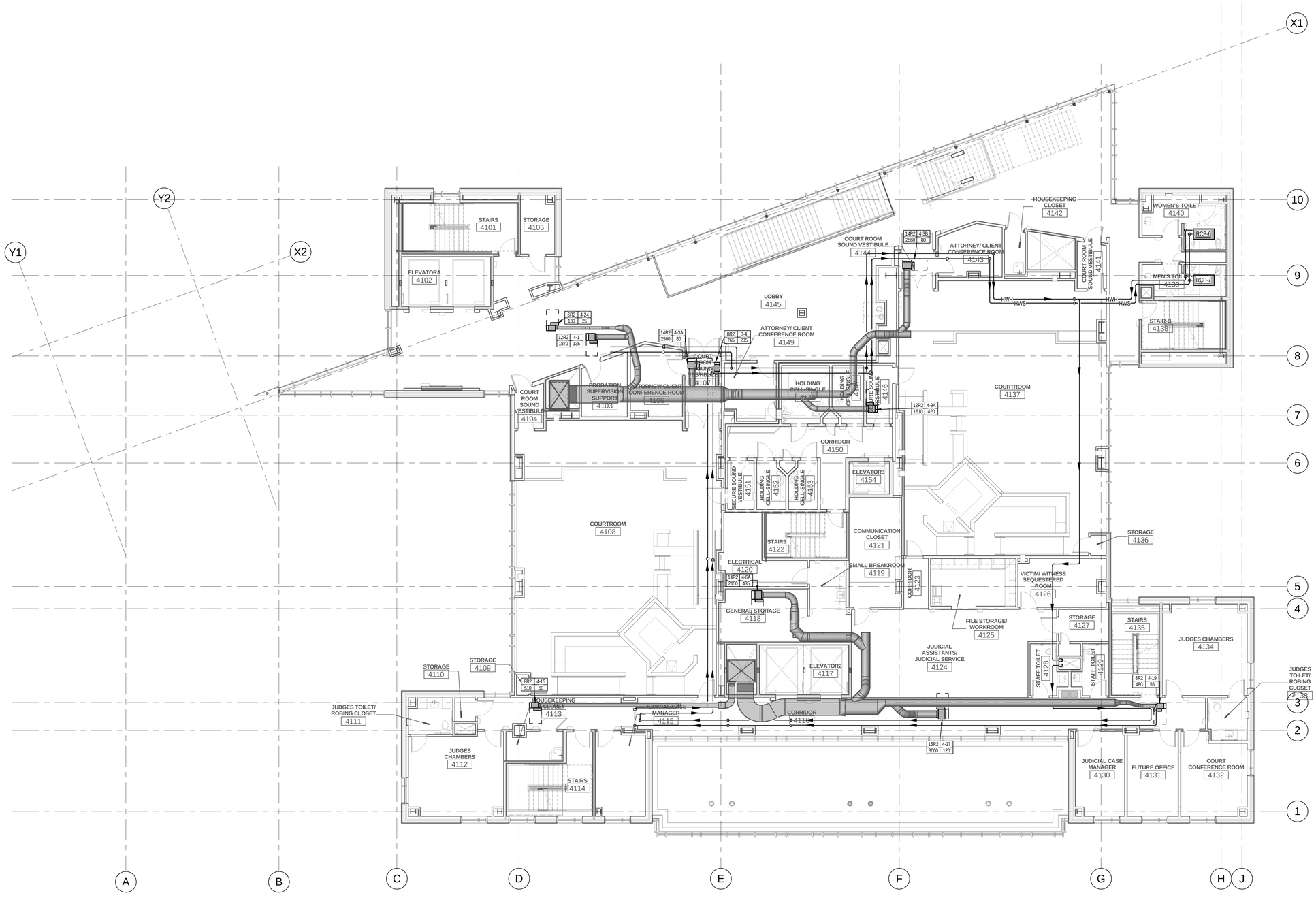

1 LEVEL 4 MECHANICAL PIPING PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 4 MECHANICAL PIPING PLAN

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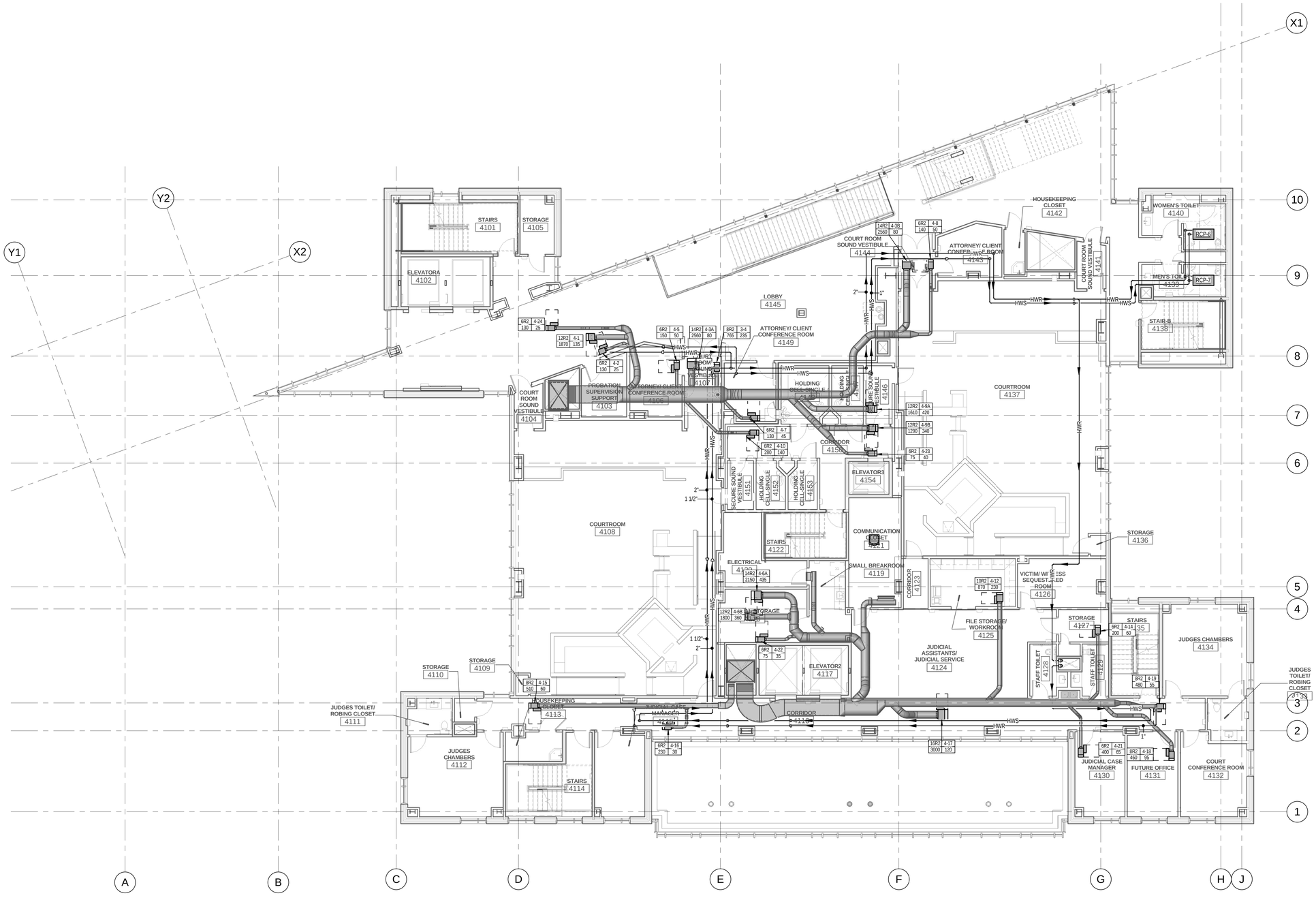

1 LEVEL 4 MECHANICAL PIPING PLAN ALTERNATE

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 4 MECHANICAL PIPING PLAN ALT.

MP104alt

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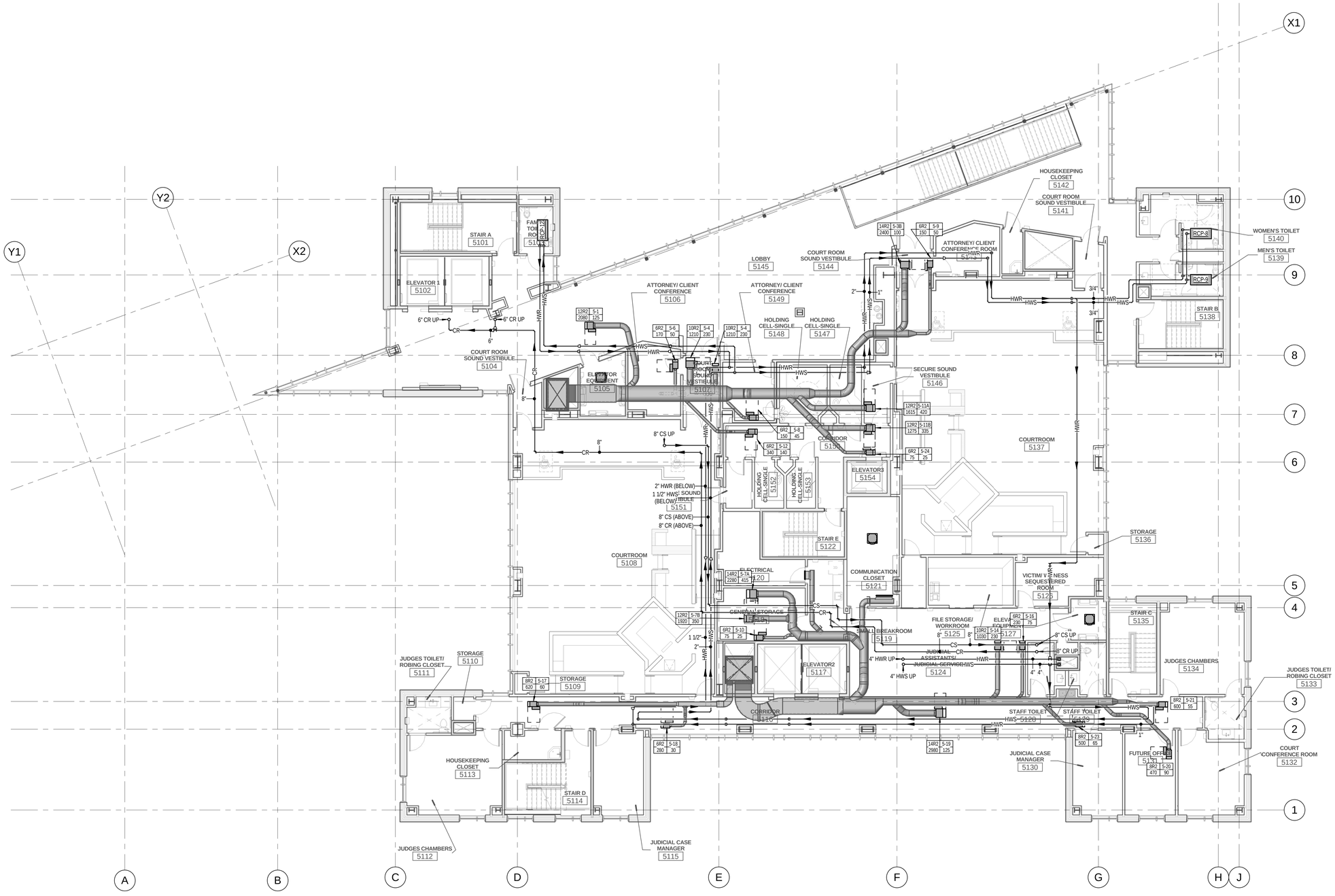

1 LEVEL 5 MECHANICAL PIPING PLAN

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

KEYED NOTES

GENERAL NOTES

A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

B. MAINTAIN ALL REQUIRED MECHANICAL ACCESS FOR ALL VAV BOXES AND OTHER MECHANICAL EQUIPMENT. PROVIDE OFFSET AS REQUIRED TO PROVIDE ACCESS TO EQEUIPMENT WITH A LADDER.

HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0 - 3	3/4"
3.1 - 6	1"

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LEVEL 5 MECHANICAL PIPING PLAN

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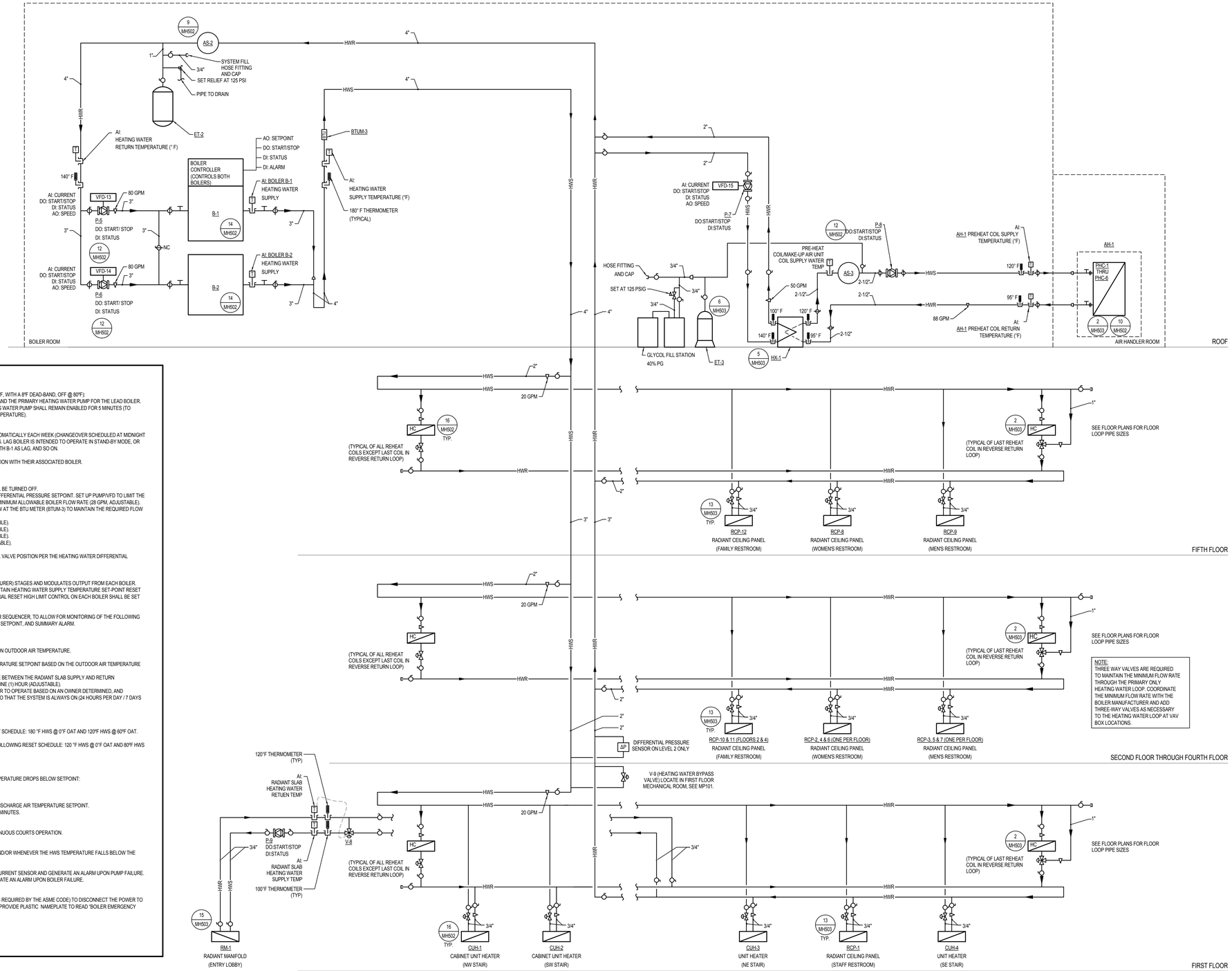


NOTE:
THREE WAY VALVES ARE REQUIRED TO MAINTAIN THE MINIMUM FLOW RATE THROUGH THE PRIMARY ONLY HEATING WATER LOOP. COORDINATE THE MINIMUM FLOW RATE WITH THE BOILER MANUFACTURER AND ADD THREE-WAY VALVES AS NECESSARY TO THE HEATING WATER LOOP AT VAV BOX LOCATIONS.

SEQUENCE OF OPERATION:

HEATING WATER SYSTEM:
IF THE OUTSIDE AIR TEMPERATURE FALLS BELOW SETPOINT (INITIALLY 72 °F, WITH A 8°F DEAD-BAND, OFF @ 80°F):
1) ENABLE BOILER CONTROLLER WHICH WILL ENABLE THE BOILERS, AND THE PRIMARY HEATING WATER PUMP FOR THE LEAD BOILER.
2) WHEN THE BOILERS ARE TURNED OFF, THE LEAD PRIMARY HEATING WATER PUMP SHALL REMAIN ENABLED FOR 5 MINUTES (TO PREVENT RESIDUAL HEAT FROM EXCEEDING THE BOILER HIGH LIMIT TEMPERATURE).

LEAD/LAG SELECTION
LEAD/LAG SELECTION OF BOILERS SHALL BE SCHEDULED TO CHANGE AUTOMATICALLY EACH WEEK (CHANGEOVER SCHEDULED AT MIDNIGHT EACH SUNDAY.) B-1 TO BE IN THE LEAD BOILER ONE WEEK WITH B-2 AS LAG. LAG BOILER IS INTENDED TO OPERATE IN STAND-BY MODE, OR AS NEEDED. THE FOLLOWING WEEK B-2 WILL BE IN THE LEAD POSITION, WITH B-1 AS LAG, AND SO ON.

THE PRIMARY HEATING WATER PUMPS P-5 AND P-6 OPERATE IN CONJUNCTION WITH THEIR ASSOCIATED BOILER.
IF THE LEAD HEATING WATER PUMP FAILS:
1)SHUT DOWN LEAD BOILER.
2)OPERATE LAG BOILER/PUMP AND SEND AN ALARM SIGNAL.
3)WHEN THE LEAD BOILER/PUMP RE-STARTS, THE LAG BOILER/PUMP SHALL BE TURNED OFF.
4)MODULATE THE PRIMARY HEATING WATER PUMP SPEED TO MAINTAIN DIFFERENTIAL PRESSURE SETPOINT. SET UP PUMP/VFD TO LIMIT THE MINIMUM SPEED SO THAT FLOW RATE IS MAINTAINED AT 10% ABOVE THE MINIMUM ALLOWABLE BOILER FLOW RATE (28 GPM, ADJUSTABLE).
5)CONTROL THE HEATING WATER BYPASS VALVE (V-9) BASED ON THE FLOW AT THE BTU METER (BTUM-3) TO MAINTAIN THE REQUIRED FLOW IN THE SYSTEM AS FOLLOWS:
-IF FLOW REDUCES TO 43 GPM, MODULATE VALVE TO 25% OPEN (ADJUSTABLE).
-IF FLOW REDUCES TO 38 GPM, MODULATE VALVE TO 50% OPEN (ADJUSTABLE).
-IF FLOW REDUCES TO 33 GPM, MODULATE VALVE TO 75% OPEN (ADJUSTABLE).
-IF FLOW REDUCES TO 28 GPM, MODULATE VALVE TO 100% OPEN (ADJUSTABLE).
-REVERSE THIS PROCESS AS FLOW INCREASES.
6)RESET DIFFERENTIAL PRESSURE SETPOINT FROM VAV BOX REHEAT COIL VALVE POSITION PER THE HEATING WATER DIFFERENTIAL PRESSURE RESET FLOW CHART SHOWN BELOW.
7)LOCATE THE DIFFERENTIAL PRESSURE SENSOR AS SHOWN.

THE MODULATING BOILER SEQUENCER (FURNISHED BY BOILER MANUFACTURER) STAGES AND MODULATES OUTPUT FROM EACH BOILER. BOILER INTEGRAL CONTROLS (ON BOTH BOILERS) THEN OPERATE TO MAINTAIN HEATING WATER SUPPLY TEMPERATURE SET-POINT RESET (180°F WITH DIFFERENTIAL SET @ 8°F, ON @ 172°F, OFF @ 180°F). THE MANUAL RESET HIGH LIMIT CONTROL ON EACH BOILER SHALL BE SET AT APPROXIMATELY 210°F.

BOILER MANUFACTURER TO PROVIDE A DIGITAL INTERFACE TO THE BOILER SEQUENCER, TO ALLOW FOR MONITORING OF THE FOLLOWING ON BOTH BOILERS: STATUS, FIRING RATE, LEAVING WATER TEMPERATURE SETPOINT, AND SUMMARY ALARM.

P-9 RADIANT FLOOR HEATING WATER PUMP:
THE RADIANT FLOOR HEATING WATER PUMP P-9 SHALL OPERATE BASED ON OUTDOOR AIR TEMPERATURE.
1)START P-9, IF OAT IS 60°F (ADJUSTABLE) OR BELOW.,
2)MODULATE VALVE V-8 TO MAINTAIN THE HEATING WATER SUPPLY TEMPERATURE SETPOINT BASED ON THE OUTDOOR AIR TEMPERATURE RESET SCHEDULE DESCRIBED BELOW.
3)GENERATE AN ALARM AT THE BUILDING DDC SYSTEM IF THE DIFFERENCE BETWEEN THE RADIANT SLAB SUPPLY AND RETURN TEMPERATURE IS GREATER THAN 30°F (ADJUSTABLE) FOR LONGER THAN ONE (1) HOUR (ADJUSTABLE).
4)PROVIDE CONTROLS AT THE BAS SYSTEM TO ALLOW THE RADIANT FLOOR TO OPERATE BASED ON AN OWNER DETERMINED, AND ADJUSTABLE, SCHEDULE AS WELL AS OAT. INITIALLY SET THE SCHEDULE SO THAT THE SYSTEM IS ALWAYS ON (24 HOURS PER DAY / 7 DAYS PER WEEK).

OUTDOOR AIR TEMPERATURE RESET:
1)RESET THE HWS TEMPERATURE ACCORDING TO THE FOLLOWING RESET SCHEDULE: 180 °F HWS @ 0°F OAT AND 120°F HWS @ 60°F OAT.
RESET SCHEDULE WILL BE ADJUSTED DURING SYSTEM COMMISSIONING.
2)RESET THE RADIANT FLOOR HWS TEMPERATURE ACCORDING TO THE FOLLOWING RESET SCHEDULE: 120 °F HWS @ 0°F OAT AND 80°F HWS @ 60°F OAT.
RESET SCHEDULES WILL BE ADJUSTED DURING SYSTEM COMMISSIONING.

PRE-HEAT COILS LOOP CONTROL SEQUENCE:
IF THE OAT IS 45°F OR BELOW AND THE AIR HANDLER DISCHARGE AIR TEMPERATURE DROPS BELOW SETPOINT:
1)VERIFY THAT THE BOILERS ARE OPERATING TO PROVIDE HEAT.
2)START PUMP P-7.
3)START PUMP P-8.
4)VARY THE SPEED OF P-7 (VIA VFD-15) TO MAINTAIN THE PRE-HEAT COIL DISCHARGE AIR TEMPERATURE SETPOINT.
5)STOP IF THE OAT REACHES 55°F, OR DAT SETPOINT IS SATISFIED FOR 30 MINUTES.

CONTINUOUS COURTS OPERATION:
MAINTAIN OPERATION OF ENTIRE HEATING WATER SYSTEM DURING CONTINUOUS COURTS OPERATION.

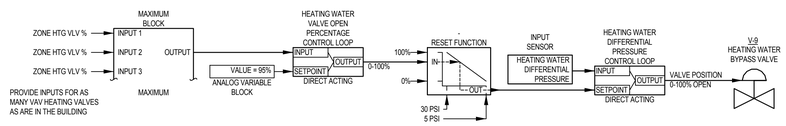
SAFETIES:
INDICATE ALARM CONDITION UPON FAILURE OF EITHER BOILER BURNER AND/OR WHENEVER THE HWS TEMPERATURE FALLS BELOW THE ALARM SETPOINT (120°F, ADJUSTABLE) FOR MORE THAN 60 MINUTES.

1)MONITOR EACH HEATING WATER PUMP WITH AN ADJUSTABLE ANALOG CURRENT SENSOR AND GENERATE AN ALARM UPON PUMP FAILURE.
2)MONITOR THE SUMMARY ALARM CONTACT ON EACH BOILER, AND GENERATE AN ALARM UPON BOILER FAILURE.

EMERGENCY SHUT-DOWN:
PROVIDE AN EMERGENCY SHUT-DOWN SWITCH AT BOILER ROOM EXIT, (AS REQUIRED BY THE ASME CODE) TO DISCONNECT THE POWER TO ALL CONTROLS ON ALL BOILERS. SWITCHES SHALL BE MUSHROOM TYPE. PROVIDE PLASTIC NAMEPLATE TO READ "BOILER EMERGENCY SHUT-OFF".

GENERAL NOTES

(A) ALL POINTS SPECIFIED IN SCHEMATICS OR SEQUENCES MUST BY SHOWN ON DDC PAGE AND BE ADJUSTABLE
(B) TRENDING MUST BE SET UP FOR ALL POINTS SHOWN WITH ADJUSTABLE INTERVALS.
(C) SEE DETAILS FOR ADDITIONAL VALVING AND ACCESSORIES
(D) BOILERS TO BE PROVIDED WITH COMMUNICATION GATEWAYS BY THE MANUFACTURER, TO BE MONITORED BY THE DDC SYSTEM.



HEATING WATER DIFFERENTIAL PRESSURE RESET FLOW CHART

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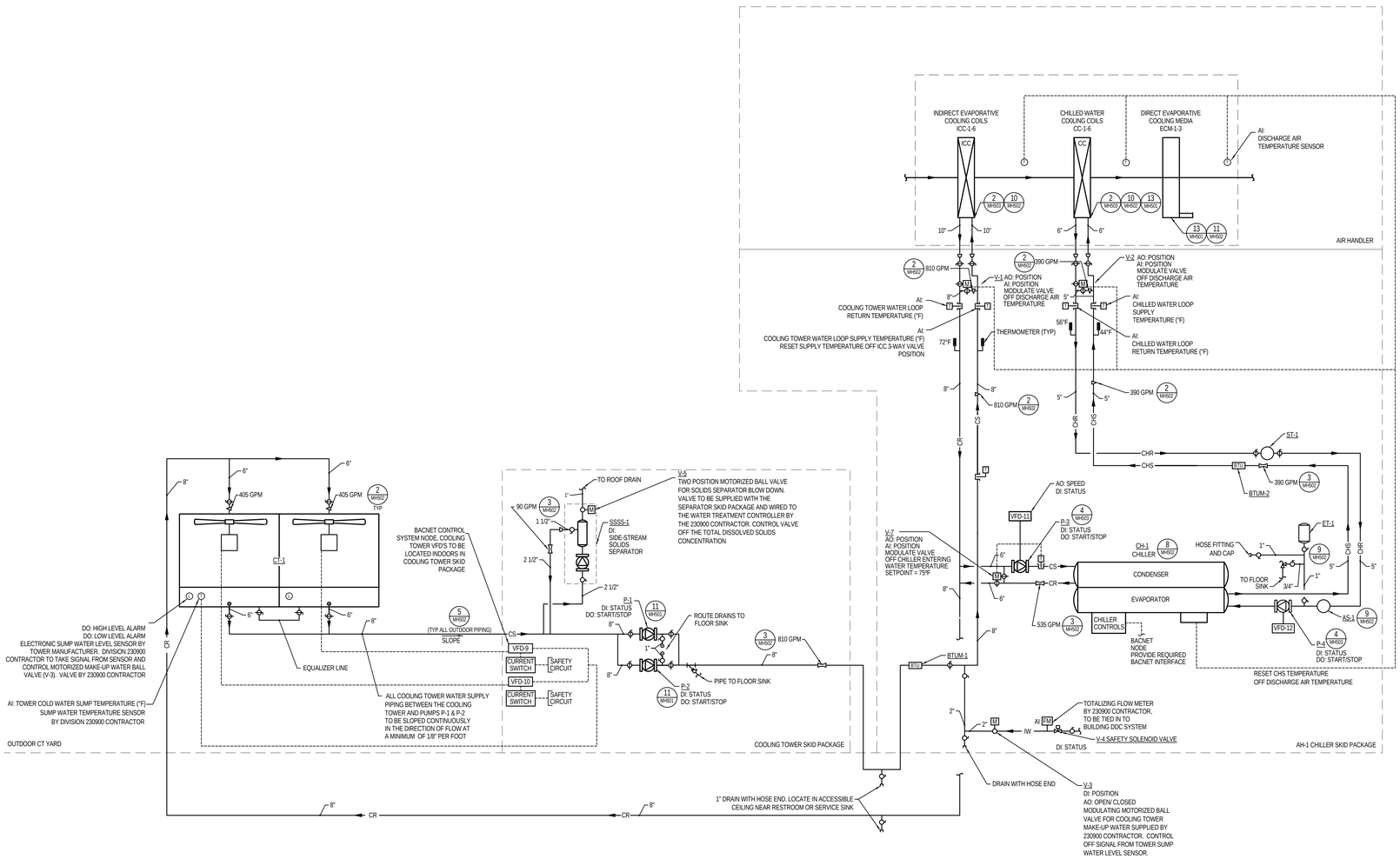
MECHANICAL HOT WATER PIPING SCHEMATIC

MP201



SEQUENCES

COOLING TOWER OPERATION / COOLING TOWER WATER SYSTEM:
1) OPERATE COOLING TOWER (CONDENSER) WATER SYSTEM UPON A CALL FOR COOLING FROM THE AIR HANDLER CONTROL SEQUENCE, BASED ON DAT.
2) START LEAD COOLING TOWER WATER PUMP.
3) IF SUMP WATER TEMP IS ABOVE SETPOINT FOR 15 MINUTES, START COOLING TOWER FAN AT MINIMUM SPEED AND SLOWLY (5 Hz / MINUTE) RAMP-UP AND MODULATE TO MAINTAIN SUMP WATER TEMPERATURE SETPOINT OF 55°F (ADJUSTABLE).
4) UPON LOSS OF FLOW / PUMP FAILURE, ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER.
5) UPON A FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL START.

TOWER WATER LEVEL :
FACTORY INSTALLED TOWER SUMP WATER LEVEL SENSORS WILL BE USED BY THE 230900 CONTRACTOR TO OPERATE THE MAKE-UP WATER VALVE. THE 230900 CONTRACTOR WILL PROVIDE AND OPERATE MAKE-UP WATER MOTORIZED BALL VALVE (V-3) LOCATED IN THE PACKAGED CHILLER SKID TO MAINTAIN TOWER WATER LEVEL. INCLUDE A TOTALIZING WATER FLOW METER IN THE MAKE-UP WATER LINE AND TIE IT INTO THE BUILDING DDC SYSTEM.

LEAD / LAG SELECTION OF COOLING TOWER WATER PUMPS :
CHANGE LEAD/LAG SCHEDULE AUTOMATICALLY EACH WEEK (CHANGEOVER SCHEDULED AT MIDNIGHT EACH SUNDAY.) P-1 WILL BE IN THE LEAD POSITION ONE WEEK AND P-2 WILL BE IN THE LEAD POSITION THE FOLLOWING WEEK.

COOLING TOWER CONDUCTIVITY CONTROL:
1) MONITOR COOLING TOWER WATER CONDUCTIVITY BY THE DDC SYSTEM. THE WATER TREATMENT CONTRACTOR SHALL PROVIDE A CONDUCTIVITY CONTROL SYSTEM TO BE INTERLOCKED BY THE 230900 CONTRACTOR. THE TWO-POSITION, MOTORIZED BALL VALVE IS SUPPLIED BY THE DIVISION 232500 CONTRACTOR, INSTALLED BY DIVISION 232113 CONTRACTOR AND WIRED TO WATER TREATMENT CONTROLLER BY 230900 CONTRACTOR. CONTROL OFF WATER TREATMENT SYSTEM TOTAL DISSOLVED SOLIDS CONCENTRATION.

CHILLER CONTROL :
1) ENABLE CHILLER UPON CALL FOR CHILLED WATER FROM THE AIR HANDLER CONTROL SEQUENCE.
2) VERIFY OPERATION OF LEAD CONDENSER WATER PUMP (P-1 OR P-2).
3) START CHILLED WATER (EVAPORATOR BARREL) PUMP (P-4) (VFD IS ONLY USED FOR BALANCING) AND VERIFY FLOW.
4) START CHILLED WATER (CONDENSER BARREL) PUMP (P-3) AND VERIFY FLOW. P-3 SHALL RUN AT CONSTANT SPEED AT SCHEDULED FLOW (VFD IS ONLY USED FOR BALANCING).
5) ENABLE CHILLER.
6) MODULATE V-7 VALVE TO MAINTAIN CHILLER ENTERING WATER TEMPERATURE SETPOINT OF 80°F (ADJUSTABLE).
7) OPERATE COOLING TOWER FAN AT FULL SPEED WHENEVER THE CHILLER IS IN OPERATION.

NOTE: INCLUDE BACNET CHILLER CONTROLS INTERFACE WITH THE DDC SYSTEM. SEE SPECIFICATION SECTION 230900 FOR FULL COMPATIBILITY. THE CHILLER MANUFACTURER IS ALSO TO PROVIDE A SOFTWARE FILE CONTAINING GRAPHICS IDENTICAL TO THE FACTORY MOUNTED CHILLER CONTROL PANEL. USE THIS FILE TO PRESENT A GRAPHICAL REPRESENTATION OF THE CHILLER CONTROLS, AND INCLUDE ALL CHILLER CONTROL INFORMATION AVAILABLE AT THE ACTUAL CONTROL PANEL MOUNTED ON THE CHILLER, WITH ALL INPUTS, OUTPUTS, AND ALARMS AVAILABLE AT THE PANEL.

SOLIDS SEPARATOR (SSSS-1):
1) OPERATE THE SOLIDS SEPARATOR WHENEVER A COOLING TOWER WATER PUMP WATER PUMP IS IN OPERATION.
2) PROVIDE BLOWDOWN VALVE WITH SEPARATOR. BLOWDOWN SCHEDULE TO BE INITIALLY SET BASED ON MANUFACTURER'S RECOMMENDATIONS, OWNER ADJUSTABLE.
3) MONITOR THE SIDE-STREAM SOLIDS SEPARATOR PUMP WITH AN ADJUSTABLE SETPOINT CURRENT SWITCH.
4) GENERATE AN ALARM UPON SEPARATOR PUMP FAILURE.

SAFETIES:
1) INTERLOCK WIRING OF TOWER VIBRATION SWITCH AND LOW OIL LEVEL SWITCH BY THE 230900 CONTRACTOR. HARDWIRE LOCKOUT DIRECTLY TO COOLING TOWER FANS. IT IS NOT ACCEPTABLE TO PROVIDE THIS SAFETY WITH PROGRAMMING THROUGH THE BAS SYSTEM.
2) INDICATE TO THE BAS SYSTEM IF TOWER IS FORCED TO SWITCH OFF DUE TO VIBRATION SWITCH.
3) MONITOR FAN STATUS WITH AN ANALOG MOTOR CURRENT SENSOR.
4) ALARM AT THE BUILDING AUTOMATION DDC SYSTEM AND SEND AN ALARM TO THE OWNER IF A COOLING TOWER FAN FAILS.
5) 230900 CONTRACTOR TO PROVIDE/WIRE LOW WATER LEVEL FLOAT SWITCH. HARDWIRE LOW WATER SWITCH TO LOCK OUT OPERATION OF THE COOLING TOWER WATER PUMPS (P-1 AND P-2), CHILLED WATER PUMP (P-4), CONDENSER WATER BARREL PUMP (P-3), AND SIDE-STREAM SOLIDS SEPARATOR. GENERATE AN ALARM TO THE BAS SYSTEM. IT IS NOT ACCEPTABLE TO PROVIDE THESE SAFETIES WITH PROGRAMMING THROUGH THE BAS SYSTEM.
6) 230900 CONTRACTOR TO PROVIDE/WIRE A HIGH WATER LEVEL FLOAT SWITCH TO CUT POWER TO THE NORMALLY CLOSED MAKE-UP WATER SOLENOID VALVE AND GENERATE AN ALARM.
7) IF THE OSA TEMPERATURE DROPS BELOW 36°F, CUT POWER TO THE NORMALLY CLOSED MAKE-UP WATER SOLENOID VALVE AND GENERATE AN ALARM.
8) 230900 CONTRACTOR TO PROVIDE AN ANALOG SENSOR WITH A RANGE FROM 0 - 1 PSI TO REPORT THE DEPTH OF THE COOLING TOWER SUMP WATER. ACCOMPLISH THIS WITH A PRESSURE TRANSDUCER MOUNTED AT THE BOTTOM OF THE SUMP CALIBRATED AND CALCULATED TO REPORT IN INCHES OF WATER COLUMN.

CONTINUOUS COURTS OPERATION:
1) MAINTAIN OPERATION OF THE FOLLOWING EQUPMENT DURING CONTINUOUS COURTS OPERATION.
1)a. COOLING TOWERS AND COOLING TOWER FANS.
1)b. COOLING TOWER PUMPS P-1 AND P-2.
1)c. SIDE-STREAM SOLIDS SEPERATOR SSSS-1.
1)d. ALL CONTROL VALVES

2) DISABLE THE FOLLOWING EQUPMENT DURING CONTINUOUS COURTS OPERATION.
2)a. CHILLER CH-1.
2)b. CONDENSER BARREL PUMP P-3.
2)c. EVAPORATOR BARREL PUMP P-4.

GENERAL NOTES

(A) ALL POINTS SPECIFIED IN SCHEMATICS OR SEQUENCES MUST BY SHOWN ON DDC PAGE AND BE ADJUSTABLE

(B) TRENDING MUST BE SET UP FOR ALL POINTS SHOWN WITH ADJUSTABLE INTERVALS.

(C) SEE DETAILS FOR ADDITIONAL VALVING AND ACCESSORIES.

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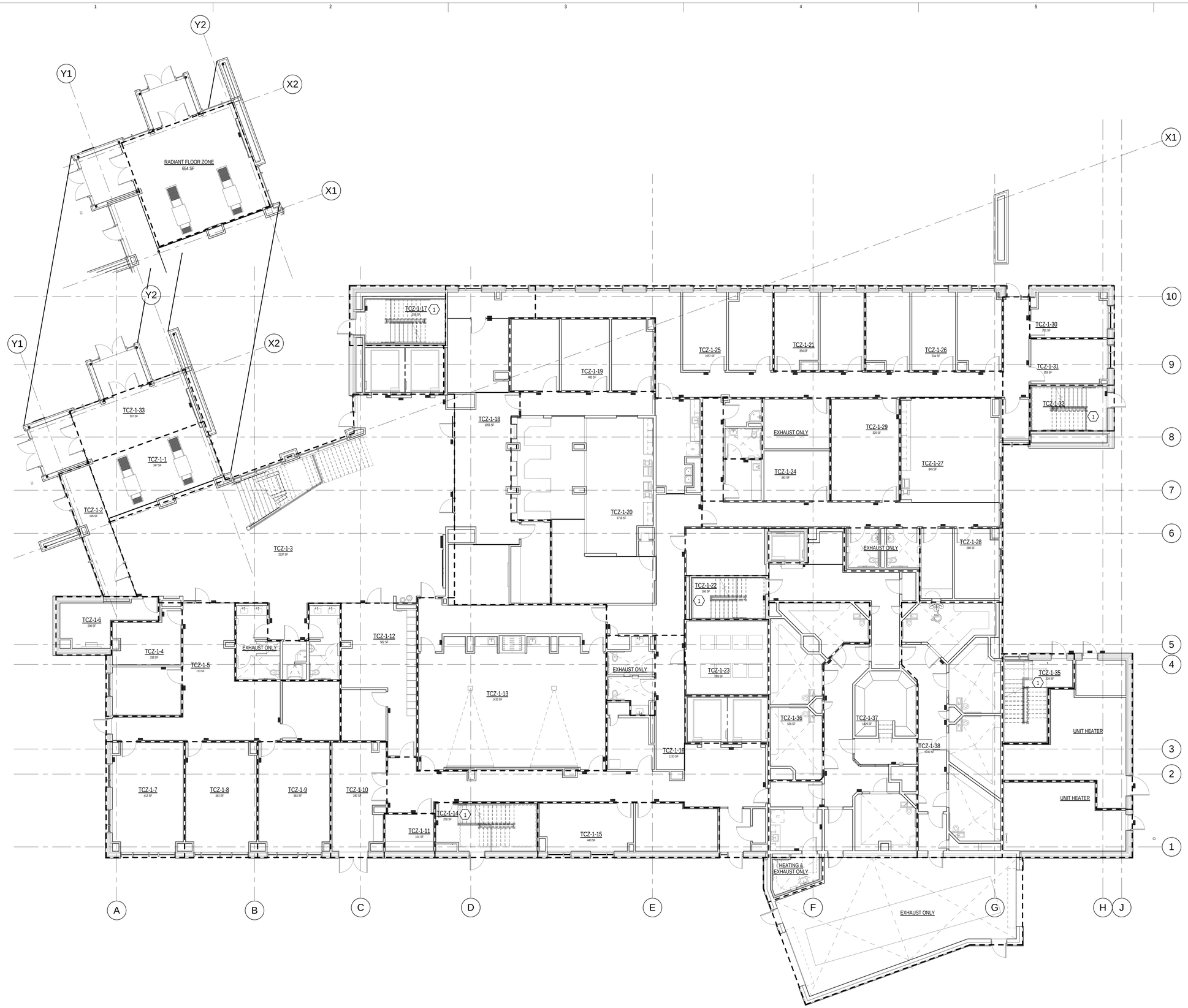
MECHANICAL CHILLED WATER PIPING SCHEMATTIC

MP202



1 LEVEL 1 TEMPERATURE CONTROL ZONE PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1 STAIR SHALL BE A SINGLE TEMPERATURE CONTROL ZONE THROUGHOUT HEIGHT OF BUILDING.

Name	Area
TCZ-1-1	347 SF
TCZ-1-2	195 SF
TCZ-1-3	2337 SF
TCZ-1-4	338 SF
TCZ-1-5	713 SF
TCZ-1-6	200 SF
TCZ-1-7	412 SF
TCZ-1-8	383 SF
TCZ-1-9	383 SF
TCZ-1-10	290 SF
TCZ-1-11	101 SF
TCZ-1-12	502 SF
TCZ-1-13	1433 SF
TCZ-1-14	256 SF
TCZ-1-15	443 SF
TCZ-1-16	1153 SF
TCZ-1-17	259 SF
TCZ-1-18	1059 SF
TCZ-1-19	482 SF
TCZ-1-20	1718 SF
TCZ-1-21	354 SF
TCZ-1-22	166 SF
TCZ-1-23	289 SF
TCZ-1-24	392 SF
TCZ-1-25	1057 SF
TCZ-1-26	534 SF
TCZ-1-27	845 SF
TCZ-1-28	280 SF
TCZ-1-29	325 SF
TCZ-1-30	201 SF
TCZ-1-31	359 SF
TCZ-1-32	175 SF
TCZ-1-33	307 SF
TCZ-1-34	NOT USED
TCZ-1-35	229 SF
TCZ-1-36	536 SF
TCZ-1-37	1429 SF
TCZ-1-38	1032 SF
38	

TOTAL TEMPERATURE CONTROL ZONES = 37

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LEVEL 1
TEMPERATURE
CONTROL ZONE PLAN

MZ101

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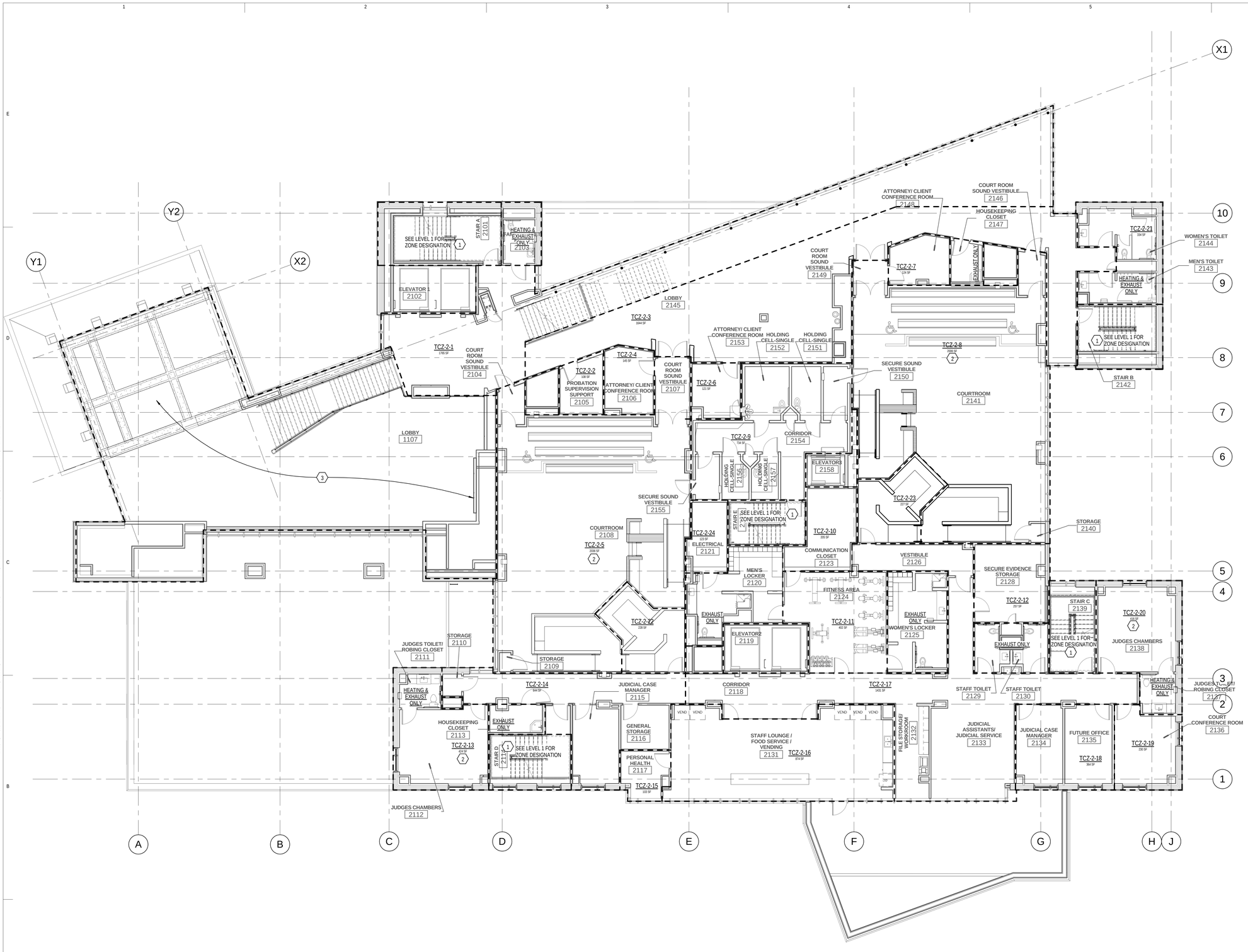

1 LEVEL 2 TEMPERATURE CONTROL ZONE PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. STAIR SHALL BE A SINGLE TEMPERATURE CONTROL ZONE THROUGHOUT HEIGHT OF BUILDING.
2. PROVIDE ADJUSTABLE PROGRAMMABLE THERMOSTAT.
3. TWO-LEVEL SPACE, SEE SHEET MZ101 FOR TCZ DESIGNATOR.

Name	Area
TCZ-2-1	1765 SF
TCZ-2-2	108 SF
TCZ-2-3	1644 SF
TCZ-2-4	145 SF
TCZ-2-5	2036 SF
TCZ-2-6	121 SF
TCZ-2-7	124 SF
TCZ-2-8	2006 SF
TCZ-2-9	734 SF
TCZ-2-10	205 SF
TCZ-2-11	402 SF
TCZ-2-12	257 SF
TCZ-2-13	424 SF
TCZ-2-14	644 SF
TCZ-2-15	103 SF
TCZ-2-16	874 SF
TCZ-2-17	1431 SF
TCZ-2-18	364 SF
TCZ-2-19	230 SF
TCZ-2-20	416 SF
TCZ-2-21	334 SF
TCZ-2-22	228 SF
TCZ-2-23	227 SF
TCZ-2-24	123 SF
24	

TOTAL TEMPERATURE CONTROL ZONES = 24

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LEVEL 2
TEMPERATURE
CONTROL ZONE PLAN

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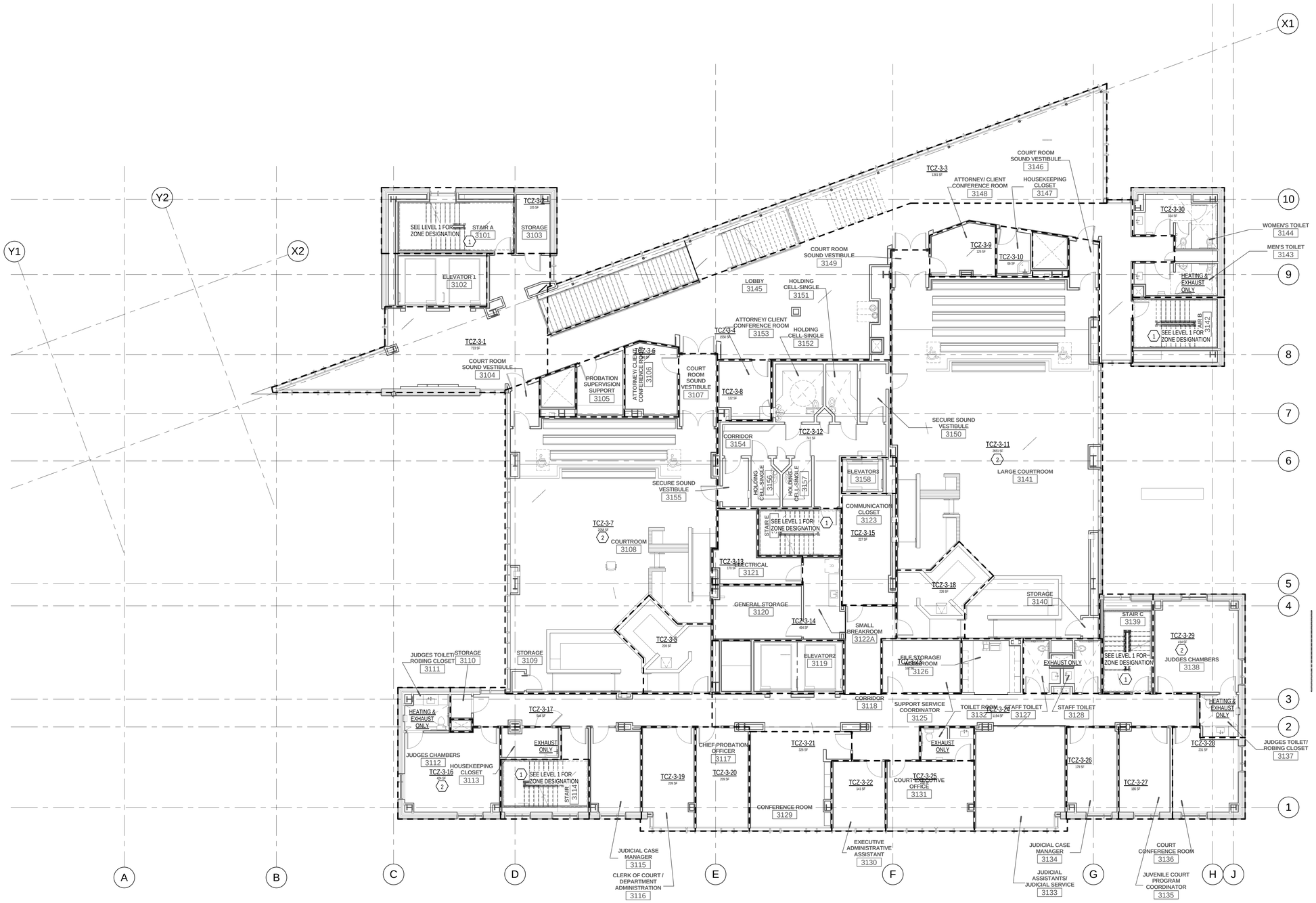

KEYED NOTES

1. STAIR SHALL BE A SINGLE TEMPERATURE CONTROL ZONE THROUGHOUT HEIGHT OF BUILDING.
2. PROVIDE ADJUSTABLE PROGRAMMABLE THERMOSTAT.

Name	Area
TCZ-3-1	733 SF
TCZ-3-2	105 SF
TCZ-3-3	1261 SF
TCZ-3-4	1550 SF
TCZ-3-5	228 SF
TCZ-3-6	146 SF
TCZ-3-7	2058 SF
TCZ-3-8	122 SF
TCZ-3-9	125 SF
TCZ-3-10	66 SF
TCZ-3-11	2651 SF
TCZ-3-12	741 SF
TCZ-3-13	170 SF
TCZ-3-14	454 SF
TCZ-3-15	227 SF
TCZ-3-16	424 SF
TCZ-3-17	544 SF
TCZ-3-18	226 SF
TCZ-3-19	209 SF
TCZ-3-20	209 SF
TCZ-3-21	326 SF
TCZ-3-22	141 SF
TCZ-3-23	162 SF
TCZ-3-24	1194 SF
TCZ-3-25	232 SF
TCZ-3-26	179 SF
TCZ-3-27	185 SF
TCZ-3-28	231 SF
TCZ-3-29	414 SF
TCZ-3-30	334 SF
30	

TOTAL TEMPERATURE CONTROL ZONES = 30

1 LEVEL 3 TEMPERATURE CONTROL ZONE PLAN

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

6' 0' 4' 8' 12' 16'

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LEVEL 3 TEMPERATURE CONTROL ZONE PLAN

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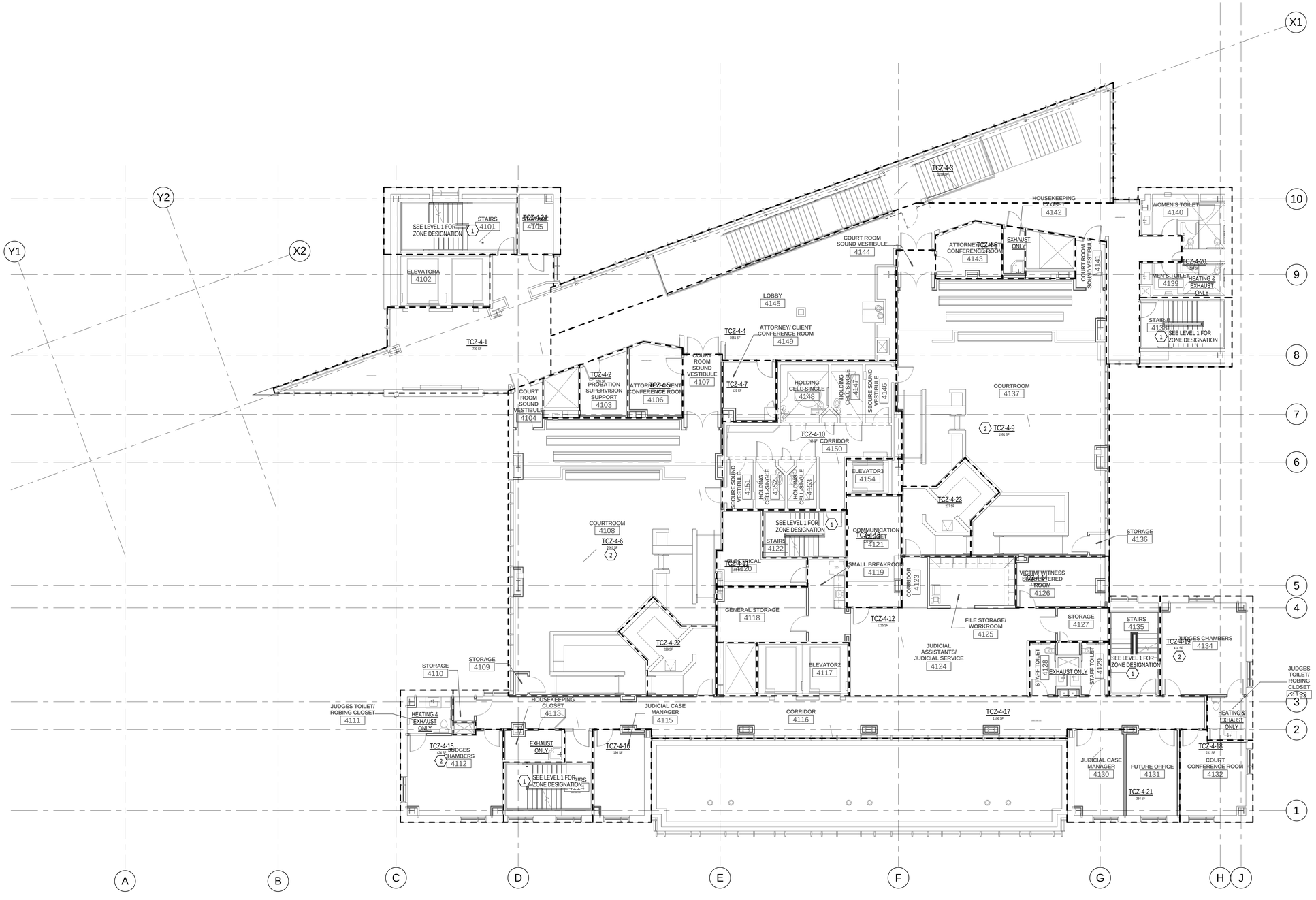

KEYED NOTES

1. STAIR SHALL BE A SINGLE TEMPERATURE CONTROL ZONE THROUGHOUT HEIGHT OF BUILDING.
2. PROVIDE ADJUSTABLE PROGRAMMABLE THERMOSTAT.

Name	Area
TCZ-4-1	730 SF
TCZ-4-2	109 SF
TCZ-4-3	1259 SF
TCZ-4-4	1551 SF
TCZ-4-5	147 SF
TCZ-4-6	2061 SF
TCZ-4-7	121 SF
TCZ-4-8	129 SF
TCZ-4-9	1991 SF
TCZ-4-10	748 SF
TCZ-4-11	169 SF
TCZ-4-12	1215 SF
TCZ-4-13	227 SF
TCZ-4-14	176 SF
TCZ-4-15	424 SF
TCZ-4-16	199 SF
TCZ-4-17	1106 SF
TCZ-4-18	414 SF
TCZ-4-19	231 SF
TCZ-4-20	334 SF
TCZ-4-21	384 SF
TCZ-4-22	229 SF
TCZ-4-23	227 SF
TCZ-4-24	107 SF
24	

TOTAL TEMPERATURE CONTROL ZONES = 24

1 LEVEL 4 TEMPERATURE CONTROL ZONE PLAN

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

6' 0' 4' 8' 12' 16'

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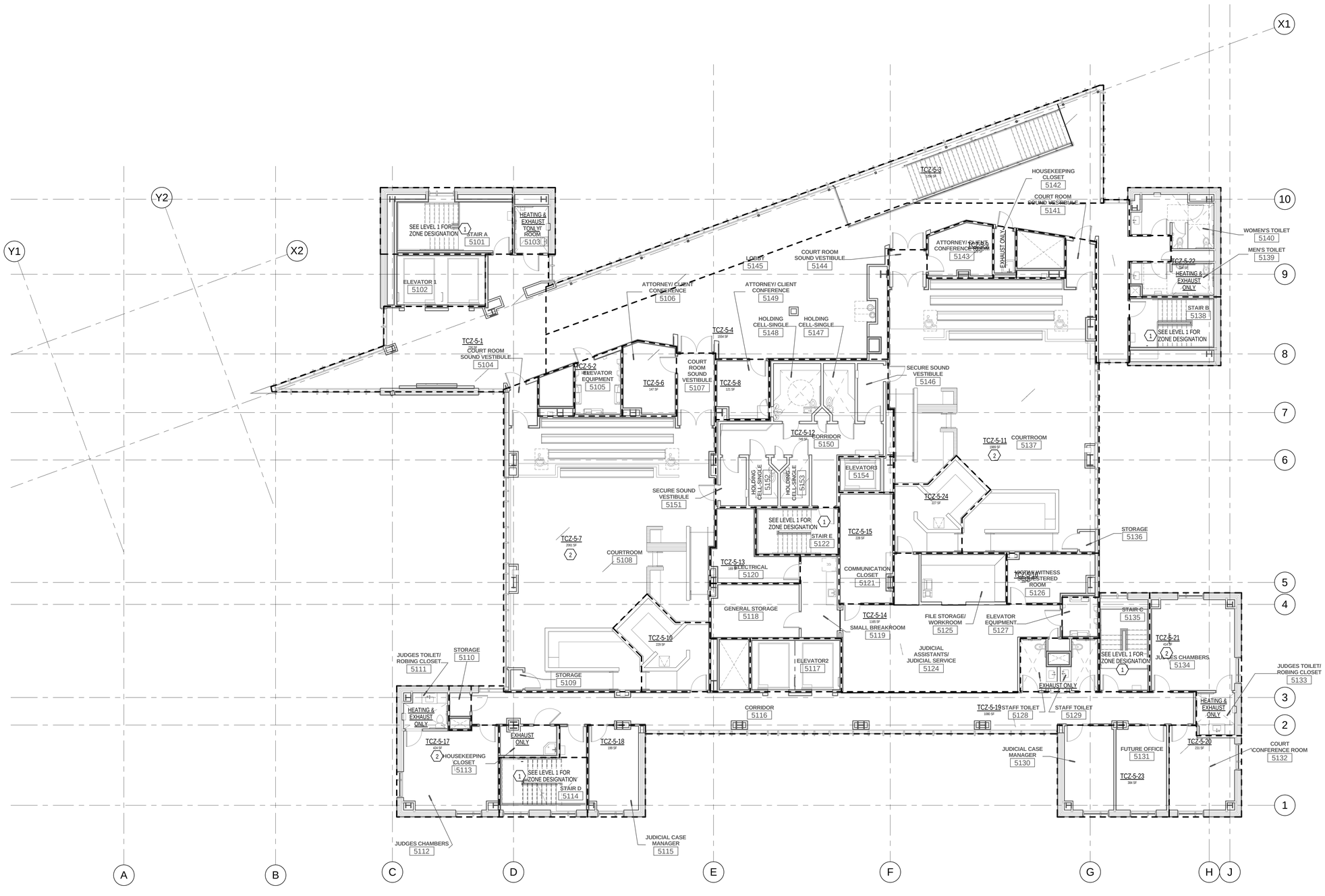
LEVEL 4
TEMPERATURE
CONTROL ZONE PLAN

MZ104



1 LEVEL 5 TEMPERATURE CONTROL ZONE PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. STAIR SHALL BE A SINGLE TEMPERATURE CONTROL ZONE THROUGHOUT HEIGHT OF BUILDING.
2. PROVIDE ADJUSTABLE PROGRAMMABLE THERMOSTAT.

Name	Area
TCZ-5-1	730 SF
TCZ-5-2	109 SF
TCZ-5-3	1256 SF
TCZ-5-4	1554 SF
TCZ-5-5	NOT USED
TCZ-5-6	147 SF
TCZ-5-7	2061 SF
TCZ-5-8	121 SF
TCZ-5-9	129 SF
TCZ-5-10	229 SF
TCZ-5-11	1989 SF
TCZ-5-12	749 SF
TCZ-5-13	169 SF
TCZ-5-14	1165 SF
TCZ-5-15	228 SF
TCZ-5-16	166 SF
TCZ-5-17	424 SF
TCZ-5-18	199 SF
TCZ-5-19	1080 SF
TCZ-5-20	231 SF
TCZ-5-21	414 SF
TCZ-5-22	384 SF
TCZ-5-23	384 SF
TCZ-5-24	227 SF
24	

TOTAL TEMPERATURE CONTROL ZONES = 24

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LEVEL 5 TEMPERATURE CONTROL ZONE PLAN

MZ105

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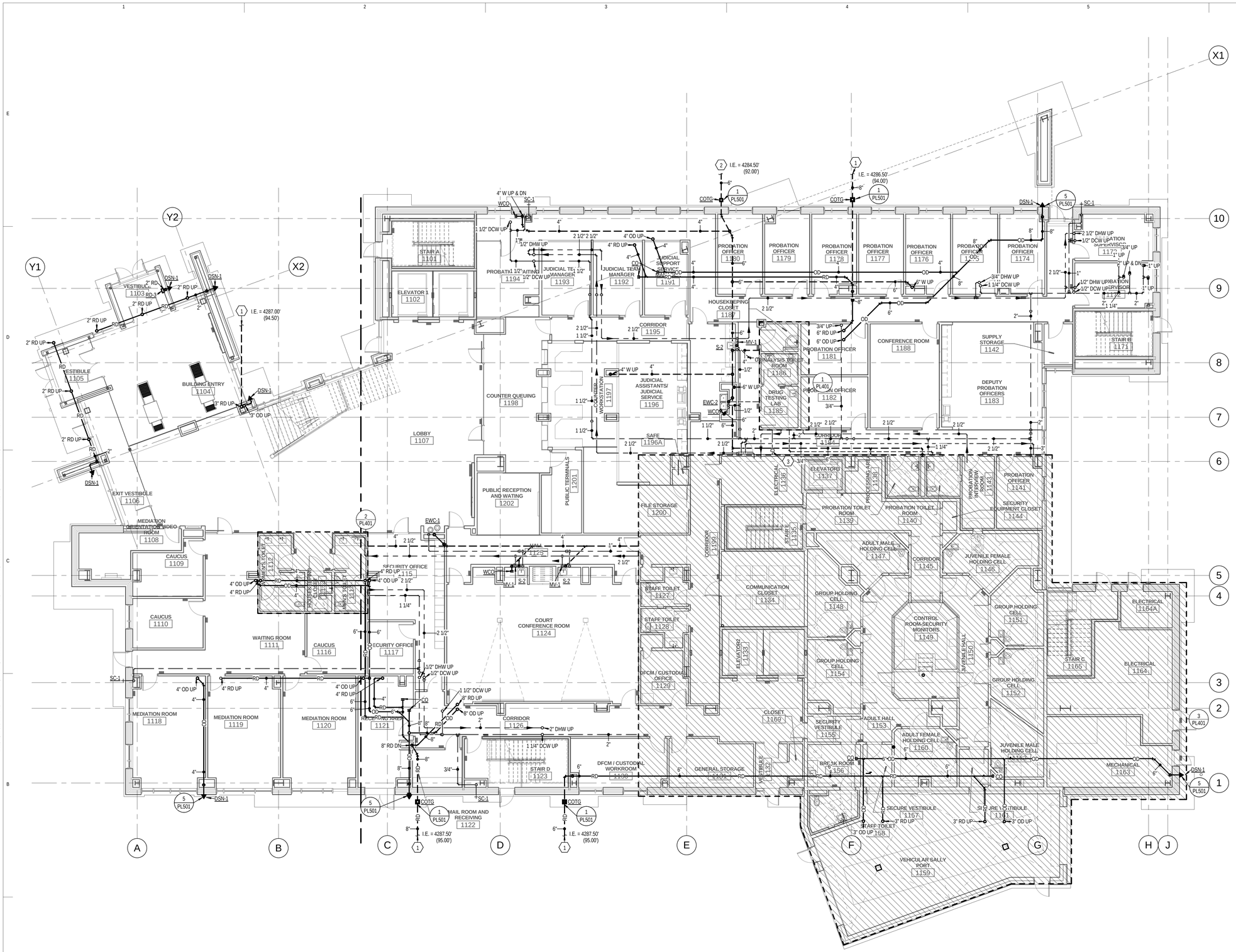

1 LEVEL 1 PLUMBING PLAN
SCALE: 1/8" = 1'-0"

KEYED NOTES

1. ROUTE TO 10" STORM DRAIN. SEE CIVIL PLANS FOR CONTINUATION.
2. ROUTE TO EXISTING SANITARY SEWER LINE AT 20TH STREET. SEE CIVIL PLANS FOR CONTINUATION.
3. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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LEVEL 1 PLUMBING PLAN

PL101

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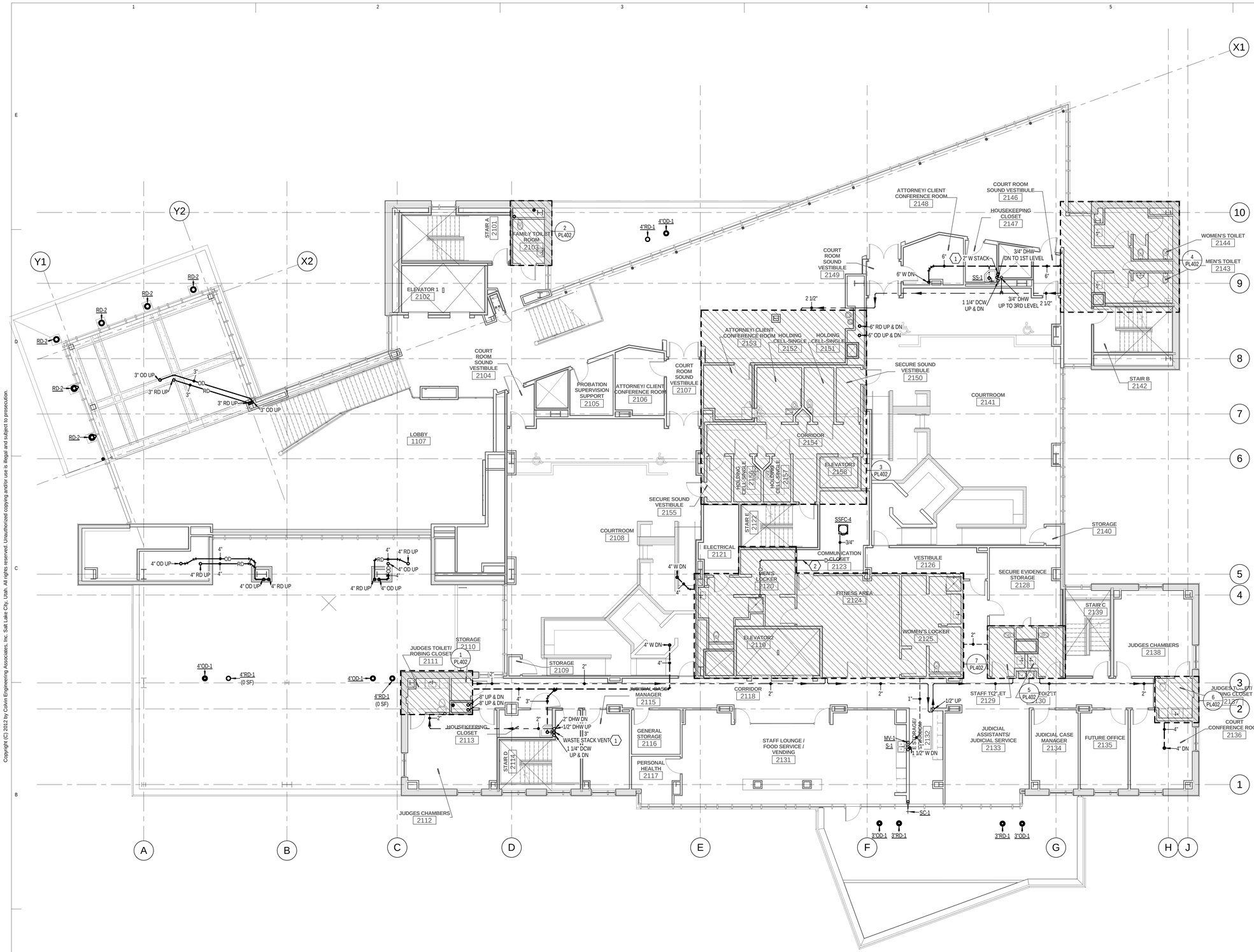

1 LEVEL 2 PLUMBING PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.
2. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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LEVEL 2 PLUMBING PLAN

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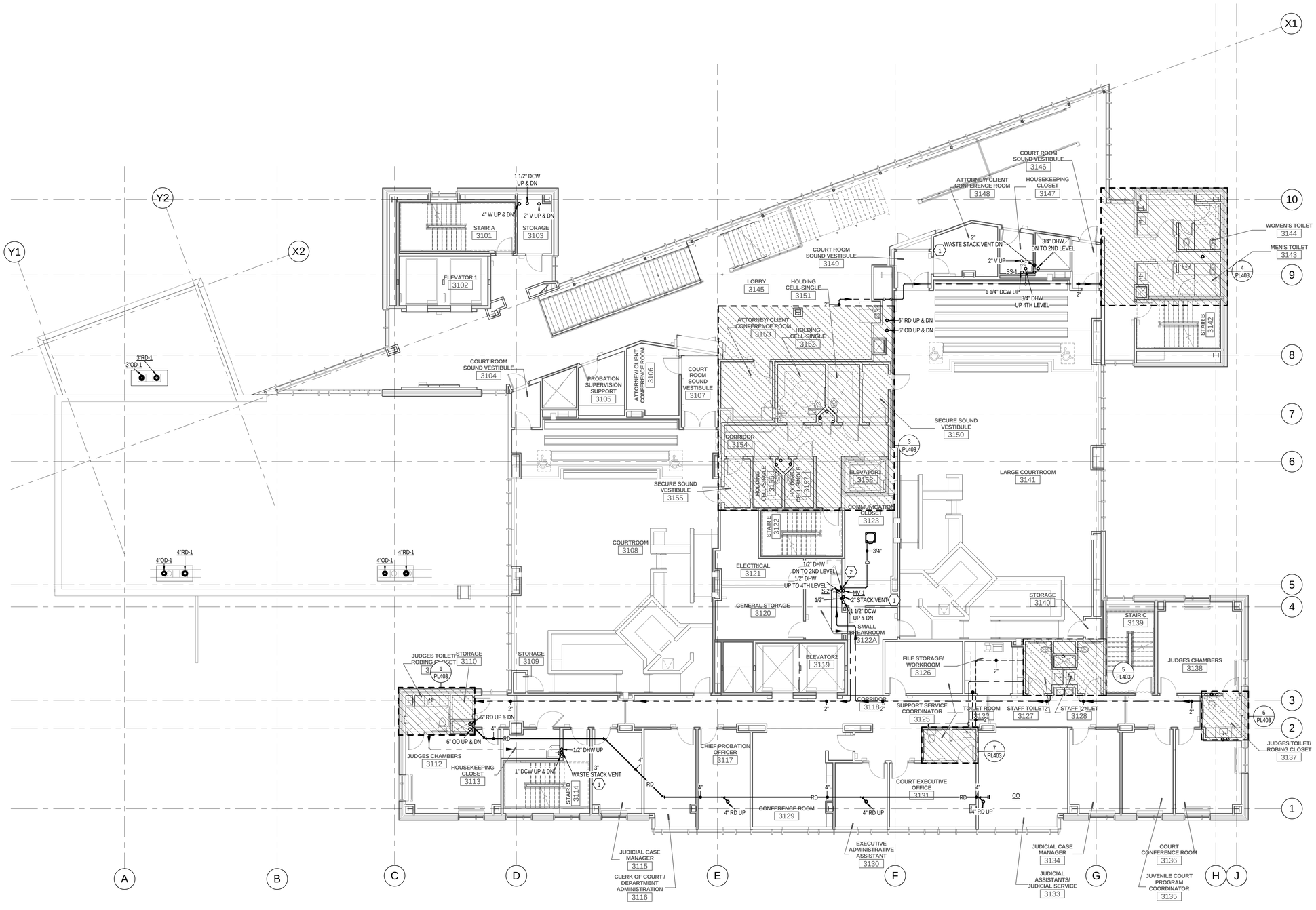

1 LEVEL 3 PLUMBING PLAN

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

KEYED NOTES

1. WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.
2. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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LEVEL 3 PLUMBING PLAN

PL103

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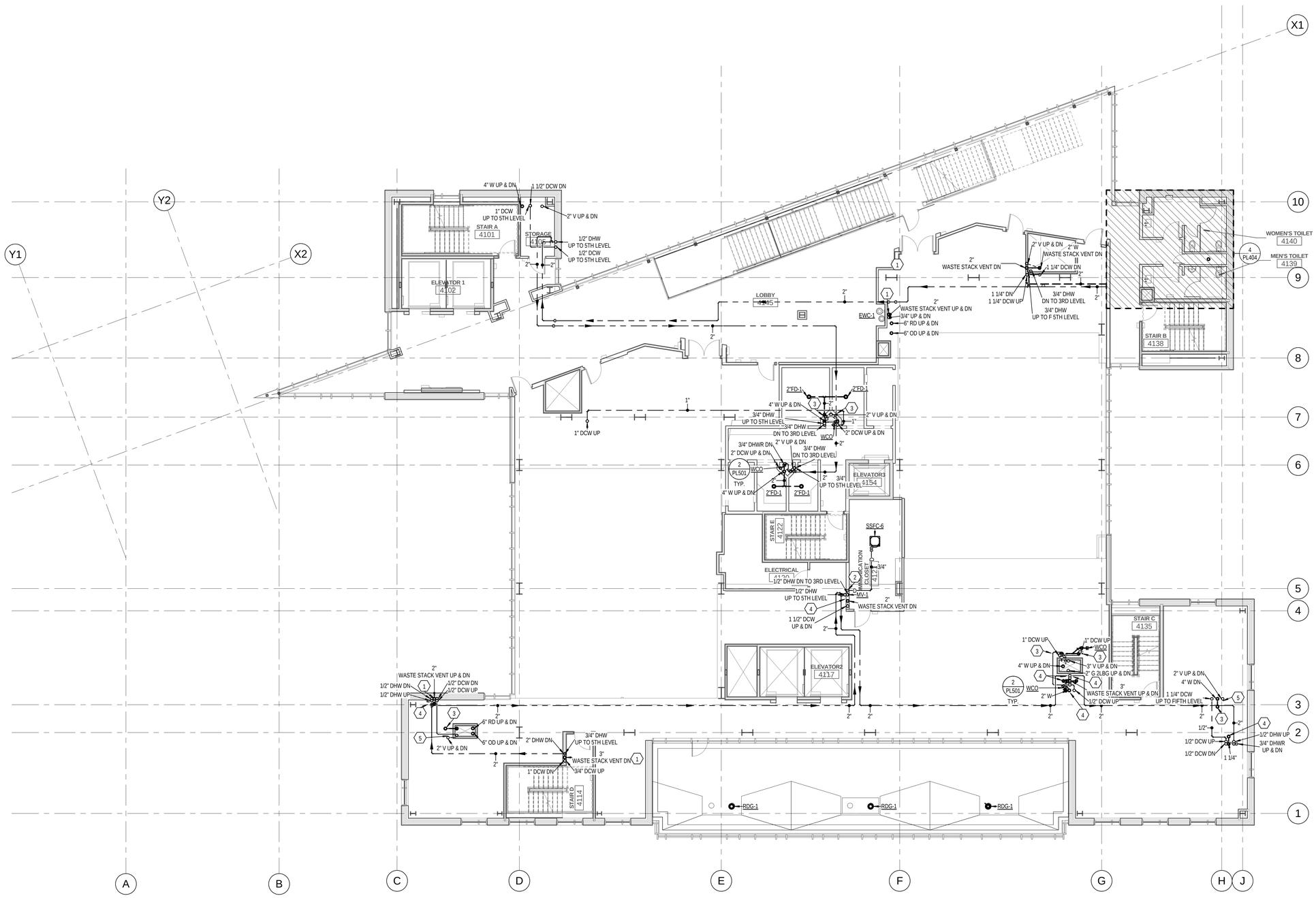

1 LEVEL 4 PLUMBING PLAN

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

KEYED NOTES

1. WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.
2. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.
3. STUB AND CAP 4" WASTE PIPING FOR FUTURE WATER CLOSET CONNECTION.
4. STUB AND CAP 2" WASTE PIPING FOR FUTURE FLOOR DRAIN AND/OR LAVATORY CONNECTION.
5. STUB AND CAP 2" VENT PIPING FOR FUTURE CONNECTION.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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08284150

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Job # 12500
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LEVEL 4 PLUMBING PLAN

PL104

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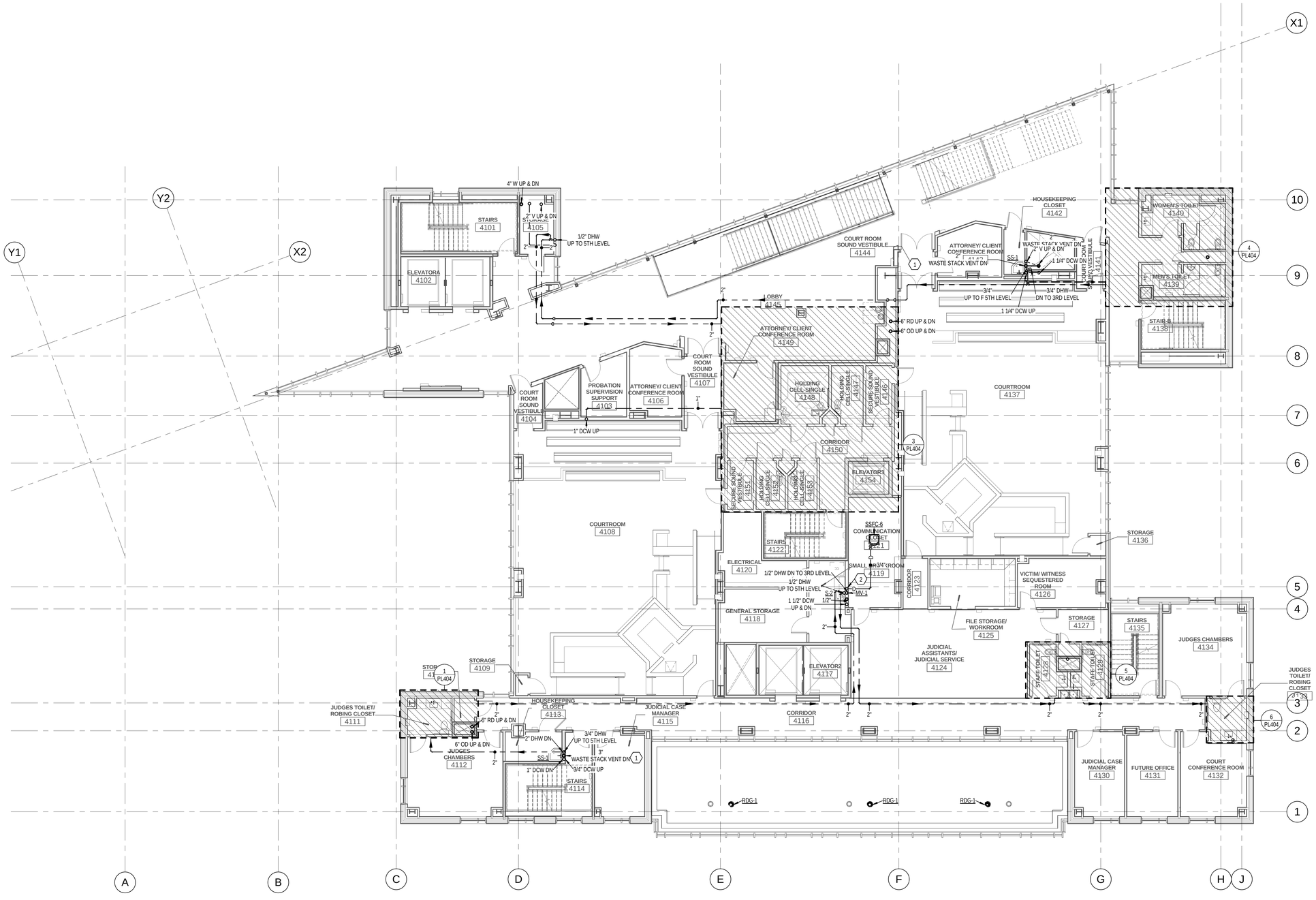

KEYED NOTES

1. WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.
2. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

1 LEVEL 4 PLUMBING PLAN
SCALE: 1/8" = 1'-0"

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LEVEL 4 PLUMBING PLAN ALT.

PL104alt

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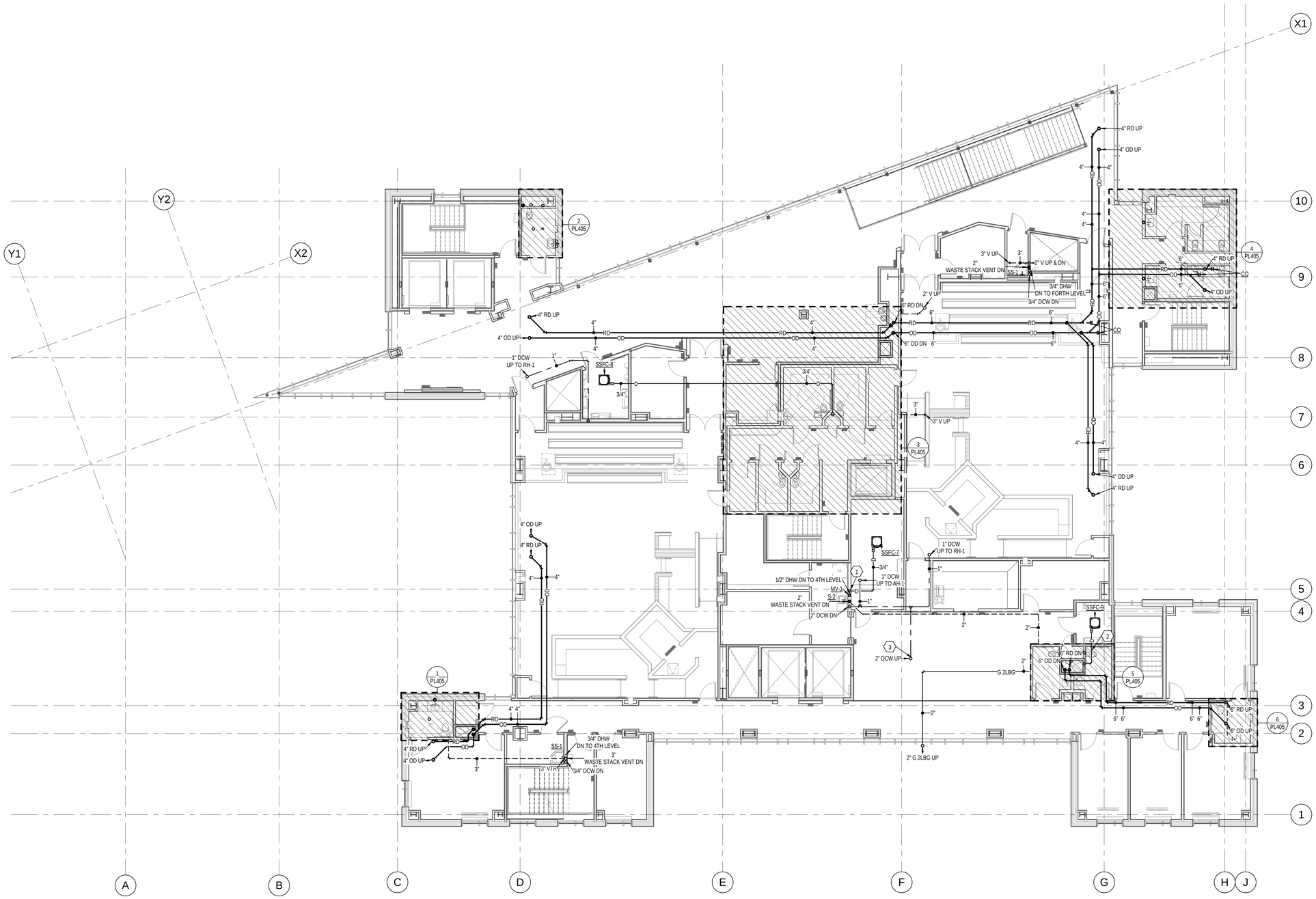

1 LEVEL 5 PLUMBING PLAN

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

6' 0' 4' 8' 12' 16'

KEYED NOTES

1. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.
2. CONNECT 2" GAS LINE TO CONNECTION AT SKID PACKAGE SIDEWALL. COORDINATE EXACT CONNECTION LOCATION WITH SKID MANUFACTURER.
3. 2" DCW UP TO CT MAKE-UP, ROUTE THROUGH THE OPENING FOR HEATING WATER PIPING.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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LEVEL 5 PLUMBING PLAN

PL105

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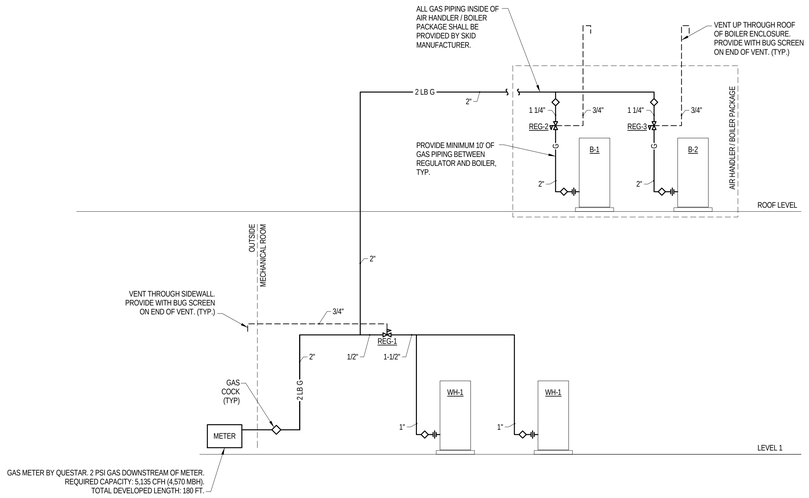
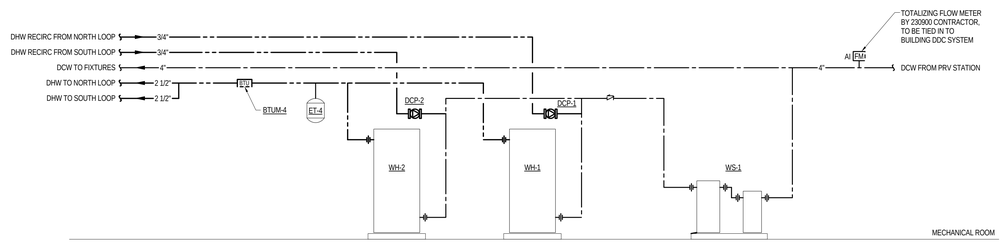


- WATER HEATER #1 (WH-1) 320 CFH (285,000 BTU/H)
- WATER HEATER #2 (WH-2) 320 CFH (285,000 BTU/H)
- BOILER #1 (B-1) 2,247 CFH (2,000,000 BTU/H)
- BOILER #2 (B-2) 2,247 CFH (2,000,000 BTU/H)

1 GAS PIPING SCHEMATIC

SCALE: NONE



2 DOMESTIC WATER SCHEMATIC

SCALE: NONE

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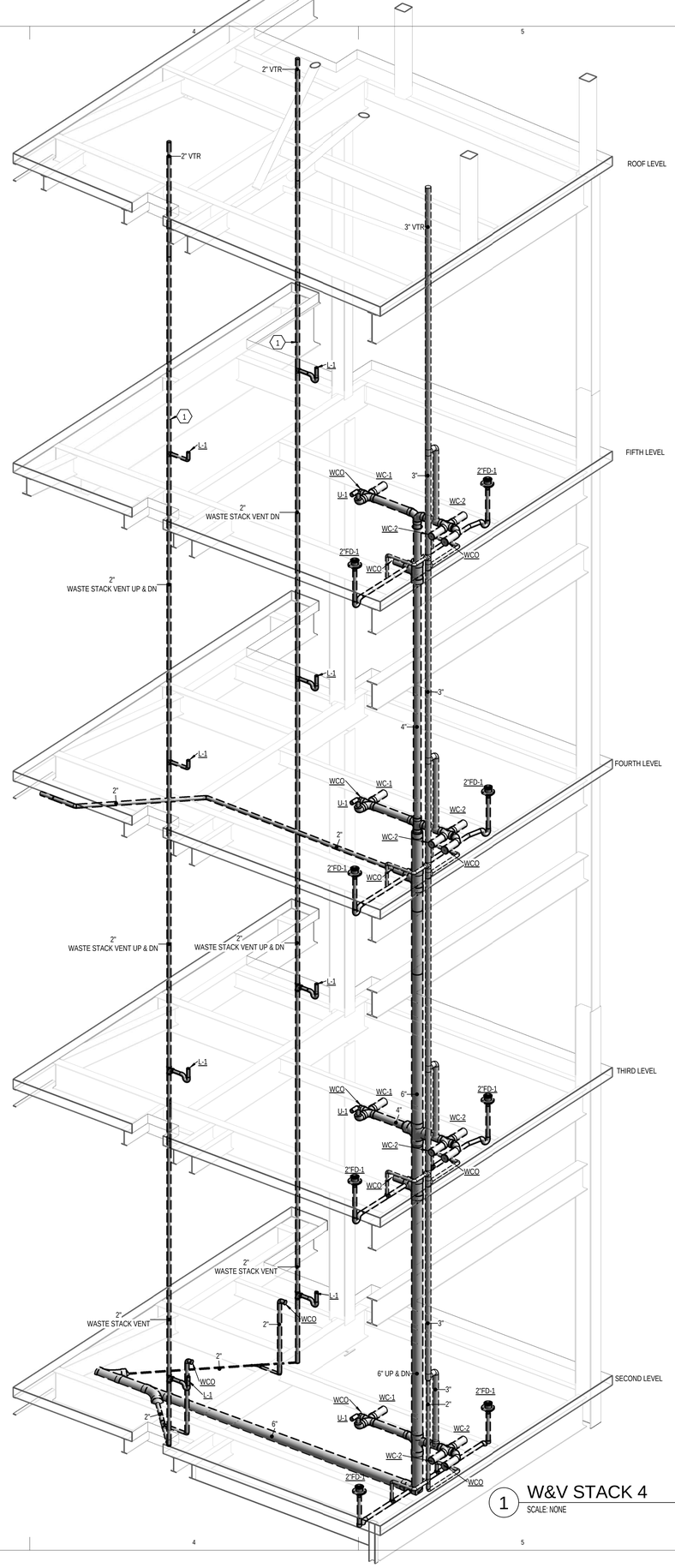
PLUMBING SCHEMATIC

PL201



1 W&V STACK 4
SCALE: NONE

KEYED NOTES

1 WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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WASTE & VENT SCHEMATICS

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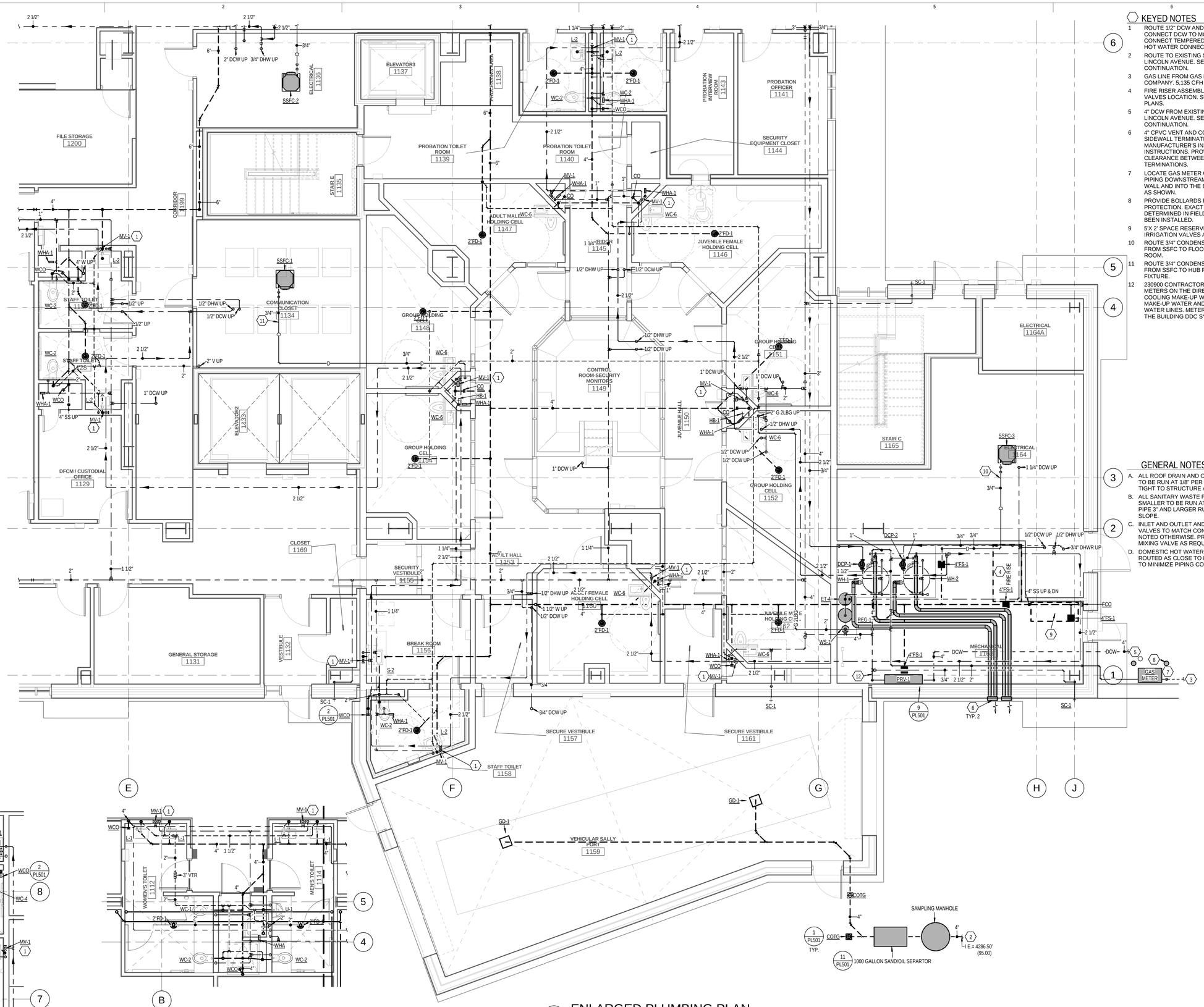

KEYED NOTES

1. ROUTE 1/2" DCW AND DHW DOWN TO MV-1. CONNECT DCW TO MC-1 AND FIXTURE(S). CONNECT TEMPERED WATER FROM MV-1 TO HOT WATER CONNECTION(S) OF FIXTURES(S).
2. ROUTE TO EXISTING SANITARY SEWER LINE AT LINCOLN AVENUE. SEE CIVIL PLANS FOR CONTINUATION.
3. GAS LINE FROM GAS MAIN TO BE SIZED BY GAS COMPANY. 5,135 CFH REQUIRED.
4. FIRE RISER ASSEMBLY AND ASSOCIATED VALVES LOCATION. SEE FIRE PROTECTION PLANS.
5. 4" DCW FROM EXISTING WATER LINE BELOW LINCOLN AVENUE. SEE CIVIL PLANS FOR CONTINUATION.
6. 4" CPVC VENT AND COMBUSTION AIR TO SIDEWALL TERMINATION KIT. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIIONS. PROVIDE 12" MINIMUM CLEARANCE BETWEEN SIDEWALL TERMINATIONS.
7. LOCATE GAS METER ON CMU WALL. ROUTE PIPING DOWNSTREAM OF GAS METER ALONG WALL AND INTO THE BUILDING ABOVE GRADE AS SHOWN.
8. PROVIDE BOLLARDS FOR GAS METER PROTECTION. EXACT LOCATION TO BE DETERMINED IN FIELD AFTER GAS METER HAS BEEN INSTALLED.
9. 5'X 2' SPACE RESERVED FOR ROOF GARDEN IRRIGATION VALVES AND PIPING.
10. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO FLOOR SINK IN MECHANICAL ROOM.
11. ROUTE 3/4" CONDENSATE DRAIN WITH P-TRAP FROM SSFC TO HUB RECEPTOR AT NEAREST FIXTURE.
12. 230900 CONTRACTOR TO PROVIDE TOTALIZING METERS ON THE DIRECT EVAPORATIVE COOLING MAKE-UP WATER, COOLING TOWER MAKE-UP WATER AND THE DOMESTIC COLD WATER LINES. METERS SHALL BE TIED INTO THE BUILDING DDC SYSTEM.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

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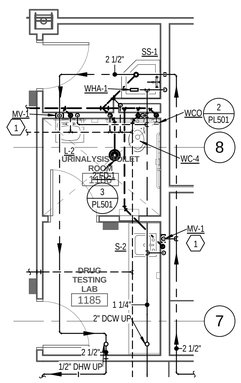

1 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

2 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

3 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

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LEVEL 1 ENLARGED PLUMBING PLANS

PL401

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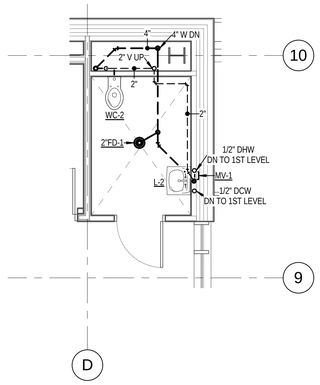
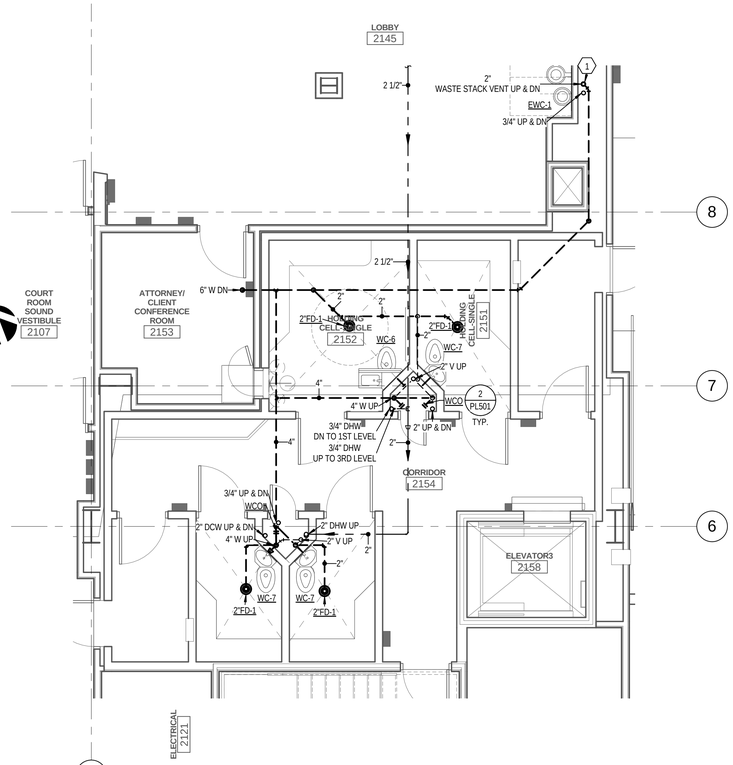
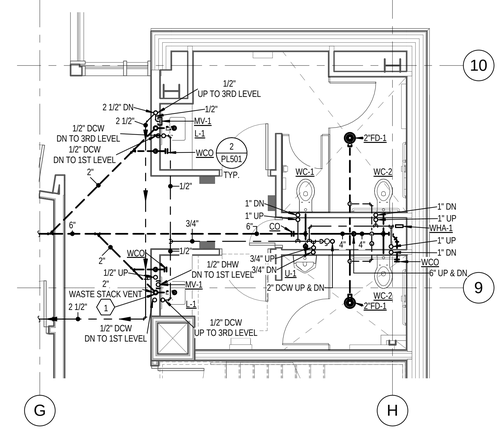


2 ENLARGED PLUMBING PLAN - WASTE STACK 2
SCALE: 1/4" = 1'-0"



3 ENLARGED PLUMBING PLAN WASTE STACK 3
SCALE: 1/4" = 1'-0"



4 ENLARGED PLUMBING PLAN - WASTE STACK 4
SCALE: 1/4" = 1'-0"

KEYED NOTES

1 WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

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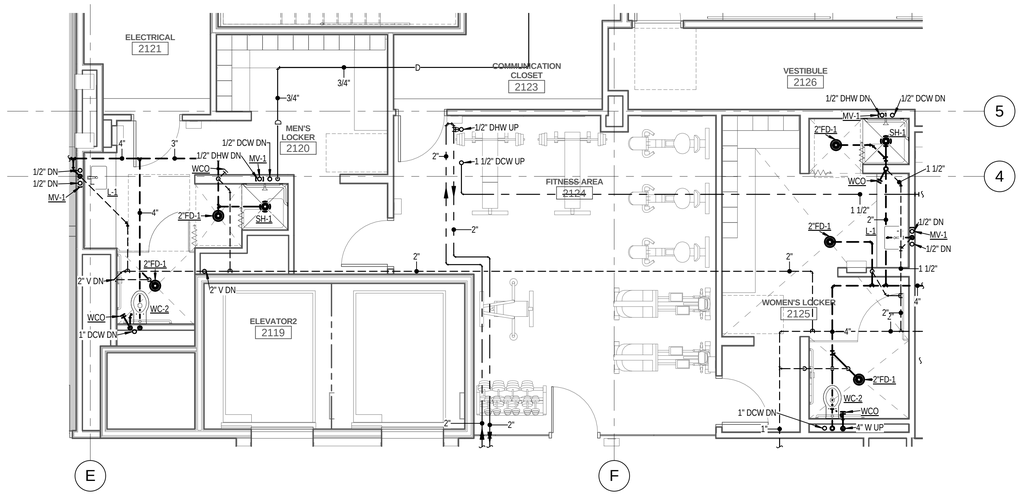
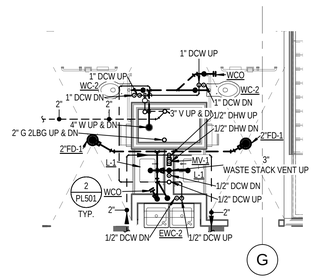


7 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"



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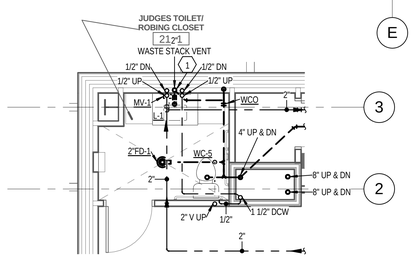
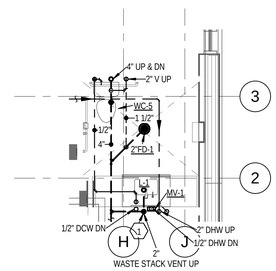


1 ENLARGED PLUMBING PLAN WASTE STACK 1
SCALE: 1/4" = 1'-0"



6 ENLARGED PLUMBING PLAN - WASTE STACK 6
SCALE: 1/4" = 1'-0"

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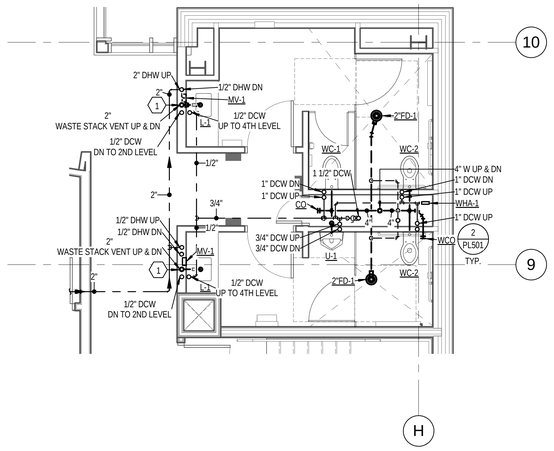
LEVEL 2 ENLARGED PLUMBING PLANS

PL402

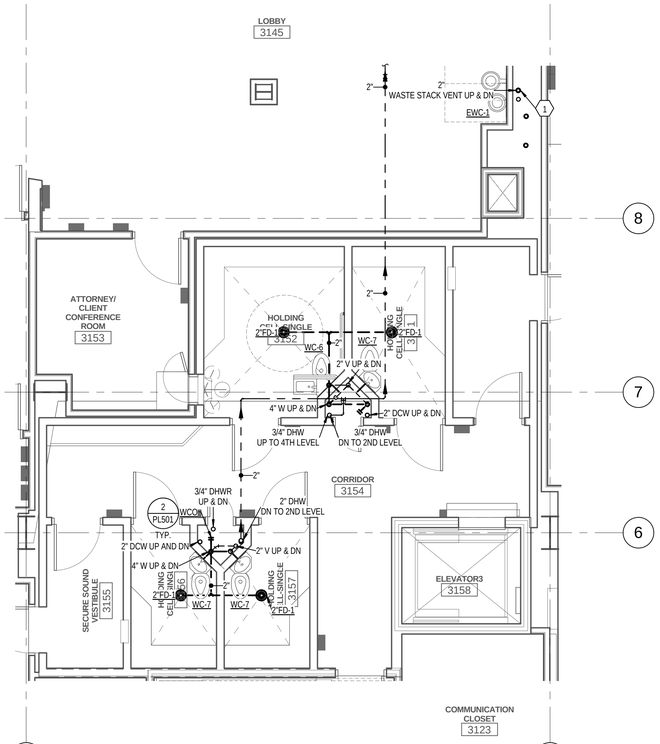


4 ENLARGED PLUMBING PLAN - WASTE STACK 4

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

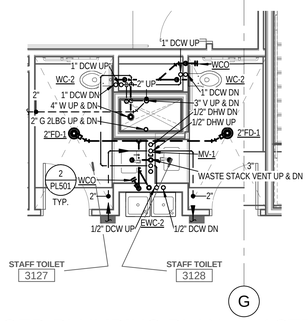
KEYED NOTES

1 WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.



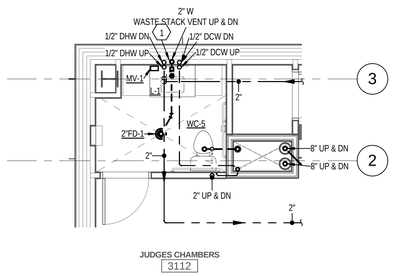
3 ENLARGED PLUMBING PLAN - WASTE STACK 3

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



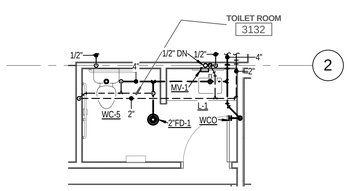
5 ENLARGED PLUMBING PLAN - WASTE STACK 5

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



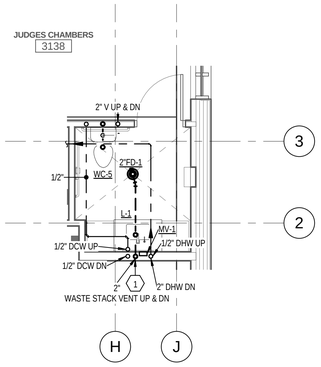
1 ENLARGED PLUMBING PLAN - WASTE STACK 1

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



7 ENLARGED PLUMBING PLAN

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



6 ENLARGED PLUMBING PLAN - WASTE STACK 6

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

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

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LEVEL 3 ENLARGED PLUMBING PLANS

PL403

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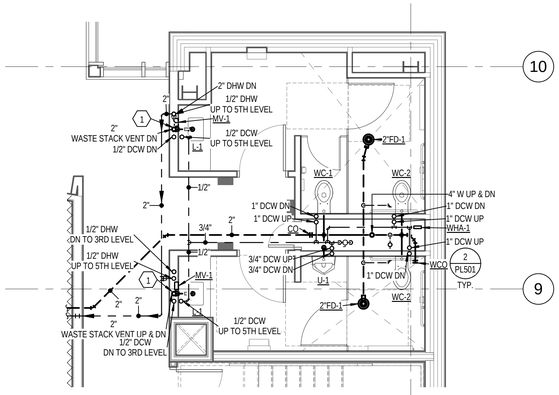
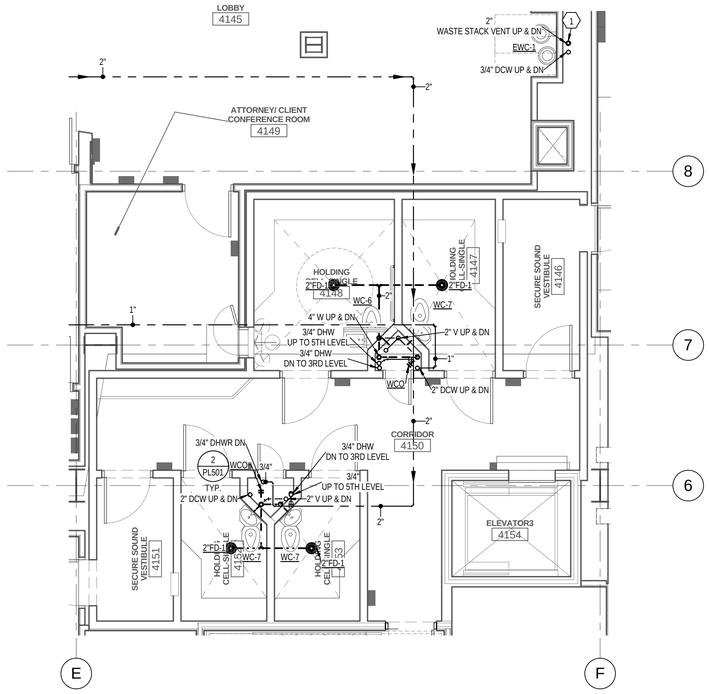


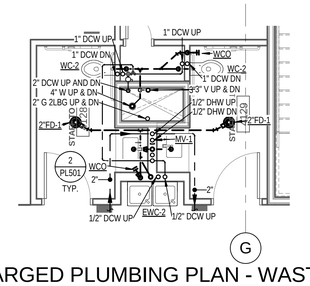
4 ENLARGED PLUMBING PLAN - WASTE STACK 4

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



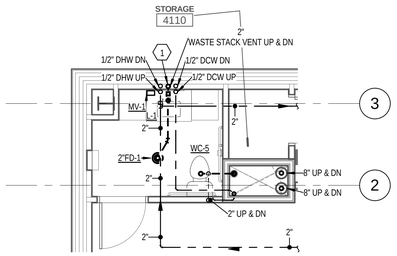
3 ENLARGED PLUMBING PLAN - WASTE STACK 3

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



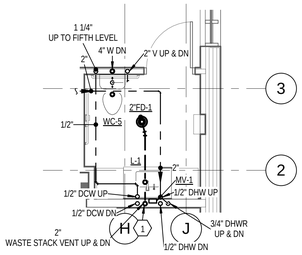
5 ENLARGED PLUMBING PLAN - WASTE STACK 5

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



1 ENLARGED PLUMBING PLAN - WASTE STACK 1

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



6 ENLARGED PLUMBING PLAN - WASTE STACK 6

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

KEYED NOTES

1 WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.

GENERAL NOTES

A. ALL ROOF DRAIN AND OVERFLOW DRAIN PIPING TO BE RUN AT 1/8" PER FOOT SLOPE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

B. ALL SANITARY WASTE PIPING 2 1/2" AND SMALLER TO BE RUN AT 1/4" PER FOOT SLOPE. PIPE 3" AND LARGER RUN AT 1/8" PER FOOT SLOPE.

C. INLET AND OUTLET AND PIPE SIZE TO MIXING VALVES TO MATCH CONNECTION SIZES UNLESS NOTED OTHERWISE. PROVIDE ACCESS TO MIXING VALVE AS REQUIRED.

D. DOMESTIC HOT WATER RECIRC LOOP TO BE ROUTED AS CLOSE TO FIXTURES AS POSSIBLE TO MINIMIZE PIPING CONNECTION LENGTHS.

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Utah State Courts
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BID DOCUMENTS

Rev #	Date	Description

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Date August 15, 2013
Owner # 08284150
Ins. #

LEVEL 4 ENLARGED PLUMBING PLANS

PL404

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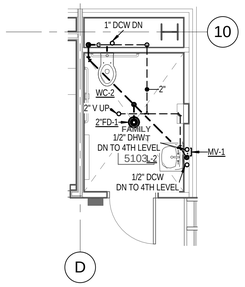
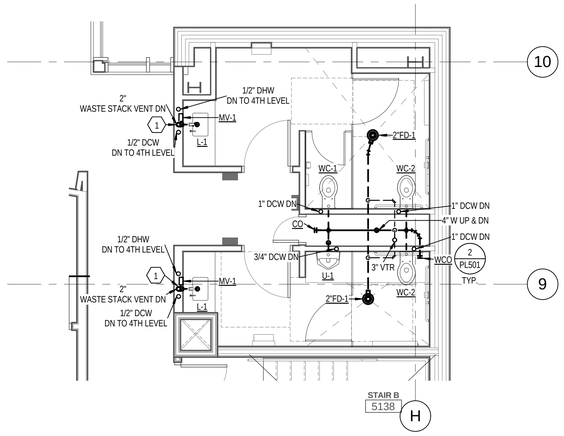


2 ENLARGED PLUMBING PLAN - WASTE STACK 2

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



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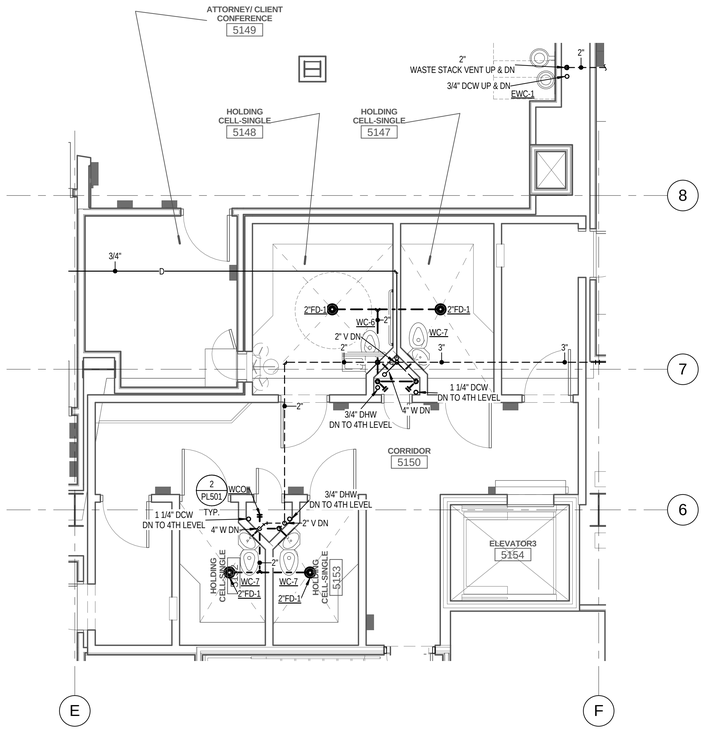
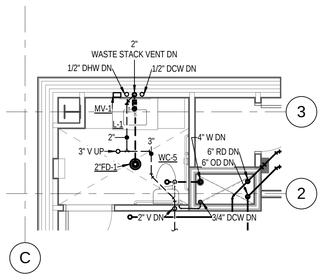
SCALE: 1/4" = 1'-0"



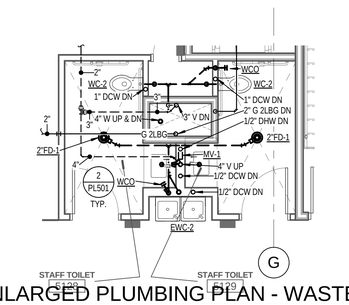
3 ENLARGED PLUMBING PLAN - WASTE STACK 3

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



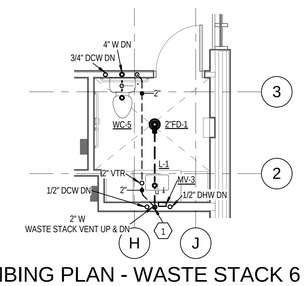
1 ENLARGED PLUMBING PLAN - WASTE STACK 1

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



5 ENLARGED PLUMBING PLAN - WASTE STACK 5

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



6 ENLARGED PLUMBING PLAN - WASTE STACK 6

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

KEYED NOTES

1 WASTE STACK VENT. NO OFFSETS OF ANY ANGLE ALLOWED BETWEEN LOWEST FIXTURE CONNECTION AND HIGHEST FIXTURE CONNECTION OF WASTE STACK VENT. EACH FIXTURE MUST INDIVIDUALLY CONNECT TO WASTE STACK VENT.

GENERAL NOTES

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LEVEL 5 ENLARGED PLUMBING PLANS

PL405

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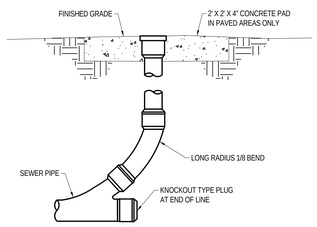
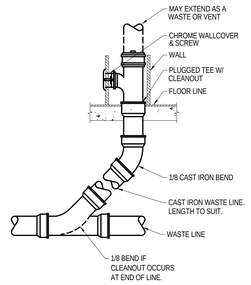


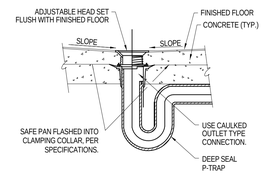
1 SURFACE CLEANOUT DETAIL

NO SCALE



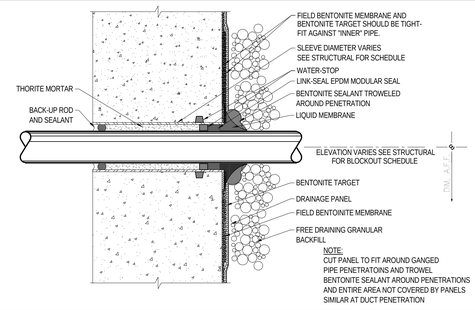
2 WALL CLEANOUT DETAIL

NO SCALE



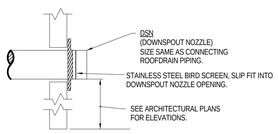
3 TYPICAL FLOOR DRAIN IN SUSPENDED SLAB DETAIL

NO SCALE



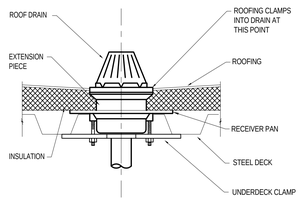
4 WATERPROOFING FOR PIPE PENETRATION AT BELOW-GRADE WALL

NO SCALE



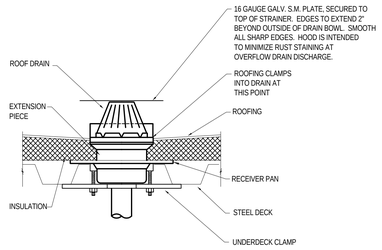
5 DOWNSPOUT NOZZLE DETAIL

NO SCALE



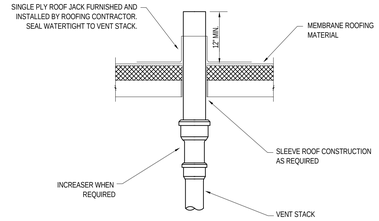
6 ROOF DRAIN DETAIL

NO SCALE



7 OVERFLOW ROOF DRAIN WITH HOOD DETAIL

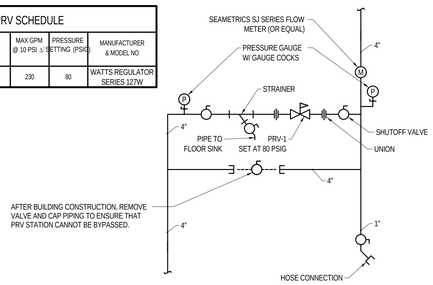
NO SCALE



8 VENT THROUGH ROOF DETAIL

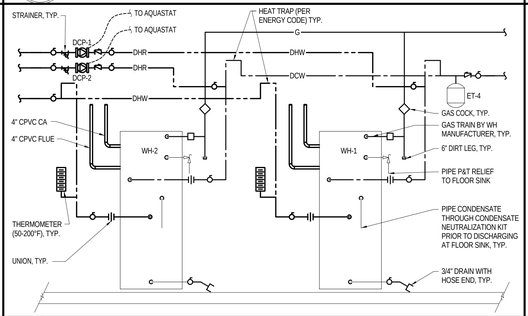
NO SCALE

PRV SCHEDULE				
PLAN CODE	SIZE	MAX GPM @ 10 PSI ∆	PRESSURE SETTING (PSIG)	MANUFACTURER & MODEL NO
PRV-1	4"	230	80	WATTS REGULATOR SERIES 127W



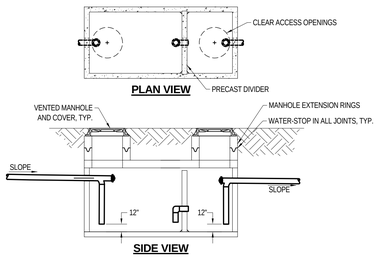
9 PRV STATION DETAIL

NO SCALE



10 GAS WATER HEATER DETAIL

NO SCALE



11 1000 GALLON SAND/OIL SEPARATOR DETAIL

NO SCALE

THIS PANE INTENTIONALLY LEFT BLANK

12

NO SCALE

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13

NO SCALE

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NO SCALE

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16

NO SCALE

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PLUMBING DETAILS

PL501

GAS FIRED WATER HEATER SCHEDULE (WH)

PLAN CODE	INPUT (MBH)	OUTPUT (MBH)	EFFICIENY %	FUEL	STORAGE VOLUME (GAL)	FLUE DIA	INTAKE DIA	FLUE/INTAKE TYPE	MAX DIMENSIONS HEIGHT (IN)	MAX DIMENSIONS DIAMETER (IN)	VOLT/ PH	MANUFACTURER & MODEL NO	REMARKS
WH-1	285	247	94	NG	125	4"	4"	CPVC	80	34	120/1	LOCHINVAR SNA 285-125	(1) (2)
WH-2	285	247	94	NG	125	4"	4"	CPVC	80	34	120/1	LOCHINVAR SNA 285-125	(1) (2)

(1) PROVIDE WITH MODBUS INTERFACE AND BACNET GATEWAY. (2) PROVIDE WITH CONDENSATE NEUTRALIZATION KIT.

DOMESTIC HOT WATER RECIRCULATION PUMP SCHEDULE (DCP)

PLAN CODE	DUTY	GPM	FEET OF HEAD	PUMP RPM	MOTOR H.P.	MOTOR VOLTAGE & PHASE	MANUFACTURER & MODEL NO.	REMARKS
DCP-1	DHW RECIRC. (NORTH LOOP)	4	20	1750	1/3	120/1	BELL & GOSSETT HD3	INLINE BRONZE
DCP-2	DHW RECIRC. (SOUTH LOOP)	4	20	1750	1/3	120/1	BELL & GOSSETT HD3	INLINE BRONZE

MIXING VALVE SCHEDULE (MV)

PLAN CODE	AREA SERVED	INLET SIZE	OUTLET SIZE	MINIMUM FLOW GPM	MAXIMUM FLOW GPM	MANUFACTURER & MODEL NO.
MV-1	LAVATORIES SINKS	1/2"	1/2"	0.5	7	LEONARD 270
MV-2	LAVATORIES SINKS	1/2"	1/2"	0.5	7	LEONARD 270-RF-STSTL-REC
MV-3	BUILDING HOT WATER	1 1/4"	1 1/2"	1	125	LEONARD TM-1520A-RF

NATURAL GAS PRESSURE REGULATOR SCHEDULE (REG) (1) (2)

PLAN CODE	TYPE	EQUIPMENT SERVED	INLET PRESSURE (PSIG)	OUTLET PRESSURE (OZ./SQ. IN.)	LOAD (MBH)	GAS DELIVERY (CU.FT./H)	NOTES
REG-1	SELF-OPERATING SPRING LOADED DIAPHRAGM	WH-1 & WH-2	2	4	570	640	VENT LIMITER W/ OVER PRESSURE PROTECTION DEVICE
REG-2	SELF-OPERATING SPRING LOADED DIAPHRAGM	B-1	2	4	2000	2247	VENT LIMITER W/ OVER PRESSURE PROTECTION DEVICE
REG-3	SELF-OPERATING SPRING LOADED DIAPHRAGM	B-2	2	4	2000	2247	VENT LIMITER W/ OVER PRESSURE PROTECTION DEVICE

(1) VENT REGULATOR TO EXTERIOR AS REQUIRED UNLESS DEAD-END LOCKUP VENTLESS TYPE IS APPROVED BY LOCAL JURISDICTION. (2) INSTALL REGULATOR 10' MINIMUM FROM APPLIANCE SERVED.

EXPANSION TANK SCHEDULE (ET)

PLAN CODE	SYSTEM SERVED	WATER TEMP (°F)	TANK VOL (GAL)	ACCEPTANCE VOL (GAL)	PRE-CHARGE (PSI)	MAX DIMENSIONS DIA (IN)	MAX DIMENSIONS HEIGHT (IN)	MAX DIMENSIONS OPERATING WT (LBS)	MANUFACTURER & MODEL NO	REMARKS
ET-4	DOMESTIC HOT WATER	140	14	9	80	16	19	175	AMTROL ST-30VC	3/4" NPT CONNECTION ASME RATED

WATER SOFTENER SCHEDULE (WS) (2)

PLAN CODE	CONTINUOUS FLOW RATE (GPM)	LINE SIZE	CAPACITY (GRAINS)	CONTROL	COMMENTS	APPROVED MANUFACTURERS
WS-1	9	2 1/2"	120,000	(3)	WITH REMOVE FILL OPTION AND NECESSARY PIPE	(1) CULLIGAN GE OSMONIC

(1) RESIN TANK AND BRINE TANK. (2) FINAL SIZING TO BE CONFIRMED BY MANUFACTURER

(3) AUTOMATIC REGENERATION ACTIVATED FLOW CONTROL AS REQUIRED BY MANUFACTURER.

BTU METER (BTUM)

PLAN CODE	SYSTEM SERVED	SHEET REFERENCE SCHEMATIC	FLUID	TEMP RANGE °F	PIPE SIZE	TYPE	MANUFACTURER & MODEL NO	OUTPUT
BTUM-4	DOMESTIC HOT WATER	PL201	FW	50-160	4"	TURBINE	ONICON SYSTEM-10	4 - 20 AM 0 - 10V DIGITAL DISPLAY

PLUMBING FIXTURE SCHEDULE

PLAN CODE	DESCRIPTION	ROUGH-IN SIZE CW	HW	WASTE	VENT	STORM	MANUFACTURER & MODEL NO
WC-1	WATER CLOSET, WALL MOUNT, SENSOR FLUSH VALVE, ELONGATED BOWL, VITREOUS CHINA, 1.28 GPF	1"	-	4"	2"	-	SLOAN WETS 2050.1201-1.28 SYSTEM SEAT: OLSONITE 10CT COLOR: WHITE FLOOR TO RIM: 15". OR EQUAL
WC-2	WATER CLOSET, ADA COMPLIANT, WALL MOUNT, SENSOR FLUSH VALVE, ELONGATED BOWL, VITREOUS CHINA, 1.28 GPF	1"	-	4"	2"	-	SLOAN WETS 2050.1201-1.28 SYSTEM SEAT: OLSONITE 10CT COLOR: WHITE FLOOR TO RIM: 17". OR EQUAL
WC-4	WATER CLOSET, ADA COMPLIANT, WALL MOUNT, MANUAL FLUSH VALVE, ELONGATED BOWL, VITREOUS CHINA, 1.28 GPF	1"	-	4"	2"	-	SLOAN WETS 2050.1001-1.28 SYSTEM SEAT: OLSONITE 10CT COLOR: WHITE FLOOR TO RIM: 17". OR EQUAL
WC-5	WATER CLOSET, ADA COMPLIANT, FLOOR MOUNT, MANUAL TANK FLUSH, ELONGATED BOWL, VITREOUS CHINA, 1.28 GPF	1/2"	-	4"	2"	-	TOTO DRAKE II CST454 - 1.28 GPF SEAT: SC534 COMMERCIAL COLOR: WHITE FLOOR TO RIM: 17". OR EQUAL
WC-6	PENAL GRADE WATER CLOSET LAV COMBY LOW FLOW MANUAL FLUSH VALVE ADA COMPLIANT	1"	1/2"	4"	2"	-	ACORN PENAL-WARE 1432 ELONGATED, 1.28 GPF, STAINLESS STEEL, FRONT ACCESS TOILET/LAVATORY COMBINATION UNIT. PROVIDE FLUSH VALVE THROUGH WALL CONNECTOR. PROVIDE SLOAN ROYAL 111-1.28 FLUSH VALVE. FLUSH VALVE SHALL BE MOUNTED OUTSIDE OF TOILET ROOM FOR REMOTE FLUSH. OR EQUAL. PROVIDE WILKINS MODEL 1070 THERMOSTATIC MIXING VALVE.
WC-7	PENAL GRADE WATER CLOSET LAV COMBY LOW FLOW MANUAL FLUSH VALVE ADA COMPLIANT	1"	1/2"	4"	2"	-	ACORN PENAL-WARE 1485 ELONGATED, 1.28 GPF, STAINLESS STEEL, FRONT ACCESS TOILET/LAVATORY COMBINATION UNIT WITH INTEGRATED TOILET PAPER HOLE IN CABINET. PROVIDE FLUSH VALVE THROUGH WALL CONNECTOR. PROVIDE SLOAN ROYAL 111-1.28 FLUSH VALVE. FLUSH VALVE SHALL BE MOUNTED OUTSIDE OF TOILET ROOM FOR REMOTE FLUSH. OR EQUAL. PROVIDE WILKINS MODEL 1070 THERMOSTATIC MIXING VALVE.
U-1	URINAL, ADA COMPLIANT, VITREOUS CHINA, SOLAR POWERED SENSOR FLUSH VALVE, 1/8 GPF	3/4"	-	2"	2"	-	SLOAN WEUS1000.1201-0.13 SOLIS LOW CONSUMPTION URINAL SYSTEM COLOR: WHITE FLOOR TO RIM: 24". OR EQUAL
U-2	URINAL, ADA COMPLIANT, VITREOUS CHINA, MANUAL FLUSH VALVE, 1/8 GPF	3/4"	-	2"	2"	-	SLOAN WEUS1000.1001-0.13 SOLIS LOW CONSUMPTION URINAL SYSTEM COLOR: WHITE FLOOR TO RIM: 24". OR EQUAL
L-1	UNDER-MOUNT, RECTANGULAR LAVATORY, ADA COMPLIANT, VITREOUS CHINA,SOLAR POWERED SENSOR FAUCET WITH DRAIN ASSEMBLY, 0.5 GPM AERATOR.	1/2"	1/2"	1 1/2"	1 1/2"	-	KOHLER "LADENA" K-2214 FAUCET: SLOAN "BASYS" EFX-375 WITH 0.5 GPM AERATOR WITH DRAIN ASSEMBLY OR EQUAL
L-2	WALL MOUNT LAVATORY WITH SHROUD, ADA COMPLIANT, VITREOUS CHINA,SOLAR POWERED SENSOR FAUCET WITH DRAIN ASSEMBLY, 0.5 GPM AERATOR.	1/2"	1/2"	1 1/2"	1 1/2"	-	KOHLER "BRENHAM" WITH SHROUD K-1999 SLOAN "BASYS" EFX-375 WITH 0.5 GPM AERATOR WITH DRAIN ASSEMBLY OR EQUAL
EWC-1	ELECTRIC WATER COOLER, ADA COMPLIANT, BI-LEVEL, BARRIER FREE, STAINLESS STEEL, RECESSED IN-WALL	3/8"	-	1 1/2"	1 1/4"	-	ELKAY LRPBM28K (ADA), 115/1, 4.0 FLA, 8.0 GPH
EWC-2	ELECTRIC WATER COOLER, ADA COMPLIANT, BI-LEVEL, BARRIER FREE, STAINLESS STEEL, SURFACE MOUNT WITH BOTTLE FILLING STATION	3/8"	-	1 1/2"	1 1/4"	-	ELKAY LZSTL8WSLK (ADA), 115/1, 8.0 GPH
S-1	UNDER-MOUNT, DOUBLE BOWL, 18 GA STAINLESS STEEL, WRIST BLADE HANDLE FAUCET, STRAINER AND DRAIN ASSEMBLY	1/2"	1/2"	1 1/2"	1 1/2"	-	SINK: ELKAY ELUH-3116 FAUCET: ELKAY K-15171 WITH STRAINER AND DRAIN ASSMBLY. OR EQUAL
S-2	UNDER-MOUNT, SINGLE BOWL, 18 GA STAINLESS STEEL, WRIST BLADE HANDLE FAUCET, STRAINER AND DRAIN ASSEMBLY	1/2"	1/2"	1 1/2"	1 1/2"	-	SINK: ELKAY ELUHAD-1418 FAUCET: ELKAY K-15171 WITH STRAINER AND DRAIN ASSMBLY. OR EQUAL
SH-1	SINGLE LEVER, ADA COMPLIANT, PRESSURE BALANCING MIXING VALVE, 1.5 GPM	1/2"	1/2"	2"	1 1/2"	-	SYMMONS 3505-H321-V-CYL-1.5 WITH HAND SPRAY AND BAR SLIDE . PROVIDE WITH J.R. SMITH MANUFACTURING COMPANY FIG. 2005Y-B-P050-NB DUCO CAST IRON FLOOR DRAIN. DRAIN TO BE PROVIDED WITH 2" OUTLET, ROUND NICKEL BRONZE STRAINER HEAD, SEDIMENT BUCKET, AND VANDAL PROOF SCREWS. STRAINER HEAD MUST BE HEEL PROOF.
SS-1	SERVICE SINK, CAST IRON, WITH RIM GAURD, 3" GRID DRAIN AND FAUCET WITH VACUUM BREAKER, HANDLES, LOOSE KEY STOPS, TOP BRACE, ACID RESISTANT ENAMEL FINISH.	3/4"	3/4"	3"	2"	-	SINK: KOHLER "WHITBY" K-6710 WITH K-89470 RIM GUARD. FAUCET: KOHLER "KINLOCK" K-8907 WITH TOP BRACE AND VACUUM BREAKER. OR EQUAL
FD-1	FLOOR DRAIN (INDOOR FINISHED AREA USE)	-	-	SEE PLANS	1 1/2"	-	J.R. SMITH MANUFACTURING COMPANY FIG. 2005Y-B-P050-NB DUCO CAST IRON FLOOR DRAIN. DRAIN TO BE PROVIDED WITH 2" OUTLET, SQUARE NICKEL BRONZE STRAINER HEAD, DEEP SEAL P-TRAP AND VANDAL PROOF SCREWS. TRAP PRIMER CONNECTION CAPPED IF NOT USED, STRAINER HEAD MUST BE HEEL PROOF, DEEP SEAL TRAP. OR EQUAL.
FD-2	FLOOR DRAIN (OUTDOOR AREA USE)	-	-	SEE PLANS	-	-	J.R. SMITH MANUFACTURING COMPANY FIG. 2142 DUCO CAST IRON FLOOR DRAIN. DRAIN TO BE PROVIDED WITH 4" OUTLET, TRACTOR GATE STRAINER HEAD, DEEP SEAL P-TRAP, AND VANDAL PROOF SCREWS. STRAINER HEAD MUST BE HEAVY DUTY. OR EQUAL.
FS-1	FLOOR SINK	-	-	SEE PLANS	1 1/2"	-	J.R. SMITH MANUFACTURING COMPANY FIG. 3150-Y-ASB SQUARE FLOOR SINK. FLOOR SINK SHALL BE OF CAST IRON CONSTRUCTION WITH ENAMEL INTERIOR FINISH, MINIMUM INTERIOR DIMENSIONS OF 12"x12"x8"D. PROVIDE WITH NICKEL BRONZE GRATE AND DEEP SEAL P-TRAP, OR EQUAL.
FS-2	FLOOR SINK (MECHANICAL ROOM USE)	-	-	4"	2"	-	J.R. SMITH MANUFACTURING COMPANY FIG. 3150-Y-ASB SQUARE FLOOR SINK. FLOOR SINK SHALL BE OF CAST IRON CONSTRUCTION WITH ENAMEL INTERIOR FINISH, MINIMUM INTERIOR DIMENSIONS OF 12"x12"x8"D. PROVIDE WITH HEAVY DUTY NICKEL BRONZE HALF GRATE, OR EQUAL.
WCO	WALL CLEANOUT	-	-	SEE PLANS	SEE PLANS	-	J.R. SMITH MANUFACTURING COMPANY SERIES 4530, CAST IRON CLEANOUT TEE, ABS PLUG, STAINLESS STEEL COVER WITH VANDAL PROOF SECURITY SCREWS. OR EQUAL.
FCO	FLOOR CLEANOUT	-	-	SEE PLANS	SEE PLANS	-	J.R. SMITH MANUFACTURING COMPANY SERIES 4020, CAST IRON ADJUSTABLE BODY, ABS PLUG, VANDAL PROOF SECURITY SCREWS. OR EQUAL.
RD-1	ROOF DRAIN - PRIMARY	-	-	-	-	SEE PLANS	J.R. SMITH MODEL 1015-C LARGE GENERAL PURPOSE ROOF DRAIN. ROOF DRAIN SHALL BE PROVIDED WITH DUCO CAST IRON BODY, REVERSIBLE COLLAR, COMBINED FLASHING CLAMP AND GRAVEL STOP WITH NEOPRENE GASKET, CAST IRON DOME, SUMP RECEIVER, UNDERDECK CLAMP AND VANDAL PROOF SECURITY SCREWS, OR EQUAL.
RD-2	ROOF DRAIN - CANOPY	-	-	-	-	2"	J.R. SMITH MODEL 1660T HIGH DOME, 45 DEGREE OUTLET GUTTER DRAIN. CAST IRON BODY WITH BRONZE FLASHING CLAMP AND BRONZE TOP SECURED WITH BRASS, VANDAL PROOF, SCREWS.
RD-3	ROOF DRAIN - PARAPET	-	-	-	-	2"	J.R. SMITH MODEL 6270T - 2", 45 DEGREE OUTLET GUTTER DRAIN. CAST IRON BODY WITH SECURED CHROME PLATED BRONZE FACE. VANDAL PROOF SCREWS.
OD-1	ROOF DRAIN - SECONDARY / OVERFLOW	-	-	-	-	SEE PLANS	J.R. SMITH MODEL 1015-C GENERAL PURPOSE OVERFLOW DRAIN. OVERFLOW DRAIN SHALL BE PROVIDED WITH DUCO CAST IRON BODY, REVERSIBLE COLLAR, COMBINED FLASHING CLAMP AND GRAVEL STOP WITH NEOPRENE GASKET,CAST IRON DOME, SUMP RECEIVER, UNDERDECK CLAMP, VANDAL PROOF SECURITY SCREWS. MOUNT 2" HIGHER THAN RD-1. OR EQUAL
DSN-1	DOWN SPOUT NOZZLE (HINGED COVER)	-	-	-	-	SEE PLANS	J.R. SMITH SERIES 1775 WITH WALL FLANGE. STAINLESS STEEL. PROVIDE BIRD SCREEN.
HB-1	HOSE BIBB - WALL MOUNTED (INDOOR - STAFF RESTROOM AREA)	3/4"	-	-	-	-	WOODFORD MANUFACTURING CO. MODEL 86 WALL MOUNTED, BACKFLOW PROTECTED WALL FAUCET. HOSE BIBB TO BE PROVIDED WITH MTEAL WHEEL HANDLE AND LOOSE KEY SHUTOFF, 3/4" INLET (C INLET) AND 3/4" MALE HOSE THREAD OUTLET. EXTERIOR FINISH TO BE BRASS. OR EQUAL.
SC-1	SILLCOCK (OUTDOOR FREEZE PROOF USE)	3/4"	-	-	-	-	WOODFORD MANUFACTURING CO. MODEL B65 (OR EQUAL) WALL MOUNTED ANTI-SIPHON AUTOMATIC DRAINING FREEZELESS WALL HYDRANT. WALL HYDRANT SHALL BE PROVIDED WITH LOOSE KEE SHUTOFF, 3/4" INLET AND 3/4" MALE HOSE THREAD OUTLET. PROVIDE BOX/DOOR ASSEMBLY. EXTERIOR FINISH SHALL BE CHROME PLATED OR EQUAL.
WHA-1	WATER HAMMER ARRESTOR	3/4"	-	-	-	-	PRECISION PLUMBING PRODUCTS SC-750. OR EQUAL
TD-1	TRENCH DRAIN	-	-	4"	2"	-	JOSAM PRO-PLUS 300-DI. HEAVY DUTY CLASS C DUCTILE IRON WAVE GRATE. COORDINATE EXACT LENGTH TO MATCH ARCHITECTURAL DIMENSIONAL DRAWINGS. OR EQUAL.
GD-1	GARAGE DRAIN	-	-	4"	2"	-	DURA-CRETE #45 YARD BOX, PRE-CAST CONCRETE BASIN, 18" X 18" X 18" INSIDE DIMENSIONS. PROVIDE FD-1 AT BOTTOM OF BASIN.
RH-1	ROOF HYDRANT	1"	-	-	-	-	WOODFORD MANUFACTURING CO. MODEL RHY1 FREEZELESS ROOF HYDRANT WITH ROD GUIDE, ADJUSTABLE LINK, AND ONE PIECE VARIABLE FLOW PLUNGER. HYDRANT OUTLET = 3'-0' ABOVE FINISHED ROOF SURFACE. PROVIDE 1/4" FLEXIBLE SOFT COPPER DRAIN TUBE AND ROUT TO NEAREST FLOOR SINK.
RGD-1	ROOF GARDEN DRAIN	-	-	-	-	4"	J.R. SMITH MODEL 1900 GREEN ROOF MAIN AREA DRAIN WITH STANDPIPE. ROOF DRAIN SHALL BE PROVIDED WITH DUCO CAST IRON BODY, FLASHING CLAMP AND STAINLESS STEEL GRAVEL STOP WITH 3/8" OPENINGS AND SECURED SOLID COVER, PVC PERFORATED INTERNAL STANDPIPE, UNDERDECK CLAMP, OR EQUAL. WRAP GRAVEL STOP IN FILTER FABRIC. COORDINATE DRAIN HEIGHT WITH ARCHITECT.

JOB SITE ELEVATION = 4,787 FT
JOB SITE PRESSURE = 12.33 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
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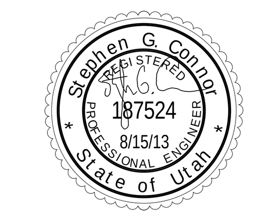

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2nd District Juvenile Courthouse
Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev # Date Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

PLUMBING SCHEDULES

PL601

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SYMBOLS LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
ROOM NAME 100	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
	NEW LINE: MEDIUM LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE
WIRING METHODS	
	WIRING.
	WIRING TURNED UP OR TOWARDS OBSERVER.
	WIRING TURNED DOWN OR AWAY FROM OBSERVER.
A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
1 A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE.
	FLEXIBLE WIRING.
— X —	WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = : CCTV = CLOSED CIRCUIT TELEVISION; P = POWER FA = FIRE ALARM; S = SOUND T = TELEPHONE I = INTERCOM; TV = TELEVISION OTHERS AS NOTED IN OTHER SCHEDULES. RACEWAYS AND WIRING SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
J	JUNCTION BOX.
J SC	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION CONNECTION.
J SP	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION.
PB	PULL BOX.
C C	CABLE TRAY ABOVE ACCESSIBLE CEILING.
	EARTH GROUND (ONE-LINE DIAGRAM).
J C	JUNCTION BOX, CEILING.
	LADDER RACK.
A A	CABLE TRAY BELOW ACCESSIBLE FLOOR.
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
DF	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, DRINKING FOUNTAIN: CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE MECHANICAL/PLUMBING SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.
IG	RECEPTACLE, DUPLEX, ISOLATED GROUND: NEMA 5-20R.
W	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
	RECEPTACLE, DUPLEX ON EMERGENCY POWER: NEMA 5-20R.
	RECEPTACLE, DUPLEX, CONNECTED TO UPS: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
	RECEPTACLE, SPECIAL PURPOSE ON EMERGENCY POWER. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PT#	FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
D	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $3	SWITCH, THREE-WAY ("x" INDICATES FIXTURES CONTROLLED).
X $4	SWITCH, FOUR-WAY ("x" INDICATES FIXTURES CONTROLLED).
$V	SWITCH, VANDAL PROOF.
$K	SWITCH, KEY OPERATED.
$T	SWITCH, TIMER OPERATED.
$WP	SWITCH, WEATHERPROOF.
T	RECEPTACLE, DUPLEX, TAMPER RESISTANT: NEMA 5-20R.
V	RECEPTACLE DUPLEX, VANDAL PROOF: NEMA 5-20R.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
SITE ELECTRICAL AND COMMUNICATIONS UTILITIES	
— 3ØUP —	ELECTRIC LINE: THIN LINE. 1Ø = SINGLE PHASE, 2Ø = 2-PHASE, 3Ø = 3-PHASE, O = OVERHEAD, U = UNDERGROUND, P = PRIMARY, S = SECONDARY
	UTILITY POLE.
C	UTILITY, COMMUNICATIONS MANHOLE.
E	UTILITY, ELECTRICAL MANHOLE.
T	TRANSFORMER.
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).
	STARTER (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
GFP	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE-LINE DIAGRAM).
	MOTOR.
	HEATER, ELECTRIC RESISTANCE.
	TRANSFORMER (ONE-LINE DIAGRAM).
	TRANSFORMER, CURRENT (ONE-LINE DIAGRAM).
	DELTA CONNECTION (ONE-LINE DIAGRAM).
	WYE CONNECTION (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H" 60/3	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).
225/3 "1H" 25/3	PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).
	TRANSFER SWITCH (ONE-LINE DIAGRAM).
DMM	DIGITAL MULTIMETER (ONE-LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE-LINE DIAGRAM).
G	GENERATOR, ANNUNCIATOR (ONE-LINE DIAGRAM).
G	GENERATOR, POWER (ONE-LINE DIAGRAM).
M	METER.
VFC / VFD	VARIABLE FREQUENCY MOTOR CONTROLLER (ONE-LINE DIAGRAM).
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PUSHBUTTONS, MOTOR CONTROL.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#__	DISTRIBUTION PANEL OR SWITCHBOARD.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.
	LIGHTING CONTROL STATION.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
75	TRANSFORMER: NUMBER INDICATES kVA.
	RELAY CONTACT, NORMALLY CLOSED (ONE-LINE DIAGRAM).
	RELAY CONTACT, NORMALLY OPEN (ONE-LINE DIAGRAM).
	SWITCH, MULTIPOSITION (ONE-LINE DIAGRAM).
	SWITCH, SINGLE BREAK (ONE-LINE DIAGRAM).
HC	ACCESSIBLE DOOR ENTRY PUSH PLATE OPERATOR.
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
NL	NIGHT LIGHT: DO NOT SWITCH.
	EGRESS DIRECTION ARROW.
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, WALL.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
U	OCCUPANCY SENSOR, ULTRASONIC, OMNI-DIRECTIONAL, CEILING.
P	PHOTOCELL.
STRUCTURED CABLING	
X	TELEPHONE, WALL MOUNTED ("X" INDICATES QUANTITY OF CABLES).
W	TELEPHONE, WALL MOUNTED: WALL PHONE.
X	OUTLET, DATA COMMUNICATION ("X" INDICATES QUANTITY OF CABLES).
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
FPS	FIRE ALARM NOTIFICATION POWER SUPPLY.
FTR	FIRE ALARM TRANSPONDER OR TRANSMITTER.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
P	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	MAGNETIC DOOR HOLDER.
	DETECTOR, SMOKE.
BR	DETECTOR, SMOKE, BEAM RECEIVER.
BT	DETECTOR, SMOKE, BEAM TRANSMITTER.
T	DETECTOR, SMOKE, TAMPER / VANDAL RESISTANT.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
E	SPEAKER, EVACUATION.
E	SPEAKER, EVACUATION, COMBINATION STROBE.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE: TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
SD	SMOKE DAMPER.
FSD	FIRE AND SMOKE DAMPER.
75	ALARM, SPEAKER/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75 T	ALARM / SPEAKER, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING. TAMPER / VANDAL RESISTANT.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
CCTV	
01 P	CCTV CABLE, POWER.
02 V	CCTV CABLE, VIDEO SIGNAL.
03 CCTV	CCTV HEADEND EQUIPMENT.
04 M	CCTV MONITOR.
05	CCTV CAMERA/ENCLOSURE WITH LENS, TYPICAL. SEE SCHEDULE.
06 PTZ	CCTV CAMERA WITH PAN, TILT AND ZOOM.
07 360°	PANNING CAMERA TRANSVERSE ANGLE.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
SECURITY	
01	SECURITY CABLE. SEE EQUIPMENT SCHEDULE FOR CABLE TYPE.
05 #1	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE.
06 CR	CARD READER.
09 ER	EXIT REQUEST.
10 RL	REMOTE DOOR RELEASE BUTTON.
11	BELL.
18 IC	INTERCOM STATION.
21 P	PANIC DURESS SWITCH.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE	MAX	MAXIMUM
1PH	SINGLE-PHASE	MC	METAL CLAD
4W	FOUR-WIRE	MCA	MINIMUM CIRCUIT AMPS
A	ABOVE COUNTER	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICANS WITH DISABILITIES ACT	MCP	MOTOR CIRCUIT PROTECTION
ADJ	ADJACENT	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
AIC	AMPERE INTERRUPTING CAPACITY	MOCP	MAXIMUM OVERCURRENT PROTECTION
ALUM	ALUMINUM	NA	NOT APPLICABLE
AMP	AMPERE	NC	NORMALLY CLOSED
ANN	ANNUNCIATOR	NEC	NATIONAL ELECTRICAL CODE
AP	ACCESS POINT (WIRELESS DATA)	NEMA	NATIOANL ELECTRICAL MANUFACTURERS ASSOCIATION
AR	AS REQUIRED	NFC	NATIONAL FIRE CODE
ASC	AMPS SHORT CIRCUIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
ATS	AUTOMATIC TRANSFER SWITCH	NIC	NOT IN CONTRACT
AV	AUDIO VISUAL	NL	NIGHT LIGHT
AWG	AMERICAN WIRE GAGE	NO	NORMALLY OPEN
C	CEILING MOUNTED	NTS	NOT TO SCALE
CB	CIRCUIT BREAKER	OC	ON CENTER
CCTV	CLOSED CIRCUIT TELEVISION	OCP	OVER CURRENT PROTECTION
CKT	CIRCUIT	OFP	OBTAIN FROM PLANS
CND	CONDUIT	OH DR	OVERHEAD (COILING) DOOR
CO	CONVENIENCE OUTLET	OL	OVERLOAD
CT	CURRENT TRANSFORMER	PB	PUSHBUTTON
CU	COPPER	PF	POWER FACTOR
EA	EACH	PH	PHASE
EM	EMERGENCY	PNL	PANEL
EMT	ELECTRICAL METALLIC TUBING	PT	POTENTIAL TRANSFORMER
EQUIP	EQUIPMENT	PTZ	PAN/TILT/ZOOM
EX	EXISTING	QTY	QUANTITY
F	FURNITURE MOUNTED	RCP	REFLECTED CEILING PLAN
FA	FIRE ALARM	RMC	RIGID METAL CONDUIT
FLA	FULL LOAD AMPS	RNC	RIGID NONMETAL CONDUIT
FVNR	FULL VOLTAGE NON-REVERSING	RPM	REVOLUTIONS PER MINUTE
G	GROUND	S/S	START/STOP
GEN	GENERATOR	SCA	SHORT CIRCUIT AMPS
GFCI	GROUND FAULT INTERRUPTER	SF	SQUARE FOOT (FEET)
GFP	GROUND FAULT PROTECTION	SPEC	SPECIFICATION
HD	HEAVY DUTY	SPST	SINGLE POLE, SINGLE THROW
HID	HIGH INTENSITY DISCHARGE	SWBD	SWITCHBOARD
HOA	HAND-OFF-AUTOMATIC	SWGR	SWITCHGEAR
HP	HORSE POWER	TL	TWIST LOCK
HPF	HIGH POWER FACTOR	TP	TELEPHONE POLE
HPS	HIGH PRESSURE SODIUM	TP	TWISTED PAIR
HV	HIGH VOLTAGE	TTB	TELEPHONE TERMINAL BOARD
I/O	INPUT/ OUTPUT	TV	TELEVISION
IG	ISOLATED GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
IMC	INTERMEDIATE METAL CONDUIT	TYP	TYPICAL
IN/IS	INSULATED/ ISOLATED	UF	UNDERFLOOR
IR	INFRARED	UGND	UNDERGROUND
J-BOX	JUNCTION BOX	UPS	UNINTERRUPTIBLE POWER SUPPLY
kVA	KILOVOLT AMPERE	V	VOLTS
kW	KILOWATT	VA	VOLT AMPERE
kWh	KILOWATT HOUR	VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
LED	LIGHT EMITTING DIODE	W/	WITH
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT	W/O	WITHOUT
LRA	LOCKED ROTOR AMPS	WP	WEATHERPROOF
LTG	LIGHTING	XFMR	TRANSFORMER
LV	LOW VOLTAGE		

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

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ES102	SITE ELECTRICAL PLAN
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EJ105	LEVEL 5 AUDIO VIDEO ROUGH-IN FLOOR PLAN
EJ111A	LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A
EJ111B	LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B
EJ112A	LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A
EJ112B	LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B
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EJ114	LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN
EJ114alt	LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN-ALT
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EJ601	AV ROUGH IN RISER AND SCHEDULE
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FA101A	LEVEL 1 FIRE ALARM PLAN - AREA A
FA101B	LEVEL 1 FIRE ALARM PLAN - AREA B
FA102A	LEVEL 2 FIRE ALARM PLAN - AREA A
FA102B	LEVEL 2 FIRE ALARM PLAN - AREA B
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FA104	LEVEL 4 FIRE ALARM PLAN
FA104alt	LEVEL 4 FIRE ALARM PLAN ALT.
FA105	LEVEL 5 FIRE ALARM PLAN
FA106	ROOF FIRE ALARM PLAN
FA601	FIRE ALARM RISER

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
   - A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
   - B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
   - C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.

4. SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

SITE COORDINATION

THE LOCATION, CAPACITY, AND VOLTAGE OF THE LINES ARE ALL IN ACCORDANCE WITH DATA GIVEN THIS OFFICE BY THE UTILITY COMPANY. COORDINATE WITH THE LOCAL UTILITY COMPANY FOR THE INSTALLATION OF THE ELECTRICAL SERVICE. COMPLY WITH UTILITY REGULATIONS. REPORT DISCREPANCIES TO THE ENGINEER.

ELECTRIC UTILITY

ROCKY MOUNTAIN POWER — PERSON CONTACTED: RYAN COOK; PHONE NUMBER: 801-629-4431

TELEPHONE UTILITY

CENTURY LINK — PERSON CONTACTED: JASON LIBERT; PHONE NUMBER: 801-626-5118

CABLE UTILITY

COMCAST — PERSON CONTACTED: DAVID MASCARENAS; PHONE NUMBER: 801-401-3020

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
Phone: (801) 575-8800
Fax: (801) 531-9850
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No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse
Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev # Date Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES

EE001

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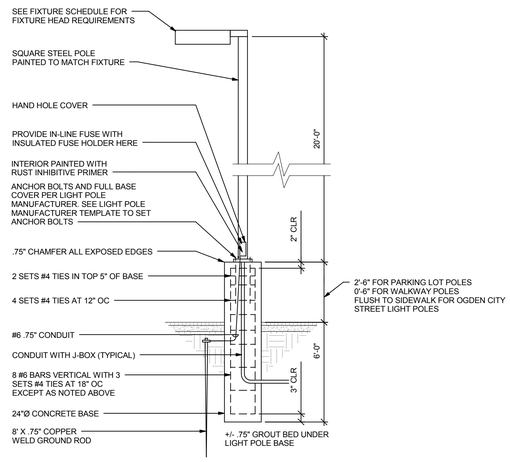

D2 PARKING LOT LIGHT POLE BASE DETAIL
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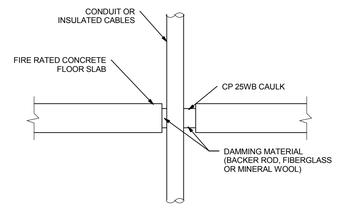
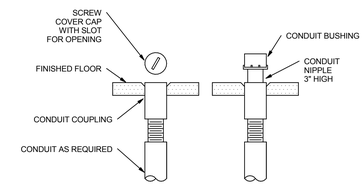
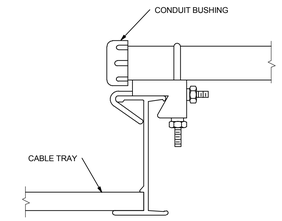


D4 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE FLOORING
SCALE: NTS



E5 CONDUIT IN FLOOR SLAB DETAIL
SCALE: NTS



E6 CONDUIT TO TRAY ADAPTER
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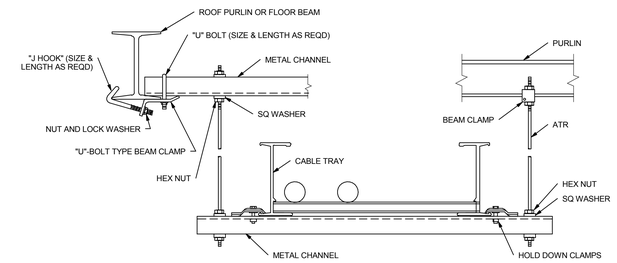
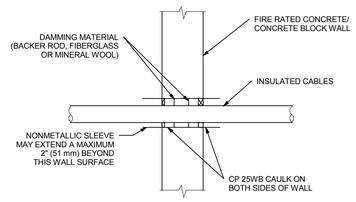
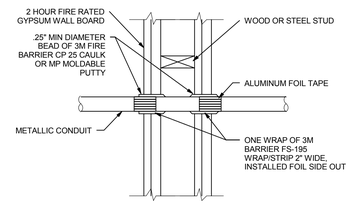


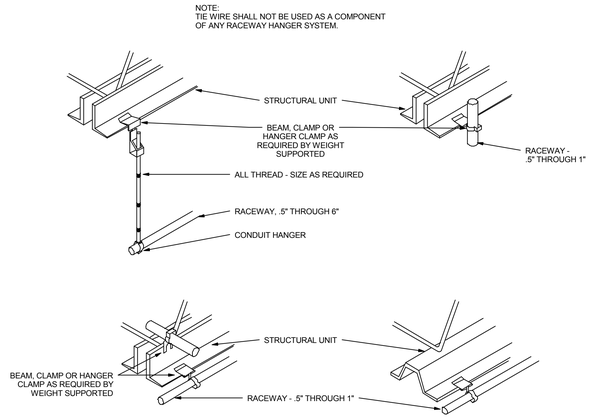
D5 TYPICAL INDOOR CABLE TRAY MOUNTING DETAIL
SCALE: NTS



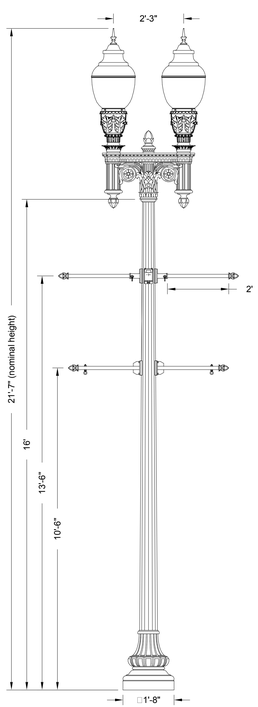
C4 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE WALLS
SCALE: NTS



B4 FIRE STOP FOR METAL CONDUIT THROUGH GYPSUM WALL BOARD
SCALE: NTS



B5 TYPICAL RACEWAY SUPPORT METHODS DETAIL
SCALE: NTS



Specifications

POST DESCRIPTION
The lighting post shall be cast iron and steel construction(joining bolts will be upgraded to 3/4"), massively tapered with a deep, 16-flute steel shaft and a classic 16-flute cast iron base. The shaft and base shall be joined together at the factory and shipped as one piece. Slip over, clam-shell or other multiple piece post designs are not acceptable. The post shall be Holophanes' catalog number C17(16)20-CIS/BKH-T(3X9). Two 24" bolt on banner arms, two 24" planter banner arms and a duplex receptacle with small while in-use weatherproof cover. A Washington series crossarm will mount atop the post.

MATERIALS
The post base material shall be ASTM A48 Class 30 cast iron, formed true to the pattern with complete detail. The shaft shall be tapered and fluted steel with an integral steel tenon and steel bottom cap. All exposed hardware shall be tamper resistant stainless steel. Anchor bolts to be completely hot dip galvanized. Partially galvanized bolts are not acceptable.

CONSTRUCTION
The cast shaft shall be circumferentially welded to the base casting and shipped as one piece for maximum structural integrity. All exposed welds below 8' shall be ground smooth. All welding shall be per ANSI/AWS D1.2-90. All welders shall be certified per Section 5 of ANSI/AWS D1.2-90.

DIMENSIONS
The post shall be 16'- 0" in height with a 20" diameter base. The post shall taper from a 7" at the top of the base. An integral □3" by 9" tall tenon shall be provided at the top for arm mounting. The post top shall include a transitional donut between the fluted shaft and the tenon.

INSTALLATION
The one-piece post shall be provided with four 3/4" diameter, hot dip galvanized L-type anchor bolts to be installed on a 15" bolt circle. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

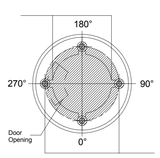
LUMINAIRE DESCRIPTION
- Enhanced Washington Postlite
- 250 Watt Metal Halide (Mogul), 120 Volt
- Black Finish
- Asymmetric Type III Glass Optics
- Spike Finial(Black)
- Twistlock Photocontrol Receptacle
- Perforated Uplight Shield
- 20" of Prewired Leads

For complete specifications see Ub-3811

Accesory Mounting Detail

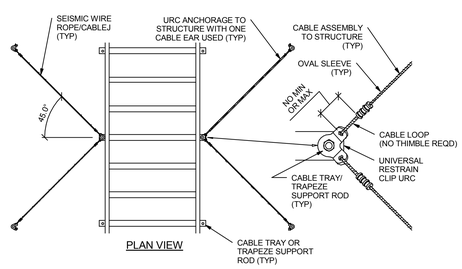
	Orientation	Height
(2)BAD24H4B	90° & 270°	13'-6"
FGIUS-SBKH	0°	13'-6"
(2)PBA24A/1/BO-EBXX-CA/BKH	90° & 270°	9'-6"

Anchorage Detail

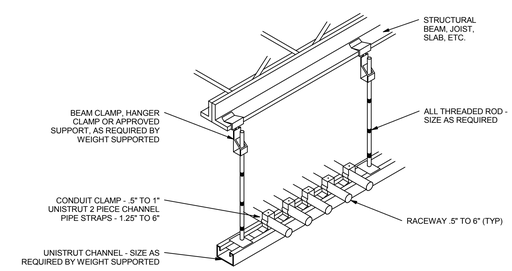


Catalog #'s:
C17(16)/20-CIS/BKH-T(3X9)-MOD-(3/4" JOINING BOLTS) - FGIUS-SBKH - (2)BAD24A4B - (2)PBA24A/1/BO-EBXX-CA/BKH - WTA-CA/BKH - (2)(AOL-354)WE250MH12B3B4 H-UPLIGHT SHIELD-LEADS

A1 OGDEN CITY - STANDARD STREET POLE LIGHT
SCALE: NTS



A3 SEISMIC WIRE ROPE/CABLEJ BRACING
SCALE: NTS



A5 TYPICAL CONDUIT RACK DETAIL
SCALE: NTS

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

DETAILS

EE501

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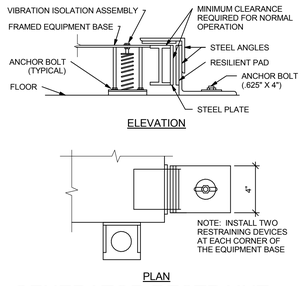

D3 GENERATOR RESTRAINT DETAIL
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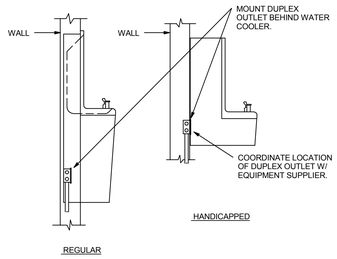

D4 ELECTRIC WATER COOLER DETAIL
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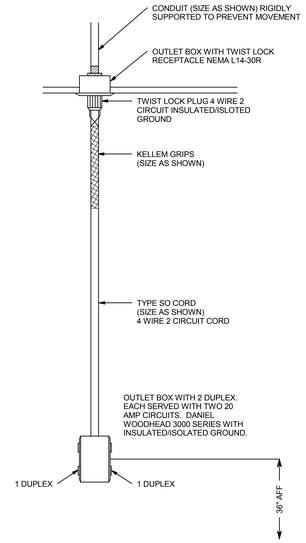
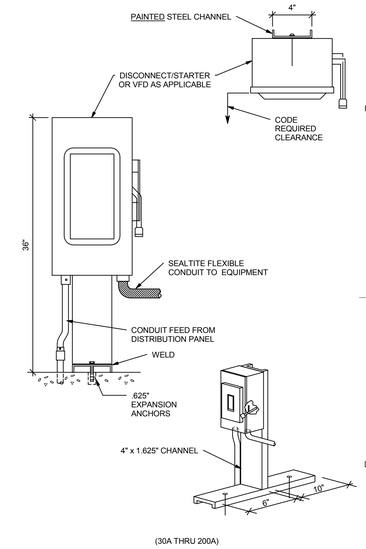
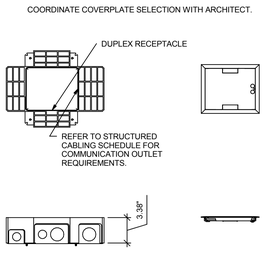


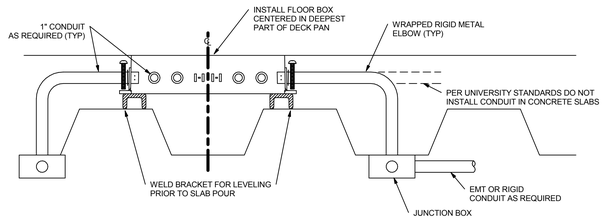
D5 DROP CORD DETAIL (WITH OUTLET BOX)
SCALE: NTS



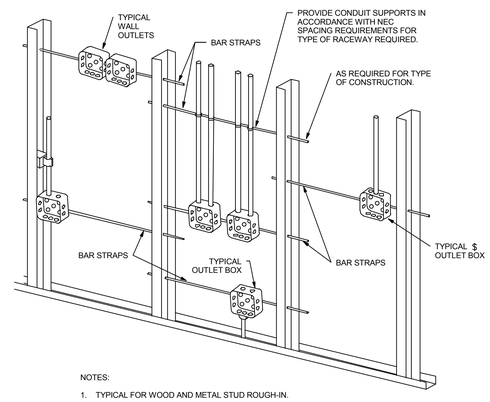
D6 REMOTE DISCONNECT/STARTER
SCALE: NTS



C2 FLOOR BOX #4
SCALE: NTS



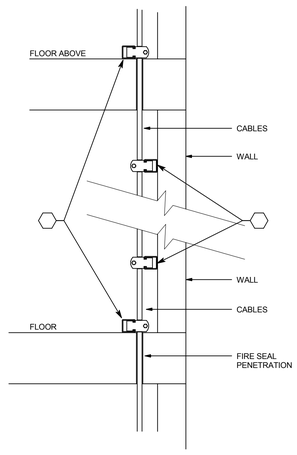
C3 TYPICAL FLOOR BOX IN CONCRETE SLAB
SCALE: NTS



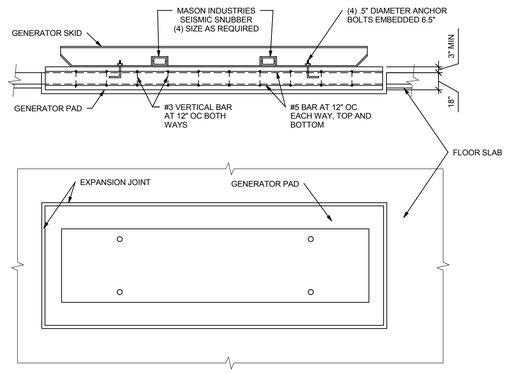
NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 711.3.2 EXCEPTION 1, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUN OF 24" HORIZONTAL DISTANCE.
5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

B5 TYPICAL ROUGH-IN REQUIREMENTS DETAIL
SCALE: NTS

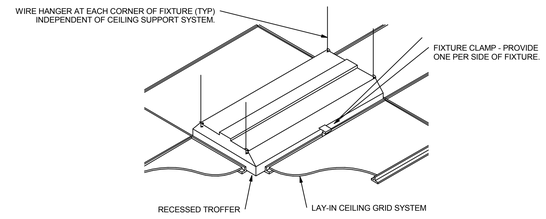


A2 CABLE SUPPORT DETAIL
SCALE: NTS



NOTE:
ELECTRICAL CONTRACTOR SHALL FURNISH GENERAL CONTRACTOR WITH GENERATOR PAD DIMENSIONS SO THAT BLOCK WILL BE MADE FOR GENERATOR PAD. GENERATOR PAD SHALL BE SEPARATE FROM BUILDING FLOOR SLAB TO PROVIDE PROPER VIBRATION ISOLATION.

A3 GENERATOR PAD DETAIL
SCALE: NTS



A5 RECESSED FIXTURE MOUNTING DETAIL
SCALE: NTS

VCBO ARCHITECTURE
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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse
Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

DETAILS

EE502

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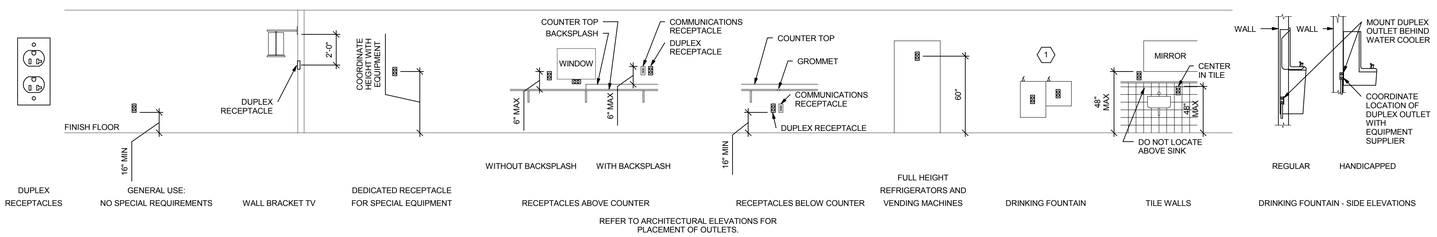
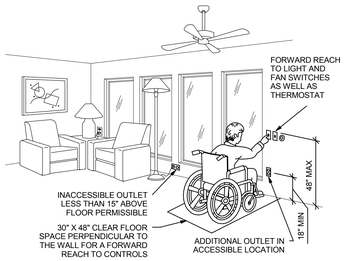
BOXES ON OPPOSITE SIDES OF WALL

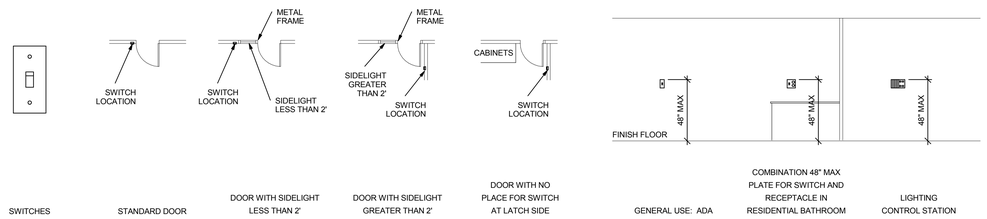
E5 BOX MOUNTING DETAILS
SCALE: NTS



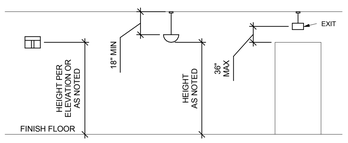
D1 RECEPTACLE MOUNTING DETAILS
SCALE: NTS



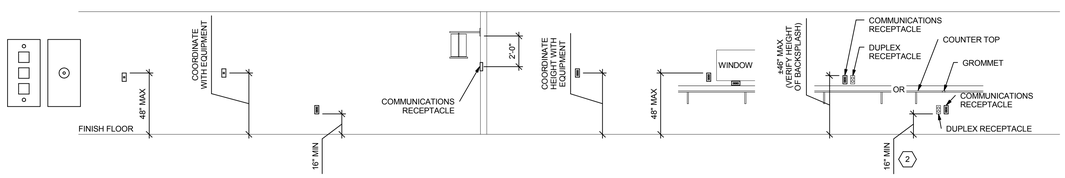
C1 ADA DETAIL
SCALE: NTS



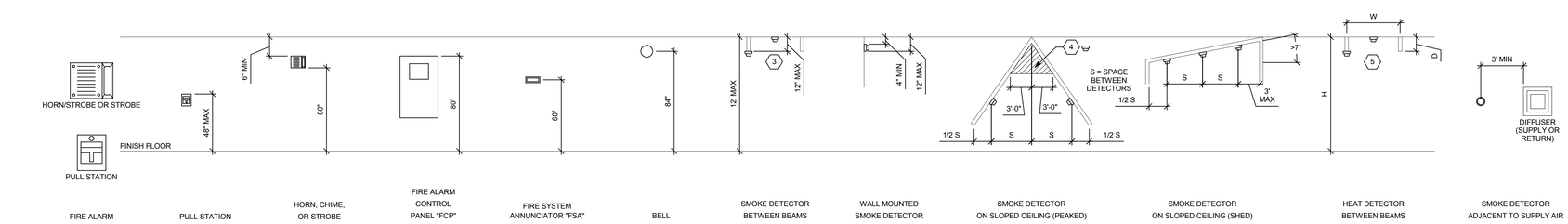
C2 SWITCH MOUNTING DETAILS
SCALE: NTS



B1 LIGHTING MOUNTING DETAILS
SCALE: NTS



B2 COMMUNICATIONS MOUNTING DETAILS
SCALE: NTS



A1 FIRE ALARM MOUNTING DETAILS
SCALE: NTS

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIREING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.

SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

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TYPICAL MOUNTING HEIGHT DETAILS

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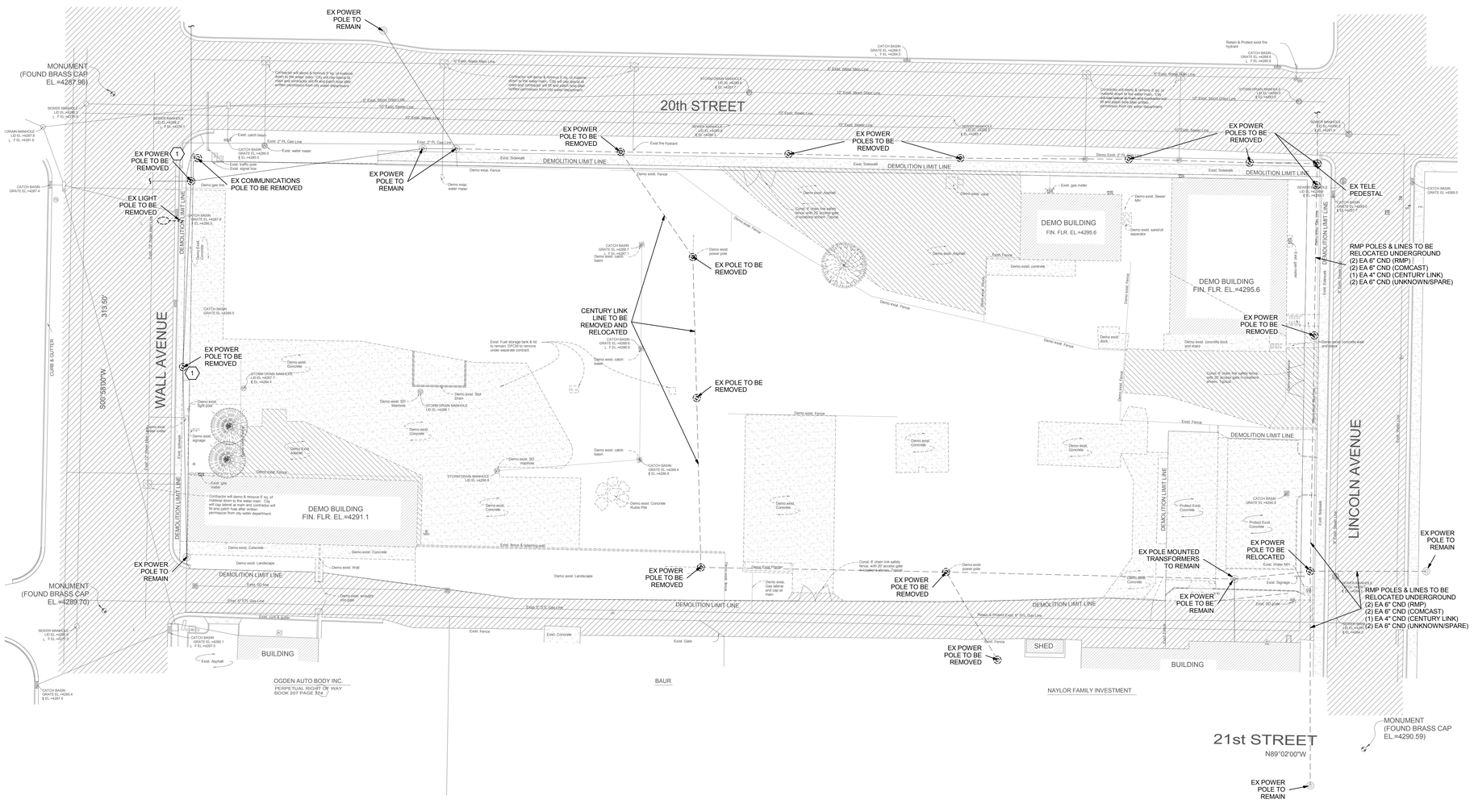

1 SITE DEMOLITION PLAN

SCALE: 1" = 30'-0"

GENERAL SHEET NOTES

1. COORDINATE ALL DEMOLITION WITH ROCKY MOUNTAIN POWER, CENTURYLINK, COMCAST AND ANY OTHER OVERHEAD UTILITY PRIOR TO ANY DEMOLITION WORK.
2. FINAL REMOVAL OF ALL EXISTING UTILITY POLES WILL BE DONE BY ROCKY MOUNTAIN POWER OR CENTURYLINK. CONTRACTOR IS RESPONSIBLE FOR COORDINATION BETWEEN ALL DRY UTILITIES.

SHEET KEYNOTES

1 COORDINATE EXACT LOCATION OF RELOCATED POWER POLE WITH ARCHITECT AND RMP.

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SITE DEMOLITION PLAN

ES101

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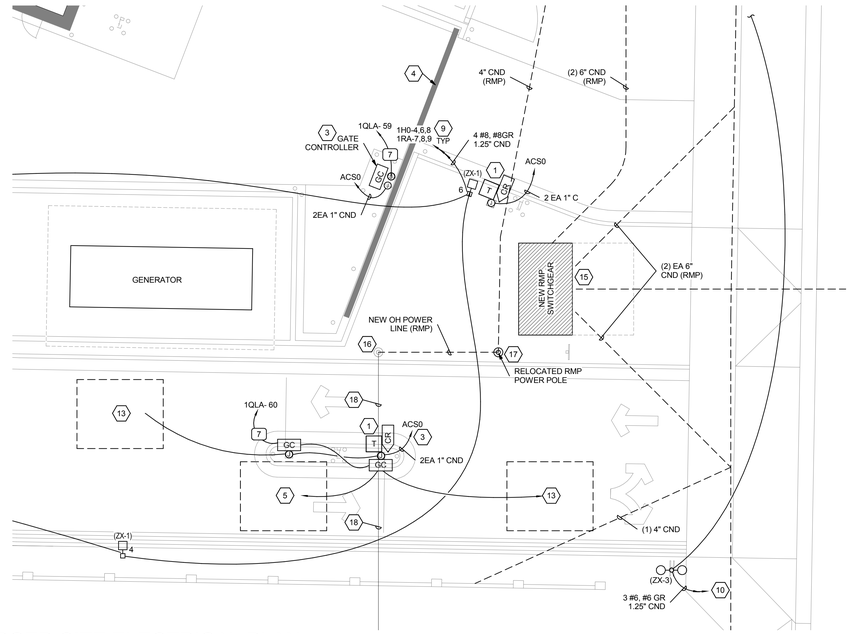
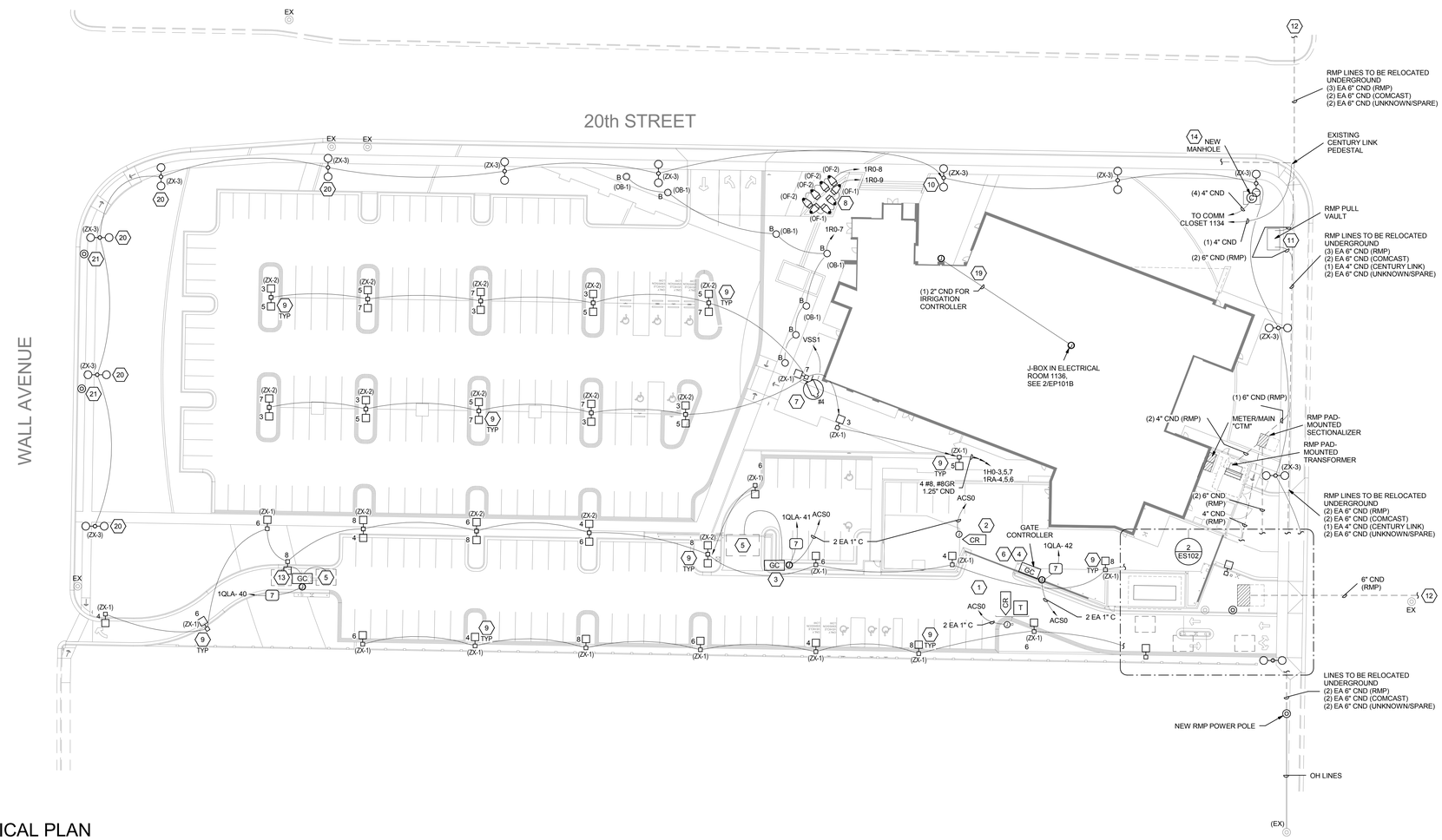


2 ENLARGED SITE ELECTRICAL PLAN

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



1 SITE ELECTRICAL PLAN

SCALE: 1" = 30'-0"

GENERAL SHEET NOTES

1 ALL SITE LIGHTING CIRCUITING SHALL BE RUN IN A MINIMUM 1.25" CND.

2 PROVIDE MINIMUM #8 AWG WIRE SIZE FOR PHASE. NEUTRAL AND GROUND CONDUCTORS.

SHEET KEYNOTES

1 MOUNT CARD READER AND INTERCOM ON A PEDESTAL TO COINCIDE WITH VEHICLE DRIVE SIDE.

2 MOUNT CARD READER ON FENCE CONSTRUCTION. INTENDED FOR WALK-UP ACTIVATION.

3 PROVIDE CONDUITS (AS NOTED) FROM GATE CONTROLLER TO THE FIRST LEVEL COMM ROOM (ACS0).

4 THIS GATE SHALL BE INTERLOCKED WITH THE VEHICLE SALLYPORT MAIN DOORS AND OVERHEAD DOORS. SEE INTERLOCKED LIST ON EY101B.

5 PROVIDE DETECTION LOOP IN PAVEMENT FOR REQUEST TO EXIT PER GATE MANUFACTURER'S REQUIREMENTS.

6 THIS GATE SHALL BE PROGRAMMED FOR TIMED CLOSING IN ADDITION TO MANUAL OPERATION FROM CENTRAL CONTROL.

7 MOUNT PTZ CAMERA TO LIGHT POLE AT 12' FEET AFF. PROVIDE 1 EA 1" CONDUIT TO DESTINATION AS NOTED.

8 COORDINATE WITH LANDSCAPE.

9 RUN ALL CIRCUITS TO EVERY LIGHT POLE.

10 CIRCUIT OGDEN CITY STANDARD STREETLIGHTS DIRECTLY TO ROCKY MOUNTAIN POWER TRANSFORMER. COORDINATE EXACT LOCATION AND CONNECTIONS WITH ROCKY MOUNTAIN POWER AND OGDEN CITY.

11 NEW ROCKY MOUNTAIN POWER UNDERGROUND PULL VAULT. PROVIDE AMCOR GV601 (STOCK ITEM #7992597). COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS AND ROCKY MOUNTAIN POWER PRIOR TO INSTALLATION.

12 ROUTE CONDUITS TO NEXT EXISTING ROCKY MOUNTAIN POWER UTILITY POLE. COORDINATE EXACT TERMINATION LOCATION WITH UTILITY.

13 PROVIDE DETECTION LOOP IN PAVEMENT FOR "CLOSE THE GATE" FUNCTION PER GATE MANUFACTURER'S REQUIREMENTS.

14 PROVIDE 6'X8'X7' DEEP MANHOLE FOR TELECOMM SERVICE.

15 NEW ROCKY MOUNTAIN POWER PAD-MOUNTED SWITCHGEAR. PROVIDE AMCOR GV403 (STOCK ITEM #7992788) SWITCH VAULT. COORDINATE EXACT LOCATION WITH ROCKY MOUNTAIN POWER.

16 EXISTING RMP POLE AND XFMRS TO REMAIN.

17 COORDINATE EXACT LOCATION OF RELOCATED POWER POLE WITH ARCHITECT AND RMP.

18 EXISTING OVERHEAD FEED TO EXISTING BUILDING TO REMAIN.

19 STUB AND CAP CONDUIT 24" BELOW GRADE FOR IRRIGATION CONTROL WIRING.

20 COORDINATE EXACT LOCATION OF LIGHT POLE WITH RMP TO MEET REQUIRED POWER LINE CLEARANCE. REPORT ANY DISCREPANCIES IN PLANS TO ENGINEER.

21 CONTRACTOR SHALL COORDINATE WITH ROCKY MOUNTAIN POWER TO RELOCATE POLES AS INDICATED ALONG WALL AVENUE.

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SITE ELECTRICAL PLAN

ES102

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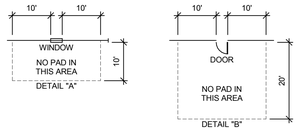
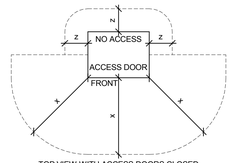




TOP VIEW WITH ACCESS DOORS CLOSED
DETAIL "C"

CLEARANCE GENERAL NOTES:

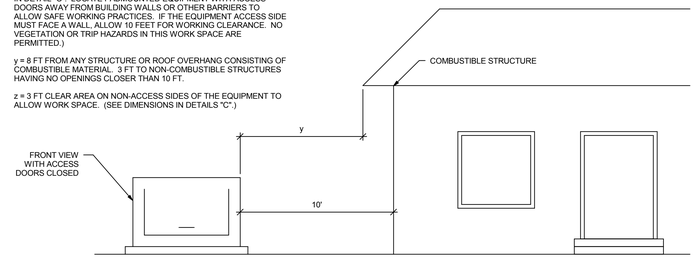
1. CLEARANCES: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 10 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 25 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW. VAULTS SHALL BE LOCATED WITHIN 15 FEET OF A GRAVELED OR PAVED SURFACE SUITABLE FOR INCIDENTAL HEAVY TRUCK ACCESS.
2. BARRIERS: IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) CONTACT ROCKY MOUNTAIN POWER FOR PROTECTIVE BARRIER REQUIREMENTS.
3. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SACKRETE OR COMPARABLE.

MINIMUM DISTANCE REQUIRED FROM PAD:

x = 10 FT. CLEAR AREA IN FRONT OF, ANY EQUIPMENT ACCESS DOOR OR OPENING TO ALLOW THE USE OF HOT STICKS. (SEE DIMENSIONS IN DETAIL "C". LOCATE PADMOUNTED EQUIPMENT WITH ACCESS DOORS AWAY FROM BUILDING WALLS OR OTHER BARRIERS TO ALLOW SAFE WORKING PRACTICES. IF THE EQUIPMENT ACCESS SIDE MUST FACE A WALL, ALLOW 10 FEET FOR WORKING CLEARANCE. NO VEGETATION OR TRIP HAZARDS IN THIS WORK SPACE ARE PERMITTED.)

y = 8 FT FROM ANY STRUCTURE OR ROOF OVERHANG CONSISTING OF COMBUSTIBLE MATERIAL. 3 FT TO NON-COMBUSTIBLE STRUCTURES HAVING NO OPENINGS CLOSER THAN 10 FT.

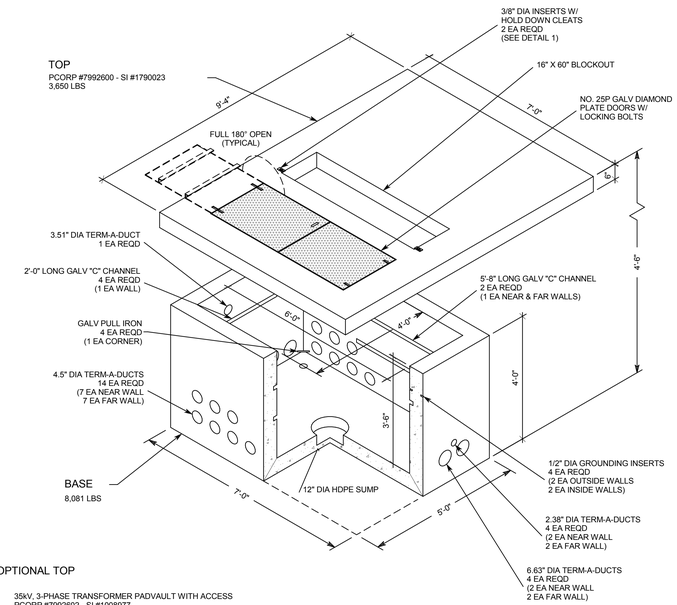
z = 3 FT CLEAR AREA ON NON-ACCESS SIDES OF THE EQUIPMENT TO ALLOW WORK SPACE. (SEE DIMENSIONS IN DETAILS "C".)

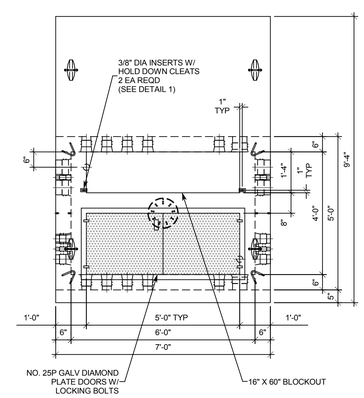


D4 TRANSFORMER CLEARANCE DETAIL

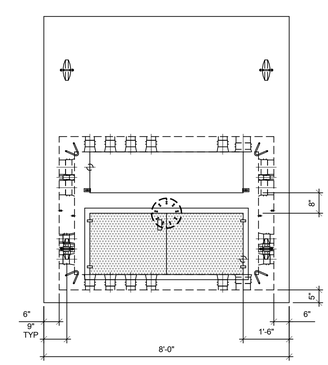
SCALE: NTS

2.4 - 25kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992600-STOCK ITEM 1790023
35kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992602-STOCK ITEM 1008977

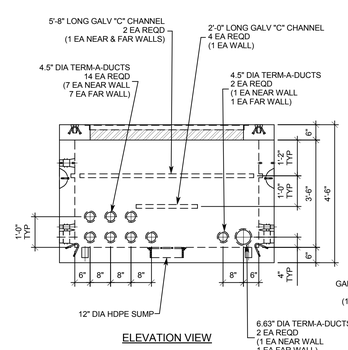




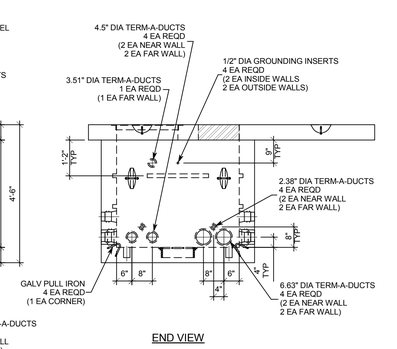
PLAN VIEW
2.4-25 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992600 - SI #1790023



PLAN VIEW
35 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992602 - SI #1008977



ELEVATION VIEW



END VIEW

*LIFTING DEVICE TYPE & LOCATION MAY CHANGE WITHOUT NOTICE.

NOTE: PRIOR TO ORDERING AND INSTALLING THE PADVAULT, SUBMIT PADVAULT TO ROCKY MOUNTAIN POWER FOR APPROVAL AND VERIFICATION, AND COORDINATE EXACT SIZE AND LOCATION OF DUCT OPENINGS WITH ROCKY MOUNTAIN POWER.

A2 THREE-PHASE TRANSFORMER PADVAULT (ROCKY MOUNTAIN POWER STANDARD)

SCALE: NTS

GENERAL SHEET NOTES

1. SCOPE

   THIS MATERIAL SPECIFICATION OUTLINES THE MINIMUM REQUIREMENTS FOR PADVAULTS TO BE USED IN CONJUNCTION WITH PACIFICORP OWNED THREE-PHASE TRANSFORMERS (SEE FIGURE 1). THE MATERIAL SPECIFICATION APPLIES WHETHER THE PADVAULT IS TO BE INSTALLED BY COMPANY PERSONNEL, CONTRACTOR, CUSTOMER, OR THE SUPPLIER.

2. APPLICABLE DOCUMENTS

   THE LATEST REVISIONS OF THE DOCUMENTS, STANDARDS, CODES, AND REQUIREMENTS LISTED IN 2.1, PACIFICORP, AND 2.2, CODES AND STANDARDS, IN EFFECT ON THE DATE OF INVITATION TO BID APPLY TO THE EXTENT SPECIFIED HEREIN.

   2.1 PACIFICORP

   ZG 301 GENERAL EQUIPMENT BASE AND ENCLOSURE REQUIREMENTS
   ZG 311 CONCRETE REQUIREMENTS

   2.2 CODES AND STANDARDS

   WESTERN UNDERGROUND COMMITTEE GUIDE 2.13, SECURITY FOR PADMOUNTED EQUIPMENT ENCLOSURES

   APPLICABLE CODES
   ANSI STANDARDS
   IEEE STANDARDS
   NEMA STANDARDS

3. GENERAL

   3.1 APPLICATION INFORMATION

   THIS MATERIAL SPECIFICATION STATES MATERIAL AND CONSTRUCTION REQUIREMENTS THAT ARE APPLICABLE TO ALL THREE-PHASE TRANSFORMER PADVAULTS.

   3.2 AUTHORIZED MATERIAL SPECIFICATION

   THIS MATERIAL SPECIFICATION IS NOT CONSIDERED VALID UNTIL EACH PAGE CONTAINS THE APPROVAL SIGNATURE OR INITIALS OF THE PERSONS NAMED IN THE TITLE BLOCKS.

4. APPLICABLE STOCK ITEM NUMBERS

   MATERIALS BEING SUBMITTED FOR THE FOLLOWING PACIFICORP STOCK ITEM NUMBERS ARE SUBJECT TO EVALUATION IN ACCORDANCE WITH REQUIREMENTS IN THIS MATERIAL SPECIFICATION.

   1790023, PADVAULT, TRANSFORMER, 3-PHASE, 75-500 KVA
   1790024, PADVAULT, TRANSFORMER, 3-PHASE, 500-2500 KVA

5. PRODUCT AND INSTALLATION REQUIREMENTS

   THE PURPOSE OF A THREE-PHASE TRANSFORMER PADVAULT IS TO SUPPORT A THREE-PHASE TRANSFORMER.

   5.1 PADVAULT LAYOUT

   THE THREE-PHASE TRANSFORMER PADVAULT IS COMPOSED OF TWO PIECES: (1) THE PAD, AND (2) THE ENCLOSURE. UNLESS OTHERWISE APPROVED BY PACIFICORP ENGINEERING, ALL DIMENSIONS AND PLACEMENT OF HARDWARE SHALL CONFORM TO THOSE SHOWN ON THIS SHEET. THE ENCLOSURE IS COMMON TO ALL PADVAULTS COVERED BY THIS MATERIAL SPECIFICATION, ZG 531, PADVAULT-THREE-PHASE SECTIONALIZING CABINET, AND ZG 551, PADVAULT-THREE-PHASE FUSING CABINET.

   5.2 INSERTS

   TWO .375" 16UNC STAINLESS STEEL OR NYLON THREADED INSERTS AND STAINLESS STEEL BOLTS WITH CLEATS FOR MOUNTING THE TRANSFORMER SHALL BE PLACED IN THE PAD AS SHOWN IN FIGURE 2.

   5.3 PULLING ATTACHMENTS

   CABLE PULLING ATTACHMENTS SHALL BE INSTALLED OPPOSITE OF EACH SET OF CONDUIT BREAKOUTS SUCH THAT BLOCKS MAY BE ATTACHED FOR A STRAIGHT CABLE PULL. PULLING ATTACHMENTS SHALL HAVE A MINIMUM PULLOUT STRENGTH OF 6000 POUNDS. ATTACHMENTS SHALL ALLOW THE ATTACHMENT OF A CLEVIS WITH A ONE-INCH DIAMETER THROUGH BOLT. PULLING ATTACHMENTS MAY BE DESIGNED BY THE MANUFACTURER TO MEET THESE REQUIREMENTS.

   5.4 CONDUIT ENTRANCES

   BANKS OF NINE (9) SIX-INCH SQUARE BREAKOUTS SHALL BE USED FOR CONDUIT ENTRANCES. TWO BANKS OF KNOCKOUTS SHALL BE PLACED IN EACH SIDE AND IN EACH END OF THE ENCLOSURE.

   5.5 LIFTING ATTACHMENTS

   ENOUGH LIFTING ATTACHMENTS SHALL BE PROVIDED TO ENSURE SAFE INSTALLATION OF ALL PIECES AT THE SITE.

   5.6 INSTALLATION

   THIS UNIT SHALL BE INSTALLED AT THE SITE BY THE SUPPLIER OR CONTRACTOR. ALL EARTH UNDER THE PADVAULT SHALL BE COMPACTED AND LEVEL PRIOR TO SETTING THE PADVAULT. PROVIDE 6" OF 3/4-INCH-MINUS GRAVEL BACKFILL BASE. THE JOINT BETWEEN THE PAD AND ENCLOSURE SHALL BE SEALED USING TAR OR MASTIC. THE TOP OF THE PAD SHOULD BE TWO TO FOUR INCHES ABOVE FINAL GRADE, WHEN INSTALLED.

6. TESTING

   6.1 TEST COMPLIANCE

   PADVAULTS SUBMITTED UNDER THIS MATERIAL SPECIFICATION SHALL MEET ALL TESTS AND REQUIREMENTS CONTAINED IN ZG 301, GENERAL EQUIPMENT BASE AND ENCLOSURE REQUIREMENTS, ZG 311, CONCRETE REQUIREMENTS, AND THIS MATERIAL SPECIFICATION. PADVAULTS WILL ALSO COMPLY WITH REQUIREMENTS IN APPLICABLE NATIONAL STANDARDS.

   6.2 SECURITY TEST

   TRANSFORMER PADVAULTS MUST BE ABLE TO PASS THE FOLLOWING SECURITY TEST. THE SECURITY TEST IS DESIGNED TO ENSURE THAT PADMOUNT EQUIPMENT, WHICH COMPLIES WITH WESTERN UNDERGROUND COMMITTEE GUIDE 2.13, SECURITY FOR PADMOUNTED EQUIPMENT ENCLOSURES, IS NOT COMPROMISED BY UNEVEN PAD SETTING.

   WITH THE APPROPRIATE TRANSFORMER MOUNTED, ATTEMPT TO PASS A #14 AWG SOFT-DRAWN COPPER WIRE THROUGH THE INTERFACE BETWEEN THE CABINET AND PAD. IF THE WIRE CAN BE PASSED THROUGH, THE PADVAULT HAS FAILED THE TEST AND IS NOT ACCEPTABLE.

7. PROVIDE AMCOR TYPE GV151 PADVAULT OR AS APPROVED OR DIRECTED BY ROCKY MOUNTAIN POWER.

8. SUBMIT PADVAULT TO ROCKY MOUNTAIN POWER FOR APPROVAL PRIOR TO THE PURCHASE AND INSTALLATION OF THE PADVAULT.

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TRANSFORMER AND TRANSFORMER PADVAULT DETAILS

ES501

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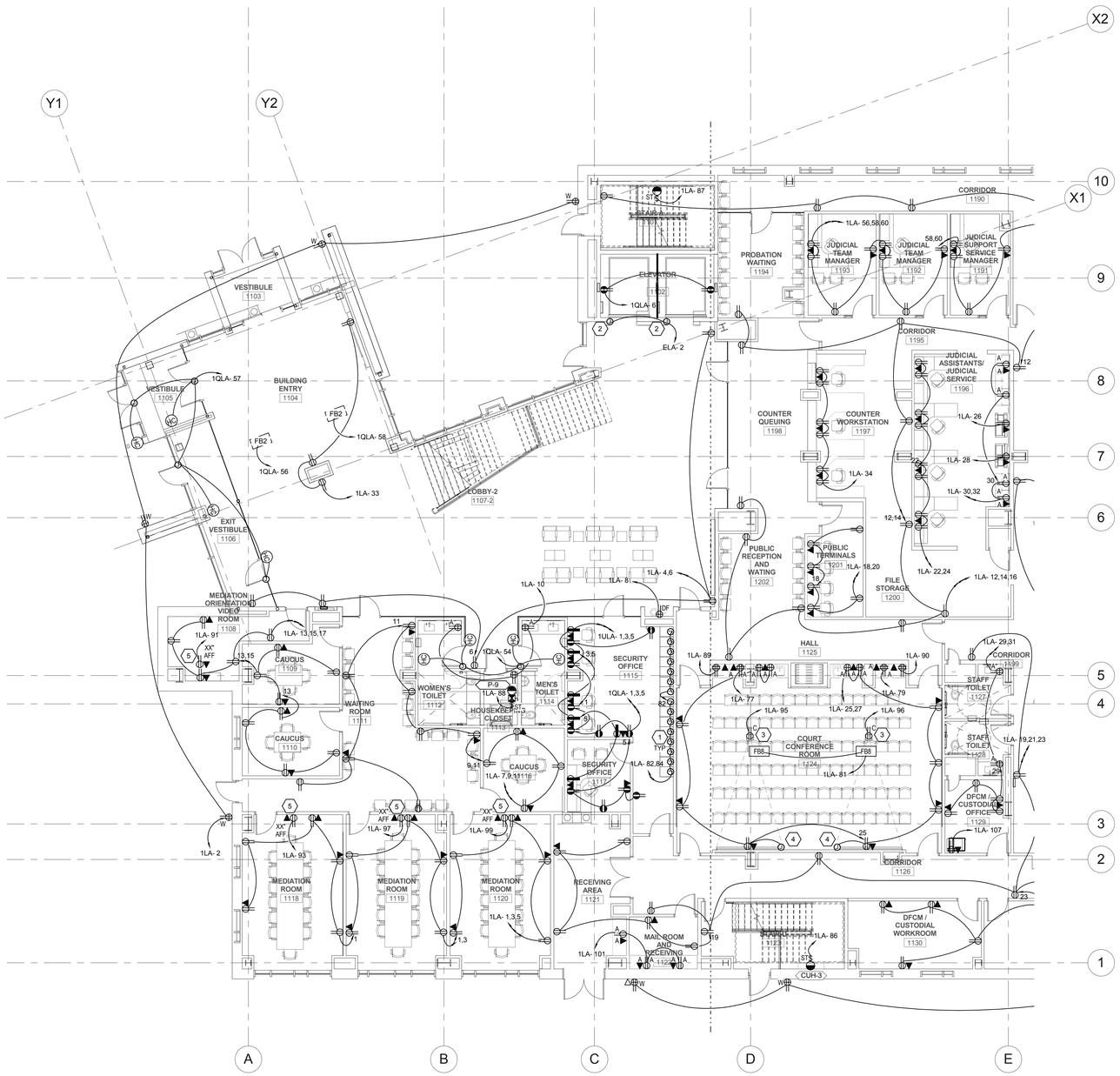

1 LEVEL 1 POWER PLAN - AREA A

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

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO LOCKERS. LOCKERS ARE FURNISED WITH OUTLET(S), WIRING AND CONNECTIONS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
2. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
3. FLUSH CEILING OR WALL OUTLET FOR A/V PROJECTOR, MOUNTED WITHIN 6" OF THE PROJECTOR MOUNTING POLE. COORDINATE EXACT LOCATION OF OUTLET WITH A/V INSTALLER.
4. PROVIDE ELECTRICAL CONNECTION TO MOTORIZED SCREEN WITH ASSOCIATED POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. MOUNT CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT/OWNER.
5. PROVIDE OUTLET MOUNTED IN BOTTOM OF THE BACKBOX OR JUNCTION BOX FOR A/V MONITOR DEPENDING ON ACTUAL FIELD CONDITIONS. COORDINATE WITH ARCHITECTURAL DETAILS AND A/V INSTALLER.

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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Rev #	Date	Description

Job # 12500
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LEVEL 1 POWER PLAN - AREA A

EP101A

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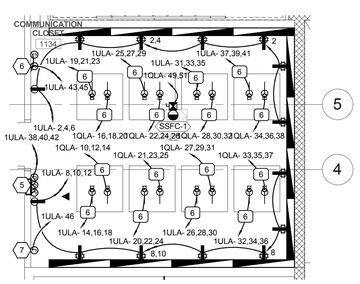
GENERAL SHEET NOTES

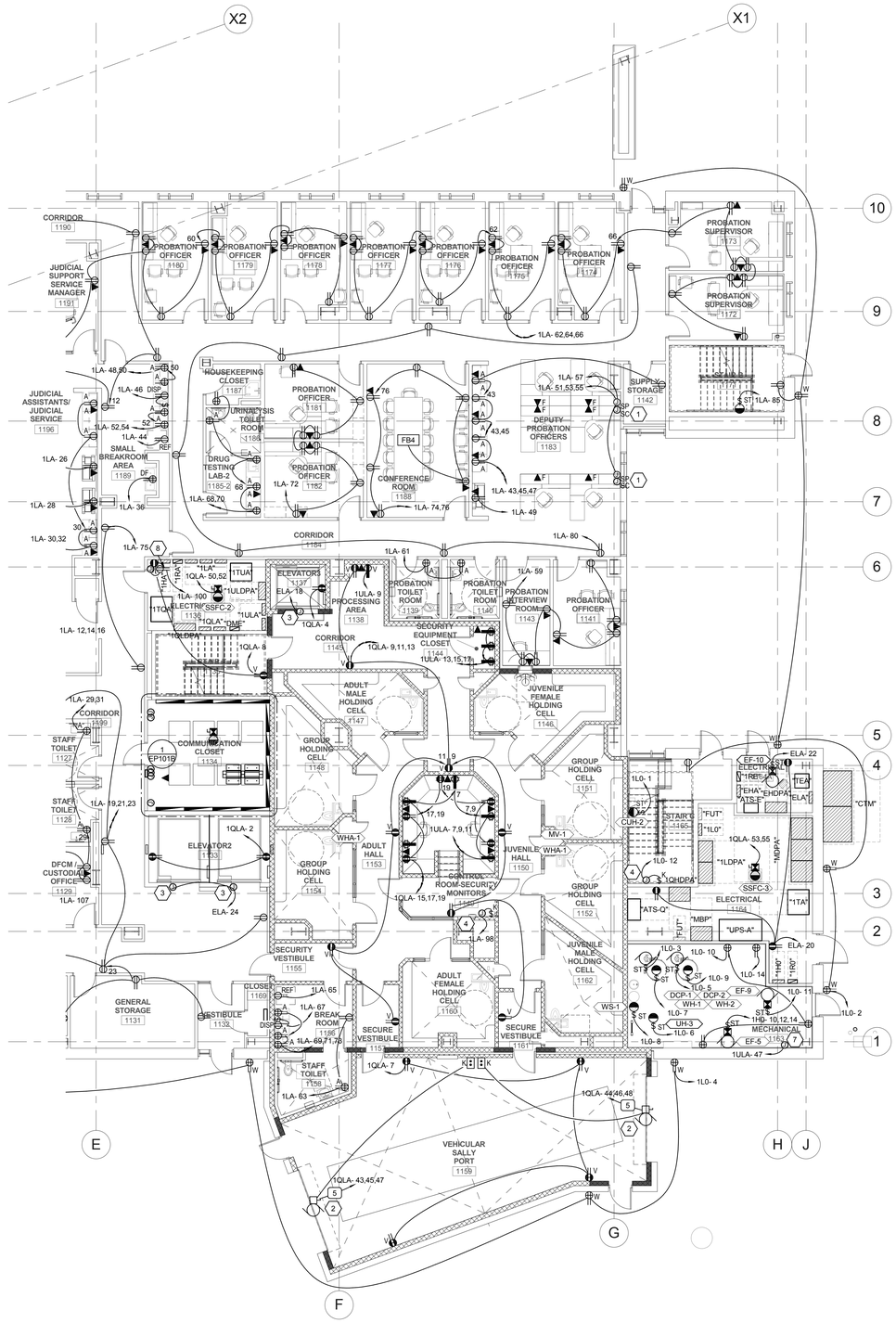
1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 3 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE ITS ASSIGNED CIRCUIT. ACTIVATE ONLY NEEDED CIRCUITS WITHIN FURNITURE.COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
2. PROVIDE ELECTRICAL CONNECTIONS TO MOTORIZED COILING DOOR. PROVIDE WIRING AND CONTROL PER MANUFACTURER'S WRITTEN INSTRUCTIONS. MOUNT SWITCH IN LOCATION AS DIRECTED BY ARCHITECT.
3. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
4. PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
5. PROVIDE CONNECTIONS TO BMS CONTROL TRANSFORMERS ABOVE CEILING. COORDINATE WITH BMS INSTALLER.
6. PROVIDE CONNECTIONS TO SECURITY POWER SUPPLIES AND CONTROL PANELS. COORDINATE WITH SECURITY INSTALLER.
7. PROVIDE CONNECTIONS TO BMS CONTROL PANEL(S). COORDINATE WITH BMS INSTALLER.
8. POWER FOR IRRIGATION CONTROLLER.



1 ENLARGED POWER PLAN - COMM CLOSET 1134
SCALE: 1/4" = 1'-0"



2 LEVEL 1 POWER PLAN - AREA B
SCALE: 1/8" = 1'-0"

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LEVEL 1 POWER PLAN - AREA B

EP101B

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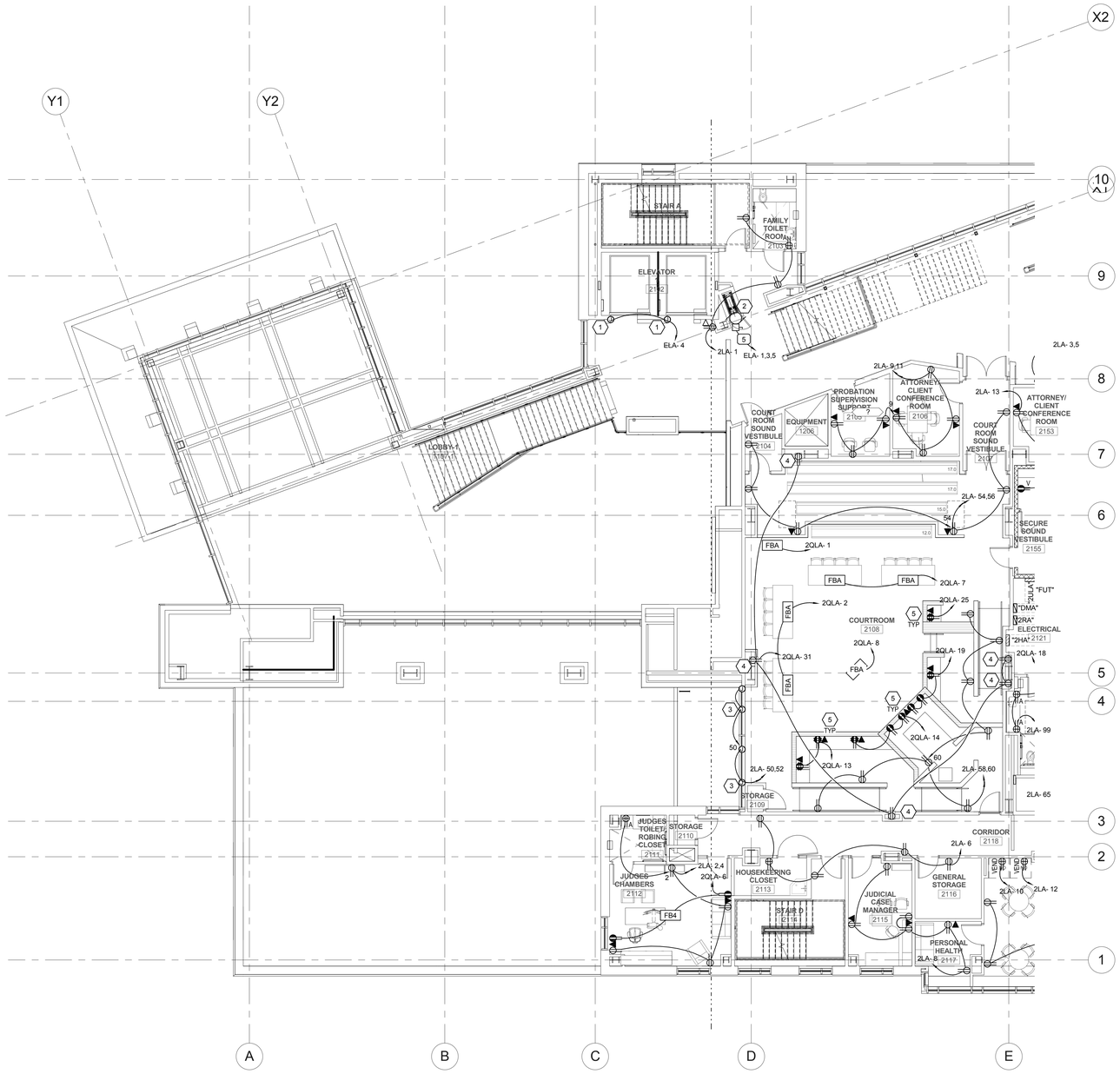

1 LEVEL 2 POWER PLAN - AREA A

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

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
2. PROVIDE ELECTRICAL CONNECTIONS TO WONDOOR WITH CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIFIED ROLLER SHADES, WITH ALL POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE J-BOX AND CONNECTIONS WITH ARCHITECT SUCH THAT J-BOXES AND WIRING ARE CONCEALED FROM VIEW AND ACCESSIBLE. VERIFY CONTROL METHOD AND/OR SWITCH LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO ALL SEPARATE SHADES IN PLAN AND ELEVATION (ALL CONNECTIONS MAY NOT BE SHOWN). COORDINATE CONTROL FROM A/V STYSTEM WITH A/V INSTALLER.
4. ELECTRICAL RECEPTACLES MOUNTED IN SIDE WALLS OF CAMERA POCKETS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. PROVIDE BLACK FACE PLATES.
5. ELECTRICAL RECEPTACLES MOUNTED IN MILLWORK BETWEEN AUDIOVISUAL CONNECTION BOXES. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND AUDIOVISUAL CONNECTION PANEL LOCATIONS.

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LEVEL 2 POWER PLAN - AREA A

EP102A

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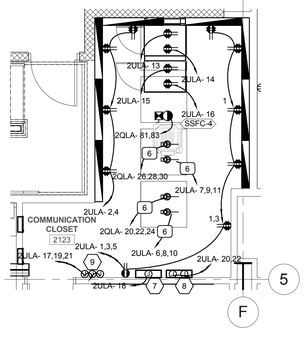
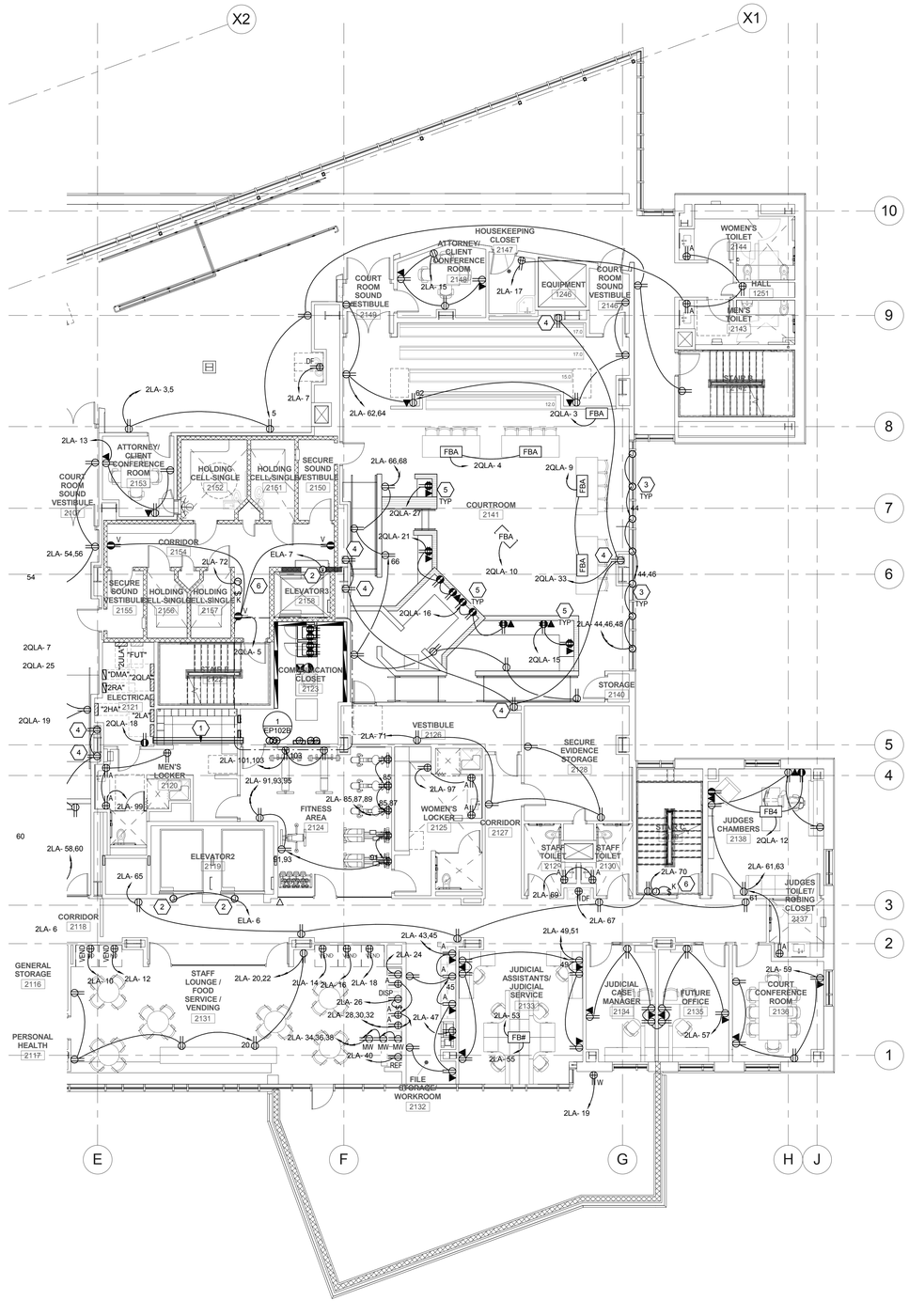


1 ENLARGED POWER PLAN - COMM CLOSET 2123

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



2 LEVEL 2 POWER PLAN - AREA B

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

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. (4) 4" CND UNDERFLOOR FOR POWER PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.
2. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
3. PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIFIED ROLLER SHADES, WITH ALL POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE J-BOX AND CONNECTIONS WITH ARCHITECT SUCH THAT J-BOXES AND WIRING ARE CONCEALED FROM VIEW AND ACCESSIBLE. VERIFY CONTROL METHOD AND/OR SWITCH LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO ALL SEPARATE SHADES IN PLAN AND ELEVATION (ALL CONNECTIONS MAY NOT BE SHOWN). COORDINATE CONTROL FROM A/V STYSTEM WITH A/V INSTALLER.
4. ELECTRICAL RECEPTACLES MOUNTED IN SIDE WALLS OF CAMERA POCKETS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. PROVIDE BLACK FACE PLATES.
5. ELECTRICAL RECEPTACLES MOUNTED IN MILLWORK BETWEEN AUDIOVISUAL CONNECTION BOXES. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND AUDIOVISUAL CONNECTION PANEL LOCATIONS.
6. PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
7. PROVIDE CONNECTIONS TO BMS CONTROL PANEL(S). COORDINATE WITH BMS INSTALLER.
8. PROVIDE CONNECTIONS TO SECURITY POWER SUPPLIES AND CONTROL PANELS. COORDINATE WITH SECURITY INSTALLER.
9. PROVIDE CONNECTIONS TO BMS CONTROL TRANSFORMERS ABOVE CEILING. COORDINATE WITH BMS INSTALLER.

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LEVEL 2 POWER PLAN - AREA B

EP102B

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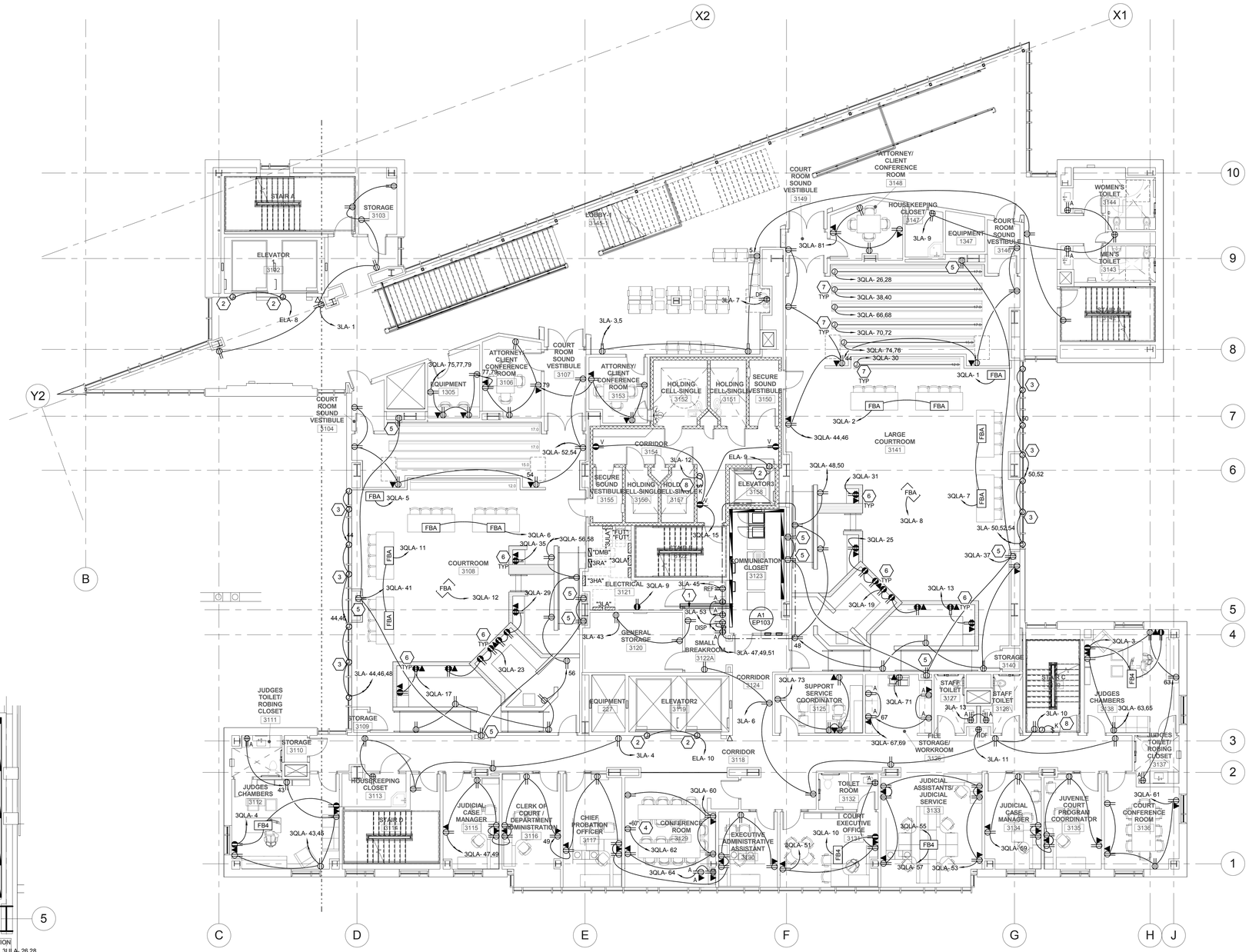

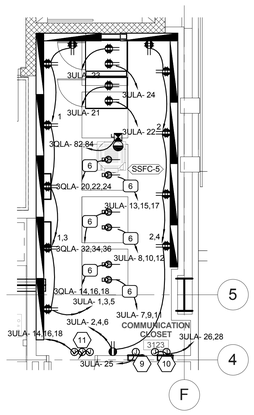

ENLARGED POWER PLAN - COMM CLOSET 3123

A1 SCALE: 1/4" = 1'-0"

LEVEL 3 POWER PLAN

A2 SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. (4) 4" CND UNDERFLOOR FOR POWER PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.
2. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
3. PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIFIED ROLLER SHADES, WITH ALL POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE J-BOX AND CONNECTIONS WITH ARCHITECT SUCH THAT J-BOXES AND WIRING ARE CONCEALED FROM VIEW AND ACCESSIBLE. VERIFY CONTROL METHOD AND/OR SWITCH LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO ALL SEPARATE SHADES IN PLAN AND ELEVATION (ALL CONNECTIONS MAY NOT BE SHOWN). COORDINATE CONTROL FROM A/V STYSTEM WITH A/V INSTALLER.
4. PROVIDE OUTLET MOUNTED IN BOTTOM OF THE BACKBOX OR JUNCTION BOX FOR A/V MONITOR DEPENDING ON ACTUAL FIELD CONDITIONS. COORDINATE WITH ARCHITECTURAL DETAILS AND A/V INSTALLER.
5. ELECTRICAL RECEPTACLES MOUNTED IN SIDE WALLS OF CAMERA POCKETS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. PROVIDE BLACK FACE PLATES.
6. ELECTRICAL RECEPTACLES MOUNTED IN MILLWORK BETWEEN AUDIOVISUAL CONNECTION BOXES. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND AUDIOVISUAL CONNECTION PANEL LOCATIONS.
7. 1-CIRCUIT PLUGMOLD WITH OUTLETS 18" O.C. MOUNTED UNDERNEATH BENCH. COORDINATE WITH ARCHITECTURAL DETAILS AND BENCH INSTALLER.
8. PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
9. PROVIDE CONNECTIONS TO BMS CONTROL PANEL(S). COORDINATE WITH BMS INSTALLER.
10. PROVIDE CONNECTIONS TO SECURITY POWER SUPPLIES AND CONTROL PANELS. COORDINATE WITH SECURITY INSTALLER.
11. PROVIDE CONNECTIONS TO BMS CONTROL TRANSFORMERS ABOVE CEILING. COORDINATE WITH BMS INSTALLER.

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LEVEL 3 POWER PLAN

EP103

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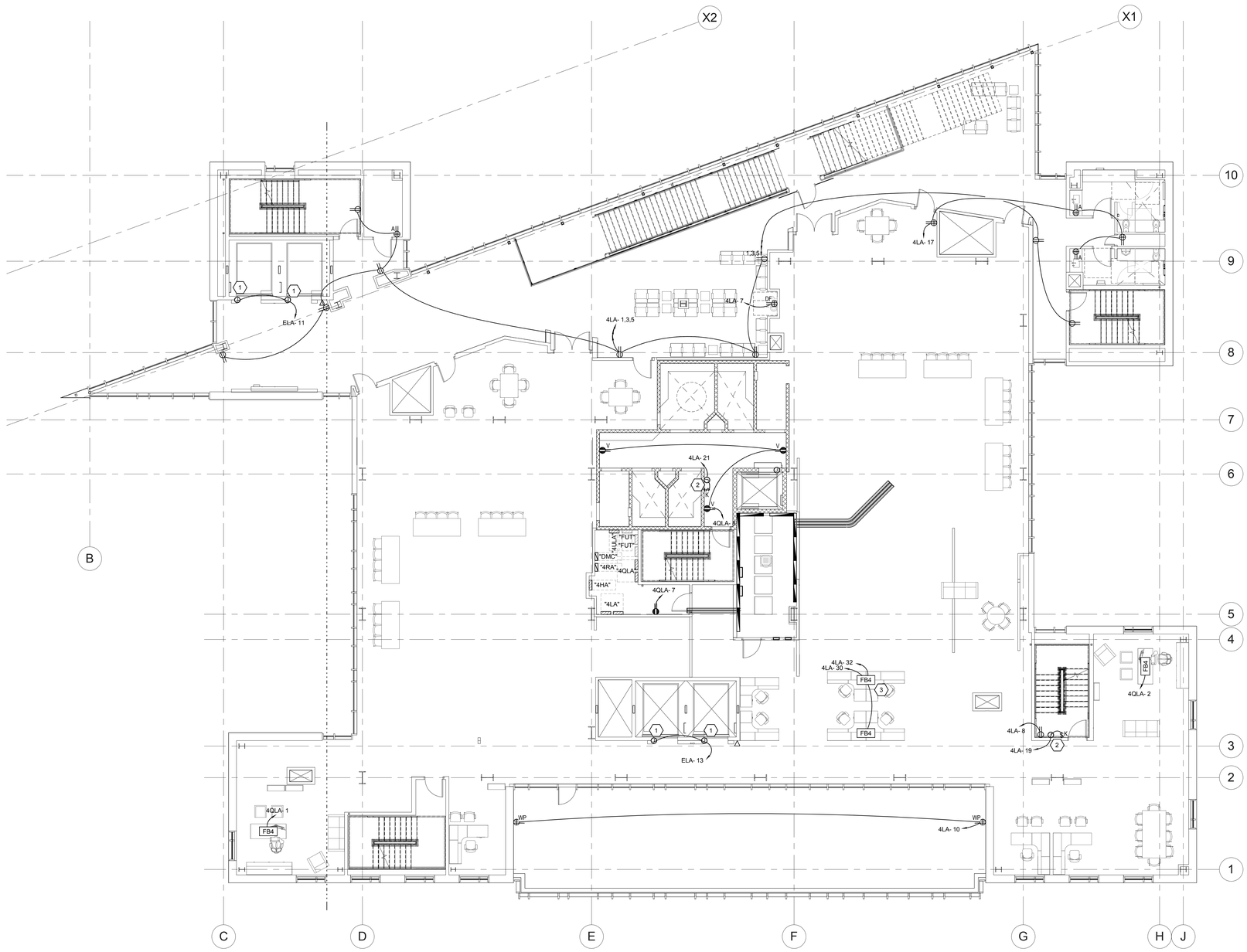

A2 LEVEL 4 POWER PLAN

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

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
2. PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 3 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE ITS ASSIGNED CIRCUIT. ACTIVATE ONLY NEEDED CIRCUITS WITHIN FURNITURE.COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.

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LEVEL 4 POWER PLAN

EP104

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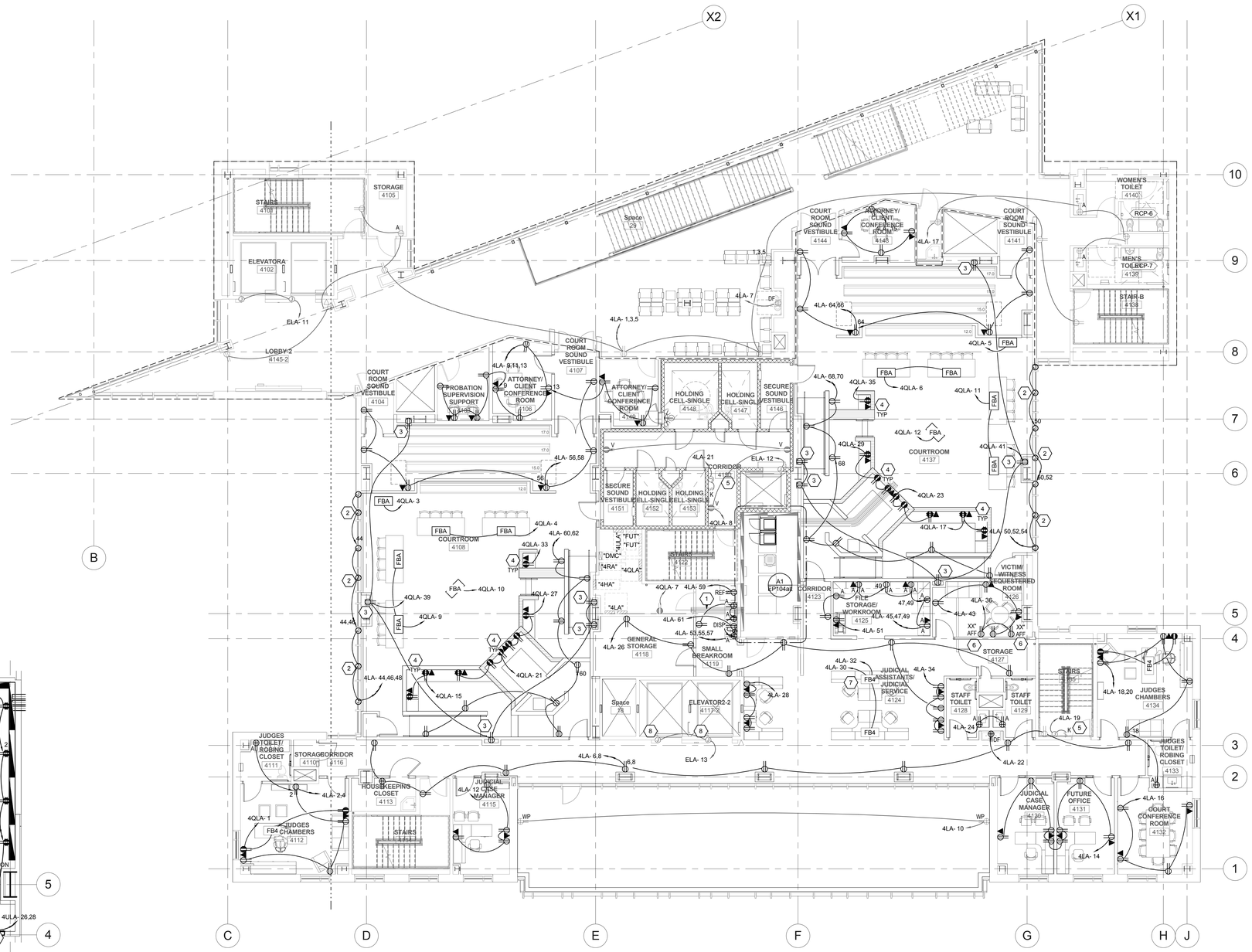

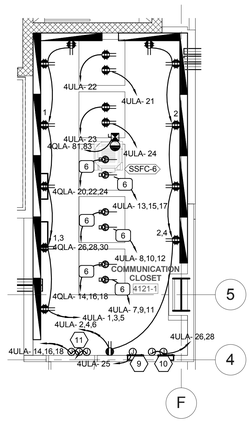

A1 ENLARGED POWER PLAN - COMM CLOSET 4121
SCALE: 1/4" = 1'-0"

A2 LEVEL 4 POWER PLAN - ALT
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.

2 COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.

3 ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1 (4) 4" CND UNDERFLOOR FOR POWER PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.

2 PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIFIED ROLLER SHADES. WITH ALL POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE J-BOX AND CONNECTIONS WITH ARCHITECT SUCH THAT J-BOXES AND WIRING ARE CONCEALED FROM VIEW AND ACCESSIBLE. VERIFY CONTROL METHOD AND/OR SWITCH LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO ALL SEPARATE SHADES IN PLAN AND ELEVATION (ALL CONNECTIONS MAY NOT BE SHOWN). COORDINATE CONTROL FROM A/V STYSTEM WITH A/V INSTALLER.

3 ELECTRICAL RECEPTACLES MOUNTED IN SIDE WALLS OF CAMERA POCKETS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. PROVIDE BLACK FACE PLATES.

4 ELECTRICAL RECEPTACLES MOUNTED IN MILLWORK BETWEEN AUDIOVISUAL CONNECTION BOXES. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND AUDIOVISUAL CONNECTION PANEL LOCATIONS.

5 PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

6 PROVIDE OUTLET MOUNTED IN BOTTOM OF THE BACKBOX OR JUNCTION BOX FOR A/V MONITOR DEPENDING ON ACTUAL FIELD CONDITIONS. COORDINATE WITH ARCHITECTURAL DETAILS AND A/V INSTALLER.

7 PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 3 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE ITS ASSIGNED CIRCUIT. ACTIVATE ONLY NEEDED CIRCUITS WITHIN FURNITURE.COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.

8 PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.

9 PROVIDE CONNECTIONS TO BMS CONTROL PANEL(S). COORDINATE WITH BMS INSTALLER.

10 PROVIDE CONNECTIONS TO SECURITY POWER SUPPLIES AND CONTROL PANELS. COORDINATE WITH SECURITY INSTALLER.

11 PROVIDE CONNECTIONS TO BMS CONTROL TRANSFORMERS ABOVE CEILING. COORDINATE WITH BMS INSTALLER.

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LEVEL 4 POWER PLAN - ALT

EP104alt

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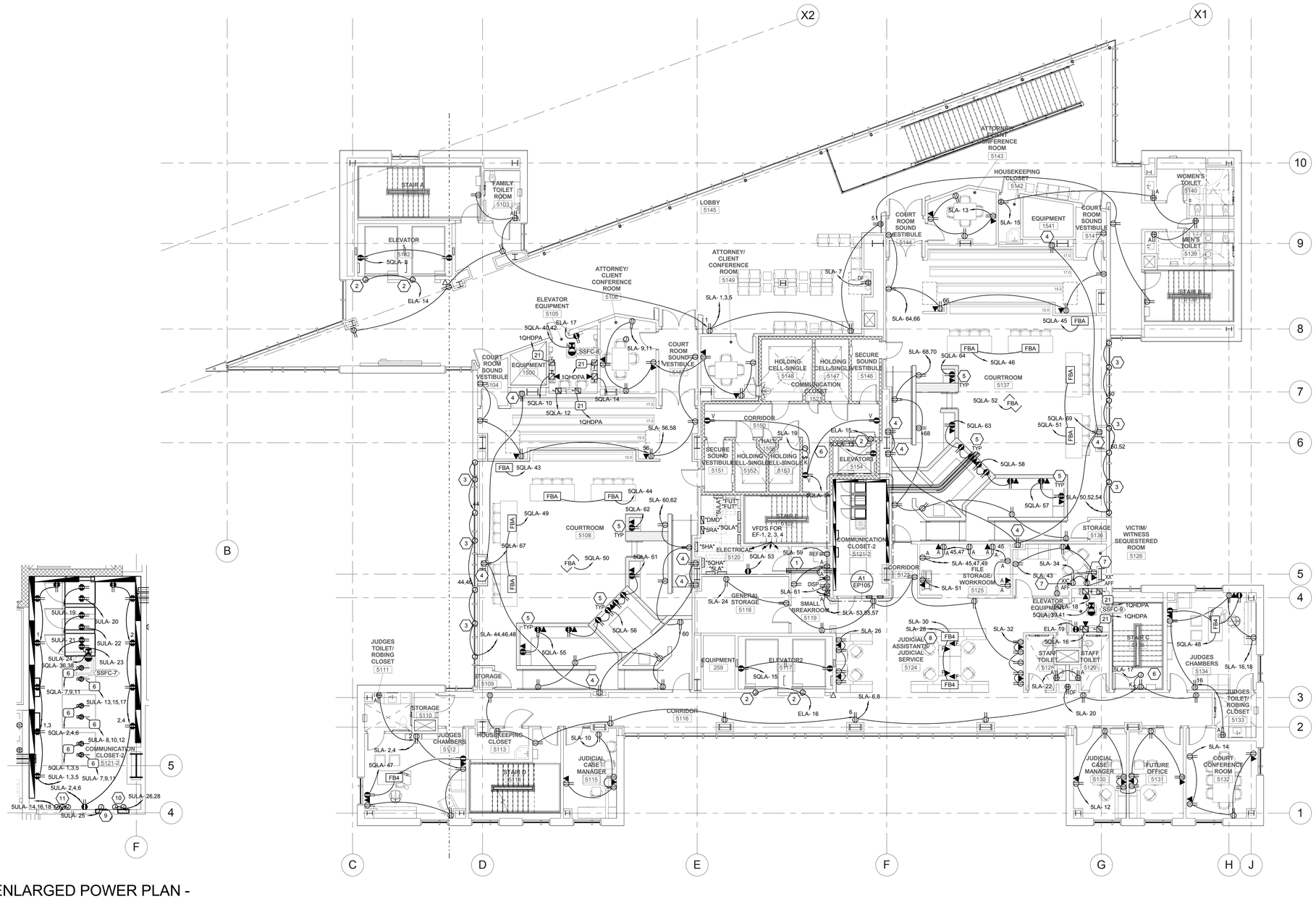

A1 ENLARGED POWER PLAN - COMM CLOSET 5121
SCALE: 1/4" = 1'-0"

A2 LEVEL 5 POWER PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1. COORDINATE ALL ELECTRICAL DEVICE LOCATIONS IN THE COURTROOM WITH THE AUDIO/VISUAL CONNECTION PANEL LOCATIONS AND ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATION OF ALL FLOOR-BOXES AND POKE-THROUGH DEVICES WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN OR INSTALLATION.
3. ELECTRICAL RECEPTACLES INTENDED FOR AV USE MUST BE ON THE SAME PHASE PER COURTROOM, INCLUDING THE AV RACK SERVING THAT COURTROOM.

SHEET KEYNOTES

1. (4) 4" CND UNDERFLOOR FOR POWER PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.
2. PROVIDE ELECTRICAL CONNECTIONS TO ELEVATOR SMOKE CURTAINS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DETAILS.
3. PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIFIED ROLLER SHADES, WITH ALL POWER AND CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE J-BOX AND CONNECTIONS WITH ARCHITECT SUCH THAT J-BOXES AND WIRING ARE CONCEALED FROM VIEW AND ACCESSIBLE. VERIFY CONTROL METHOD AND/OR SWITCH LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO ALL SEPARATE SHADES IN PLAN AND ELEVATION (ALL CONNECTIONS MAY NOT BE SHOWN). COORDINATE CONTROL FROM A/V STYSTEM WITH A/V INSTALLER.
4. ELECTRICAL RECEPTACLES MOUNTED IN SIDE WALLS OF CAMERA POCKETS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. PROVIDE BLACK FACE PLATES.
5. ELECTRICAL RECEPTACLES MOUNTED IN MILLWORK BETWEEN AUDIOVISUAL CONNECTION BOXES. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND AUDIOVISUAL CONNECTION PANEL LOCATIONS.
6. PROVIDE POWER FOR FLOW SWITCH BYPASS PUMP. PUMP SHALL BE CONTROLLED BY KEYED SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
7. PROVIDE OUTLET MOUNTED IN BOTTOM OF THE BACKBOX OR JUNCTION BOX FOR A/V MONITOR DEPENDING ON ACTUAL FIELD CONDITIONS. COORDINATE WITH ARCHITECTURAL DETAILS AND A/V INSTALLER.
8. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 3 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE ITS ASSIGNED CIRCUIT. ACTIVATE ONLY NEEDED CIRCUITS WITHIN FURNITURE.COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
9. PROVIDE CONNECTIONS TO BMS CONTROL PANEL(S). COORDINATE WITH BMS INSTALLER.
10. PROVIDE CONNECTIONS TO SECURITY POWER SUPPLIES AND CONTROL PANELS. COORDINATE WITH SECURITY INSTALLER.
11. PROVIDE CONNECTIONS TO BMS CONTROL TRANSFORMERS ABOVE CEILING. COORDINATE WITH BMS INSTALLER.

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SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
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LEVEL 5 POWER PLAN

EP105

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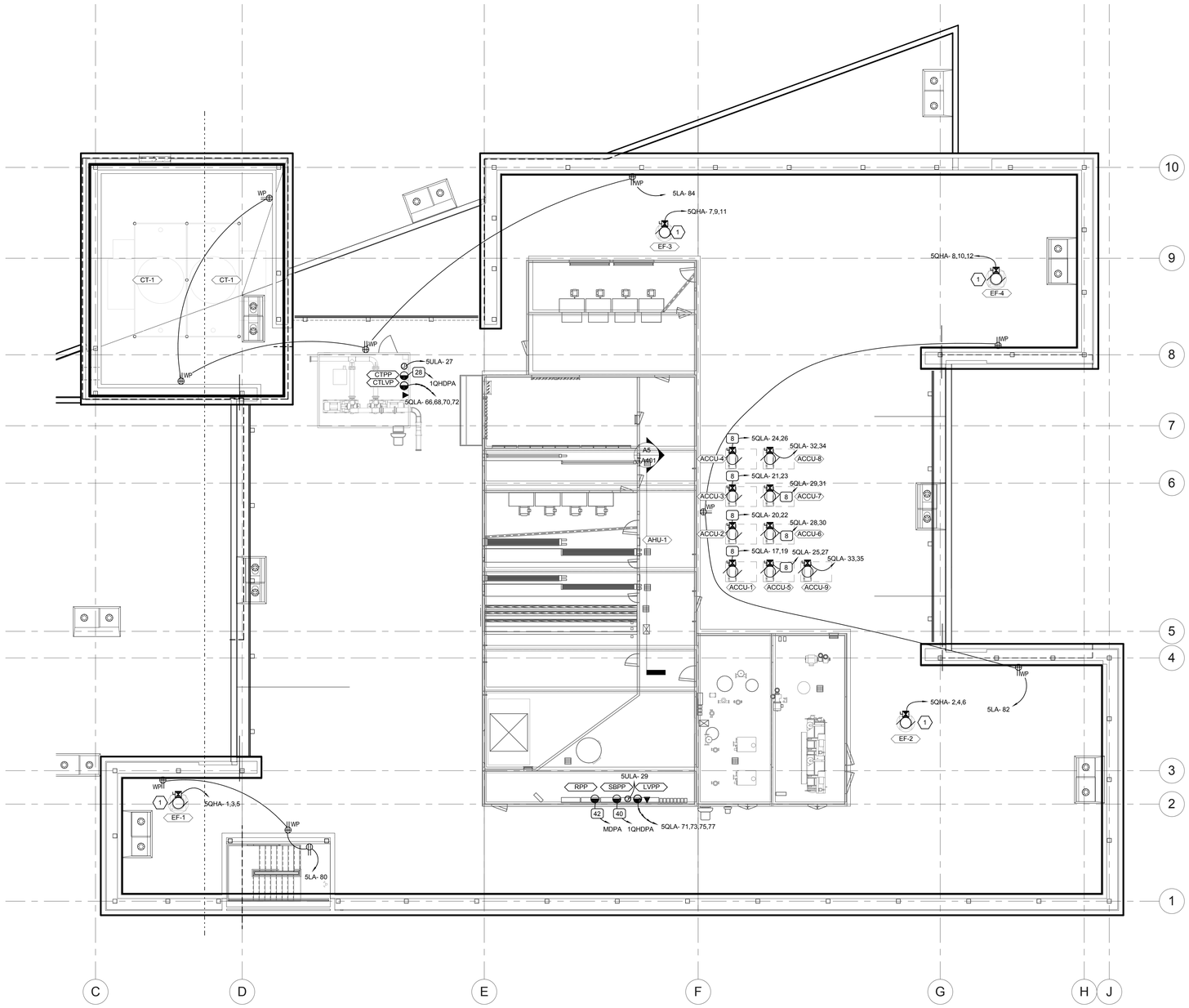

A1 ROOF/PENTHOUSE POWER PLAN

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

GENERAL SHEET NOTES

SHEET KEYNOTES

1 FEED THROUGH VFD.

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ROOF/PENTHOUSE POWER PLAN

EP106

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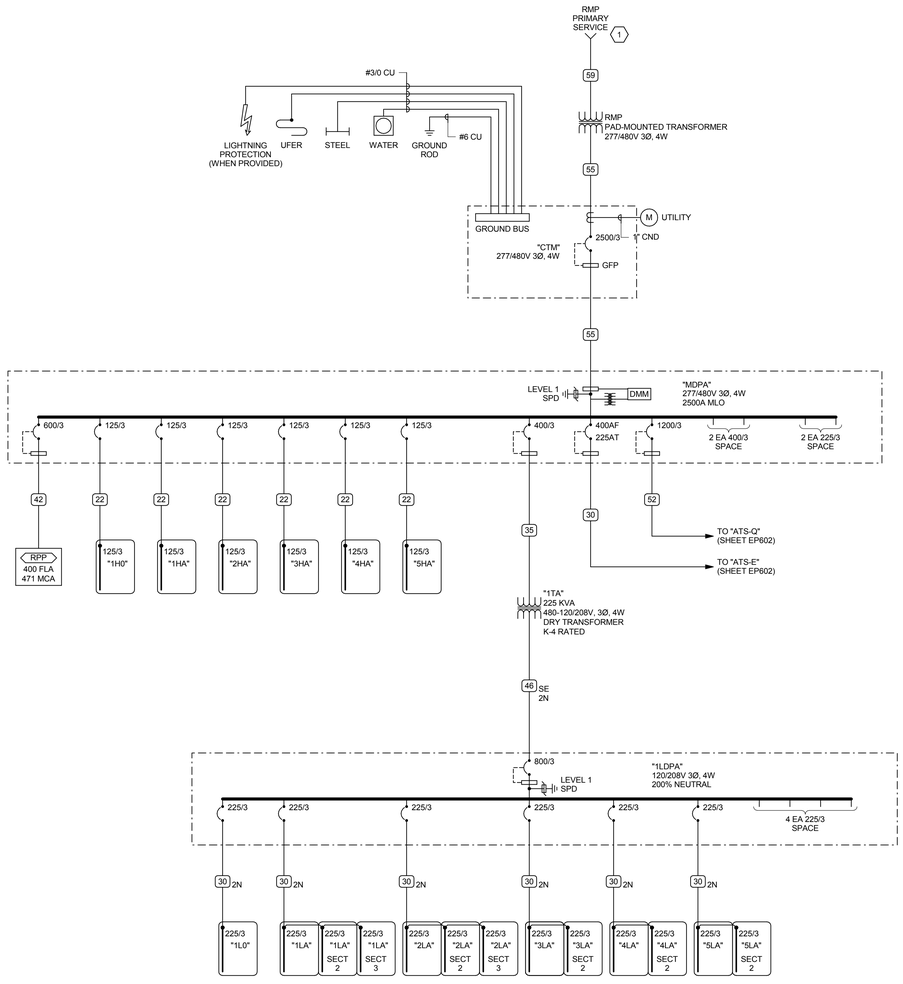

FAULT CURRENT TABLE

BUS	FAULT CURRENT
1H0	37,623 SCA
1HA	14,336 SCA
1LO	12,857 SCA
1LA	8,060 SCA
1QHDPA	40,051 SCA
1QLA	10,183 SCA
1QLDPA	10,210 SCA
1ULA	6,100 SCA
1ULDPA	6,120 SCA
2HA	11,948 SCA
2LA	7,382 SCA
2QLA	9,113 SCA
2ULA	4,859 SCA
3HA	10,607 SCA
3LA	6,830 SCA
3QLA	8,308 SCA
3ULA	4,390 SCA
4HA	9,530 SCA
4LA	6,363 SCA
4QLA	7,667 SCA
4ULA	3,993 SCA
5HA	8,583 SCA
5LA	5,940 SCA
5QHA	21,393 SCA
5QLA	7,108 SCA
5ULA	3,656 SCA
ATS-E	38,269 SCA
ATS-Q	40,285 SCA
CTM	41,147 SCA
CTPP	19,975 SCA
EHA	35,683 SCA
EHDPA	38,097 SCA
ELA	1,899 SCA
MBP	39,449 SCA
MDPA	41,123 SCA
RPP	29,026 SCA
SBPP	28,208 SCA
UPSA	39,418 SCA

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 260548 FOR REQUIREMENTS.
4. ALL 120/208V DISTRIBUTION EQUIPMENT SHALL BE PROVIDED WITH 200% NEUTRAL BUS AND LUG CAPACITY.

SHEET KEYNOTES

1. ALSO REFER TO SITE PLAN FOR PRIMARY CONDUIT REQUIREMENTS AND COORDINATE WITH ROCKY MOUNTAIN POWER.

CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G. 5 IG)

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.

6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

A1 ONE-LINE DIAGRAM
SCALE: NTS

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ONE-LINE DIAGRAM

EP601

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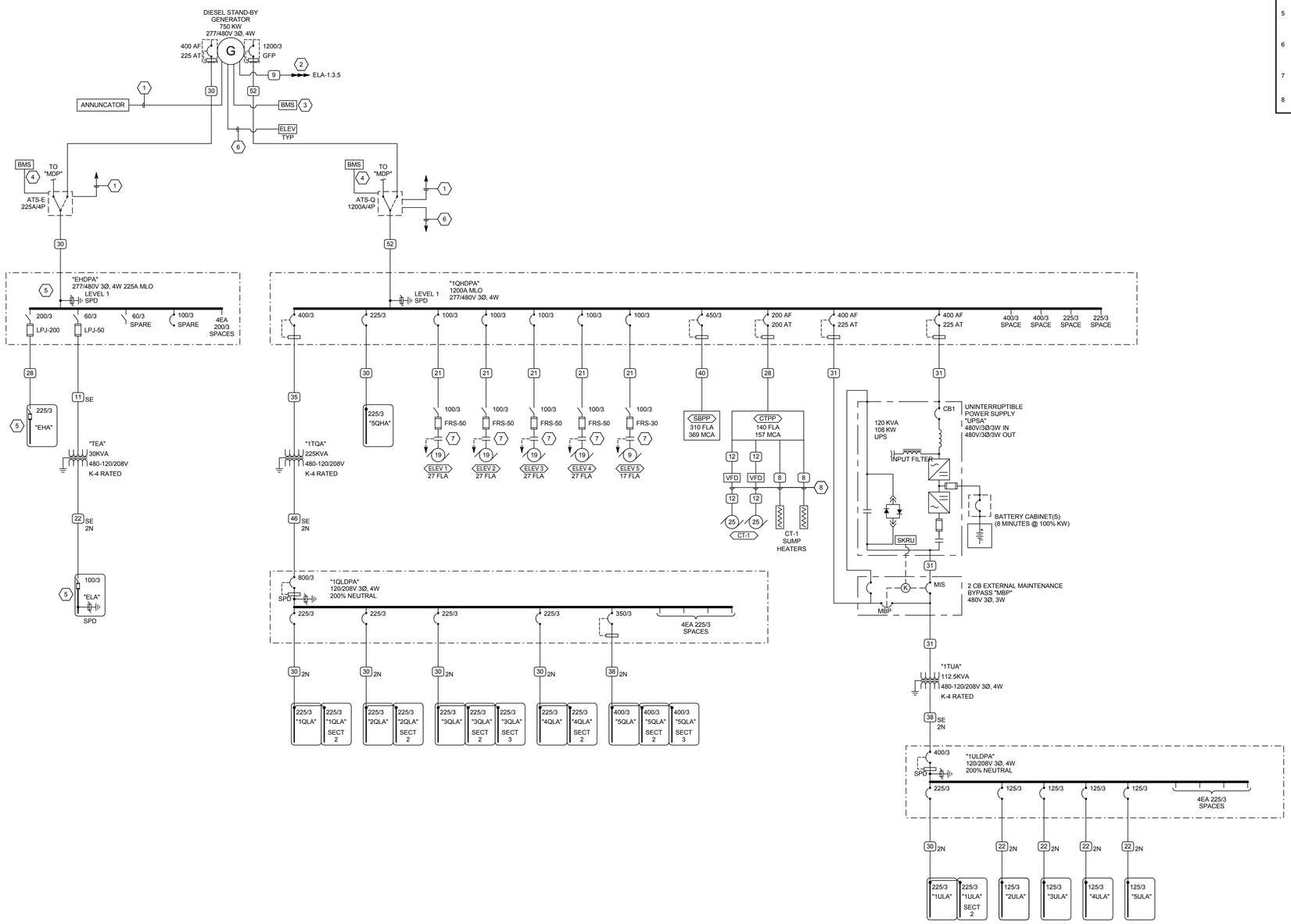
GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 260548 FOR REQUIREMENTS.
4. ALL 120/208V DISTRIBUTION EQUIPMENT SHALL BE PROVIDED WITH 200% NEUTRAL BUS AND LUG CAPACITY.

SHEET KEYNOTES

1. 1.25" CND TO GENERATOR, WITH CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. CIRCUITS FOR GENERATOR AUXILIARIES. COORDINATE CIRCUIT REQUIREMENTS WITH SHOP DRAWINGS.
3. PROVIDE BACNET INTERFACE FOR MONITORING BY BMS OF GENERATOR RUNNING, LOW FUEL, AND SUMMARY ALARMS. COORDINATE WITH BMS INSTALLER.
4. PROVIDE OUTPUT CONTACTS FOR MONITORING BY BMS OF ATS STATUS AND LOSS OF NORMAL POWER. COORDINATE WITH BMS INSTALLER.
5. PROVIDE FUSIBLE FEEDER AND BRANCH SWITCHES FOR ALL GEAR DOWNSTREAM FROM "ATS-E". CIRCUIT BREAKER GEAR WILL BE ACCEPTABLE IF A COORDINATION STUDY IS SUBMITTED THAT SHOWS DEVICE COORDINATION PER THE NEC.
6. 1" CND TO ELEVATOR CONTROLLERS WITH CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS, FOR "SIGNAL BEFORE TRANSFER" AND "CONNECTED TO GENERATOR" SIGNALS.
7. PROVIDE SHUNT TRIP FUSIBLE ELEVATOR DISCONNECT FOR EACH ELEVATOR. VERIFY FUSE SIZE WITH ELEVATOR MANUFACTURER.
8. PROVIDE WIRING FROM COOLING TOWER SKID TO COOLING TOWERS. COORDINATE WITH MECHANICAL INSTALLER.



A1 ONE-LINE DIAGRAM - Cont
SCALE: NTS

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ONE-LINE DIAGRAM - Cont

EP602

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EQUIPMENT SCHEDULE

MARK	QTY	ITEM DESCRIPTION	LOAD DATA						WIRE AND CONDUIT SIZE	OVERCURRENT PROTECTION			DISCONNECT			STARTER DATA													NOTES	MARK
			HP	kW	MCA	FLA	VOLT	PH	Hz		FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	SIZE	SPEED	CTRL VOLT	SELECTOR SWITCH	PUSH BUTTON	PILOT LAMP	NORMALLY OPEN CONTACTS	NORMALLY CLOSED CONTACTS	PHASE FAILURE RELAY	SCHEMATIC REFERENCE	REMOTE CTRL		
(ACCU-1)		AIR COOLED CONDENSING UNIT			26		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-1)
(ACCU-2)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-2)
(ACCU-3)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-3)
(ACCU-4)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-4)
(ACCU-5)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-5)
(ACCU-6)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-6)
(ACCU-7)		AIR COOLED CONDENSING UNIT			25		208/230	1	60	3 #8, #10 GR 1" CND	E	CB 40A/2P	PANEL	E	30A/2P FRN-30	ADJ. TO EQUIP.	Q														1	(ACCU-7)
(ACCU-8)		AIR COOLED CONDENSING UNIT			13		208/230	1	60	3 #12, #12 GR 0.75" CND	E	CB 20A/2P	PANEL	E	30A/2P FRN-20	ADJ. TO EQUIP.	Q														1	(ACCU-8)
(ACCU-9)		AIR COOLED CONDENSING UNIT			13		208/230	1	60	3 #12, #12 GR 0.75" CND	E	CB 20A/2P	PANEL	E	30A/2P FRN-20	ADJ. TO EQUIP.	Q														1	(ACCU-9)
(CUH-1)		CABINET UNIT HEATER		.06			115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(CUH-1)
(CUH-2)		CABINET UNIT HEATER		.06			115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(CUH-2)
(CUH-3)		CABINET UNIT HEATER		.06			115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(CUH-3)
(CUH-4)		CABINET UNIT HEATER		.06			115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(CUH-4)
(CTLVP)		COOLING TOWER LOW VOLTAGE POWER					120	1	60	2 #12, #12 GR 0.75" CND																					1,4	(CTLVP)
(CTPP)		COOLING TOWER SKID			157	140	460	3	60	4 #3/0, #6 GR 2.5" CND	E	200 AF 200 AT	PANEL	E	200A/3P NF	ADJ. TO EQUIP.															1,2	(CTPP)
	2	COOLING TOWER UNIT (CT-1)	25			34	460	3	60	4 #6, #10 GR 1.25" CND	Q			Q			Q	VFD													1	(CT-1)
		ELECTRIC UNIT HEATER (EUH-1)		1.5			120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(EUH-1)
		EXHAUST FAN (EF-8)	1/25				115	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(EF-8)
		PUMP (P-1)	20			27	460	3	60	3 #8, #10 GR 1" CND	Q			Q			Q														1	(P-1)
		PUMP (P-2)	20			27	460	3	60	3 #8, #10 GR 1" CND	Q			Q			Q														1	(P-2)
		SOLIDS SEPARATOR (SSSS-1)	2			4.3	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q														1	(SSSS-1)
(DCP-1)		DOMESTIC HOT WATER RECIRCULATION	1/3			7.2	120	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP.	0			HOA		RED	2	2					(DCP-1)
(DCP-2)		DOMESTIC HOT WATER RECIRCULATION	1/3			7.2	120	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP.	0			HOA		RED	2	2					(DCP-2)
(EF-1)		EXHAUST FAN	2			3.4	460	3	60	3 #12, #12 GR 0.75" CND	E	CB 20A/3P	PANEL	E	30A/3P FRN-6	ADJ. TO EQUIP.	Q	VFD													1,3	(EF-1)
(EF-2)		EXHAUST FAN	3			4.8	460	3	60	3 #12, #12 GR 0.75" CND	E	CB 20A/3P	PANEL	E	30A/3P FRN-6	ADJ. TO EQUIP.	Q	VFD													1,3	(EF-2)
(EF-3)		EXHAUST FAN	1.5			2.6	460	3	60	3 #12, #12 GR 0.75" CND	E	CB 20A/3P	PANEL	E	30A/3P FRN-6	ADJ. TO EQUIP.	Q	VFD													1,3	(EF-3)
(EF-4)		EXHAUST FAN	1.5			2.6	460	3	60	3 #12, #12 GR 0.75" CND	E	CB 20A/3P	PANEL	E	30A/3P FRN-6	ADJ. TO EQUIP.	Q	VFD													1,3	(EF-4)
(EF-5)		EXHAUST FAN	1/3				460	3	60	3 #12, #12 GR 0.75" CND	E	CB 20A/3P	PANEL	E	30A/3P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP	0			HOA		RED	2	2	YES				(EF-5)
(EF-9)		EXHAUST FAN				2.2	115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP.	0			HOA		RED	2	2					(EF-9)
(EF-10)		EXHAUST FAN		.062		0.5	115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP.	0			HOA		RED	2	2				1	(EF-10)
(LVPP)		AIR HANDLER UNIT LOW VOLTAGE POWER					120	1	60	2 #12, #12 GR 0.75" CND																					1,4	(LVPP)
(P-9)		PUMP	1/6			4.4	115	1	60	2 #12, #12 GR 0.75" CND	E	CB 20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	E	FVNR	ADJ. TO EQUIP	0			HOA		RED	2	2					(P-9)
(RPP)		AIR HANDLER UNIT NORMAL POWER SKID			471	400	460	3	60	2 EA. 4 #250, #1 GR 2 EA. 3" CND	E	CB 600A/3P	PANEL	E	600A/3P NF	ADJ. TO EQUIP.															2	(RPP)
		CHILLER (CH-1)			213		460	3	60	4 #4/0, #4 GR 2.5" CND	Q			Q			Q															(CH-1)
		PUMP (P-3)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(P-3)
		PUMP (P-4)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(P-4)
		RELIEF AIR FAN (RF-1)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(RF-1)
		RELIEF AIR FAN (RF-2)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(RF-2)
		RELIEF AIR FAN (RF-7)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(RF-7)
		RELIEF AIR FAN (RF-8)	10			14	460	3	60	3 #10, #10 GR 0.75" CND	Q			Q			Q	VFD														(RF-8)
		SUPPLY AIR FAN (SF-1)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD														(SF-1)
		SUPPLY AIR FAN (SF-2)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD														(SF-2)
		SUPPLY AIR FAN (SF-7)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD														(SF-7)
		SUPPLY AIR FAN (SF-8)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD														(SF-8)

SHEET NOTES:

1 - STANDBY POWER
2 - SINGLE-POINT CONNECTION FOR ALL EQUIPMENT IN GROUP. COORDINATE WITH MECHANICAL INSTALLER. PROVIDE FIELD INTERCONNECTION WIRING AS REQUIRED PER MANUFACTURER'S WIRING DIAGRAMS.
3 - PROVIDE DISCONNECT WITH QUICK-BREAK/SLOW MAKE CONTACT AND INTERLOCK TO PROTECT VFD.
4 - PROVIDE 4 - 120V 20A CIRCUITS FOR MISCELLANEOUS MECHANICAL 120V CIRCUITS.
5 - PROVIDE CONDUIT AND WIRING BETWEEN OUTDOOR AND INDOOR UNITS TO INTERLOCK UNITS.

EQUIPMENT SCHEDULE KEY

E	ELECTRICAL DIVISION
Q	FURNISHED WITH THE EQUIPMENT
*	COORDINATE WITH THE MECHANICAL DIVISION TEMPERATURE CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY MCHANICAL DIVISION

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
Phone: (801) 575-8800
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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

MECHANICAL ELEC EQUIP LOAD SCHEDULE

EP603

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EQUIPMENT SCHEDULE

MARK	QTY	ITEM DESCRIPTION	LOAD DATA						WIRE AND CONDUIT SIZE	OVERCURRENT PROTECTION			DISCONNECT			STARTER DATA														NOTES	MARK
			HP	kW	MCA	FLA	VOLT	PH	Hz		FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	SIZE	SPEED	CTRL VOLT	SELECTOR SWITCH	PUSH BUTTON	PILOT LAMP	NORMALLY OPEN CONTACTS	NORMALLY CLOSED CONTACTS	PHASE FAILURE RELAY	SCHEMATIC REFERENCE	REMOTE CTRL		
(SBPP)		AIR HANDLER UNIT STANDBY POWER SKID			369	310	460	3	60	2 EA. 4 #3/0, #3 GR 2 EA. 2.5" CND	E	CB 450A/3P	PANEL	E	400A/3P NF	ADJ. TO EQUIP.															1,2	(SBPP)
		CONDENSING BOILER (B-1)				15	120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(B-1)
		CONDENSING BOILER (B-2)				15	120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(B-2)
		EVAP COOLER MEDIA (ECM-1)	1/3			7.2	120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(ECM-1)
		EVAP COOLER MEDIA (ECM-2)	1/3			7.2	120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(ECM-2)
		EVAP COOLER MEDIA (ECM-3)	1/3			7.2	120	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(ECM-3)
		EXHAUST FAN (EF-6)	1/25				115	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(EF-6)
		EXHAUST FAN (EF-7)	1/4			5.8	115	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(EF-7)
		PUMP (P-5)	3			4.8	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(P-5)
		PUMP (P-6)	3			4.8	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(P-6)
		PUMP (P-7)	3/4			1.4	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(P-7)
		PUMP (P-8)	2			3.4	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q														1	(P-8)
		RELIEF AIR FAN (RF-3)	10			14	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(RF-3)
		RELIEF AIR FAN (RF-4)	10			14	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(RF-4)
		RELIEF AIR FAN (RF-5)	10			14	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(RF-5)
		RELIEF AIR FAN (RF-6)	10			14	460	3	60	3 #12, #12 GR 0.75" CND	Q			Q			Q	VFD													1	(RF-6)
		SUPPLY AIR FAN (SF-3)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD													1	(SF-3)
		SUPPLY AIR FAN (SF-4)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD													1	(SF-4)
		SUPPLY AIR FAN (SF-5)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD													1	(SF-5)
		SUPPLY AIR FAN (SF-6)	25			34	460	3	60	3 #6, #10 GR 1" CND	Q			Q			Q	VFD													1	(SF-6)
		UNIT HEATER (UH-1)	1/8				115	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(UH-1)
		UNIT HEATER (UH-2)	1/8				115	1	60	2 #12, #12 GR 0.75" CND	Q			Q			Q														1	(UH-2)
(SSFC-1)		SPLIT SYSTEM FAN COIL		.12	2		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-1)
(SSFC-2)		SPLIT SYSTEM FAN COIL		.05	1		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-1	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-2)
(SSFC-3)		SPLIT SYSTEM FAN COIL		.05	1		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-1	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-3)
(SSFC-4)		SPLIT SYSTEM FAN COIL		.12	2		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-4)
(SSFC-5)		SPLIT SYSTEM FAN COIL		.12	2		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-5)
(SSFC-6)		SPLIT SYSTEM FAN COIL		.12	2		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-6)
(SSFC-7)		SPLIT SYSTEM FAN COIL		.12	2		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-3	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-7)
(SSFC-8)		SPLIT SYSTEM FAN COIL		.05	1		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-1	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-8)
(SSFC-9)		SPLIT SYSTEM FAN COIL		.05	1		208/230	1	60	3 #12, #12 GR 0.75" CND	E	20A/2P	PANEL	E	30A/2P FRN-1	ADJ. TO EQUIP.	E	FVNR	ADJ TO EQUIP	0			HOA		RED	2	2				1, 5	(SSFC-9)
(UH-3)		UNIT HEATER	1/25				115	1	60	2 #12, #12 GR 0.75" CND	E	20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(UH-3)
(WH-1)		GAS FIRED WATER HEATER				4.2	120	1	60	2 #12, #12 GR 0.75" CND	E	20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(WH-1)
(WH-2)		GAS FIRED WATER HEATER				4.2	120	1	60	2 #12, #12 GR 0.75" CND	E	20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(WH-2)
(WS-1)		WATER SOFTENER				1.7	120	1	60	2 #12, #12 GR 0.75" CND	E	20A/1P	PANEL	E	THERMAL SWITCH	ADJ. TO EQUIP.	Q															(WS-1)

SHEET NOTES:
1 - STANDBY POWER
2 - SINGLE-POINT CONNECTION FOR ALL EQUIPTMENT IN GROUP. COORDINATE WITH MECHANICAL INSTALLER. PROVIDE FIELD INTERCONNECTION WIRING AS REQUIRED PER MANUFACTURER'S WIRING DIAGRAMS.
3 - PROVIDE DISCONNECT WITH QUICK-BREAK/SLOW MAKE CONTACT AND INTERLOCK TO PROTECT VFD.
4 - PROVIDE 4 - 120V 20A CIRCUITS FOR MISCELLANEOUS MECHANICAL 120V CIRCUITS.
5 - PROVIDE CONDUIT AND WIRING BETWEEN OUTDOOR AND INDOOR UNITS TO INTERLOCK UNITS.

EQUIPMENT SCHEDULE KEY

E	ELECTRICAL DIVISION
Q	FURNISHED WITH THE EQUIPMENT
*	COORDINATE WITH THE MECHANICAL DIVISION TEMPERATURE CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY MCHANICAL DIVISION

VCBO ARCHITECTURE
VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
Phone: (801) 575-8800
Fax: (801) 531-9850
Web: vcbo.com

LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

MECHANICAL ELEC EQUIP LOAD SCHEDULE - Cont

EP604

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PANEL: "1H0"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 1164	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:**

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.5	0.0	0.0	LTG: MECHANICAL	0.5	0.2					LTG: SITE BOLLARDS - 1R0-7	0.0	0.0	0.2	1	20	2
3	20	1	1.2	0.0	0.0	LTG: SITE POLES - 1R0-1			1.2	1.2			LTG: SITE POLES - 1R0-4	0.0	0.0	1.2	1	20	4
5	20	1	1.2	0.0	0.0	LTG: SITE POLES - 1R0-2					1.2	1.5	LTG: SITE POLES - 1R0-5	0.0	0.0	1.5	1	20	6
7	20	1	1.1	0.0	0.0	LTG: SITE POLES - 1R0-3	1.1	1.1					LTG: SITE POLES - 1R0-6	0.0	0.0	1.1	1	20	8
9	20	1	0.5	0.0	0.0	LTG: SITE SIGNAGE - 1R0-8			0.5	0.1			PWR: EF-5 1163	0.0	0.3	0.0	3	20	10
11	20	1	0.6	0.0	0.0	LTG: SITE FLAGPOLE - 1R0-9					0.6	0.1	--	--	--	--	--	--	12
13	20	1	--	--	--	SPARE	0.0	0.1					--	--	--	--	--	--	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	3	3	3	CONNECTED TOTAL kVA = 9
CONNECTED AMPS PER PHASE	10	11	12	AVERAGE CONNECTED AMPS PER PHASE = 11

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **9.0 kVA @ 125% = 11.3 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **12**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **14**

ALL OTHER LOADS @ 100% : **0.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1HA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 1136	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:**

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	2.5	0.0	0.0	LTG: NE OFFICES	2.5	0.4					LTG: WAITING/EXIT/LOBBY - 1RA-1	0.0	0.0	0.4	1	20	2
3	20	1	1.6	0.0	0.0	LTG: NORTH/CENTRAL OFFICES			1.6	1.3			LTG: GENERAL CORRIDOR - 1RA-2	0.0	0.0	1.3	1	20	4
5	20	1	2.3	0.0	0.0	LTG: SW OFFICES					2.5	1.1	LTG: WAITING/COUNTERS - 1RA-3	0.0	0.0	1.1	1	20	6
7	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	0	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	3	3	4	CONNECTED TOTAL kVA = 9
CONNECTED AMPS PER PHASE	10	10	13	AVERAGE CONNECTED AMPS PER PHASE = 11

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **9.1 kVA @ 125% = 11.4 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **12**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **14**

ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1L0"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 1164	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:**

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.1	0.0	PWR: CUH-2 1165	0.1	1.3					CO: EAST EXTERIOR	1.3	0.0	0.0	1	20	2
3	20	1	0.0	0.9	0.0	MTR: DCP-1 1163			0.9	0.9			CO: SOUTH EXTERIOR	0.9	0.0	0.0	1	20	4
5	20	1	0.0	0.9	0.0	MTR: DCP-2 1163					0.9	0.2	PWR: UH-3 1163	0.0	0.2	0.0	1	20	6
7	20	1	0.0	0.5	0.0	PWR: WH-1 1163	0.5	0.1					PWR: WS-1 1163	0.0	0.1	0.0	1	20	8
9	20	1	0.0	0.5	0.0	PWR: WH-2 1163			0.5	0.5			CO: MECHANICAL 1163	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.3	0.0	MTR: EF-9 1163					0.3	0.5	PWR: BYPASS PUMP 1165	0.0	0.5	0.0	1	20	12
13	20	1	0.0	0.2	0.0	PWR: FSD	0.2	1.0					PWR: FIRE - DRY AIR COMPR. 1163	0.0	1.0	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	3	3	2	CONNECTED TOTAL kVA = 8
CONNECTED AMPS PER PHASE	28	25	15	AVERAGE CONNECTED AMPS PER PHASE = 22

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **8**

RECEPTACLES: **2.7 kVA @ 100% = 2.7 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **22**

ALL OTHER LOADS @ 100% : **5.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

VCBO ARCHITECTURE

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
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165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

PANEL SCHEDULES

EP605

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PANEL: "1LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 1136	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.9	CO: MEDIATION ROOM 1118	0.9	0.7					CO: NORTHWEST EXTERIOR	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.9	CO: MEDIATION ROOM 1119			0.9	0.5			CO: LOBBY	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.9	CO: MEDITATION ROOM 1120					0.9	0.4	CO: LOBBY	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: CAUCUS 1116	0.7	0.7					PWR: DRINKING FOUNTAIN	0.0	0.7	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: WAITING ROOM 1111			0.7	0.5			CO: PUBLIC TOILETS, HOUSEKEEPING	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: WAITING ROOM 1111					0.7	0.9	CO: STAIRS, CORRIDOR 1190	0.9	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.7	CO: CAUCUS 1110	0.7	0.9					CO: CORR 1195, WAITING 1194, 1198	0.9	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.7	CO: CAUCUS 1109			0.7	1.3			CO: FILE STORAGE 1200, WAITING 1202	1.3	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.9	CO: MEDIATION/ORIENTATION 1108					0.9	0.5	CO: PUBLIC TERMINALS 1201	0.5	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.9	CO: MAIL/RECEIVING 1121, 1122	0.9	0.5					CO: PUBLIC TERMINALS 1201	0.5	0.0	0.0	1	20	20
21	20	1	0.0	0.0	1.3	CO: CORRIDOR 1126			1.3	0.7			CO: JUD. ASSIST./ JUD. SERVICE 1196	0.7	0.0	0.0	1	20	22
23	20	1	0.0	0.0	1.1	CO: ROOMS 1130, 1131, 1132					1.1	0.7	CO: JUD. ASSIST./ JUD. SERVICE 1196	0.7	0.0	0.0	1	20	24
25	20	1	0.0	0.1	0.9	CO: CONFERENCE ROOM 1124	1.0	1.0					PWR: ROOM 1196 COPIER	0.0	1.0	0.0	1	20	26
27	20	1	0.0	0.1	1.1	CO: CONFERENCE ROOM 1124			1.2	1.0			PWR: ROOM 1196 COPIER	0.0	1.0	0.0	1	20	28
29	20	1	0.0	0.0	0.7	CO: CUSTODIAL OFFICE 1129					0.7	0.4	CO: JUD. ASSIST./ JUD. SERVICE 1196	0.4	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.4	CO: TOILETS 1127, 1128	0.4	0.4					CO: JUD. ASSIST./ JUD. SERVICE 1196	0.4	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.5	CO: ENTRY			0.5	1.1			CO: COUNTER WORKSTATION 1197	1.1	0.0	0.0	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.7	PWR: DRINKING FOUNTAIN	0.0	0.7	0.0	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.4	CO: STOR 1142, WORK AREA 1183	0.4	0.8					PWR: SMALL BREAKRM 1189 FRIDGE	0.0	0.8	0.0	1	20	44
45	20	1	0.0	0.0	0.4	CO: WORK AREA 1183			0.4	1.3			PWR: SMALL BREAKRM 1189 DISP.	0.0	1.3	0.0	1	20	46
47	20	1	0.0	0.0	0.4	CO: WORK AREA 1183					0.4	0.2	CO: SMALL BREAKROOM AREA 1189	0.2	0.0	0.0	1	20	48
49	20	1	0.0	1.0	0.0	PWR: WORK AREA 1183 COPIER	1.0	0.2					CO: SMALL BREAKROOM AREA 1189	0.2	0.0	0.0	1	20	50
51	20	3	0.0	1.1	0.0	PWR: DEPUTY PROB OFFICERS			0.4	0.2			CO: SMALL BREAKROOM AREA 1189	0.2	0.0	0.0	1	20	52
53	--	--	--	--	--	--					0.4	0.2	CO: SMALL BREAKROOM AREA 1189	0.2	0.0	0.0	1	20	54
55	--	--	--	--	--	--	0.4	1.4					CO: OFFICES 1192, 1193	1.4	0.0	0.0	1	20	56
57	20	1	0.0	0.5	0.0	PWR: DEPUTY PROB OFFICERS			0.5	1.4			CO: OFFICES 1180, 1191	1.4	0.0	0.0	1	20	58
59	20	1	0.0	0.0	1.4	CO: OFFICES 1141, 1143					1.4	1.4	CO: OFFICES 1178, 1179	1.4	0.0	0.0	1	20	60
61	20	1	0.0	0.0	0.4	CO: PROB. TOILETS 1139, 1140	0.4	1.4					CO: OFFICES 1176, 1177	1.4	0.0	0.0	1	20	62
63	20	1	0.0	0.0	0.4	CO: BREAK RM 1156, TOILET 1158			0.4	1.4			CO: OFFICES 1174, 1175	1.4	0.0	0.0	1	20	64
65	20	1	0.0	0.8	0.0	PWR: BREAK ROOM 1156 FRIDGE					0.8	1.4	CO: OFFICES 1172, 1173	1.4	0.0	0.0	1	20	66
67	20	1	0.0	1.3	0.0	PWR: BREAK ROOM 1156 DISPOSAL	1.3	0.5					CO: DRUG TESTING 1187, 1186, 1185	0.5	0.0	0.0	1	20	68
69	20	1	0.0	0.0	0.2	CO: BREAK ROOM 1156			0.2	0.4			CO: DRUG TESTING LAB 1185	0.4	0.0	0.0	1	20	70
71	20	1	0.0	0.0	0.2	CO: BREAK ROOM 1156					0.2	1.4	CO: OFFICES 1182, 1181	1.4	0.0	0.0	1	20	72
73	20	1	0.0	0.0	0.2	CO: BREAK ROOM 1156	0.2	0.5					CO: CONFERENCE ROOM 1188	0.5	0.0	0.0	1	20	74
75	20	1	0.0	0.0	0.4	CO: CORRIDOR 1199			0.4	0.5			CO: CONFERENCE ROOM 1188	0.5	0.0	0.0	1	20	76
77	20	1	0.0	0.0	0.4	CO: COURT CONF ROOM 1124					0.4	0.0	SPARE	--	--	--	1	20	78
79	20	1	0.0	0.0	0.4	CO: COURT CONF ROOM 1124	0.4	1.3					CO: CORRIDORS	1.3	0.0	0.0	1	20	80
81	20	1	0.0	0.0	0.0	CO: COURT CONF. ROOM 1124 FBS			0.0	0.7			PWR: LOCKERS SECUR. OFFICE 1115	0.0	0.7	0.0	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.8	PWR: LOCKERS SECUR. OFFICE 1115	0.0	0.8	0.0	1	20	84
85	20	1	0.0	0.1	0.0	PWR: CUH-1	0.1	0.1					PWR: CUH-3	0.0	0.1	0.0	1	20	86
87	20	1	0.0	0.1	0.0	PWR: CUH-4			0.1	0.5			PWR: P-9 1113	0.0	0.5	0.0	1	20	88
89	20	1	0.0	0.0	0.4	CO: AV RACK 1 - CONF ROOM 1124					0.4	0.4	CO: AV RACK 2 - CONF ROOM 1124	0.4	0.0	0.0	1	20	90
91	20	1	0.0	0.5	0.0	PWR: MEDIATION RM 1108 AV MON.	0.5	0.0					SPARE	--	--	--	1	20	92
93	20	1	0.0	0.5	0.0	PWR: MEDIATION RM 1118 AV MON.			0.5	0.0			SPARE	--	--	--	1	20	94
95	20	1	0.0	0.6	0.0	PWR: CONFROOM 1124 PROJ.					0.6	0.6	PWR: CONFERENCE ROOM 1124 PROJ.	0.0	0.6	0.0	1	20	96
97	20	1	0.0	0.5	0.0	PWR: MEDIATION RM 1119 AV MON.	0.5	0.5					PWR: BYPASS PUMP 1149	0.0	0.5	0.0	1	20	98
99	20	1	0.0	0.5	0.0	PWR: MEDIATION RM 1120 AV MON.			0.5	0.7			PWR: IRRIGATION CONTROLLER	0.2	0.5	0.0	1	20	100
101	20	1	0.0	0.0	0.5	CO: ROOM 1121, 1122					0.5	0.0	SPARE	--	--	--	1	20	102
103	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	0.0	0.0	0.5	CO: AV RACK 2 - CONF ROOM 1124					0.5	0.0	SPARE	--	--	--	1	20	108
109	20	1	0.0	0.6	0.0	PWR: FSD	0.6	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120
121	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	122
123	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	124
125	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	126

TOTALS: CONNECTED kVA PER PHASE **21** **21** **20** — CONNECTED TOTAL kVA = **62**
CONNECTED AMPS PER PHASE **178** **175** **165** — AVERAGE CONNECTED AMPS PER PHASE = **172**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **45**
RECEPTACLES: **44.4 kVA @ 61% = 27.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **124**
ALL OTHER LOADS @ 100% : **17.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1QLA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 1136	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.5	CO: SECURITY OFFICE 1115	0.5	0.5					CO: ELEVATOR B 1133	0.4	0.0	0.2	1	20	2
3	20	1	0.0	0.0	0.7	CO: SECURITY OFFICE 1115			0.7	0.3			CO: ELEVATOR C 1137	0.2	0.0	0.1	1	20	4
5	20	1	0.0	0.0	0.7	CO: SECURITY OFFICE 1115, 1117					0.7	0.5	CO: ELEVATOR A 1102	0.4	0.0	0.2	1	20	6
7	20	1	0.0	0.0	0.7	CO: VEHICULAR SALLYPORT 1159	0.7	0.4					CO: ELECTRICAL 1136, STAIR	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.5	CO: JUVENILE HALL 1150			0.5	0.7			PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	10
11	20	1	0.0	0.0	0.5	CO: ADULT HALL 1153					0.5	0.7	--	--	--	--	--	--	12
13	20	1	0.0	0.0	0.5	CO: PROCESSING AREA 1138	0.5	0.7					--	--	--	--	--	--	14
15	20	1	0.0	0.0	0.7	CO: CONTROL RM SECURITY 1149			0.7	0.7			PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	16
17	20	1	0.0	0.0	0.4	CO: CONTROL RM SECURITY 1149					0.4	0.7	--	--	--	--	--	--	18
19	20	1	0.0	0.0	0.7	CO: CONTROL RM SECURITY 1149	0.7	0.7					--	--	--	--	--	--	20
21	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134			0.7	0.7			PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	22
23	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	24
25	--	--	--	--	--	--	0.7	0.7					--	--	--	--	--	--	26
27	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134			0.7	0.7			PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	28
29	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	30
31	--	--	--	--	--	--	0.7	0.7					--	--	--	--	--	--	32
33	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134			0.7	0.7			PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	34
35	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	36
37	--	--	--	--	--	--	0.7	0.7					--	--	--	--	--	--	38
39										0.5			PWR: SECURITY GATE	0.0	0.5	0.0	1	20	40
41	20	1	0.0	0.5	0.0	PWR: SECURITY GATE					0.5	0.5	PWR: SECURITY GATE	0.0	0.5	0.0	1	20	42
43	30	3	0.0	3.0	0.0	VEHICULAR SALLYPORT 1159	1.0	1.0					VEHICULAR SALLYPORT 1159	0.0	3.0	0.0	3	20	44
45	--	--	--	--	--	--			1.0	1.0			--	--	--	--	--	--	46
47	--	--	--	--	--	--					1.0	1.0	--	--	--	--	--	--	48
49	20	2	0.0	0.4	0.0	PWR: SSFC-1 1134	0.2	0.1					PWR: SSFC-2 1136	0.0	0.2	0.0	2	20	50
51	--	--	--	--	--	--			0.2	0.1			--	--	--	--	--	--	52
53	20	2	0.0	0.2	0.0	PWR: SSFC-3 1164					0.1	0.6	PWR: ADA DOORS RESTROOMS	0.0	0.6	0.0	1	20	54
55	--	--	--	--	--	--	0.1	0.5					CO: BUILDING ENTRY 1104	0.5	0.0	0.0	1	20	56
57	20	1	0.0	1.2	0.0	PWR: ADA DOOR EXIT VEST 1106			1.2	0.5			CO: BUILDING ENTRY 1104	0.5	0.0	0.0	1	20	58
59	20	1	0.0	0.5	0.0	PWR: SECURITY GATE					0.5	0.3	PWR: GATE CONTROLLERS	0.0	0.3	0.0	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **12** **12** **12** — CONNECTED TOTAL kVA = **36**
CONNECTED AMPS PER PHASE **97** **101** **100** — AVERAGE CONNECTED AMPS PER PHASE = **99**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.5 kVA @ 125% = 0.6 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **37**
RECEPTACLES: **8.4 kVA @ 100% = 8.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **102**
ALL OTHER LOADS @ 100% : **27.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2HA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 2121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	3.3	0.0	0.0	LTG: SOUTH OFFICES	3.3	0.4					LTG: LEVEL 2 CORRIDOR - 2RA-1	0.0	0.0	0.4	1	20	2
3	20	1	1.2	0.0	0.0	LTG: FITNESS/LOCKERS			1.2	0.6			LTG: LEVEL 2 COURTRM VEST - 2RA-2	0.0	0.0	0.6	1	20	4
5	20	1	1.1	0.0	0.0	LTG: RESTROOMS/CONF. ROOMS					1.6	2.3	LTG: LEVEL 2 CORRIDOR - 2RA-3	0.0	0.0	2.3	1	20	6
7	20	1	--	--	--	SPARE	0.0	1.2					LTG: LEVEL 2 MAIN LOBBY - 2RA-4	0.0	0.0	1.2	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **5** **2** **4** — CONNECTED TOTAL kVA = **11**
CONNECTED AMPS PER PHASE **19** **6** **15** — AVERAGE CONNECTED AMPS PER PHASE = **13**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **10.2 kVA @ 125% = 12.8 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **13**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **16**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 2121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.7	CO: MAIN CORRIDOR	0.7	0.2					CO: JUDGES TOILET 2111	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: MAIN CORRIDOR			0.4	0.7			CO: JUDGES CHAMBERS 2112	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO: MAIN CORRIDOR					0.5	0.9	CO: CORRIDOR 2118	0.9	0.0	0.0	1	20	6
7	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN	0.7	1.1					CO: OFFICE 2115, HEALTH 2117	1.1	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.5	CO: PROBATION SUPPORT 2105			0.5	1.0			PWR: VENDING	0.0	1.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: ATTORNEY/CLIENT 2106					0.7	1.0	PWR: VENDING	0.0	1.0	0.0	1	20	12
13	20	1	0.0	0.0	0.5	CO: ATTORN/ CLNT CONF RM 2153	0.5	1.0					PWR: VENDING	0.0	1.0	0.0	1	20	14
15	20	1	0.0	0.0	0.7	CO: ATTORN/ CLNT CONF RM 2148			0.7	1.0			PWR: VENDING	0.0	1.0	0.0	1	20	16
17	20	1	0.0	0.0	0.7	CO: RESTROOMS					0.7	1.0	PWR: VENDING	0.0	1.0	0.0	1	20	18
19	20	1	0.0	0.0	0.2	CO: EXTERIOR PATIO	0.2	0.5					CO: STAFF LOUNGE 2131	0.5	0.0	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.4			CO: STAFF LOUNGE 2131	0.4	0.0	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.8	PWR: STAFF LOUNGE 2131 ICE MAKER	0.0	0.8	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	1.3					PWR: STAFF LOUNGE 2131 DISPOSAL	0.0	1.3	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.2			CO: STAFF LOUNGE 2131	0.2	0.0	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.2	CO: STAFF LOUNGE 2131	0.2	0.0	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.2					CO: STAFF LOUNGE 2131	0.2	0.0	0.0	1	20	32
33	20	1	--	--	--	SPARE			0.0	1.1			PWR: STAFF LOUNGE 2131 MICRO.	0.0	1.1	0.0	1	20	34
35	20	1	--	--	--	SPARE					0.0	1.1	PWR: STAFF LOUNGE 2131 MICRO.	0.0	1.1	0.0	1	20	36
37	20	1	--	--	--	SPARE	0.0	1.1					PWR: STAFF LOUNGE 2131 MICRO.	0.0	1.1	0.0	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.8			PWR: STAFF LOUNGE 2131 FRIDGE	0.0	0.8	0.0	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.5	CO: WORKROOM 2132	0.5	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	44
45	20	1	0.0	0.0	0.5	CO: WORKROOM 2132			0.5	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	46
47	20	1	0.0	1.0	0.0	PWR: WORKROOM 2132 COPIER					1.0	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	48
49	20	1	0.0	0.0	0.5	CO: JUDICIAL ASSISTANTS 2133	0.5	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	50
51	20	1	0.0	0.0	0.5	CO: JUDICIAL ASSISTANTS 2133			0.5	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	52
53	20	1	0.0	0.0	0.5	CO: JUDICIAL ASSISTANTS 2133					0.5	0.5	CO: COURTROOM 2108	0.5	0.0	0.0	1	20	54
55	20	1	0.0	0.0	0.5	CO: JUDICIAL ASSISTANTS 2133	0.5	0.5					CO: COURTROOM 2108	0.5	0.0	0.0	1	20	56
57	20	1	0.0	0.0	1.4	CO: OFFICES 2134, 2135			1.4	0.7			CO: COURTROOM 2108	0.7	0.0	0.0	1	20	58
59	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 2136					0.7	0.7	CO: COURTROOM 2108	0.7	0.0	0.0	1	20	60
61	20	1	0.0	0.0	0.2	CO: JUDGES TOILET 2137	0.2	0.5					CO: COURTROOM 2141	0.5	0.0	0.0	1	20	62
63	20	1	0.0	0.0	0.7	CO: JUDGES CHAMBERS 2138			0.7	0.5			CO: COURTROOM 2141	0.5	0.0	0.0	1	20	64
65	20	1	0.0	0.0	1.1	CO: CORRIDOR					1.1	0.7	CO: COURTROOM 2141	0.7	0.0	0.0	1	20	66
67	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN	0.7	0.5					CO: COURTROOM 2141	0.5	0.0	0.0	1	20	68
69	20	1	0.0	0.0	0.4	CO: STAFF TOILETS 2129, 2130			0.4	0.5			PWR: BYPASS PUMP 2139	0.0	0.5	0.0	1	20	70
71	20	1	0.0	0.0	0.7	CO: CORRIDOR, STORAGE 2128					0.7	0.5	PWR: BYPASS PUMP 2154	0.0	0.5	0.0	1	20	72
73	20	1	0.0	1.2	0.0	PWR: FSD	1.2	0.0					SPARE	--	--	--	1	20	74
75	20	1	0.0	1.2	0.0	PWR: FSD			1.2	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
85	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124	0.4	0.0					SPARE	--	--	--	1	20	86
87	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124			0.4	0.0			SPARE	--	--	--	1	20	88
89	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124					0.4	0.0	SPARE	--	--	--	1	20	90
91	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124	0.4	0.0					SPARE	--	--	--	1	20	92
93	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124			0.4	0.0			SPARE	--	--	--	1	20	94
95	20	1	0.0	0.0	0.4	CO: FITNESS AREA 2124					0.4	0.0	SPARE	--	--	--	1	20	96
97	20	1	0.0	0.0	0.5	CO: WOMEN'S LOCKER 2125	0.5	0.0					SPARE	--	--	--	1	20	98
99	20	1	0.0	0.0	0.5	CO: MEN'S LOCKER 2120			0.5	0.0			SPARE	--	--	--	1	20	100
101	20	1	0.0	0.0	0.2	CO: FITNESS AREA 2124					0.2	0.0	SPARE	--	--	--	1	20	102
103	20	1	0.0	0.0	0.2	CO: FITNESS AREA 2124	0.2	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	108
109	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120
121	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	122
123	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	124
125	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	126

TOTALS: CONNECTED kVA PER PHASE **16** **17** **16** — CONNECTED TOTAL kVA = **49**
CONNECTED AMPS PER PHASE **136** **139** **132** — AVERAGE CONNECTED AMPS PER PHASE = **135**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **41**
RECEPTACLES: **26.2 kVA @ 69% = 18.1 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **113**
ALL OTHER LOADS @ 100% : **22.5 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2QLA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 2121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.4	CO: COURTROOM 2108 FB	0.4	0.7					CO: COURTROOM 2108 FB	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: COURTROOM 2141 FB			0.4	0.7			CO: COURTROOM 2141 FB	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO: CORRIDOR 2154					0.5	0.4	CO: JUDGES CHAMBERS 2112	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: COURTROOM 2108 FB	0.7	0.4					CO: COURTROOM 2108 FB	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: COURTROOM 2141 FB			0.7	0.4			CO: COURTROOM 2141 FB	0.4	0.0	0.0	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.4	CO: JUDGES CHAMBERS 2138	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.7	CO: COURTROOM 2108	0.7	0.7					CO: COURTROOM 2108	0.7	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.7	CO: COURTROOM 2141			0.7	0.7			CO: COURTROOM 2141	0.7	0.0	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.2	CO: ELECTRICAL 2121	0.2	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.7	CO: COURTROOM 2108	0.7	0.7					PWR: RACK COMM CLOSET 2123	0.0	2.0	0.0	3	20	20
21	20	1	0.0	0.0	0.7	CO: COURTROOM 2141			0.7	0.7			--	--	--	--	--	--	22
23	20	1	--	--	--	SPARE					0.0	0.7	--	--	--	--	--	--	24
25	20	1	0.0	0.0	0.4	CO: COURTROOM 2108	0.4	0.7					PWR: RACK COMM CLOSET 2123	0.0	2.0	0.0	3	20	26
27	20	1	0.0	0.0	0.4	CO: COURTROOM 2141			0.4	0.7			--	--	--	--	--	--	28
29	20	1	--	--	--	SPARE					0.0	0.7	--	--	--	--	--	--	30
31	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 2108	1.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 2141			1.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	2	0.0	0.4	0.0	PWR: SSFC-4 2123			0.2	0.0			SPARE	--	--	--	1	20	82
83	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **7** **7** **3** — CONNECTED TOTAL kVA = **17**
CONNECTED AMPS PER PHASE **64** **65** **25** — AVERAGE CONNECTED AMPS PER PHASE = **48**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **17**
RECEPTACLES: **10.8 kVA @ 96% = 10.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **47**
ALL OTHER LOADS @ 100% : **6.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3HA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 3121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LTG	PWR	CO	DESCRIPTION	A	A	B	B	C	C	DESCRIPTION	CO	PWR	LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	2
3	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	4
5	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	6
7	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	8
9	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	10
11	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	12
13	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	14
15	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	16
17	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	18
19	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	20
21	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	22
23	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	24
25	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	26
27	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	28
29	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	30
31	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	32
33	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	34
35	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	36
37	--	--	--	--	--	SPACE	0.0	0.0					SPACE	--	--	--	--	--	38
39	--	--	--	--	--	SPACE			0.0	0.0			SPACE	--	--	--	--	--	40
41	--	--	--	--	--	SPACE					0.0	0.0	SPACE	--	--	--	--	--	42

TOTALS: CONNECTED kVA PER PHASE **0** **0** **0** — CONNECTED TOTAL kVA = **0**
CONNECTED AMPS PER PHASE **0** **0** **0** — AVERAGE CONNECTED AMPS PER PHASE = **0**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **0**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **0**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

VCBO ARCHITECTURE
VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

PANEL SCHEDULES

EP606

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PANEL: "3LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 3121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	1.1	CO: MAIN CORRIDOR	1.1	0.0					SPARE	--	--	--	1	20	2
3	20	1	0.0	0.0	0.5	CO: MAIN CORRIDOR			0.5	0.9			CO: CORRIDOR	0.9	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: MAIN CORRIDOR					0.4	1.3	CO: CORRIDOR	1.3	0.0	0.0	1	20	6
7	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN	0.7	0.0					SPARE	--	--	--	1	20	8
9	20	1	0.0	0.0	0.7	CO: RESTROOMS 3144, 3143			0.7	0.5			PWR: BYPASS PUMP 3139	0.0	0.5	0.0	1	20	10
11	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN					0.7	0.5	PWR: BYPASS PUMP 3154	0.0	0.5	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: TOILETS 3128, 3127	0.4	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.5	CO: STORAGE 3120	0.5	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	44
45	20	1	0.0	0.8	0.0	PWR: SMALL BRKRM 3122A FRIDGE			0.8	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	46
47	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 3122A					0.2	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	48
49	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 3122A	0.2	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	50
51	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 3122A			0.2	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	52
53	20	1	0.0	1.3	0.0	PWR: SMALL BREAKRM 3122A DISP.					1.3	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	54
55	20	1	0.0	0.8	0.0	PWR: FSD	0.8	0.0					SPARE	--	--	--	1	20	56
57	20	1	0.0	1.0	0.0	PWR: FSD			1.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **6** **7** **7** — CONNECTED TOTAL kVA = **20**
CONNECTED AMPS PER PHASE **47** **57** **62** — AVERAGE CONNECTED AMPS PER PHASE = **54**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **20**
RECEPTACLES: **6.3 kVA @ 100% = 6.3 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **54**
ALL OTHER LOADS @ 100% : **13.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3QLA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 3121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.4	CO: LARGE COURTROOM 3141	0.4	0.7					CO: LARGE COURTROOM 3141	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.9	CO: JUDGES CHAMBERS 3138			0.9	0.9			CO: JUDGES CHAMBERS 3112	0.9	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: COURTROOM 3108					0.4	0.7	CO: COURTROOM 3108	0.7	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: LARGE COURTROOM 3141	0.7	0.4					CO: LARGE COURTROOM 3141	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.2	CO: ELECTRICAL			0.2	0.7			CO: EXEC. OFFICE 3131	0.7	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: COURTROOM 3108					0.7	0.4	CO: COURTROOM 3108	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.7	CO: LARGE COURTROOM 3141	0.7	0.7					PWR: RACK COMM CLOSET 3123	0.0	2.0	0.0	3	20	14
15	20	1	0.0	0.0	0.5	CO: HOLDING CORRIDOR 3154			0.5	0.7			--	--	--	--	--	--	16
17	20	1	0.0	0.0	0.7	CO: COURTROOM 3108					0.7	0.7	--	--	--	--	--	--	18
19	20	1	0.0	0.0	0.7	CO: LARGE COURTROOM 3141	0.7	0.7					PWR: RACK COMM CLOSET 3123	0.0	2.0	0.0	3	20	20
21	20	1	--	--	--	SPARE			0.0	0.7			--	--	--	--	--	--	22
23	20	1	0.0	0.0	0.7	CO: COURTROOM 3108					0.7	0.7	--	--	--	--	--	--	24
25	20	1	0.0	0.0	0.7	CO: LARGE COURTROOM 3141	0.7	1.0					CO: LARGE COURTROOM 3141	0.0	2.0	0.0	2	20	26
27	20	1	--	--	--	SPARE			0.0	1.0			--	--	--	--	--	--	28
29	20	1	0.0	0.0	0.7	CO: COURTROOM 3108					0.7	1.0	CO: LARGE COURTROOM 3141	0.0	1.0	0.0	1	20	30
31	20	1	0.0	0.0	0.4	CO: LARGE COURTROOM 3141	0.4	0.7					PWR: RACK COMM CLOSET 3123	0.0	2.0	0.0	3	20	32
33	20	1	--	--	--	SPARE			0.0	0.7			--	--	--	--	--	--	34
35	20	1	0.0	0.0	0.4	CO: COURTROOM 3108					0.4	0.7	--	--	--	--	--	--	36
37	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 3141	1.0	1.0					CO: LARGE COURTROOM 3141	0.0	2.0	0.0	2	20	38
39	20	1	--	--	--	SPARE			0.0	1.0			--	--	--	--	--	--	40
41	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 3108					1.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.2	CO: JUDGES TOILET 3111	0.2	0.5					CO: LARGE COURTROOM 3141	0.5	0.0	0.0	1	20	44
45	20	1	0.0	0.0	0.7	CO: JUDGES CHAMBERS 3112			0.7	0.7			CO: LARGE COURTROOM 3141	0.7	0.0	0.0	1	20	46
47	20	1	0.0	0.0	1.4	CO: OFFICES 3115, 3116					1.4	0.7	CO: LARGE COURTROOM 3141	0.7	0.0	0.0	1	20	48
49	20	1	0.0	0.0	1.4	CO: OFFICES 3117, 3130	1.4	0.7					CO: LARGE COURTROOM 3141	0.7	0.0	0.0	1	20	50
51	20	1	0.0	0.0	0.5	CO: EXEC. OFFICE 3131			0.5	0.5			CO: COURTROOM 3108	0.5	0.0	0.0	1	20	52
53	20	1	0.0	0.0	1.1	CO: JUD. ASSISTANTS 3133					1.1	0.5	CO: COURTROOM 3108	0.5	0.0	0.0	1	20	54
55	20	1	0.0	0.0	1.0	CO: JUD. ASSISTANTS 3133	1.0	0.7					CO: COURTROOM 3108	0.7	0.0	0.0	1	20	56
57	20	1	0.0	0.0	1.0	CO: JUD. ASSISTANTS 3133			1.0	0.7			CO: COURTROOM 3108	0.7	0.0	0.0	1	20	58
59	20	1	0.0	0.0	1.4	CO: OFFICES 3134, 3135					1.4	0.7	CO: CONFERENCE ROOM 3129	0.7	0.0	0.0	1	20	60
61	20	1	0.0	0.0	0.7	CO: COURT CONF ROOM 3136	0.7	0.5					PWR: CONF ROOM 3129 AV MON.	0.0	0.5	0.0	1	20	62
63	20	1	0.0	0.0	0.2	CO: JUDGES TOILET 3137			0.2	0.7			CO: CONF ROOM 3129 AV CAB/COMP.	0.7	0.0	0.0	1	20	64
65	20	1	0.0	0.0	0.7	CO: JUDGES CHAMBERS 3138					0.7	1.0	CO: LARGE COURTROOM 3141	0.0	2.0	0.0	2	20	66
67	20	1	0.0	0.0	0.4	CO: WORKROOM 3126	0.4	1.0					--	--	--	--	--	--	68
69	20	1	0.0	0.0	0.4	CO: WORKROOM 3126			0.4	1.0			CO: LARGE COURTROOM 3141	0.0	2.0	0.0	2	20	70
71	20	1	0.0	1.0	0.0	PWR: WORKROOM 3126 COPIER					1.0	1.0	--	--	--	--	--	--	72
73	20	1	0.0	0.0	0.7	CO: OFFICE 3125	0.7	1.0					CO: LARGE COURTROOM 3141	0.0	2.0	0.0	2	20	74
75	20	1	0.0	0.0	0.7	CO: EQUIPMENT 1305			0.7	1.0			--	--	--	--	--	--	76
77	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 3106					0.7	0.0	SPARE	--	--	--	1	20	78
79	20	1	0.0	0.0	0.5	CO: CONFERENCE ROOM 3153	0.5	0.0					SPARE	--	--	--	1	20	80
81	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 3148			0.7	0.2			PWR: SSFC-5 3123	0.0	0.4	0.0	2	20	82
83	20	1	--	--	--	SPARE					0.0	0.2	--	--	--	--	--	--	84
85	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	86
87	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	88
89	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	90
91	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	92
93	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	94
95	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	96
97	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	98
99	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	100
101	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	102
103	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	108
109	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120
121	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	122
123	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	124
125	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	126

TOTALS: CONNECTED kVA PER PHASE **19** **16** **19** — CONNECTED TOTAL kVA = **55**
CONNECTED AMPS PER PHASE **163** **135** **164** — AVERAGE CONNECTED AMPS PER PHASE = **152**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **43**
RECEPTACLES: **33.7 kVA @ 65% = 21.9 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **119**
ALL OTHER LOADS @ 100% : **20.9 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "4HA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 4120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	2.9	0.0	0.0	LTG: LEVEL 4 NORTH CORR - 4RA-1	2.9	1.5					LTG: RM 4139-1, 4140-1, 4140-2, 4139-2	0.0	0.0	1.1	1	20	2
3	20	1	0.6	0.0	0.0	LTG: L4 COURTRM VEST - 4RA-2			0.6	1.6			LTG: JUDICIAL SRVC 4124, 4118, 4119	0.0	0.0	1.7	1	20	4
5	20	1	0.4	0.0	0.0	LTG: LEVEL 4 SOUTH CORR - 4RA-3					0.3	0.4	LTG: RM 4128, 4129, 4127, 4126, 4125	0.0	0.0	0.4	1	20	6
7	20	1	--	--	--	SPARE	0.0	1.9					LTG: RM 4113, 4111, 4133, 4112, 4115,	0.0	0.0	1.9	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **6** **2** **1** — CONNECTED TOTAL kVA = **9**
CONNECTED AMPS PER PHASE **23** **9** **3** — AVERAGE CONNECTED AMPS PER PHASE = **11**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **8.9 kVA @ 125% = 11.1 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **12**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **14**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "4LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 4120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.9	CO: MAIN CORRIDOR	0.9	0.2					CO: JUDGES TOILET 4111	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: MAIN CORRIDOR			0.5	0.7			CO JUDGES CHAMBERS 4112	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: MAIN CORRIDOR					0.4	0.9	CO: CORRIDOR	0.9	0.0	0.0	1	20	6
7	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN	0.7	0.9					CO: CORRIDOR	0.9	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: PROBATION SUPPORT 4103			0.7	0.4			CO: ROOF PLAZA	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 4106					0.7	0.7	CO: OFFICE 4115	0.7	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.5	CO: CONFERENCE ROOM 4149	0.5	1.4					CO: OFFICES 4130, 4131	1.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 4143			0.7	0.7			CO: COURT CONFERENCE ROOM 4132	0.7	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.7	CO: RESTROOMS					0.7	0.2	CO: JUDGES TOILET 4133	0.2	0.0	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: BYPASS PUMP 4135	0.5	0.7					CO: JUDGES CHAMBERS 4134	0.7	0.0	0.0	1	20	20
21	20	1	0.0	0.5	0.0	PWR: BYPASS PUMP 4150			0.5	0.7			PWR: DRINKING FOUNTAIN	0.0	0.7	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.4	CO: RESTROOMS	0.4	0.0	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	1.3					CO: CORRIDORS/STORAGE	1.3	0.0	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.7			CO: OPEN OFFICE 4124	0.7	0.0	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.5	CO: OPEN OFFICE 4124	0.5	0.0	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.5					CO: OPEN OFFICE 4124	0.5	0.0	0.0	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.7			CO: OPEN OFFICE 4124	0.7	0.0	0.0	1	20	34
35	20	1	--	--	--	SPARE					0.0	1.0	CO: WITNESS SEQUESTER ROOM 4126	0.0	1.0	0.0	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.7	CO: WITNESS SEQSTR ROOM 4126	0.7	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	44
45	20	1	0.0	0.0	0.4	CO: WORKROOM 4125			0.4	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	46
47	20	1	0.0	0.0	0.4	CO: WORKROOM 4125					0.4	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	48
49	20	1	0.0	0.0	0.5	CO: WORKROOM 4125	0.5	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	50
51	20	1	0.0	1.0	0.0	PWR: WORKROOM 4125 COPIER			1.0	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	52
53	20	1	0.0	0.0	0.4	CO: SMALL BREAKROOM 4119					0.4	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	54
55	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 4119	0.2	0.5					CO: COURTROOM 4108	0.5	0.0	0.0	1	20	56
57	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 4119			0.2	0.5			CO: COURTROOM 4108	0.5	0.0	0.0	1	20	58
59	20	1	0.0	0.8	0.0	PWR: SMALL BRKRM 4119 FRIDGE					0.8	0.7	CO: COURTROOM 4108	0.7	0.0	0.0	1	20	60
61	20	1	0.0	1.3	0.0	PWR: SMALL BREAKRM 4119 DISP.	1.3	0.7					CO: COURTROOM 4108	0.7	0.0	0.0	1	20	62
63	20	1	0.0	0.8	0.0	PWR: FSD			0.8	0.5			CO: COURTROOM 4137	0.5	0.0	0.0	1	20	64
65	20	1	0.0	1.0	0.0	PWR: FSD					1.0	0.5	CO: COURTROOM 4137	0.5	0.0	0.0	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.7					CO: COURTROOM 4137	0.7	0.0	0.0	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.5			CO: COURTROOM 4137	0.5	0.0	0.0	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **14** **12** **12** — CONNECTED TOTAL kVA = **39**
CONNECTED AMPS PER PHASE **120** **103** **102** — AVERAGE CONNECTED AMPS PER PHASE = **108**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **32**
RECEPTACLES: **23.8 kVA @ 71% = 16.9 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **89**
ALL OTHER LOADS @ 100% : **15.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "4QLA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 4120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	0.0	0.0	0.7	CO: JUDGES CHAMBERS 4112	0.7	0.7					CO: JUDGES CHAMBERS 4134	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: COURTROOM 4108			0.4	0.7			CO: COURTROOM 4108	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: COURTROOM 4137					0.4	0.7	CO: COURTROOM 4137	0.7	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.2	CO: ELECTRICAL	0.2	0.5					CO: CORRIDOR 4150	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: COURTROOM 4108			0.7	0.4			CO: COURTROOM 4108	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: COURTROOM 4137					0.7	0.4	CO: COURTROOM 4137	0.4	0.0	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.7					PWR: RACK COMM CLOSET 4121	0.0	2.0	0.0	3	20	14
15	20	1	0.0	0.0	0.7	CO: COURTROOM 4108			0.7	0.7			--	--	--	--	--	--	16
17	20	1	0.0	0.0	0.7	CO: COURTROOM 4137					0.7	0.7	--	--	--	--	--	--	18
19	20	1	--	--	--	SPARE	0.0	0.7					PWR: RACK COMM CLOSET 4121	0.0	2.0	0.0	3	20	20
21	20	1	0.0	0.0	0.7	CO: COURTROOM 4108			0.7	0.7			--	--	--	--	--	--	22
23	20	1	0.0	0.0	0.7	CO: COURTROOM 4137					0.7	0.7	--	--	--	--	--	--	24
25	20	1	--	--	--	SPARE	0.0	0.7					PWR: RACK COMM CLOSET 4121	0.0	2.0	0.0	3	20	26
27	20	1	0.0	0.0	0.7	CO: COURTROOM 4108			0.7	0.7			--	--	--	--	--	--	28
29	20	1	0.0	0.0	0.7	CO: COURTROOM 4137					0.7	0.7	--	--	--	--	--	--	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	0.0	0.0	0.4	CO: COURTROOM 4108			0.4	0.0			SPARE	--	--	--	1	20	34
35	20	1	0.0	0.0	0.4	CO: COURTROOM 4137					0.4	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 4108			1.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 4137					1.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	2	0.0	0.4	0.0	PWR: SSFC-6 4121			0.2	0.0			SPARE	--	--	--	1	20	82
83	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **4** **8** **8** — CONNECTED TOTAL kVA = **20**
CONNECTED AMPS PER PHASE **35** **71** **71** — AVERAGE CONNECTED AMPS PER PHASE = **55**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **19**
RECEPTACLES: **11.5 kVA @ 93% = 10.8 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **53**
ALL OTHER LOADS @ 100% : **8.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "5HA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 5120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) PWR	LOAD (kVA) CO	DESCRIPTION	PHASE LOAD A	A	PHASE LOAD B	B	PHASE LOAD C	C	DESCRIPTION	LOAD (kVA) CO	LOAD (kVA) PWR	LOAD (kVA) LTG	OCP POLE	OCP AMP	CKT NO
1	20	1	2.5	0.0	0.0	LTG: OFFICES	2.4	2.4					LTG: LEVEL 5 NORTH CORR - 5RA-1	0.0	0.0	2.4	1	20	2
3	20	1	1.5	0.0	0.0	LTG: JUDGE BATH/ ROBE RM 5133			1.5	0.6			LTG: LEVEL 5 COURT VEST - 5RA-2	0.0	0.0	0.6	1	20	4
5	20	1	0.9	0.0	0.0	LTG: NORTH CONF/BATH ROOMS					1.4	0.4	LTG: LEVEL 5 SOUTH CORR - 5RA-3	0.0	0.0	0.4	1	20	6
7	0	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **5** **2** **2** — CONNECTED TOTAL kVA = **9**
CONNECTED AMPS PER PHASE **17** **8** **6** — AVERAGE CONNECTED AMPS PER PHASE = **11**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **8.3 kVA @ 125% = 10.3 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **11**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **13**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

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No. 181563
DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev # Date Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

PANEL SCHEDULES

EP607

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8/12/2013 2:48:02 PM

PANEL: "5LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 5120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.9	CO: MAIN CORRIDOR	0.9	0.2					CO: JUDGES TOILET 5111	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: MAIN CORRIDOR			0.5	0.7			CO: JUDGES CHAMBERS 5112	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: MAIN CORRIDOR					0.4	0.9	CO: CORRIDOR	0.9	0.0	0.0	1	20	6
7	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN	0.7	0.9					CO: CORRIDOR	0.9	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 5106			0.7	0.7			CO: JUDICIAL CASE MANAGER 5115	0.7	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: CONFERENCE ROOM 5149					0.5	1.4	CO: OFFICES 5130, 5131	1.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.7	CO: CONFERENCE ROOM 5143	0.7	0.7					CO: COURT CONFERENCE ROOM 5132	0.7	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.7	CO: RESTROOMS			0.7	0.2			CO: ROBING CLOSET 5133	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.5	0.0	PWR: BYPASS PUMP 5135					0.5	0.7	CO: JUDGES CHAMBERS 5134	0.7	0.0	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: BYPASS PUMP 5150	0.5	0.7					PWR: DRINKING FOUNTAIN	0.0	0.7	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.4			CO: RESTROOMS	0.4	0.0	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	1.3	CO: CORRIDORS/STORAGE	1.3	0.0	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.7					CO: OPEN OFFICE 5124	0.7	0.0	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	1.1			CO: OPEN OFFICE 5124	1.1	0.0	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.5	CO: OPEN OFFICE 5124	0.5	0.0	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.7					CO: OPEN OFFICE 5124	0.7	0.0	0.0	1	20	32
33	20	1	--	--	--	SPARE			0.0	1.0			PWR: SEQUTRED ROOM 5126 AV MON.	0.0	1.0	0.0	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	0.0	0.0	0.7	CO: SEQUESTERED ROOM 5126	0.7	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	44
45	20	1	0.0	0.0	0.4	CO: WORKROOM 5125			0.4	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	46
47	20	1	0.0	0.0	0.4	CO: WORKROOM 5125					0.4	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	48
49	20	1	0.0	0.0	0.4	CO: WORKROOM 5125	0.4	1.0					PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	50
51	20	1	0.0	1.0	0.0	PWR: WORKROOM 5125 COPIER			1.0	1.0			PWR: ROLLER SHADES	0.0	1.0	0.0	1	20	52
53	20	1	0.0	0.0	0.4	CO: SMALL BREAKROOM 5119					0.4	1.5	PWR: ROLLER SHADES	0.0	1.5	0.0	1	20	54
55	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 5119	0.2	0.5					CO: COURTROOM 5108	0.5	0.0	0.0	1	20	56
57	20	1	0.0	0.0	0.2	CO: SMALL BREAKROOM 5119			0.2	0.5			CO: COURTROOM 5108	0.5	0.0	0.0	1	20	58
59	20	1	0.0	0.8	0.0	PWR: SMALL BRKRM 5119 FRIDGE					0.8	0.7	CO: COURTROOM 5108	0.7	0.0	0.0	1	20	60
61	20	1	0.0	1.3	0.0	PWR: SMALL BREAKRM 5119 DISP.	1.3	0.7					CO: COURTROOM 5108	0.7	0.0	0.0	1	20	62
63	20	1	0.0	0.8	0.0	PWR: FSD			0.8	0.5			CO: COURTROOM 5137	0.5	0.0	0.0	1	20	64
65	20	1	0.0	1.0	0.0	PWR: FSD					1.0	0.5	CO: COURTROOM 5137	0.5	0.0	0.0	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.7					CO: COURTROOM 5137	0.7	0.0	0.0	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.5			CO: COURTROOM 5137	0.5	0.0	0.0	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.5					CO: ROOF	0.5	0.0	0.0	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.5			CO: ROOF	0.5	0.0	0.0	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.7	CO: ROOF	0.7	0.0	0.0	1	20	84

TOTALS: CONNECTED kVA PER PHASE **14** **13** **14** — CONNECTED TOTAL kVA = **40**
CONNECTED AMPS PER PHASE **117** **105** **116** — AVERAGE CONNECTED AMPS PER PHASE = **111**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **33**
RECEPTACLES: **24.8 kVA @ 70% = 17.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **91**
ALL OTHER LOADS @ 100% : **15.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "5QLA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	400 AMPERE MAIN LUGS	ELECTRICAL 5120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 5121	0.7	0.7					PWR: RACK COMM CLOSET 5121	0.0	2.0	0.0	3	20	2
3	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	4
5	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	6
7	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 5121	0.7	0.4					CO ELEVATORA 5102	0.4	0.0	0.0	1	20	8
9	--	--	--	--	--	--			0.7	1.0			POWER ELEVATOR EQUIPMENT 5105	0.0	1.0	0.0	1	20	10
11	--	--	--	--	--	--					0.7	1.0	POWER ELEVATOR EQUIPMENT 5105	0.0	1.0	0.0	1	20	12
13	20	1	0.0	0.0	0.2	CO ELEVATORC 5154	0.2	1.0					POWER ELEVATOR EQUIPMENT 5105	0.0	1.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO ELEVATORB 5117			0.4	1.0			POWER ELEVATOR EQUIPMENT 5127	0.0	1.0	0.0	1	20	16
17	40	2	0.0	4.2	0.0	MTR: ACCU-1					2.1	1.0	POWER ELEVATOR EQUIPMENT 5127	0.0	1.0	0.0	1	20	18
19	--	--	--	--	--	--	2.1	2.1					MTR: ACCU-2	0.0	4.2	0.0	2	40	20
21	40	2	0.0	4.2	0.0	MTR: ACCU-3			2.1	2.1			--	--	--	--	--	--	22
23	--	--	--	--	--	--					2.1	2.1	MTR: ACCU-4	0.0	4.2	0.0	2	40	24
25	40	2	0.0	4.2	0.0	MTR: ACCU-5	2.1	2.1					--	--	--	--	--	--	26
27	--	--	--	--	--	--			2.1	2.1			MTR: ACCU-6	0.0	4.2	0.0	2	40	28
29	40	2	0.0	4.2	0.0	MTR: ACCU-7					2.1	2.1	--	--	--	--	--	--	30
31	--	--	--	--	--	--	2.1	1.1					MTR: ACCU-8	0.0	2.3	0.0	2	20	32
33	20	2	0.0	2.3	0.0	MTR: ACCU-9			1.1	1.1			--	--	--	--	--	--	34
35	--	--	--	--	--	--					1.1	0.2	PWR: SSFC-7 5121	0.0	0.4	0.0	2	20	36
37	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	38
39	20	2	0.0	0.4	0.0	PWR: SSFC-9 5127			0.2	0.2			PWR: SSFC-8 5105	0.0	0.4	0.0	2	20	40
41	--	--	--	--	--	--					0.2	0.2	--	--	--	--	--	--	42
43	20	1	0.0	0.0	0.4	CO: COURTROOM 5108	0.4	0.7					CO: COURTROOM 5108	0.7	0.0	0.0	1	20	44
45	20	1	0.0	0.0	0.4	CO: COURTROOM 5137			0.4	0.7			CO: COURTROOM 5137	0.7	0.0	0.0	1	20	46
47	20	1	0.0	0.0	0.7	CO: JUDGES CHAMBERS 5112					0.7	0.7	CO: JUDGES CHAMBERS 5134	0.7	0.0	0.0	1	20	48
49	20	1	0.0	0.0	0.7	CO: COURTROOM 5108	0.7	0.4					CO: COURTROOM 5108	0.4	0.0	0.0	1	20	50
51	20	1	0.0	0.0	0.7	CO: COURTROOM 5137			0.7	0.4			CO: COURTROOM 5137	0.4	0.0	0.0	1	20	52
53	20	1	0.0	0.0	0.2	CO: ELECTRICAL 5120					0.2	0.5	CO: CORRIDOR 5150	0.5	0.0	0.0	1	20	54
55	20	1	0.0	0.0	0.7	CO: COURTROOM 5108	0.7	0.7					CO: COURTROOM 5108	0.7	0.0	0.0	1	20	56
57	20	1	0.0	0.0	0.7	CO: COURTROOM 5137			0.7	0.7			CO: COURTROOM 5137	0.7	0.0	0.0	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	0.0	0.0	0.7	CO: COURTROOM 5108	0.7	0.4					CO: COURTROOM 5108	0.4	0.0	0.0	1	20	62
63	20	1	0.0	0.0	0.7	CO: COURTROOM 5137			0.7	0.4			CO: COURTROOM 5137	0.4	0.0	0.0	1	20	64
65	20	1	--	--	--	SPARE					0.0	1.1	PWR: CTLVP-1	0.0	1.1	0.0	1	20	66
67	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 5108	1.0	1.1					PWR: CTLVP-2	0.0	1.1	0.0	1	20	68
69	20	1	0.0	1.0	0.0	CO: CAMERAS COURTROOM 5137			1.0	1.1			PWR: CTLVP-3	0.0	1.1	0.0	1	20	70
71	20	1	0.0	0.6	0.0	PWR: LVPP-1					0.6	1.1	PWR: CTLVP-4	0.0	1.1	0.0	1	20	72
73	20	1	0.0	0.6	0.0	PWR: LVPP-2	0.6	0.0					SPARE	--	--	--	1	20	74
75	20	1	0.0	0.6	0.0	PWR: LVPP-3			0.6	0.0			SPARE	--	--	--	1	20	76
77	20	1	0.0	0.6	0.0	PWR: LVPP-4					0.6	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
85	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	86
87	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	88
89	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	90
91	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	92
93	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	94
95	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	96
97	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	98
99	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	100
101	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	102
103	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	108
109	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120
121	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	122
123	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	124
125	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	126

TOTALS: CONNECTED kVA PER PHASE **23** **23** **22** — CONNECTED TOTAL kVA = **67**
CONNECTED AMPS PER PHASE **190** **190** **181** — AVERAGE CONNECTED AMPS PER PHASE = **186**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **67**
RECEPTACLES: **12.4 kVA @ 90% = 11.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **186**
ALL OTHER LOADS @ 100% : **55.6 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "EHA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, FUSIBLE	225 AMPERE MAIN FUSE	ELECTRICAL 1164A	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	1.6	0.0	0.0	LTG: L1 ELECTRICAL/TELECOMM	1.5	0.7					LTG: VEHICULAR SALLYPORT - 1RE-1	0.0	0.0	0.7	1	20	2
3	20	1	2.7	0.0	0.0	LTG: HOLDING CELLS			2.7	2.2			LTG: HOLDING AREA - 1RE-2	0.0	0.0	2.2	1	20	4
5	30	1	4.0	0.0	0.0	LTG: DMA					4.0	0.7	LTG: EXTERIOR SCONCES - 1RE-3	0.0	0.0	0.7	1	20	6
7	30	1	4.8	0.0	0.0	LTG: DMB	4.7	2.1					LTG: STAIRWELL B,C 1RE-4	0.0	0.0	2.1	1	20	8
9	30	1	4.0	0.0	0.0	LTG: DMC			4.0	1.4			LTG: L1 CORR/COMMON AREAS - 1RE-5	0.0	0.0	1.5	1	20	10
11	30	1	4.0	0.0	0.0	LTG: DMD					4.0	2.8	LTG: STAIRWELL A,D/ROOF - 1RE-6	0.0	0.0	2.9	1	20	12
13	30	1	1.8	0.0	0.0	LTG: DME	1.8	0.9					LTG: STAIRWELL E1RE-7	0.0	0.0	0.9	1	20	14
15	20	1	2.0	0.0	0.0	LTG: L2 ELECTRICAL/TELECOMM			2.0	0.3			LTG: LEVEL 2 CORR EM - 1RE-8	0.0	0.0	0.3	1	20	16
17	20	1	1.2	0.0	0.0	LTG: L3 NORTH BATH/CONF ROOMS					1.5	0.7	LTG: LEVEL 2 EM - 1RE-9	0.0	0.0	0.7	1	20	18
19	20	1	3.6	0.0	0.0	LTG: L3 SOUTH OFFICES/CONF RMS	3.6	3.5					LTG: SECURE EM - 1RE-10	0.0	0.0	3.5	1	20	20
21	20	1	2.5	0.0	0.0	LTG: L3 ELEC/TELE/OFFICES			2.4	0.7			LTG: MAIN VEST EM - 1RE-11	0.0	0.0	0.7	1	20	22
23	20	1	2.0	0.0	0.0	LTG: L4 ELEC/TELE/CELL ROOMS					1.9	0.3	LTG: COURT RM VEST EM - 1RE-12	0.0	0.0	0.3	1	20	24
25	20	1	2.2	0.0	0.0	LTG: L5 ELEC/TELE/CELL ROOMS	2.1	0.9					LTG: LEVEL 3 COURT VEST - 1RE-13	0.0	0.0	0.9	1	20	26
27	20	1	0.9	0.0	0.0	LTG: LEVEL 3 CORR EM - 1RE-14			0.9	2.3			LTG: LEVEL 3 VEST EM - 1RE-15	0.0	0.0	2.3	1	20	28
29	20	1	1.4	0.0	0.0	LTG: LEVEL 3 VEST EM - 1RE-16					1.4	0.8	LTG: LEVEL 4 EM - 1RE-17	0.0	0.0	0.8	1	20	30
31	20	1	0.3	0.0	0.0	LTG: LEVEL 4 EM - 1RA-18	0.3	1.2					LTG: LEVEL 4 EM - 1RA-19	0.0	0.0	1.2	1	20	32
33	20	1	0.8	0.0	0.0	LTG: LEVEL 5 EM - 1RE-20			0.8	0.3			LTG: LEVEL 5 EM - 1RE-21	0.0	0.0	0.3	1	20	34
35	20	1	0.2	0.0	0.0	LTG: LEVEL 5 EM - 1RE-22					0.2	0.4	LTG: ROOF AIR HANDLER	0.0	0.0	0.4	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **23** **20** **19** — CONNECTED TOTAL kVA = **63**
CONNECTED AMPS PER PHASE **85** **73** **68** — AVERAGE CONNECTED AMPS PER PHASE = **75**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **62.2 kVA @ 125% = 77.8 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **78**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **94**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "5QHA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 5120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	3	0.0	2.8	0.0	PWR: EF-1 (VFD)	0.9	0.9					PWR: EF-2 (VFD)	0.0	2.8	0.0	3	20	2
3	--	--	--	--	--	--			0.9	0.9			--	--	--	--	--	--	4
5	--	--	--	--	--	--					0.9	0.9	--	--	--	--	--	--	6
7	20	3	0.0	2.8	0.0	PWR: EF-3 (VFD)	0.9	0.9					PWR: EF-4 (VFD)	0.0	2.8	0.0	3	20	8
9	--	--	--	--	--	--			0.9	0.9			--	--	--	--	--	--	10
11	--	--	--	--	--	--					0.9	0.9	--	--	--	--	--	--	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **4** **4** **4** — CONNECTED TOTAL kVA = **11**
CONNECTED AMPS PER PHASE **14** **14** **14** — AVERAGE CONNECTED AMPS PER PHASE = **14**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **12**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **14**
ALL OTHER LOADS @ 100% : **12.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "ELA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, FUSIBLE	100 AMPERE MAIN FUSE	ELECTRICAL 1164A	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	3	0.0	3.0	0.0	PWR: WONDOOR	1.0	0.5					PWR: ELEV SMOKE CURTAIN LBY 1107	0.0	0.5	0.0	1	20	2
3	--	--	--	--	--	--			1.0	0.5			PWR: ELEV SMOKE CURTAIN LBY 2107	0.0	0.5	0.0	1	20	4
5	--	--	--	--	--	--					1.0	0.5	PWR: ELEV SMOKE CURTAIN	0.0	0.5	0.0	1	20	6
7	20	1	0.0	0.3	0.0	PWR: ELEV SMOKE CURTAIN	0.3	0.5					PWR: ELEV SMOKE CURTAIN LBY 3145	0.0	0.5	0.0	1	20	8
9	20	1	0.0	0.3	0.0	PWR: ELEV SMOKE CURTAIN			0.3	0.5			PWR: ELEV SMOKE CURTAIN 3118	0.0	0.5	0.0	1	20	10
11	20	1	0.0	0.5	0.0	PWR: ELEV SMOKE CURTAIN 4145					0.5	0.3	PWR: ELEV SMOKE CURTAIN	0.0	0.3	0.0	1	20	12
13	20	1	0.0	0.5	0.0	PWR: ELEV SMOKE CURTAIN 4116	0.5	0.5					PWR: ELEV SMOKE CURTAIN 5145	0.0	0.5	0.0	1	20	14
15	20	1	0.0	0.3	0.0	PWR: ELEV SMOKE CURTAIN			0.3	0.5			PWR: ELEV SMOKE CURTAIN 5116	0.0	0.5	0.0	1	20	16
17	20	1	0.0	0.0	0.2	CO ELEVATOR EQUIPMENT 5105					0.2	0.3	PWR: ELEV SMOKE CURTAIN	0.0	0.3	0.0	1	20	18
19	20	1	0.0	0.0	0.2	CO ELEVATOR EQUIPMENT 5127	0.2	0.5					CO: MAIN ELECTRICAL 1164	0.5	0.0	0.0	1	20	20
21	20	1	0.0	0.5	0.0	PWR: FA PANELS			0.5	0.1			MTR: EF-10 1164A	0.0	0.1	0.0	1	20	22
23	20	1	0.0	1.0	0.0	PWR: FA PANELS					1.0	0.5	PWR: ELEV SMOKE CURTAIN	0.0	0.5	0.0	1	20	24
25	20	1	0.0	1.0	0.0	PWR: FA PANELS	1.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	1.0			PWR: FA PANELS	0.0	1.0	0.0	1	20	28
29	20	1	0.0	1.0	0.0	PWR: FA PANELS					1.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **5** **5** **5** — CONNECTED TOTAL kVA = **10**
CONNECTED AMPS PER PHASE **42** **38** **44** — AVERAGE CONNECTED AMPS PER PHASE = **28**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **11**
RECEPTACLES: **0.9 kVA @ 100% = 0.9 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **30**
ALL OTHER LOADS @ 100% : **10.1 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

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PROFESSIONAL ENGINEER — LICENSED — No. 181563 DAVID E. WESEMANN 2013.8.15 — STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description
1	04.17.2013	FIRE MARSHAL REVIEW

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

PANEL SCHEDULES

EP608

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PANEL: "1ULA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 1136	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: SECURITY OFFICE 1115	0.4	0.7					CO COMMUNICATION CLOSET 1134	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: SECURITY OFFICE 1115			0.4	0.7			CO COMMUNICATION CLOSET 1134	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: SECURITY OFFICE 1117					0.4	0.9	CO COMMUNICATION CLOSET 1134	0.9	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: CONTROL RM SECURITY 1149	0.7	0.7					CO COMMUNICATION CLOSET 1134	0.7	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.5	CO: CONTROL RM SECURITY 1149			0.5	0.7			CO COMMUNICATION CLOSET 1134	0.7	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: CONTROL RM SECURITY 1149					0.7	0.9	CO COMMUNICATION CLOSET 1134	0.9	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: SECURITY EQUIP. CLOSET 1144	0.4	0.7					PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	14
15	20	1	0.0	0.0	0.4	CO: SECURITY EQUIP. CLOSET 1144			0.4	0.7			--	--	--	--	--	--	16
17	20	1	0.0	0.0	0.4	CO: SECURITY EQUIP. CLOSET 1144					0.4	0.7	--	--	--	--	--	--	18
19	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134	0.7	0.7					PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	20
21	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	22
23	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	24
25	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134	0.7	0.7					PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	26
27	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	28
29	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	30
31	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134	0.7	0.7					PWR: RACK COMM CLOSET 1134	0.0	2.0	0.0	3	20	32
33	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	34
35	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	36
37	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 1134	0.7	0.5					PWR: BMS XFMR TELECOMM 1134	0.0	0.5	0.0	1	20	38
39	--	--	--	--	--	--			0.7	0.5			PWR: BMS XFMR TELECOMM 1134	0.0	0.5	0.0	1	20	40
41	--	--	--	--	--	--					0.7	0.5	PWR: BMS XFMR TELECOMM 1134	0.0	0.5	0.0	1	20	42
43	20	1	0.0	0.5	0.0	PWR: SECURITY TELECOMM 1134	0.5	0.0					SPARE	--	--	--	1	20	44
45	20	1	0.0	0.5	0.0	PWR: SECURITY TELECOMM 1134			0.5	0.5			PWR: BMS PANEL TELECOMM 1134	0.0	0.5	0.0	1	20	46
47	20	1	0.0	0.5	0.0	PWR: BMS PANEL MECH 1163					0.5	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	9	10	10	CONNECTED TOTAL kVA = 28
CONNECTED AMPS PER PHASE	77	80	80	AVERAGE CONNECTED AMPS PER PHASE = 79

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **8.8 kVA @ 100% = 8.8 kVA**
ALL OTHER LOADS @ 100% : **19.5 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **28**
AVERAGE AMPS PER PHASE = **79**

PANEL: "2ULA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 2121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 2123	0.7	0.7					CO COMMUNICATION CLOSET 2123	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 2123			0.7	0.7			CO COMMUNICATION CLOSET 2123	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO COMMUNICATION CLOSET 2123					0.5	0.7	PWR: RACK COMM CLOSET 2123	0.0	2.0	0.0	3	20	6
7	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 2123	0.7	0.7					--	--	--	--	--	--	8
9	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	10
11	--	--	--	--	--	--					0.7	0.0	SPARE	--	--	--	1	20	12
13	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 2123	1.0	1.0					PWR: RACK COMM CLOSET 2123	0.0	1.0	0.0	1	20	14
15	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 2123			1.0	1.0			PWR: RACK COMM CLOSET 2123	0.0	1.0	0.0	1	20	16
17	20	1	0.0	0.5	0.0	PWR: BMS XFMR TELECOMM 2123					0.5	0.5	PWR: BMS PANEL TELECOMM 2123	0.0	0.5	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: BMS XFMR TELECOMM 2123	0.5	0.5					PWR: SECURITY TELECOMM 2123	0.0	0.5	0.0	1	20	20
21	20	1	0.0	0.5	0.0	PWR: BMS XFMR TELECOMM 2123			0.5	0.5			PWR: SECURITY TELECOMM 2123	0.0	0.5	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	6	6	3	CONNECTED TOTAL kVA = 14
CONNECTED AMPS PER PHASE	52	52	24	AVERAGE CONNECTED AMPS PER PHASE = 40

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **3.4 kVA @ 100% = 3.4 kVA**
ALL OTHER LOADS @ 100% : **11.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **14**
AVERAGE AMPS PER PHASE = **40**

PANEL: "3ULA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 3121	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 3123	0.7	0.7					CO COMMUNICATION CLOSET 3123	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 3123			0.7	0.7			CO COMMUNICATION CLOSET 3123	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 3123					0.7	0.5	CO COMMUNICATION CLOSET 3123	0.5	0.0	0.0	1	20	6
7	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 3123	0.7	0.7					PWR: RACK COMM CLOSET 3123	0.0	2.0	0.0	3	20	8
9	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	10
11	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	12
13	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 3123	0.7	0.7					PWR: BMS XFMR TELECOMM 3123	0.0	0.5	0.0	1	20	14
15	--	--	--	--	--	--			0.7	0.5			PWR: BMS XFMR TELECOMM 3123	0.0	0.5	0.0	1	20	16
17	--	--	--	--	--	--					0.7	0.5	PWR: BMS XFMR TELECOMM 3123	0.0	0.5	0.0	1	20	18
19	20	1	0.0	1.0	0.0	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 3123			1.0	1.0			PWR: RACK COMM CLOSET 3123	0.0	1.0	0.0	1	20	22
23	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 3123					1.0	1.0	PWR: RACK COMM CLOSET 3123	0.0	1.0	0.0	1	20	24
25	20	1	0.0	0.5	0.0	PWR: BMS PANEL TELECOMM 3123	0.5	0.5					PWR: SECURITY TELECOMM 3123	0.0	0.5	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.5			PWR: SECURITY TELECOMM 3123	0.0	0.5	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	5	6	6	CONNECTED TOTAL kVA = 17
CONNECTED AMPS PER PHASE	41	55	49	AVERAGE CONNECTED AMPS PER PHASE = 48

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **4.1 kVA @ 100% = 4.1 kVA**
ALL OTHER LOADS @ 100% : **13.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **17**
AVERAGE AMPS PER PHASE = **48**

PANEL: "4ULA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 4120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 4121	0.7	0.7					CO COMMUNICATION CLOSET 4121	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 4121			0.7	0.7			CO COMMUNICATION CLOSET 4121	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 4121					0.7	0.5	CO COMMUNICATION CLOSET 4121	0.5	0.0	0.0	1	20	6
7	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 4121	0.7	0.7					PWR: RACK COMM CLOSET 4121	0.0	2.0	0.0	3	20	8
9	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	10
11	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	12
13	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 4121	0.7	0.5					PWR: BMS XFMR TELECOMM 4121	0.0	0.5	0.0	1	20	14
15	--	--	--	--	--	--			0.7	0.5			PWR: BMS XFMR TELECOMM 4121	0.0	0.5	0.0	1	20	16
17	--	--	--	--	--	--					0.7	0.5	PWR: BMS XFMR TELECOMM 4121	0.0	0.5	0.0	1	20	18
19	20	1	0.0	0.0	0.0	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 4121			1.0	1.0			PWR: RACK COMM CLOSET 4121	0.0	1.0	0.0	1	20	22
23	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 4121					1.0	1.0	PWR: RACK COMM CLOSET 4121	0.0	1.0	0.0	1	20	24
25	20	1	0.0	0.5	0.0	PWR: BMS PANEL TELECOMM 4121	0.5	0.5					PWR: SECURITY TELECOMM 4121	0.0	0.5	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.5			PWR: SECURITY TELECOMM 4121	0.0	0.5	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	5	6	6	CONNECTED TOTAL kVA = 17
CONNECTED AMPS PER PHASE	41	55	49	AVERAGE CONNECTED AMPS PER PHASE = 48

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **4.1 kVA @ 100% = 4.1 kVA**
ALL OTHER LOADS @ 100% : **13.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **17**
AVERAGE AMPS PER PHASE = **48**

PANEL: "5ULA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	125 AMPERE MAIN LUGS	ELECTRICAL 5120	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 5121	0.7	0.7					CO COMMUNICATION CLOSET 5121	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 5121			0.7	0.7			CO COMMUNICATION CLOSET 5121	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO COMMUNICATION CLOSET 5121					0.7	0.5	CO COMMUNICATION CLOSET 5121	0.5	0.0	0.0	1	20	6
7	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 5121	0.7	0.7					PWR: RACK COMM CLOSET 5121	0.0	2.0	0.0	3	20	8
9	--	--	--	--	--	--			0.7	0.7			--	--	--	--	--	--	10
11	--	--	--	--	--	--					0.7	0.7	--	--	--	--	--	--	12
13	20	3	0.0	2.0	0.0	PWR: RACK COMM CLOSET 5121	0.7	0.5					PWR: BMS XFMR TELECOMM 5121	0.0	0.5	0.0	1	20	14
15	--	--	--	--	--	--			0.7	0.5			PWR: BMS XFMR TELECOMM 5121	0.0	0.5	0.0	1	20	16
17	--	--	--	--	--	--					0.7	0.5	PWR: BMS XFMR TELECOMM 5121	0.0	0.5	0.0	1	20	18
19	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 5121	1.0	1.0					PWR: RACK COMM CLOSET 5121	0.0	1.0	0.0	1	20	20
21	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 5121			1.0	1.0			PWR: RACK COMM CLOSET 5121	0.0	1.0	0.0	1	20	22
23	20	1	0.0	1.0	0.0	PWR: RACK COMM CLOSET 5121					1.0	1.0	PWR: RACK COMM CLOSET 5121	0.0	1.0	0.0	1	20	24
25	20	1	0.0	0.5	0.0	PWR: BMS PANEL TELECOMM 5121	0.5	0.5					PWR: SECURITY TELECOMM 5121	0.0	0.5	0.0	1	20	26
27	20	1	0.0	0.5	0.0	PWR: MECH ROOF			0.5	0.5			PWR: SECURITY TELECOMM 5121	0.0	0.5	0.0	1	20	28
29	20	1	0.0	0.5	0.0	PWR: MECH ROOF					0.5	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	7	7	6	CONNECTED TOTAL kVA = 20
CONNECTED AMPS PER PHASE	59	59	52	AVERAGE CONNECTED AMPS PER PHASE = 56

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **4.1 kVA @ 100% = 4.1 kVA**
ALL OTHER LOADS @ 100% : **16.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **20**
AVERAGE AMPS PER PHASE = **56**

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STATE OF UTAH — LICENSED PROFESSIONAL ENGINEER — No. 181563 — DAVID E. WESEMANN — 2013.8.15

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse
Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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PANEL SCHEDULES

EP609

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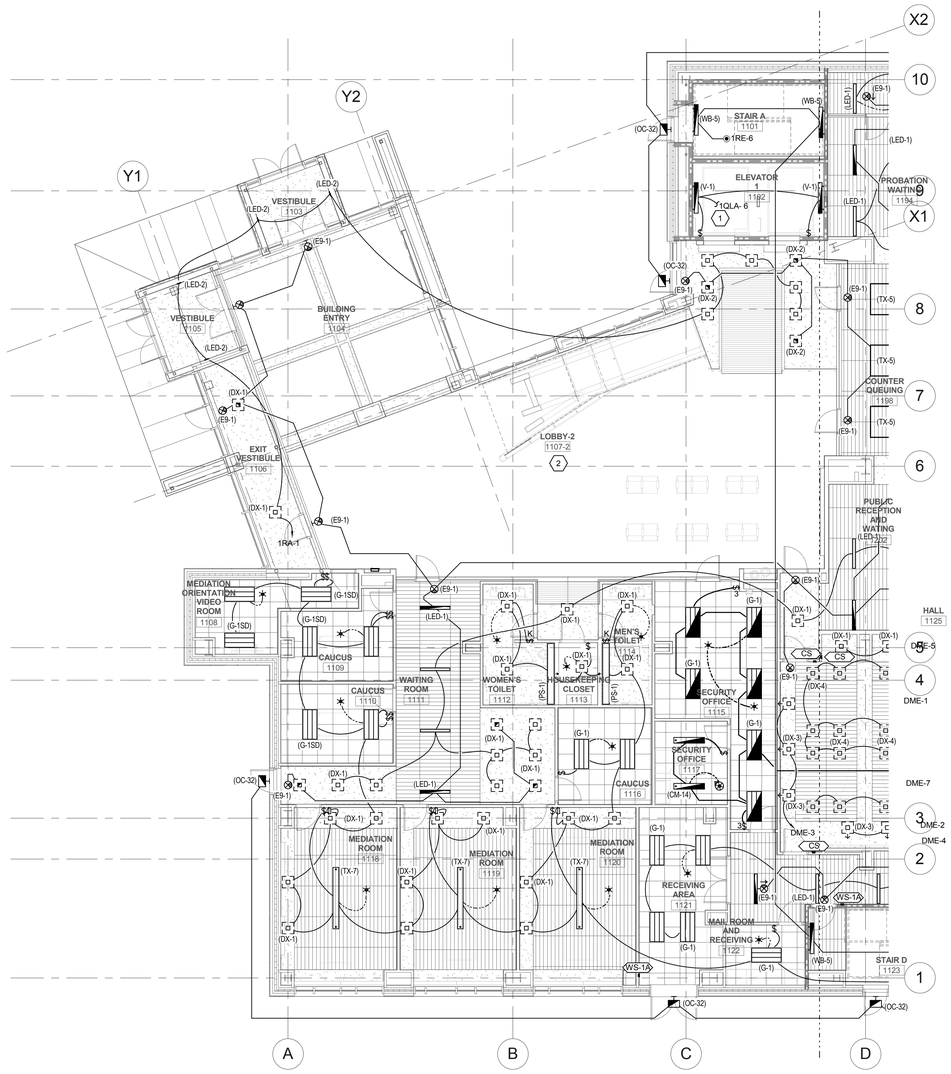

1 LEVEL 1 LIGHTING PLAN - AREA A

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 CIRCUIT WITH ELEVATOR PIT OR MACHINE ROOM RECEPTACLE.

2 AREA OPEN TO ABOVE. REFERENCE SHEET EL102A FOR LIGHTING.

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LEVEL 1 LIGHTING PLAN - AREA A

EL101A

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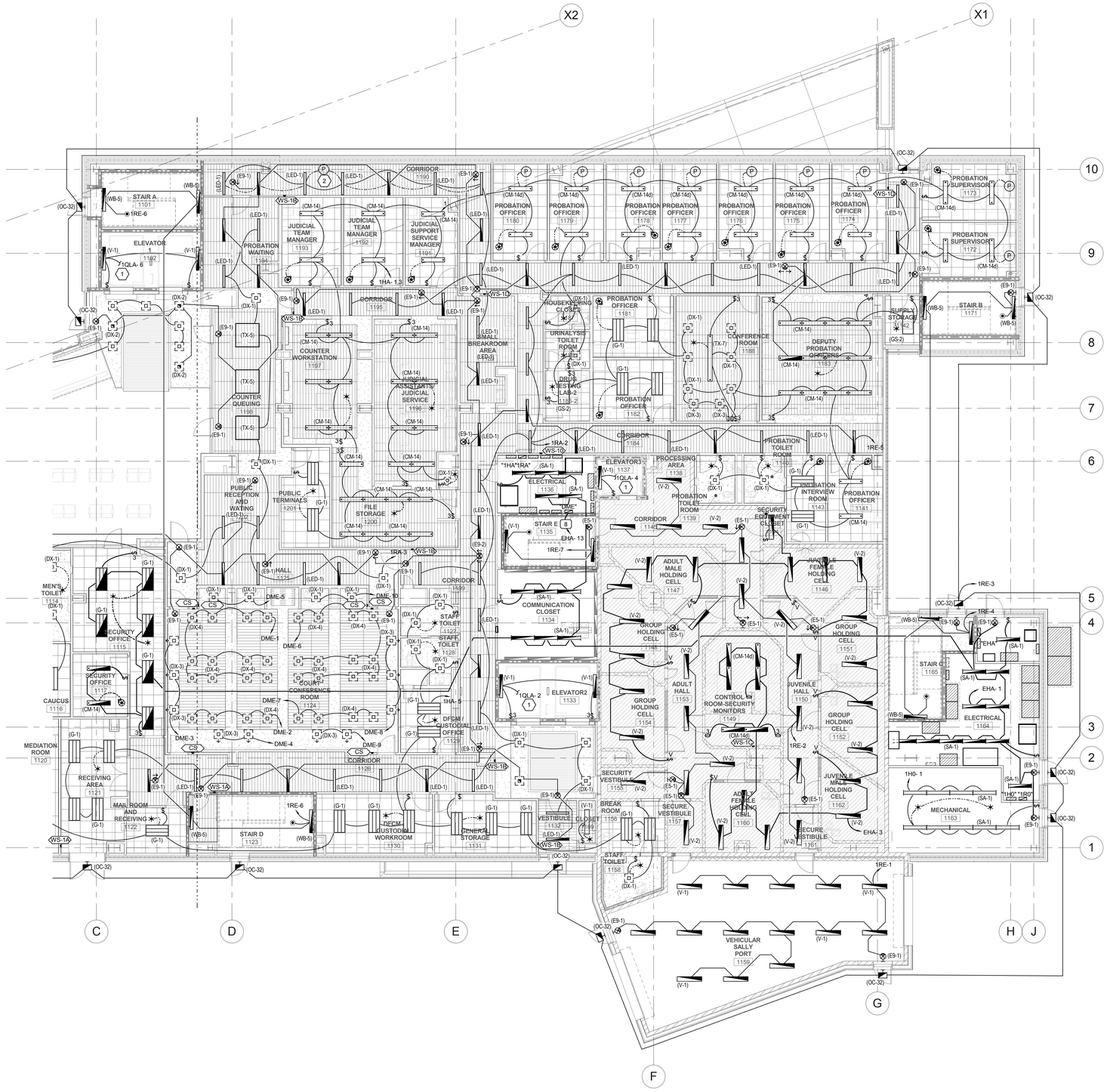

1 LEVEL 1 LIGHTING PLAN - AREA B

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 CIRCUIT WITH ELEVATOR PIT OR MACHINE ROOM RECEPTACLE.

2 PROVIDE DIRECT PHOTOCELL CONTROL OF FIXTURES INDICATED.

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LEVEL 1 LIGHTING PLAN - AREA B

EL101B

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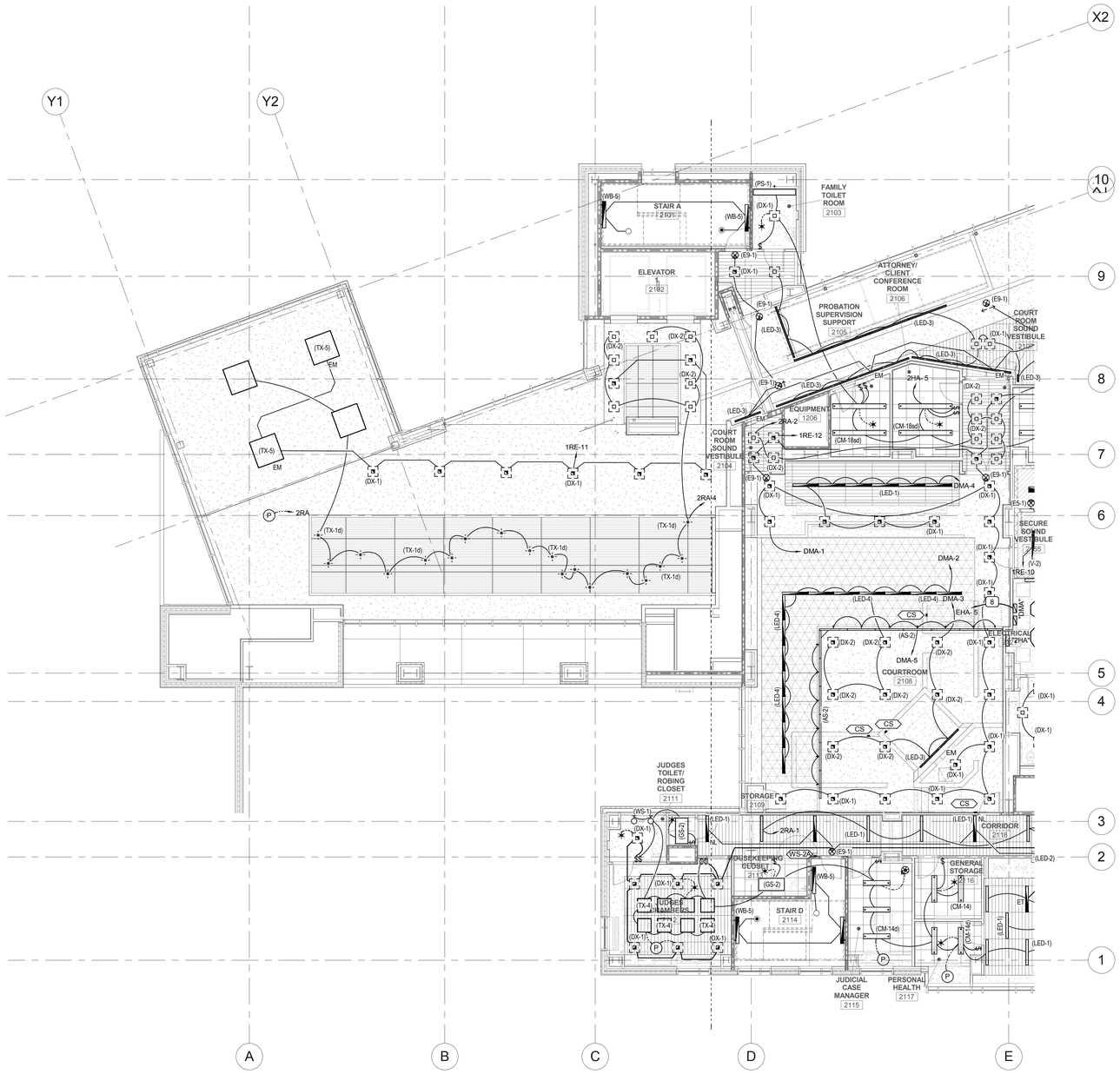

1 LEVEL 2 LIGHTING PLAN - AREA A

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

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LEVEL 2 LIGHTING PLAN - AREA A

EL102A

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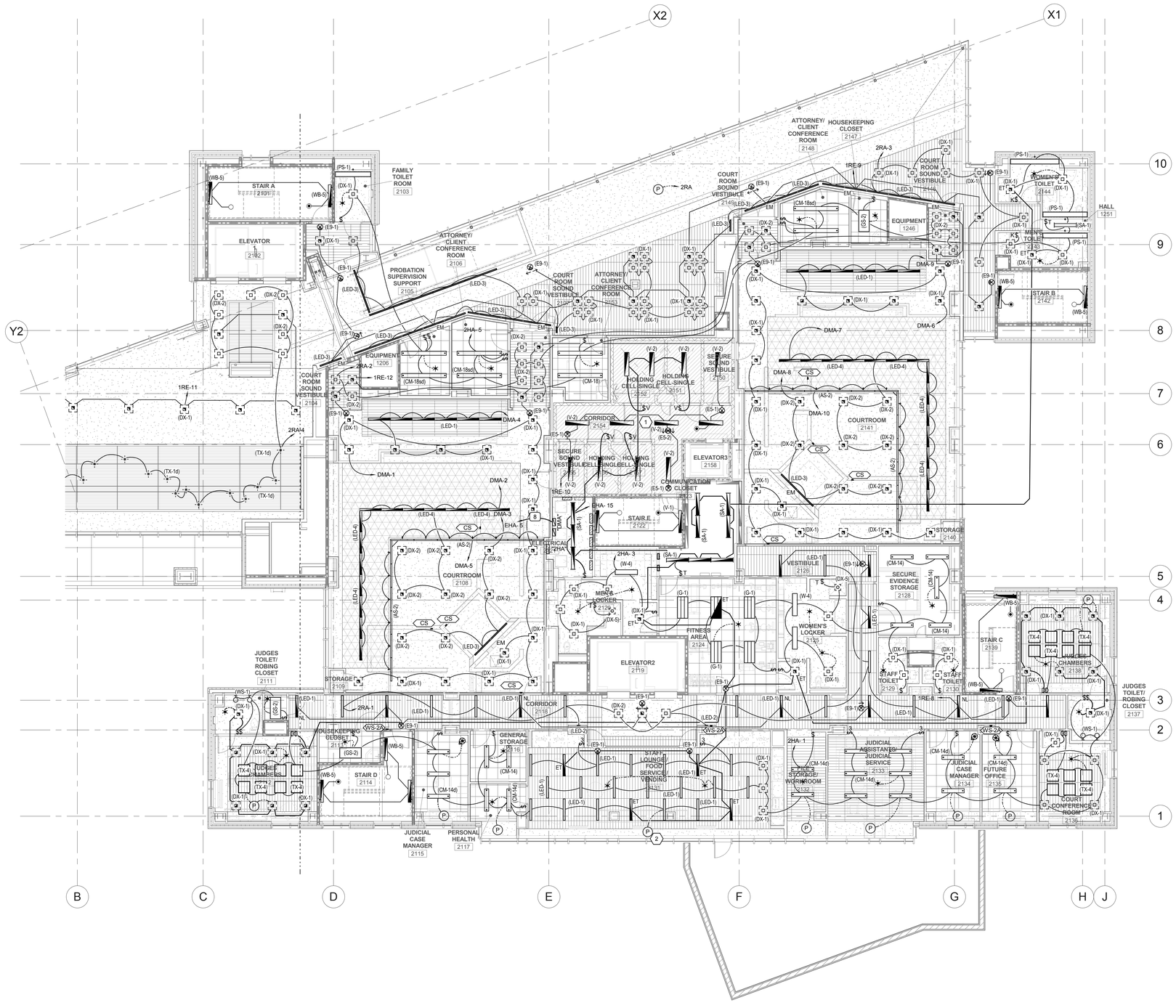

1 LEVEL 2 LIGHTING PLAN - AREA B

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 PROVIDE 12 SA-1'S WITH LOCAL SWITCH FOR MECHANICAL MEZZANINE IN THIS AREA.

2 PROVIDE PHOTOCELL DIMMING CONTROL FOR ALL FIXTURES IN THIS ROOM.

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LEVEL 2 LIGHTING PLAN - AREA B

EL102B

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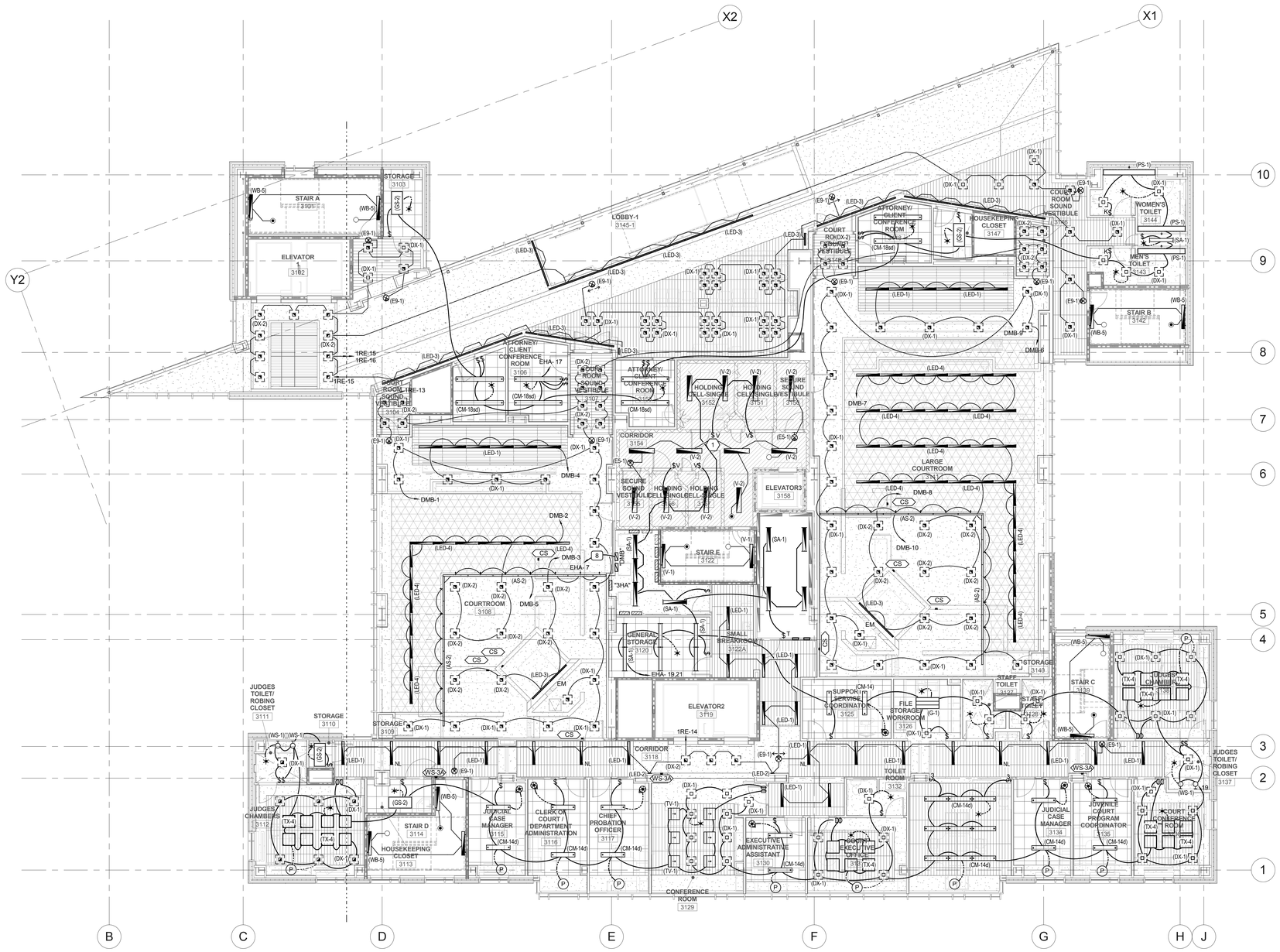

A1 LEVEL 3 LIGHTING PLAN

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 PROVIDE 12 SA-1'S WITH LOCAL SWITCH FOR MECHANICAL MEZZANINE IN THIS AREA.

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LEVEL 3 LIGHTING PLAN

EL103

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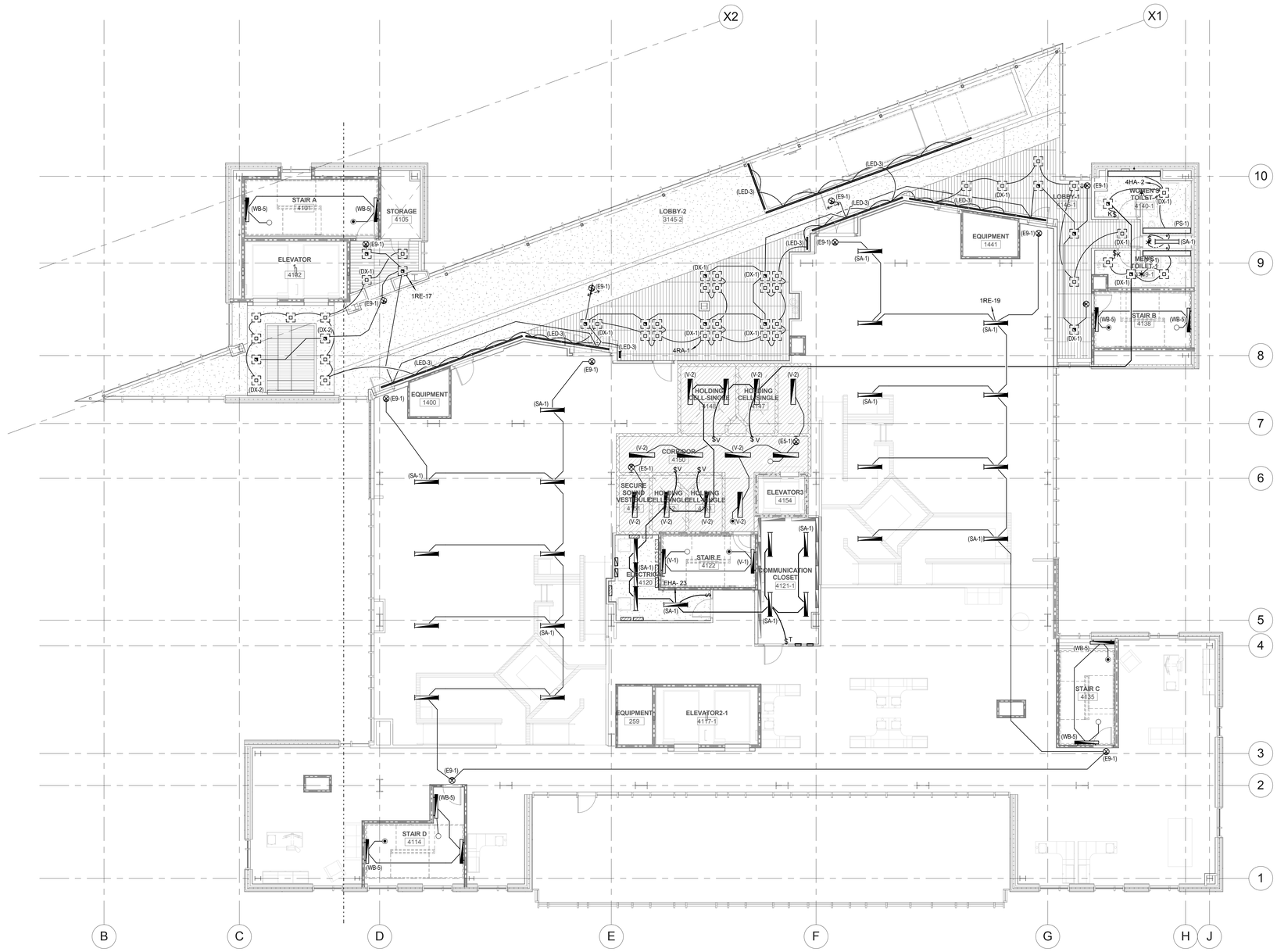

A1 LEVEL 4 LIGHTING PLAN

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

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LEVEL 4 LIGHTING PLAN

EL104

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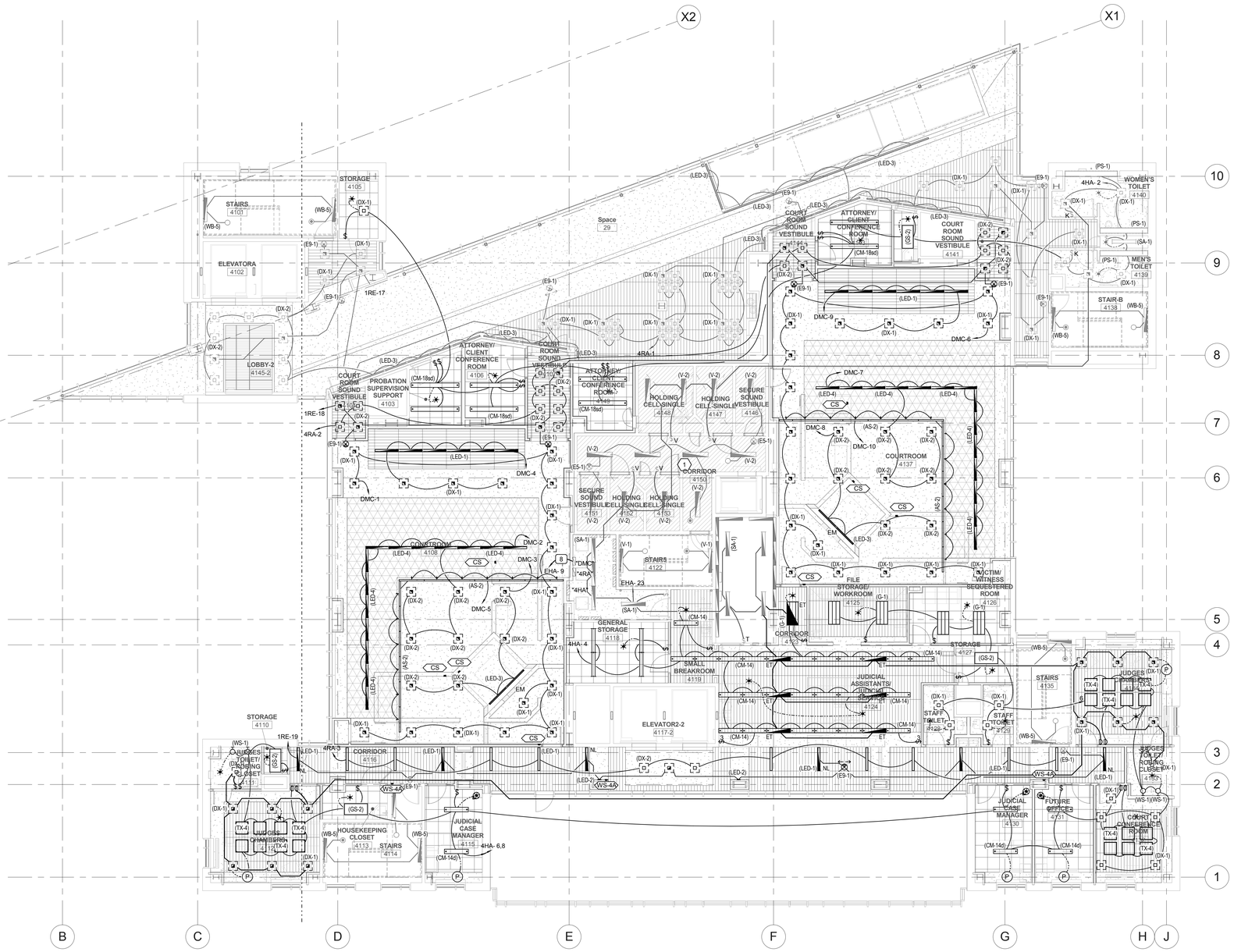

A1 LEVEL 4 LIGHTING PLAN - ALT

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 PROVIDE 12 SA-1'S WITH LOCAL SWITCH FOR MECHANICAL MEZZANINE IN THIS AREA.

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LEVEL 4 LIGHTING PLAN - ALT

EL104alt

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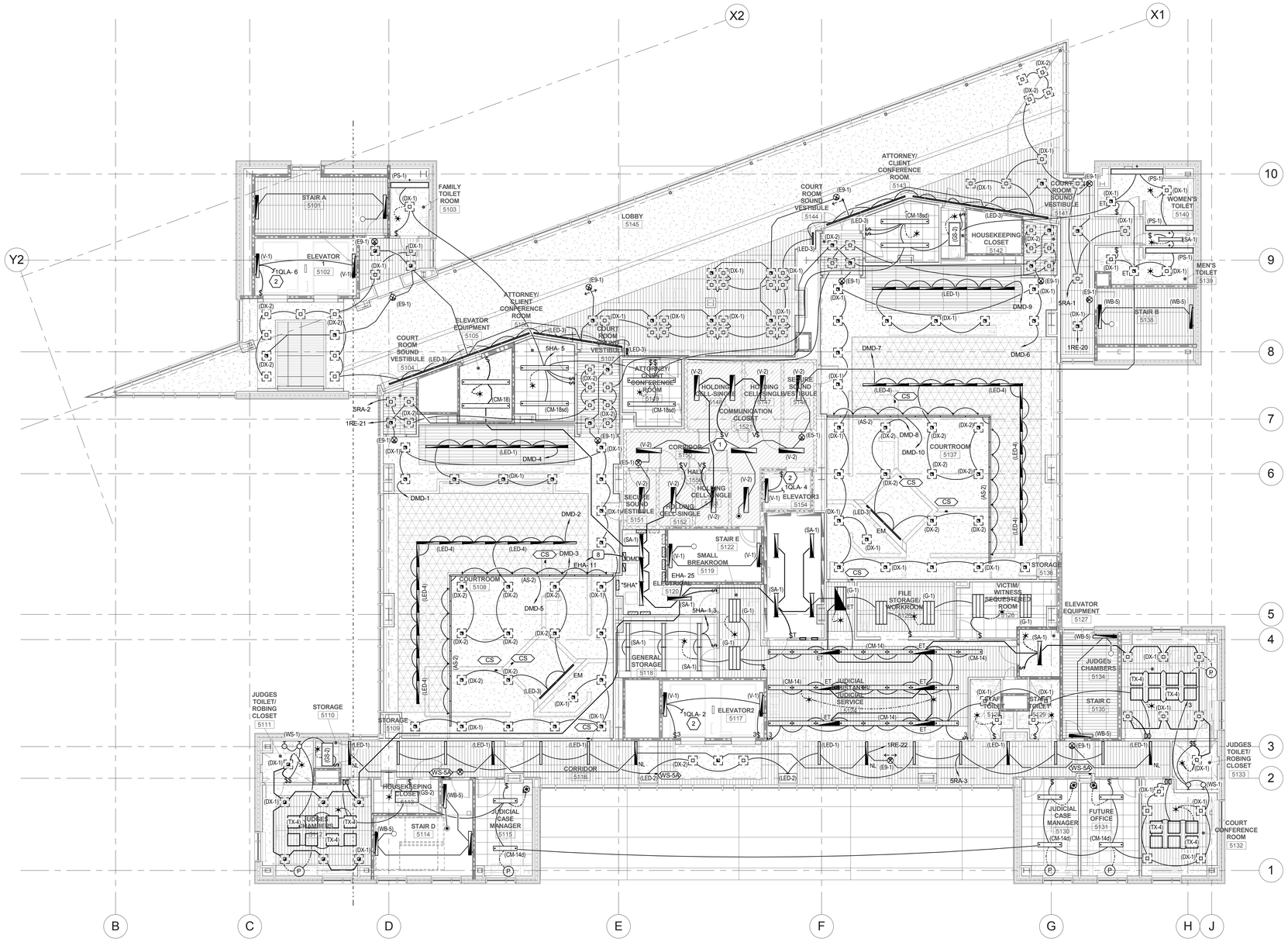

A1 LEVEL 5 LIGHTING PLAN

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

1 PROVIDE 12 SA-1'S WITH LOCAL SWITCH FOR MECHANICAL MEZZANINE IN THIS AREA.

2 CIRCUIT WITH ELEVATOR PIT OR MACHINE ROOM RECEPTACLE.

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LEVEL 5 LIGHTING PLAN

EL105

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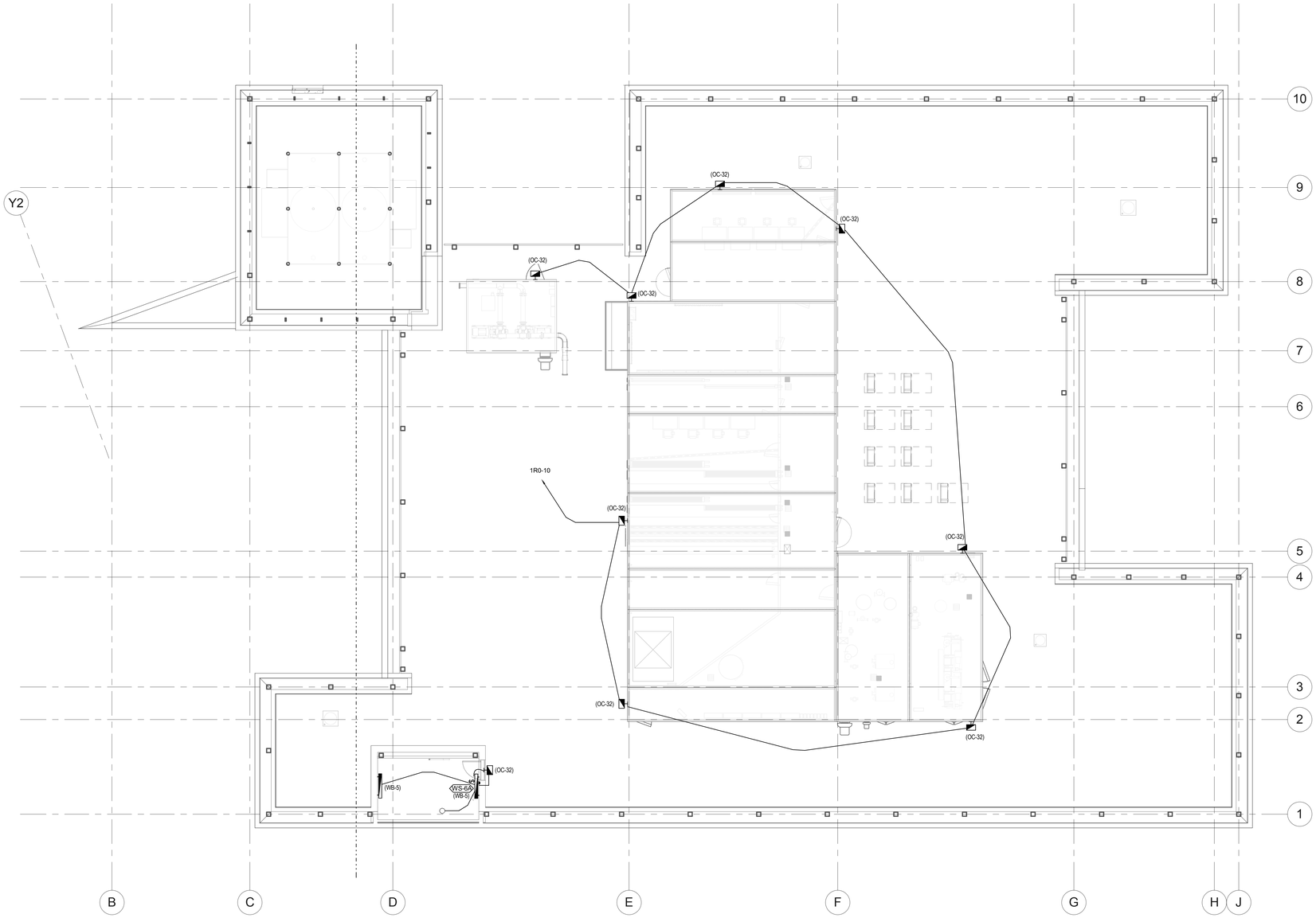

A1 ROOF/PENTHOUSE LIGHTING PLAN

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

GENERAL SHEET NOTES

1. CIRCUIT ALL EXIT SIGNS AND NIGHT LIGHTS TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.

SHEET KEYNOTES

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DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

ROOF/PENTHOUSE LIGHTING PLAN

EL106

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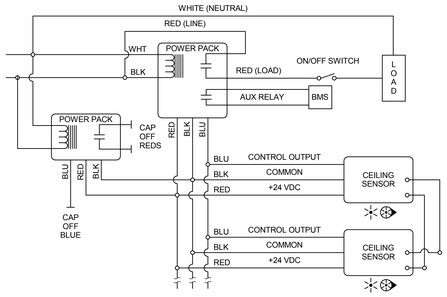
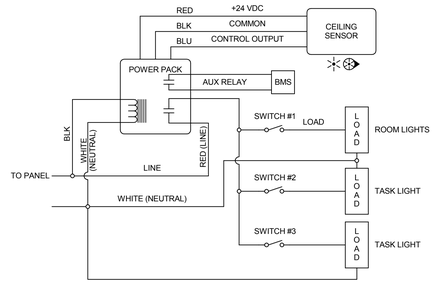


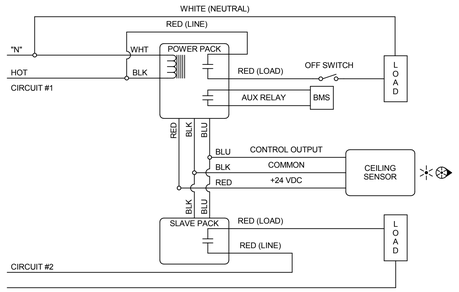
5 TYPICAL ROOM WITH MULTIPLE CEILING SENSORS

SCALE: NTS



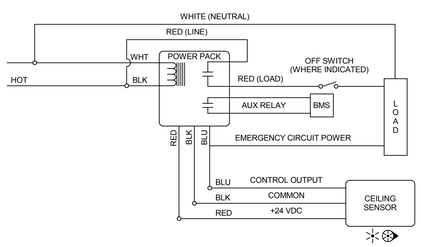
3 TYPICAL ROOM WITH ONE CEILING SENSOR, ONE CIRCUIT AND MULTIPLE SWITCHED LOADS

SCALE: NTS



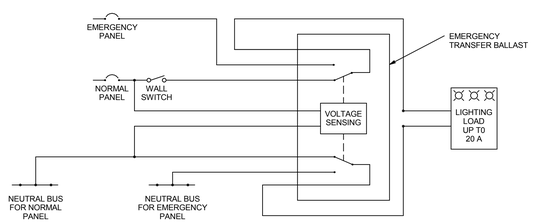
2 TYPICAL ROOM WITH ONE CEILING SENSOR, CONTROLLING TWO CIRCUITS

SCALE: NTS



1 TYPICAL ROOM WITH ONE CEILING SENSOR, WITH OR WITHOUT WALL SWITCH

SCALE: NTS



NORMAL OPERATION
LIGHTING LOAD CONTROLLED BY LOCAL SWITCHING MEANS.

EMERGENCY OPERATION
LIGHTING LOAD IS INDEPENDENT OF LOCAL SWITCHING MEANS.

4 EMERGENCY LIGHTING TRANSFER DEVICE DETAIL

SCALE: NTS

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LIGHTING DETAILS

EL501

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LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH SECTIONS 16511, 16521, AND 16570 OF THE SPECIFICATIONS.
REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED. CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277) BALLASTS REQUIRED UNLESS NOTED OTHERWISE. DIMENSION SEQUENCE = (LENGTH X WIDTH X DEPTH) IN INCHES.
LINEAR FLUORESCENT FIXTURES MARKED "HIGH EFFICIENCY" USE 32 WATT 3100 INITIAL LUMEN LAMPS WITH .77 BALLAST FACTOR ELECTRONIC BALLAST.
LAMPS: OSI "XPS" SERIES, PHILIPS "ADV" SERIES, GE "T8 ULTRA HIGH LUMEN",
BALLASTS; ADVANCE "IOP" SERIES, OSI " PROSTART PSX", GE ULTRASTART SERIES.

SYMBOL	MARK	FIXTURE CHARACTERISTICS BODY / AIR / MOUNTING / DOOR LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
	AS	INDIRECT LIGHT: ASYMMETRIC OPTICS, ALUMINUM REFLECTOR; WHITE PAINTED FINISH; MOUNTING AS SHOWN; REMOTE BALLASTS (FLUORESCENT - PROGRAMMED RAPID START ELECTRONIC, METAL HALIDE - PULSE START HPF MAGNETIC), UNLESS INDICATED INTEGRAL BALLAST (IB); ONE BALLAST PER FIXTURE WHERE POSSIBLE.						
	AS-2	4' LINEAR LED COVE LIGHT, COVE MOUNT. MUST FIT ARCHITECTURAL SPACE PROVIDED. 46 1/2" MAX LENGTH; 8" x 3" PROFILE 100%-5% DIMMING 0-10VDC 4' AND 2' VERSIONS REQUIRED (4' WHERE POSSIBLE)	LED 4000K	5 W/ FT	277/120V	INSIGHT ECOSENCE GELS SSL COLOR KINETICS	PL54016-HM12INT-ACVMW 04LC-12-40-120-12014-A-MNT-ADJ/04-AMT-TRK-4 LWW1-HO12-110-840 ACCESSORIES ECVL-1-120-4K-120-SC6/EC6 523-000004-22	
	CM	EXTRUDED ALUMINUM FIXTURES: LENGTHS AND CONFIGURATIONS SHOWN ON THE DRAWINGS; LAMPS FOUR FOOT WHERE POSSIBLE; PROGRAMMED START ELECTRONIC BALLASTS; T8 LAMPS; INTERNAL CONCEALED FASTENERS; CAST ELBOWS AND FITTINGS; COLOR AS NOTED AND/OR APPROVED BY ARCHITECT; ORIENT FIXTURE ACCORDING TO ARCHITECTS/ENGINEER'S INSTRUCTIONS. IF TRACK OR MONOPOINT FIXTURES INDICATED AS PART OF THE ASSEMBLY, SEE FIXTURE SCHEDULE FOR DETAILS. SWIVEL STEM MOUNT UNLESS NOTED OTHERWISE. INSTALL LEVEL AND STRAIGHT WITH INVISIBLE SPLICES. PROVIDE ALL REQUIRED HANGERS, SPLICERS, END CAPS, JOINTS, FEEDS, ETC., FOR A COMPLETE INSTALLATION.						
	CM-14	SUSPENDED LINEAR LIGHT 4' MODULE SHOWN, ACTUAL LENGTH AS REQUIRED, STEM HANGERS 50% DOWNLIGHT HIGH EFFICIENCY 0.71 BF MAX	2-F32T8 RE841	47W/4'	277/120V	LEDALITE LIGHTOLIER PEERLESS DAY-BRITE CORELITE	950-7-T-02-T-D BSLL21CT-XX-UNV 10CRM3-232-SPR-XX-XX-GEB10-XXX-L/ LP-XX-XX-ACG, W/TOP REFLECTOR RO-S-O-XC-232-XX-UNV-XX-SC-XX AB-WB-2T8-XX-UNV-CA-XX-XX-XX-DL50	
	CM-14D	SUSPENDED LINEAR LIGHT 4' MODULE SHOWN, ACTUAL LENGTH AS REQUIRED, STEM HANGERS 50% DOWNLIGHT HIGH EFFICIENCY 5% - 100% DIMMING BALLAST, 0.71 BF MAX	2-F32T8 RE841	47W/4'	277/120V	LEDALITE LIGHTOLIER PEERLESS CORELITE DAYBRITE	950-7-T-02-T-D-dim BSLL21CT-XX-UNV-dim 10CRM3-232-SPR-XX-XX-GEB10-XXX-L/ LP-XX-XX-ACG, W/TOP REFLECTOR-dim AB-WB-2T8-XX-UNV-CA-XX-XX-XX-DL50-dim RO-S-O-XC-232-XX-UNV-XX-SC-XX-DIM	
	CM-18	8' MODULE AS REQUIRED, STEM HANGERS 50% DOWNLIGHT HIGH EFFICIENCY .71 BF MAX	4-F32T8 RE841	94W	277/120V	LEDALITE LIGHTOLIER PEERLESS DAY-BRITE CORELITE	950-7-T-02-T-D-8 BSLL21CT-XX-UNV-8 10CRM3-232-SPR-XX-XX-GEB10-XXX-L/ LP-XX-XX-ACG, W/TOP REFLECTOR-8 RO-S-O-XC-232-XX-UNV-XX-SC-XX08 AB-WB-2T8-XX-UNV-CA-XX-XX-XX-DL50-8	
	CM-18sd	8' MODULE AS REQUIRED, STEM HANGERS 50% DOWNLIGHT HIGH EFFICIENCY .71 BF MAX STEP DIMMING BALLAST	4-F32T8 RE841	94W	277/120V	LEDALITE LIGHTOLIER PEERLESS DAY-BRITE CORELITE	950-7-T-02-T-D-8 BSLL21CT-XX-UNV-8 10CRM3-232-SPR-XX-XX-GEB10-XXX-L/ LP-XX-XX-ACG, W/TOP REFLECTOR-8 RO-S-O-XC-232-XX-UNV-XX-SC-XX08 AB-WB-2T8-XX-UNV-CA-XX-XX-XX-DL50-8	
	DX	LED DOWNLIGHTS, RECESSED, THERMALLY PROTECTED HOUSING, TO ACCOMMODATE MULTIPLE TRIMS AND REFLECTOR ASSEMBLIES 7 1/2" DEEP, AND ACCESSORIES WHEN NOTED.						
	DX-1	LED FIXED DOWNLIGHT, CLEAR NATURAL ALUMINUM TRIM EMERGENCY WHERE NOTED 6" x 6" SQUARE	LED 2000 LUMENS 4000K	39W	277/120V	PORTFOLIO GOTHAM LIGHTOLIER PRESCOLITE	LDSQ6-20-D010/ESQ6-840H20-6LSQ0-H-WF	
	DX-2	LED FIXED DOWNLIGHT, CLEAR NATURAL ALUMINUM TRIM EMERGENCY WHERE NOTED 6" x 6" SQUARE, 7" DEPTH	LED 1500 LUMENS 4000K	27W	277/120V	PORTFOLIO GOTHAM LIGHTOLIER PRESCOLITE	LDSQ6-15-D010/ESQ6-840H20-6LSQ0-H-WF	
	DX-3	LED FIXED WALL WASH DOWNLIGHT, CLEAR NATURAL ALUMINUM TRIM EMERGENCY WHERE NOTED 6" x 6" SQUARE	LED 1500 LUMENS 4000K	27W	277/120V	PORTFOLIO GOTHAM LIGHTOLIER PRESCOLITE	LDSQ6-15-D010/ESQ6-840H20-6LSQ0WW-H-WF	
	DX-4	LED FIXED DOWNLIGHT, CLEAR NATURAL ALUMINUM TRIM EMERGENCY WHERE NOTED 6" x 6" SQUARE SLOPE CEILING ADAPTER	LED 1500 LUMENS 4000K	27W	277/120V	PORTFOLIO GOTHAM LIGHTOLIER PRESCOLITE	LDSQ6-15-D010/ESQ6-840H20-6LSQ0-H-WF-SSA	
	DX-5	LED FIXED DOWNLIGHT, CLEAR NATURAL ALUMINUM ALUMINUM TRIM, SHOWER LIGHT DOUBLE GASKET 6" ROUND TRIM	LED 4000K 1500 LUMENS	27W	277/120V	LIGHTOLIER PORTFOLIO WILLIAMS GOTHAM PRESCOLITE	C6L1520DL40KMCCL/C6L20N1 LD615D010ERM6840 6LMDL1 LGSKT61P66 HB26 LEDPS L60-2000-40K-EDAD-UNV EV0-41/18-6-DFR-MV LF6LED-6LFLED740K	
	E5	EXIT SIGN: CAST ALUMINUM HOUSING; UNIVERSAL MOUNTING; UNIVERSAL ARROWS PER PLANS; EMERGENCY BATTERY PACK WITH 10 YEAR PRO-RATA WARRANTY;SELF-TESTING; LED, DIFFUSE LENS PANEL; GREEN LETTERS ON WHITE BACKGROUND; VANDAL RESISTANT CONSTRUCTION. MUST MEET NFPA ILLUMINATION STANDARDS.						
	E5-1	SINGLE FACE:	LED	1W	120/277V	DUAL-LITE LIGHTGUARD LITHONIA SURE-LITES MCPHILBEN CHLORIDE LIGHTOLIER	LCSGWE-VR DXLN1GW-VRS LVS W 1 G 120/277 ELN CAX-717085-GW ER55LD-1-12/27-WG-VL-TP CXLN1GW-VRS LWN1GXW	
	E5-2	DUAL FACE:	LED	2W	120/277V	DUAL-LITE LIGHTGUARD LITHONIA SURE-LITES MCPHILBEN CHLORIDE LIGHTOLIER	LCDGWE-VR DXLN2GW-VRS LVS W 2 G 120/277 ELN CAX-727085-GW ER55LD-2-12/27-WG-VL-TP CXLN2GW-VRS LWN2GXW	
	E9	EXIT SIGN: METAL HOUSING; UNIVERSAL MOUNT, SEE DRAWINGS; ARROWS PER PLANS; LED LAMPS;EMERGENCY BATTERY PACK WITH 10 YEAR PRO-RATA WARRANTY; SELF-TESTING; EDGE LIGHTED CLEAR LENS; GREEN LETTERS ON CLEAR BACKGROUND. MUST MEET NFPA ILLUMINATION STANDARDS. UNITS SHOWN ARE CEILING MOUNT MODELS. CONTRACTOR TO PROVIDE MATCHING WALL MOUNTED UNITS WHERE REQUIRED.						
	E9-1	SINGLE FACE:	LED	20W	120/277V	DUAL-LITE EELP LITHONIA ISOLITE HIGH-LITES CHLORIDE LIGHTOLIER	LECSGWE EDG 1 GC W EM LRP W 1 GC XX 120/277 ELN EDGL-EM-S-S-G-BK (BLACK HOUSING) LEDBPRXF0-2-GC-SX STELX-X-1-SC-X LEEC1GCX	
	E9-2	DUAL FACE:	LED	20W	120/277V	DUAL-LITE EELP LITHONIA ISOLITE HIGH-LITES CHLORIDE LIGHTOLIER	LECDGWE EDG 2 GC W EM LRP W 2 GMR XX 120/277 ELN EDGL-EM-D-S-GM-BK (BLACK HOUSING) LEDBPRXF0-3-GW-SX STELX-X-2-SC-X LEEC2GC7	
	ET	TRANSFER DEVICE FOR FLUORESCENT BALLASTS, LOCATE ON FIRST EMERGENCY FIXTURE IN ROOM PER CIRCUIT TO TRANSFER EMERGENCY PORTION OF CIRCUIT TO EMERGENCY FEED, CONNECT TO NORMAL SIDE FOR SENSING, AND TO BOTH NORMAL FEED AND EMERGENCY CIRCUIT. USE 2 POLE FOR NORMAL CIRCUITS AND 3 POLES FOR DIMMED CIRCUITS.						
		CIRCUIT LEVEL TRANSFER DEVICE 20A MIN RATING				BODINE NINE24inc LIGHTGUARD CHLORIDE IOTA SIDE-LITE	GEN-20 BLTC-X LIGHTSTAR SERIES LIGHTSTAR SERIES ETS SB20	
	G	INDIRECT TROFFERS: RECESSED FOR LAY-IN GRID; HINGED FLUSH STEEL DOOR WITH LATCH; EARTHQUAKE CLIPS, PROGRAM START ELECTRONIC BALLASTS; LONG COMPACT FLUORESCENT LAMPS; ONE BALLAST PER FIXTURE, 100-10% DIMMING BALLAST WHERE SHOWN.						
	G-1	2X4, 2-LAMP. CENTER BASKET HIGH EFFICIENCY 0.71 BF MAX	2-F32T8 RE841	47W	277/120V	METALUX PRUDENTIAL DAYBRITE LITECONTROL LSI LITHONIA LIGHTOLIER COLUMBIA	2RDI-232RP-SPECEB-ER81 CL6038-24-440BX-X1-UNIVOLT-PROGRAM START 2AV232-PMW-UNV-1/2EB-SPEC G-D-TD24C-24T8-CVM-TW-ELB-HE 2LLGS 232T8 SSO10PS RPW UE T2AVG 2T8 MDR SMD MVOLT TUBRHP CFS2GPF232-UNV-SO-OSR/PSX STR24-232G-MPO-EPU	
	G-1sd	2X4, 2-LAMP. CENTER BASKET HIGH EFFICIENCY STEP DIMMING BALLAST 0.71 BF MAX	2-F32T8 RE841	47W	277/120V	METALUX PRUDENTIAL DAYBRITE LITECONTROL LSI LITHONIA LIGHTOLIER COLUMBIA	2RDI-232RP-SPECEB-ER81-DIM CL6038-24-440BX-X1-UNIVOLT-DIM 2AV232-PMW-UNV-DIM-SPEC G-D-TD24C-24T8-CVM-TW-DIM-HE 2LLGS 232T8 SSO10PS RPW UE-DIM T2AVG 2T8 MDR SMD MVOLT DIM CFS2GPF232-UNV-DIM-OSR/PSX STR24-232G-MPO-EPU-DIM	
	GS	TROFFERS: RECESSED FOR LAY-IN GRID; STATIC; HINGED AND LATCHED STEEL DOOR; .125 ACRYLIC PRISMATIC LENS, MINIMUN 1/8"; EARTHQUAKE CLIPS; MAX 5" DEEP; SPECIFICATION GRADE; PROGRAM START ELECTRONIC BALLASTS, T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.						
	GS-2	2X4, 2 LAMP. .71 BF MAX	2-F32T8 RE841	47W	277/120V	LITHONIA LIGHTOLIER METALUX HE WILLIAMS DAYBRITE COLUMBIA LSI	2 SP8G 232 A12125 1/3 MVOLT TUBRHP XT2GV232-UNV-03P (3-5/8" DEPTH) 2GP-232A125-UNV-EB81-PROGRAM START 50G-S24-232-SA12125-EB8P3-UNV 2DPG232-FS21-UNV-1/3EB-SPEC (4-3/8" DEPTH) ST824-232G-FSA12.125-3EB8LHPRUNV LA125 232 SD SSO10PS UE (4" DEPTH)	
	LED	LINEAR LED RECESSED LIGHT MUST FIT CEILING, WALL OR COVE, INTEGRAL DRIVER, DIMMABLE						
	LED-1	LINEAR DOWNLIGHT, 4' WHITE TRIM, FLANGE MOUNT TO CEILING 3.125"x3.375"x LENGTH TO FILL SLOT	LED 1200 LUMENS	20W MAX	277/120V	PINNACLE	E2AN-LED-4-FLANGE-UNV-1C-W	
	LED-2	LINEAR WALLLIGHT,8' WHITE TRIM, FLANGE MOUNT TO WALL	LED	56W	277/120V	PINNACLE	E2AN-LED-4-FLANGE-UNV-1C-W	
	LED-3	LINEAR STRIPLIGHT ADJUSTABLE, SURFACE MOUNT IN SPECIAL COVE LINEAR BLADE LOUVER	LED	15W/FT	277V	INSIGHT	MA15-40K-CES-XX-INT2-W-ACV-LV/ACL-1	
	LED-4	COURTROOM LINEAR DOWNLIGHT, 4' WHITE TRIM, FLANGELESS, SUSPENDED FROM CEILING, 3.125"x3.375"x LENGTH TO FILL SLOT. FACE OF FIXTURE FLUSH WITH CEILING STRUCTURE	LED 1200 LUMENS	20W MAX	277/120V	PINNACLE	E2AN-LED-4-FLANGE-UNV-1C-W	
	OB	BOLLARDS: SEAMLESS CAST ALUMINUM HOUSING, WITH MOUNTING BASE AND ANCHOR BOLTS, ACRYLIC LENS, INTEGRAL MULTI-TAP BALLAST; FUSED, COLOR AS DIRECTED BY ARCHITECT CHOSEN FROM MANUFACTURERS' STANDARD PAINTED FINISHES.						
	OB-1	8" ROUND X 42" HIGH, EXTERNAL LOUVER OPTICS, SOLID DOME TOP.	100PSMH	130W	MTBV	GARDCO KIM LSI VISIONAIRE ALLSCAPE STERNER BRONZELITE GREENLEE LITHONIA	BRM-820-42-100-MH-MTB-X-F VRB1-100MHXXX-XXX-FUSED BVRD-EL-100MH-XX-MT-XXX-NO-F OWK-2-8R42-COG-100P-CBA LL-30-100MH-E17-120/277-CBA-F AR-42-G-CL-DT-100-H-VND-SCBA CL82XA0100PMT-FS ABR-100MH-MT-EL-CBA-DT(FUSED) KBA8 100M LV TB SF	
	OC	WALL PACK: ADJUSTABLE CUT OFF; FULL PERIMETER GASKETING: WET LOCATION: STAINLESS STEEL HINGES AND LATCHES; PROJECTING LENS; HPF ELECTRONIC DRIVER; SEE ELEVATION FOR MOUNTING HEIGHT, COLOR AS SPECIFIED BY ARCHITECT.						
	OC-32	SURFACE MOUNTED, RECESSED J BOX. MEDIUM THROW, SQUARE, DECORATIVE COLOR BY ARCHITECT	LED 4K	46W	277/120V	GARDCO MCGRAW WIDELITE TRACELITE LITHONIA LSI DECO	101L355LANWUNVCBA IST-B02-LED-E1-BL3-CBA QLW-16G1-700-NW-WT-UNV-SM-CBA TLED110-48 WST LED 2 10A700/40K SR3 UNV CBA GBWS FTM 42CFL F UE XXX W/LAMP D444-142-C-EB-CBA-LP	
	OF	OUTDOOR FLOODLIGHTS: ADJUSTABLE, CUT OFF VISOR; FULL PERIMETER GASKETING: WET LOCATION; STAINLESS STEEL HINGES AND LATCHES; FLAT LENS; HPF ELECTRONIC DRIVER; VANDAL RESISTANT GUARD, COLOR AS SPECIFIED BY ARCHITECT.						
	OF-1	FLAGPOLE SPOTLIGHT, NARROW THROW VISOR, STANCHION MOUNT,	LED 4K 10,900 LUMENS	158W	277/120V	LITHONIA	DSFX3LED 8-A30/40k MSP MVOLT AFTS-VGUBV-CBA	
	OF-2	SIGN LINEAR LIGHT, WIDE THROW VISOR, STANCHION MOUNT,	LED 4K 10400 LUMENS	115W	277/120V	LITHONIA	DSFX3LED 6-A30/40k WFR MVOLT AFTS-VGUBV-CBA	
	PS	PARABOLIC WALL SLOT: 9" PERIMETER WALL SLOT WITH HOUSING MOUNTED TO CEILING; WITH FLANGE ASSEMBLY FOR GYP BOARD CEILING; TWO LAMPS CONTINUOUS AND TELESCOPIC LAMPS AT CORNERS; 1 1/2" FREE FLOATING PARABOLIC LOUVER WITH MITERED CORNERS (BOTH 90 DEGREES AND 45 DEGREE); PROVIDE 4' LAMPS WHEREVER POSSIBLE; DIMENSIONS SHALL BE FIELD DETERMINED, PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS; LOW IRIDESCENT LOUVER FINISH (EVEN IF NOT SHOWN IN CATALOG #).						
	PS-1	SEMI-SPECULAR SILVER LOUVER. 4' RECESSED COVE LIGHT CUSTOM LENGTH TO FIT SPACE REQUIRED	2-F28T5/4' RE841	12.5W/FT	277/120V	LITECONTROL LINEAR GAMMALUX FOCAL POINT	WALL SLOT 2100 WW2-D-2-ET5-277-PBL-R-BW-PBPS-4'-TELESCOPING GPCA6N-228T5-UNV-ERS-XX-RECW/PR-GFW-OP-WSG FW4-NS-2T5-1C-UNV-S-RC-WH-X	
	SA	GENERAL PURPOSE INDUSTRIAL: WHITE ENAMEL, NONAPERTURED REFLECTOR; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE; UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS, STEM MOUNTED WITH TONG HANGERS.						
	SA-1	4', 2 LAMP. HIGH EFFICIENCY 0.71 BF MAX	2-F32T8 RE841	47W	277/120V	LITHONIA LIGHTOLIER METALUX LSI COLUMBIA DAYBRITE	EJ232-MVOLT-TUBRHP-THUN KWS232-U-SOP IC-232-UNV-PROGRAM START F22 232 SSO10PRS CH-12 UE CSR4-232-EB8120/277 PROG-CSTH IS232-UNV-1/2-EB-SPEC	
	TV	SPECIAL VIDEO LIGHTHG FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE.						

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

FIXTURE SCHEDULE

EL601

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TV-1	VIDEO CONFERENCING LIGHT DIMMING	1-CF55	59W	277/120V	ELP	155BXVT-TB-DIM
TX	SPECIAL FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE. VISUAL AND FINISH APPROVAL REQUIRED. FINISHES AND LENS MATERIAL AS SELECTED BY THE ARCHITECT.					
TX-1d	CUSTOM PENDANT CHANDELIER FOR MAIN ENTRY; LUMINOUS TUBE APPROX. 6' LONG, CUSTOM PENDANT LENGTHS 0-10VDC DIMMING	LED 4000K	30W	120/277V	XAL	N595-14-740-72-60-0-76-0690
TX-4	CUSTOM PENDANT CHANDELIER FOR JUDGES AREA; LUMINOUS SQUARE APPROX. 25" SQ, CUSTOM PENDANT LENGTH 0-10VDC DIMMING	LED 4000K 1400 LUMENS	24W	120/277V	XAL	N677-745-0251-72-60-O-60
TX-5	CUSTOM PENDANT CHANDELIER FOR MAIN ENTRY; LUMINOUS SQUARE APPROX. 48" SQ, CUSTOM PENDANT LENGTH 96" 0-10VDC DIMMING	LED 4000K 13200 LUMENS	192W	120/277V	XAL	N677-745-0481-72-60-O-60
TX-7	MEDIATION ROOM PENDANT	2-T5HO 4000K	110W	120/277V	XAL	N640-745-21C-048-6M00-0-74
V	VANDAL RESISTANT SURFACE MOUNTED LIGHTING: .125" INJECTION MOLDED POLYCARBONATE LENS; IMPACT RESISTANT; UV STABILIZED; ALL METAL PARTS ARE ENCLOSED; GASKETED; VANDAL RESISTANT STAINLESS STEEL SCREWS; SECURED MOUNTING; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS.					
V-1	4', 2-LAMP WITH PRISMATIC LENS, 51" X 9 1/2" X 3 1/2", 16 GAUGE STEEL, 0.71 BALLAST FACTOR MAX	2-F32T8 RE841	47W	277/120V	KENALL FAIL-SAFE LUMINAIRE NEW STAR CD LIGHTING	N1048-C-232SB1-120/277 FPS-232-UNV-PROGRAM START LVP-751-232-EBPS-120 51C-124-U-T8PROGRAM VSL-24-232-UNV-EB
V-2	SURFACE 2-LAMP 1X4; 12 GAUGE STEEL .25" TEMPERED GLASS/.187" POLYCARB PRISMATIC LENS INSIDE, UV STABILIZED MATERIALS, GASKETED, SECURITY FASTENERS, HIGH EFFICINCY BALLAST 0.71 BF MAX	2-F32T8 RE841	47W	277/120V	KENALL MORELITE LA LIGHTING NEW STAR FAIL-SAFE	SCA4-9/0-232SB1-UNV-6/A-1 SHXX-14-232HET8-7/F-F2 MSE110-2-4R-VL37-TP-GSK-2E8PSX-UNV 53-142-12G-.250CTG/.187PPC-UNV-EB-SPEC FMS-S12-232-UNV-93-85-ER81
W	LOW PROFILE WRAPAROUND: SURFACE MOUNTED SUITABLE FOR MOUNTING ON LOW DENSITY CEILINGS WRAPAROUND ACRYLIC PRISMATIC DIFFUSER; WHITE ENAMEL ENDPLATES; MINIMUM CU OF 70 @ 80/50/20 AND RCR=1; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.					
W-4	NARROW BODY WRAPAROUND; 2-LAMP, APPROX; 3" X 10" X 48", HIGH EFFICIENCY 0.71 BF MAX	2-F32T8 RE841	47W	277/120V	LITHONIA DAYBRITE METALUX LIGHTOLIER LSI COLUMBIA	LB232-MVOLT-TUBPHP CAN232-UNV-1/2-EB-SPEC WS-232A-UNV-PROGRAM START WA232-U-SOP PR 232 SSO10PRS UE WC4-232-EBPS120/277
WB	WALL MOUNTED FLUORESCENT LOCATED ABOVE WALL ELEMENT (MIRROR/WHITEBOARD, ETC.): AS INDICATED ON DRAWINGS; WITH ACRYLIC INJECTION MOLDED; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.					
WB-5	2-LAMP, WALL MOUNT 48", STEEL ENCLOSURE, ACRYLIC LENS MATERIAL AND METAL FINISH AS SELECTED BY ARCHITECT UL LISTED FOR WET LOCATIONS 0.71 BF MAX	2-F32T8 1-F17T8	70W	277/120V	COLUMBIA LA LIGHTING	BIL-4-2-32-HE-U-ODS1 WSE201-33-4R-WR-DL-MS1A-2E8P(32W)/1E8P(17W)UNV
WS	SPECIAL FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE. VISUAL AND FINISH APPROVAL REQUIRED. FINISHES AND LENS MATERIAL AS SELECTED BY THE ARCHITECT.					
WS-1	LAVATORY WALLSCONCES 1.75"X2.875"X20" MOUNT VERTICALLY	1 LINEAR 60W INC.	60W	120V	ALKCO	LIN20 ES
WS-4	WALL SCONCE FOR RESTROOM HALF-CYLINDER, 7" X 16" H; UP AND DOWNLIGHT LENS MATERIAL AND METAL FINISH AS SELECTED BY ARCHITECT	2-CFT13 RE841	40W	120/277V	WINONA VISA	5250-HB-F-UNV-FAH4-CBA CB3550-VARA5972-1-2LF-XX-ABA
ZX	LIGHT POLES: TOTALLY ENCLOSED RAINTIGHT, DUST-TIGHT AND CORROSION RESISTANT; POLE AS SHOWN IN DETAIL WITH HANDHOLE, COVER, BOLT COVER, AND BASE; PAINTED (COLOR TO BE SELECTED BY ARCHITECT /ENGINEER WHICH MAY DIFFER FROM CATALOG NUMBER SHOWN). MTB= 120,208,240,277 VOLT MULTI-TAP BALLAST. ALL BALLASTS HPF. POST TOP LUMINAIRE WITH SPIDER OR YOKE MOUNT ON SLIPFITTER ON TOP OF POLE. VERTICAL LAMP.					
ZX-1	SINGLE-HEAD POLE LIGHT 10,000 INITIAL LUMINAIRE LUMENS PER LM-79, FULL CUT-OFF OPTICS; 530 ma DRIVE, 20' MH	96 LEDS 4000K	152 W	MTB	VISIONAIRE	EL2-3-T4-96LC-530-4K/20 FT SSS POLE CBA
ZX-2	DUAL-HEAD POLE LIGHT 10,000 INITIAL LUMINAIRE LUMENS PER LM-79, FULL CUT-OFF OPTICS; 530 ma DRIVE, 20' MH	96 LEDS 4000K EACH	304W	MTB	VISIONAIRE	DUAL 180 EL2-3-T4-96LC-530-4K/20'SSS POLE CBA
ZX-3	OGDEN CITY STANDARD BOULEVARD DUAL HEAD LIGHT AND POLE 17' DECORATIVE POLE, DUAL ARM MOUNT PER OGDEN CITY STANDARD E4 ALT 1, TYPE 3 FEB. 2000	150PSMH	200W	MTB	HOLOPHANE	TSG 003256 BLACK

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
Phone: (801) 575-8800
Fax: (801) 531-9850
Web: vcbo.com

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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Rev #	Date	Description

Job # 12500
Date August 15, 2013
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LIGHTING SCHEDULES

EL602

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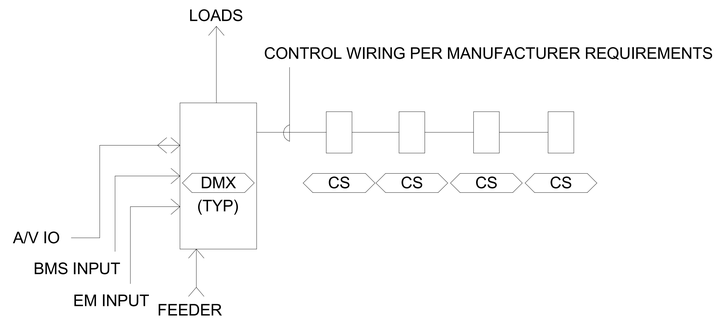

2 DIMMING CONTROL ONELINE

SCALE: NTS

RELAY PANEL: 1RE

LOCATION: ELECTRICAL 1164A

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: VEHICULAR SALLYPORT	VEHICULAR SALLYPORT	**EHA-2**	656			X	X
2	LTG: HOLDING AREA	HOLDING AREA	**EHA-4**	2185			X	X
3	LTG: EXTERIOR SCONCES	EXTERIOR WALLS	**EHA-6**	650			X	X
4	LTG: WALL MOUNTED LINEARS	STAIRWELL B,C	**EHA-8**	1930			X	X
5	LTG: CORRIDOR/COMMON AREAS	CORRIDOR/ COMMON AREAS	**EHA-10**	1413	X		X	
6	LTG: WALL MOUNTED LINEARS	STAIRWELL A,D/ROOF	**EHA-12**	2570			X	X
7	LTG: WALL MOUNTED LINEARS	STAIRWELL E	**EHA-14**	766			X	X
8	LTG: LEVEL 2 CORRIDOR EM	LEVEL 2 CORRIDOR EM LIGHTS	**EHA-16**	330			X	X
9	LTG: LEVEL 2	LEVEL 2 EM LIGHTS	**EHA-18**	721	X		X	
10	LTG: SECURE EM	LTG: SECURE EM LIGHTS	**EHA-20**	3522	X		X	
11	LTG: MAIN VEST EM	MAIN VEST EM LIGHTS	**EHA-22**	700			X	X
12	LTG: COURT RM VEST EM	COURT RM VEST EM LIGHTS	**EHA-24**	324			X	X
13	LTG: LEVEL 3 COURT VEST	LEVEL 3 COURT VEST LTG	**EHA-26**	884			X	X
14	LTG: LEVEL 3 CORRIDOR EM	LEVEL 3 CORRIDOR EM LIGHTS	**EHA-27**	836	X		X	
15	LTG: LEVEL 3 VEST EM	LEVEL 3 VEST EM LIGHTS	**EHA-28**	2258			X	X
16	LTG: LEVEL 3 VEST EM	LEVEL 3 VEST EM LIGHTS	**EHA-29**	1402			X	X
17	LTG: LEVEL 4 EM	LEVEL 4 EM LIGHTING	**EHA-30**	800			X	X
18	LTG: LEVEL 4 EM	LEVEL 4 EM LIGHTING	**EHA-31**	324			X	X
19	LTG: LEVEL 4 EM	LEVEL 4 EM LIGHTING	**EHA-32**	1085	X		X	
20	LTG: LEVEL 5 EM	LEVEL 5 LIGHTING	**EHA-33**	785			X	X
21	LTG: LEVEL 5 EM	LEVEL 5 EM LIGHTING	**EHA-34**	324			X	X
22	LTG: LEVEL 5 EM	LEVEL 5 EM LIGHTING	**EHA-35**	214	X		X	
23	SPARE	--	--	--	--	--	--	--
24	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 1R0

LOCATION: ELECTRICAL 1164

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: SITE POLES	SITE POLES	**1H0-3**	1200			X	X
2	LTG: SITE POLES	SITE POLES	**1H0-5**	1200			X	X
3	LTG: SITE POLES	SITE POLES	**1H0-7**	1050			X	X
4	LTG: SITE POLES	SITE POLES	**1H0-4**	1200			X	X
5	LTG: SITE POLES	SITE POLES	**1H0-6**	1500			X	X
6	LTG: SITE POLES	SITE POLES	**1H0-8**	1050			X	X
7	LTG: SITE BOLLARDS	SITE BOLLARD LIGHTS	**1H0-2**	245			X	X
8	LTG: SITE SIGNAGE	SITE SIGN LIGHTS	**1H0-9**	480			X	X
9	LTG: SITE FLAGPOLE	SITE FLAGPOLE LIGHTS	**1H0-11**	640			X	X
10	LTG: ROOF AIR HANDLER	ROOF/PENTHOUSE	**EHA-36**	400	X		X	X
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 1RA

LOCATION: ELECTRICAL 1136

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: WAITING/EXIT/LOBBY	WAITING/ EXIT/ LOBBY	**1HA-2**	354			X	X
2	LTG: GENERAL CORRIDOR	CORRIDOR	**1HA-4**	1289	X		X	X
3	LTG: WAITING/COUNTERS	WAITING/ COUNTERS	**1HA-6**	1048			X	X
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 2RA

LOCATION: ELECTRICAL 2121

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 2 CORRIDOR	LEVEL 2 SOUTH CORRIDOR	**2HA-2**	422			X	X
2	LTG: LEVEL 2 COURTROOM VEST	LEVEL 2 COURTROOM VEST	**2HA-4**	560			X	X
3	LTG: LEVEL 2 CORRIDOR	LEVEL 2 NORTH CORRIDOR	**2HA-6**	2320	X		X	
4	LTG: LEVEL 2 MAIN LOBBY	LEVEL 2 MAIN LOBBY	**2HA-8**	1200			X	X
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 3RA

LOCATION: ELECTRICAL 3121

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	SPARE	--	--	--	--	--	--	--
2	SPARE	--	--	--	--	--	--	--
3	SPARE	--	--	--	--	--	--	--
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 4RA

LOCATION: ELECTRICAL 4120

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 4 NORTH CORRIDOR	LEVEL 4 NORTH CORRIDOR	**4HA-1**	2860			X	X
2	LTG: LEVEL 4 COURTRM VEST	LEVEL 4 COURTRM VEST	**4HA-3**	560			X	X
3	LTG: LEVEL 4 SOUTH CORRIDOR	LEVEL 4 SOUTH CORRIDOR	**4HA-5**	337	X		X	
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

RELAY PANEL: 5RA

LOCATION: ELECTRICAL 5120

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 5 NORTH CORRIDOR	LEVEL 5 NORTH CORRIDOR	**5HA-2**	2360			X	X
2	LTG: LEVEL 5 COURT VEST	LTG: LEVEL 5 COURT VEST LTG	**5HA-4**	560			X	X
3	LTG: LEVEL 5 SOUTH CORRIDOR	LEVEL 5 SOUTH CORRIDOR	**5HA-6**	394	X		X	
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--

DIMMER SYSTEM SCHEDULE

ROOM	SYSTEM	CONTROL CHANNEL	ENGRAVING (STATION TYPE 2)	CIRCUIT	DESCRIPTION	LOAD TYPE 277 VOLTS	LOAD WATTS	CIRCUIT NUMBER	CONTROL STATIONS (NOTE 1) ENTRY	CLERK	JUDGE	BAILIFF	BMS OFF	SERIAL A/V INTERFACE	EM SENSE OUTPUT	COMMENTS
2121	DMA				DIMMER PANEL											
2108	DMA	1	SIDES	DMA-1	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-5	1	1	2	1	YES	YES	YES	
		2	MAIN	DMA-2	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-5								
		3	DESKS	DMA-3	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-5								
		4	PUBLIC	DMA-4	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-5								
		5	COVE	DMA-5	LED 0-10VDC DIMMER	LED COVELIGHT, 0-10VDC	815	EHA-5								
2141	DMA	6	SIDES	DMA-6	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-5	1	1	2	1	YES	YES	YES	
		7	MAIN	DMA-7	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-5								
		8	DESKS	DMA-8	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-5								
		9	PUBLIC	DMA-9	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-5								
		10	COVE	DMA-10	LED 0-10VDC DIMMER	LED COVELIGHTS, 0-10VDC	815	EHA-5								
3121	DMB				DIMMER PANEL				Entry	Clerk	Judge	BAILIFF	BMS	A/V	EM SENSE	COMMENTS
3108	DMB	1	SIDES	DMB-1	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	520	EHA-7	1	1	2	1	YES	YES	YES	
		2	MAIN	DMB-2	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-7								
		3	DESKS	DMB-3	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-7								
		4	PUBLIC	DMB-4	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-7								
		5	COVE	DMB-5	LED 0-10VDC DIMMER	LED COVELIGHT, 0-10VDC	815	EHA-7								
3141	DMB	6	SIDES	DMB-6	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	800	EHA-7	1	1	2	1	YES	YES	YES	
		7	MAIN	DMB-7	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	520	EHA-7								
		8	DESKS	DMB-8	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-7								
		9	PUBLIC	DMB-9	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	360	EHA-7								
		10	COVE	DMB-10	LED 0-10VDC DIMMER	LED COVELIGHTS, 0-10VDC	815	EHA-7								
4120	DMC				DIMMER PANEL				Entry	Clerk	Judge	BAILIFF	BMS	A/V	EM SENSE	COMMENTS
4108	DMC	1	SIDES	DMC-1	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-9	1	1	2	1	YES	YES	YES	
		2	MAIN	DMC-2	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-9								
		3	DESKS	DMC-3	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-9								
		4	PUBLIC	DMC-4	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-9								
		5	COVE	DMC-5	LED 0-10VDC DIMMER	LED COVELIGHT, 0-10VDC	815	EHA-9								
4137	DMC	6	SIDES	DMC-6	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-9	1	1	2	1	YES	YES	YES	
		7	MAIN	DMC-7	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-9								
		8	DESKS	DMC-8	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-9								
		9	PUBLIC	DMC-9	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-9								
		10	COVE	DMC-10	LED 0-10VDC DIMMER	LED COVELIGHTS, 0-10VDC	815	EHA-9								
5120	DMD				DIMMER PANEL				Entry	Clerk	Judge	BAILIFF	BMS	A/V	EM SENSE	COMMENTS
5108	DMD	1	SIDES	DMD-1	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-11	1	1	2	1	YES	YES	YES	
		2	MAIN	DMD-2	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-11								
		3	DESKS	DMD-3	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-11								
		4	PUBLIC	DMD-4	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-11								
		5	COVE	DMD-5	LED 0-10VDC DIMMER	LED COVELIGHT, 0-10VDC	815	EHA-11								
5137	DMD	6	SIDES	DMD-6	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-11	1	1	2	1	YES	YES	YES	
		7	MAIN	DMD-7	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	440	EHA-11								
		8	DESKS	DMD-8	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	200	EHA-11								
		9	PUBLIC	DMD-9	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	240	EHA-11								
		10	COVE	DMD-10	LED 0-10VDC DIMMER	LED COVELIGHTS, 0-10VDC	815	EHA-11								
1136	DME				DIMMER PANEL				FRONT		REAR	SERVERY	BMS	A/V	EM SENSE	COMMENTS
1124A	DME	1	MAIN	DME-1	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-13	1		4	3	YES	YES	YES	
		2	FRONT	DME-2	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	160	EHA-13								
		3	SIDE WALL	DME-3	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	120	EHA-13								
		4	FRONT WALL	DME-4	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	80	EHA-13								
		5	SERVERY	DME-5	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	80	EHA-13								NOTE 4
1124B	DME	6	MAIN	DME-6	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	480	EHA-13	1		4	3	YES	YES	YES	
		7	FRONT	DME-7	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	160	EHA-13								
		8	SIDE WALL	DME-8	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	120	EHA-13								
		9	FRONT WALL	DME-9	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	80	EHA-13								
		10	SERVERY	DME-10	LED 0-10VDC DIMMER	LED DOWNLIGHTS, 0-10VDC	80	EHA-13								NOTE 4

NOTES:
1. CONTROL STATION "1" IS AN 8 BUTTON PRESET RECALL STATION
2. CONTROL STATION"2" IS A SLIDER PER CHANNEL MANUAL, RECORDING AND 8 PUSHBUTTON RECALL STATION
3. EACH DIMMER RACK CONTROLS LIGHTING FOR 2 SEPARATE ROOMS EXCEPT DME WHICH HAS LINKING CAPABILITY FROM STATION TYPE 4
4. SERVERY STATION "3" IS A SINGLE SLIDER FOR LOCAL LIGHTING, OFF FUNCTION FROM ROOM CONTROLS THESE LIGHTS, BUT OFF FUNCTION HERE ONLY CONTROLS LOCAL LIGHT
5. CONTROL STATION"4" IS A SLIDER PER CHANNEL MANUAL, RECORDING AND 8 PUSHBUTTON RECALL STATION,WITH ROOM LINKING

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DIMMING ONE-LINE AND SCHEDULES

EL603

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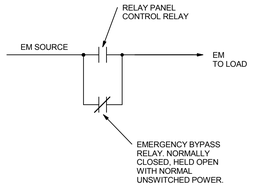
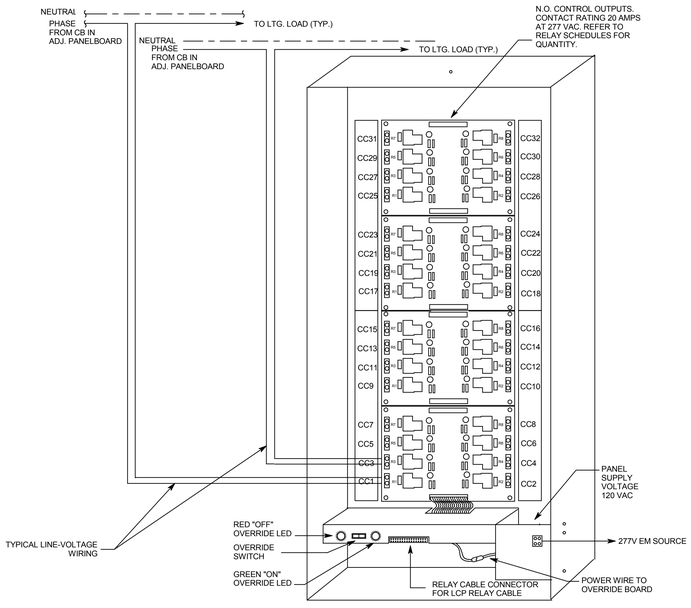


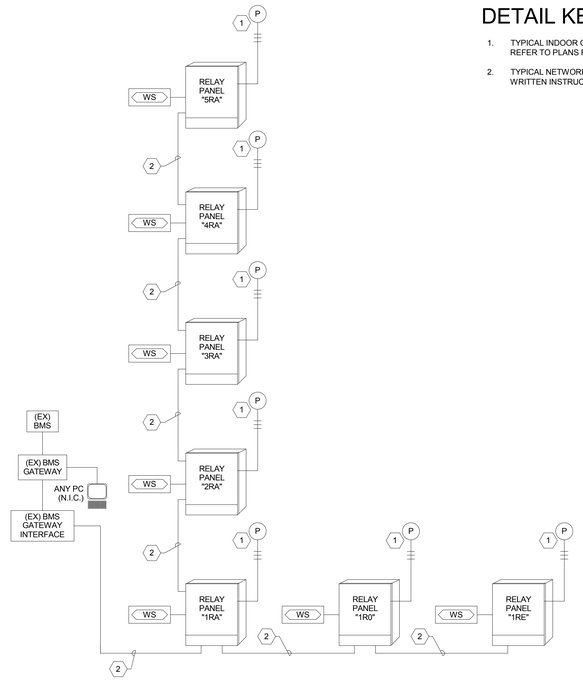
3 EMERGENCY RELAY SCHEMATIC

SCALE: NTS



2 TYPICAL RELAY PANEL WIRING DETAIL

SCALE: NTS



1 NETWORK LIGHTING CONTROL SYSTEM SCHEMATIC

SCALE: NTS

DETAIL KEYNOTES

1. TYPICAL INDOOR OR OUTDOOR PHOTOCELL. REFER TO PLANS FOR ACTUAL QUANTITIES.
2. TYPICAL NETWORK WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS IN 0.75" CND.

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RELAY DETAIL AND CONTROL SCHEMATICS

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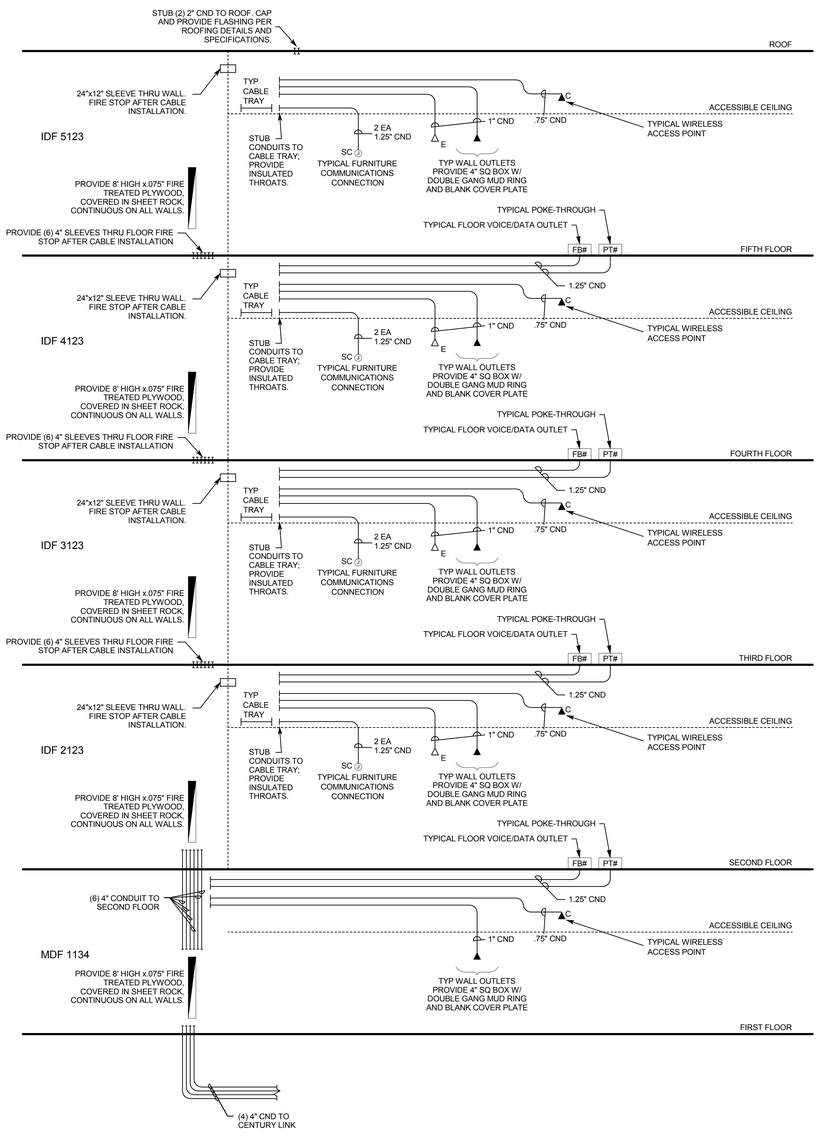
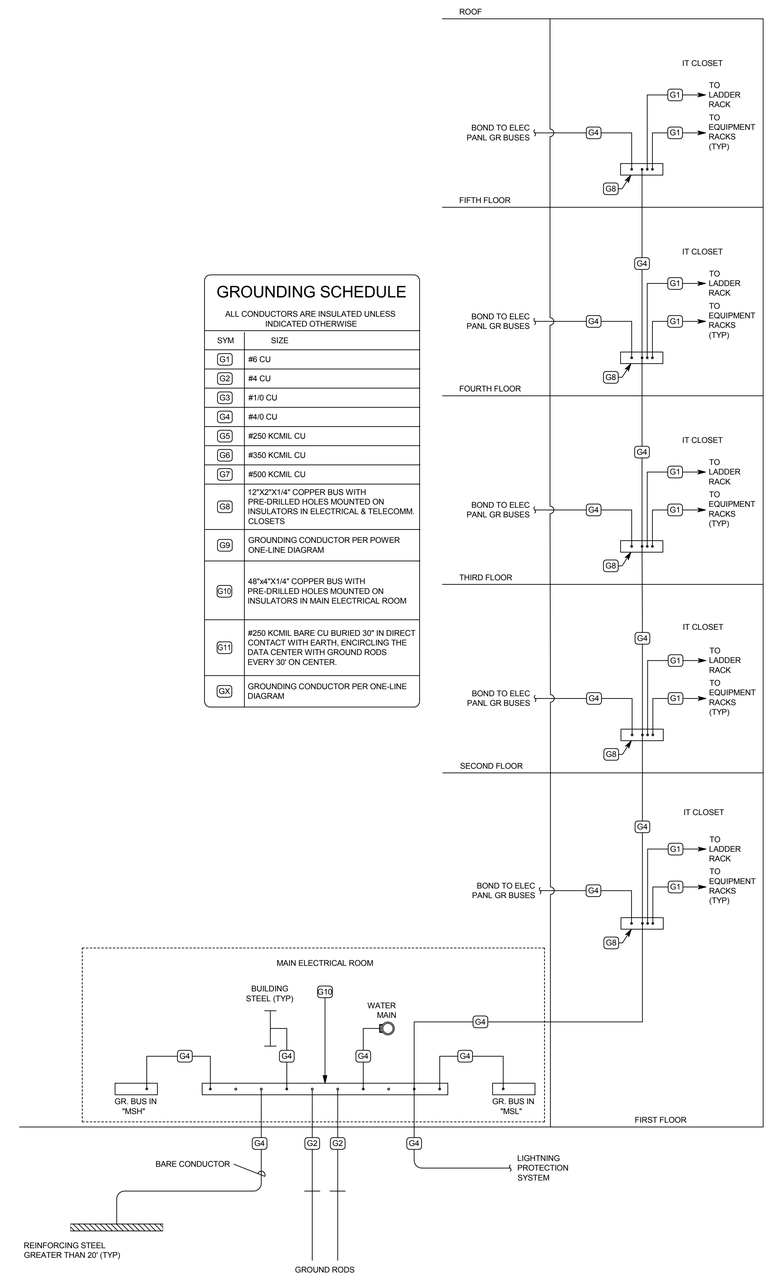


A1 TELECOMM RISER DIAGRAM
SCALE: NTS

GROUNDING SCHEDULE

ALL CONDUCTORS ARE INSULATED UNLESS INDICATED OTHERWISE

SYM	SIZE
G1	#6 CU
G2	#4 CU
G3	#1/0 CU
G4	#4/0 CU
G5	#250 KCMIL CU
G6	#350 KCMIL CU
G7	#500 KCMIL CU
G8	12"X2"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS IN ELECTRICAL & TELECOMM. CLOSETS
G9	GROUNDING CONDUCTOR PER POWER ONE-LINE DIAGRAM
G10	48"x4"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS IN MAIN ELECTRICAL ROOM
G11	#250 KCMIL BARE CU BURIED 30" IN DIRECT CONTACT WITH EARTH, ENCIRCLING THE DATA CENTER WITH GROUND RODS EVERY 30' ON CENTER.
GX	GROUNDING CONDUCTOR PER ONE-LINE DIAGRAM



A4 GROUNDING RISER DIAGRAM
SCALE: NTS

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TELECOMMUNICATIONS RISER AND GROUNDING DIAGRAMS

ET601

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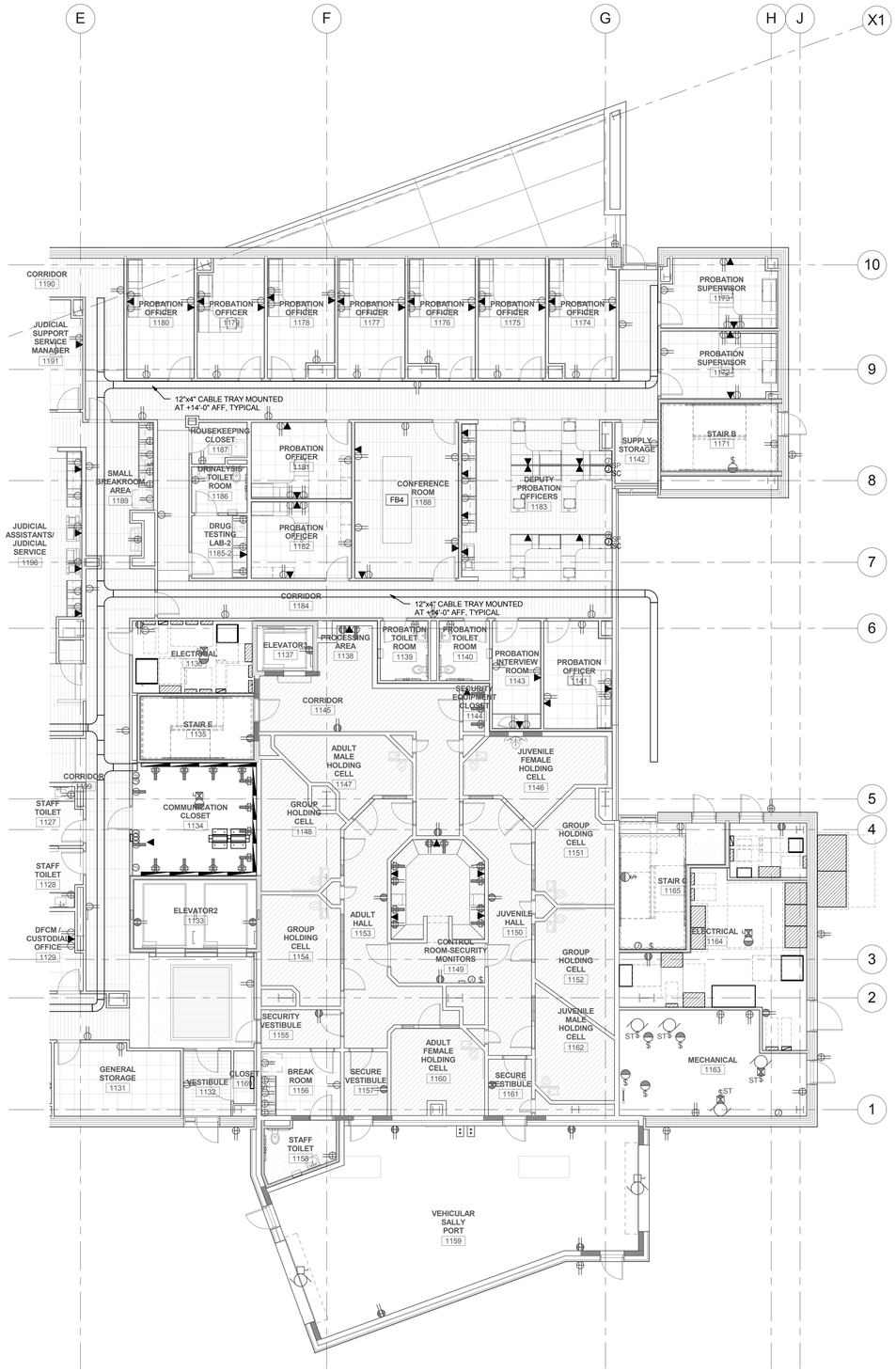

1 LEVEL 1 TELECOMMUNICATIONS PLAN - AREA B

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

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LEVEL 1 TELECOMMUNICATIONS PLAN - AREA B

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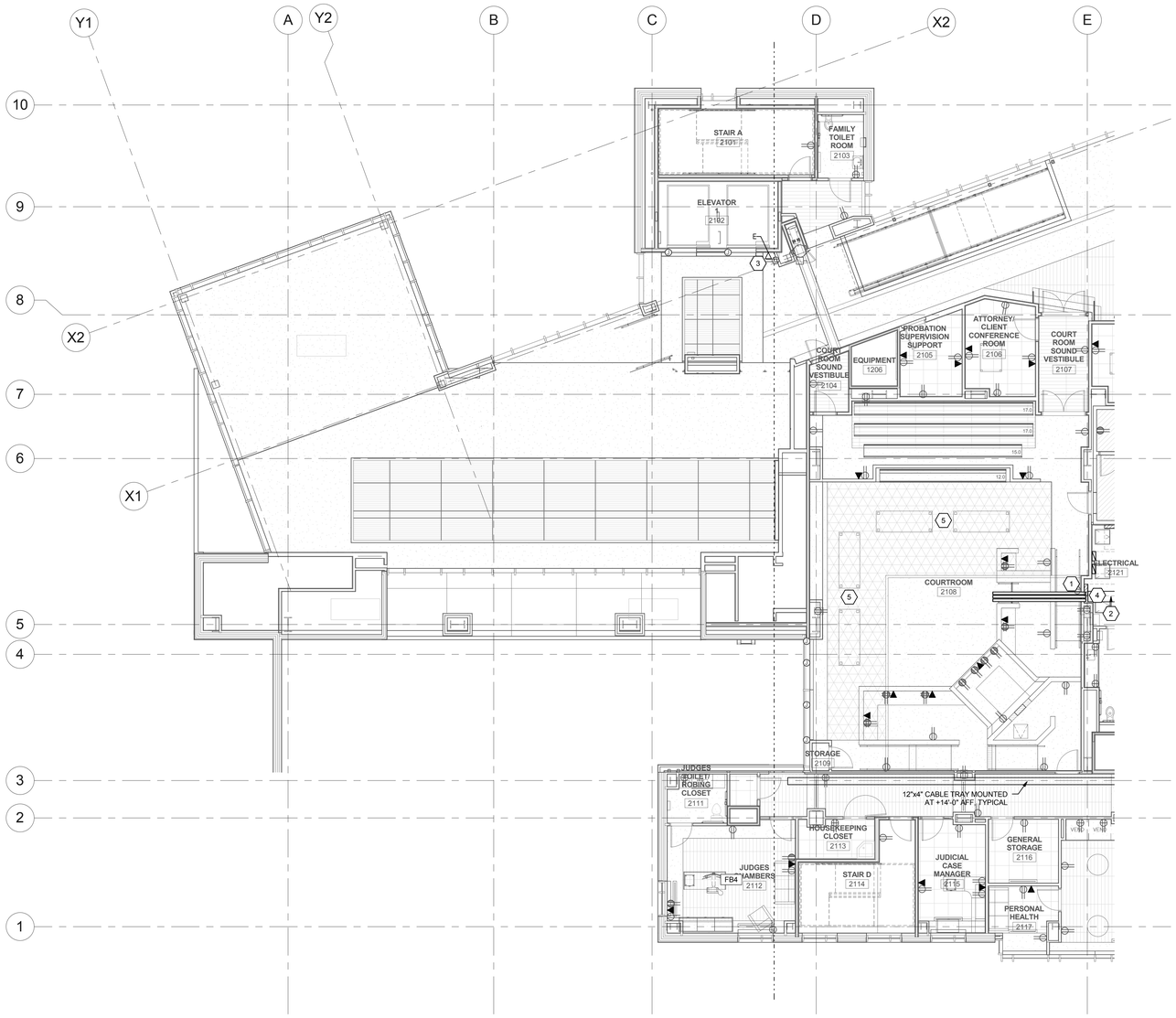

1 LEVEL 2 TELECOMMUNICATIONS PLAN - AREA A

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

1 (6) 4" CND SLEEVE THROUGH WALL UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS. EXTEND CONDUIT TO ACCESSIBLE RAISED FLOOR AS REQUIRED.

2 18" WIDE CABLE TRAY UNDERFLOOR FOR LOW-VOLTAGE CABLING.

3 PROVIDE VIKING MODEL E-1600-30A 2-WAY COMMUNICATIONS STATION AT THIS LOCATION @ 45" AFF. PROVIDE 1 EACH CAT 6 4 PAIR UTP CABLE TO COMM ROOM ON THE ASSOCIATED FLOOR. ROUGH-IN BOX IS PROVIDED WITH THE STATION.

4 PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND ALL PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

5 SEE POWER PLANS (EP SHEETS) FOR LOCATIONS AND TYPES OF FLOOR BOXES IN THIS AREA.

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LEVEL 2 TELECOMMUNICATIONS PLAN - AREA A

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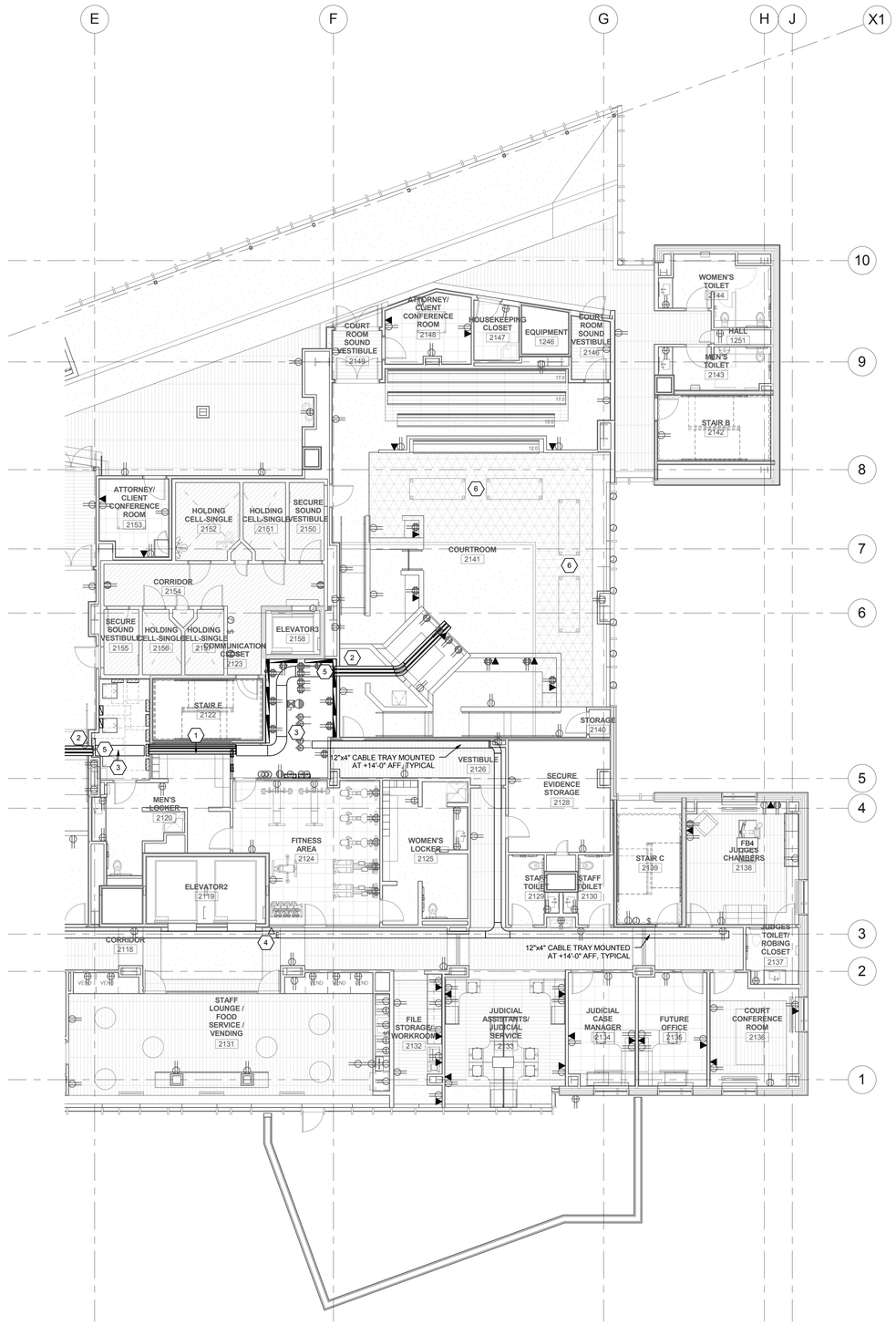

1 LEVEL 2 TELECOMMUNICATIONS PLAN - AREA B

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

1 (4) 4" CND AND (4) 2" CND UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.

2 (6) 4" CND SLEEVE THROUGH WALL UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS. EXTEND CONDUIT TO ACCESSIBLE RAISED FLOOR AS REQUIRED.

3 18" WIDE CABLE TRAY UNDERFLOOR FOR LOW-VOLTAGE CABLING.

4 PROVIDE VIKING MODEL E-1600-30A 2-WAY COMMUNICATIONS STATION AT THIS LOCATION @ 45" AFF. PROVIDE 1 EACH CAT 6 4 PAIR UTP CABLE TO COMM ROOM ON THE ASSOCIATED FLOOR. ROUGH-IN BOX IS PROVIDED WITH THE STATION.

5 PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND ALL PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

6 SEE POWER PLANS (EP SHEETS) FOR LOCATIONS AND TYPES OF FLOOR BOXES IN THIS AREA.

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LEVEL 2
TELECOMMUNICATIONS
PLAN - AREA B

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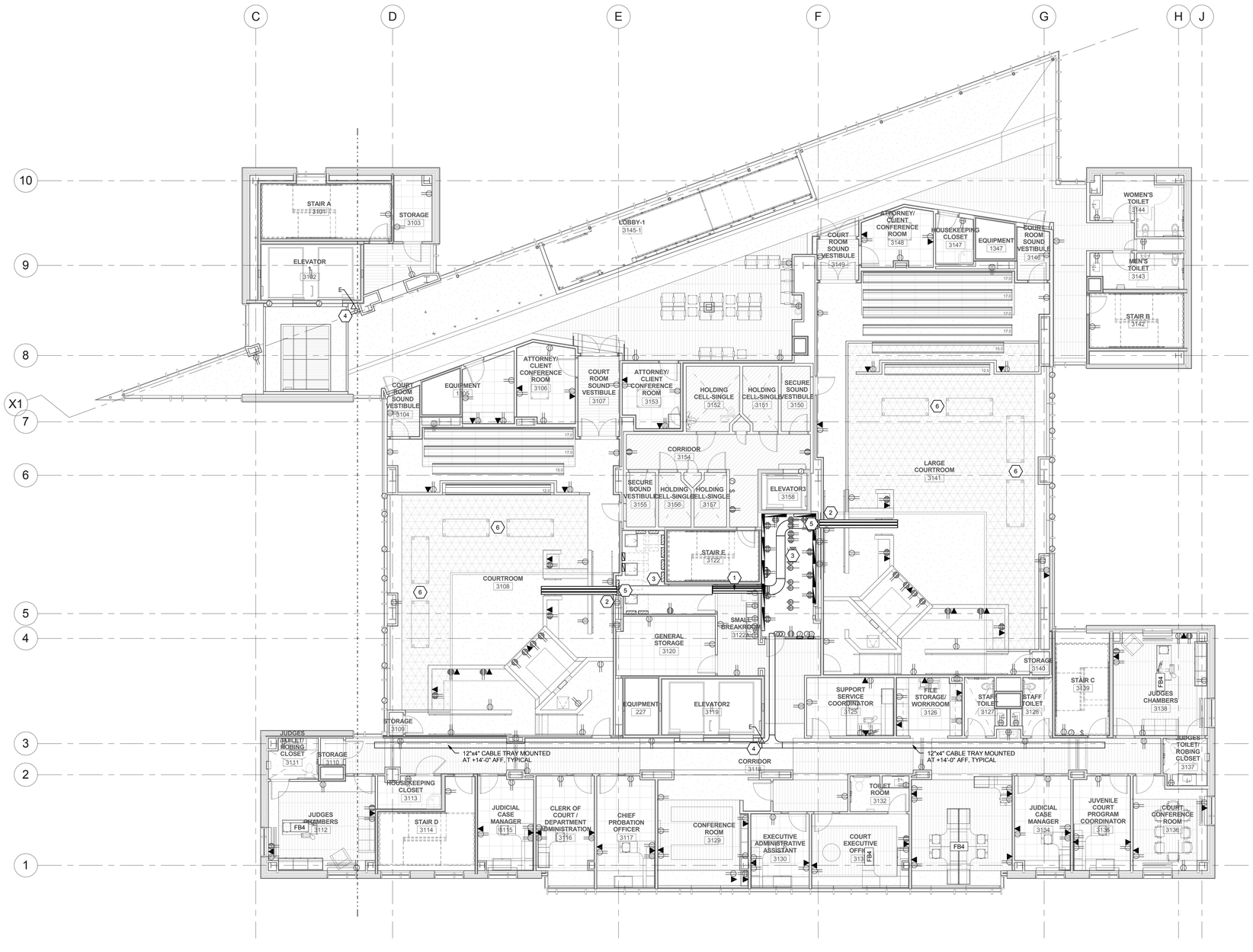

A1 LEVEL 3 TELECOMMUNICATIONS PLAN

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

1 (4) 4" CND AND (4) 2" CND UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.

2 (6) 4" CND SLEEVE THROUGH WALL UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS. EXTEND CONDUIT TO ACCESSIBLE RAISED FLOOR AS REQUIRED.

3 18" WIDE CABLE TRAY UNDERFLOOR FOR LOW-VOLTAGE CABLING.

4 PROVIDE VIKING MODEL E-1600-30A 2-WAY COMMUNICATIONS STATION AT THIS LOCATION @ 45" AFF. PROVIDE 1 EACH CAT 6 4 PAIR UTP CABLE TO COMM ROOM ON THE ASSOCIATED FLOOR. ROUGH-IN BOX IS PROVIDED WITH THE STATION.

5 PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND ALL PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

6 SEE POWER PLANS (EP SHEETS) FOR LOCATIONS AND TYPES OF FLOOR BOXES IN THIS AREA.

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LEVEL 3 TELECOMMUNICATIONS PLAN

ET103

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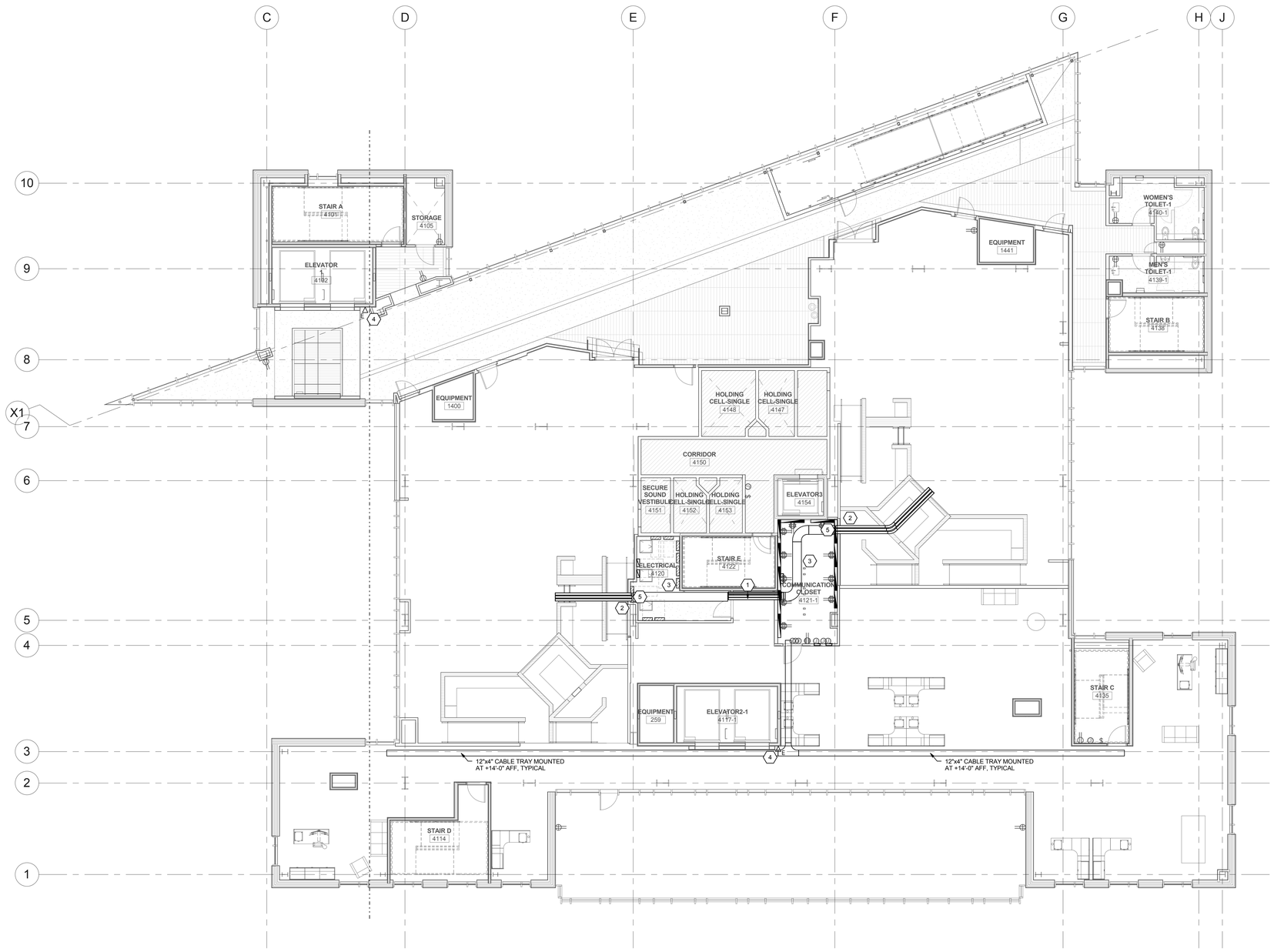

A1 LEVEL 4 TELECOMMUNICATIONS PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

1 (4) 4" CND AND (4) 2" CND UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.

2 (6) 4" CND SLEEVE THROUGH WALL UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS. EXTEND CONDUIT TO ACCESSIBLE RAISED FLOOR AS REQUIRED.

3 18" WIDE CABLE TRAY UNDERFLOOR FOR LOW-VOLTAGE CABLING.

4 PROVIDE VIKING MODEL E-1600-30A 2-WAY COMMUNICATIONS STATION AT THIS LOCATION @ 45" AFF. PROVIDE 1 EACH CAT 6 4 PAIR UTP CABLE TO COMM ROOM ON THE ASSOCIATED FLOOR. ROUGH-IN BOX IS PROVIDED WITH THE STATION.

5 PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND ALL PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

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LEVEL 4 TELECOMMUNICATIONS PLAN

ET104

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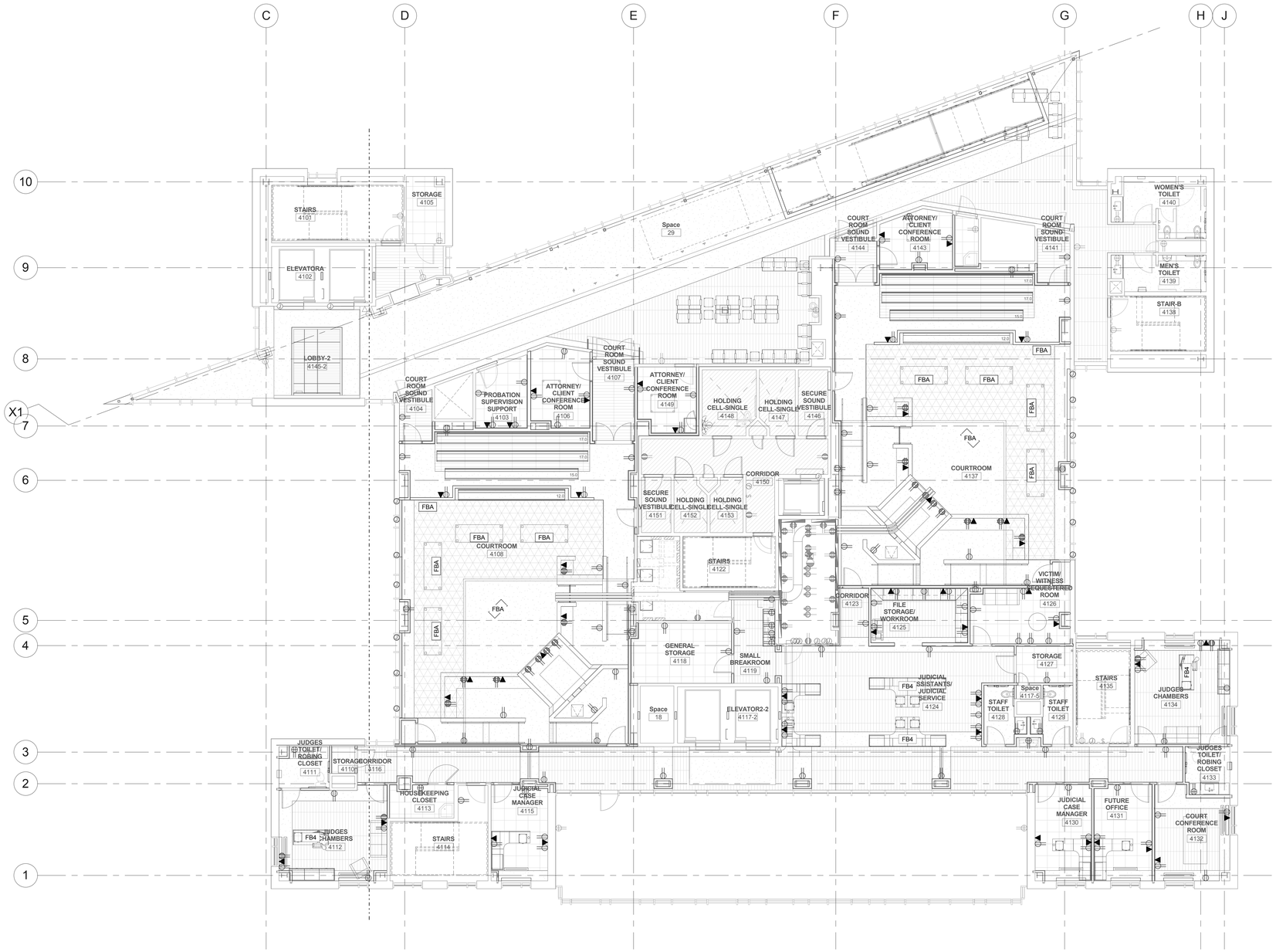

A1 LEVEL 4 TELECOMMUNICATIONS PLAN - ALT

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

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LEVEL 4 TELECOMMUNICATIONS PLAN - ALT

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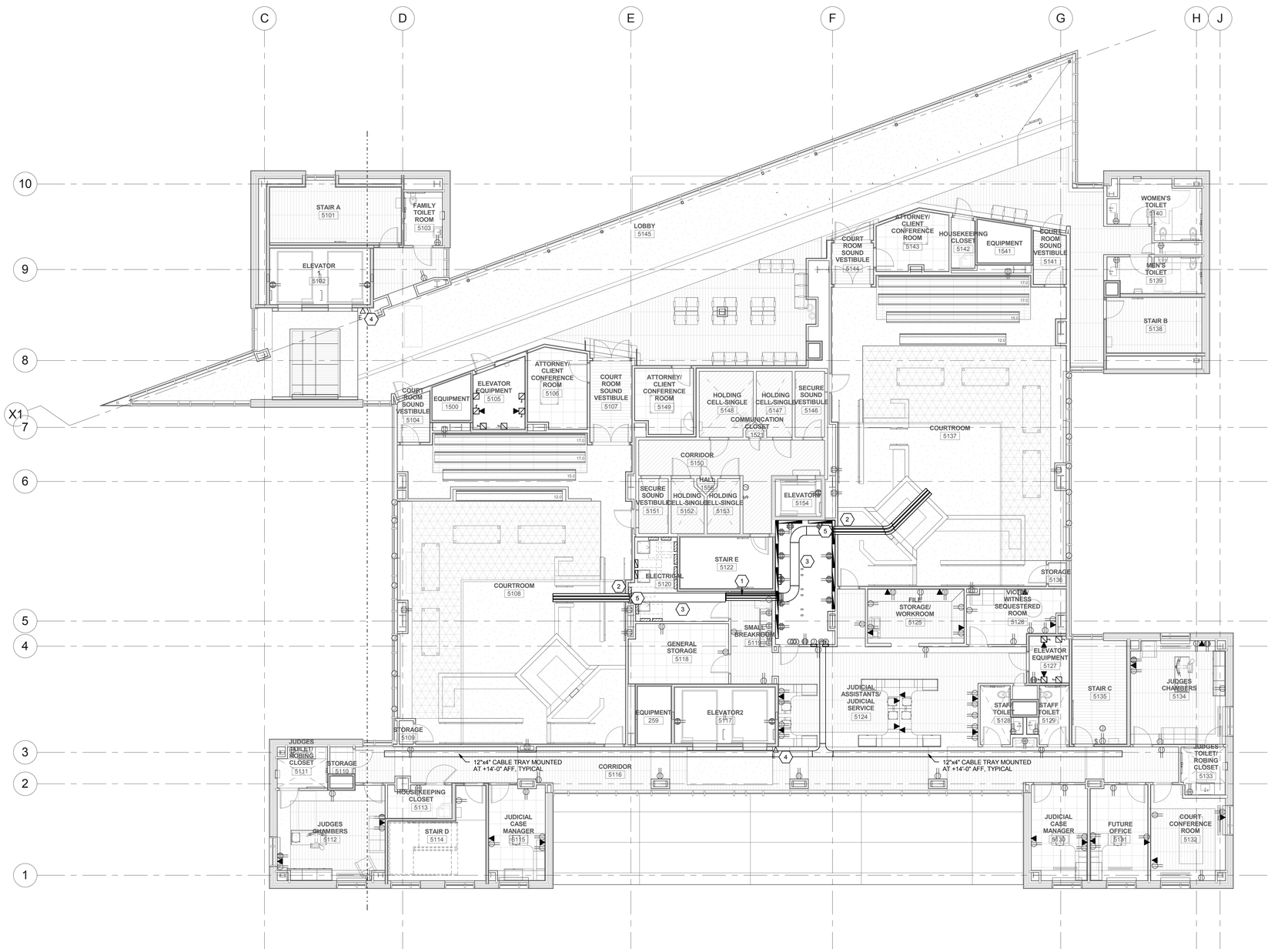

A1 LEVEL 5 TELECOMMUNICATIONS PLAN

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

GENERAL SHEET NOTES

1 VOICE / DATA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING AND TERMINATING 1 EACH CAT 6 UTP CABLE TO ALL VIDEO SURVEILLANCE CAMERA LOCATIONS PER TIA / EIA 568C. REFER TO EY SHEETS FOR CAMERA LOCATIONS.

2 ENLARGED COMM ROOM LAYOUTS ARE SHOWN ON EP FLOOR PLAN SHEETS.

SHEET KEYNOTES

1 (4) 4" CND AND (4) 2" CND UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS BETWEEN ELECTRICAL AND TELECOMM ROOM RAISED FLOOR AREAS.

2 (6) 4" CND SLEEVE THROUGH WALL UNDERFLOOR FOR LOW-VOLTAGE PATHWAYS. EXTEND CONDUIT TO ACCESSIBLE RAISED FLOOR AS REQUIRED.

3 18" WIDE CABLE TRAY UNDERFLOOR FOR LOW-VOLTAGE CABLING.

4 PROVIDE VIKING MODEL E-1600-30A 2-WAY COMMUNICATIONS STATION AT THIS LOCATION @ 45" AFF. PROVIDE 1 EACH CAT 6 4 PAIR UTP CABLE TO COMM ROOM ON THE ASSOCIATED FLOOR. ROUGH-IN BOX IS PROVIDED WITH THE STATION.

5 PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND ALL PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

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LEVEL 5 TELECOMMUNICATIONS PLAN

ET105

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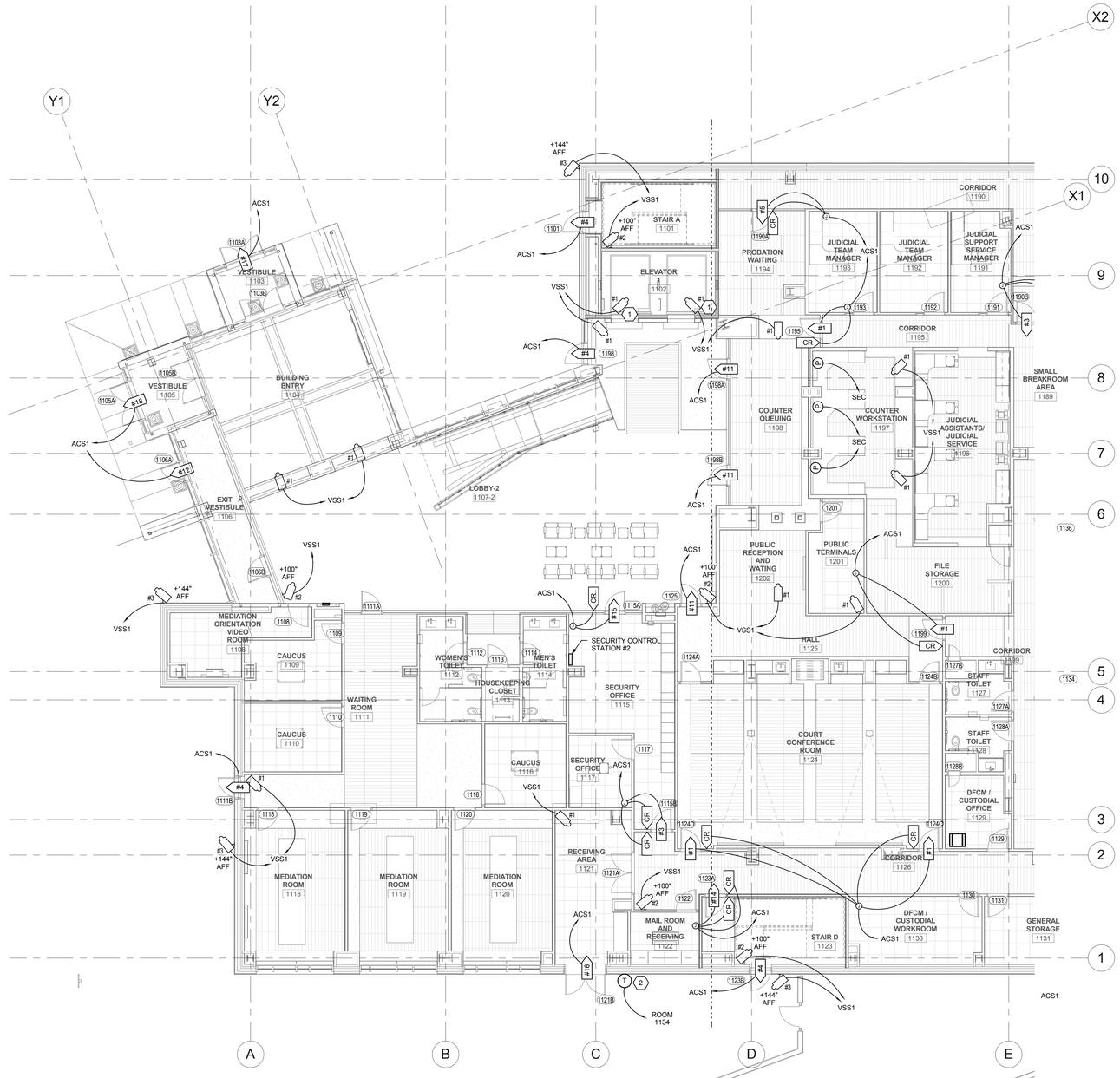

A2 LEVEL 1 AUXILIARY PLAN - AREA A

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

GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE VIDEO SURVEILLANCE CAMERA INSIDE ELEVATOR CAB. COORDINATE WITH ELEVATOR INSTALLER FOR THE APPROPRIATE CABLING TO BE INCLUDED IN THE CABLE TRAVELER.

2 PROVIDE A TELEPHONE/INTERCOM, VIKING MODEL E-30 AND PULL CABLE TO TELEPHONE BOARD. COORDINATE WITH STATE DTS FOR AN ANALOG EXTENSION ON PHONE SYSTEM.

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LEVEL 1 AUXILIARY PLAN - AREA A

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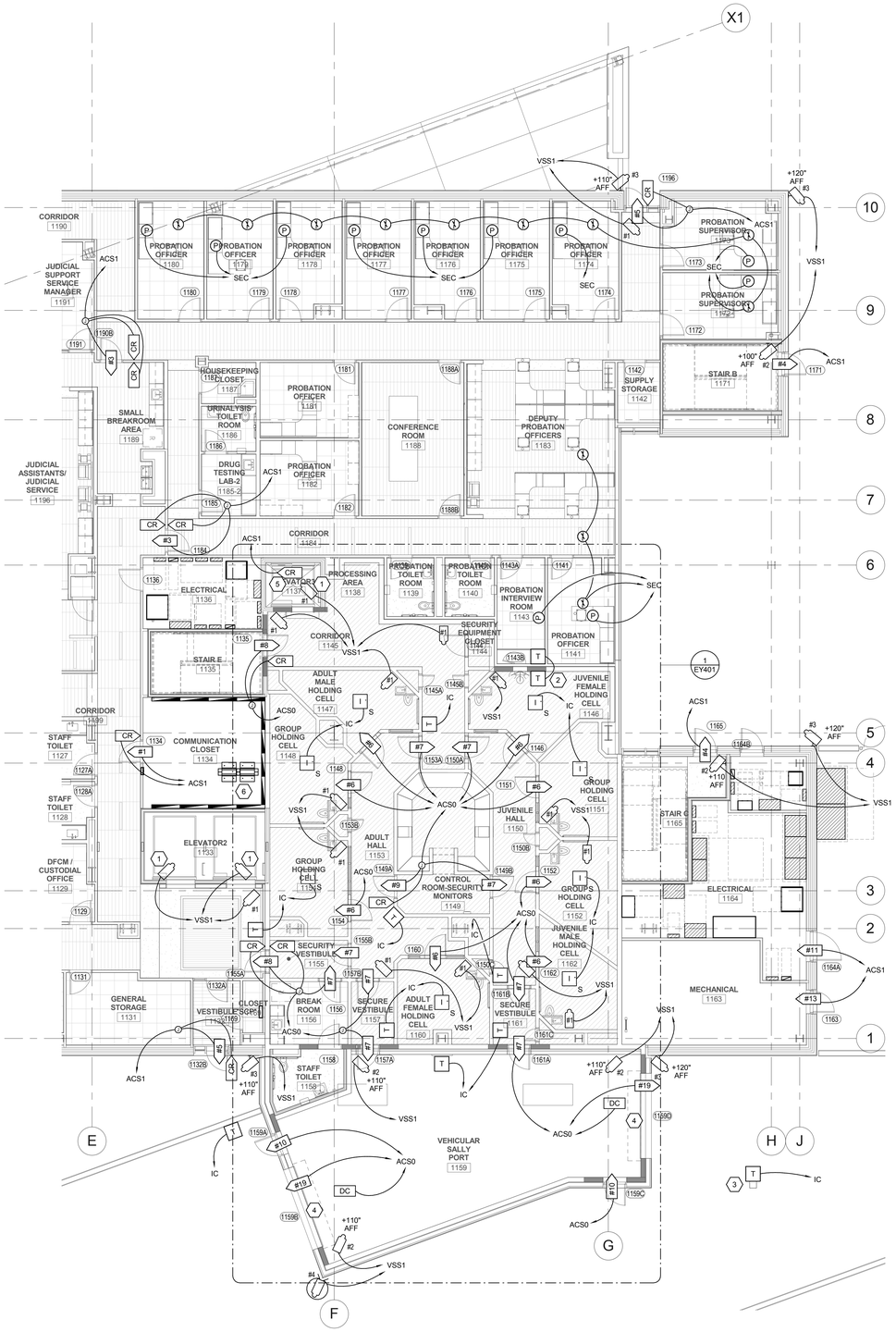
INTERLOCKED DOORS LIST: DOORS IN SAME GROUP CANNOT BE OPEN AT THE SAME TIME.

1. 1157A, 1157B
2. 1161A, 1161B
3. 1155A, 1155B (CARD READER)
4. 1155B, 1157B
5. 1157A, 1161A, 1159A, 1159B, 1159C, 1159D, AND TWO YARD GATES (SEE SHEET ES102, KEYED NOTE #8)
6. 1153A, 1150A
7. 1149A, 1149B
8. 1149A, 1160, 1157B, 1155B, 1154, 1148, 1147, 1153A
9. 1149B, 1161B, 1162, 1152, 1151, 1146, 1150A



A3 LEVEL 1 AUXILIARY PLAN - AREA B

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

GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE VIDEO SURVEILLANCE CAMERA INSIDE ELEVATOR CAB. COORDINATE WITH ELEVATOR INSTALLER FOR THE APPROPRIATE CABLING TO BE INCLUDED IN THE CABLE TRAVELER.

2 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

3 PROVIDE INTERCOM ON PEDESTAL.

4 COORDINATE WITH OVERHEAD DOOR INSTALLER FOR WIRING TO PROVIDE "OPEN," "CLOSE," AND "STOP" FUNCTIONS TO THE MAIN SECURITY TERMINAL IN ROOM 1149.

5 PROVIDE CARD READER INSIDE ELEVATOR CAB FOR RESTRICTED FLOOR SELECTION.

6 PROVIDE 2 FLOOR STANDING RACKS FOR ALL ENTERPRISE SECURITY SYSTEM EQUIPMENT I.E. ACS, SEC, VSS, INTERCOM, AND DURESS. COORDINATE WITH STATE DTS AND A/V SYSTEMS INSTALLER.

VCBO ARCHITECTURE

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
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BID DOCUMENTS

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LEVEL 1 AUXILIARY PLAN - AREA B

EY101B

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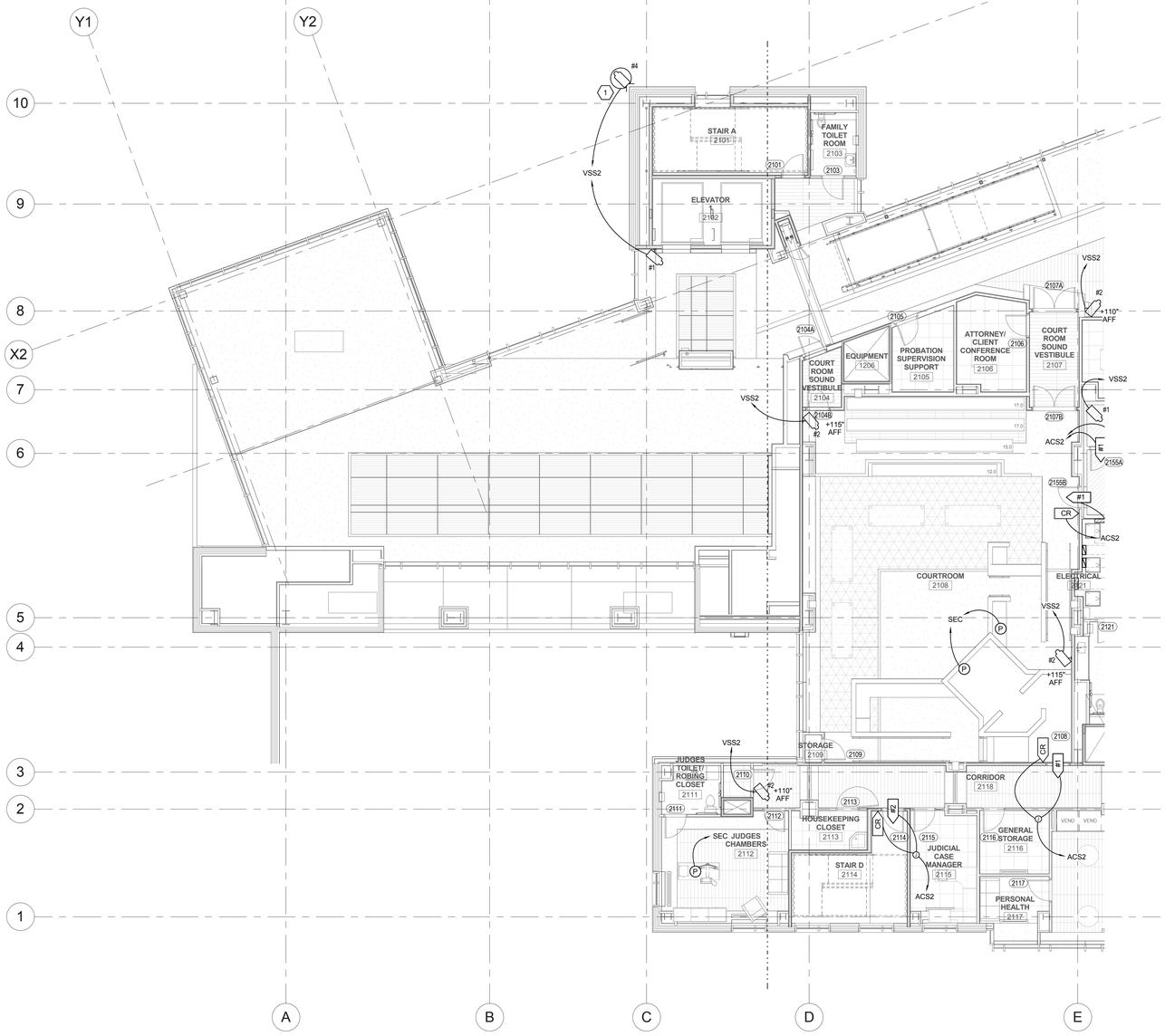

A2 LEVEL 2 AUXILIARY PLAN - AREA A

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

GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE CORNER MOUNTING FOR THIS PTZ CAMERA TO ALLOW 270 DEGREE COVERAGE FROM THIS LOCATION. MOUNT AT TOP OF SECOND FLOOR SPACE.

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LEVEL 2 AUXILIARY PLAN - AREA A

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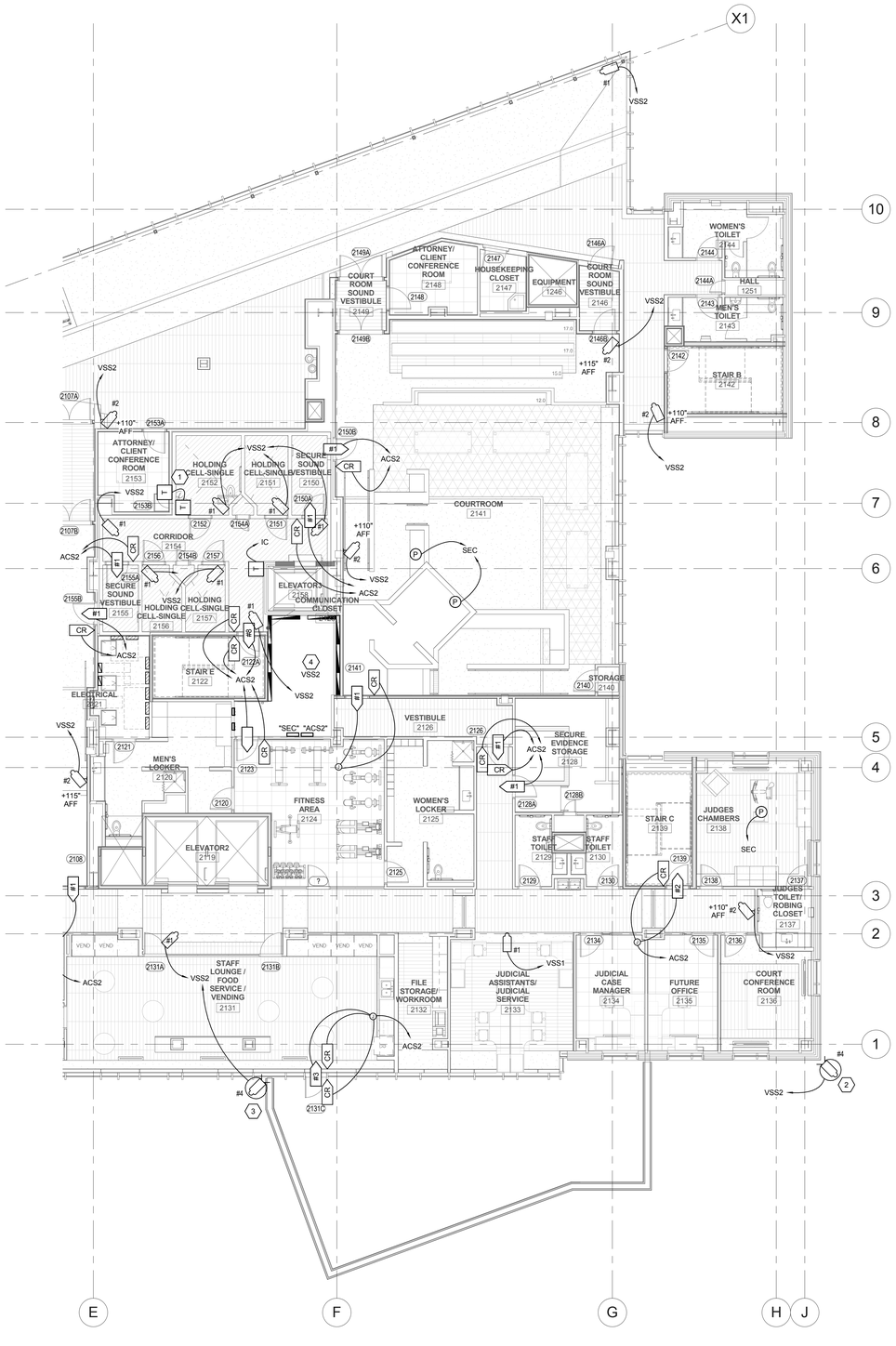

1 LEVEL 2 AUXILIARY PLAN - AREA B

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

GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

2 PROVIDE CORNER MOUNTING FOR THIS PTZ CAMERA TO ALLOW 270 DEGREE COVERAGE FROM THIS LOCATION. MOUNT AT TOP OF SECOND FLOOR SPACE.

3 MOUNT AT TOP OF SECOND FLOOR SPACE.

4 INSTALL VIDEO SURVEILLANCE NETWORK SWITCH IN SPARE SPACE OF LAN RACK. COORDINATE WITH STATE DTS FOR EXACT LOCATION.

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LEVEL 2 AUXILIARY PLAN - AREA B

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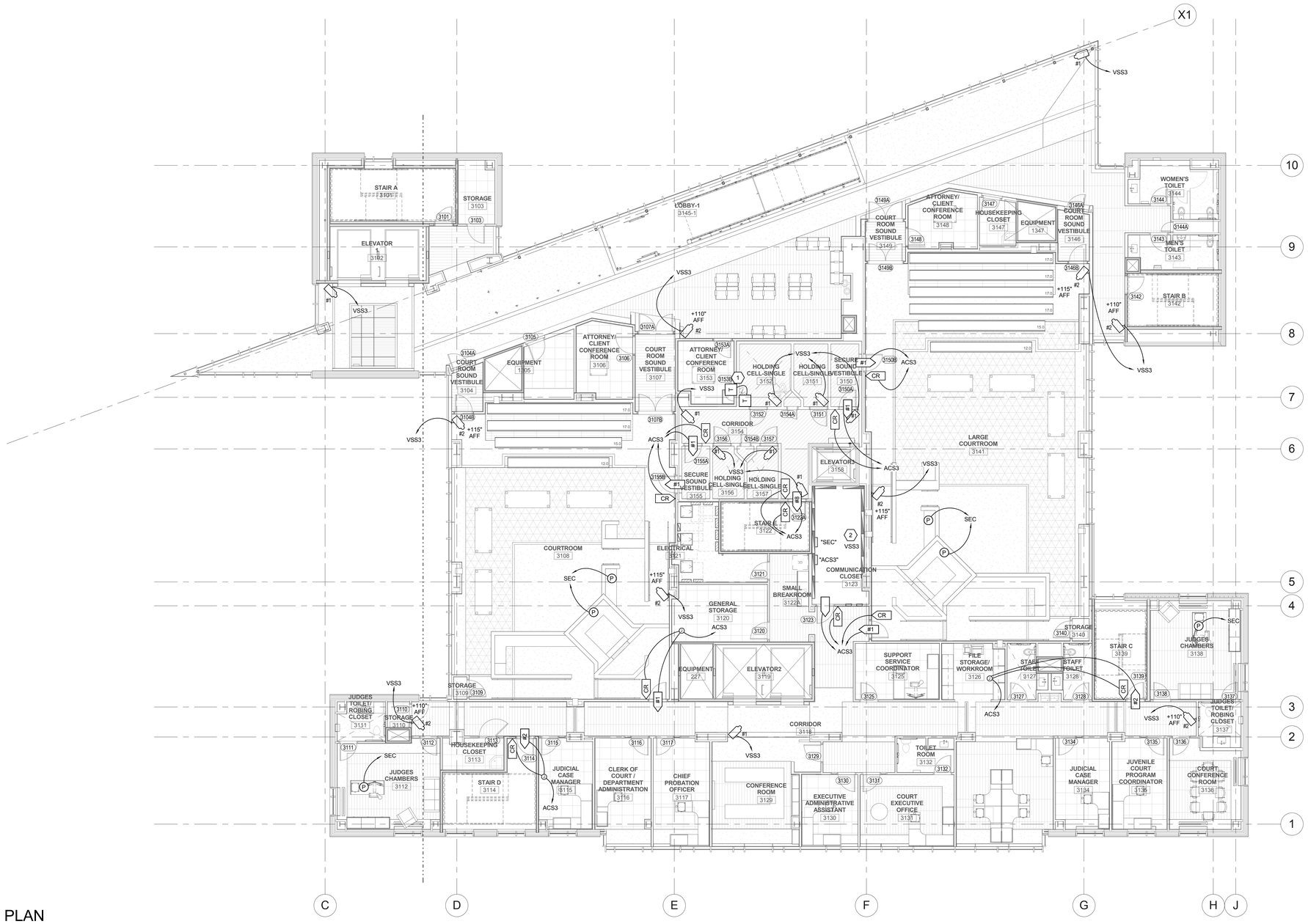
GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

2 INSTALL VIDEO SURVEILLANCE NETWORK SWITCH IN SPARE SPACE OF LAN RACK. COORDINATE WITH STATE DTS FOR EXACT LOCATION.



A1 LEVEL 3 AUXILIARY PLAN

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

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LEVEL 3 AUXILIARY PLAN

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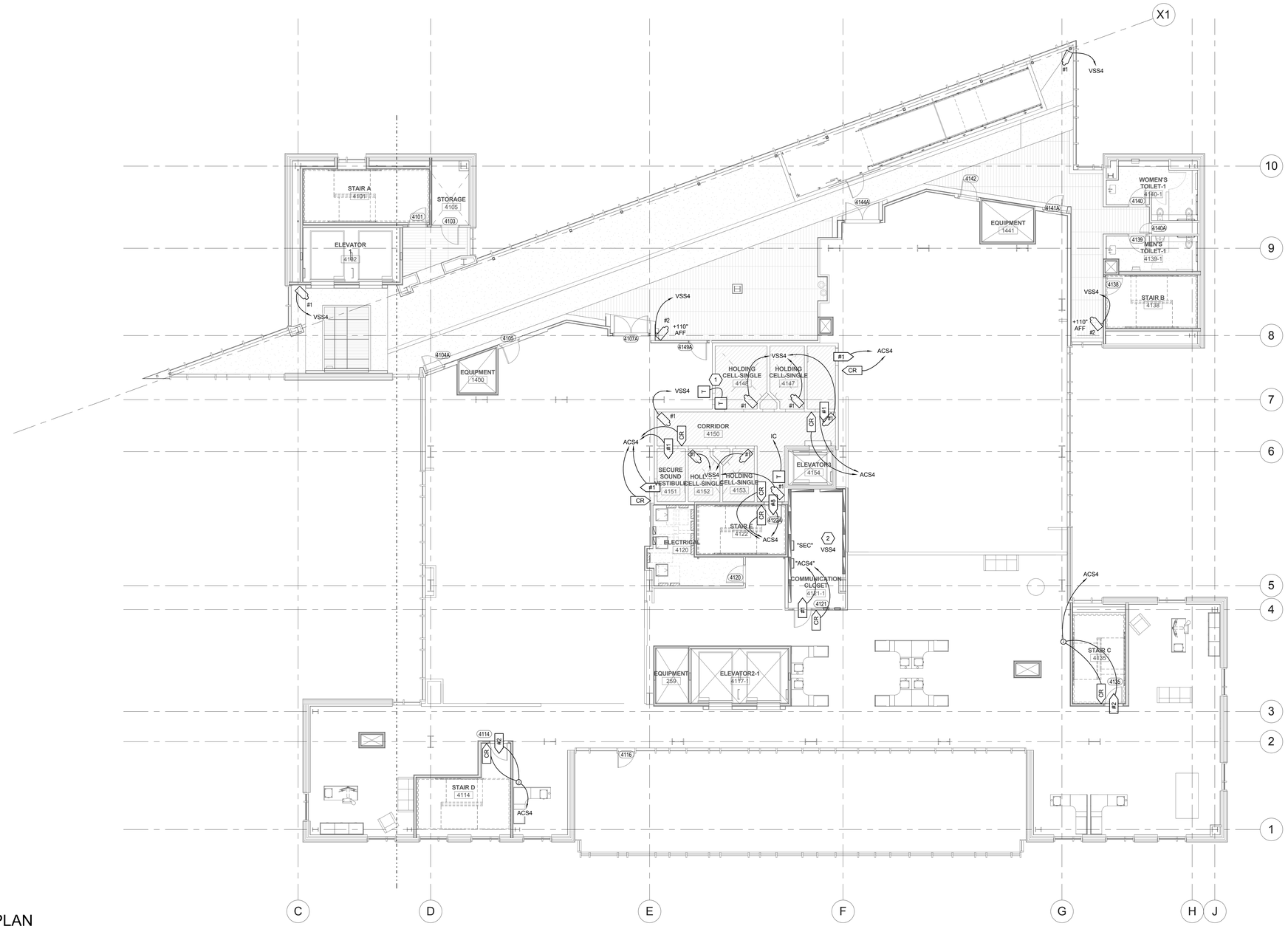
GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

2 INSTALL VIDEO SURVEILLANCE NETWORK SWITCH IN SPARE SPACE OF LAN RACK. COORDINATE WITH STATE DTS FOR EXACT LOCATION.



A1 LEVEL 4 AUXILIARY PLAN

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

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LEVEL 4 AUXILIARY PLAN

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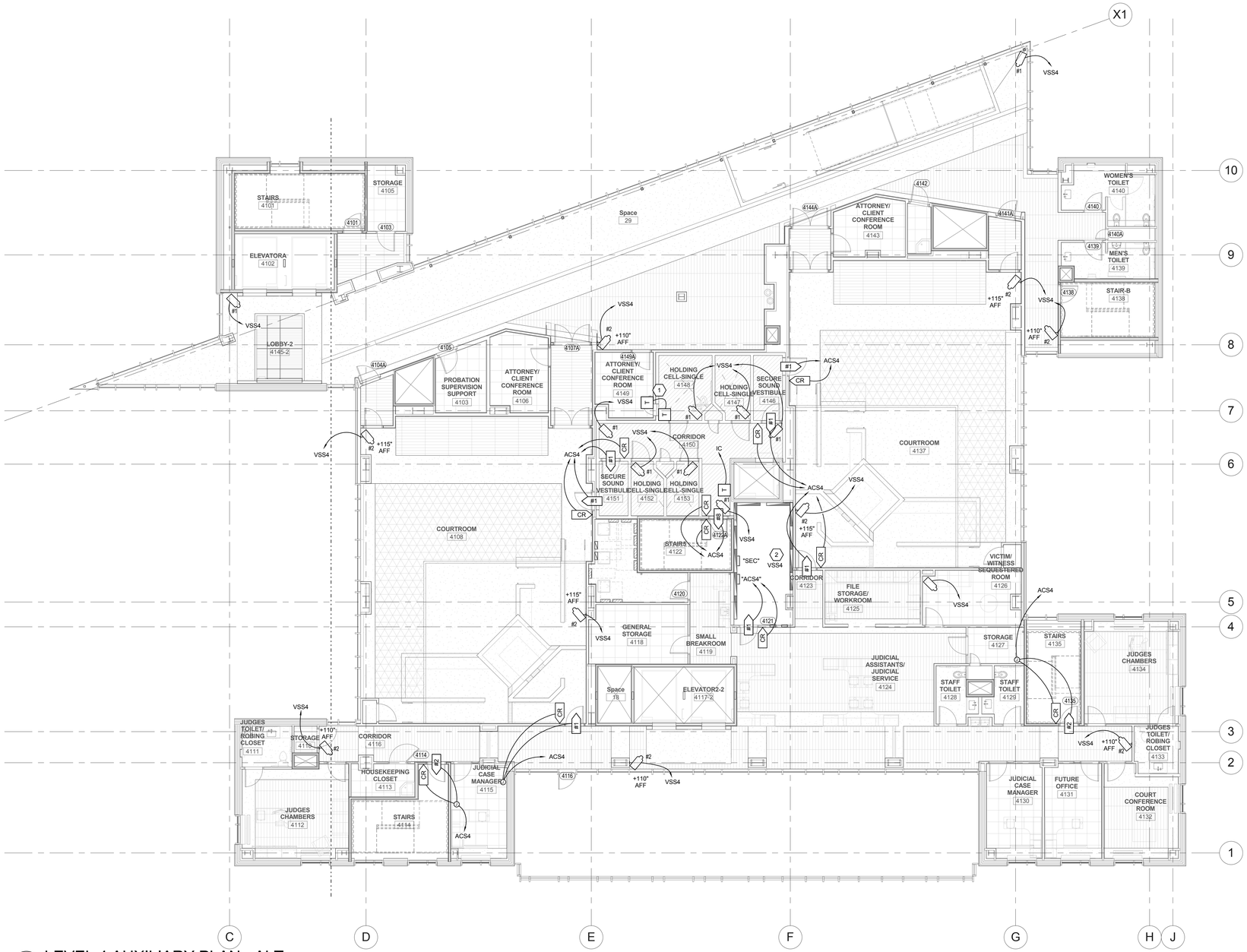

A1 LEVEL 4 AUXILIARY PLAN - ALT

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

GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

2 INSTALL VIDEO SURVEILLANCE NETWORK SWITCH IN SPARE SPACE OF LAN RACK. COORDINATE WITH STATE DTS FOR EXACT LOCATION.

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LEVEL 4 AUXILIARY PLAN ALT.

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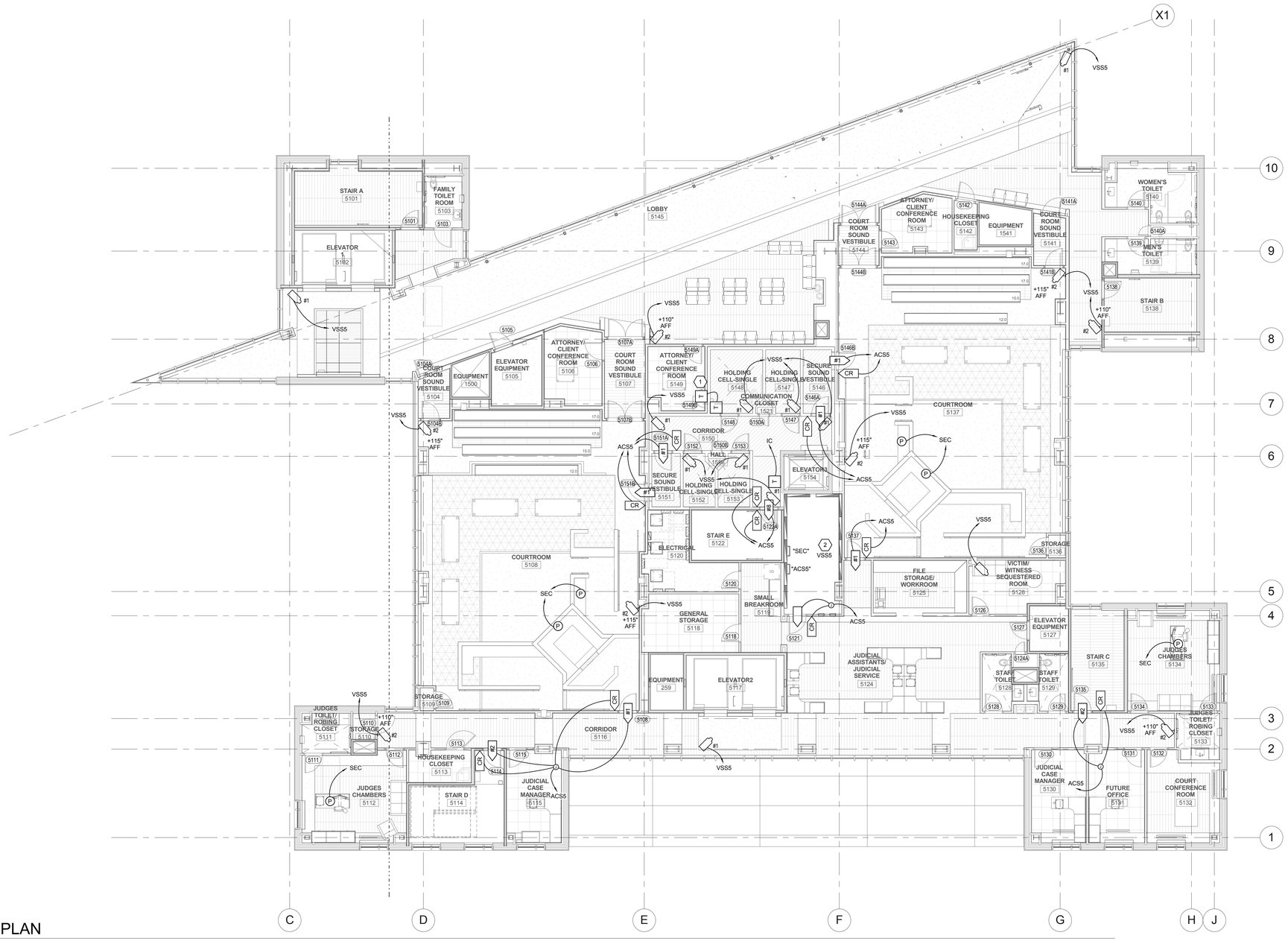
GENERAL SHEET NOTES

1 ALL CAMERA LOCATIONS SHALL HAVE CAT 6 UTP CABLES PULLED AND TERMINATED PER TIA/EIA 568C BY OTHERS.

SHEET KEYNOTES

1 PROVIDE HAVEN TECHNOLOGY CORP. MODEL SC300 FOR THRU WINDOW INTERCOM FOR PRIVATE INMATE CONVERSATION. MOUNT UNIT WITH GOOSENECK ON NON-INMATE SIDE.

2 INSTALL VIDEO SURVEILLANCE NETWORK SWITCH IN SPARE SPACE OF LAN RACK. COORDINATE WITH STATE DTS FOR EXACT LOCATION.



1 LEVEL 5 AUXILIARY PLAN

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

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LEVEL 5 AUXILIARY PLAN

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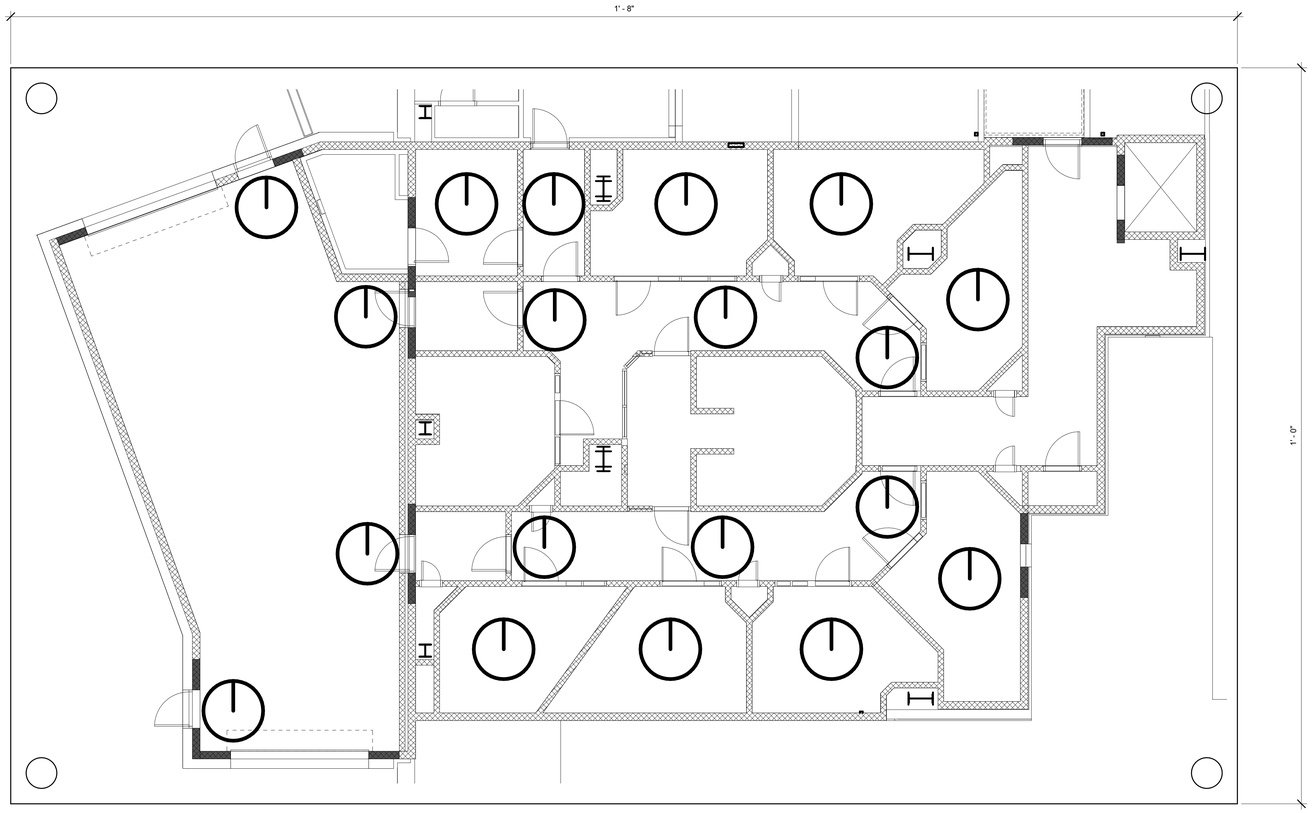

1 MANUAL SWITCH CONTROL PANEL DETAIL
SCALE: NTS

PANEL NOTES:

SWITCH OPERATOR - TELEMECANIQUE ZB4BD401
CONTACT BLOCK - TELEMECANIQUE ZB4BZ101
BLACK ANODIZED ALUMINUM, 8 GAUGE

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MANUAL SWITCH CONTROL DETAIL

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CARD ACCESS DOOR TYPE SCHEDULE

DOOR TYPE #	SYMBOL	DESCRIPTION	PROTECTED SIDE ELEVATION	UNPROTECTED SIDE ELEVATION	LOCK TYPE(S)	DIVISION OF WORK AND COMMENTS
TYPE 12	TO ACS #12 HARDWARE SET: E	SINGLE DOOR, ADA ASSISTED, EXIT ONLY	AUTO OPENER 4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SWITCHED EXIT HARDWARE POWER TRANSFER 4SQ BOX W/ 1G RING AND COVER CONTACT INDICATOR 1G BOX IN FRAME		SWITCHED EXIT HARDWARE	SECURITY CONTRACTOR PROVIDES: • HARDWARE CONTRACTOR PROVIDES: • PH, EPT, CI, L/PS LOCK CONTROLLED BY: • ADA OPENER NOTES: 1. REX IS IN EXIT HARDWARE.
TYPE 13	TO ACS #13 HARDWARE SET: 05	SINGLE DOOR, KEY IN, DOOR POSITION MONITORED AND REX REQUIRED.	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) POWER TRANSFER 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME		MONITORED DOOR	SECURITY CONTRACTOR PROVIDES: • NONE HARDWARE CONTRACTOR PROVIDES: • EPT, LS, CI LOCK CONTROLLED BY: • KEY NOTES: 1. REX IS IN THE LOCKSET HARDWARE.
TYPE 14	TO ACS CR XCR #14 HARDWARE SET: 10	SINGLE DOOR, 2 CARD READERS CARD READER OVERRIDE OF LOCAL ALARM.	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SWITCHED EXIT HARDWARE 4'-0" POWER TRANSFER 1G BOX IN FRAME EXIT CARD READER 4SQ BOX W/ 1G RING CONTACT INDICATOR 1G BOX IN FRAME	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING 4'-0"	ELECTRIC FIRE EXIT HARDWARE	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • PH, EPT, CI LOCK CONTROLLED BY: • CR, FA NOTES: 1. REX IS IN THE EXIT DEVICE.
TYPE 15	TO ACS CR #15 HARDWARE SET: J	SINGLE DOOR, 1 CARD READER MOUNTED ON MULLION, (FREE EGRESS)	.75" C (TYP) 4SQ J-BOX ABOVE ACC CEILING EXIT MOTION 1G BOX ELECTRIC STRIKE 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME (EGRESS SIDE)	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CABLING IN MULLION MULLION MOUNTED CARD READER	ELECTRIC STRIKE	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • ES, CI, MD LOCK CONTROLLED BY: • CR
TYPE 16	TO ACS #16 HARDWARE SET: 07	DOUBLE DOOR, KEY IN, (FREE EGRESS)	EXIT MOTION 1G BOX .75" C (TYP) 4SQ J-BOX ABOVE ACC CEILING CONTACT INDICATORS 1G BOXES IN FRAME (EGRESS SIDE)		MONITORED DOOR	SECURITY CONTRACTOR PROVIDES: • HARDWARE CONTRACTOR PROVIDES: • CI, MD LOCK CONTROLLED BY: • KEY
TYPE 17	TO ACS #17 HARDWARE SET: A	DOUBLE DOOR, DOORS ARE DOGGED DURING NORMAL HOURS	CONTACT INDICATORS 1G BOXES IN FRAME 4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) POWER TRANSFER 1G BOXES IN FRAME (EGRESS SIDE) SWITCHED EXIT HARDWARE		PANIC HARDWARE	SECURITY CONTRACTOR PROVIDES: • HARDWARE CONTRACTOR PROVIDES: • EPT, PH, L/PS, CI LOCK CONTROLLED BY: • TLC NOTES: 1. REX IS IN THE EXIT DEVICE HARDWARE.
TYPE 18	TO ACS #18 HARDWARE SET: B	DOUBLE DOOR, AUTO OPENER, DOORS ARE DOGGED DURING NORMAL HOURS (SEE DOOR OPERATION DESCRIPTION IN HARDWARE SPECIFICATIONS)	CONTACT INDICATORS 1G BOXES IN FRAME AUTO OPENER 4SQ J-BOX ABOVE ACC CEILING ADA ACTUATOR .75" C (TYP) POWER TRANSFER 1G BOXES IN FRAME (EGRESS SIDE) SWITCHED EXIT HARDWARE	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) ADA ACTUATOR (BOLLARD)	PANIC HARDWARE	SECURITY CONTRACTOR PROVIDES: • HARDWARE CONTRACTOR PROVIDES: • EPT, PH, L/PS, CI, ADA LOCK CONTROLLED BY: • TLC, AO NOTES: 1. REX IS IN EXIT DEVICE HARDWARE.
TYPE 19	TO ACS #19 HARDWARE SET: B	OVERHEAD DOOR WITH ELECTRIC CONTROLLER	TO ACS DOOR CONTROLLER .75" C (TYP) CONTACT INDICATOR 1G BOX IN FRAME		DOOR CONTROLLER	ALL EQUIPMENT PROVIDED BY OVERHEAD DOOR INSTALLER. CONTROLLED BY: • CENTRAL CONTROL NOTES: 1. PREFERRED METHOD OF DOOR STATUS INDICATION IS TO USE THE LIMIT SWITCHES IN THE DOOR CONTROLLER.

CARD ACCESS DOOR TYPE SCHEDULE

DOOR TYPE #	SYMBOL	DESCRIPTION	PROTECTED SIDE ELEVATION	UNPROTECTED SIDE ELEVATION	LOCK TYPE(S)	DIVISION OF WORK AND COMMENTS
TYPE 1	TO ACS CR #1 HARDWARE SETS: 19, 27, 30, 51, 52	SINGLE DOOR, 1 CARD READER FREE EGRESS	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CONTACT INDICATOR 1G BOX IN FRAME POWER TRANSFER 1G BOX IN FRAME ELECTRIC LOCKSET (EGRESS SIDE)	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING 4'-0"	ELECTRIC LOCKSET	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • EL, CI, EPT LOCK CONTROLLED BY: • CR NOTES: 1. SEE HARDWARE SECTION FOR SPECIFIC POWER SUPPLY REQUIREMENTS.
TYPE 2	TO ACS CR #2 HARDWARE SET: 15	SINGLE DOOR, 1 CARD READER	DOOR POSITION SWITCH 1G BOX IN FRAME 4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SWITCHED EXIT HARDWARE POWER TRANSFER 1G BOX IN FRAME	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) EXIT DEVICE LEVER CARD READER 4SQ BOX W/ 1G RING 4'-0"	SWITCHED EXIT HARDWARE	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • EPT, PH, CI LOCK CONTROLLED BY: • CR
TYPE 3	TO ACS CR CR #3 HARDWARE SETS: 20, M	SINGLE DOOR, 2 CARD READERS	DOOR POSITION SWITCH 1G BOX IN FRAME 4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING ELECTRIC STRIKE 1G BOX IN FRAME 4'-0"	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING 4'-0"	ELECTRIC STRIKE	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • ES, L/PS, CI LOCK CONTROLLED BY: • CR NOTES: 1. HARDWARE SET 'M' SHALL USE MULLION CARD READERS WITH CABLING DOWN DOOR FRAME.
TYPE 4	TO ACS #4 HARDWARE SETS: 03, G	SINGLE DOOR, DELAYED EXIT WITH DOOR POSITION MONITORING	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) DELAYED EXIT HARDWARE POWER TRANSFER 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME		DELAYED EXIT HARDWARE	SECURITY CONTRACTOR PROVIDES: • NONE HARDWARE CONTRACTOR PROVIDES: • EPT, PH, CI, L/PS LOCK CONTROLLED BY: • PH (DELAYED EXIT)
TYPE 5	TO ACS CR #5 HARDWARE SETS: H, K	SINGLE DOOR, 1 CARD READER	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SWITCHED EXIT HARDWARE POWER TRANSFER 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CABLING IN MULLION EXIT DEVICE LEVER MULLION MOUNTED CARD READER		SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • EPT, PH, CI LOCK CONTROLLED BY: • CR NOTES: 1. REX IS IN EXIT DEVICE.
TYPE 6	TO ACS #6 HARDWARE SET: 48	SINGLE DOOR, HOLDING CELLS	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CONTACT INDICATOR 1G BOX IN FRAME ELECTRIC DEADLATCH 1G BOX IN FRAME		ELECTRIC DEADLATCH	SECURITY CONTRACTOR PROVIDES: • L/PS HARDWARE CONTRACTOR PROVIDES: • EL, CI LOCK CONTROLLED BY: • CENTRAL CONTROL NOTES: 1. THESE DOORS ARE PART OF INTERLOCK GROUPS.
TYPE 7	TO ACS #7 HARDWARE SET: 50	SINGLE DOOR, HOLDING AREA MOVEMENT DOORS	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SHEAR MAGLOCK 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME		SHEAR MAGLOCKS	SECURITY CONTRACTOR PROVIDES: • L/PS HARDWARE CONTRACTOR PROVIDES: • ML, CI LOCK CONTROLLED BY: • CENTRAL CONTROL NOTES: 1. THESE DOORS ARE PART OF SEVERAL INTERLOCK GROUPS.
TYPE 8	TO ACS CR XCR #8 HARDWARE SETS: 11, 24	SINGLE DOOR, 2 CARD READERS	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) EXIT CARD READER 4SQ BOX W/ 1G RING 4'-0" SHEAR MAGLOCK 1G BOX IN FRAME	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING 4'-0"	SHEAR MAGLOCKS	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • ML LOCK CONTROLLED BY: • CR NOTES: 1. DOOR POSITION IS MONITORED THRU SWITCH IN MAGLOCK.
TYPE 9	TO ACS CR XCR #9 HARDWARE SET: 49	SINGLE DOOR, 2 CARD READERS	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) EXIT CARD READER 4SQ BOX W/ 1G RING 4'-0" SHEAR MAGLOCK 1G BOX IN FRAME CONTACT INDICATOR 1G BOX IN FRAME	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) CARD READER 4SQ BOX W/ 1G RING 4'-0"	SHEAR MAGLOCKS	SECURITY CONTRACTOR PROVIDES: • CR, L/PS HARDWARE CONTRACTOR PROVIDES: • ML, CI LOCK CONTROLLED BY: • CR
TYPE 10	TO ACS #10 HARDWARE SET: 06	SINGLE DOOR, PART OF VEHICLE SALLYPORT INTERLOCK GROUP	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) MAG LOCK AND CONTACT INDICATOR 1G BOX IN FRAME		MAG LOCK	SECURITY CONTRACTOR PROVIDES: • L/PS HARDWARE CONTRACTOR PROVIDES: • ML LOCK CONTROLLED BY: • CENTRAL CONTROL
TYPE 11	TO ACS #11 HARDWARE SETS: 04, 34, R	SINGLE DOOR (EXIT ONLY)	4SQ J-BOX ABOVE ACC CEILING .75" C (TYP) SWITCHED EXIT HARDWARE POWER TRANSFER 4SQ BOX W/ 1G RING AND COVER CONTACT INDICATOR 1G BOX IN FRAME		SWITCHED EXIT HARDWARE	SECURITY CONTRACTOR PROVIDES: • NONE HARDWARE CONTRACTOR PROVIDES: • PH, CI, EPT LOCK CONTROLLED BY: • NOTES: 1. REX IS IN EXIT HARDWARE.

ABBREVIATIONS LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
4SQ	FOUR SQUARE JUNCTION BOX	ES	ELECTRIC STRIKE	REX	REQUEST TO EXIT SWITCH/FUNCTION
1G	SINGLE GANG	FA	FIRE ALARM SYSTEM	RS	REMOTE SWITCH
ACC	ACCESSIBLE	L/PS	LOCK POWER SUPPLY	TLC	TIME/CALENDAR SCHEDULE IN ACS
ACS	ACCESS CONTROL SYSTEM CONTROLLER	LS	LOCK INDICATOR SWITCH IN HARDWARE		
ADA	ASSISTED DISABILITY OPENER	LX	PANIC HARDWARE LATCH POSITION SIWTCH		
AO	AUTO OPENER	MD	MOTION DETECTOR		
CI	DOOR CONTACT INDICATOR SWITCH	ML	ELECTROMAGNETIC LOCK		
CR	CARD READER	PB	PUSH BUTTON		
EPT	POWER TRANSFER OR ELECTRIC HINGE	PH	PANIC HARDWARE (CRASH BAR)		
EL	ELECTRIC LOCKSET	PS	POWER SUPPLY		

NOTE:

SEE HARDWARE SECTION (DIVISION 8) FOR ALL DOOR OPERATION DESCRIPTIONS.

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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SECURITY SYSTEM DOOR SCHEDULE

EY601

VSS CAMERA/ENCLOSURE TYPE SCHEDULE

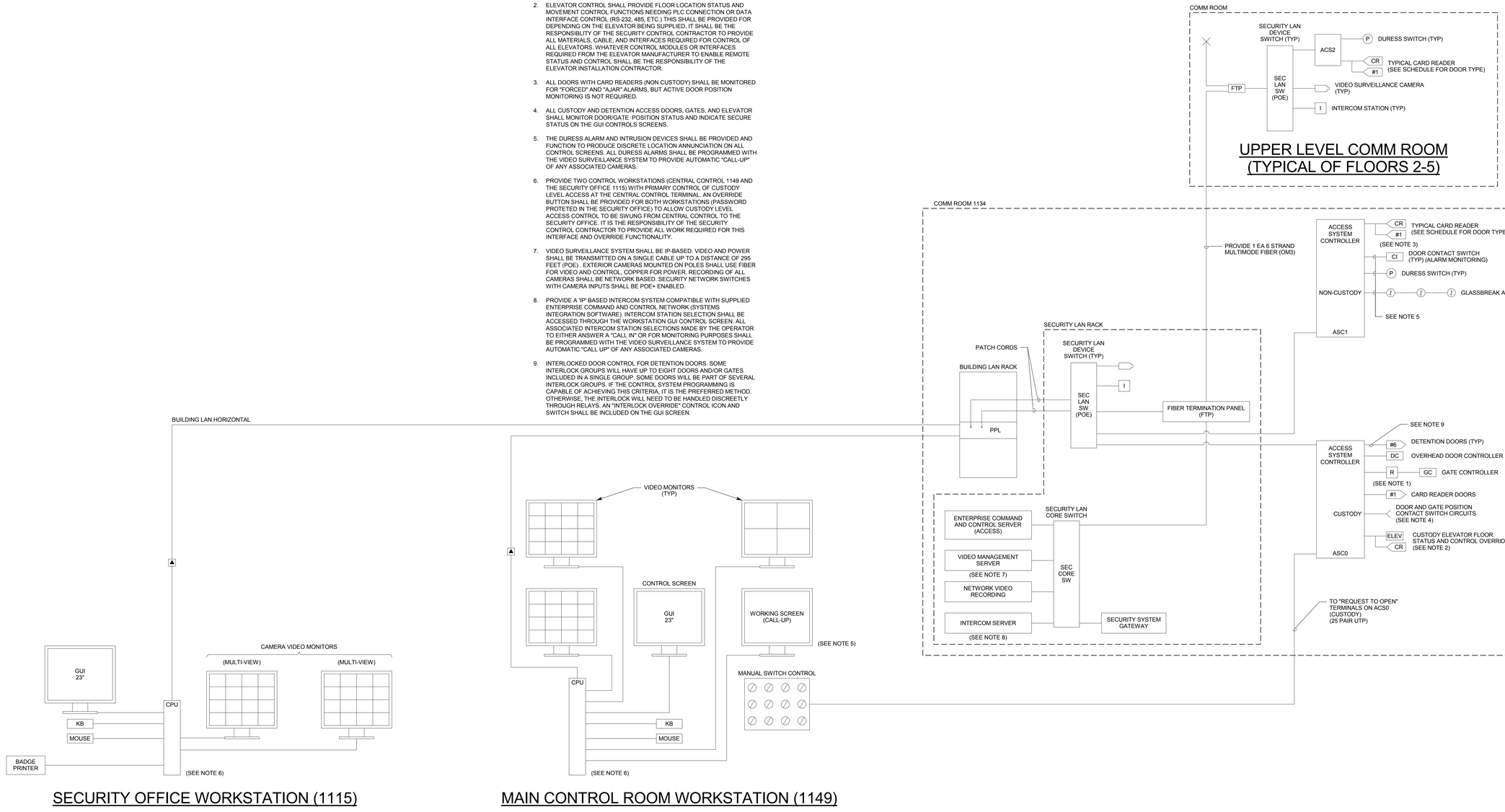
CAMERA TYPE NUMBER	SYMBOL	DESCRIPTION	INCLUDES
TYPE 1	#1 VSS	INTERIOR CAMERA - FIXED DOME (CEILING MOUNTED)	* JUNCTION BOX ABOVE CEILING WITH 1" CONDUIT TO VSS
TYPE 2	#2 VSS	INTERIOR CAMERA - FIXED DOME (WALL MOUNTED)	* JUNCTION BOX AT +90" ABOVE FINISHED FLOOR OR AS NOTED, WITH 1" CONDUIT BACK TO VSS
TYPE 3	#3 VSS	EXTERIOR CAMERA - FIXED DOME (WALL MOUNTED)	* JUNCTION BOX AT +120" ABOVE GRADE OR AS NOTED, WITH 1" CONDUIT THROUGH EXTERIOR WALL BACK TO VSS
TYPE 4	#4 VSS	EXTERIOR CAMERA - PTZ CORNER MOUNTED, OR AS NOTED	* JUNCTION BOX IN EXTERIOR WALL, LOCATION AS NEEDED, WITH 1" CONDUIT TO VSS

SECURITY AND VIDEO SYSTEMS EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	ROUGH-IN REQUIREMENTS	CABLE TYPES
DC	OVERHEAD DOOR CONTROLLER	BACKBOX PER MANUFACTUER	PER MANUFACTURER
	GLASSBREAK DETECTOR	1G BOX INSTALLED IN CEILING FOR FLUSH MOUNTED FACEPLATE	4 PAIR STP 20 AWG
ACS	ACCESS SYSTEM CONTROLLER AND POWER SUPPLIES	WALL MOUNTED (72" AFF) 4" GUTTER AND STUBS A/R	PER SYSTEM REQUIREMENTS
SEC	SECURITY ALARM PANEL (INTRUSION DETECTION AND DURESS)	WALL MOUNTED (72" AFF) 4" GUTTER AND STUBS A/R	PER SYSTEM REQUIREMENTS
VSS	VIDEO SURVEILLANCE SYSTEM TERMINATION	RACK MOUNTED PATCH PANEL. USES DATA CABLE MANAGEMENT	CAT 6 COMPLIANT CABLING
#1	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE FOR DIFFERENT TYPE REQUIREMENTS.	SEE DOOR TYPE SCHEDULE.	SEE CONTRACTOR SUBMITTALS.
CR	CARD READER	4SQ BOX W/ 1G TRIM, .75" C OR 1" C AS NOTED.	SEE CONTRACTOR SUBMITTALS.
CI	CONTACT INDICATOR (DOOR POSITION SWITCH)	1G BOX INSIDE DOOR FRAME, .75" C	2 CONDUCTOR, 18 AWG (MIN.)
P	DURESS BUTTON.	1G BOX, CASEWORK MOUNTED,. .75" C	2 CONDUCTOR, 20 AWG (MIN.)
I / I S	INTERCOM STATION, WALL MOUNTED / CEILING SPEAKER.	4SQ BOX IN WALL OR 8" DOOR FRAME / SPEAKER ENCLOSURE (SEE 16760 SUBMITTALS),. 75" C	(1) 2 PAIR STP, 20 AWG
	VIDEO LCD MONITOR, 23"	COUNTER MOUNTED, OR AS NOTED	HDMI / DVI
GUI	CONTROL SCREEN, 23" FLAT PANEL	COUNTER MOUNTED	CONNECTS TO CPU
#1	VIDEO CAMERA / ENCLOSURE WITH LENS. SEE SCHEDULE FOR CAMERA TYPE, - CONDUIT ENTRY FOR DOME TYPE CAMERA - 1G BOX FOR NON-DOME TYPE CAMERA	SEE SPECIFICATIONS, 1" C	1 EACH CAT 6 CABLE (BY STATE DTS)
#4	PTZ CCTV CAMERA. SEE SPECIFICATIONS	1G BOX COORDINATED WITH PENDANT MOUNTING, 1" C	1 EACH CAT 6 CABLE (BY STATE DTS)
T	TELEPHONE / INTERCOM STATION	BACKBOX PER MANUFACTUER	1 EACH CAT 6 CABLE (BY STATE DTS)

SECURITY SYSTEM BLOCK DIAGRAM NOTES:

1. IT SHALL BE THE RESPONSIBILITY OF THE SECURITY SYSTEMS INSTALLER TO COORDINATE CONTROL OF GATES AND OVERHEAD DOOR CONTROLLERS AND PROVIDE NECESSARY MATERIALS TO INTERFACE WITH THESE CONTROLLERS. GATE CONTROLS MAY REQUIRE LOW VOLTAGE SLAVE RELAYS AT THE CONTROLLER FOR GATE CONTROL CIRCUITS. BOTH GATES AND OVERHEAD DOORS SHALL HAVE "OPEN", "CLOSE", AND "STOP" FUNCTIONS AVAILABLE AT THE MAIN CONTROL WORKSTATION.
2. ELEVATOR CONTROL SHALL PROVIDE FLOOR LOCATION STATUS AND MOVEMENT CONTROL FUNCTIONS NEEDING PLC CONNECTION OR DATA INTERFACE CONTROL (RS-232, 485, ETC.) THIS SHALL BE PROVIDED FOR DEPENDING ON THE ELEVATOR BEING SUPPLIED. IT SHALL BE THE RESPONSIBILITY OF THE SECURITY CONTROL CONTRACTOR TO PROVIDE ALL MATERIALS, CABLE, AND INTERFACES REQUIRED FOR CONTROL OF ALL ELEVATORS. WHATEVER CONTROL MODULES OR INTERFACES REQUIRED FROM THE ELEVATOR MANUFACTURER TO ENABLE REMOTE STATUS AND CONTROL SHALL BE THE RESPONSIBILITY OF THE ELEVATOR INSTALLATION CONTRACTOR.
3. ALL DOORS WITH CARD READERS (NON CUSTODY) SHALL BE MONITORED FOR "FORCED" AND "AJAR" ALARMS, BUT ACTIVE DOOR POSITION MONITORING IS NOT REQUIRED.
4. ALL CUSTODY AND DETENTION ACCESS DOORS, GATES, AND ELEVATOR SHALL MONITOR DOOR/GATE POSITION STATUS AND INDICATE SECURE STATUS ON THE GUI CONTROLS SCREENS.
5. THE DURESS ALARM AND INTRUSION DEVICES SHALL BE PROVIDED AND FUNCTION TO PRODUCE DISCRETE LOCATION ANNUNCIATION ON ALL CONTROL SCREENS. ALL DURESS ALARMS SHALL BE PROGRAMMED WITH THE VIDEO SURVEILLANCE SYSTEM TO PROVIDE AUTOMATIC "CALL-UP" OF ANY ASSOCIATED CAMERAS.
6. PROVIDE TWO CONTROL WORKSTATIONS (CENTRAL CONTROL 1149 AND THE SECURITY OFFICE 1115) WITH PRIMARY CONTROL OF CUSTODY LEVEL ACCESS AT THE CENTRAL CONTROL TERMINAL. AN OVERRIDE BUTTON SHALL BE PROVIDED FOR BOTH WORKSTATIONS (PASSWORD PROTETED IN THE SECURITY OFFICE) TO ALLOW CUSTODY LEVEL ACCESS CONTROL TO BE SWUNG FROM CENTRAL CONTROL TO THE SECURITY OFFICE. IT IS THE RESPONSIBILITY OF THE SECURITY CONTROL CONTRACTOR TO PROVIDE ALL WORK REQUIRED FOR THIS INTERFACE AND OVERRIDE FUNCTIONALITY.
7. VIDEO SURVEILLANCE SYSTEM SHALL BE IP-BASED. VIDEO AND POWER SHALL BE TRANSMITTED ON A SINGLE CABLE UP TO A DISTANCE OF 295 FEET (POE) . EXTERIOR CAMERAS MOUNTED ON POLES SHALL USE FIBER FOR VIDEO AND CONTROL, COPPER FOR POWER. RECORDING OF ALL CAMERAS SHALL BE NETWORK BASED. SECURITY NETWORK SWITCHES WITH CAMERA INPUTS SHALL BE POE+ ENABLED.
8. PROVIDE A 'IP' BASED INTERCOM SYSTEM COMPATIBLE WITH SUPPLIED ENTERPRISE COMMAND AND CONTROL NETWORK (SYSTEMS INTEGRATION SOFTWARE). INTERCOM STATION SELECTION SHALL BE ACCESSED THROUGH THE WORKSTATION GUI CONTROL SCREEN. ALL ASSOCIATED INTERCOM STATION SELECTIONS MADE BY THE OPERATOR TO EITHER ANSWER A "CALL IN" OR FOR MONITORING PURPOSES SHALL BE PROGRAMMED WITH THE VIDEO SURVEILLANCE SYSTEM TO PROVIDE AUTOMATIC "CALL UP" OF ANY ASSOCIATED CAMERAS.
9. INTERLOCKED DOOR CONTROL FOR DETENTION DOORS. SOME INTERLOCK GROUPS WILL HAVE UP TO EIGHT DOORS AND/OR GATES INCLUDED IN A SINGLE GROUP. SOME DOORS WILL BE PART OF SEVERAL INTERLOCK GROUPS. IF THE CONTROL SYSTEM PROGRAMMING IS CAPABLE OF ACHIEVING THIS CRITERIA, IT IS THE PREFERRED METHOD. OTHERWISE, THE INTERLOCK WILL NEED TO BE HANDLED DISCREETLY THROUGH RELAYS. AN "INTERLOCK OVERRIDE" CONTROL ICON AND SWITCH SHALL BE INCLUDED ON THE GUI SCREEN.



SECURITY OFFICE WORKSTATION (1115)

MAIN CONTROL ROOM WORKSTATION (1149)

1 SECURITY SYSTEM BLOCK RISER DIAGRAM
NO SCALE

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SECURITY SYSTEM RISER DIAGRAMS

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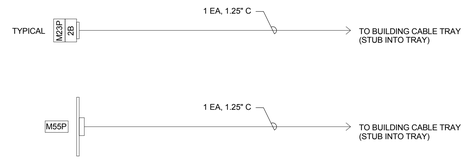
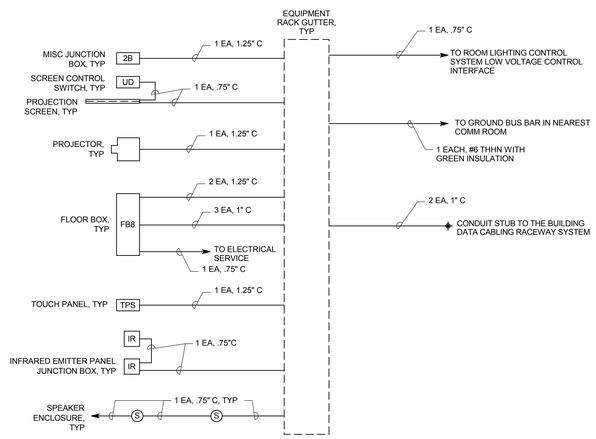


E2 AV SYSTEMS RACEWAY ROUGH IN RISER DIAGRAM - BUILDING WIDE DISPLAYS

NO SCALE

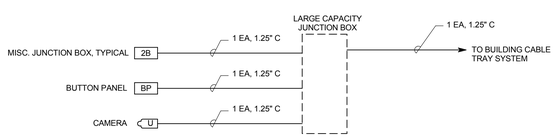


C2 AV SYSTEMS RACEWAY ROUGH IN RISER DIAGRAM - ROOM 1124

NO SCALE

B2 AV SYSTEMS RACEWAY ROUGH IN RISER DIAGRAM - ROOM 1108

NO SCALE

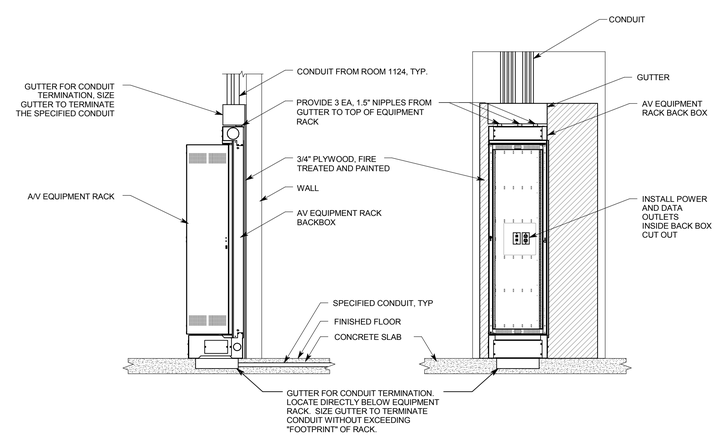


A1 AV SYSTEMS RACEWAY ROUGH IN RISER DIAGRAM - ROOM 3129

NO SCALE

AV RACEWAY SYSTEMS SCHEDULE

SYMBOL	DESCRIPTION	MOUNTING-UNLESS OTHERWISE NOTED ON DRAWINGS
SV	4-11/16" BOX WITH TWO GANG MUD RING	RECESSED IN WALL AT ELECTRICAL SWITCH HEIGHT
V	4-11/16" BOX WITH ONE GANG MUD RING.	RECESSED IN WALL AT ELECTRICAL SWITCH HEIGHT
2M	2-GANG MUD RING, COVER EACH MUD RING WITH A BLANK PLATE	FLUSH IN VERTICAL MILLWORK PANEL
2B	4-11/16" BOX, MAXIMUM DEPTH FOR STUD SPACE, W/ TWO GANG MUD RING. SELECT BOX CONDUIT KNOCK OUTS FOR SPECIFIED CONDUIT. COVER EACH JUNCTION BOX WITH A BLANK PLATE.	RECESSED IN WALL/MILLWORK AT ELECTRICAL OUTLET HEIGHT UNLESS NOTED OTHERWISE ON DRAWINGS
FBAV	FLOOR BOX, FOR RAISED, ACCESS FLOORS IN ALL COURTROOMS. REFER TO DIV 26	RECESSED IN FLOOR
FB8	FLOOR BOX, POURED IN CONCRETE, REFER TO DIV 26	RECESSED IN FLOOR
S	ENCLOSURE FOR 6" SPEAKER W/ ROUGH IN BRACKET OR T-BAR BRIDGE. ATLAS SOUND FA97-6/FA-TR6 OR FA81-6	RECESSED IN CEILING, SEE DETAIL
S_H	ENCLOSURE FOR 8" VANDAL RESISTANT SPEAKER, ATLAS SOUND 193-8-6	RECESSED IN CEILING
	EQUIPMENT RACK, AV, FURNISHED AND INSTALLED BY DIVISION 27	WALL
	EQUIPMENT RACK, AV, FURNISHED AND INSTALLED BY DIVISION 27	FLOOR
	PROJECTION SCREEN, FURNISHED AND INSTALLED BY DIVISION 27	CEILING
	JUNCTION BOX FOR PROJECTOR, 4-11/16" BOX WITH 2-GANG MUD RING WITHIN 6" OF THE PROJECTOR MOUNT	FLUSH IN THE FINISHED CEILING
IR	JUNCTION BOX FOR INFRA-RED SENSOR, 4-11/16" BOX WITH 2-GANG MUD RING	FLUSH IN THE WALL 6" BELOW THE FINISHED CEILING
EP	JUNCTION BOX FOR INFRARED EMITTER PANEL, 1-GANG	FLUSH IN THE WALL 6" BELOW THE FINISHED CEILING
	JUNCTION BOX FOR CAMERA, 4-11/16" BOX W/2-GANG MUD RING	INSTALL IN SIDE WALL OF CAMERA POCKET
U	JUNCTION BOX FOR USB CAMERA, 4-11/16" BOX W/2-GANG MUD RING	FLUSH IN WALL AT ELEVATION SHOWN ON DETAIL
TPS	ROUGH-IN BOX FOR WALL MOUNTED TOUCH PANEL FURNISHED BY DIVISION 27, INSTALLED BY DIVISION 26	FLUSH IN WALL AT ELECTRICAL SWITCH HEIGHT
BP	ROUGH-IN BOX FOR WALL MOUNTED BUTTON PANEL FURNISHED BY DIVISION 27, INSTALLED BY DIVISION 26	FLUSH IN WALL AT ELECTRICAL SWITCH HEIGHT
UD	JUNCTION BOX FOR PROJECTION SCREEN UP/DOWN CONTROL SWITCH, 1-GANG	FLUSH IN WALL AT ELECTRICAL SWITCH HEIGHT
	GUTTER, SIZE PER NEC FOR SPECIFIED CONDUIT	SURFACE MOUNTED ABOVE AV EQUIPMENT RACK & RECESSED IN SLAB BELOW EQUIPMENT RACK
	3/4" PLYWOOD, FIRE TREATED AND PAINTED, SEE SPECIFICATIONS	SURFACE MOUNTED TO WALL
M	LARGE CAPACITY JUNCTION BOX FOR MONITOR, CHIEF PAC 516	FLUSH IN WALL AT ELEVATION SHOWN ON DETAILS
M23P	4-11/16" BOX, MAXIMUM DEPTH FOR STUD SPACE, W/ TWO GANG MUD RING. SELECT BOX CONDUIT KNOCK OUTS FOR SPECIFIED CONDUIT. COVER EACH JUNCTION BOX WITH A BLANK PLATE.	FLUSH IN WALL AT 54" AFF
	EMT CONDUIT, .75" MINIMUM, SEE RACEWAY RISER DIAGRAM FOR EXACT SIZES	CONCEALED BEHIND FINISHED SURFACES



A4 AV EQUIPMENT RACK DETAIL - ROOM 1124

NO SCALE

GENERAL NOTES

1. IF THE ENCLOSURES, BOXES, & CABINETS SPECIFIED ARE NOT PROVIDED FROM THE MANUFACTURER, WITH THE REQUIRED KNOCK OUTS FOR THE SPECIFIED CONDUIT, FIELD CUT ALL REQUIRED KNOCK OUTS TO TERMINATE THE QUANTITY AND SIZES OF THE SPECIFIED CONDUITS.
2. MAINTAIN MAXIMUM SEPARATION BETWEEN AV SYSTEM CONDUIT AND ALL POWER CONDUIT.
3. INSTALL NYLON PULL STRINGS IN ALL AV SYSTEM CONDUIT.
4. INSTALL ALL CONDUIT IN A CONCEALED FASHION. SURFACE MOUNTED CONDUIT WILL NOT BE ACCEPTED UNLESS SPECIFICALLY IDENTIFIED IN DRAWINGS.
5. COVER ALL INSTALLED JUNCTION BOXES AND MUD RINGS WITH BLANK COVER PLATES.
6. INSTALL ALL EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS, SEISMIC CODES, AND INDUSTRY WIDE ACCEPTED RIGGING PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM STRUCTURE ABOVE CEILINGS. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

"A"	AUDIO
"AFF"	ABOVE FINISHED FLOOR
"A/R"	AS REQUIRED
"ADJ"	ADJACENT
"C"	CONDUIT
"CAT"	CATEGORY
"CFI"	CONTRACTOR FURNISHED AND INSTALLED
"CV"	COMPOSITE VIDEO
"DVI"	DIGITAL VISUAL INTERFACE
"DVD"	DIGITAL VERSATILE DISK
"E"	ENHANCED
"EA"	EACH
"EX"	EXISTING
"GR"	GROUND
"I.O.F."	INSTALLATION OF OWNER FURNISHED EQUIPMENT
"L"	LEFT AUDIO CHANNEL, LINE LEVEL
"N/A"	NOT APPLICABLE
"MIC"	MIC LEVEL AUDIO
"N.I.C."	NOT IN CONTRACT
"OFCI"	OWNER FURNISHED AND CONTRACTOR INSTALLED
"OFI"	OWNER FURNISHED AND INSTALLED
"OFP"	OBTAIN FROM PLANS
"QTY"	QUANTITY
"OP"	OWNER PROVIDED
"POE"	POWER OVER ETHERNET
"R"	RIGHT AUDIO CHANNEL, LINE LEVEL
"RGBHV"	COMPUTER VIDEO
"RMK"	RACK MOUNT KIT
"RU"	RACK UNIT, 1.75"
"TYP"	TYPICAL
"V"	VOLT
"VHS"	VIDEO HOME SYSTEM
"W/"	WITH
"YC"	S-VIDEO
"YPP"	COMPONENT VIDEO
"VGA"	VIDEO GRAPHICS ARRAY

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENO SCALE IN THE CONTRACT DOCUMENO SCALE. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS. THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

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AV ROUGH-IN SCHEDULE AND NOTES

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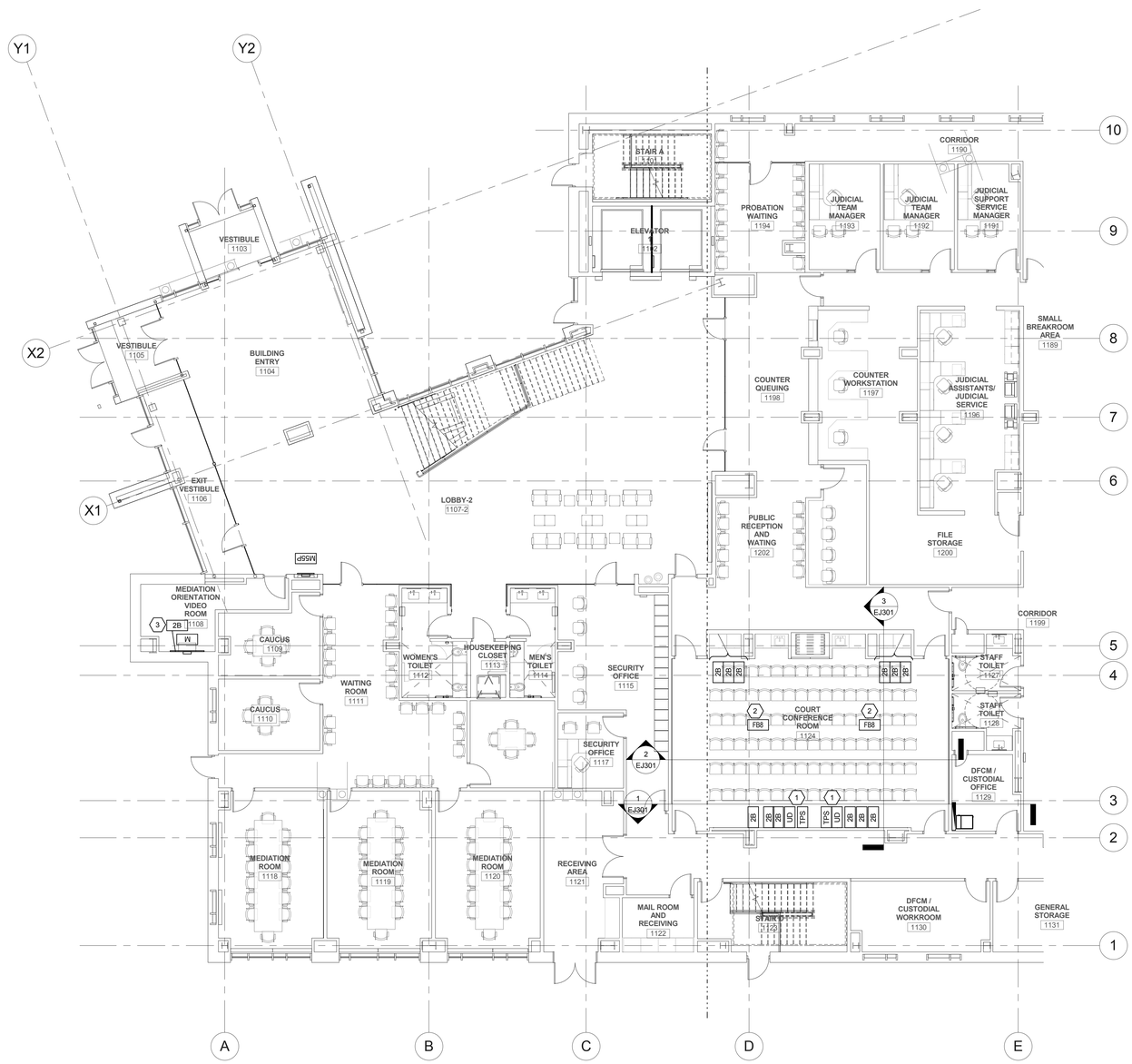

1 LEVEL 1 AUDIO VISUAL ROUGH IN FLOOR PLAN - AREA A

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

SHEET KEYNOTES

1. COORDINATE HORIZONTAL LOCATION OF AV DEVICES INSTALLED AT ELECTRICAL SWITCH HEIGHT WITH THE PROJECTION SCREENS. LOCATE SO THAT DEVICES ARE NOT COVERED BY PROJECTION SCREEN WHEN ROLLED DOWN.
2. INSTALL THE SPECIFIED FLOOR BOX FLUSH IN THE CONCRETE FLOOR. CONFIRM THE EXACT LOCATION WITH THE COURT AND ARCHITECT PRIOR TO INSTALLATION.
3. INSTALL SPECIFIED BOX AT ELECTRICAL OUTLET HEIGHT BEHIND THE SPECIFIED MILLWORK CABINET. PENETRATE THE REAR OF THE CABINET TO EXPOSE JUNCTION BOX.

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LEVEL 1 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA A

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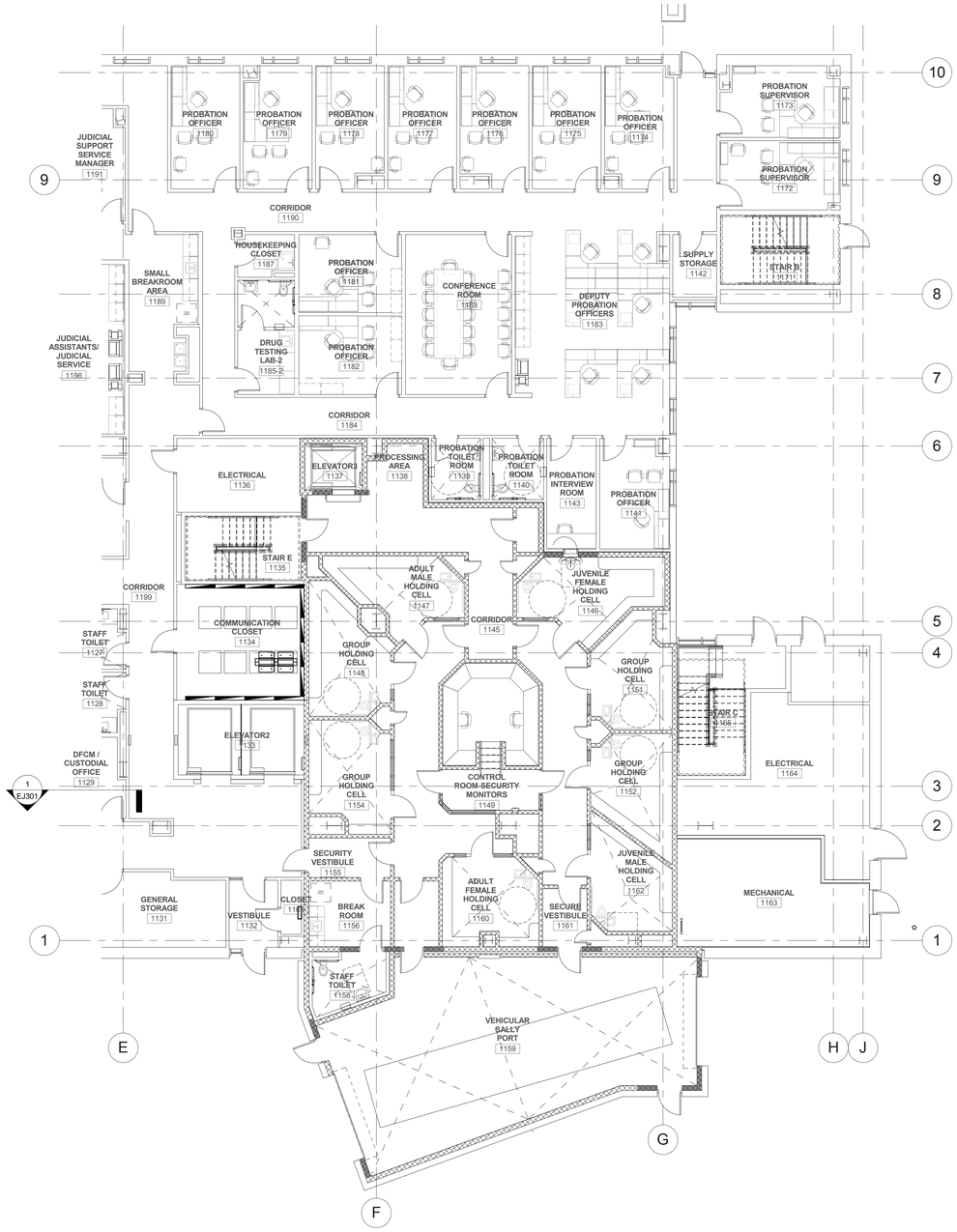

1 LEVEL 1 AUDIO VISUAL ROUGH IN FLOOR PLAN - AREA B

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

SHEET KEYNOTES

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LEVEL 1 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA B

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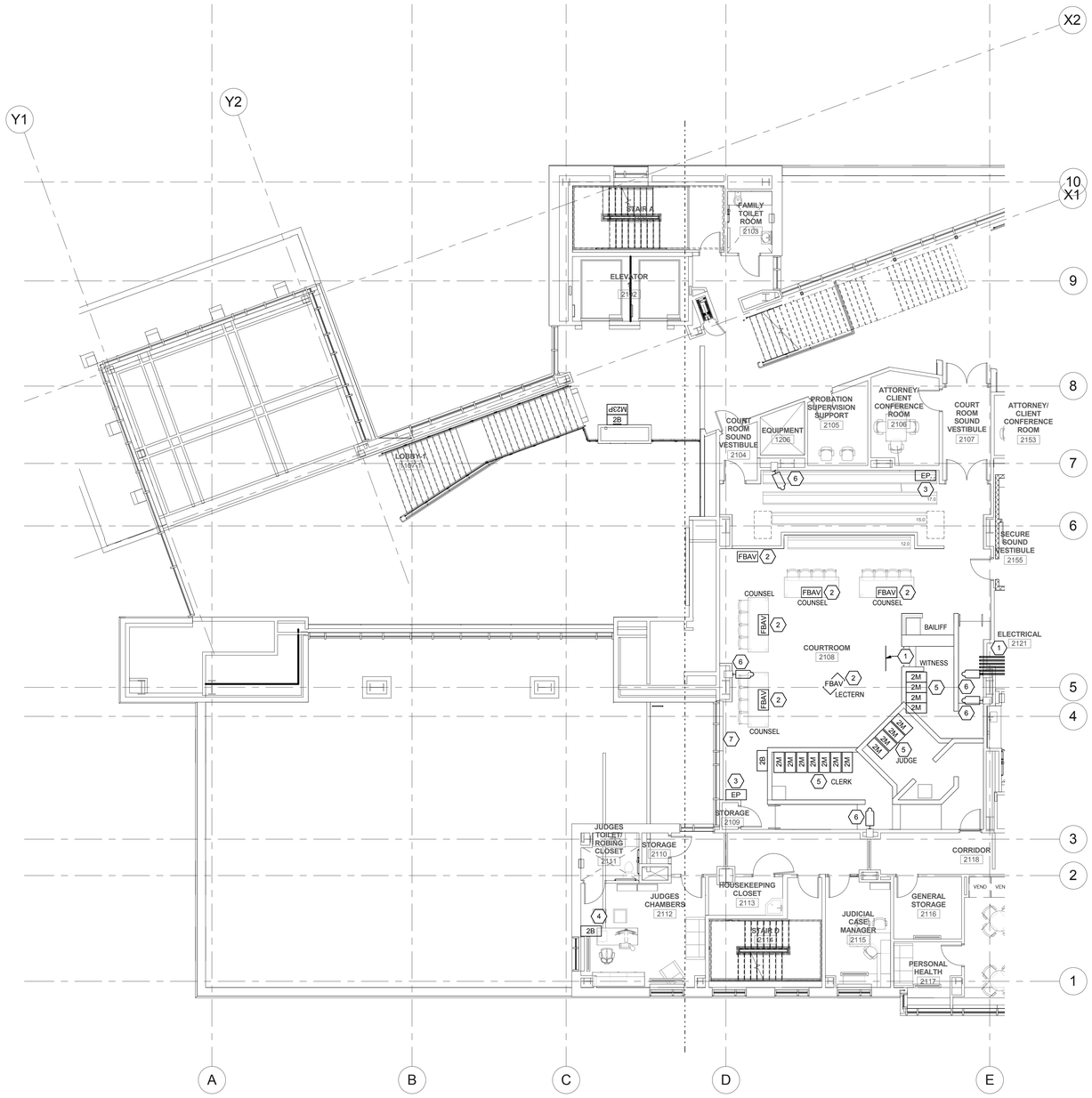

1 LEVEL 2 AUDIO VISUAL ROUGH IN FLOOR PLAN - AREA A

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

SHEET KEYNOTES

1. PROVIDE 6 EA, 4" CONDUIT SLEEVES FROM THE COURTROOM RAISED ACCESS FLOOR SPACE TO THE COMMUNICATIONS CLOSET RAISED ACCESS FLOOR SPACE. STUB CONDUIT INTO ACCESS FLOOR SPACE A MINIMUM OF 12" BEYOND FRAMING FOR RAISED PLATFORM CONSTRUCTION. PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.
2. CUT THE RAISED FLOOR TILE AND INSTALL THE SPECIFIED FLOOR BOX IN A RECESSED FASHION. VERIFY EXACT FLOOR BOX LOCATION WITH THE ARCHITECT & COURT PRIOR TO INSTALLATION.
3. INSTALL THE NOTED BOX FLUSH IN THE WALL AT APPROXIMATELY 6" BELOW THE FINISHED CEILING FOR AN ASSISTED LISTENING SYSTEM EMITTER PANEL. LOCATE BOX IMMEDIATELY ADJACENT TO THE ASSOCIATED POWER OUTLET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
4. INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A MICROPHONE INPUT. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
5. EVENLY SPACE THE SPECIFIED 2 GANG MUD-RING ACROSS THE VERTICAL MILLWORK PANEL. COVER EACH DEVICE PLATE WITH A 2 GANG BLANK COVER PLATE.
6. INSTALL SPECIFIED BOX FLUSH IN THE SIDE WALL OF THE CAMERA POCKET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE THE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
7. PROVIDE THE SPECIFIED CONDUIT BETWEEN THE COMM CLOSET AND LOW VOLTAGE CONTROL INTERFACE FOR THE MOTORIZED WINDOW COVERINGS FOR EACH WINDOW.

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08284150
165 West 20th Street, Ogden, Utah
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LEVEL 2 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA A

EJ102A

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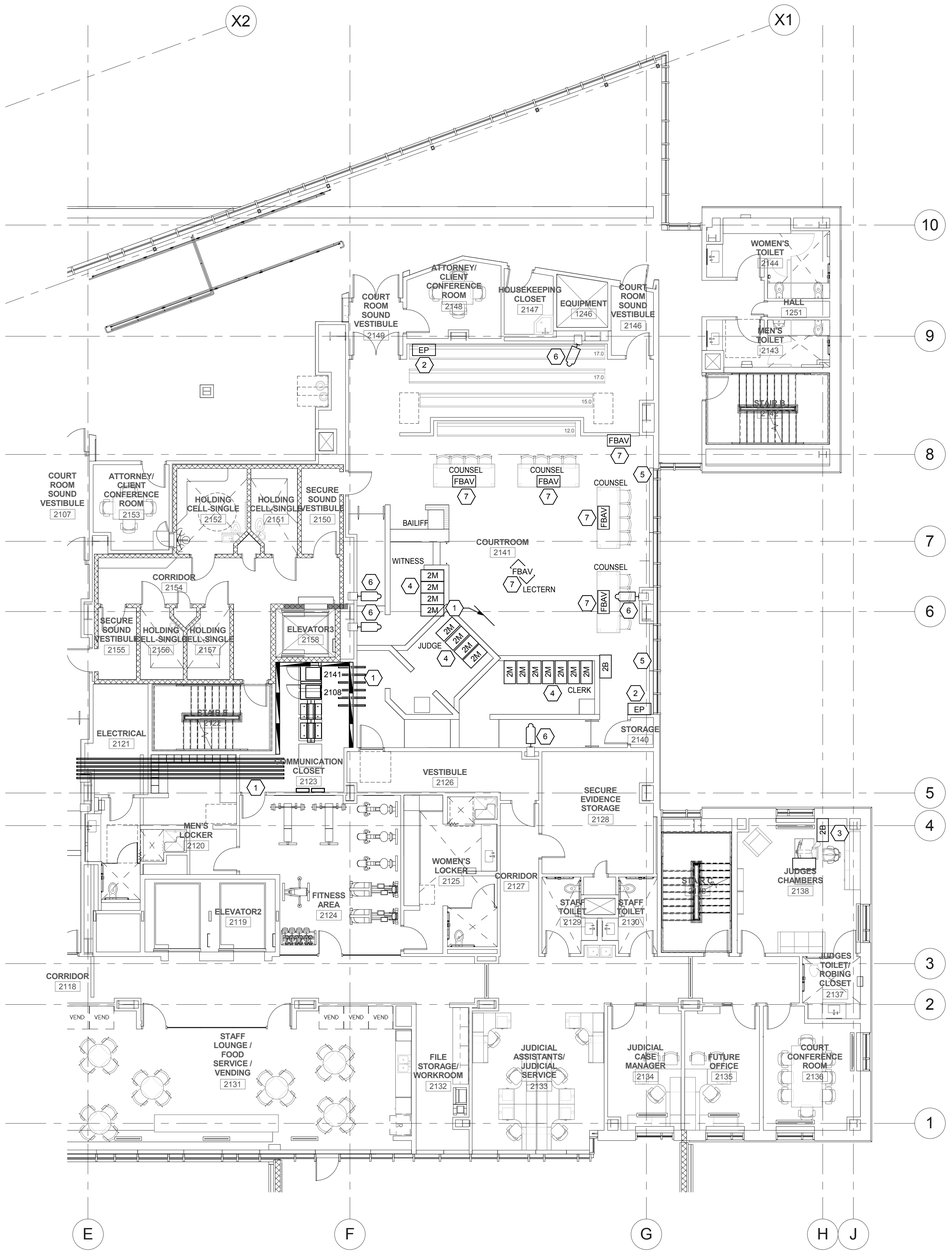

1 LEVEL 2 AUDIO VISUAL ROUGH IN FLOOR PLAN - AREA B

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

SHEET KEYNOTES

1. PROVIDE 6 EA. 4" CONDUIT SLEEVES FROM THE COURTROOM RAISED ACCESS FLOOR SPACE TO THE COMMUNICATIONS CLOSET RAISED ACCESS FLOOR SPACE. STUB CONDUIT INTO ACCESS FLOOR SPACE A MINIMUM OF 12" BEYOND FRAMING FOR RAISED PLATFORM CONSTRUCTION. PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.
2. INSTALL THE NOTED BOX FLUSH IN THE WALL AT APPROXIMATELY 6" BELOW THE FINISHED CEILING FOR AN ASSISTED LISTENING SYSTEM EMITTER PANEL. LOCATE BOX IMMEDIATELY ADJACENT TO THE ASSOCIATED POWER OUTLET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
3. INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A MICROPHONE INPUT. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
4. EVENLY SPACE THE SPECIFIED 2 GANG MUD-RING ACROSS THE VERTICAL MILLWORK PANEL. COVER EACH DEVICE PLATE WITH A 2 GANG BLANK COVER PLATE.
5. PROVIDE THE SPECIFIED CONDUIT BETWEEN THE COMM CLOSET AND LOW VOLTAGE CONTROL INTERFACE FOR THE MOTORIZED WINDOW COVERINGS FOR EACH WINDOW.
6. INSTALL SPECIFIED BOX FLUSH IN THE SIDE WALL OF THE CAMERA POCKET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE THE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
7. CUT THE RAISED FLOOR TILE AND INSTALL THE SPECIFIED FLOOR BOX IN A RECESSED FASHION. VERIFY EXACT FLOOR BOX LOCATION WITH THE ARCHITECT & COURT PRIOR TO INSTALLATION.

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LEVEL 2 AUDIO VIDEO ROUGH-IN FLOOR PLAN - AREA B

EJ102B

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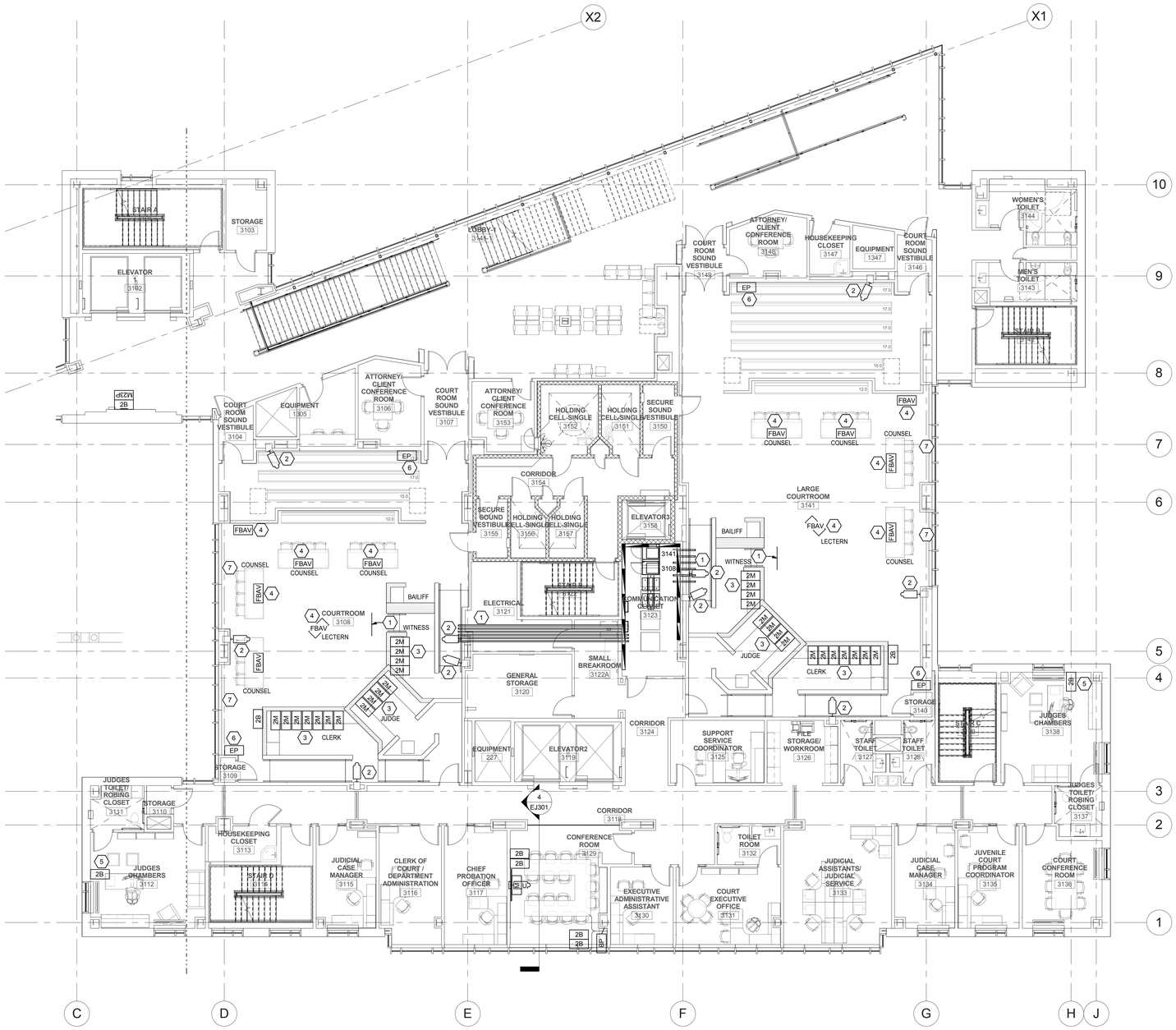

A2 LEVEL 3 AUDIO VISUAL ROUGH IN FLOOR PLAN

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

SHEET KEYNOTES

1. PROVIDE 6 EA, 4" CONDUIT SLEEVES FROM THE COURTROOM RAISED ACCESS FLOOR SPACE TO THE COMMUNICATIONS CLOSET RAISED ACCESS FLOOR SPACE. STUB CONDUIT INTO ACCESS FLOOR SPACE A MINIMUM OF 12" BEYOND FRAMING FOR RAISED PLATFORM CONSTRUCTION. PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.
2. INSTALL SPECIFIED BOX FLUSH IN THE SIDE WALL OF THE CAMERA POCKET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE THE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
3. EVENLY SPACE THE SPECIFIED 2 GANG MUD-RING ACROSS THE VERTICAL MILLWORK PANEL. COVER EACH DEVICE PLATE WITH A 2 GANG BLANK COVER PLATE.
4. CUT THE RAISED FLOOR TILE AND INSTALL THE SPECIFIED FLOOR BOX IN A RECESSED FASHION. VERIFY EXACT FLOOR BOX LOCATION WITH THE ARCHITECT & COURT PRIOR TO INSTALLATION.
5. INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A MICROPHONE INPUT. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
6. INSTALL THE NOTED BOX FLUSH IN THE WALL AT APPROXIMATELY 6" BELOW THE FINISHED CEILING FOR AN ASSISTED LISTENING SYSTEM EMITTER PANEL. LOCATE BOX IMMEDIATELY ADJACENT TO THE ASSOCIATED POWER OUTLET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
7. PROVIDE THE SPECIFIED CONDUIT BETWEEN THE COMM CLOSET AND LOW VOLTAGE CONTROL INTERFACE FOR THE MOTORIZED WINDOW COVERINGS FOR EACH WINDOW.

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LEVEL 3 AUDIO VIDEO ROUGH-IN FLOOR PLAN

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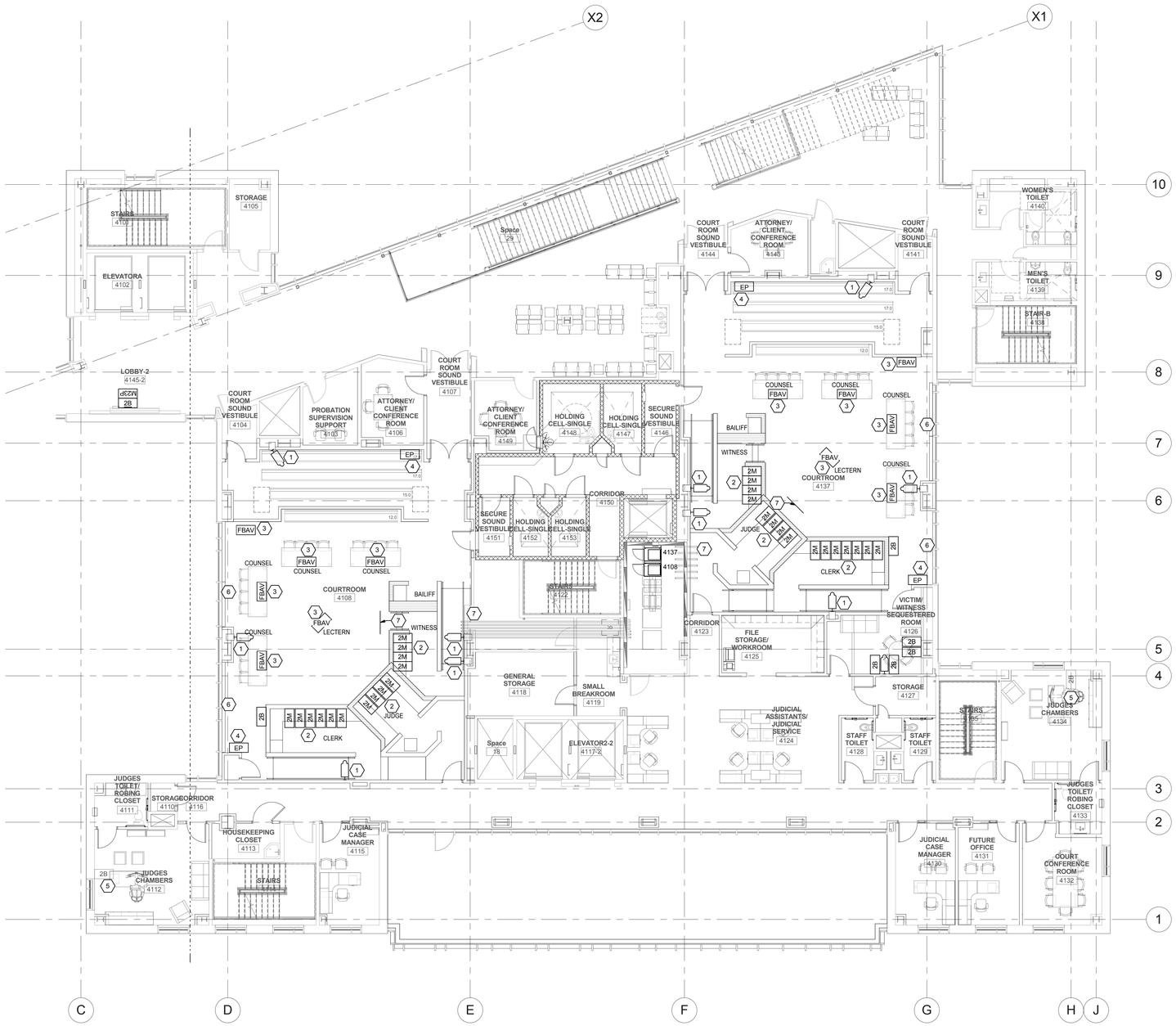

A2 LEVEL 4 AUDIO VISUAL ROUGH IN FLOOR PLAN - ALT

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

SHEET KEYNOTES

1. INSTALL SPECIFIED BOX FLUSH IN THE SIDE WALL OF THE CAMERA POCKET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE THE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
2. EVENLY SPACE THE SPECIFIED 2 GANG MUD-RING ACROSS THE VERTICAL MILLWORK PANEL. COVER EACH DEVICE PLATE WITH A 2 GANG BLANK COVER PLATE.
3. CUT THE RAISED FLOOR TILE AND INSTALL THE SPECIFIED FLOOR BOX IN A RECESSED FASHION. VERIFY EXACT FLOOR BOX LOCATION WITH THE ARCHITECT & COURT PRIOR TO INSTALLATION.
4. INSTALL THE NOTED BOX FLUSH IN THE WALL AT APPROXIMATELY 6" BELOW THE FINISHED CEILING FOR AN ASSISTED LISTENING SYSTEM EMITTER PANEL. LOCATE BOX IMMEDIATELY ADJACENT TO THE ASSOCIATED POWER OUTLET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
5. INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A MICROPHONE INPUT. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
6. PROVIDE THE SPECIFIED CONDUIT BETWEEN THE COMM CLOSET AND LOW VOLTAGE CONTROL INTERFACE FOR THE MOTORIZED WINDOW COVERINGS FOR EACH WINDOW.
7. PROVIDE 6 EA, 4" CONDUIT SLEEVES FROM THE COURTROOM RAISED ACCESS FLOOR SPACE TO THE COMMUNICATIONS CLOSET RAISED ACCESS FLOOR SPACE. STUB CONDUIT INTO ACCESS FLOOR SPACE A MINIMUM OF 12" BEYOND FRAMING FOR RAISED PLATFORM CONSTRUCTION. PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.

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LEVEL 4 AUDIO VIDEO ROUGH-IN FLOOR PLAN - ALT

EJ104alt

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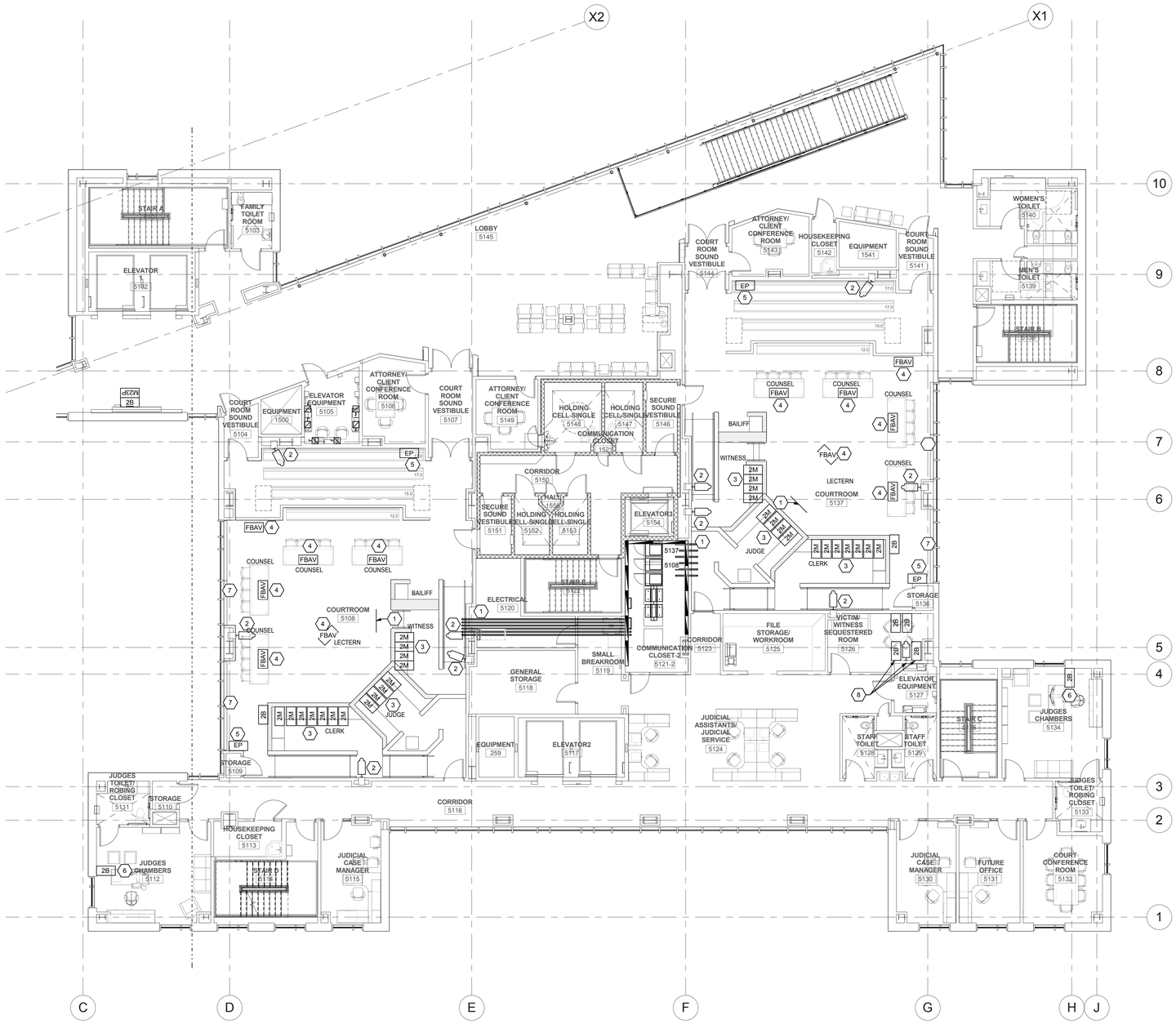

A2 LEVEL 5 AUDIO VISUAL ROUGH IN FLOOR PLAN

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

SHEET KEYNOTES

1. PROVIDE 6 EA. 4" CONDUIT SLEEVES FROM THE COURTROOM RAISED ACCESS FLOOR SPACE TO THE COMMUNICATIONS CLOSET RAISED ACCESS FLOOR SPACE. STUB CONDUIT INTO ACCESS FLOOR SPACE A MINIMUM OF 12" BEYOND FRAMING FOR RAISED PLATFORM CONSTRUCTION. PROVIDE ACOUSTICAL FILL MATERIAL AND SEAL AIRTIGHT AROUND PENETRATIONS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS. STUFF EACH END OF CONDUIT WITH BATT INSULATION AFTER ALL CABLES ARE PULLED.
2. INSTALL SPECIFIED BOX FLUSH IN THE SIDE WALL OF THE CAMERA POCKET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE THE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
3. EVENLY SPACE THE SPECIFIED 2 GANG MUD-RING ACROSS THE VERTICAL MILLWORK PANEL. COVER EACH DEVICE PLATE WITH A 2 GANG BLANK COVER PLATE.
4. CUT THE RAISED FLOOR TILE AND INSTALL THE SPECIFIED FLOOR BOX IN A RECESSED FASHION. VERIFY EXACT FLOOR BOX LOCATION WITH THE ARCHITECT & COURT PRIOR TO INSTALLATION.
5. INSTALL THE NOTED BOX FLUSH IN THE WALL AT APPROXIMATELY 6" BELOW THE FINISHED CEILING FOR AN ASSISTED LISTENING SYSTEM EMITTER PANEL. LOCATE BOX IMMEDIATELY ADJACENT TO THE ASSOCIATED POWER OUTLET. THE LOCATION SHOWN IS APPROXIMATE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
6. INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A MICROPHONE INPUT. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
7. PROVIDE THE SPECIFIED CONDUIT BETWEEN THE COMM CLOSET AND LOW VOLTAGE CONTROL INTERFACE FOR THE MOTORIZED WINDOW COVERINGS FOR EACH WINDOW.
8. INSTALL JUNCTION BOXES FOR CAMERA AND MONITORS FLUSH IN WALL AT 54" AFF.

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LEVEL 5 AUDIO VIDEO ROUGH-IN FLOOR PLAN

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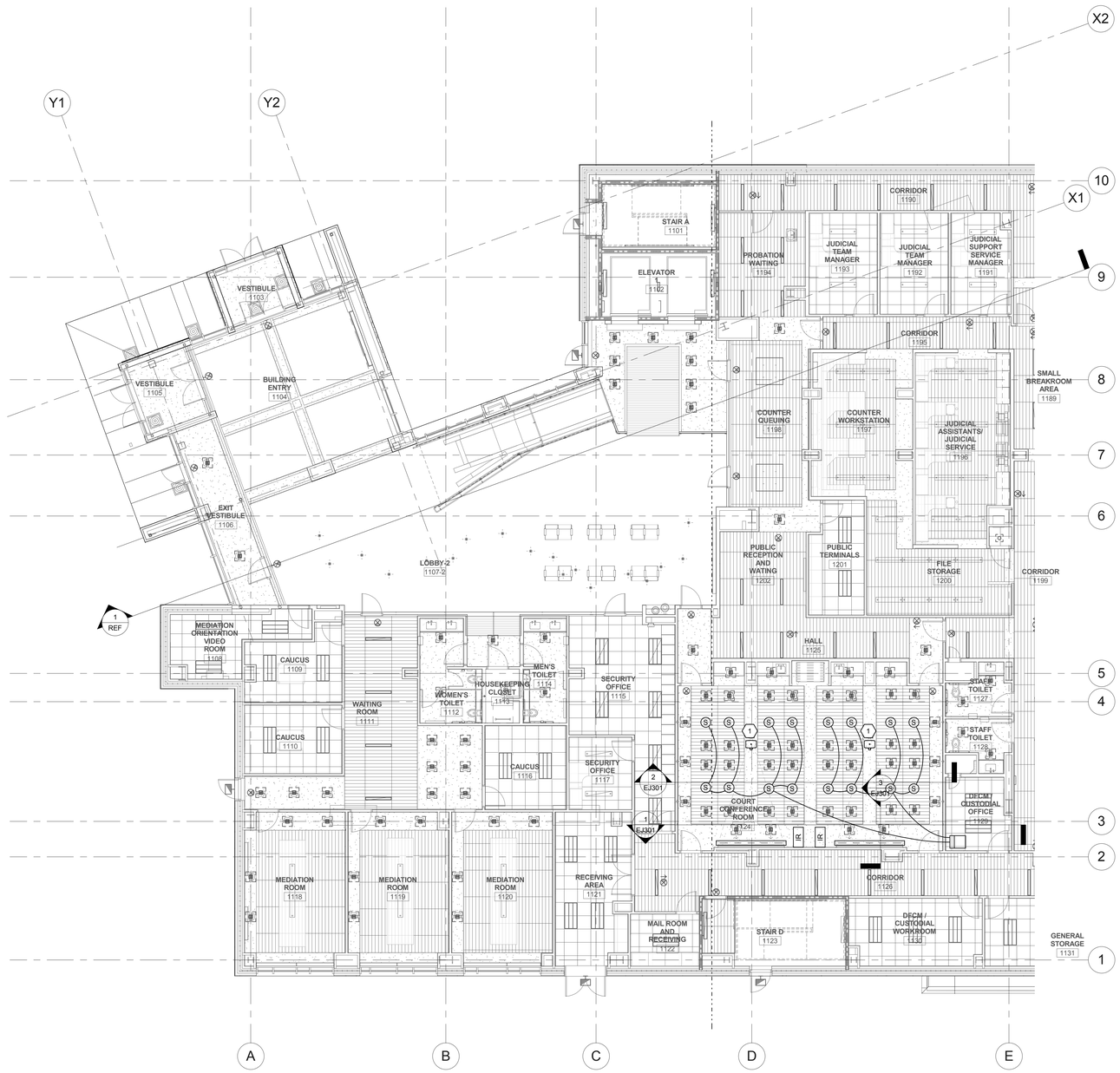

A2 LEVEL 1 AUDIO VISUAL ROUGH-IN CEILING PLAN - AREA A

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

SHEET KEYNOTES

1 COORDINATE PROJECTOR ROUGH-IN LOCATION WITH THE DIV 27 INSTALLER. LOCATE SIGNAL AND POWER JUNCTION BOXES WITHIN 6" OF PROJECTOR POLE.

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LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A

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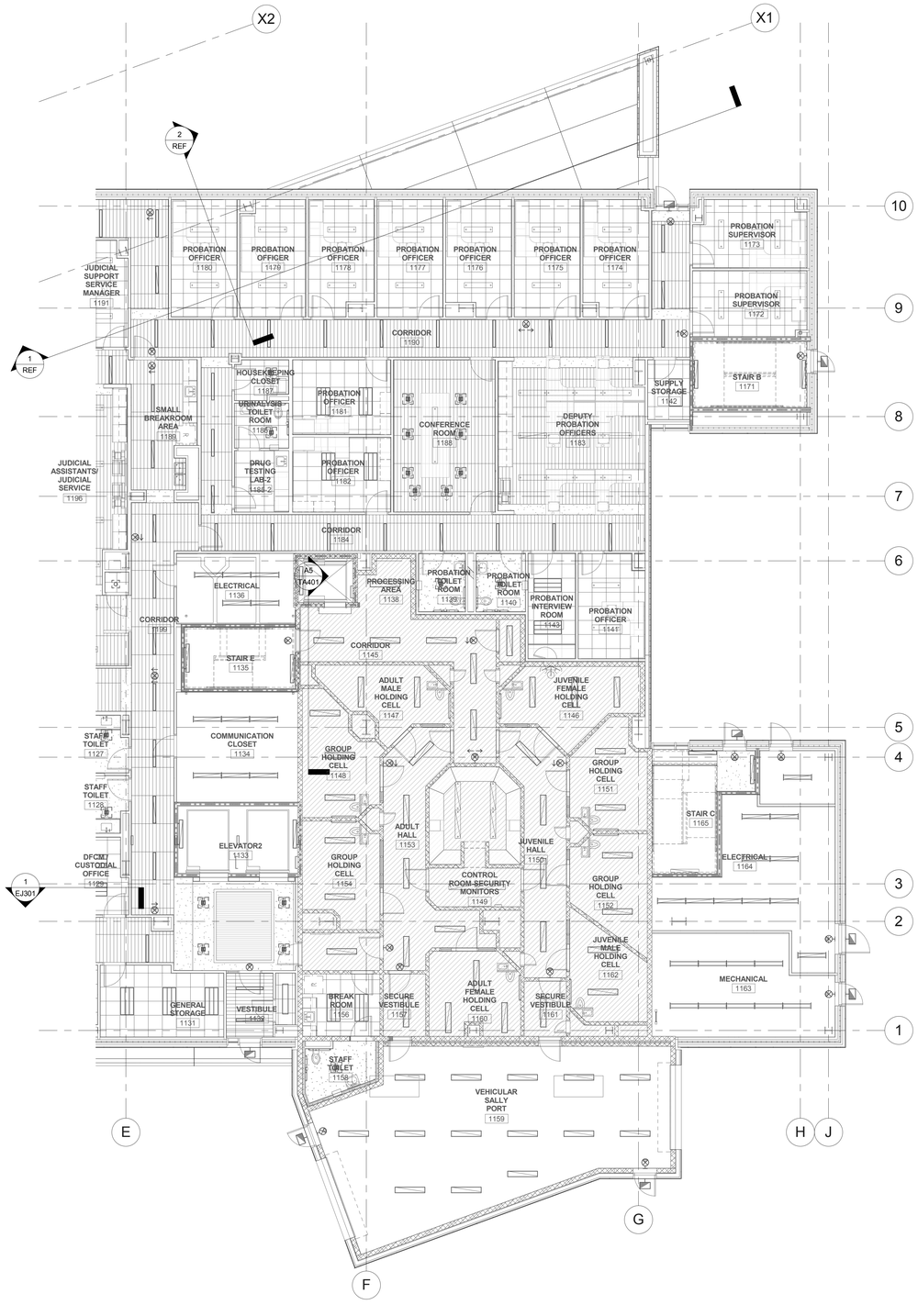

A2 LEVEL 1 AUDIO VISUAL ROUGH-IN CEILING PLAN - AREA B

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

SHEET KEYNOTES

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LEVEL 1 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B

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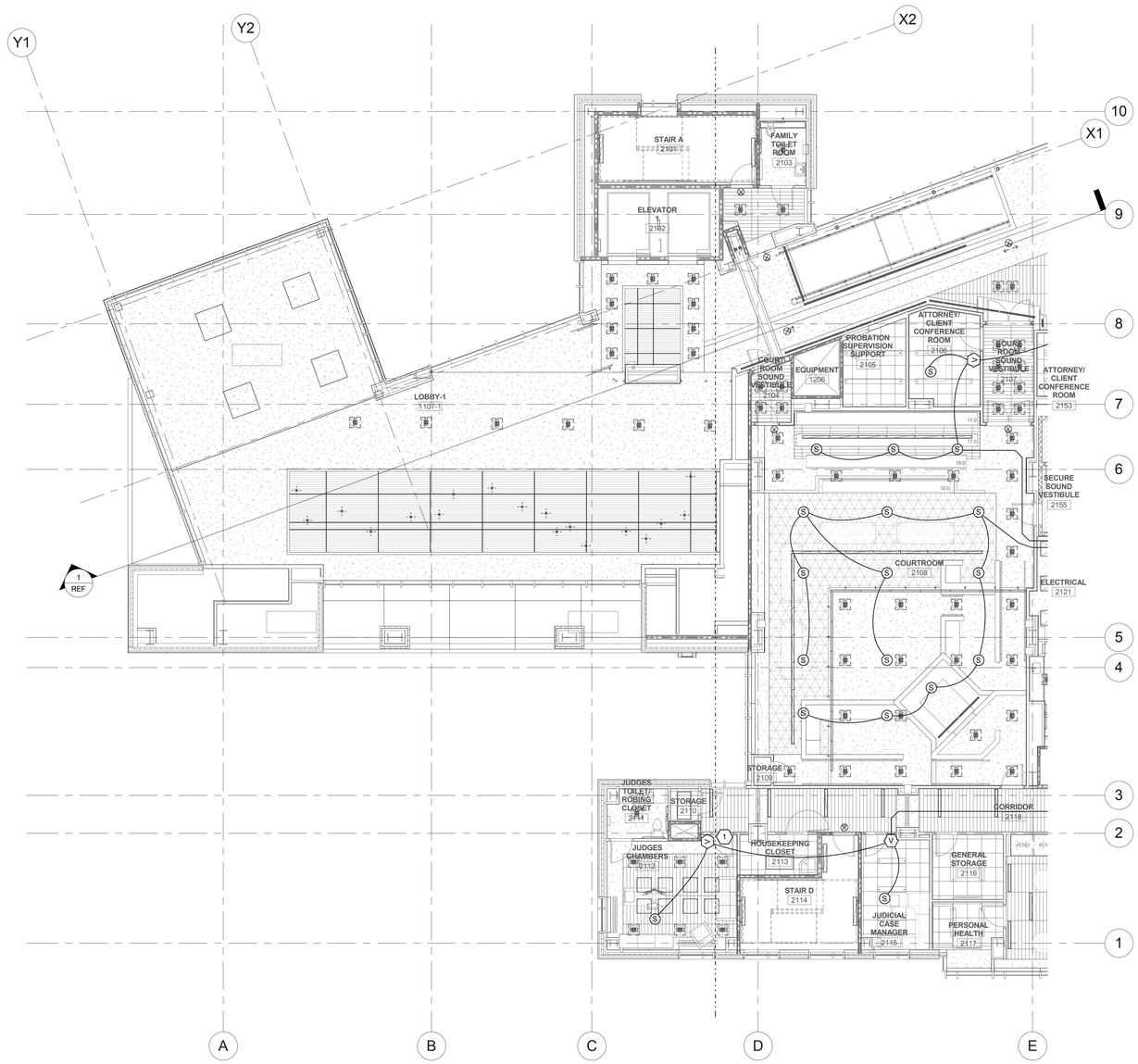

A2 LEVEL 2 AUDIO VISUAL ROUGH-IN CEILING PLAN - AREA A

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

SHEET KEYNOTES

1 INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A VOLUME CONTROL. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.

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LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA A

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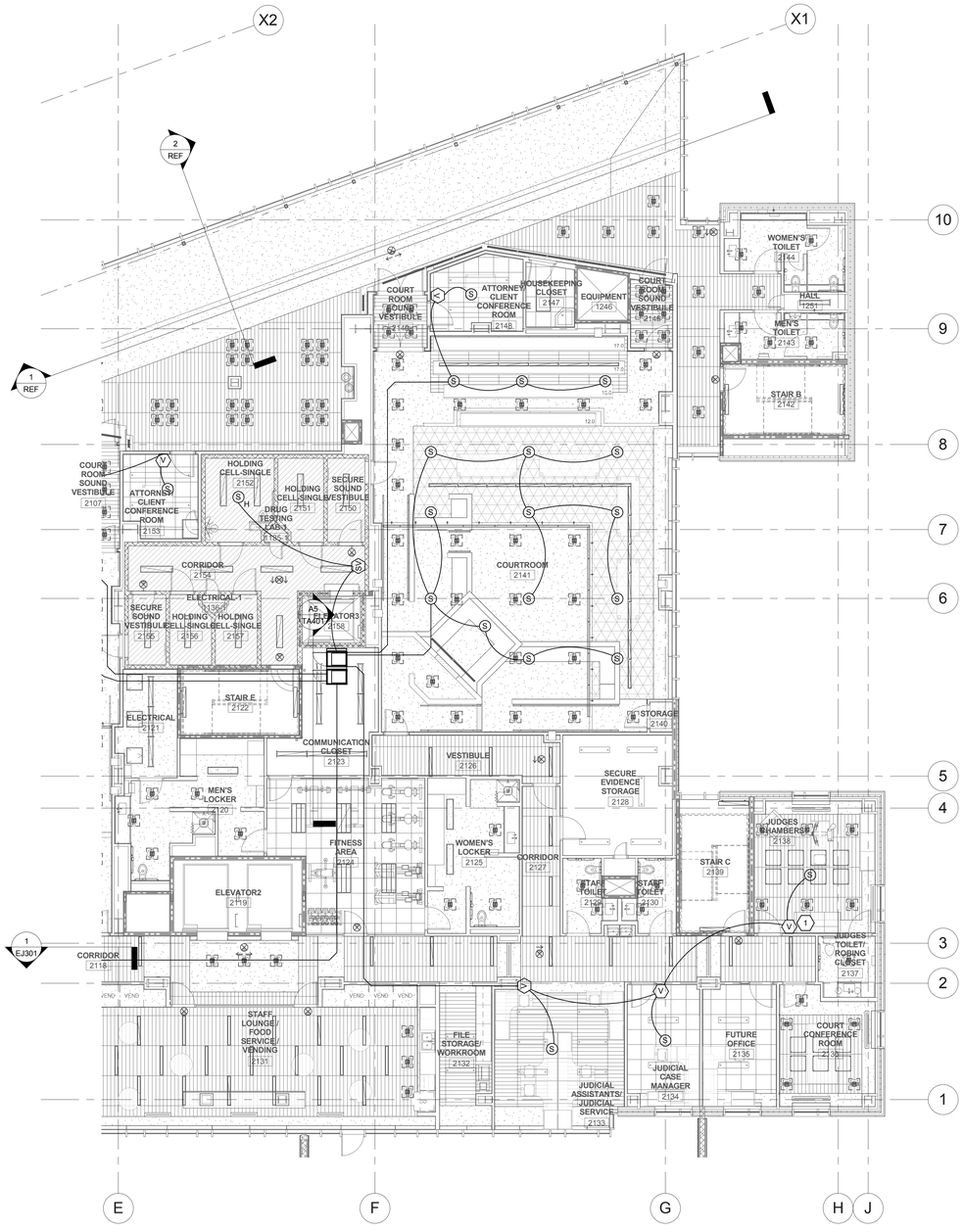

A2 LEVEL 2 AUDIO VISUAL ROUGH-IN CEILING PLAN - AREA B

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

SHEET KEYNOTES

1 INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A VOLUME CONTROL. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.

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LEVEL 2 AUDIO VIDEO ROUGH-IN CEILING PLAN - AREA B

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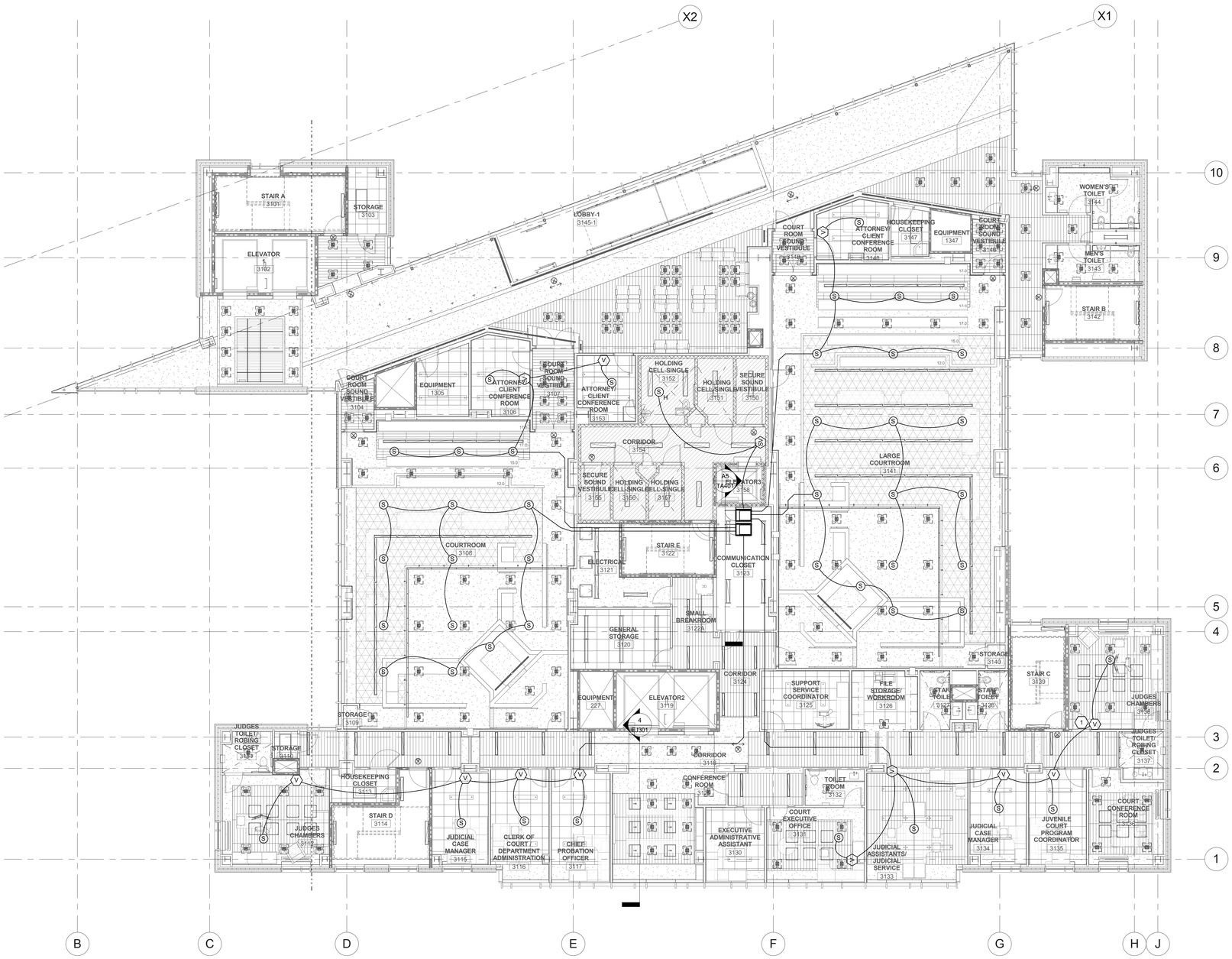

1 LEVEL 3 AUDIO VISUAL ROUGH-IN CEILING PLAN

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

SHEET KEYNOTES

1 INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A VOLUME CONTROL. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.

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LEVEL 3 AUDIO VIDEO ROUGH-IN CEILING PLAN

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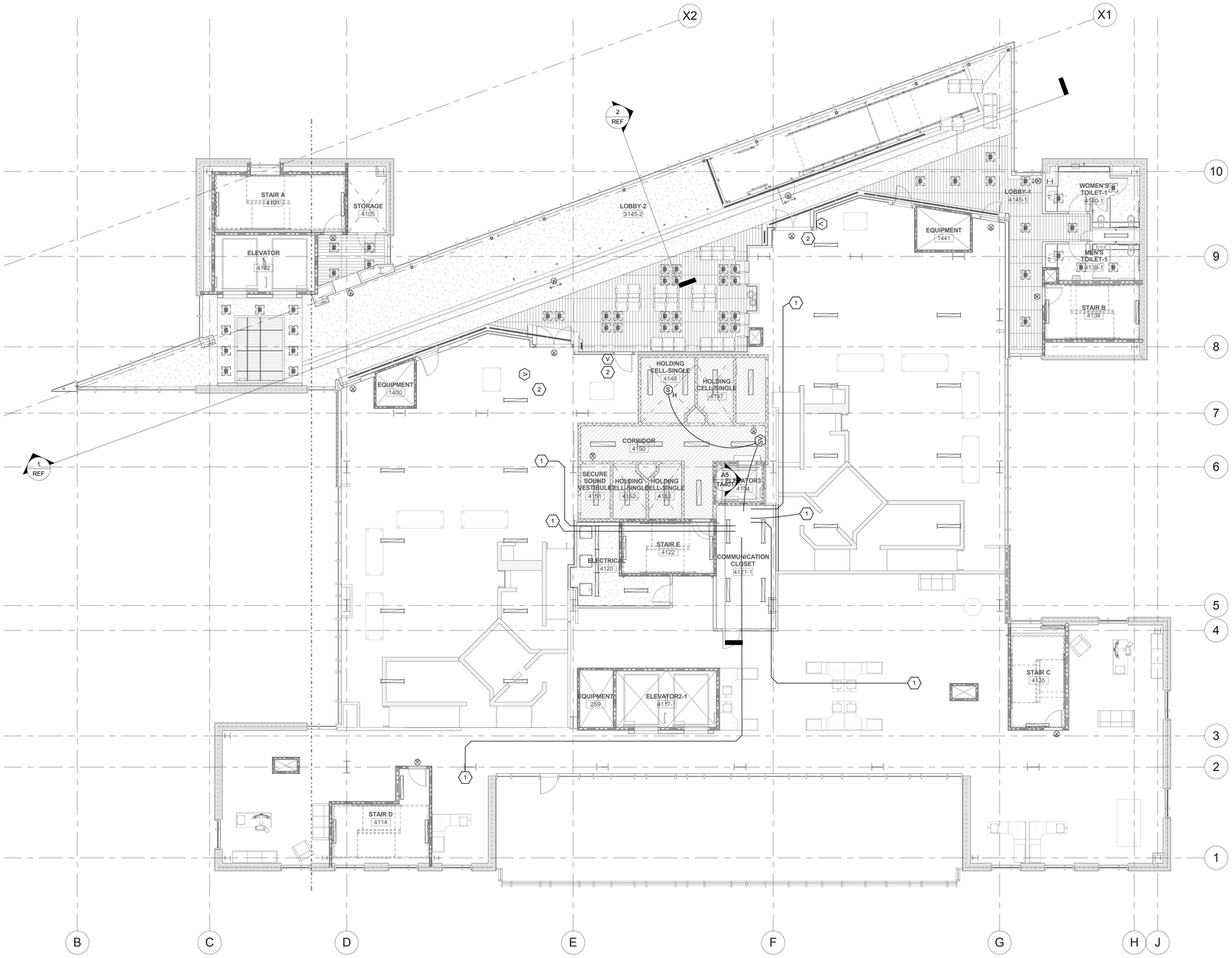

1 LEVEL 4 AUDIO VISUAL ROUGH-IN CEILING PLAN

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

SHEET KEYNOTES

1 STUB 1 EACH, .75" CONDUIT TO THE ACCESSIBLE CEILING SPACE FOR A FUTURE SPEAKER SYSTEM.

2 STUB 2 EACH, .75" CONDUIT TO AN ABOVE ACCESSIBLE CEILING SPACE.

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LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN

EJ114

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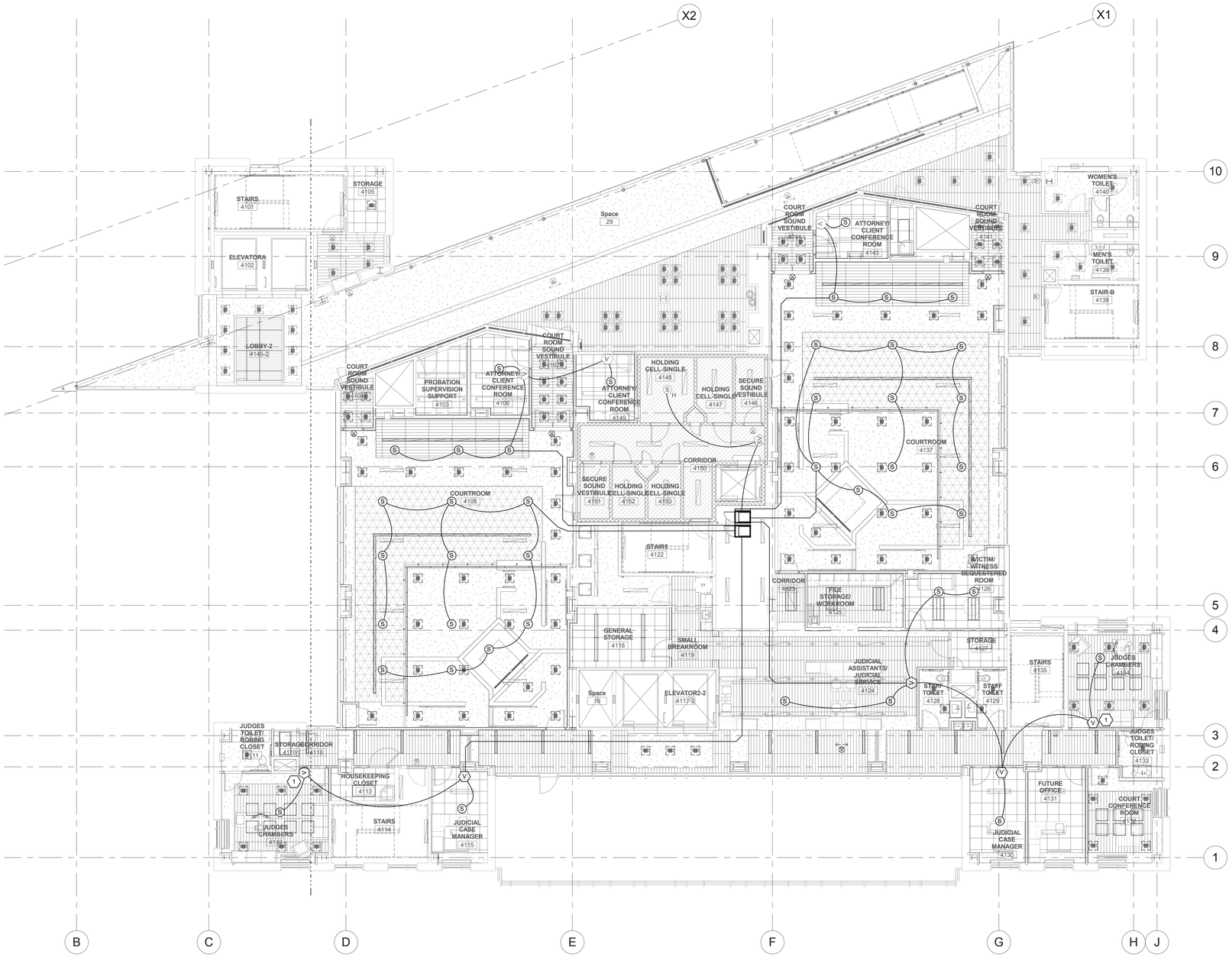

1 LEVEL 4 AUDIO VISUAL ROUGH IN CEILING PLAN - ALT

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

SHEET KEYNOTES

1 INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A VOLUME CONTROL. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.

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LEVEL 4 AUDIO VIDEO ROUGH-IN CEILING PLAN-ALT

EJ114alt

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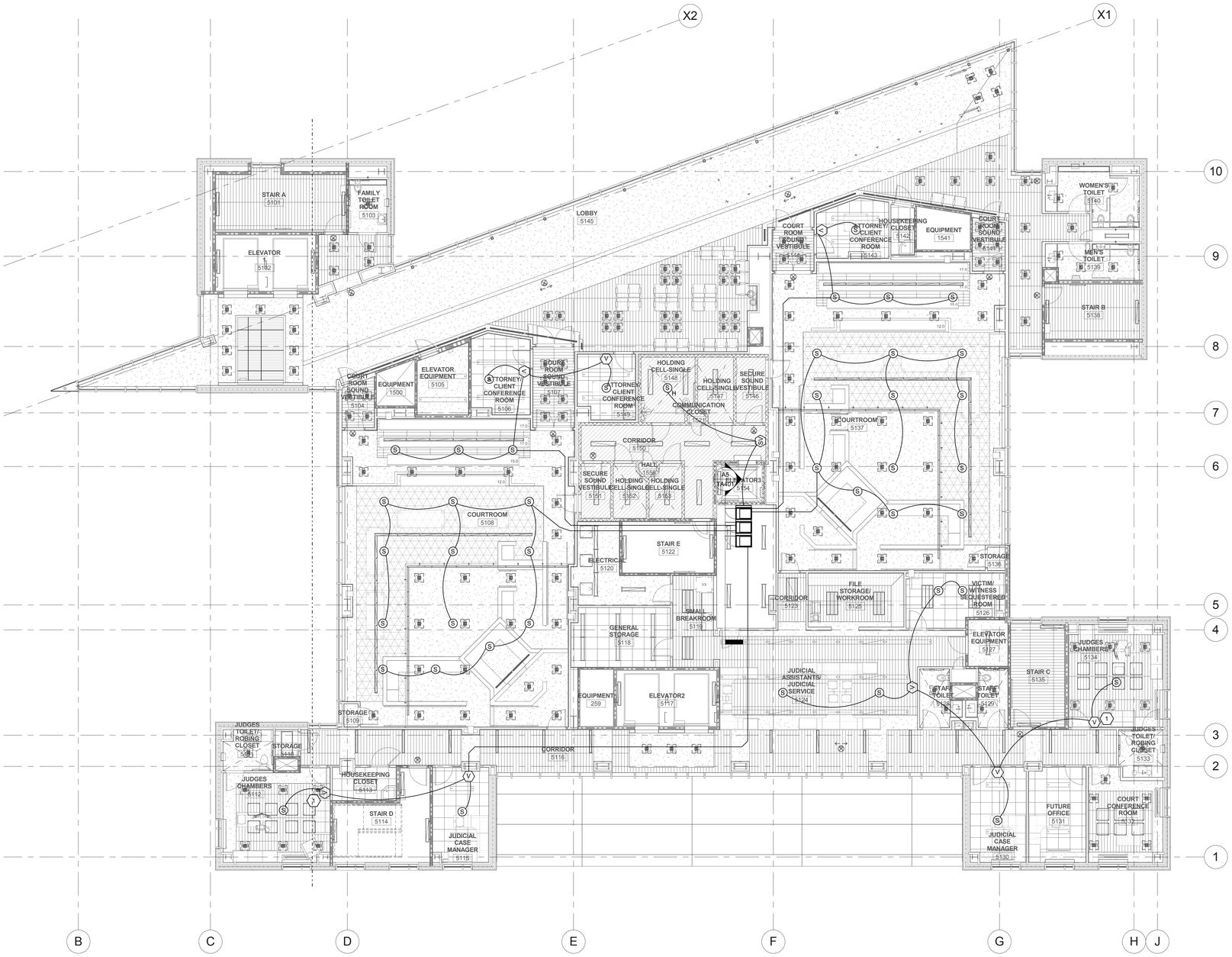

1 LEVEL 5 AUDIO VISUAL ROUGH IN CEILING PLAN

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

SHEET KEYNOTES

1 INSTALL THE SPECIFIED JUNCTION BOX IN THE JUDGE'S CHAMBER FOR A VOLUME CONTROL. THE LOCATION SHOWN MAY CHANGE DEPENDING UPON THE FINAL FURNITURE LAYOUT. COORDINATE THE FINAL LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.

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No. 181563
DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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LEVEL 5 AUDIO VIDEO ROUGH-IN CEILING PLAN

EJ115

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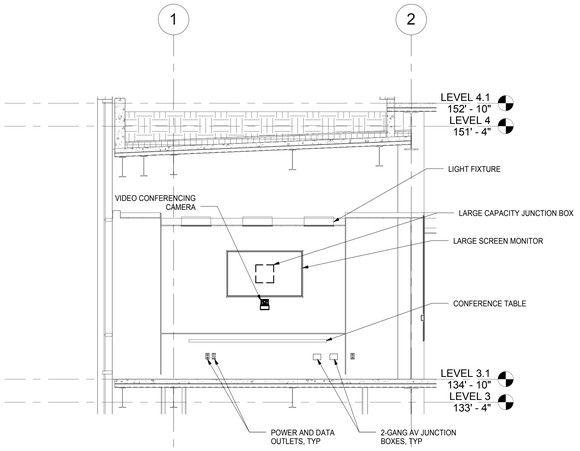

4 CONFERENCE ROOM 3129 WALL SECTION
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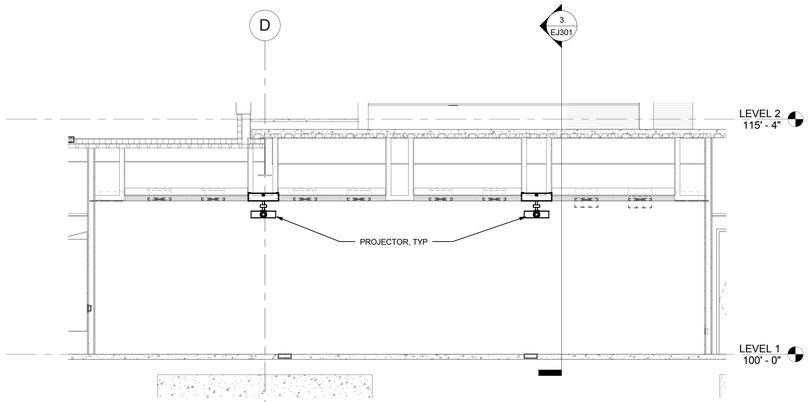
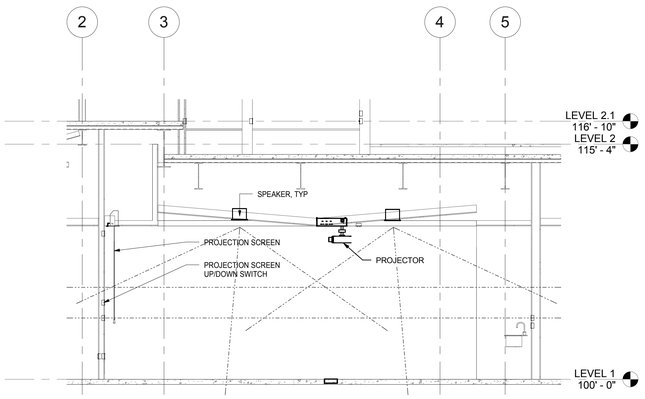
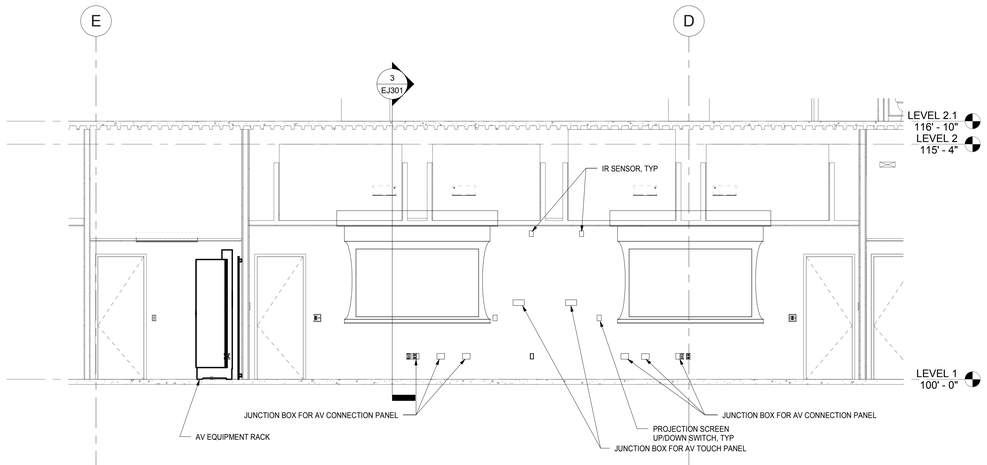


2 COURT CONFERENCE ROOM 1124 SECTION
SCALE: 1/4" = 1'-0"



3 AV EQUIPMENT RACK CREDENZA DETAIL
SCALE: 1/4" = 1'-0"



1 COURT CONFERENCE ROOM 1124 FRONT WALL ELEVATION
SCALE: 1/4" = 1'-0"

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AV SECTIONS

EJ301

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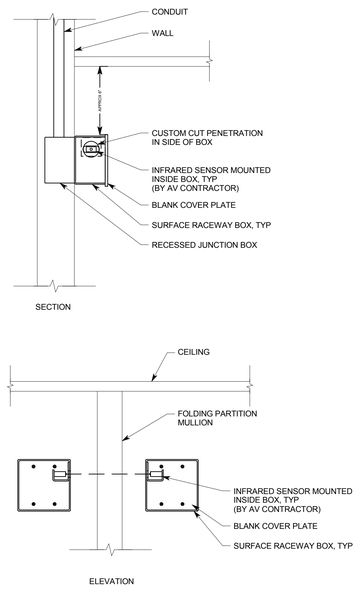

D1 INFRARED SENSOR MOUNTING DETAIL

NO SCALE

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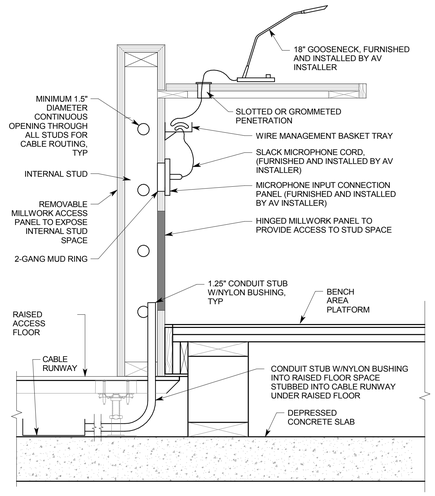
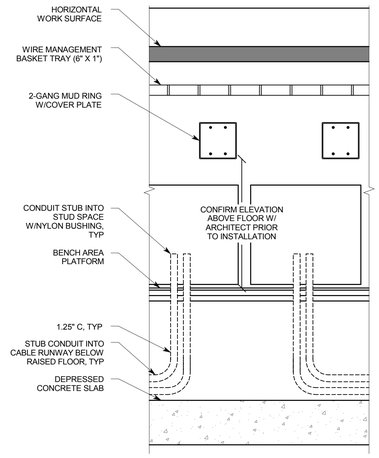
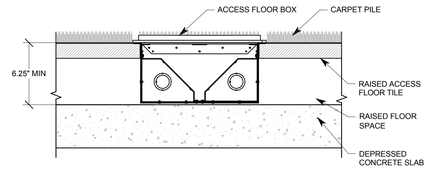




B2 BENCH AREA MUD RING INSTALLATION DETAIL

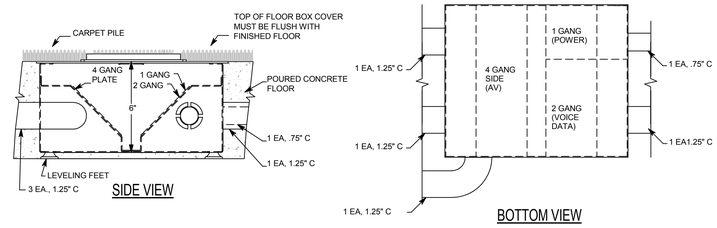
NO SCALE



E5 ACCESS FLOOR BOX INSTALLATION DETAIL

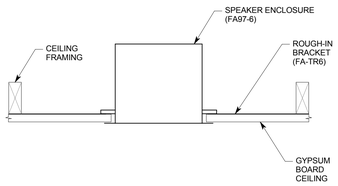
NO SCALE

FBAV



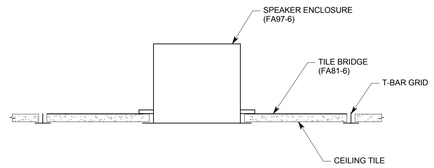
D5 POURED IN CONTRETE FLOOR BOX INSTALLATION DETAIL

NO SCALE



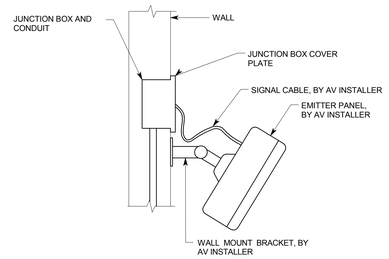
C1 SPEAKER MOUNTING DETAIL, GYPSUM BOARD CEILING

NO SCALE



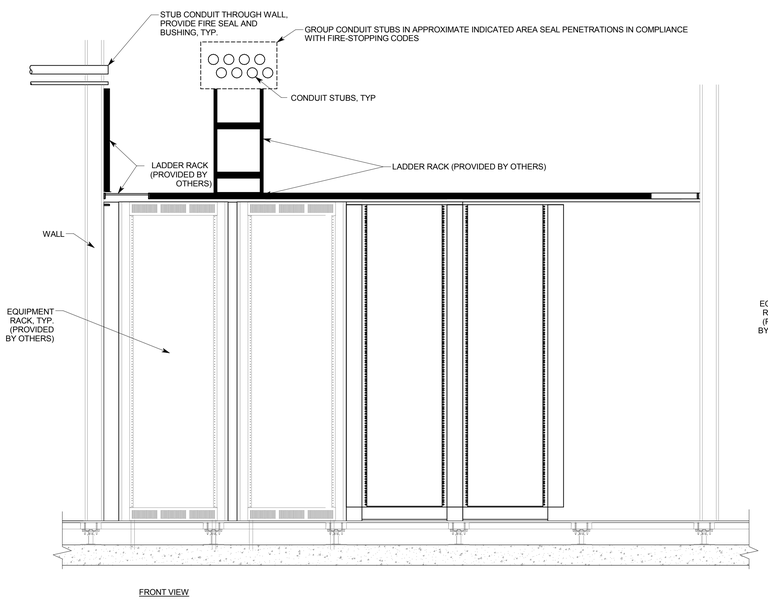
C3 SPEAKER MOUNTING DETAIL, LAY IN CEILING TILE

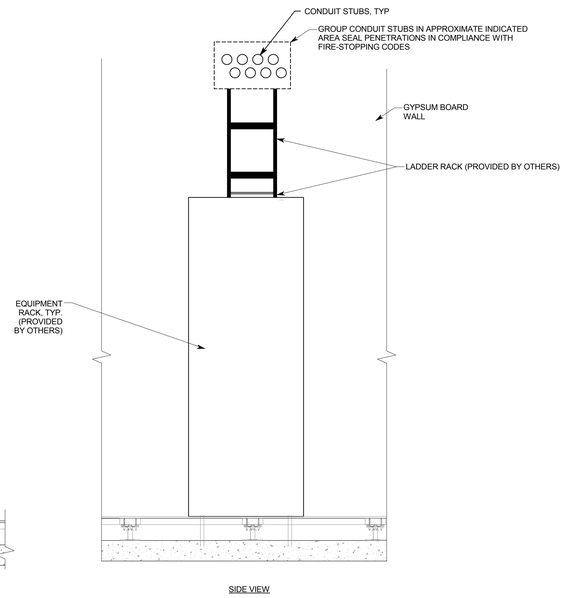
NO SCALE



C5 EMITTER PANEL INSTALLATION DETAIL

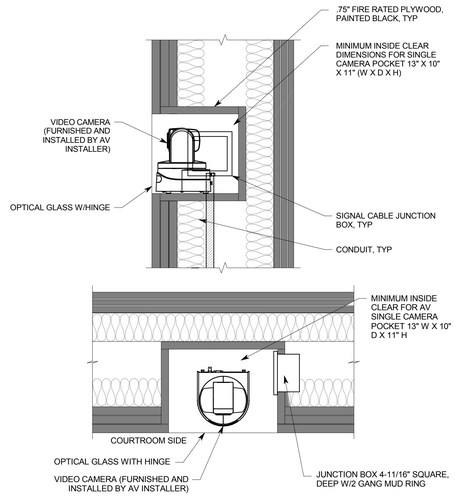
NO SCALE





A1 COMM ROOM CONDUIT TERMINATION DETAILS

NO SCALE



A5 CAMERA POCKET DETAIL

NO SCALE

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AV SYSTEMS DETAILS

EJ501

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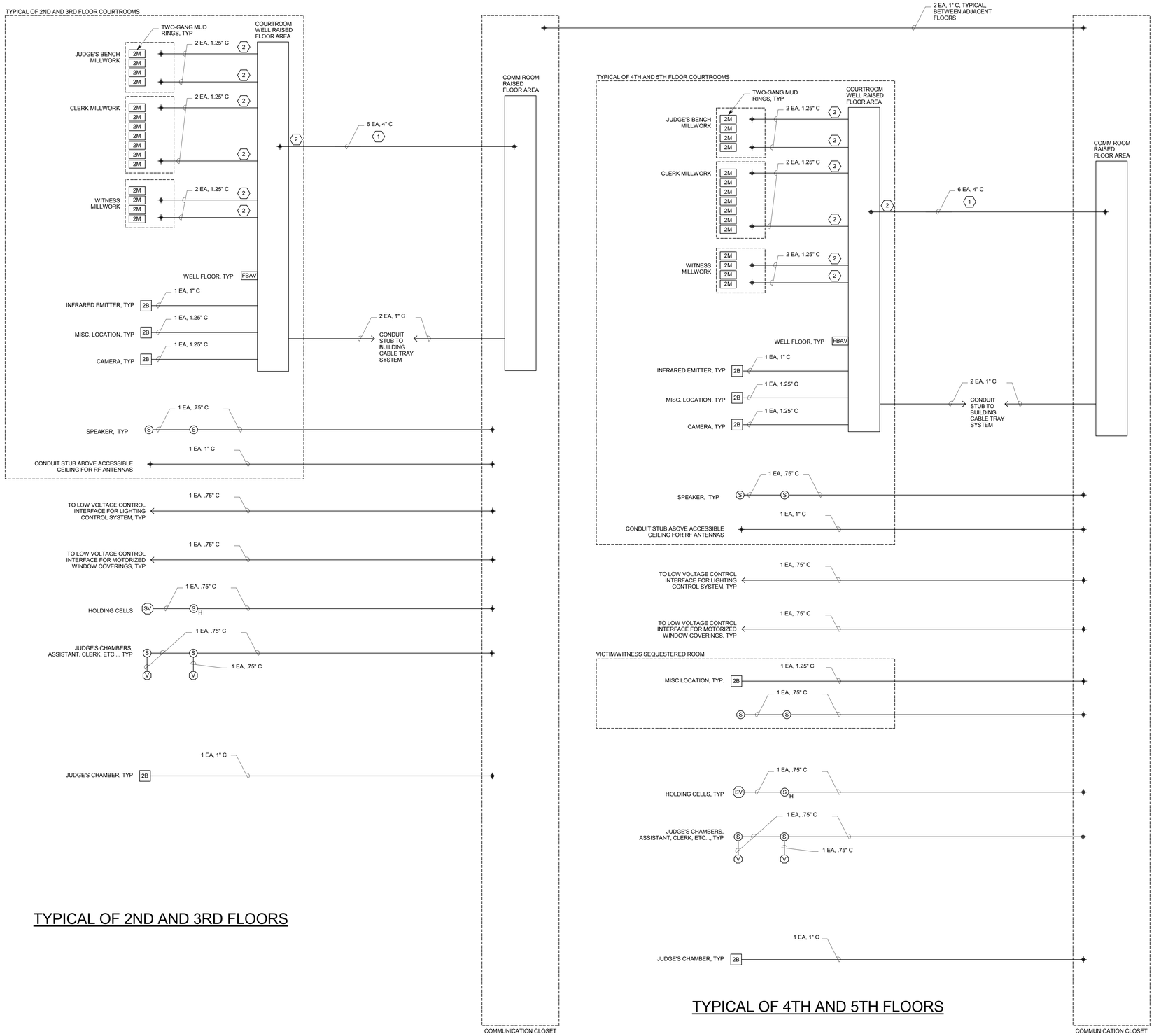

A1 A/V SYSTEM RACEWAY ROUGH IN RISER - COURTROOM

NO SCALE

SHEET KEYNOTES

1. PROVIDE THE SPECIFIED CONDUIT SLEEVES THROUGH THE WALL BELOW THE RAISED FLOOR. REFER TO POWER PLANS FOR ADDITIONAL INFORMATION.
2. EXTEND CONDUIT STUBS INTO RAISED FLOOR AREA BEYOND RAISED PLATFORM CONSTRUCTION.

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AV ROUGH IN RISER AND SCHEDULE

EJ601

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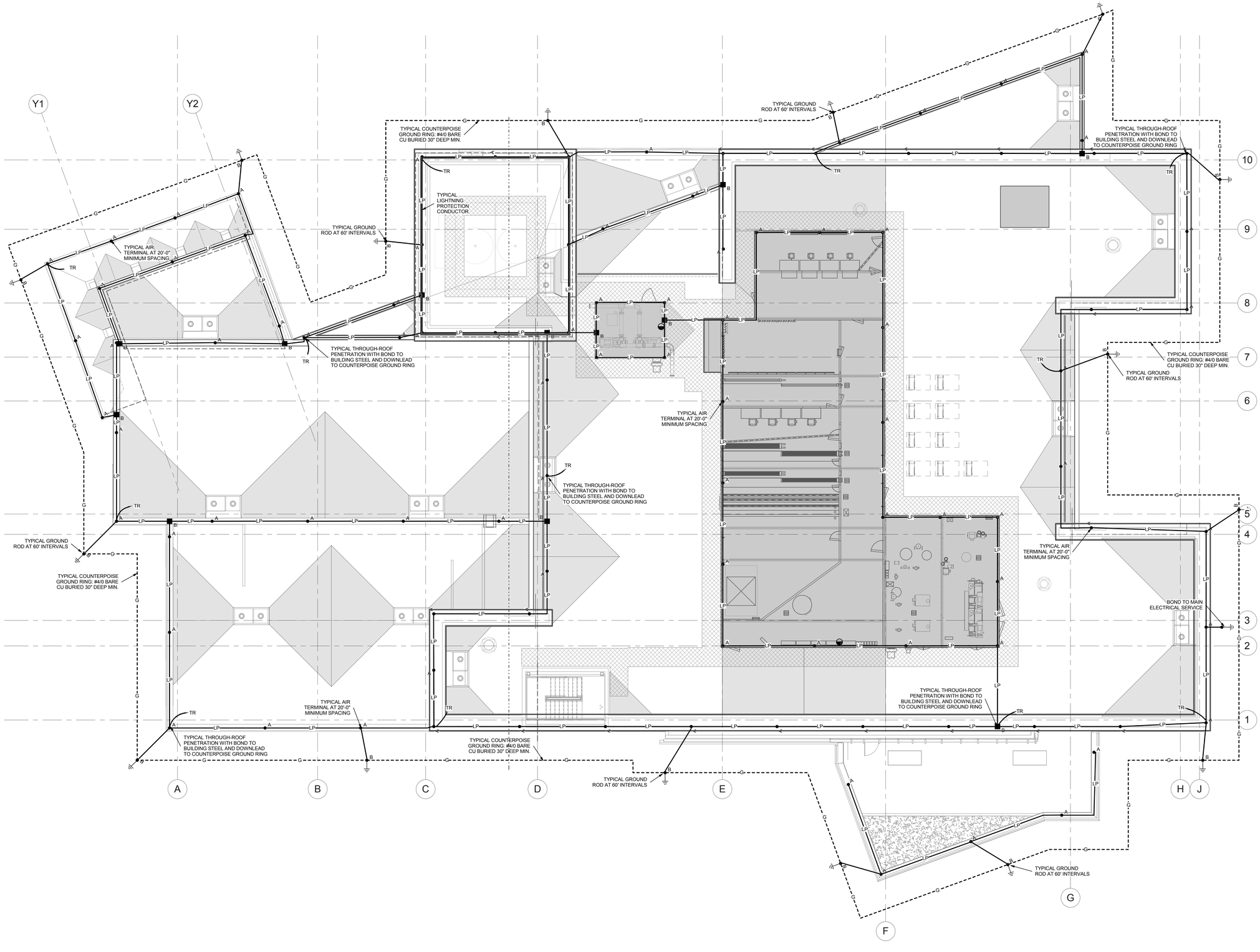

1 LIGHTNING PROTECTION PLAN

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

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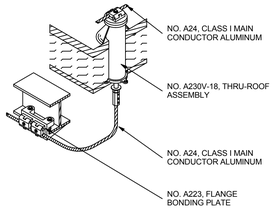
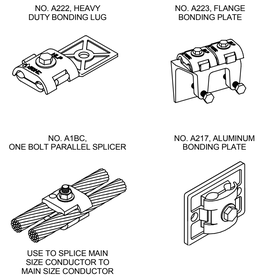
LIGHTNING PROTECTION PLAN

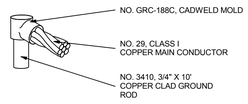
EK101



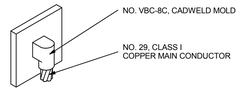
TR THRU-ROOF PENETRATION
SCALE: NTS



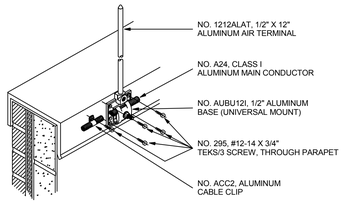
- MISCELLANEOUS
SCALE: NTS



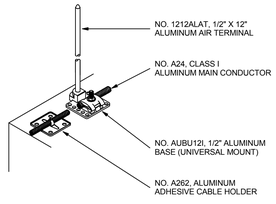
G CADWELD MOLD - GR
SCALE: NTS



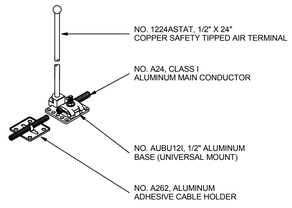
D CADWELD MOLD - VB
SCALE: NTS



A AIR TERMINAL - A
SCALE: NTS



B AIR TERMINAL - B
SCALE: NTS



C AIR TERMINAL - C
SCALE: NTS

GENERAL INSTALLATION NOTES

1 LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO INSURE THAT ALL POINTS ARE WITHIN 2'-0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'-0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'-0" (7,520mm) MAX.

2 MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.

3 ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'-0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATION PRIOR TO INSTALLATION.

4 GROUND ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" (304mm) BELOW GRADE AND 2'-0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'-0" (3,048mm).

5 BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.

6 MAIN SIZE LIGHTNING CONDUCTOR BONDED TO MAIN GROUND BUS FIELD VERIFY LOCATION 1" CONDUIT FOR ACCESS, INSTALLED BY OTHERS. INTERCONNECT LIGHTNING PROTECTION GROUND TO TELEPHONE AND OTHER BUILDING GROUND SYSTEMS LOCATION FIELD DETERMINED OR AS REQUIRED BY CODE.

7 SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.

8 "AS-BUILT" DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH CERTIFICATION PROCEDURES.

9 ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH "A" LABELS ON CONDUCTORS @ 10'-0" (3,048mm) INTERVALS AND "B" LABELS ON ALL AIR TERMINALS.

10 COMPLETED INSTALLATION AS SHOWN SHALL BEAR THE APPROPRIATE UL OR L.P.I. CERTIFICATION.

11 INSTALLATION SHALL COMPLY IN ALL RESPECTS TO L.P.I. CODE 175, NFPA 780, & UL96A.

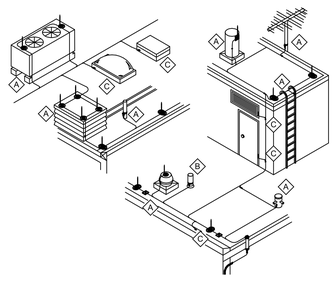
GENERAL BONDING NOTES

A TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

B (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.

C TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

D BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.



GEN CONSTRUCTION NOTES

1 THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT ELECTRICAL ENGINEER TO CLARIFY ANY DISCREPANCIES.

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LIGHTNING PROTECTION DETAILS

EK501

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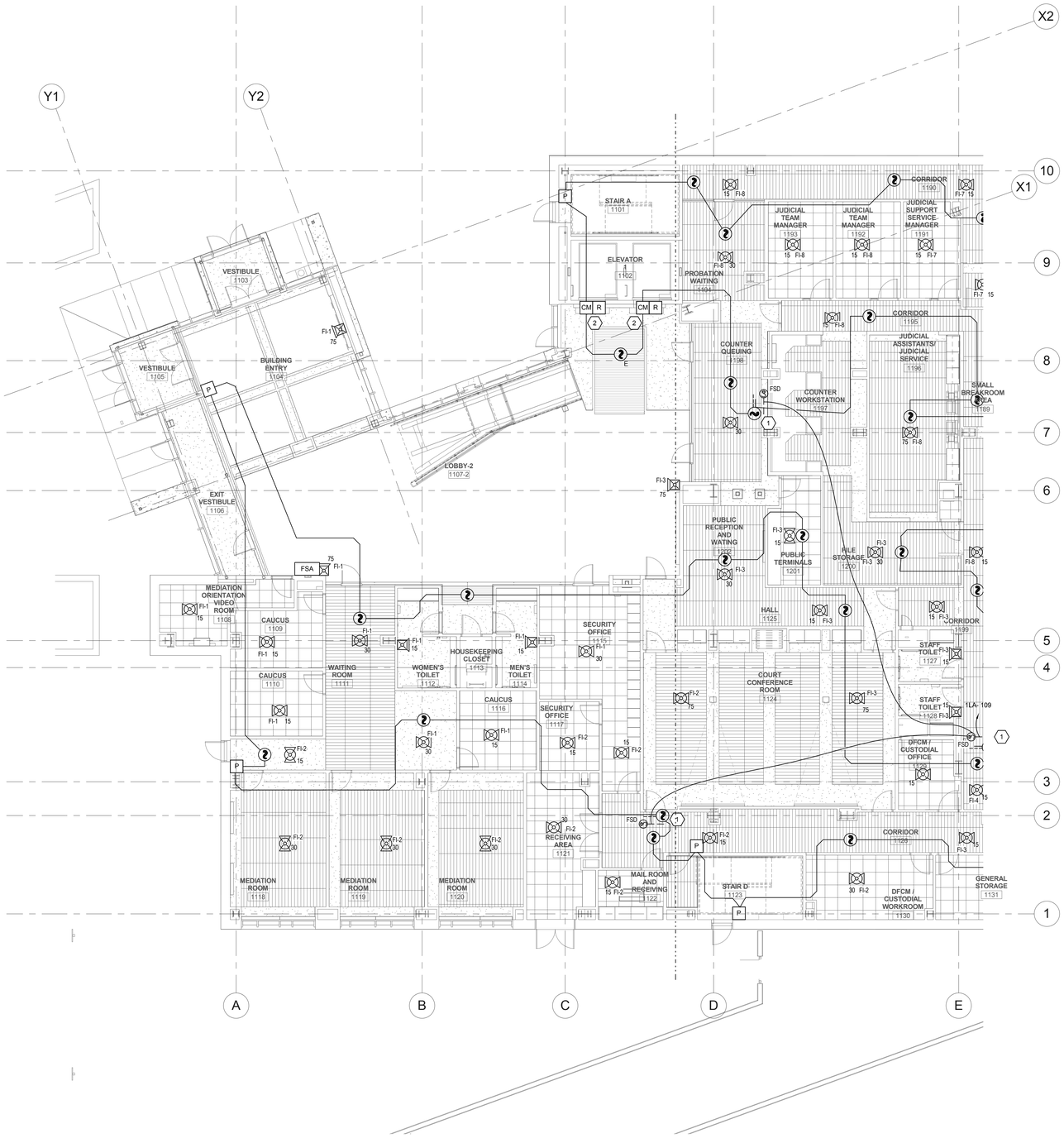

1 LEVEL 1 FIRE ALARM PLAN - AREA A

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

2 SMOKE CURTAIN CONTROL MODULE / RELAY.

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LEVEL 1 FIRE ALARM PLAN - AREA A

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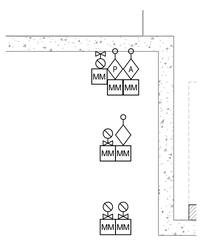

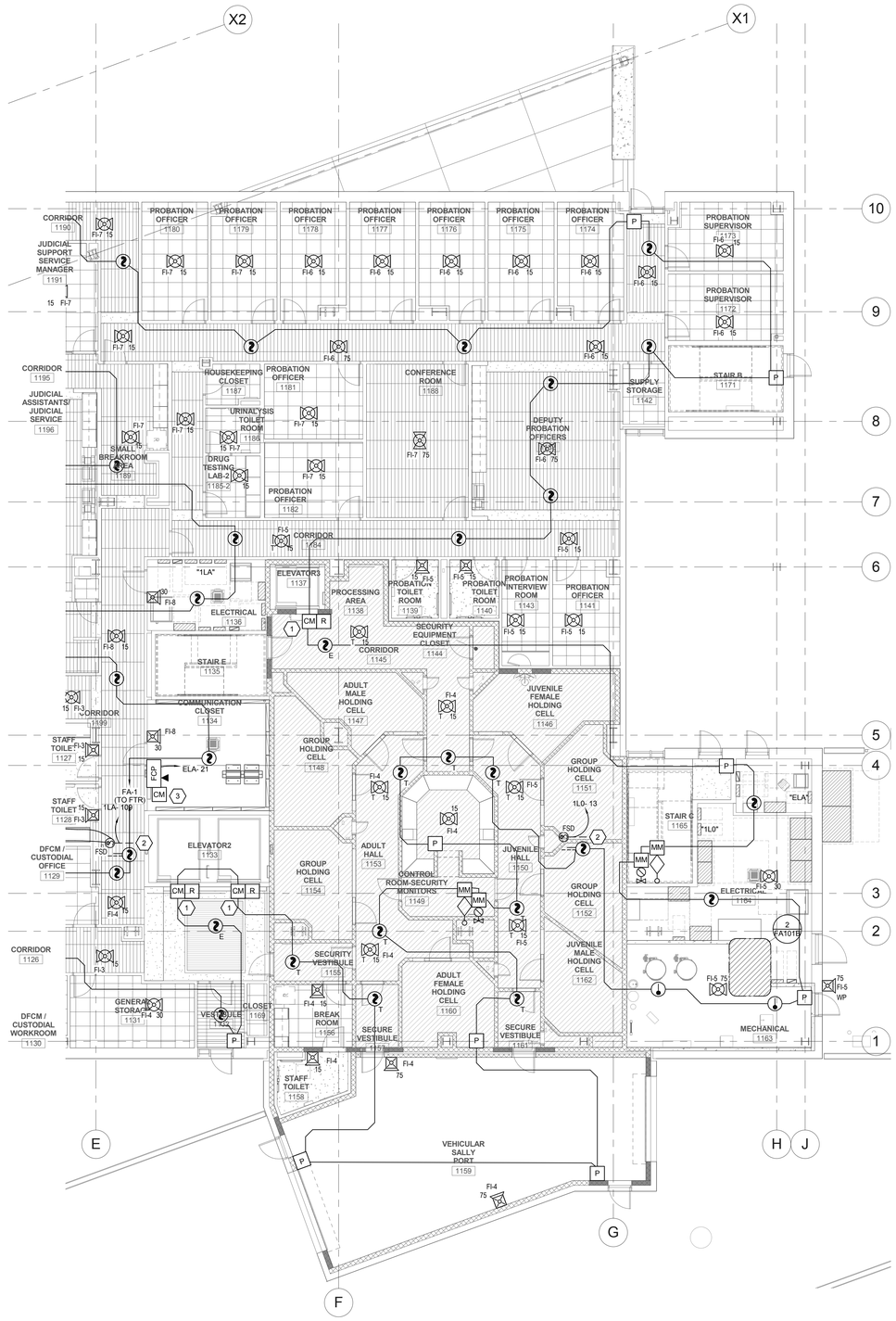

2 LEVEL 1 FIRE ALARM PLAN - ENLARGED
SCALE: 1/2" = 1'-0"

1 LEVEL 1 FIRE ALARM PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

3 CONTROL MODULE FOR SECURITY SYSTEM INTERFACE. COORDINATE WITH SECURITY CONTRACTOR FOR CONNECTION.

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LEVEL 1 FIRE ALARM PLAN - AREA B

FA101B

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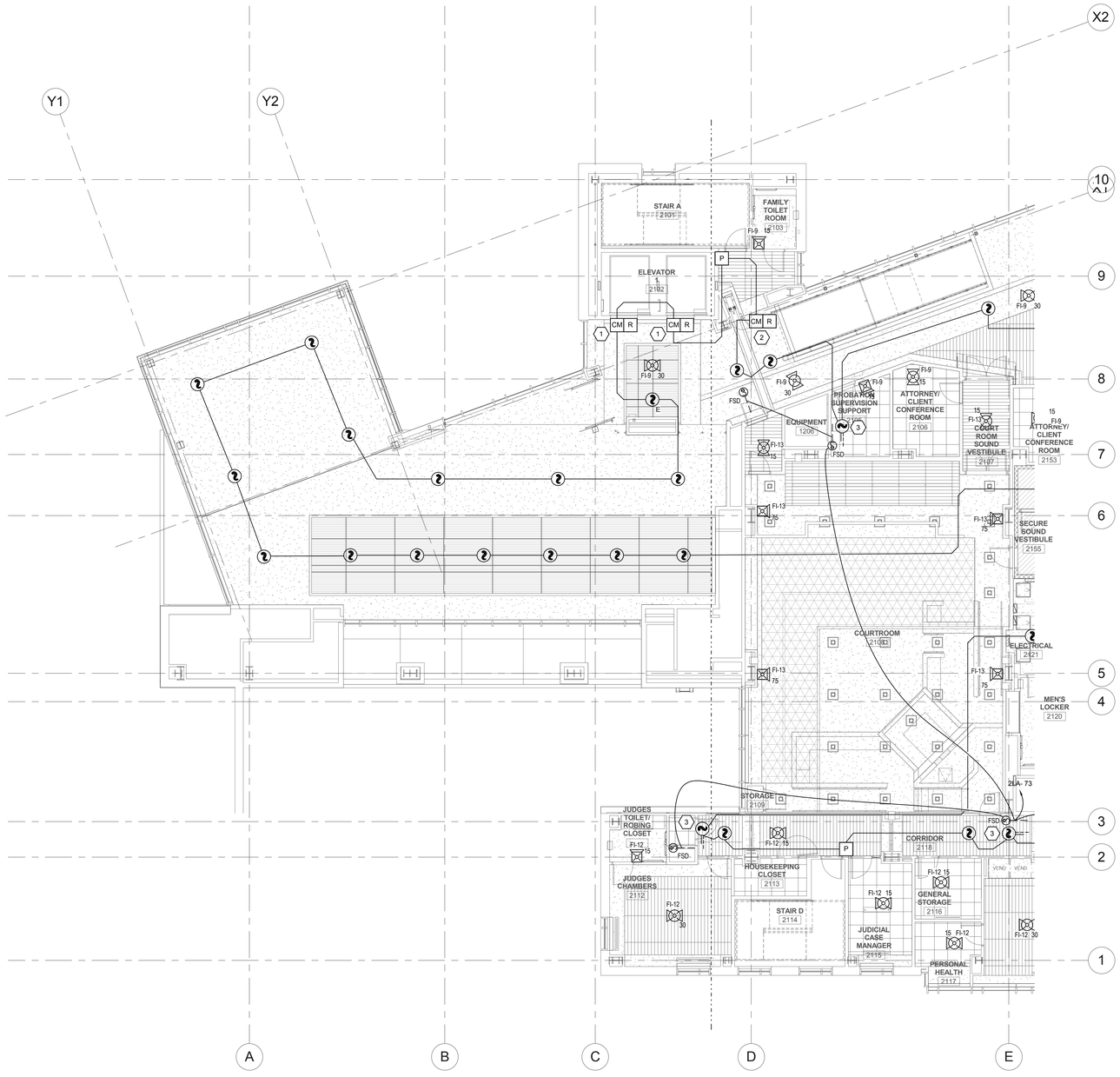

1 LEVEL 2 FIRE ALARM PLAN - AREA A

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 WON-DOOR CONTROL MODULE / RELAY.

3 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

4 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

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No. 181563
DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

LEVEL 2 FIRE ALARM PLAN - AREA A

FA102A

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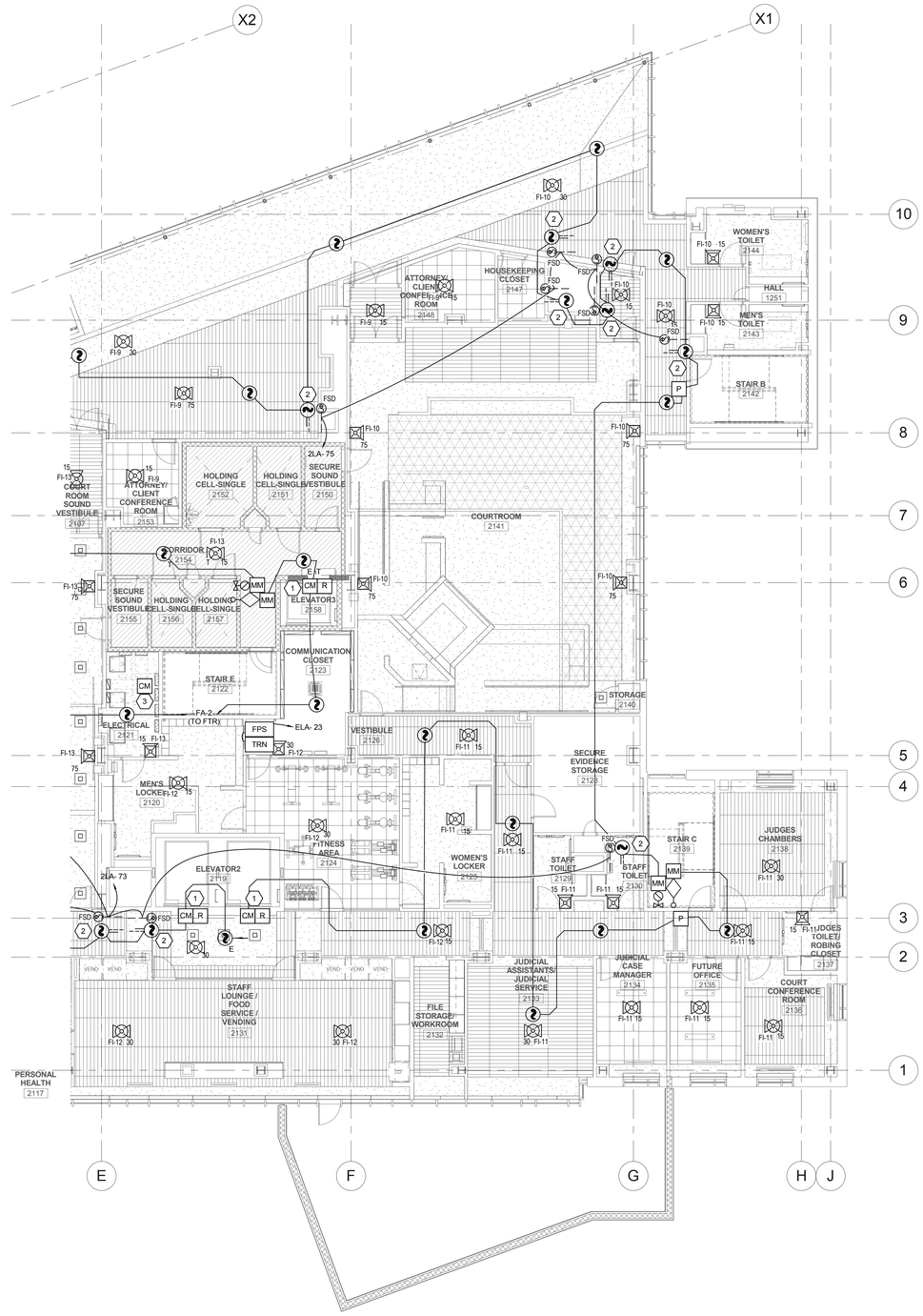

1 LEVEL 2 FIRE ALARM PLAN - AREA B

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

3 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

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LEVEL 2 FIRE ALARM PLAN - AREA B

FA102B

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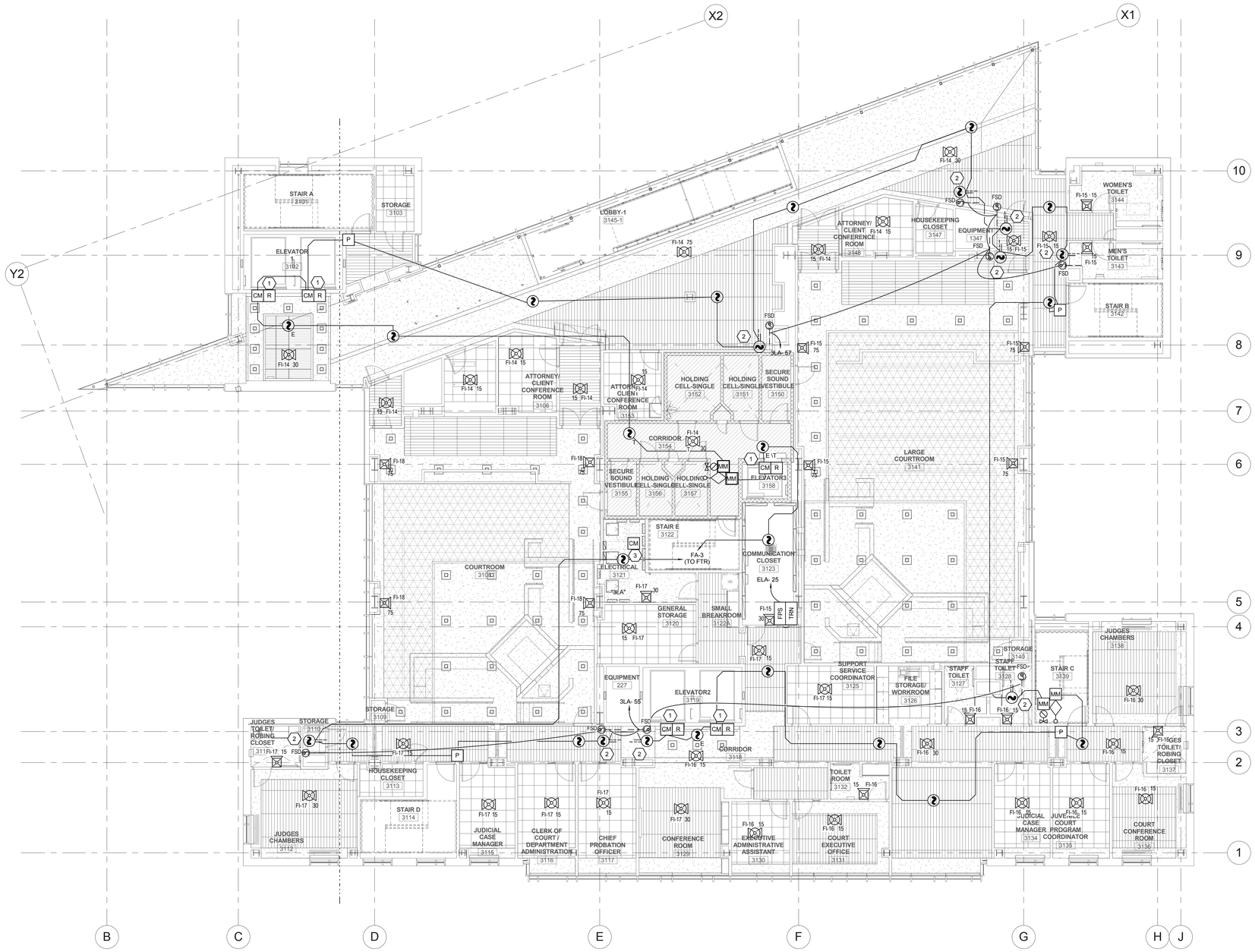

1 LEVEL 3 FIRE ALARM PLAN

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

3 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

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LEVEL 3 FIRE ALARM PLAN

FA103

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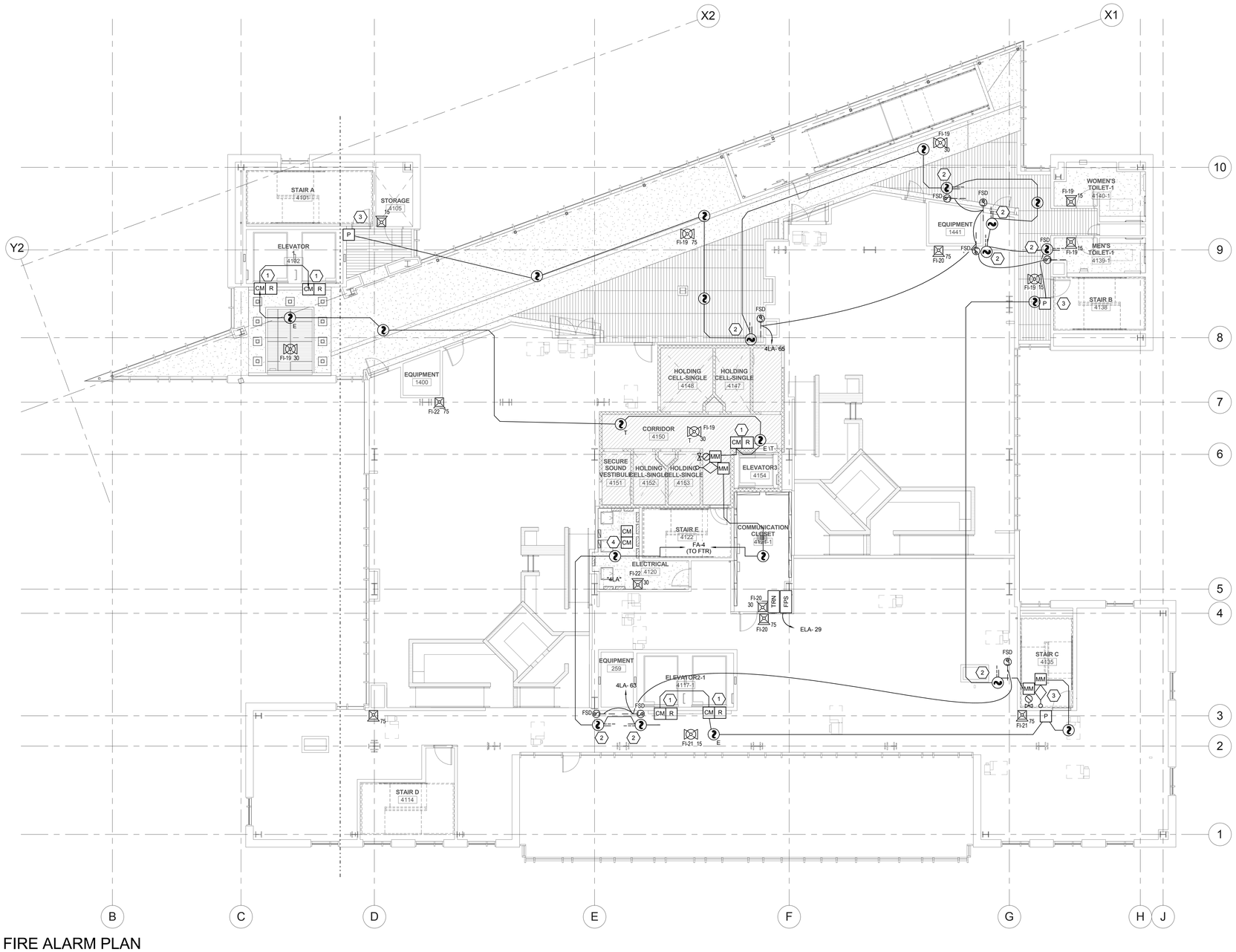

1 LEVEL 4 FIRE ALARM PLAN

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

3 STAIRWELL DOOR LOCKS TO BE RELEASED ON FIRE ALARM. BID ALTERNATE TO REMOVE THIS FROM PLANS.

4 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

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LEVEL 4 FIRE ALARM PLAN

FA104

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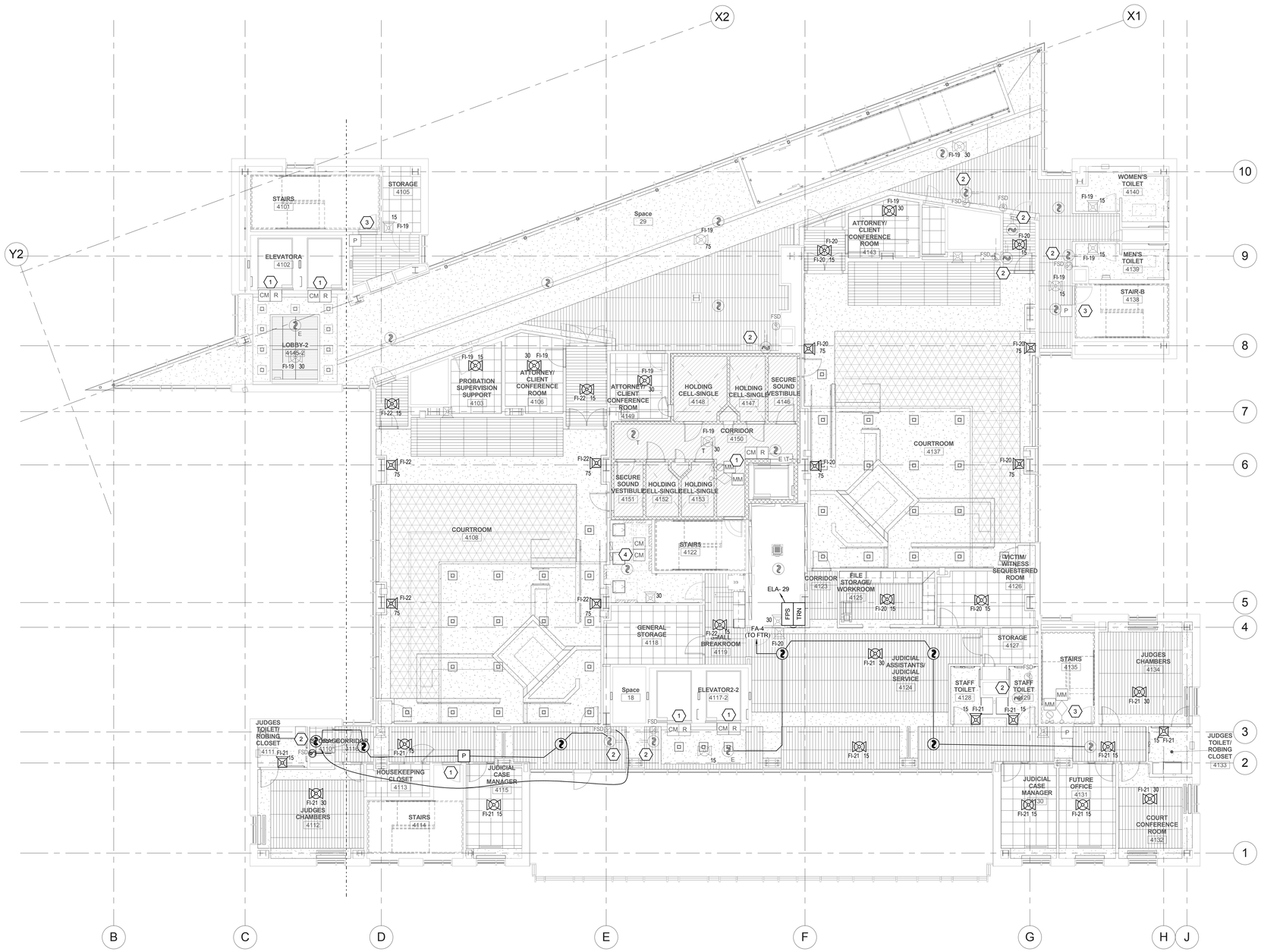

A1 LEVEL 4 FIRE ALARM PLAN - ALT

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 SMOKE CURTAIN CONTROL MODULE / RELAY.

2 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

3 STAIRWELL DOOR LOCKS TO BE RELEASED ON FIRE ALARM. BID ALTERNATE TO REMOVE THIS FROM PLANS.

4 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

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LEVEL 4 FIRE ALARM PLAN ALT.

FA104alt

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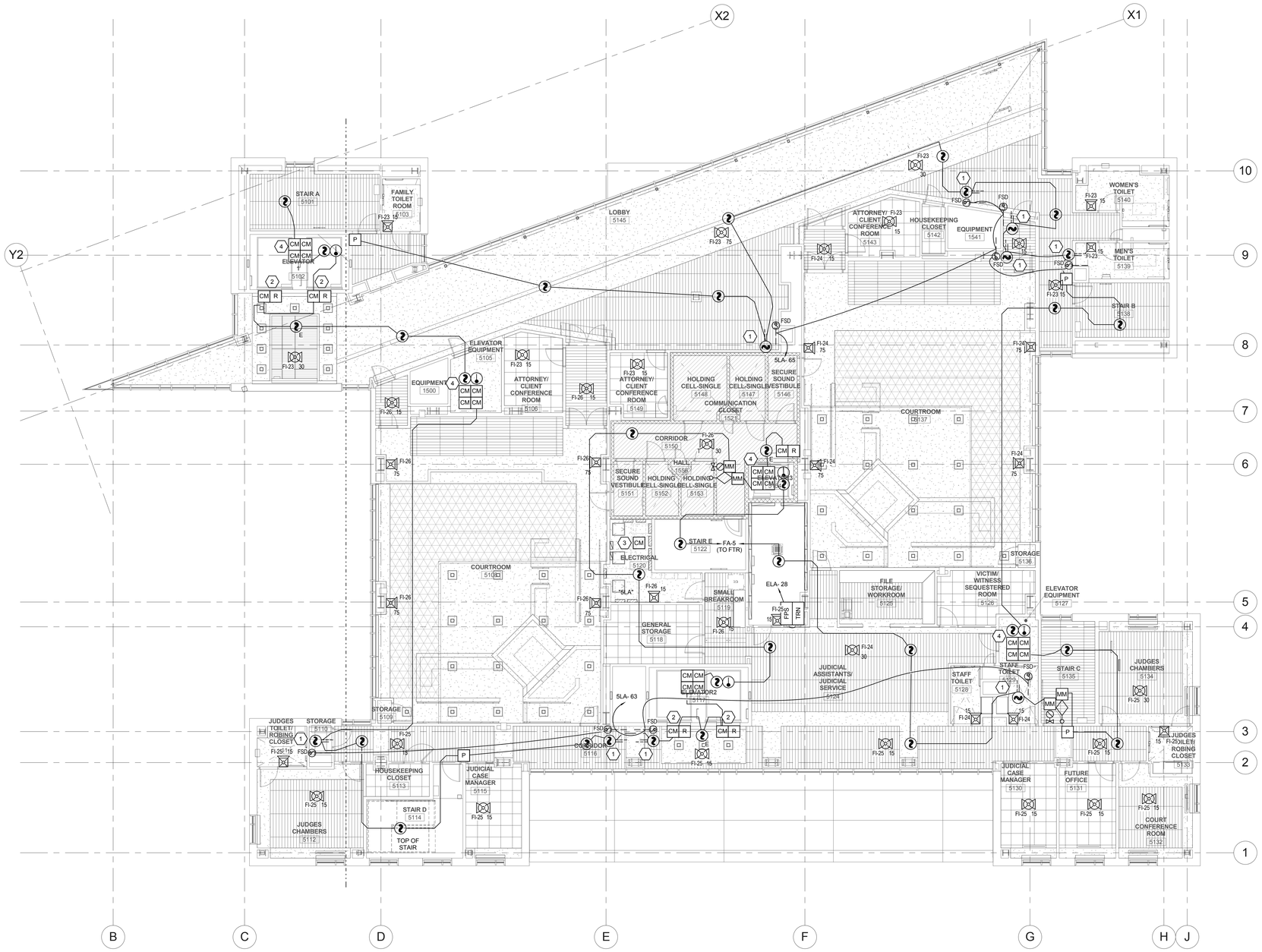

1 LEVEL 5 FIRE ALARM PLAN

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

2 SMOKE CURTAIN CONTROL MODULE / RELAY.

3 PROVIDE CONTROL AND SUPERVISION OF REMOTE POWER SUPPLIES PER NFPA 72 REQUIREMENTS.

4 PROVIDE ELEVATOR MAIN AND ALTERNATE LEVEL RECALL CONTROL, FIRE-HAT LIGHT ACTIVATION, AND SHUNT-TRIP MONITORING AND CONTROL PER NFPA 72 REQUIREMENTS. COORDINATE INSTALLATION WITH ELEVATOR PROVIDER DURING CONSTRUCTION.

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LEVEL 5 FIRE ALARM PLAN

FA105

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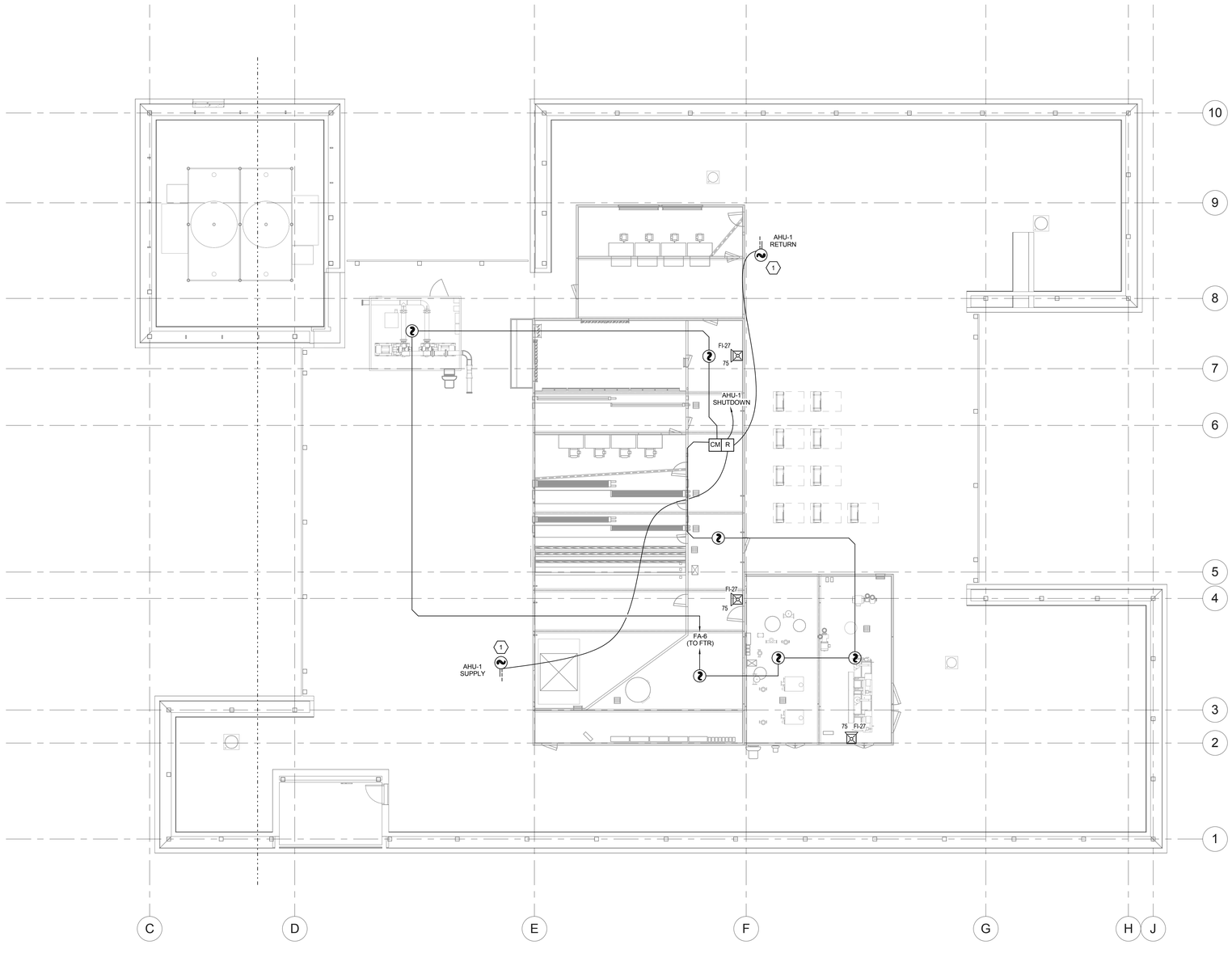

1 ROOF FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE / SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPERS AND OTHER FIRE SUPPRESSION SYSTEM MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 INSTALL INDICATED DUCT DETECTOR AT APPROXIMATE LOCATION PER NFPA 72 REQUIREMENTS. COODINATE INSTALLATION WITH ACTUAL DUCTWORK CONFIGURATION DURING CONSTRUCTION.

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ROOF FIRE ALARM PLAN

FA106

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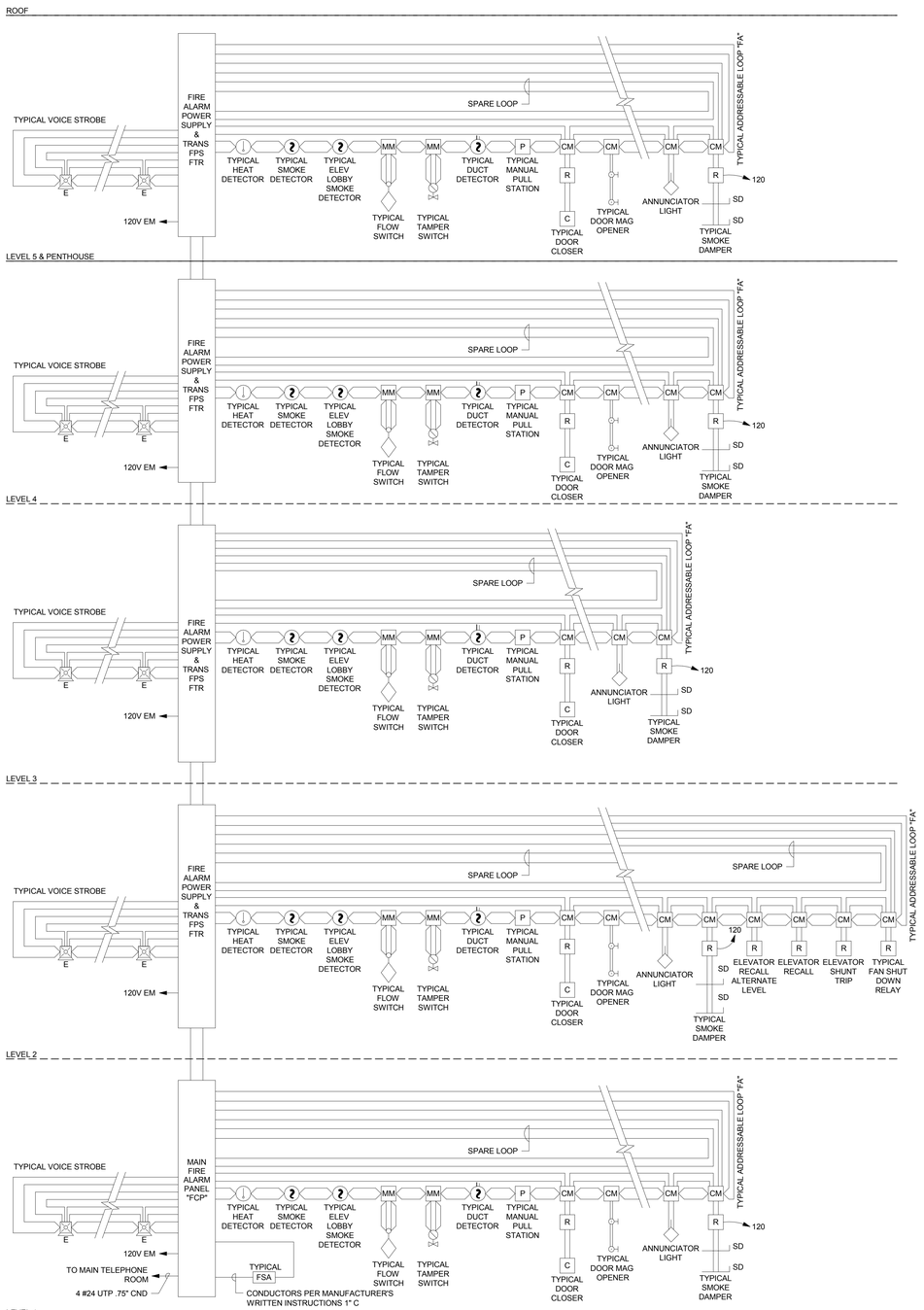
WIRING SCHEDULE

FUNCTION	< 500'	< 1000'	1000'-3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
POWER LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
STROBE HORNS	#14 THWN	#14 THWN	#12 THWN	#10 THWN
MAGNETIC DOOR HOLDER	#12 THWN	#10 THWN		
SPEAKERS	#16 TSP	#16 TSP	#14 TSP	#14 TSP



A1 FIRE ALARM RISER DIAGRAM
SCALE: NTS

FIRE ALARM INPUT/OUTPUT MATRIX

	ZONE	GENERAL ALARM	WON-DOOR CLOSE	ELEVATOR RECALL MAIN LEVEL	ELEVATOR RECALL ALTERNATE LEVEL	FAN SHUTDOWN	FIRE / SMOKE DAMPER CLOSE	ELEVATOR DOOR CURTAIN CLOSE ASSOCIATED SMOKE DETECTOR ONLY	ELEVATOR SHUNT TRIP	TROUBLE ALARM	SUPERVISORY ALARM						NOTES
		OUTPUT DEVICES															
INITIATING DEVICES																	
1	MAIN FLOW	●	●			●	●										
2	MAIN TAMPER									●							
3	1ST LEVEL FLOW	●	●			●	●										
4	1ST LEVEL TAMPER									●							
5	2ND LEVEL FLOW	●	●			●	●										
6	2ND LEVEL TAMPER									●							
7	3RD LEVEL FLOW	●	●			●	●										
8	3RD LEVEL TAMPER									●							
9	4TH LEVEL FLOW	●	●			●	●										
10	4TH LEVEL TAMPER									●							
11	5TH LEVEL FLOW	●	●			●	●										
12	5TH LEVEL TAMPER									●							
13	1ST LEVEL INITIATING LOOP	●	●			●	●										
14	1ST LEVEL ELEVATOR DETECTOR	●			●			●									
15	1ST LEVEL DUCT DETECTOR					●											
16	2ND LEVEL INITIATING LOOP	●	●			●	●										
17	2ND LEVEL ELEVATOR DETECTOR	●		●				●									
18	2ND LEVEL DUCT DETECTOR					●											
19	3RD LEVEL INITIATING LOOP	●	●			●	●										
20	3RD LEVEL ELEVATOR DETECTOR	●		●				●									
21	3RD LEVEL DUCT DETECTOR					●											
22	4TH LEVEL INITIATING LOOP	●	●			●	●										
23	4TH LEVEL ELEVATOR DETECTOR	●		●				●									
24	4TH LEVEL DUCT DETECTOR					●											
25	5TH LEVEL INITIATING LOOP	●	●			●	●										
26	5TH LEVEL ELEVATOR DETECTOR	●		●				●									
27	5TH LEVEL DUCT DETECTOR					●											
28	ELEVATOR SPRINKLER HEAT DETECTORS								●								
29	CIRCUIT TROUBLE									●							
30	AC POWER LOSS										●						
31	LOW BATTERY POWER									●							
32	SYSTEM TROUBLE									●							
33	REMOTE POWER SUPPLY TROUBLE									●							
34																	
35																	
36																	

GENERAL SHEET NOTES

1. PLANS ARE BASED UPON 99 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP. OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.
2. PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.
3. PLANS ARE BASED UPON 2 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.50 AMPS AVAILABLE). POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.
4. FLOW AND TAMPER CONFIGURATION BASED UPON FIRE SPRINKLER DESIGN CONCEPT. FIELD VERIFY ACTUAL REQUIREMENTS. INCLUDE ANY ADDITIONAL MONITOR MODULES REQUIRED BY ACTUAL DESIGN REQUIREMENTS.
5. HEAT DETECTORS WHEN INSTALLED IN ELEVATOR SHAFTS OR MECHANICAL ROOMS FOR ELEVATOR SHUT DOWN SHALL HAVE HEAT DETECTOR WITH LOWER RESPONSE TIME INDEX THAN SPRINKLER HEAD.
6. PROVIDE POWER SUPPLY CAPACITY AS REQUIRED FOR DOOR HOLD OPENS SHOWN.
7. BATTERY CAPACITY TO BE ADEQUATE TO OPERATE 15 MINUTES AFTER 24 HOURS PLUS 25% SPARE CAPACITY.
8. VFD REQUIRES TWO RELAYS, ONE FOR SMOKE CONTROL, ONE SPARE.
9. ALL WIRING SHALL BE IN MINIMUM 3/4" CONDIUT. RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.
10. PROVIDE DUCT DETECTORS FOR SUPPLY AND RETURN AIR SYSTEMS OVER 2000 CFM. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.
11. PROVIDE DUCT DETECTOR AT EACH FLOOR, PRIOR TO CONNECTION TO A COMMON RETURN AND PRIOR TO RECIRCULATING OR FRESH AIR INLET IN AIR RETURN SYSTEMS OVER 15,000 CFM CAPACITY AND SERVING MORE THAN ONE STORY.
12. PROVIDE MANUAL PULL STATIONS IN BOILER ROOMS AND KITCHENS.
13. PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.
14. LOCATE SMOKE DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS.
15. PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.
16. INITIATING AND INDICATING LOOPS SHALL NOT SERVE AN AREA OF GREATER THAN 22,500 SQUARE FEET. PROVIDE ADDITIONAL LOOPS FOR AREAS LARGER THAN THIS.
17. ALL OUTPUT DEVICES ARE DESIGNED ON SYSTEMS WITH 2 AMP POWER SUPPLY.
18. HORN/STROBE BASED ON 120 MILLIAMPS, DOOR HOLDERS BASED ON 70 MILLIAMPS.
19. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.

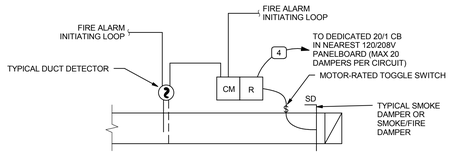
NOTIFICATION SCHEDULE

SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT *	MAXIMUM PER CIRCUIT ALONE
E	-	-	.057A	39
15 E	15 CD	20'x20'	.116A	19
30 E	30 CD	30'x30'	.147A	15
75 E	75 CD	40'x40'	.217A	10
110 E	110 CD	50'x50'	.266A	8
185 E	185 CD	70'x70'	.326A	3
WP E	-	-	.057A	39
15 E	15 CD	20'x20'	.116A	19
30 E	30 CD	30'x30'	.147A	15
75 E	75 CD	40'x40'	.217A	10
110 E	110 CD	50'x50'	.266A	8
185 E	185 CD	70'x70'	.326A	3

* CURRENT DRAWS SHOWN ARE FOR EXAMPLE PURPOSES ONLY. BASE ALL NAC CALCULATIONS UPON SPECIFIC DEVICES PROVIDED.

NOTES:

1. FOR EACH SMOKE DAMPER SHOWN ON PLANS, PROVIDE ALL DEVICES AND WIRING PER THIS DETAIL. THESE ARE NOT SHOWN ON PLANS FOR LEGIBILITY PURPOSES.
2. DUCT DETECTOR WITHIN 5' OF EVERY SMOKE DAMPER TO CLOSE DAMPER UPON ACTIVATION PER IMC REQUIREMENTS.
3. VERIFY QUANTITY AND LOCATIONS OF ALL SMOKE DAMPERS WITH THE DIV. 15 INSTALLER.
4. PROVIDE ONE CONTROL MODULE PER SMOKE DAMPER, UNLESS THE REQUIRED CONTROL SEQUENCE ALLOWS GROUPING OF DAMPERS, IN WHICH CASE EACH GROUPING OF DAMPERS MAY SHARE ONE CONTROL MODULE.



A4 TYPICAL SMOKE DAMPER FIRE ALARM DETAIL
SCALE: NTS

ADDRESSABLE LOOP LEGEND

INDICATING LOOP	DESCRIPTION
FA-1	LEVEL 1 LOOP (AREA A, B)
FA-2	LEVEL 2 LOOP (AREA A, B)
FA-3	LEVEL 3 LOOP (AREA A, B)
FA-4	LEVEL 4 LOOP (AREA A, B)
FA-5	LEVEL 5 LOOP (AREA A, B)
FA-6	ROOF / PENTHOUSE LOOP

INDICATING LOOP GROUPS LEGEND

INDICATING LOOP	DESCRIPTION
FI-1	LEVEL 1 (AREA A)
FI-2	LEVEL 1 (AREA A)
FI-3	LEVEL 1 (AREA A)
FI-4	LEVEL 1 (AREA B)
FI-5	LEVEL 1 (AREA B)
FI-6	LEVEL 1 (AREA B)
FI-7	LEVEL 1 (AREA A/B)
FI-8	LEVEL 1 (AREA A)
FI-9	LEVEL 2 (AREA A)
FI-10	LEVEL 2 (AREA B)
FI-11	LEVEL 2 (AREA B)
FI-12	LEVEL 2 (AREA A,B)
FI-13	LEVEL 2 (AREA A)
FI-14	LEVEL 3 (AREA A,B)
FI-15	LEVEL 3 (AREA B)
FI-16	LEVEL 3 (AREA B)
FI-17	LEVEL 3 (AREA A)
FI-18	LEVEL 3 (AREA A)
FI-19	LEVEL 4 (AREA A,B)
FI-20	LEVEL 4 (AREA B)
FI-21	LEVEL 4 (AREA B)
FI-22	LEVEL 4 (AREA A)
FI-23	LEVEL 5 (AREA A,B)
FI-24	LEVEL 5 (AREA B)
FI-25	LEVEL 5 (AREA B)
FI-26	LEVEL 5 (AREA A)
FI-27	FIRE ALARM
FI-28	
FI-29	
FI-30	
FI-31	
FI-32	

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FIRE ALARM RISER

FA601

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AUDIO AND VIDEO SYSTEM EQUIPMENT LIST

THE ITEMS INDICATED BELOW SHALL NOT BE CONSTRUED AS A "BILL OF MATERIALS". THIS LIST IDENTIFIES ITEMS OF SIGNIFICANCE USED DURING THE DESIGN OF THE ELECTRONIC SYSTEMS INSTALLATION. WHERE THE ITEMS INDICATED ARE ONE PORTION OF AN ASSEMBLY, THE ENTIRE ASSEMBLY SHALL BE PROVIDED UNLESS SPECIFIED OTHERWISE. PROVIDE ALL MISCELLANEOUS HARDWARE AND SUPPORTS WHICH MAY NOT BE LISTED HERE, FOR A COMPLETE INSTALLATION. COMPARE CATALOG NUMBERS WITH DESCRIPTIONS AND NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO BID. IF CATALOG NUMBERS DO NOT MATCH DESCRIPTIONS, THE DESCRIPTIONS TAKE PRECEDENCE. PROVIDE COMPLETE SUBMITTAL FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SYMBOL	DESCRIPTION	QUANTITY	ACCEPTABLE TYPES
CS	CONTROL SYSTEM CENTRAL PROCESSOR W/EXPANSION CARD SLOTS, NETWORK CARD AND RMK.	OFP	CRESTRON PRO2/C2ENET1 CRESTRON AV2/C2ENET1 AMX NI-4100 AMX NI-3100
	CONTROL SYSTEM CARD, SERIAL COMMUNICATION, IR, RELAY, VOLUME, & I/O SENSING CONTROL CARDS. NOTE 24	A/R	CRESTRON C2COM-2/C2COM-3 AMX NXC-COM2
			CRESTRON C2IR-8 AMX NXC-IRS4
			CRESTRON CNXRY-16 AMX NXC-RELIO
			CRESTRON C2VEQ-4 AMX NXC-VOL4
			CRESTRON CNXI0-16 AMX NXC-I/O 10
	ROOM MANAGEMENT SOFTWARE PACKAGE WITH LICENSES FOR ALL ROOMS	1	CRESTRON SW-FUSION-RV AMX RMS-ENT
TP	TOUCH PANEL 10.1" ACTIVE MATRIX COLOR LCD, DESK STAND, WIRED, 1280 X 800	OFP	CRESTRON TSW-1050/TSW-1050-TTK-X-S AMX MXT-1000
TPS	TOUCH PANEL, APPROX 7", ACTIVE MATRIX COLOR, LCD, WALL MOUNTED, WIRED, 800 X 480	OFP	CRESTRON TSW-750 AMX MXT-700
	CONTROL SYSTEM APP FOR COURT FURNISHED IPADS, NOTE 28	A/R	CRESTRON MOBILE PRO 3 AMX TPC-APPLE
	INFRARED EMITTER	A/R	CRESTRON CNX-IRP2 AMX CC-IRC
BP	BUTTON PANEL W/NETWORK, TWO RS-232 AND RELAY	OFP	CRESTRON MPC-M25 W/ROUGH-IN BOX AMX CP-3017-NA OR CP-3017-TR-US W/ROUGH-IN BOX
	POWER/CURRENT SENSOR, SEE NOTE 7	A/R	CRESTRON ST-CS/CNCS AMX PCS/PCS2
PR	POWER RELAY	A/R	CRESTRON ST-PC/CNPC-1A AMX PC1/PC2
	VIDEO SIGNAL SENSOR, NOTE 7	A/R	CRESTRON ST-VS AMX USS2
	RS-485 TO 232 CONVERTER, NOTE 6	A/R	BLACK BOX IC 108A OR PRIOR APPROVED EQUIVALENT, NOTE 15
NS	NETWORK SWITCH, GIGABIT W/RMK, NOTE 25	A/R	AMX MXA-ENET8-2POE CRESTRON CEN-SWPOE-16
	BRAIDED, EXPANDABLE SLEEVING, BLACK, NOTE 12	A/R	PANDUIT TECHFLEX
DSP	DIGITAL SIGNAL PROCESSOR	OFP	BIAMP AUDIA FLEX CM/IP2/CP2E/AEC-2HD LECTROSONICS ASPEN SPN 1624/SPN16I
TSI	TELEPHONE SYSTEM INTERFACE W/ECHO CANCELLATION	OFP	BIAMP AUDIA TI2 LECTROSONICS ASPEN SPN CONFERENCE
	DESK MICROPHONE, 18" GOOSENECK, W/MOVABLE BASE W/LED INDICATOR, PROGRAMMABLE SWITCH, & CORD CARDIOID ELEMENT	97	SHURE MX 418D/C AUDIO TECHNICA ES915-ML/ESE-C/ AT8666RSP/AT8314-10
	SHOCK MOUNTED MICROPHONE, 18" GOOSENECK, W/LED INDICATOR, SWITCH AND CORD, CARDIOID ELEMENT	9	SHURE MX 418 S/C AUDIO TECHNICA ES915-ML/ESE-C
	LAVALIER MICROPHONE, WIRED, W/CARDIOID ELEMENT	16	SHURE MX-184 AUDIO TECHNICA AT 831B
	BOUNDARY MICROPHONE W/ OMNI DIRECTIONAL ELEMENT (JUDGE'S CHAMBERS)	8	SHURE MX 392 AUDIO TECHNICA U841A
	JURY RAIL MICROPHONE BOUNDARY W/INSERT AND INTERFACE (BENCH CONF)	OFP	CROWN MB-1/MB-100 AUDIO TECHNICA ES947
	MICROPHONE GENERAL PURPOSE W/ SWITCH AND CORD	8	SHURE BETA 58A-S ELECTRO VOICE ND 767A
	15' MICROPHONE CORD	4	PROCO C-CM 15 AUDIO TECHNICA AT8314-15
	30' MICROPHONE CORD	4	PROCO C-CM 30 AUDIO TECHNICA AT8314-30
	MICROPHONE FLOOR STAND	8	ATLAS SOUNDOLIER MS-20E ULTIMATE MC-05
	MULTI INPUT BOX	2	EMTECH EJ-8, NOTE 20 OR APPROVED EQUIVALENT, NOTE 15
LM	LINE LEVEL MIXER, BALANCED	OFP	RADIO DESIGN LABS ST-MX3 EXTRON MIX 301
ADA	AUDIO DISTRIBUTION AMPLIFIER WITH POWER SUPPLY	A/R	RADIO DESIGN LABS RU-BDA3 EXTRON MDA 3A/KRAMER VM-3A
HPA	HEAD PHONE AMPLIFIER	OFP	RADIO DESIGN LABS ST-SH2 OR APPROVED EQUIVALENT, NOTE 15
	POWER AMPLIFIER, FOUR/TWO CHANNEL, 200W PER CHANNEL, 70.7V	OFP	QSC CX204V CROWN CTS 4200
		OFP	QSC CX302V CROWN CTS 600
	POWER AMPLIFIER, SINGLE CHANNEL, 35W, 70V W/RMK	OFP	EXTRON MPA 401 RADIO DESIGN LABS FP-PA35A
S	SPEAKER ASSEMBLY: 6" SPEAKER, 70V TRANSFORMER, AND GRILLE	OFP	ATLAS SOUND FA-136T87/FA-720-6
SH	SPEAKER ASSEMBLY: 8" SPEAKER, 70V TRANSFORMER, & VANDAL RESISTANT GRILLE	OFP	ATLAS SOUND C803A-T87/VP161-R8
SV	SWITCH & VOLUME CONTROL, 3 POSITION SWITCH, SEE DETAIL	OFP	ATLAS SOUND AT-10/DPDT ROCKER LOWELL 25LVC/DPDT ROCKER
V	VOLUME CONTROL, 70V, 10/35W, SEE DETAIL	OFP	ATLAS SOUND AT-10/35 LOWELL 25LVC
BC	BENCH CONFERENCE CONTROL SWITCH, SEE DETAIL, NOTE 19	OFP	CUSTOM PLATE W/2 POSITION, PUSH BUTTON, DPDT SWITCH, AND RED LED
	BENCH TOP ENCLOSURE W/7' CONNECTING CABLE	OFP	EXTRON SMB1 OR APPROVED EQUIVALENT, NOTE 15
DMS	DIGITAL MATRIX SWITCHER, CARD FRAME, 8 X 8, 16 X 16, 32 x 32, NOTE 27	OFP	CRESTRON DM-MD-8X8/DM-MD16X16/ DM-MD32X32 AMX AVS-ENOVADGX8-ENC/ AVS-ENOVADGX16-ENC/ AVS-ENOVADGX32-ENC
	DIGITAL MATRIX SWITCHER TWISTED PAIR INPUT CARD	OFP	CRESTRON DMC-C AMX AVS-ENOVADGX32-VI-DXLINK
	DIGITAL MATRIX SWITCHER TWISTED PAIR OUTPUT CARD	OFP	CRESTRON DMCO SERIES AMX AVS-ENOVADGX32-VO-DXLINK
	DIGITAL MATRIX SWITCHER HDMI INPUT CARD	OFP	CRESTRON DMC-HD AMX AVS-ENOVADGX32-VI-HDMI
	DIGITAL MATRIX SWITCHER HDMI OUTPUT CARD	OFP	CRESTRON DMCO SERIES AMX AVS-ENOVADGX32-VO-HDMI
	DIGITAL MATRIX SWITCHER AUDIO CARD	OFP	CRESTRON DMCO SERIES AMX AVS-ENOVADGX32-AUD-INS-EXT
HXTX	HDMI & XVGA TWISTED PAIR TRANSMITTER, FURNITURE MOUNT	OFP	CRESTRON DM-TX-201-C AMX AVB-TX-MULTI-DXLINK
HRX	HDMI TWISTED PAIR RECEIVER, W/ BUIT-IN SCALER	OFP	CRESTRON DM-RMC-SCALER-C AMX AVB-RX-DXLINK-HDMI
CP4 CP21	CONNECTION PANEL #4, #21, 4-GANG PLATE W/ DECORA CUTOUTS FOR TRANSMITTER AND ALL SPECIFIED CONNECTORS. SEE DETAIL.	OFP	4-GANG PLATE W/ CUTOUTS AND CONNECTORS AS DETAILED AND CRESTRON DM-TX-200-C-2G OR AMX AVB-DWP-TX-MULTI-DXLINK
CP17	CONNECTION PANEL #17, 2-GANG PLATE W/DECORA CUTOUTS FOR TRANSMITTER, SEE DETAIL	OFP	2-GANG PLATE W/ CUTOUTS AS DETAILED AND CRESTRON DM-TX-200-C-2G OR AMX AVB-DWP-TX-MULTI-DXLINK
CCU	VIDEO CAMERA, HD, W/ BUILT-IN TWISTED PAIR TRANSMITTER, AND RACK MOUNTED CCU TWISTED PAIR TRANSCEIVER, COURT TO SELECT CAMERA COLOR WITH WALL MOUNT BRACKET	OFP	VADDIO WALL VIEW CCU HD-19 CAT 5, OR APPROVED EQUIVALENT, NOTE 15
U	VIDEO CAMERA, USB WITH WALL MOUNT BRACKET, COURT TO SELECT CAMERA COLOR	OFP	VADDIO WALL VIEW HDUSB SR, OR APPROVED EQUIVALENT, NOTE 15
WP	WINDOW PROCESSOR, HDCP COMPLIANT, 4-WINDOW, DIGITAL	OFP	RGB SPECTRUM QUADVIEW HDX W/HDCP OPTION OR APPROVED EQUIVALENT, NOTE 15

AUDIO AND VIDEO SYSTEM EQUIPMENT LIST

THE ITEMS INDICATED BELOW SHALL NOT BE CONSTRUED AS A "BILL OF MATERIALS". THIS LIST IDENTIFIES ITEMS OF SIGNIFICANCE USED DURING THE DESIGN OF THE ELECTRONIC SYSTEMS INSTALLATION. WHERE THE ITEMS INDICATED ARE ONE PORTION OF AN ASSEMBLY, THE ENTIRE ASSEMBLY SHALL BE PROVIDED UNLESS SPECIFIED OTHERWISE. PROVIDE ALL MISCELLANEOUS HARDWARE AND SUPPORTS WHICH MAY NOT BE LISTED HERE, FOR A COMPLETE INSTALLATION. COMPARE CATALOG NUMBERS WITH DESCRIPTIONS AND NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO BID. IF CATALOG NUMBERS DO NOT MATCH DESCRIPTIONS, THE DESCRIPTIONS TAKE PRECEDENCE. PROVIDE COMPLETE SUBMITTAL FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SYMBOL	DESCRIPTION	QUANTITY	ACCEPTABLE TYPES
WVS	WIRELESS VIDEO SYSTEM W/4 USB TRANSMITTERS AND HOLDER	OFP	BARCO CLICKSHARE R9861005NA OR APPROVED EQUIVALENT, NOTE 15
ATV	APPLE TV	OFP	APPLE TV OR APPROVED EQUIVALENT, NOTE 15
EXT	EXTENDER, RS-232	OFP	GEFEN EXTENDER R/EXTENDER S OR APPROVED EQUIVALENT, NOTE 15
WR	WIRELESS MICROPHONE SYSTEM, UHF, NOTE 18: TRANSMITTER, HAND HELD	OFP	SENNHEISER SKM 300 / MD385 AUDIO TECHNICA ATW-T220
	TRANSMITTER, BODY WORN W/ LAPEL ELEMENT	OFP	SENNHEISER SK 300 / ME4 AUDIO TECHNICA ATW-T210/AT831CW
	RECEIVER W/ RMK	OFP	SENNHEISER EW345G2 AUDIO TECHNICA ATW-R2100
	REMOTE ANTENNAS, CABLE & MOUNTS	OFP	SENNHEISER MISC AUDIO TECHNICA MISC
MOD	ASSISTED LISTENING SYSTEM, INFRARED W/ RECEIVERS AND ALL ACCESSORIES. MODULATOR W/RMK & POWER SUPPLY	OFP	SENNHEISER SI 1015 LISTEN LT-82/LA-326
EP	EMITTER PANEL W/ WALL MOUNT BRACKET, ARCHITECT TO SELECT COLOR	OFP	SENNHEISER SZI 1015/GZG-1019-U LISTEN LA 140 W/CUSTOM WALL MOUNT BRACKET
	HEADPHONE RECEIVER W/ CHARGER	24	SENNHEISER HDI 302/BA151/L151-10/NT LISTEN LR 42/LA-364/LA350
	INTERPRETER CONTROL PANEL W/CABLE	8	QUANTUM 001952 OR APPROVED EQUIVALENT, NOTE 15
	INTERPRETER CONTROL PANEL HEADPHONE W/ BOOM MIC TERMINATED W/MATING CONNECTOR	8	SENNHEISER HMD 251 OR APPROVED EQUIVALENT, NOTE 15
	HEADPHONE, UNDER CHIN	8	BOSCH LBB3441/10 OR APPROVED EQUIVALENT, NOTE 15
	IN LINE VOLUME CONTROL	8	KOSS VC-20 OR APPROVED EQUIVALENT, NOTE 15
CP#	CONNECTION PANEL # , 2 GANG	OFP	CUSTOM, SEE DETAIL
CP#	CONNECTION PANEL # , 4 GANG	OFP	CUSTOM, SEE DETAIL
CP#	CONNECTION PANEL # , RACK MOUNTED	OFP	CUSTOM, SEE DETAIL
CP3A CP3B CP3C	CONNECTION PANEL #3A, #3B, & 3C CABLE CUBBY W/ CABLES & POWER MODULE, NOTE 11	OFP	EXTRON CABLE CUBBY 800 W/CABLE CUBBY APPROVED CABLES & POWER MODULE, SEE DETAIL OR APPROVED EQUIVALENT, NOTE 15
	POWER SUPPLIES AND POE INJECTORS, NOTE 3	A/R	VARIOUS
	ADAPTOR CABLE, NOTE 8	A/R	VARIOUS
	PATCH CORDS, NOTE 5 & 16	A/R	VARIOUS
	UMBILICAL CORD, CUSTOM, SEE DETAIL	OFP	CUSTOM, SEE DETAIL
	CUSTOM RACK MOUNT KIT, NOTE 9	A/R	MIDDLE ATLANTIC PRODUCTS RSH SERIES OR APPROVED EQUIVALENT, NOTE 15
	EQUIPMENT RACK # , FLOOR STANDING, ENCLOSED W/ FRONT AND REAR RACK RAILS, FRONT AND REAR DOORS, 4" CABLE CHASE, SIDE PANELS, TOP PANEL, SEISMIC BRACKETS, AND SEISMIC BASE	OFP	MIDDLE ATLANTIC WRK-44-32/ WRK-RR-44/VFD-44/CC-44-312/ SPN-44-312/MW-LA, WRK-Z4/WRK-SRB, OR APPROVED EQUIVALENT, NOTE 15
	EQUIPMENT RACK # , WALL MOUNTED, PIVOTING, ENCLOSED W/ FRONT AND REAR RACK RAILS, FRONT DOOR, ZERO CLEARANCE LATCH, AND FANS	OFP	MIDDLE ATLANTIC SR40-32/VFD-40/ DWR-RR40/QFANFANCORD OR APPROVED EQUIVALENT, NOTE 15
M55	LED 55" DISPLAY, 16:9 ASPECT RATIO, 1080P RESOLUTION, BLACK IN COLOR W/ROLL ABOUT STAND & MATING PLATE, NOTE 20	4	SAMSUNG ME-B55 NEC V552-AVT
		4	CHEIF PFC SERIES PREMIER BW60 SERIES
M55	LED 55" DISPLAY, 16:9 ASPECT RATIO, 1080P RESOLUTION, W/WALL MOUNT BRACKET AND MATING PLATE, NOTE 20	OFP	SAMSUNG ME-B55 NEC V552-AVT
		OFP	CHEIF LTM SERIES OR APPROVED EQUIVALENT, NOTE 15
M55P	LED 55" DISPLAY, 16:9 ASPECT RATIO, 1080P RESOLUTION, W/PORTRAIT WALL MOUNT BRACKET AND MATING PLATE, NOTE 20	OFP	SAMSUNG ME-B55 NEC V552-AVT
		OFP	CHIEF LSMVPU SERIES OR APPROVED EQUIVALENT, NOTE 15
M65	LED 65" DISPLAY, 16:9 ASPECT RATIO, 1080P RESOLUTION W/WALL MOUNT BRACKET AND MATING PLATE, NOTE 20	OFP	SAMSUNG ME-B65 NEC V652-AVT
		OFP	CHIEF PDRUB SERIES OR APPROVED EQUIVALENT, NOTE 15
M23P	MONITOR, LED, 23", NATIVE RESOLUTION, 1920 X 1280, BLACK IN COLOR, W/WALL MOUNT BRACKET & MATING PLATE, NOTE 20	OFP	NEC EX231W HP 2311XI
		OFP	CHEIF FTRV SERIES OR APPROVED EQUIVALENT, NOTE 15
	MONITOR, LED, 23", NATIVE RESOLUTION, 1920 X 1280, BLACK IN COLOR, NOTE 13	82	NEC EX231W HP 2311XI
	LOW PROFILE DESK STAND, NOTES 13 & 14 WITH VESA MOUNTING PATTERN TO MATCH MONITORS	80	ERGOMART SL102 OR APPROVED EQUIVALENT, NOTE 15
	ARTICULATING ARM MONITOR MOUNT W/MATING PLATE (FOR SEQUESTERED WITNESS)	2	INNOVATIVE OFFICE PRODUCTS 3545, OR APPROVED EQUIVALENT, NOTE 15
	DIGITAL AUDIO RECORDING SYSTEM PLAYBACK SWITCH, NOTE 17	8	QUANTUM 002540 OR APPROVED EQUIVALENT, NOTE 15
	CABLE RUNWAY-12", BLACK	A/R	CHATSWORTH 10250-712 MIDDLE ATLANTIC CLB-6/CLB-10
	CABLE RUNWAY RADIUS DROP, BLACK	A/R	CHATSWORTH 12100-712 MIDDLE ATLANTIC CLB V092-4/CLB-V190-4
	BUTT SPLICE KIT, BLACK	A/R	CHATSWORTH 11301-001 MIDDLE ATLANTIC CLH-R22
	JUNCTION SPLICE KIT, BLACK	A/R	CHATSWORTH 11302-001 MIDDLE ATLANTIC CLH-HTS
	ADJ. JUNCTION SPLICE KIT, BLACK	A/R	CHATSWORTH 10616-001 MIDDLE ATLANTIC CLH-ADJH
	FOOT KIT, BLACK	A/R	CHATSWORTH 11309-701 MIDDLE ATLANTIC CLH-RES
	3" CHANNEL RACK TO RUNWAY, BLACK	A/R	CHATSWORTH 10595-712
	TRIANGLE BRACKETS 12", BLACK	A/R	CHATSWORTH MIDDLE ATLANTIC CLB-TSB
K#	RELAY, DPDT RATED FOR SPEAKER LEVEL, W/SOCKET	OFP	
PS	POWER SUPPLY, 24 VDC, .75 AMP	OFP	ATLAS SOUND PS24-075 SOLA SCP30524-DN
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR W/ PLUGSTRIP	A/R	SURGEX SA20 TRIPP LITE ISOBAR 2-6
ALS	ASSISTED LISTENING SYSTEM, RF WITH RMK AND REMOTE ANTENNA, NOTE 18	OFP	LISTEN LT-800-216/LA-124 COMTEK BST 25-216/RDA-2
	RECEIVER AND EAR SPEAKER	6	LISTEN LR-100-216/LA-164 COMTEK PR-216/LISTEN LA-164
DVD	DVD PLAYER, BLURAY, WITH RS-232	OFP	OPPO BDP-103 OR APPROVED EQUIVALENT, NOTE 15
IR	INFRARED SENSOR	OFP	IVIE IR3 OR APPROVED EQUIVALENT, NOTE 15
PB	PATCH BAY, AUDIO, HALF NORMALLED	OFP	HOSA MHB-350 OR APPROVED EQUIVALENT, NOTE 15
	PROJECTOR, 1920 X 1200, 5000 LUMEN, WITH LENS REQUIRED FOR THOW DISTANCE	OFP	CHRISTIE LWU501I W/LENS PANASONIC PT-EZ570U W/LENS
	PROJECTOR CEILING MOUNT KIT, PROVIDE PIPE, COUPLERS, STEEL, ADAPTORS, UNISTRUT, THREADED ROD, FASTENERS, ANCHORS, AND ANY OTHER REQUIRED COMPONENTS TO SPAN STRUCTURE, AIR DUCTS, EXTEND/REDUCE SUPPORT SYSTEM FOR APPROPRIATE ELEVATION AS NEEDED FOR INSTALLATION OF THE SPECIFIED DEVICE. SECURE PROJECTORS TO MOUNTS UTILIZING SECURITY SCREWS.	OFP	CHIEF RPA SERIES PREMIER FTP SERIES
UD	PROJECTION SCREEN, 65" X 116" PROJECTION SURFACE, 16:9 ASPECT RATIO, 24" OF BLACK DROP, LOW VOLTAGE CONTROL INTERFACE, UP/DOWN CONTROL SWITCH, TENSIONED CABLED/ WITH ALL REQUIRED MOUNTING ACCESSORIES	OFP	DALITE NEW TENSIONED ADVANTAGE ELECTROL WITH DA-MATT PROJECTION SURFACE STEWART VISIONARY WITH ULTRAMATT 130 PROJECTION SURFACE
AS	AUDIO SWITCHER, 2 X 1	OFP	RADIO DESIGN LABS ST-SSR1 OR APPROVED EQUIVALENT, NOTE 15
AMS	AUDIO MATRIX SWITCHER, 16 X 16	OFP	EXTRON MAV PLUS 1616A OR APPROVED EQUIVALENT, NOTE 15
	AUDIO AND VIDEO SYSTEM CABLE, NOTE 26	A/R	SEE CABLE SCHEDULE

A/R = AS REQUIRED   OFP = OBTAIN FROM PLANS   RMK = RACK MOUNT KIT

TECHNOLOGY SHEET INDEX

SHEET NO	SHEET TITLE
TA001	AV SYSTEM NOTES, DEFINITIONS AND SHEET INDEX
TA002	AV SYSTEM EQUIPMENT LIST
TA101	LEVEL 1 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA102	LEVEL 2 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA103	LEVEL 3 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA104alt	LEVEL 4 AUDIO VISUAL SYSTEMS FLOOR PLAN - ALTERNATE
TA105	LEVEL 5 AUDIO VISUAL SYSTEMS FLOOR PLAN
TA111	LEVEL 1 AUDIO VISUAL SYSTEMS CEILING PLAN
TA112	LEVEL 2 AUDIO VISUAL SYSTEMS CEILING PLAN
TA113	LEVEL 3 AUDIO VISUAL SYSTEMS CEILING PLAN
TA114alt	LEVEL 4 AUDIO VISUAL SYSTEMS CEILING PLAN - ALTERNATE
TA115	LEVEL 5 AUDIO VISUAL SYSTEMS CEILING PLAN
TA401	AV SYSTEM ENLARGED PLANS
TA501	AV SYSTEM DETAILS
TA601	AV SYSTEM SINGLE LINE DIAGRAMS
TA602	AV SYSTEM SINGLE LINE DIAGRAMS
TA603	AV SYSTEM SINGLE LINE DIAGRAMS
TA701	AV SYSTEM SINGLE LINE CONNECTION PANEL DETAILS
TA702	AV SYSTEM SINGLE LINE CONNECTION PANEL DETAILS

AV SIGNAL TYPE ABBREVIATIONS SCHEDULE

ABBREVIATION	SIGNAL TYPE
AL	AUDIO, LEFT, (LINE LEVEL)
AR	AUDIO, RIGHT, (LINE LEVEL)
AA	ANALOG AUDIO
V	VIDEO, COMPOSITE-STANDARD RESOLUTION ANALOG VIDEO
YC	S-VIDEO-STANDARD RESOLUTION ANALOG VIDEO
YUV	COMPONENT VIDEO-STANDARD RESOLUTION ANALOG VIDEO
RGBHV	RED, GREEN, BLUE, HORIZONTAL & VERTICAL SYNC-HIGH RESOLUTION ANALOG VIDEO
XGA/VGA	EXTENDED GRAPHICS ARRAY/VIDEO GRAPHICS ARRAY-HIGH RESOLUTION ANALOG VIDEO
DVI	DIGITAL VIDEO INTERFACE-HIGH RESOLUTION DIGITAL VIDEO
HDMI	HIGH DEFINITION MULTIMEDIA INTERFACE-HIGH RESOLUTION DIGITAL VIDEO
DP	DISPLAY PORT-HIGH RESOLUTION DIGITAL VIDEO
TP	TWISTED PAIR
IP	INTERNET PROTOCOL

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

"A"	AUDIO
"A/R"	AS REQUIRED
"ADJ"	ADJACENT
"C"	CONDUIT
"CAT"	CATEGORY
"CFI"	CONTRACTOR FURNISHED AND INSTALLED
"CV"	COMPOSITE VIDEO
"E"	ENHANCED
"EA"	EACH
"EX"	EXISTING
"GR"	GROUND
"I.O.F."	INSTALLATION OF OWNER FURNISHED EQUIPMENT
"L"	LEFT AUDIO CHANNEL, LINE LEVEL
"MIC"	MIC LEVEL AUDIO
"N.I.C."	NOT IN CONTRACT
"OFCI"	OWNER FURNISHED AND CONTRACTOR INSTALLED
"OFI"	OWNER FURNISHED AND INSTALLED
"OFP"	OBTAIN FROM PLANS
"QTY"	QUANTITY
"OP"	OWNER PROVIDED
"R"	RIGHT AUDIO CHANNEL, LINE LEVEL
"RGBHV"	COMPUTER VIDEO
"RMK"	RACK MOUNT KIT
"RU"	RACK UNIT, 1.75"
"TYP"	TYPICAL
"V"	VOLT
"W/"	WITH
"YC"	S-VIDEO

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS. THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

SPECIAL PROJECT NOTES

1. THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST IDENTIFIES EQUIPMENT ITEMS OF SIGNIFICANCE BY MANUFACTURER AND MODEL NUMBER. THE SOLE PURPOSE FOR THIS IS TO ESTABLISH LEVELS OF QUALITY AND INDIVIDUAL COMPONENT CAPABILITY FOR ALL EQUIPMENT ITEMS. IT IS NOT THE INTENT OF THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST TO PRECLUDE THE INSTALLATION OF EQUIPMENT ITEMS FABRICATED BY MANUFACTURERS OTHER THAN THOSE LISTED, SO FAR AS THEY ARE JUDGED TO BE EQUAL TO THOSE EQUIPMENT ITEMS IDENTIFIED IN THE LIST. IF BIDDERS WISH TO FURNISH AND INSTALL ITEMS OTHER THAN THOSE IDENTIFIED IN THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST APPROVAL MUST BE OBTAINED DURING THE BIDDING PROCESS. TO THIS END, A SUBSTITUTION REQUEST PROCESS HAS BEEN IDENTIFIED IN THE SPECIFICATIONS FOR OBTAINING APPROVAL TO FURNISH AND INSTALL APPROVED EQUAL EQUIPMENT ITEMS. THE SPECIFICATIONS AND COMPONENT CAPABILITY OF ALL PROPOSED EQUAL EQUIPMENT ITEMS THAT ARE SUBMITTED IN FULL COMPLIANCE WITH THE SUBSTITUTION PROCESS WILL BE STRICTLY EVALUATED DURING THE BIDDING PROCESS. FINAL DECISIONS REGARDING ALL EQUIPMENT SUBSTITUTION REQUESTS WILL BE MADE BY THE PROJECT ARCHITECT/ENGINEER (A&E).

GENERAL A/V NOTES

1. FILL ALL UNUSED RACK SPACE WITH BLANK/VENT PANELS.
2. INSTALL ALL EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS, SEISMIC CODES, AND INDUSTRY WIDE ACCEPTED RIGGING PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM STRUCTURE ABOVE CEILINGS. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.
3. PROVIDE MANUFACTURER RECOMMENDED POWER SUPPLIES AND/OR TRANSFORMERS FOR ALL SPECIFIED EQUIPMENT.
4. FURNISH AND INSTALL ALL CABLE AND CONNECTORS REQUIRED FOR ALL AUDIO AND VIDEO SYSTEMS TO COMPLETE MANUFACTURER RECOMMENDED CABLE TO EQUIPMENT TERMINATION TO FORM A COMPLETE AND FULLY FUNCTIONAL SYSTEM AS SHOWN. SELECT CONNECTORS WHICH PASS FULL BANDWIDTH CAPABILITY OF SPECIFIED CABLE. PROVIDE CABLE TYPES AS IDENTIFIED IN THE AUDIO/VIDEO CABLE SCHEDULE.
5. PROVIDE PATCH CABLES TO FULLY INTERCONNECT ALL SPECIFIED AND/OR OWNER FURNISHED EQUIPMENT WITH THE SPECIFIED CONNECTION PANELS, SYSTEM INTERFACES, AND MISCELLANEOUS EQUIPMENT.
6. PROVIDE MANUFACTURER RECOMMENDED, AND INDUSTRY STANDARD, SIGNAL LEVELS THROUGHOUT ENTIRE SYSTEM. PROVIDE ALL REQUIRED DISTRIBUTION AND PROCESSING EQUIPMENT, INCLUDING BUT NOT LIMITED TO SIGNAL DISTRIBUTION AMPLIFIERS, LINE AMPLIFIERS, LINE DRIVERS, EQUALIZING AMPLIFIERS, GROUND/HUM ISOLATORS, CONTROL BUS DEVICES, SIGNAL CONVERTERS, ETC..., WHETHER SHOWN IN THE SINGLE LINE DIAGRAMS OR NOT.
7. PROVIDE POWER, CURRENT, AND/OR SIGNAL SENSORS FOR ALL EQUIPMENT WHERE IT IS NECESSARY FOR CORRECT CONTROL SYSTEM OPERATION.
8. PROVIDE PRE-MANUFACTURED ADAPTER CABLES WHERE REQUIRED FOR MATING CABLE TO CONNECTORS. THESE WILL INCLUDE, BUT ARE NOT LIMITED TO, ADAPTERS WHICH MATE DVI TO HDMI, DISPLAY PORT TO HDMI, AND OTHER SIMILAR TERMINATION REQUIREMENTS.
9. PROVIDE RACK MOUNT KITS FOR ALL RACK MOUNTED EQUIPMENT. WHERE MANUFACTURERS DO NOT PROVIDE RACK MOUNT KITS, PROVIDE CUSTOM RACK MOUNT KITS AS SPECIFIED.
10. IF CABLE MUST BE INSTALLED INSIDE OF AN AIR PLENUM, INSTALL THE PLENUM RATED EQUIVALENT TO THE CABLE SPECIFIED. AT A MINIMUM, WITHOUT IMPLYING LIMITATION, PROVIDE PLENUM RATED CABLE WHERE CABLE IS SPECIFIED FOR INSTALLATION OUTSIDE OF COURTROOMS AND TECHNOLOGY ROOMS.
11. INSTALL THE SPECIFIED CABLE CUBBY FLUSH IN THE HORIZONTAL WORK SURFACE OF ALL COURTROOM COUNSEL TABLES.
12. WHERE ANY GROUP OF CABLES ARE INSTALLED IN A FASHION WHERE EXPOSED TO PUBLIC VIEW, INSTALL CABLE INSIDE THE SPECIFIED BRAIDED EXPANDABLE SLEEVING. EXAMPLES OF SUCH LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO CABLES EXITING FLOOR BOXES, & CABLES TO EQUIPMENT ON HORIZONTAL WORK SURFACES.
13. INSTALL THE SPECIFIED MONITORS AND ASSOCIATED MOUNTS AT THE FOLLOWING LOCATIONS:

    COURTROOMS:
    GALLERY: ONE 55" MONITOR ON A ROLL-ABOUT STAND (SHARED)
    AV LECTERN: ONE MONITOR ON A LOW PROFILE DESK STAND
    JUDGE: ONE MONITOR ON A LOW PROFILE DESK STAND
    CLERK: ONE MONITOR ON A LOW PROFILE DESK STAND
    WITNESS: ONE MONITOR ON A LOW PROFILE DESK STAND
    EACH COUNSEL TABLE: ONE MONITOR ON A LOW PROFILE DESK STAND ON EACH TABLE
14. AFFIX THE SPECIFIED MONITORS TO THE SPECIFIED LOW PROFILE DESK STANDS AT THE LOWEST ADJUSTABLE POSITION SUCH THAT THE BOTTOM EDGE OF THE MONITOR IS IMMEDIATELY ADJACENT TO THE HORIZONTAL WORK SURFACE, SEE DETAIL.
15. SUBMIT PROPOSED EQUIPMENT/SOFTWARE ITEMS IN FULL COMPLIANCE WITH THE SUBSTITUTION REQUEST PROCESS IDENTIFIED IN THE PROJECT SPECIFICATIONS. ALL EQUIVALENT EQUIPMENT ITEMS MUST BE APPROVED A MINIMUM OF ONE WEEK PRIOR TO THE BID OPENING.
16. PROVIDE ALL PATCH CORDS FOR CONNECTION OF THE COURT PROVIDED DIGITAL AUDIO RECORDING SYSTEMS TO THE SOUND SYSTEMS IN EACH COURTROOM VIA THE SPECIFIED CONNECTION PANELS.
17. AFFIX THE SPECIFIED DIGITAL AUDIO RECORDING SYSTEM PLAYBACK SWITCH TO THE UNDERSIDE EDGE OF THE HORIZONTAL WORK SURFACE AT A USER ACCESSIBLE LOCATION AT EACH COURT REPORTER DESK. OBTAIN APPROVAL OF THE EXACT MOUNTING LOCATION WITH THE COURT PRIOR TO INSTALLATION.
18. CONDUCT AN RF FREQUENCY AUDIT OF THE SITE PRIOR TO SELECTION OF WIRELESS RF OPERATING FREQUENCIES. SELECT FREQUENCIES TO ASSURE INTERFERENCE FREE OPERATION. INSTALL ANTENNAS/TRANCEIVERS OUTSIDE OF THE EQUIPMENT RACK, AT A DESIGNER APPROVED LOCATION, WHERE THE BEST SYSTEM PERFORMANCE IS ACHIEVED.
19. AFFIX THE SPECIFIED BENCH CONFERENCE CONTROL PANEL TO THE SPECIFIED BENCH TOP ENCLOSURE. INSTALL AT EACH JUDGE'S BENCH.
20. COORDINATE FINAL MOUNT SELECTION WITH THE PROVIDED MONITOR PRIOR TO PURCHASE.
21. PROGRAM PROJECTORS TO PROJECT A 16:9 ASPECT RATIO.
22. LOCATE AND INSTALL PROJECTOR AND SCREEN SUCH THAT THE IMAGE SIZE SPECIFIED IN THE PROJECTION SCREEN SCHEDULE IS ACHIEVED. PROVIDE APPROPRIATE LENS FOR IMAGE SIZE AND THROW DISTANCE. NOTE THIS MAY REQUIRE USE OF A NON-STANDARD LENS.
23. INSTALL/SUSPEND ALL EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS, SEISMIC SPECIFICATION SECTION, AND INDUSTRY WIDE ACCEPTED RIGGING PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM STRUCTURE ABOVE CEILINGS. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.
24. POPULATE CONTROL SYSTEM CENTRAL PROCESSORS WITH RS-232 AND/OR RELAY OUTPUT CARDS AS REQUIRED TO COMPLY WITH THE CONTROL SYSTEM REQUIREMENTS IDENTIFIED IN THE CONTROL SYSTEM SINGLE LINE DIAGRAMS SHOWN IN THE DRAWINGS AND THE PROGRAMMING OUTLINE IN THE SPECIFICATIONS.
25. PROVIDE ALL EQUIPMENT, CARDS, MEMORY, HARDWARE, AND SOFTWARE TO NETWORK ALL CONTROL SYSTEM PROCESSORS TOGETHER USING THE OWNER'S NETWORK. CONNECT EVERY CONTROL SYSTEM PROCESSOR TO THE OWNER'S NETWORK. INCLUDE ALL REQUIRED NETWORK SWITCHES.
26. IF AN INSTANCE IS ENCOUNTERED WHERE CABLE MUST BE INSTALLED INSIDE OF AN AIR PLENUM, FURNISH THE PLENUM RATED EQUIVALENT TO THE CABLE SPECIFIED.
27. POPULATE DIGITAL MATRIX SWITCHERS WITH INPUT/OUTPUT CARDS AS REQUIRED TO COMPLY WITH THE VIDEO SYSTEM SINGLE LINE DIAGRAMS, INCLUDING THE SPECIFIED SPARE INPUTS AND OUTPUTS.
28. INSTALL THE SPECIFIED APP FOR APPLE IPAD ON THREE COURT FURNISHED IPADS AND MAKE FULLY FUNCTIONAL.

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AV EQUIPMENT LIST, NOTES, DEFINITIONS AND SHEET INDEX

TA001

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AV CABLE SCHEDULE

CABLE TYPE	DESCRIPTION	ACCEPTABLE TYPES	SPECIAL INSTRUCTIONS
M	MICROPHONE CABLE, 22 AWG, SHIELDED, TWISTED PAIR W/DRAIN-PLENUM RATED	LIBERTY 22-1P-CMP-EZ-WH7 BELDEN 82761	
L	MICROPHONE CABLE, 22 AWG, SHIELDED, TWISTED PAIR W/DRAIN-PLENUM RATED	LIBERTY 22-1P-CMP-EZ-WH7 BELDEN 82761	
S	SPEAKER CABLE, 70 V, 16 AWG, TWISTED PAIR PLENUM RATED	LIBERTY 16-2C-TTP WEST PENN 25225	
R	RGBHV CABLE, 5 COAXIAL, HIGH RESOLUTION PLENUM RATED	LIBERTY RGB5C-SD-PLN	
C	CONTROL CABLE, 24 AWG, 4 PAIR, OVERALL SHIELD PLENUM RATED	LIBERTY BELDEN 88104 WEST PENN D252404	
P	DIGITAL VIDEO CABLE, 4-BONDED PAIR, ENHANCED CAT 6A F/UTP	BELDEN 10GX63F (AMX) CRESTRON DM-CBL-8G-P	
D	DATA CABLE, CAT 6	LIBERTY 24-4P-L6-EN COMM SCOPE 75N4	
V	VIDEO CABLE, 75 OHM, COAXIAL, RG59	LIBERTY WEST PENN 25816	
Y	S-VIDEO CABLE, (YC) 2 COAXIAL, HIGH RESOLUTION, 75 OHM	LIBERTY SV-PLN EXTRON BNC-2 MINI HR	
X	VIDEO CABLE, 50 OHM, COAXIAL, RG58	LIBERTY BELDEN 89907 WEST PENN 25812	
RG-6	TV DISTRIBUTION CABLE	LIBERTY RG-6-P-CATV-BLK	

CABLE INSTALLATION REQUIREMENTS SCHEDULE

ORIGIN	DESTINATION	CABLE TYPE	QUANTITY	SPECIAL INSTRUCTIONS
CP1	ER	M	2	
		L	3	
		P	3	
CP2	ER	M	2	
		P	3	
CP4	ER	P	3	
		M	2	
CP5	ER	L	1	
		M	2	
CP6	ER	D	1	
		C	1	
		P	2	
CP7	ER	L	1	
		M	1	
CP8	ER	L	4	
CP9	ER	P	2	
CP10	ER	L	3	
		M	2	
CP11	ER	L	5	
CP12	ER	P	1	
CP13	ER	M	1	
CP15	ER	X	2	
CP16		M	2	
CP17		P	1	
	M65	P	1	
U	CP18	USB	1	
	M65	C	1	
CP19	ER	D	1	
		C	1	
CP20	ER	X	3	
		D	1	
CP21		M	2	
		P	1	
	ER	M	1	
V	S	S	1	SEE REFLECTED CEILING PLAN FOR CIRCUITING REQUIREMENTS
SV	S_H	S	2	SEE REFLECTED CEILING PLAN FOR CIRCUITING REQUIREMENTS
S	SEE INSTRUCTIONS	S	1	SEE REFLECTED CEILING PLAN FOR CIRCUITING REQUIREMENTS
S_H	SEE INSTRUCTIONS	S	1	SEE REFLECTED CEILING PLAN FOR CIRCUITING REQUIREMENTS
	ER	D	3	
EP	ER	X	1	
		S	1	USE FOR REMOTE POWER
	ER	P	1	
ER 2123 ER 3123 ER 4123 ER 5123	SECURITY EQUIPMENT ROOM	L	2	PROVIDE 2 EA, "L" TYPE CABLES AND 1 EA, "P" TYPE CABLE FROM THE EQUIPMENT RACK FOR EACH COURTROOM TO CONTROL ROOM/SECURITY MONITORS 1149. TERMINATE CABLE INSIDE PLC CABINET. COIL 15' AND LABEL.
		P	1	
ER 2123 ER 3123 ER 4123	ER 5121	L	8	
		P	8	
		D	4	
BP	U	C	1	
	M65	C	2	
DVD	M55	HDMI	1	
	ER	P	1	
		C	1	
ER	LIGHTING CONTROL SYSTEM	C OR D	A/R	COORDINATE QUANTITY AND LOCATION WITH LIGHTING CONTROL SYSTEM REQUIREMENTS
ER	MOTORIZED WINDOW COVERINGS	C OR D	A/R	COORDINATE QUANTITY AND LOCATION WITH MOTORIZED WINDOW COVERING REQUIREMENTS
ER	UD	C	1	
TP	ER	D	1	
		C	1	
TPS	ER	D	1	
		C	1	
IR	ER IR	C	1	
M55P	NEAREST COMMUNICATION CLOSET ON SAME FLOOR	P	1	TERMINATE CABLE INTO CAT 6 RJ-45 CONNECTORS RECOMMENDED BY THE CABLE MANUFACTURER. ON MONITOR END, LOCATE CONNECTORS ON WALL PLATE. ON COMM ROOM END, LEAVE 30' OF SPARE CABLE. NEATLY COIL AND LABEL CABLE.
M23P		D	2	

NOTE: THE ABOVE REQUIREMENTS APPLY TO EVERY DEVICE LOCATION IN EVERY ROOM SHOWN ON THE DRAWINGS.
ER = EQUIPMENT RACK

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AV SYSTEM SINGLE LINE DIAGRAM

TA002

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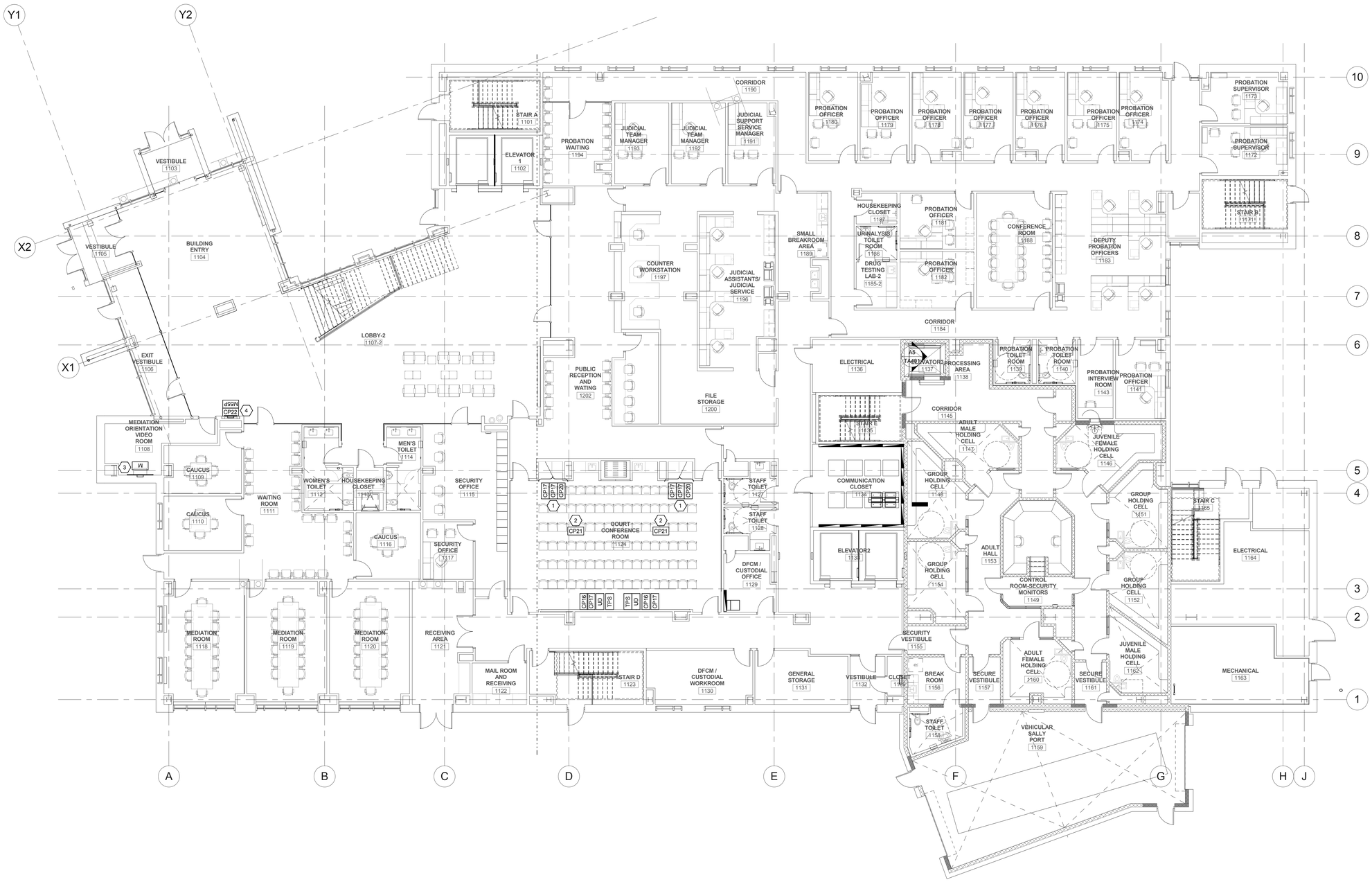
SHEET KEYNOTES

1. INSTALL THE SPECIFIED CONNECTION PANELS IN THE REAR OF THE MILLWORK. INSTALL THE WIRELESS VIDEO SYSTEM AND DVD PLAYER ON SHELVES INSIDE THE EXISTING MILLWORK.
2. INSTALL THE SPECIFIED CONNECTION PANEL IN THE PREVIOUSLY INSTALLED FLOOR BOX.
3. INSTALL THE SPECIFIED DVD PLAYER INSIDE THE MILLWORK CABINET BELOW THE MONITOR. COVER THE JUNCTION BOX WITH A BLANK PLATE WITH A CENTER PENETRATION AND INSTALL THE SPECIFIED HDMI CABLE.
4. INSTALL MONITOR IN PORTRAIR ORIENTATION.



1 LEVEL 1 AUDIO VISUAL SYSTEMS FLOOR PLAN

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

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LEVEL 1 AUDIO VISUAL SYSTEMS FLOOR PLAN

TA101

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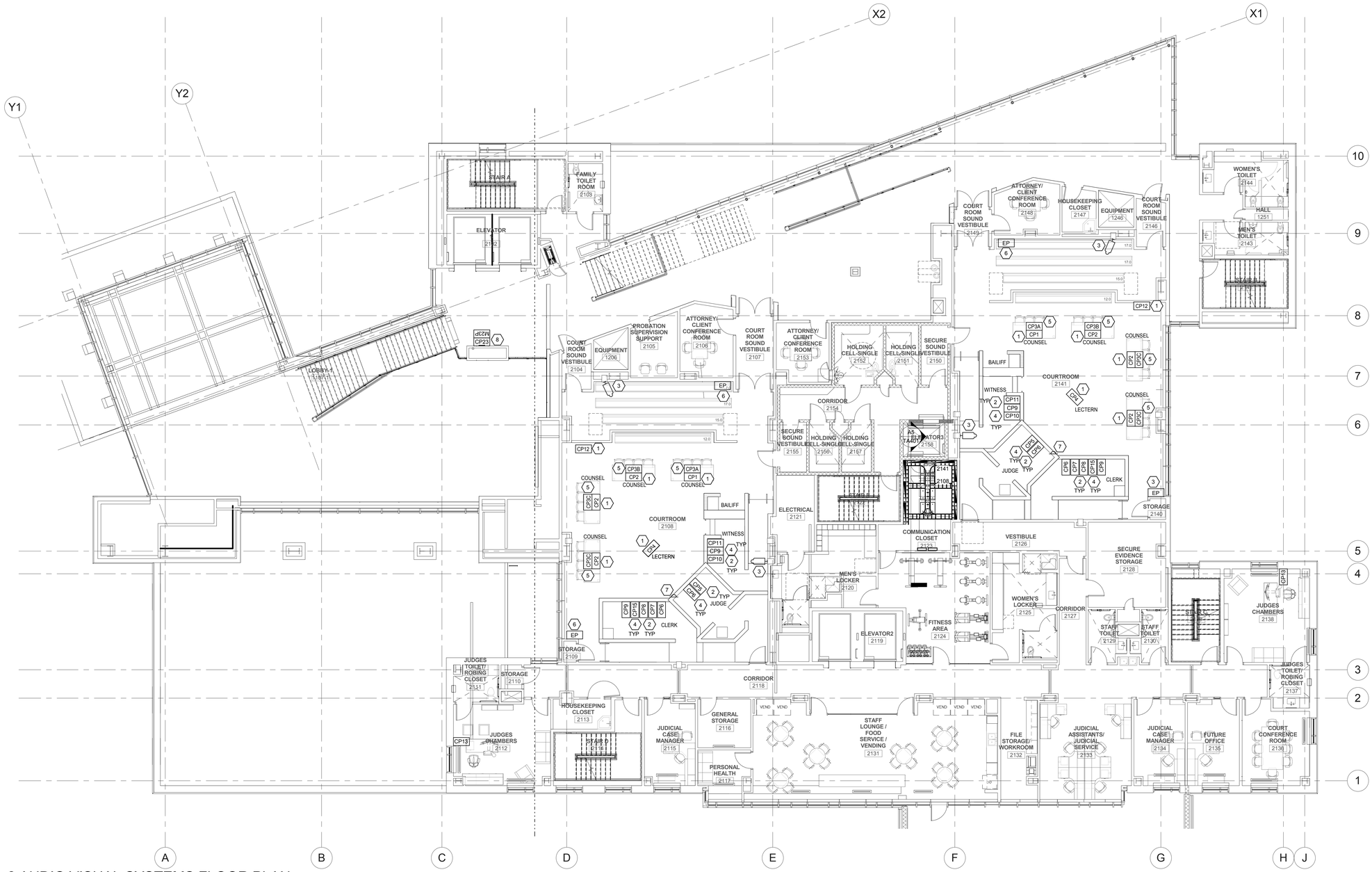
SHEET KEYNOTES

1. INSTALL THE SPECIFIED CONNECTION PANEL IN THE PREVIOUSLY INSTALLED FLOOR BOX.
2. INSTALL THE SPECIFIED CONNECTION PANELS IN THE PREVIOUSLY INSTALLED MUD RINGS.
3. INSTALL THE SPECIFIED CAMERA INSIDE THE CAMERA POCKET.
4. AFFIX THE SPECIFIED DIGITAL VIDEO RECEIVERS TO THE MILLWORK INSIDE THE ACCESSIBLE STUD SPACE.
5. INSTALL THE SPECIFIED CONNECTION PANEL FLUSH IN THE COUNSEL TABLE WORK SURFACE.
6. INSTALL THE SPECIFIED EMITTER PANEL IN FRONT OF THE PREVIOUSLY INSTALLED JUNCTION BOX. INSTALL SIGNAL AND POWER CABLES TO EMITTER PANEL THROUGH THE JUNCTION BOX WITH NO INTERMEDIARY CONNECTIONS. COVER JUNCTION BOX WITH BLANK PLATE. CUT CENTER PENETRATION IN THE PLATE FOR CABLE EXIT.
7. INSTALL THE SPECIFIED BOUNDARY MICROPHONE FLUSH IN THE JUDGE'S BENCH MILLWORK CAP. PENETRATE THE MILLWORK CAP AND INSTALL THE SPECIFIED MIC FLUSH MILLWORK CAP. COORDINATE WITH THE MILLWORK FABRICATOR DURING THE MILLWORK SUBMITTAL PROCESS.
8. INSTALL MONITOR IN PORTRAIR ORIENTATION.



1 LEVEL 2 AUDIO VISUAL SYSTEMS FLOOR PLAN

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

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LEVEL 2 AUDIO VISUAL SYSTEM FLOOR PLAN

TA102

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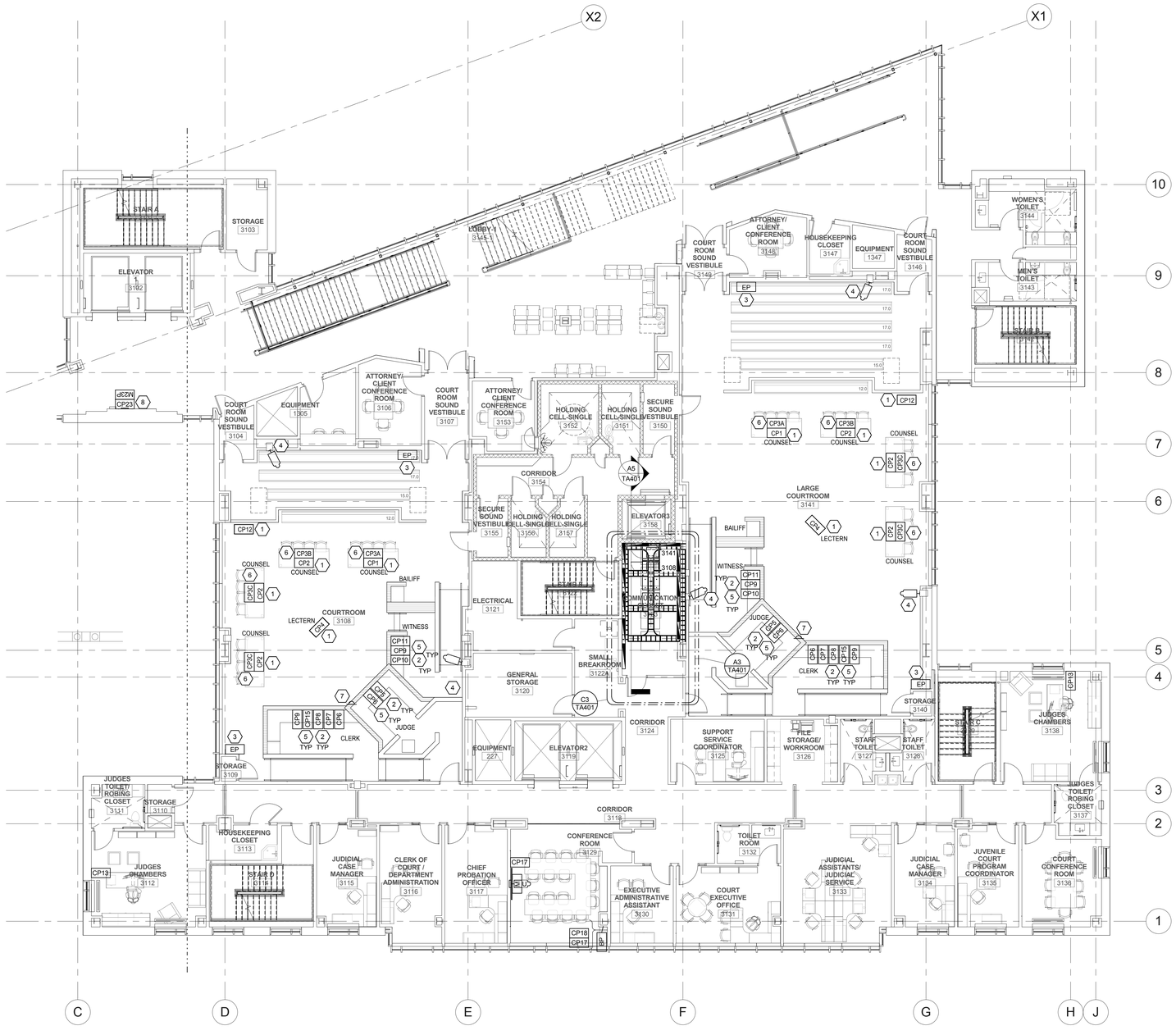

1 LEVEL 3 AUDIO VISUAL SYSTEMS FLOOR PLAN

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

SHEET KEYNOTES

1. INSTALL THE SPECIFIED CONNECTION PANEL IN THE PREVIOUSLY INSTALLED FLOOR BOX.
2. INSTALL THE SPECIFIED CONNECTION PANELS IN THE PREVIOUSLY INSTALLED MUD RINGS.
3. INSTALL THE SPECIFIED EMITTER PANEL IN FRONT OF THE PREVIOUSLY INSTALLED JUNCTION BOX. INSTALL SIGNAL AND POWER CABLES TO EMITTER PANEL THROUGH THE JUNCTION BOX WITH NO INTERMEDIARY CONNECTIONS. COVER JUNCTION BOX WITH BLANK PLATE. CUT CENTER PENETRATION IN THE PLATE FOR CABLE EXIT.
4. INSTALL THE SPECIFIED CAMERA INSIDE THE CAMERA POCKET.
5. AFFIX THE SPECIFIED DIGITAL VIDEO RECEIVERS TO THE MILLWORK INSIDE THE ACCESSIBLE STUD SPACE.
6. INSTALL THE SPECIFIED CONNECTION PANEL FLUSH IN THE COUNSEL TABLE WORK SURFACE.
7. INSTALL THE SPECIFIED BOUNDARY MICROPHONE FLUSH IN THE JUDGE'S BENCH MILLWORK CAP. PENETRATE THE MILLWORK CAP AND INSTALL THE SPECIFIED MIC FLUSH MILLWORK CAP. COORDINATE WITH THE MILLWORK FABRICATOR DURING THE MILLWORK SUBMITTAL PROCESS.
8. INSTALL MONITOR IN PORTRAIR ORIENTATION.

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LEVEL 3 AUDIO VISUAL SYSTEMS FLOOR PLAN

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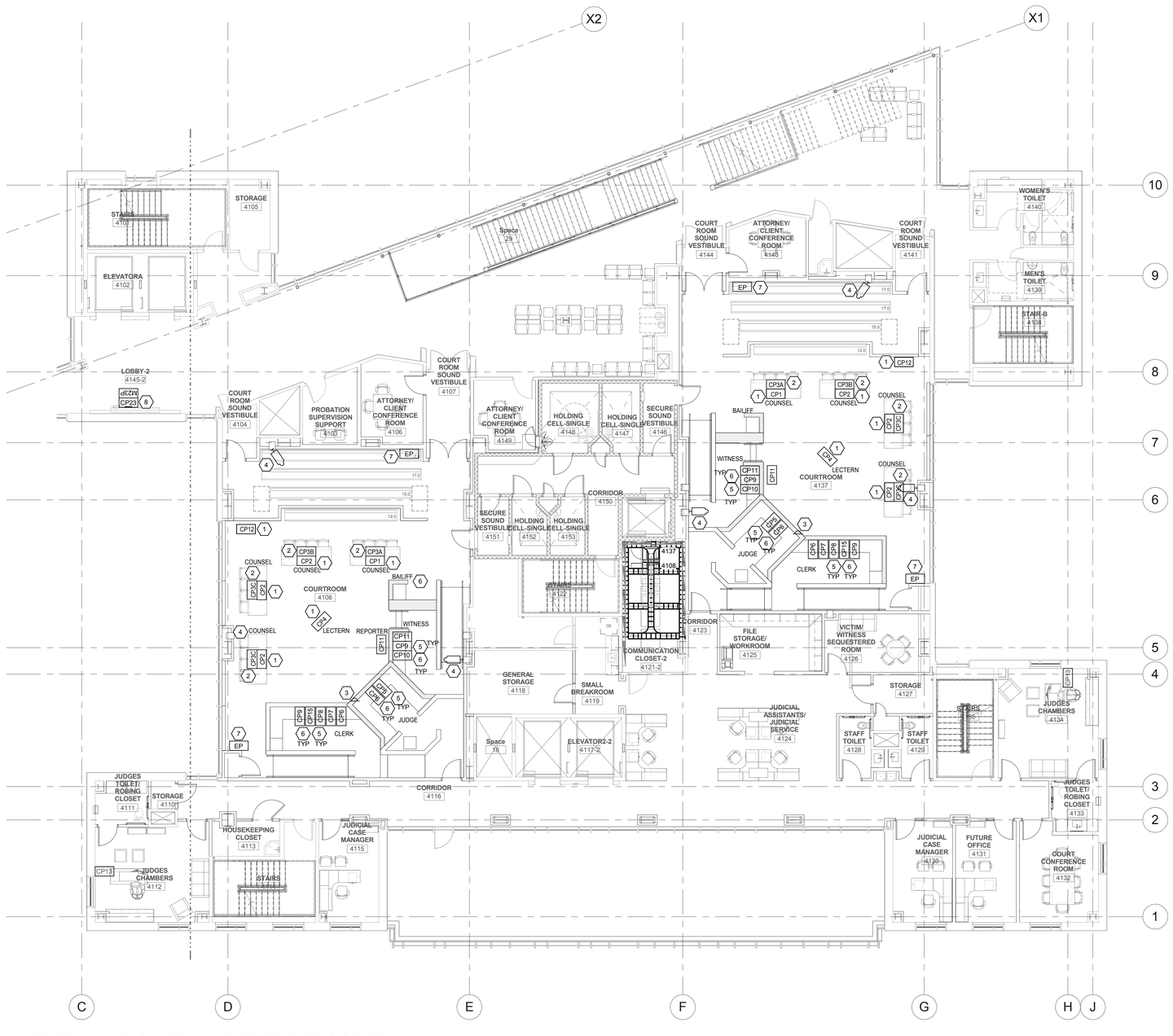

1 LEVEL 4 AUDIO VISUAL SYSTEMS FLOOR PLAN

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

SHEET KEYNOTES

1. INSTALL THE SPECIFIED CONNECTION PANEL IN THE PREVIOUSLY INSTALLED FLOOR BOX.
2. INSTALL THE SPECIFIED CONNECTION PANEL FLUSH IN THE COUNSEL TABLE WORK SURFACE.
3. INSTALL THE SPECIFIED BOUNDARY MICROPHONE FLUSH IN THE JUDGE'S BENCH MILLWORK CAP. PENETRATE THE MILLWORK CAP AND INSTALL THE SPECIFIED MIC FLUSH MILLWORK CAP. COORDINATE WITH THE MILLWORK FABRICATOR DURING THE MILLWORK SUBMITTAL PROCESS.
4. INSTALL THE SPECIFIED CAMERA ON THE SPECIFIED CAMERA MOUNTING BRACKET DIRECTLY IN FRONT OF THE SIGNAL CABLE JUNCTION BOX. INSTALL SIGNAL, CONTROL, AND POWER CABLES TO THE CAMERA THROUGH THE JUNCTION BOX WITH NO INTERMEDIARY CONNECTION. COVER THE JUNCTION BOX WITH A BLANK PLATE. CUT A CENTER PENETRATION IN THE PLATE FOR CABLE EXIT.
5. INSTALL THE SPECIFIED CONNECTION PANELS IN THE PREVIOUSLY INSTALLED MUD RINGS.
6. AFFIX THE SPECIFIED DIGITAL VIDEO RECEIVERS TO THE MILLWORK INSIDE THE ACCESSIBLE STUD SPACE.
7. INSTALL THE SPECIFIED EMITTER PANEL IN FRONT OF THE PREVIOUSLY INSTALLED JUNCTION BOX. INSTALL SIGNAL AND POWER CABLES TO EMITTER PANEL THROUGH THE JUNCTION BOX WITH NO INTERMEDIARY CONNECTIONS. COVER JUNCTION BOX WITH BLANK PLATE. CUT CENTER PENETRATION IN THE PLATE FOR CABLE EXIT.
8. INSTALL MONITOR IN PORTRAIR ORIENTATION.

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LEVEL 4 AUDIO VISUAL SYSTEMS FLOOR PLAN

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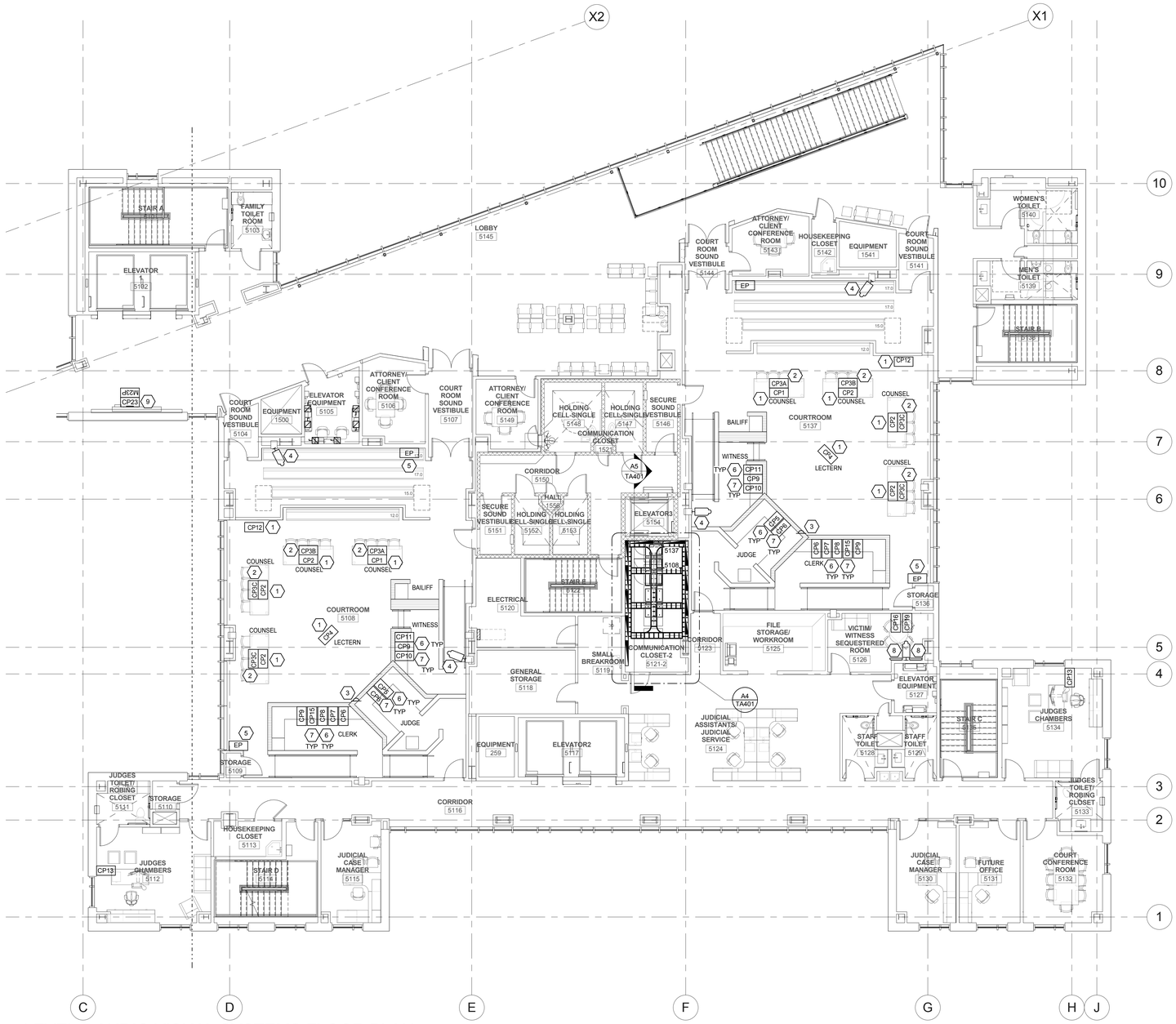

1 LEVEL 5 AUDIO VISUAL SYSTEMS FLOOR PLAN

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

SHEET KEYNOTES

1. INSTALL THE SPECIFIED CONNECTION PANEL IN THE PREVIOUSLY INSTALLED FLOOR BOX.
2. INSTALL THE SPECIFIED CONNECTION PANEL FLUSH IN THE COUNSEL TABLE WORK SURFACE.
3. INSTALL THE SPECIFIED BOUNDARY MICROPHONE FLUSH IN THE JUDGE'S BENCH MILLWORK CAP. PENETRATE THE MILLWORK CAP AND INSTALL THE SPECIFIED MIC FLUSH MILLWORK CAP. COORDINATE WITH THE MILLWORK FABRICATOR DURING THE MILLWORK SUBMITTAL PROCESS.
4. INSTALL THE SPECIFIED CAMERA INSIDE THE CAMERA POCKET.
5. INSTALL THE SPECIFIED EMITTER PANEL IN FRONT OF THE PREVIOUSLY INSTALLED JUNCTION BOX. INSTALL SIGNAL AND POWER CABLES TO EMITTER PANEL THROUGH THE JUNCTION BOX WITH NO INTERMEDIARY CONNECTIONS. COVER JUNCTION BOX WITH BLANK PLATE. CUT CENTER PENETRATION IN THE PLATE FOR CABLE EXIT.
6. INSTALL THE SPECIFIED CONNECTION PANELS IN THE PREVIOUSLY INSTALLED MUD RINGS.
7. AFFIX THE SPECIFIED DIGITAL VIDEO RECEIVERS TO THE MILLWORK INSIDE THE ACCESSIBLE STUD SPACE.
8. AFFIX THE SPECIFIED RECEIVER TO THE WALL DIRECTLY BEHIND THE WALL MOUNTED MONITOR. INSTALL THE MONITOR MOUNTING BRACKET AND AFFIX THE MONITOR TO THE BRACKET.
9. INSTALL MONITOR IN PORTRAIR ORIENTATION.

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LEVEL 5 AUDIO VISUAL SYSTEMS FLOOR PLAN

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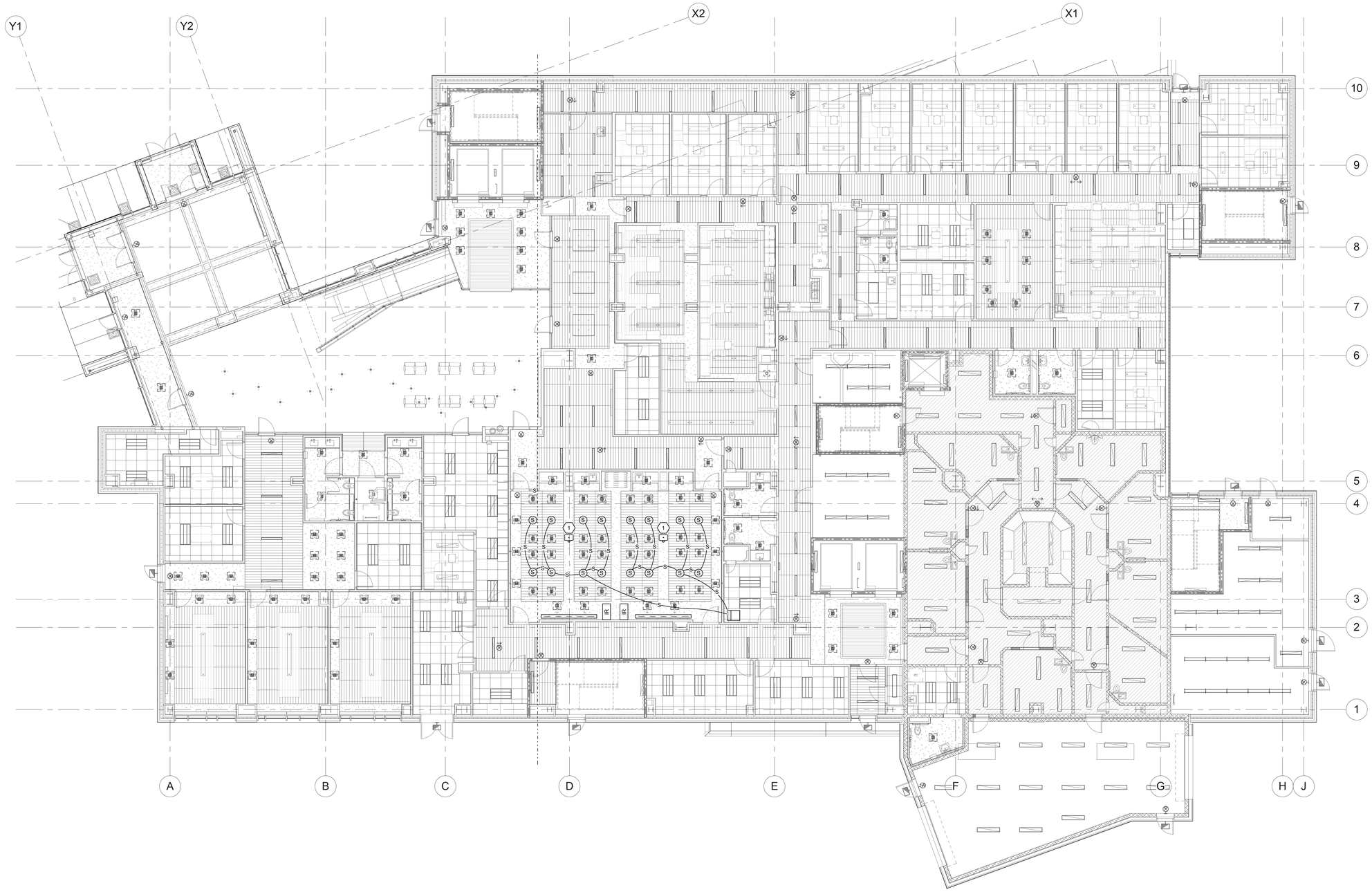
SHEET KEYNOTES

1 AFFIX THE SPECIFIED RECEIVER AND ATV ON TOP OF SPECIFIED PROJECTOR.



1 LEVEL 1 AUDIO VISUAL SYSTEMS CEILING PLAN

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

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No. 181563
DAVID E. WESEMANN
2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
BID DOCUMENTS

Rev #	Date	Description

Job # 12500
Date August 15, 2013
Owner # 08284150
Ins. #

LEVEL 1 AUDIO VISUAL SYSTEMS CEILING PLAN

TA111

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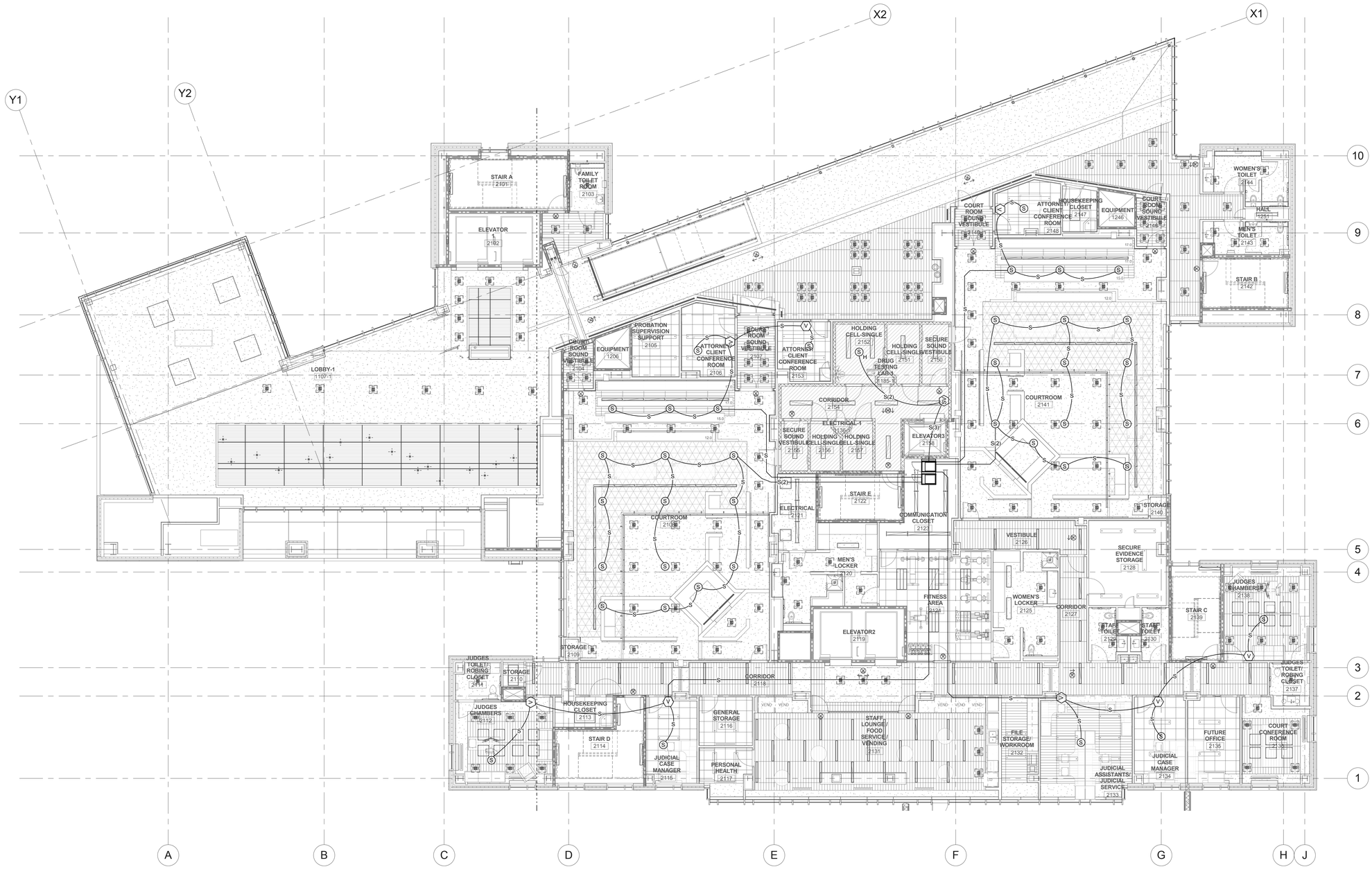
SHEET KEYNOTES



1 LEVEL 2 AUDIO VISUAL SYSTEMS CEILING PLAN

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

VCBO ARCHITECTURE
524 SOUTH 600 EAST
SALT LAKE CITY, UT 84102
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Fax: (801) 531-9850
Web: vcbo.com

LICENSED ARCHITECT No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

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LEVEL 2 AUDIO VISUAL SYSTEMS CEILING PLAN

TA112

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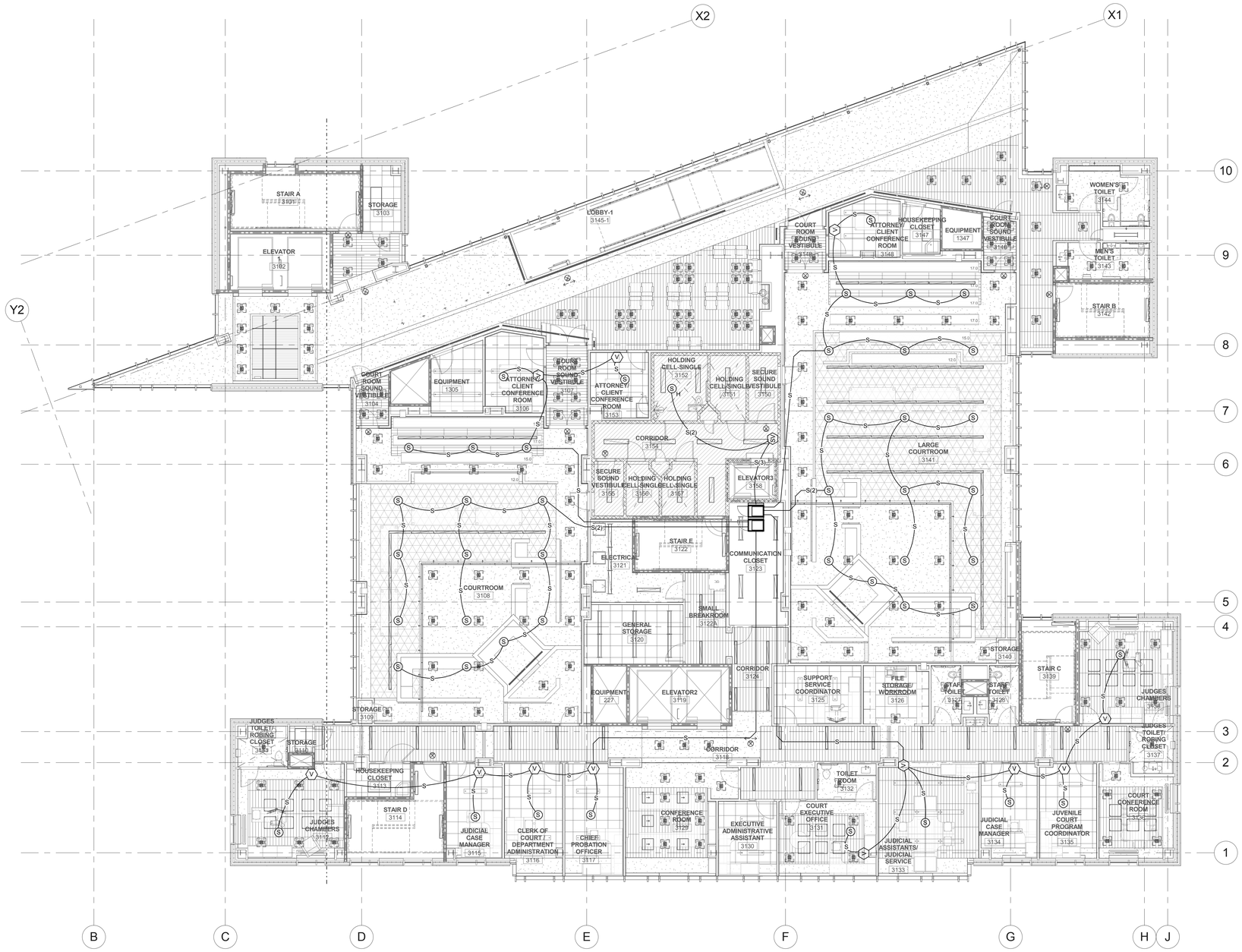

1 LEVEL 3 AUDIO VISUAL SYSTEMS CEILING PLAN

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

SHEET KEYNOTES

VCBO ARCHITECTURE

VCBO ARCHITECTURE
524 SOUTH 600 EAST
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LEVEL 3 AUDIO VISUAL SYSTEMS CEILING PLAN

TA113

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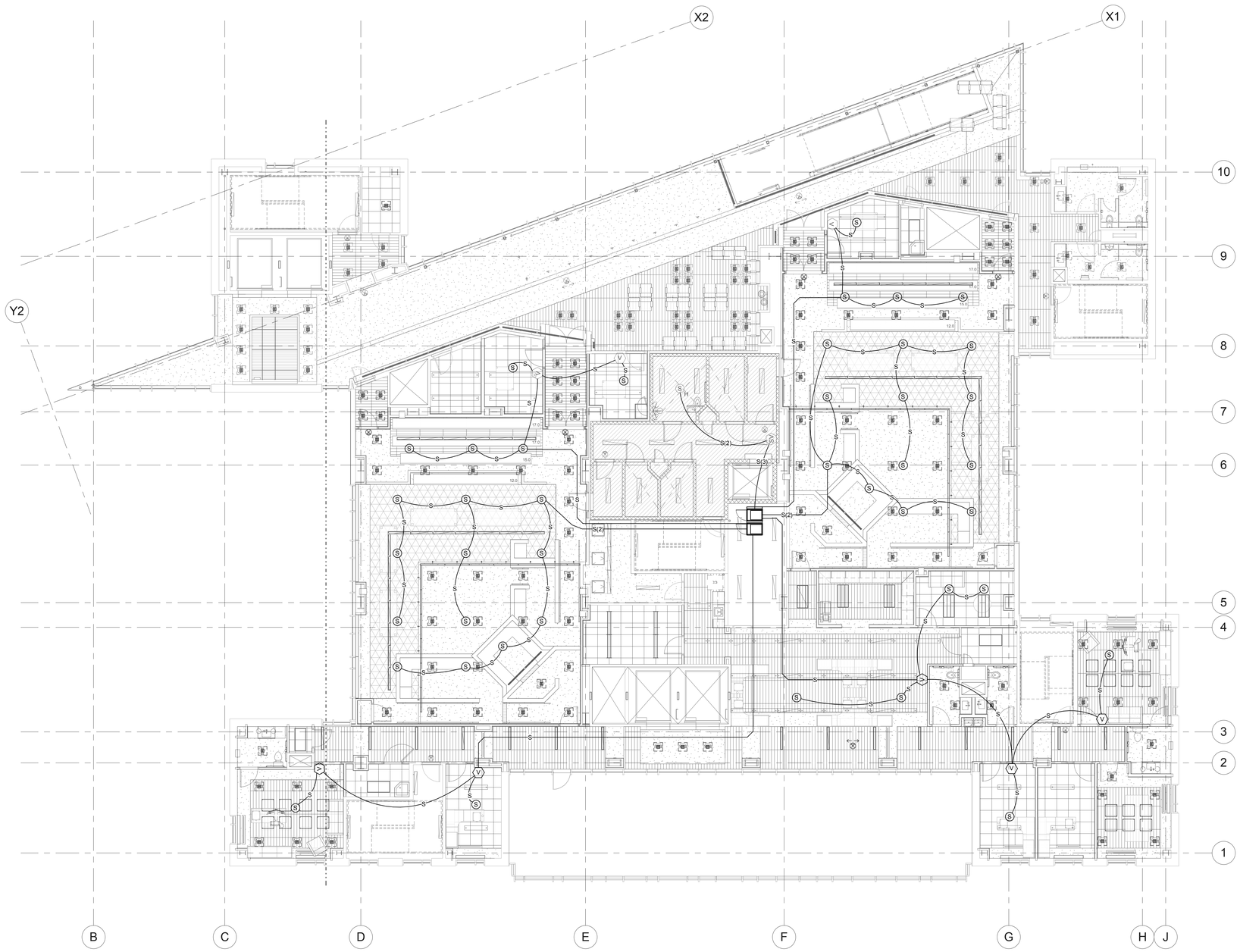

1 LEVEL 4 AUDIO VISUAL SYSTEMS CEILING PLAN

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

GENERAL SHEET NOTES

1 COVER ALL UNUSED FLOOR BOX, JUNCTION BOX, AND MUD RING GANG OPENINGS WITH BLANK COVER PLATES.

SHEET KEYNOTES

VCBO ARCHITECTURE

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LEVEL 4 AUDIO VISUAL SYSTEMS CEILING PLAN

TA114alt

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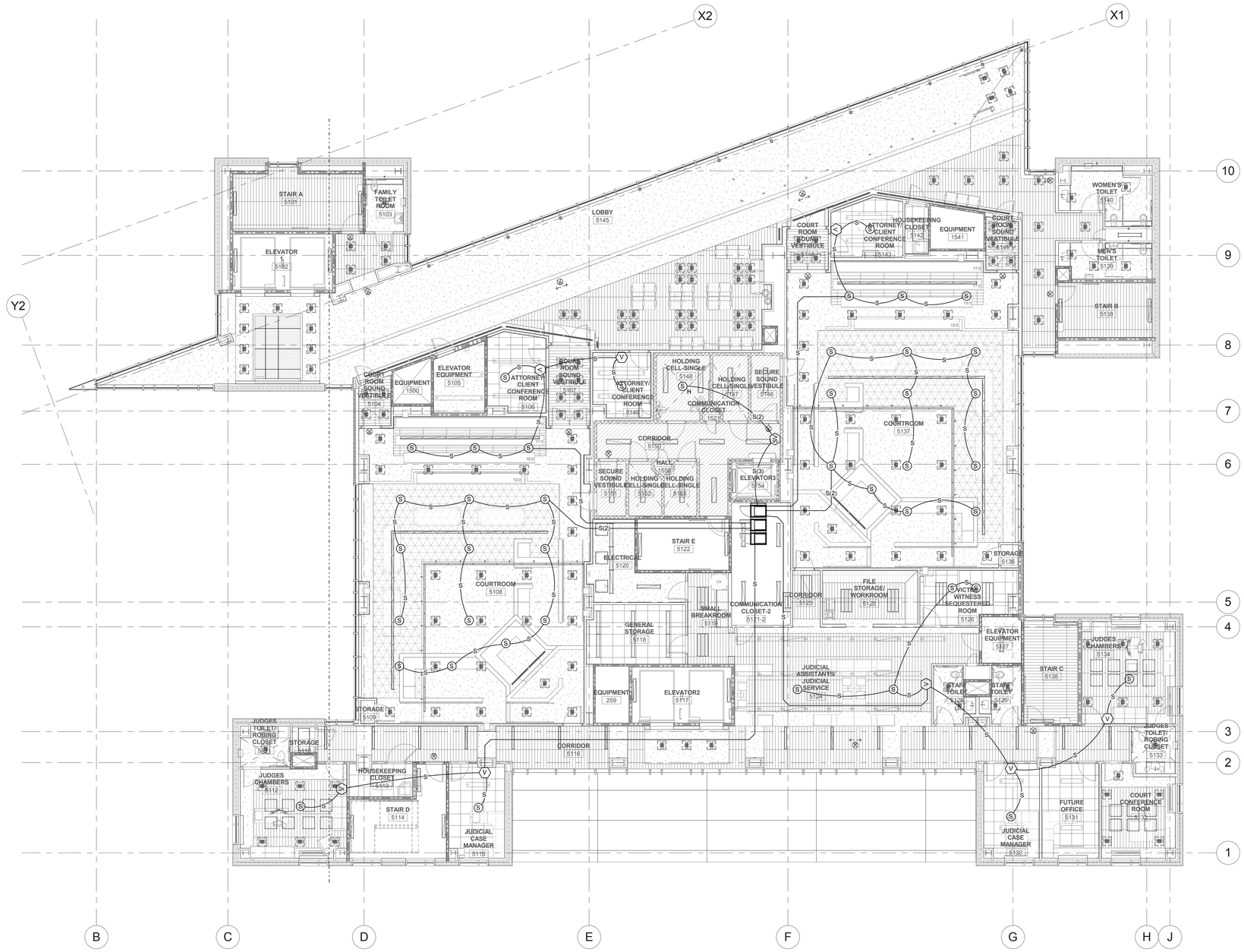

1 LEVEL 5 AUDIO VISUAL SYSTEMS CEILING PLAN

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

SHEET KEYNOTES

VCBO ARCHITECTURE

VCBO ARCHITECTURE
524 SOUTH 600 EAST
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LEVEL 5 AUDIO VISUAL SYSTEMS CEILING PLAN

TA115

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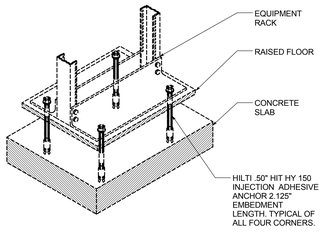
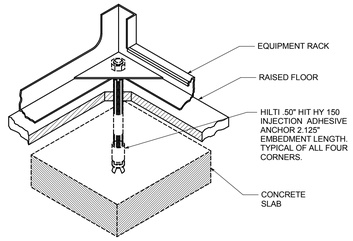


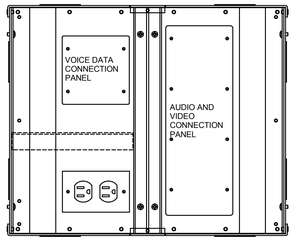
E1 RAISED FLOOR OPEN FRAME RACK SUPPORT

NTS



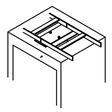
E2 RAISED FLOOR ENCLOSED SUPPORT

NTS



E3 ACCESS FLOOR BOX DEVICE LOCATION DETAIL - PLAN VIEW OF ACCESS FLOOR BOX

NTS

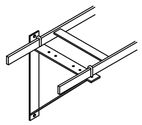


PARALLEL MOUNTING

NOTE: PENETRATE CABINET TOP FOR CABLE ENTRY THROUGH TOP PANEL. FINISH PENETRATION EDGES TO PREVENT CABLE JACK SCARING.

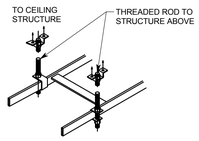
D1 3" CHANNEL RACK-TO-RUNWAY MOUNT

NTS



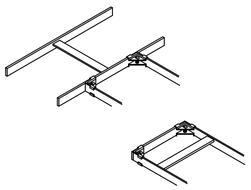
D2 TRIANGLE BRACKET DETAIL

NTS



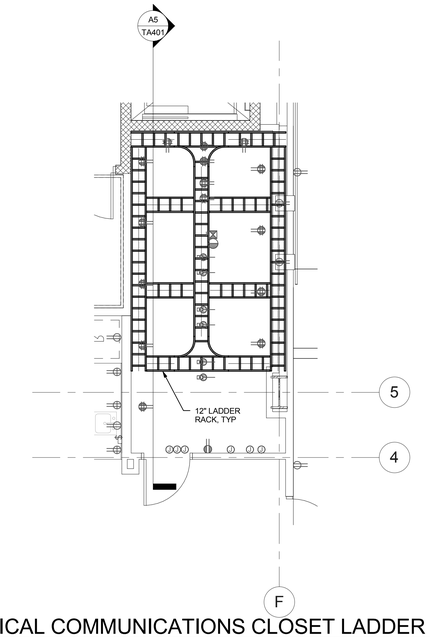
C1 OVERHEAD SUPPORT DETAIL

NTS



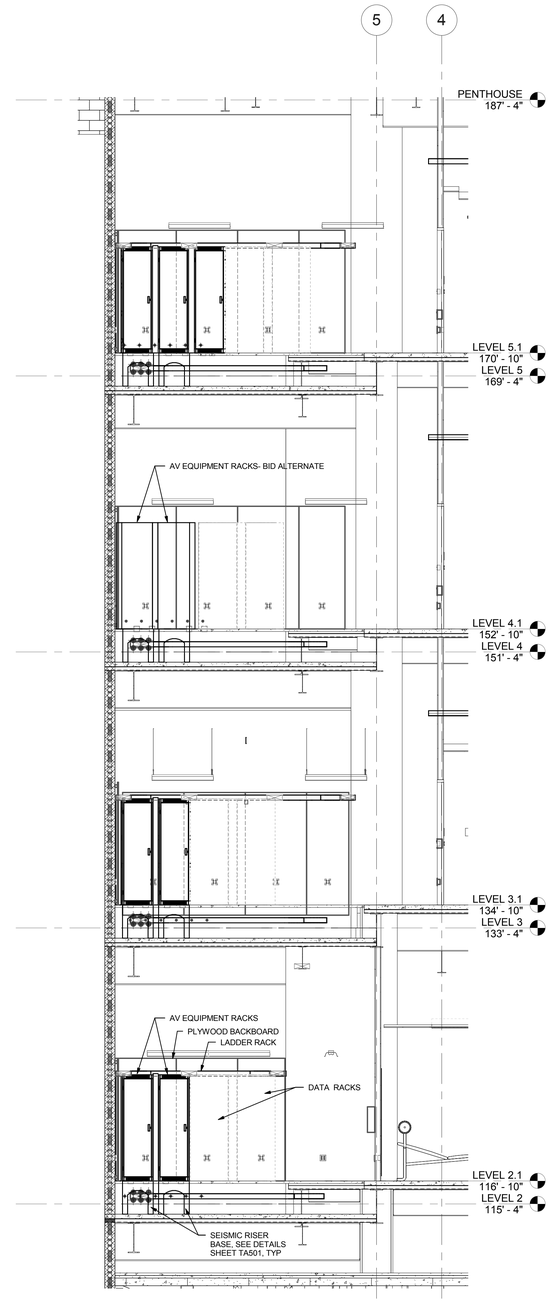
C2 CABLE RUNWAY SPLICE/ END CLOSING DETAIL

NTS



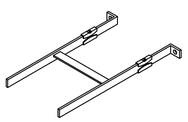
C3 TYPICAL COMMUNICATIONS CLOSET LADDER RACK PLAN

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



A5 COMMUNICATION CLOSETS SECTION

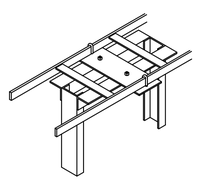
SCALE: 1/4" = 1'-0"



WALL ATTACHMENT

B1 WALL ATTACHMENT DETAIL

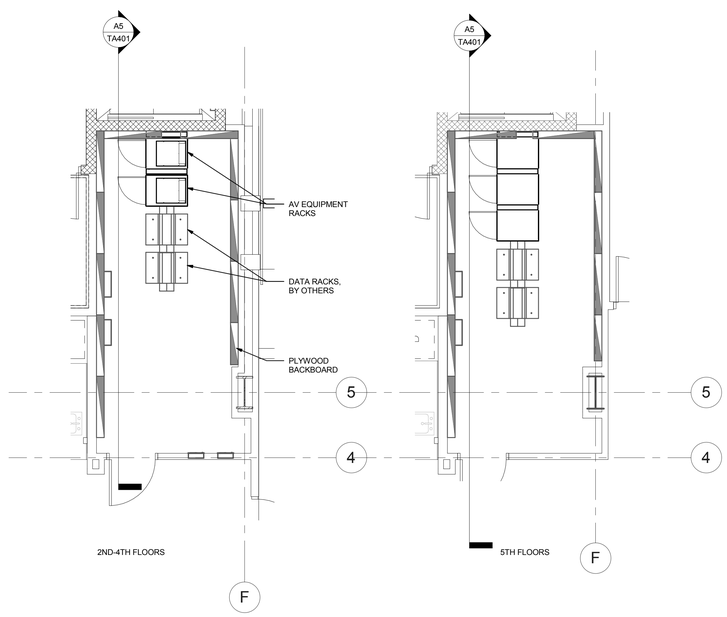
NTS



PARALLEL MOUNTING

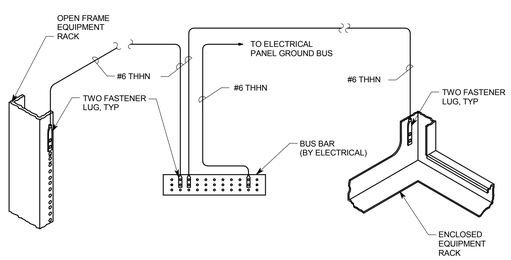
B2 3" CHANNEL RACK-TO-RUNWAY MOUNT

NTS



A3 TYPICAL COMMUNICATIONS CLOSET EQUIPMENT PLAN

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



A1 TYPICAL RACK GROUNDING DETAIL

NTS

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AV EQUIPMENT ROOM PLANS AND ELEVATIONS

TA401

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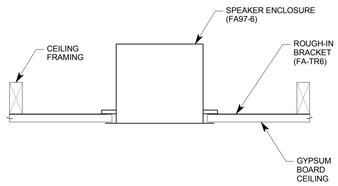
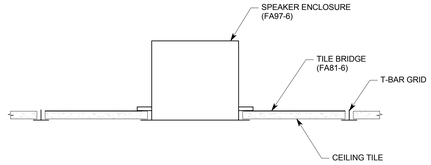


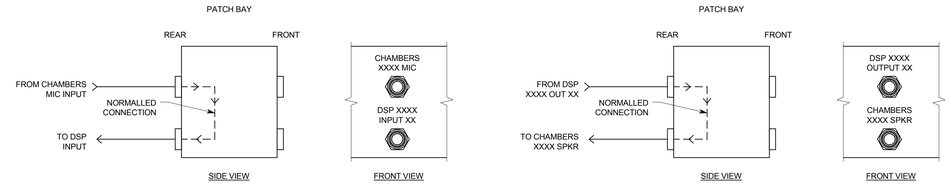
GYPSUM BOARD CEILING



LAY-IN TILE CEILING

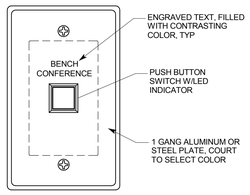
E1 SPEAKER MOUNTING DETAILS

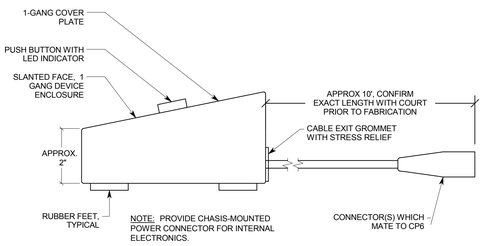
NO SCALE



E4 PATCH BAY DETAILS

NO SCALE

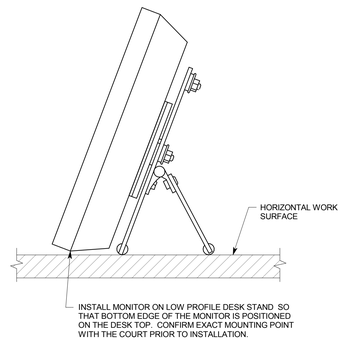




SIDE VIEW

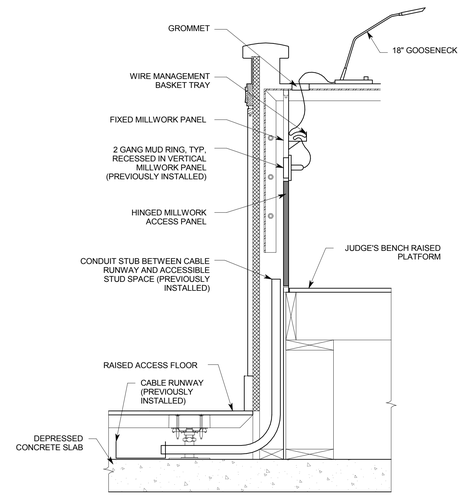
C1 BUTTON CONTROL PANEL DETAIL-JUDGE'S BENCH (BC)

NO SCALE



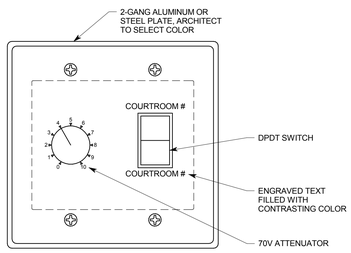
C3 MONITOR MOUNTING LOW PROFILE DESK STAND DETAIL

NO SCALE



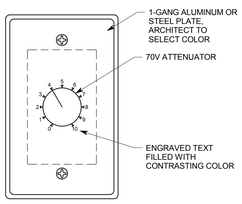
C5 BENCH AREA MICROPHONE INSTALLATION DETAIL

NO SCALE



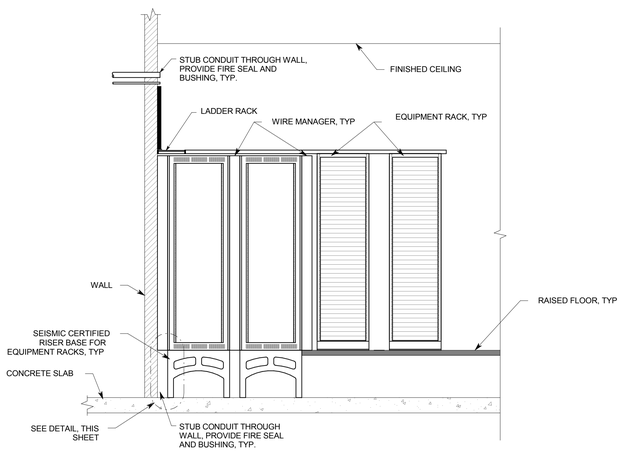
B1 SOURCE SWITCH/ VOLUME CONTROL DETAIL

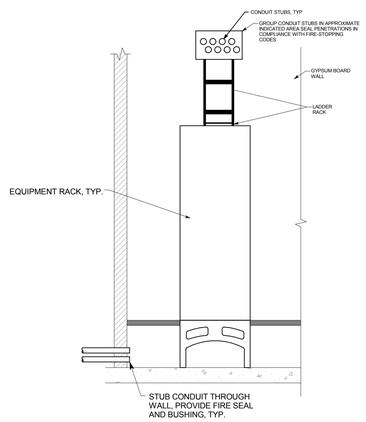
NO SCALE



A1 VOLUME CONTROL DETAIL

NO SCALE

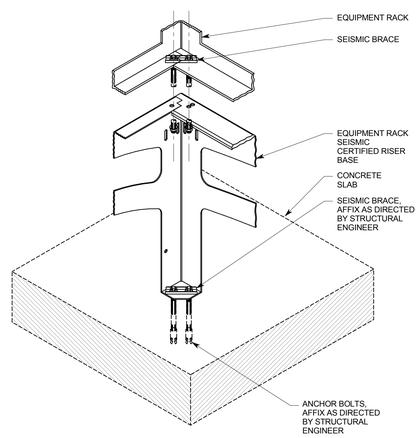




SIDE VIEW

A2 EQUIPMENT RACK ELEVATION

NO SCALE



A5 EQUIPMENT RACK DETAIL

NO SCALE

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AV SYSTEM DETAILS

TA501

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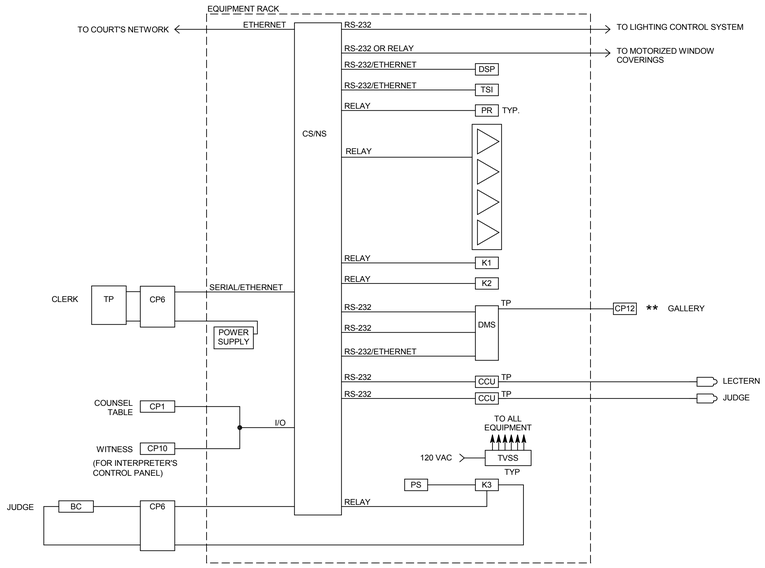
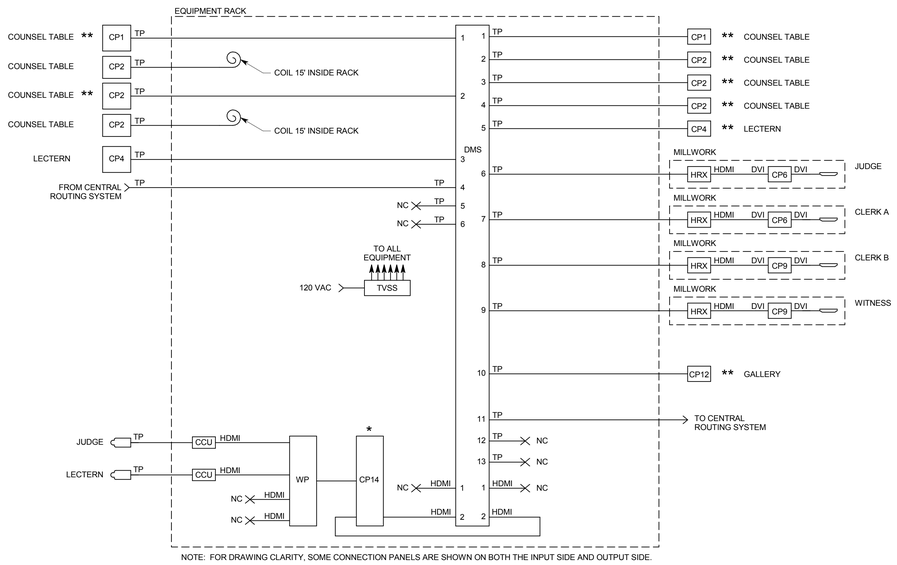


** REFER TO UMBILICAL CORD DETAILS FOR MORE INFORMATION

NOTE: PROGRAM CONTROL SYSTEM TO SENSE A SWITCH CLOSURE FROM "BC", TO OUTPUT A BENCH CONFERENCE COMMAND, TO INTERMITTENTLY ILLUMINATE (FLASH) THE LED ON "BC", AND TO INDICATE BENCH CONFERENCE MODE ON THE TOUCH PANEL. REVERSE THE ACTION UPON A SUPPLEMENTARY SWITCH CLOSURE FROM "BC".

C1 CONTROL SYSTEM SINGLE LINE DIAGRAM-ALL COURTROOMS

NO SCALE



NOTE: FOR DRAWING CLARITY, SOME CONNECTION PANELS ARE SHOWN ON BOTH THE INPUT SIDE AND OUTPUT SIDE.

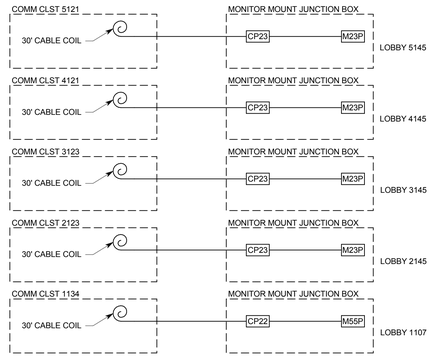
NC = NO CONNECTION

* INSTALL ON REAR RACK RAILS

** REFER TO UMBILICAL CORD DETAILS FOR MORE INFORMATION

A1 VIDEO SYSTEM SINGLE LINE DIAGRAM-ALL COURTROOMS

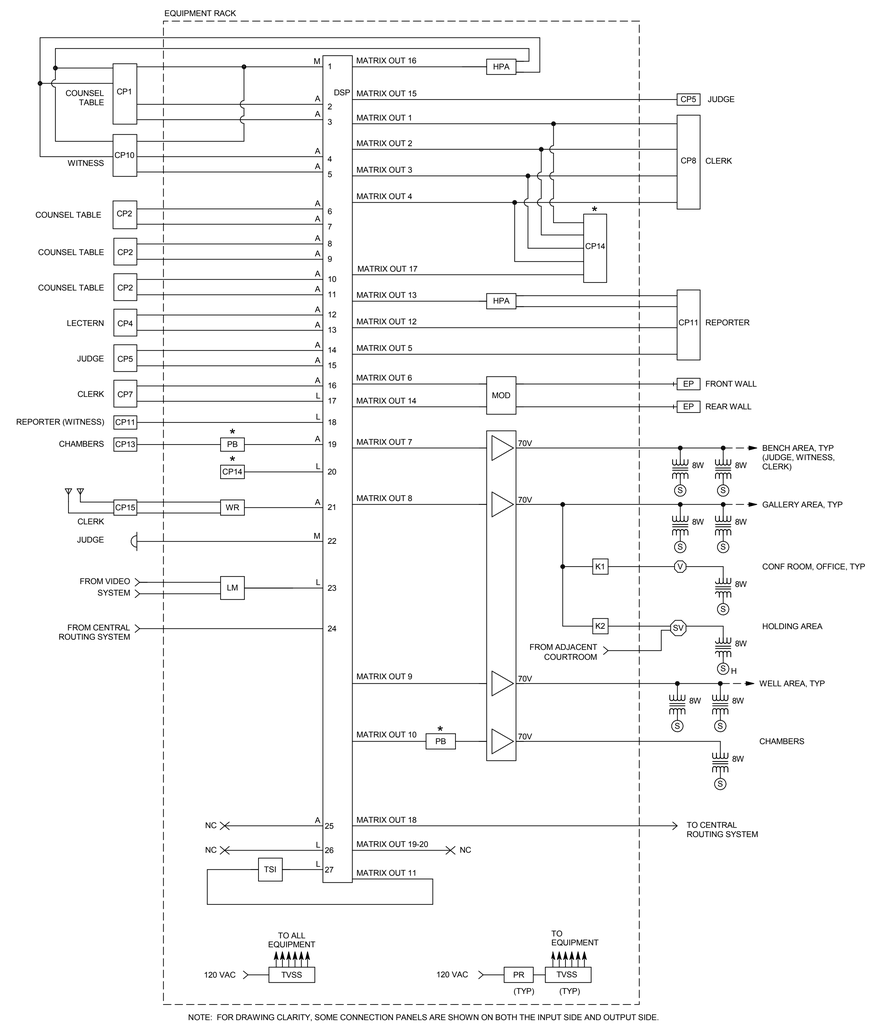
NO SCALE



NOTE: REFER TO THE CABLE INSTALLATION REQUIREMENTS SCHEDULE FOR THE SPECIFIED CABLE TYPES AND TERMINATION REQUIREMENTS.

D4 VIDEO SYSTEM SINGLE LINE DIAGRAM-BUILDING WIDE DISPLAY SYSTEM

NO SCALE



NOTE: FOR DRAWING CLARITY, SOME CONNECTION PANELS ARE SHOWN ON BOTH THE INPUT SIDE AND OUTPUT SIDE.

* INSTALL ON REAR RACK RAILS

NC = NO CONNECTION

L = LINE INPUT

A = AEC INPUT

M = MIC INPUT

A4 AUDIO SYSTEM SINGLE LINE DIAGRAM-ALL COURTROOMS

NO SCALE

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AV SYSTEM SINGLE LINE DIAGRAMS

TA601

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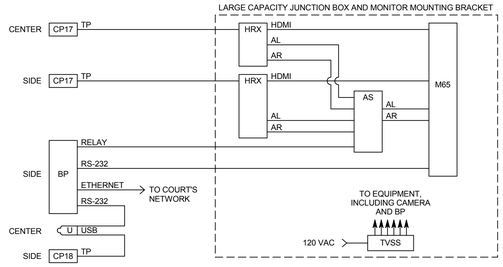
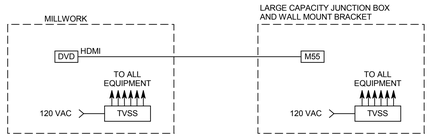


E1 AUDIO, VIDEO, & CONTROL SYSTEMS SINGLE LINE DIAGRAM - CONFERENCE ROOM 3129

NO SCALE



E3 AUDIO & VIDEO SINGLE LINE DIAGRAM, MEDIATION 1108

NO SCALE

INPUT ID	INPUT LOCATION	MATRIX OUT 1 (RECORD CHANNEL 1)	MATRIX OUT 2 (RECORD CHANNEL 2)	MATRIX OUT 3 (RECORD CHANNEL 3)	MATRIX OUT 4 (RECORD CHANNEL 4)	MATRIX OUT 14 (MODULATOR INTERP)	MATRIX OUT 6 (MODULATOR-ALS)	MATRIX OUT 9 (WELL)	MATRIX OUT 7 (BENCH AREA)	MATRIX OUT 8 (GALLERY AREA)	MATRIX OUT 10 (CHAMBER)	MATRIX OUT 11 (TELEPHONE)	MATRIX OUT 12 (RECORD OUT)	MATRIX OUT 13 * * (REPORTER HEADPHONE)	MATRIX OUT 5 (DESK SPKR, REPORTER)	MATRIX OUT 15 (JUDGE HEADPHONE)	MATRIX OUT 16 (INTERPRETER HEADPHONE)	MATRIX OUT 17 (AUX OUT)	MATRIX OUT 18 (CENTRAL ROUTING)
2,3	COUNSEL TABLE			X			X	X	X	X	X	X	X	X	X	X	X	X	X
6-11	COUNSEL TABLE				X		X	X	X	X	X	X	X	X	X	X	X	X	X
14,15	JUDGE	X					X	X	X * *	X	X	X	X	X	X		X	X	X
12,13	LECTERN			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
4,5	WITNESS		X				X	X	X	X	X	X	X	X	X	X	X	X	X
1	INTERPRETER		X			X	X	X	X	X	X	X	X	X	X	X		X	X
21	WIRELESS		X				X	X	X	X	X	X	X	X	X	X	X	X	X
16	CLERK	X					X	X	X	X	X	X	X	X	X	X	X	X	X
22	BENCH CONF. MIC	X											X	* X					
27	TELEPHONE		X				X	X	X	X	X		X	X	X	X	X	X	X
23	VIDEO EVIDENCE		X				X	X	X	X	X	X	X	X	X	X	X	X	X
17	PLAYBACK A		X				X	X	X	X	X	X	X	X	X	X	X	X	X
19	JUDGE CHAMBER	X							X	X		X	X	X	X	X		X	X
20	AUX IN		X				X	X	X	X	X	X	X	X	X	X	X	X	X
21	WIRELESS		X				X	X	X	X	X	X	X	X	X	X	X	X	X
18	PLAYBACK B		X				X	X	X	X	X	X	X	X	X	X	X	X	X
21	CENTRAL ROUTING		X				X	X	X	X	X	X	X	X	X	X	X	X	

NOTE: VERIFY FINAL MATRIX MIX DOWN FOR RECORD OUTPUTS WITH THE COURT PRIOR TO PROGRAMMING

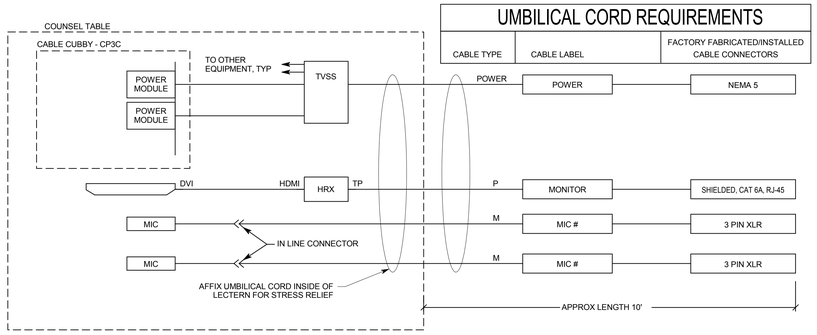
* WHEN A BENCH CONFERENCING COMMAND IS ISSUED, ROUTE THE NOISE GENERATOR OUTPUT TO THE INDICATED MATRIX OUTPUT(S). IN ADDITION, MUTE ALL PUBLIC ADDRESS MICROPHONES. IN ADDITION, UNMUTE THE BENCH CONFERENCE MIC INPUT ONLY AND ROUTE IT TO THE HEADPHONE OUTPUT. RESTORE THE ORIGINAL MUTING & ROUTING CONFIGURATION WHEN THE BENCH CONFERENCING COMMAND IS TERMINATED.

* * WHEN A BENCH CONFERENCE COMMAND IS NOT ISSUED, ROUTE ALL MIXER INPUTS TO THE HEADPHONE OUTPUT.

* * * REDUCE LEVEL BY APPROX 6 dB

C1 AUTOMATIC MATRIX MIXER ROUTING SCHEDULE-ALL COURTROOMS

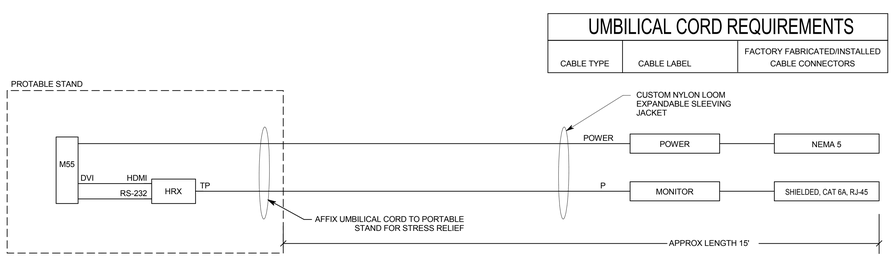
NO SCALE



NOTES:
1. PROVIDE UMBILICAL CORDS WITH FACTORY INSTALLED CONNECTORS. DO NOT FABRICATE CONNECTORS ON SITE OR AT SHOP.
2. CONFIRM THE COURT'S DESIRED UMBILICAL CORD LENGTH PRIOR TO FABRICATION.
3. MOUNT TRANSMITTERS, RECEIVERS, DA'S AND INTERFACES INSIDE MILLWORK CHASE.
4. AFFIX LEAD WEIGHT TO CABLE WITH NYLON WIRE TIE. PURPOSE IS TO ASSIST IN PULLING CABLE BACK INTO CUBBY.

C4 COUNSEL TABLE UMBILICAL CORD/SINGLE LINE DIAGRAM, CP3C

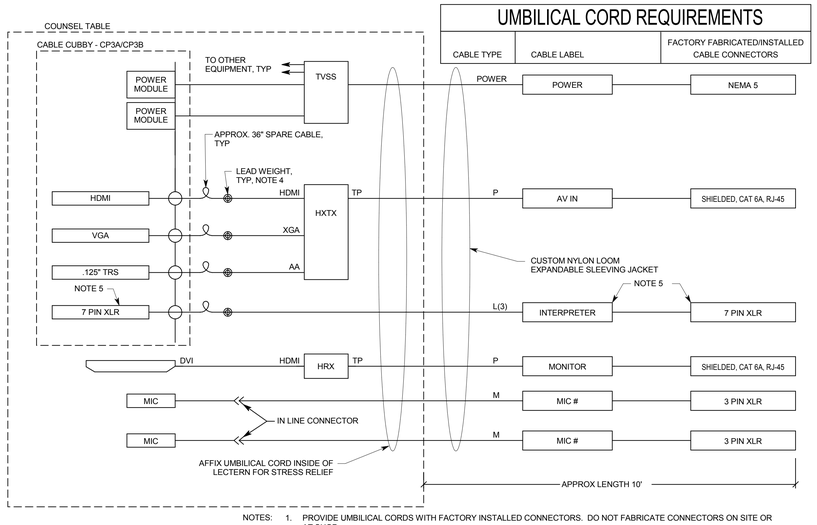
NO SCALE



NOTES:
1. PROVIDE UMBILICAL CORDS WITH FACTORY INSTALLED CONNECTORS. DO NOT FABRICATE CONNECTORS ON SITE OR AT SHOP.
2. CONFIRM THE COURT'S DESIRED UMBILICAL CORD LENGTH PRIOR TO FABRICATION.
3. AFFIX RECEIVER TO REAR OF MONITOR.

A1 GALLERY MONITOR UMBILICAL CORD/SINGLE LINE DIAGRAM

NO SCALE



NOTES:
1. PROVIDE UMBILICAL CORDS WITH FACTORY INSTALLED CONNECTORS. DO NOT FABRICATE CONNECTORS ON SITE OR AT SHOP.
2. CONFIRM THE COURT'S DESIRED UMBILICAL CORD LENGTH PRIOR TO FABRICATION.
3. MOUNT TRANSMITTERS, RECEIVERS, DA'S AND INTERFACES INSIDE MILLWORK CHASE.
4. AFFIX LEAD WEIGHT TO CABLE WITH NYLON WIRE TIE. PURPOSE IS TO ASSIST IN PULLING CABLE BACK INTO CUBBY.
5. INTERPRETER CONNECTION IS NOT PRESENT IN CP3B

A4 COUNSEL TABLE UMBILICAL CORD/SINGLE LINE DIAGRAM, CP3A/CP3B

NO SCALE

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LICENSED PROFESSIONAL ENGINEER No. 181563 DAVID E. WESEMANN 2013.8.15 STATE OF UTAH

SPECTRUM ENGINEERS

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Utah State Courts
08284150
165 West 20th Street, Ogden, Utah
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AV SYSTEM SINGLE LINE DIAGRAMS AND MATRIX

TA602

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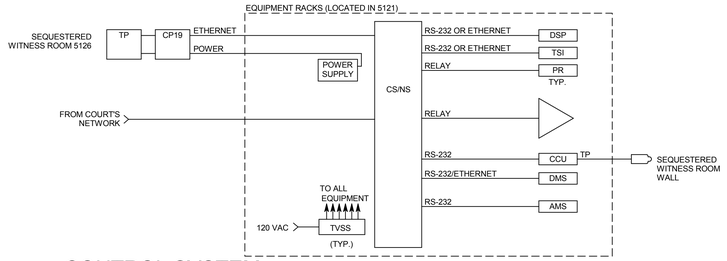
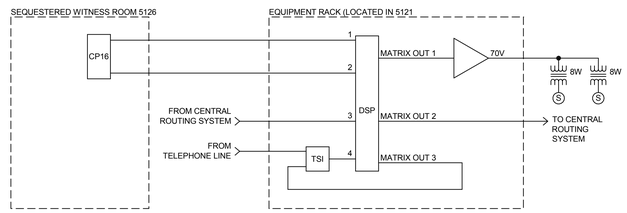


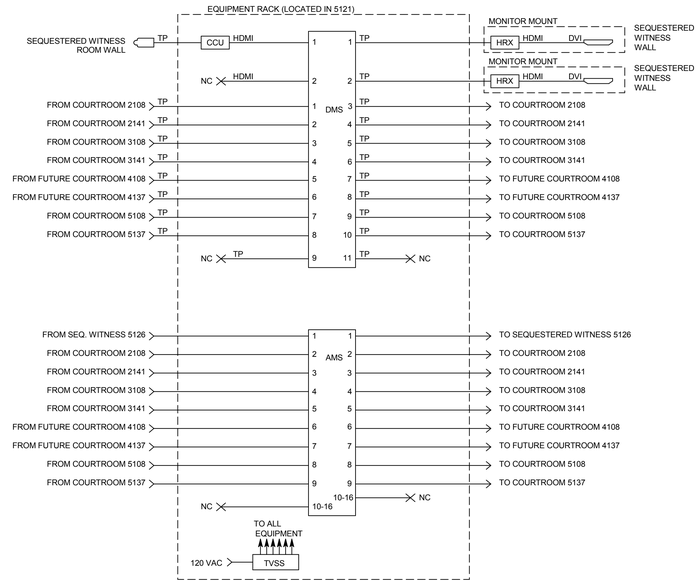
CONTROL SYSTEM SINGLE LINE DIAGRAM - SEQUESTERED WITNESS ROOM

D1 NO SCALE



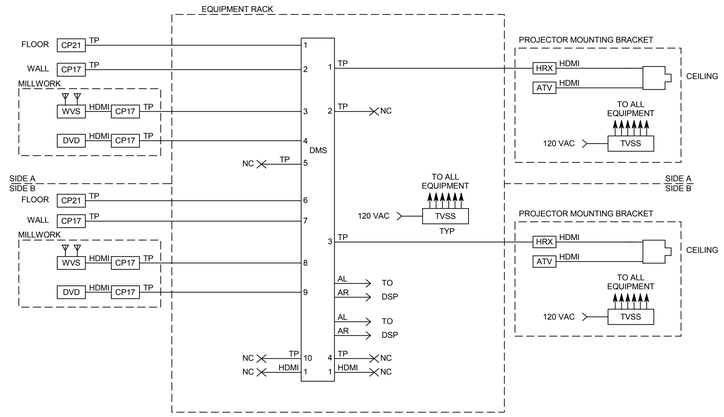
AUDIO SYSTEM SINGLE LINE DIAGRAM - SEQUESTERED WITNESS ROOM

C1 NO SCALE



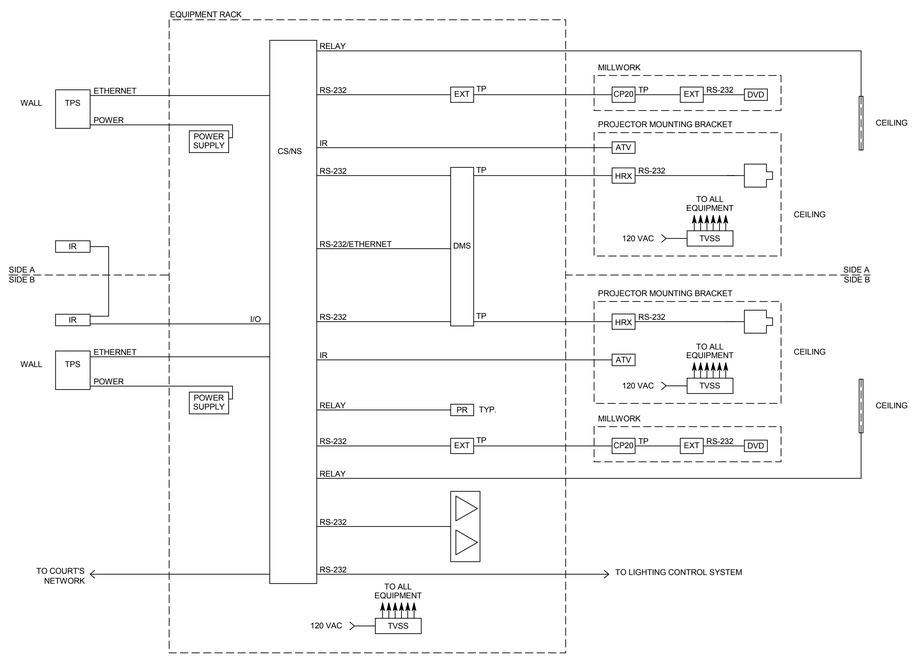
VIDEO SYSTEM SINGLE LINE DIAGRAM - SEQUESTERED WITNESS ROOM

C3 NO SCALE



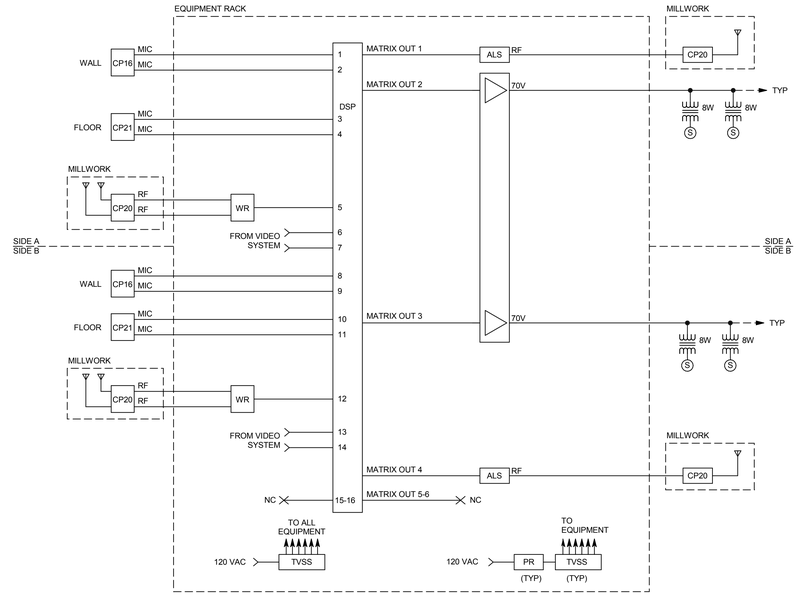
VIDEO SYSTEM SINGLE LINE DIAGRAM - COURT CONFERENCE ROOM 1124

C5 NO SCALE



CONTROL SYSTEM SINGLE LINE DIAGRAM - COURT CONFERENCE ROOM 1124

A1 NO SCALE



NOTE: FOR DRAWING CLARITY, SOME CONNECTION PANELS ARE SHOWN ON BOTH THE INPUT SIDE AND OUTPUT SIDE.

NC = NO CONNECTION

AUDIO SYSTEM SINGLE LINE DIAGRAM - COURT CONFERENCE ROOM 1124

A4 NO SCALE

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AV SYSTEM SINGLE LINE DIAGRAMS

TA603

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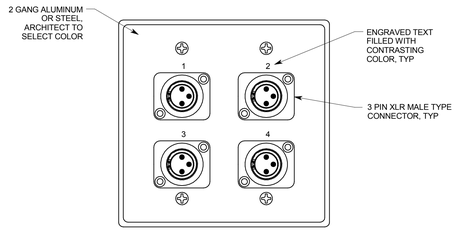
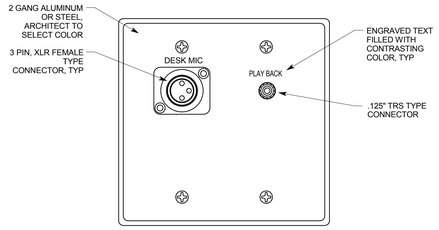


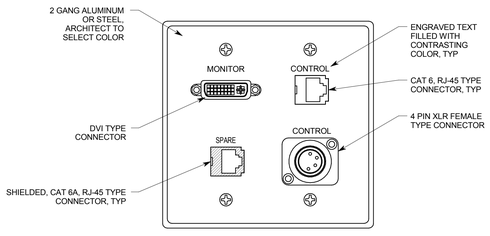
D1 (CRD) CONNECTION PANEL #8 DETAIL, CP8

NO SCALE



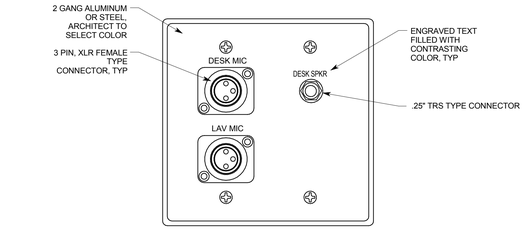
C1 (CRD) CONNECTION PANEL #7 DETAIL, CP7

NO SCALE



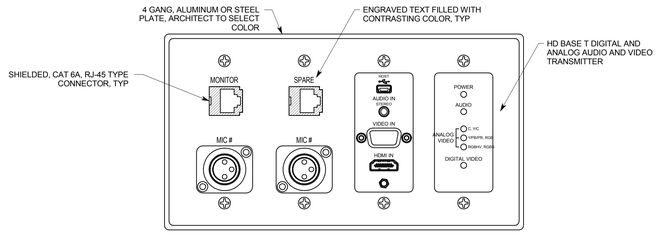
B1 (JUDGE, CRD) CONNECTION PANEL #6 DETAIL, CP6

NO SCALE



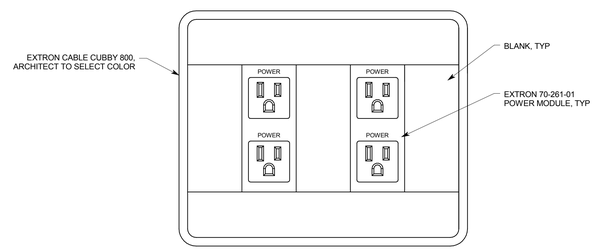
A1 (JUDGE) CONNECTION PANEL #5 DETAIL, CP5

NO SCALE



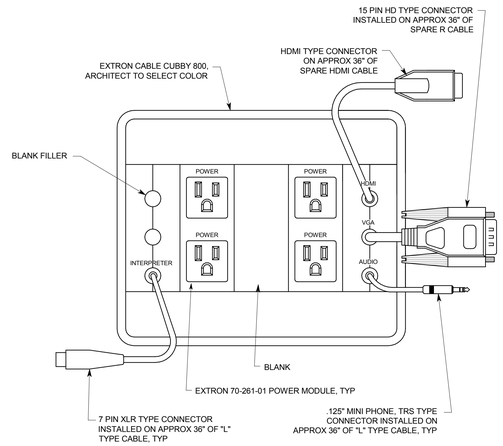
D3 (LECTERN) CONNECTION PANEL #4 DETAIL, CP4

NO SCALE



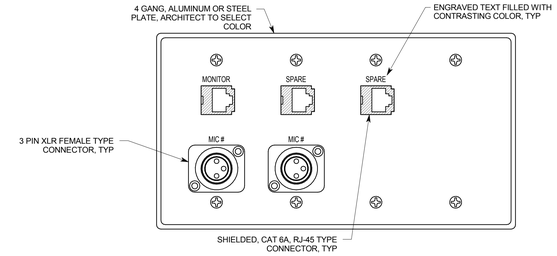
C3 (COUNSEL TABLE) CONNECTION PANEL #3C DETAIL, CP3C

NO SCALE



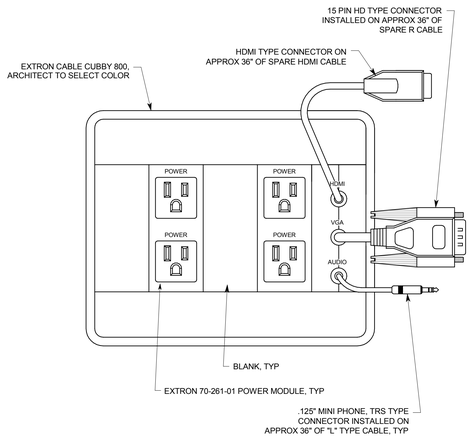
C5 (COUNSEL TABLE) CONNECTION PANEL #3A DETAIL, CP3A

NO SCALE



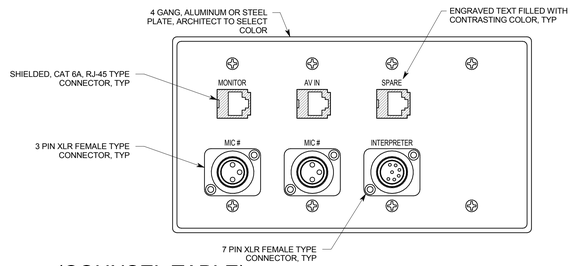
B5 (COUNSEL TABLE) CONNECTION PANEL #2 DETAIL, CP2

NO SCALE



A3 (COUNSEL TABLE) CONNECTION PANEL #3B DETAIL, CP3AB

NO SCALE



A5 (COUNSEL TABLE) CONNECTION PANEL #1 DETAIL, CP1

NO SCALE

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2013.8.15
STATE OF UTAH

SPECTRUM ENGINEERS

2nd District Juvenile Courthouse

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08284150
165 West 20th Street, Ogden, Utah
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AV SYSTEM CONNECTION PANEL DETAILS

TA701

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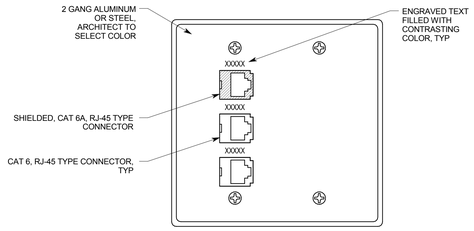
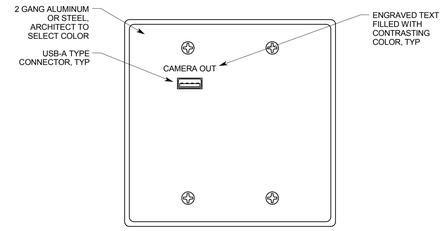


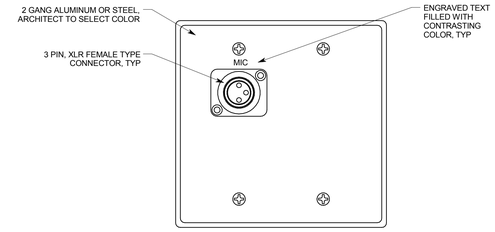
E1 CONNECTION PANEL #23 DETAIL, CP23

NO SCALE



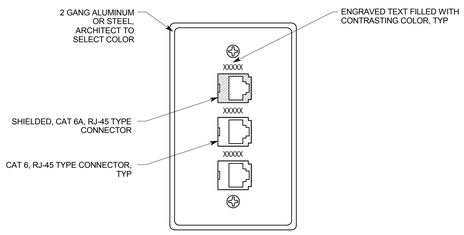
E3 CONNECTION PANEL #18 DETAIL, CP18

NO SCALE



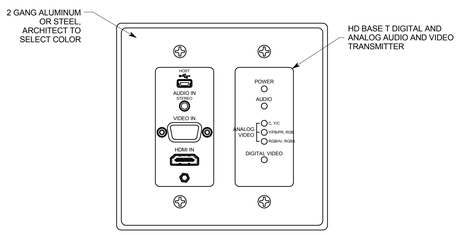
E5 (CHAMBERS) CONNECTION PANEL #13 DETAIL, CP13

NO SCALE



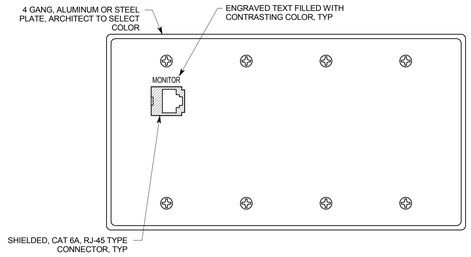
D1 CONNECTION PANEL #22 DETAIL, CP22

NO SCALE



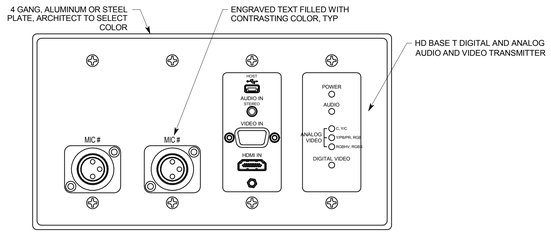
D3 CONNECTION PANEL #17 DETAIL, CP17

NO SCALE



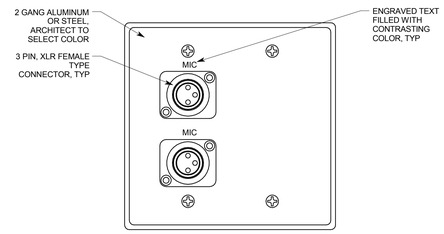
D5 (GALLERY) CONNECTION PANEL #12 DETAIL, CP12

NO SCALE



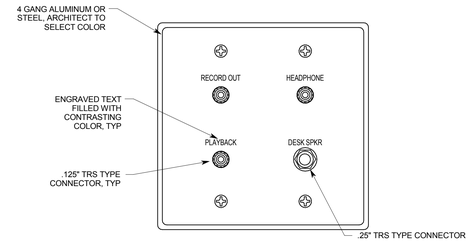
C1 CONNECTION PANEL #21 DETAIL, CP21

NO SCALE



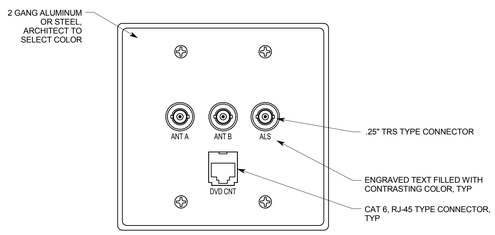
C3 CONNECTION PANEL #16 DETAIL, CP16

NO SCALE



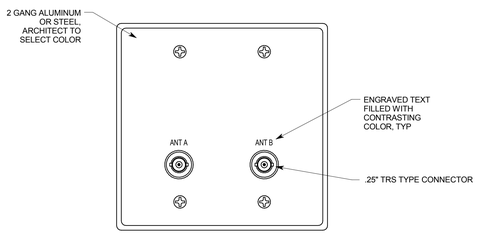
C5 REPORTER (LOCATED AT WITNESS BOX) CONNECTION PANEL #11 DETAIL, CP11

NO SCALE



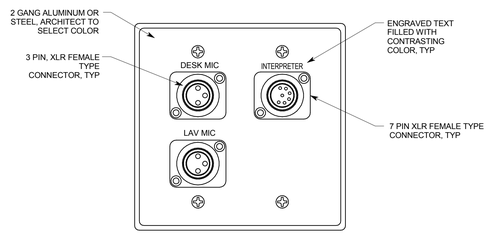
B1 CONNECTION PANEL #20 DETAIL, CP20

NO SCALE



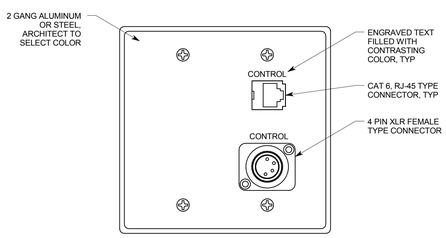
B3 (CRD) CONNECTION PANEL #15 DETAIL, CP15

NO SCALE



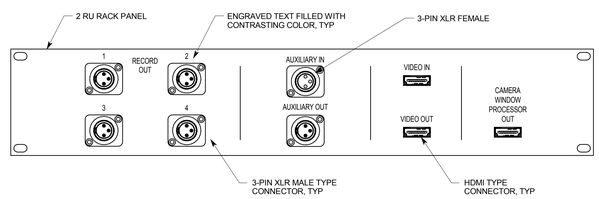
B5 (WITNESS) CONNECTION PANEL #10 DETAIL, CP10

NO SCALE



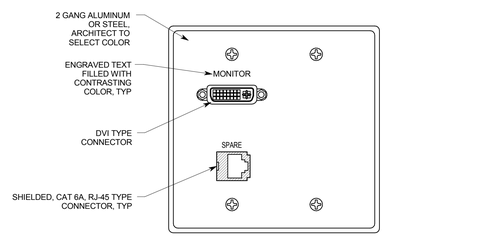
A1 (SEQUESTERED WITNESS) CONNECTION PANEL #19 DETAIL, CP19

NO SCALE



A3 (RACK) CONNECTION PANEL #14 DETAIL, CP14

NO SCALE



A5 (CLERK, WITNESS, REPORTER) CONNECTION PANEL #9 DETAIL, CP9

NO SCALE

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AV SYSTEM CONNECTION PANEL DETAILS

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