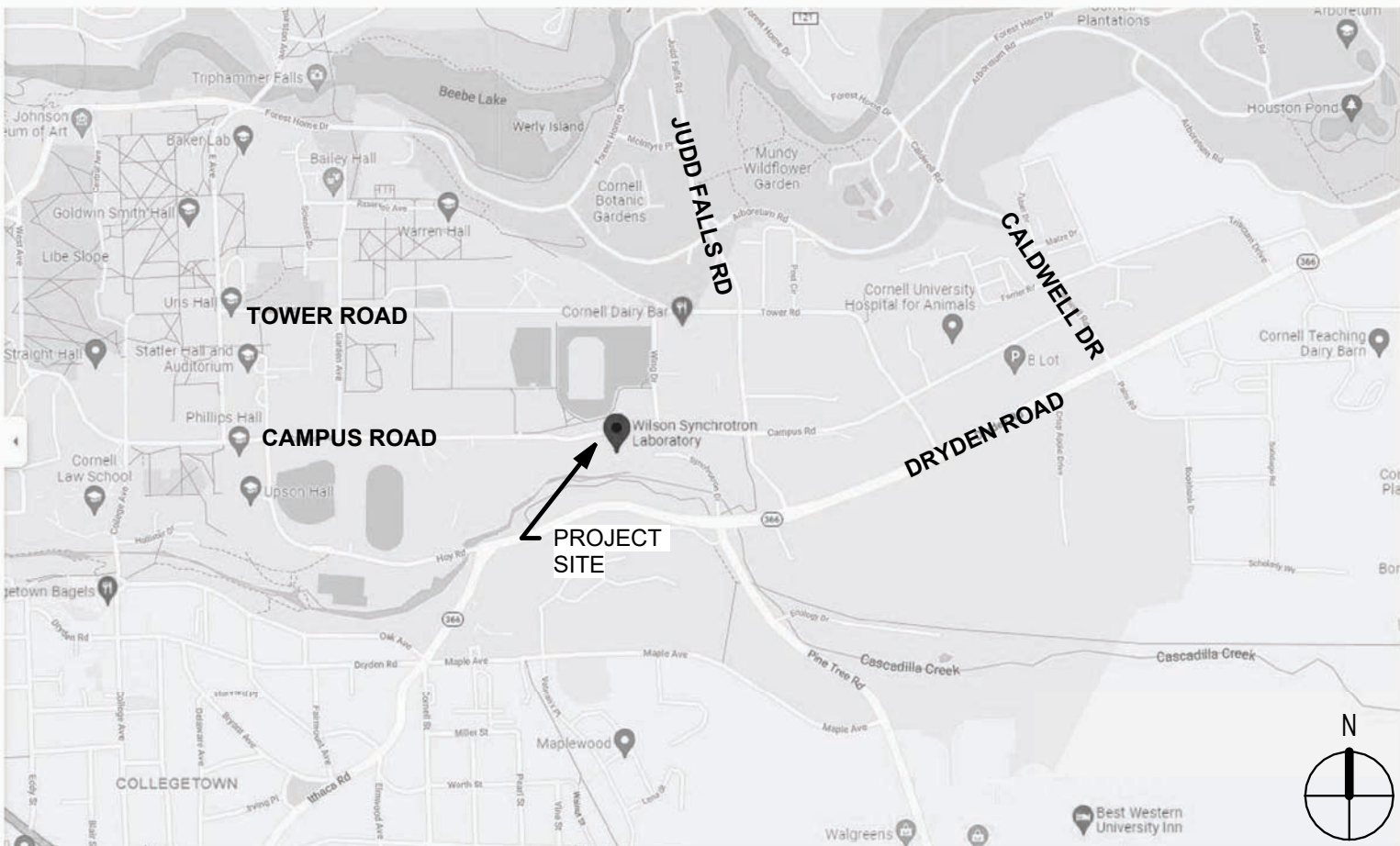


Beamline Enabling - Phase 3

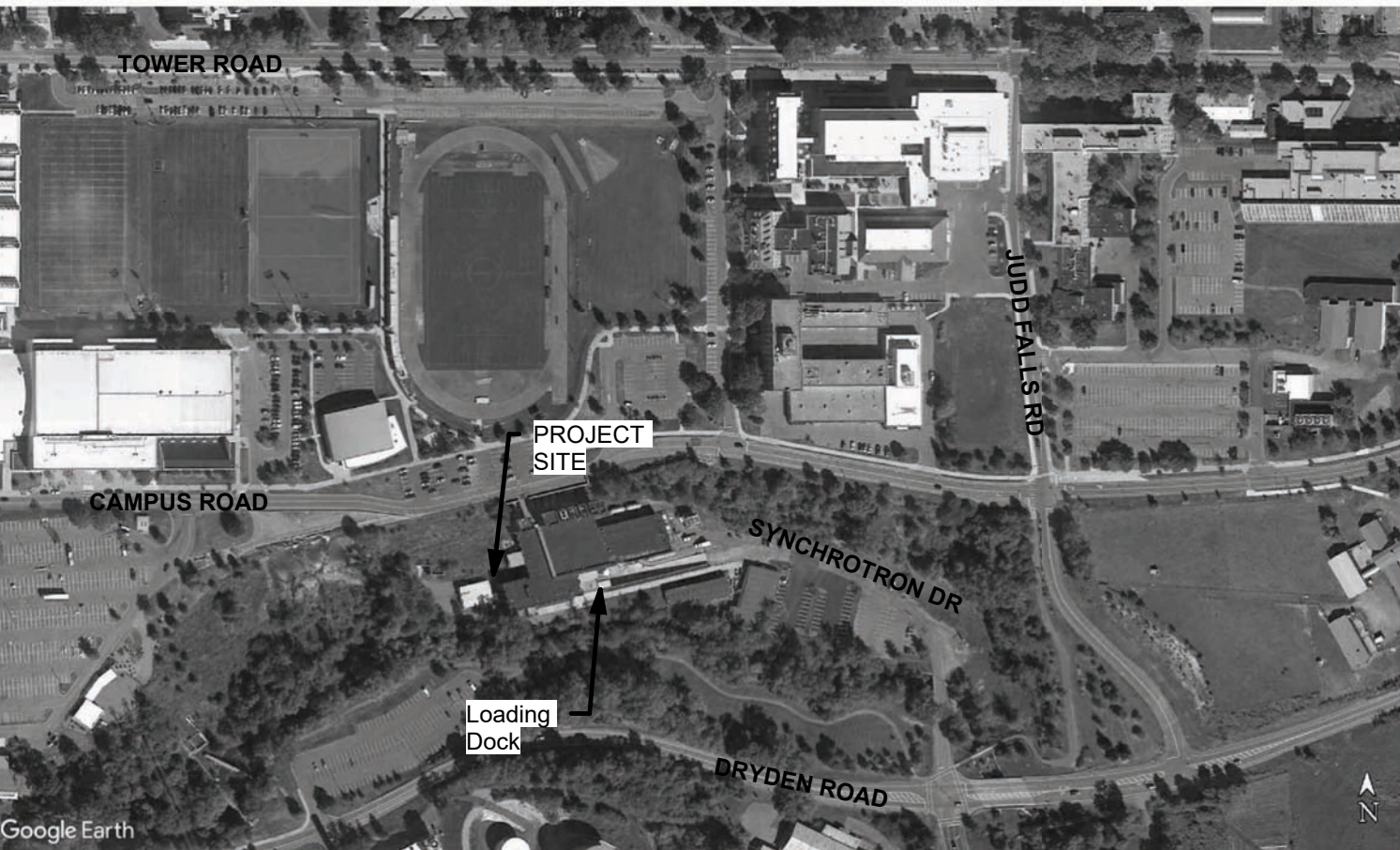
Construction Documents November 17, 2023

Synchrotron Drive
Ithaca, NY 14853

Project Number # 21198.02



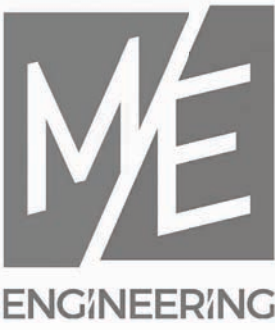
Regional Map



Location Map

DRAWING LIST

GENERAL	
G-000	COVER SHEET
G-001	CODE COMPLIANCE PLANS & DETAILS
STRUCTURAL	
S-001	STRUCTURAL GENERAL NOTES, FRAMING PLANS & DETAILS
ARCHITECTURAL	
A-000	GENERAL NOTES AND LEGENDS
A-110	FIRST FLOOR PLAN
A-111	SECOND FLOOR PLAN
A-420	ENLARGED PLAN & INT ELEVATIONS - PRIMARY PLATFORM
A-501	ENLARGED PLAN & DETAILS - BEAMLINE PENETRATION
FIRE PROTECTION	
FP-000	GENERAL NOTES & SYMBOL LIST - FIRE PROTECTION
FP-111	FIRST FLOOR PLAN - FIRE PROTECTION
FP-112	SECOND FLOOR PLAN - FIRE PROTECTION
PLUMBING	
P-000	GENERAL NOTES, SYMBOLS LIST, DETAILS & SCHEDULES - PLUMBING
P-111	FIRST FLOOR PLAN - PLUMBING
P-112	SECOND FLOOR PLAN - PLUMBING
MECHANICAL	
H-000	GENERAL NOTES AND SYMBOLS LIST - HVAC
H-111	FIRST FLOOR PLAN - PIPING
H-112	SECOND FLOOR PLAN - PIPING
H-200	SCHEMATICS, DETAILS AND SCHEDULES - HVAC
ELECTRICAL	
E-000	GENERAL NOTES & SYMBOLS LIST - ELECTRICAL
E-111	FIRST FLOOR PLAN - POWER
E-112	SECOND FLOOR PLAN - POWER
E-121	FIRST FLOOR PLANS - LIGHTING
E-131	FIRST FLOOR PLAN - FIRE ALARM
E-141	FIRST FLOOR PLAN - CABLE TRAY
E-142	SECOND FLOOR PLAN - CABLE TRAY
E-200	DETAIL AND ENLARGED PLANS #1
E-201	DETAIL AND ENLARGED PLANS #2
E-202	DETAIL AND ENLARGED PLANS #3
E-300	POWER ONE-LINE DIAGRAM
E-301	FIRE ALARM RISER DIAGRAM
E-400	DETAILS - ELECTRICAL
E-500	SCHEDULES - ELECTRICAL



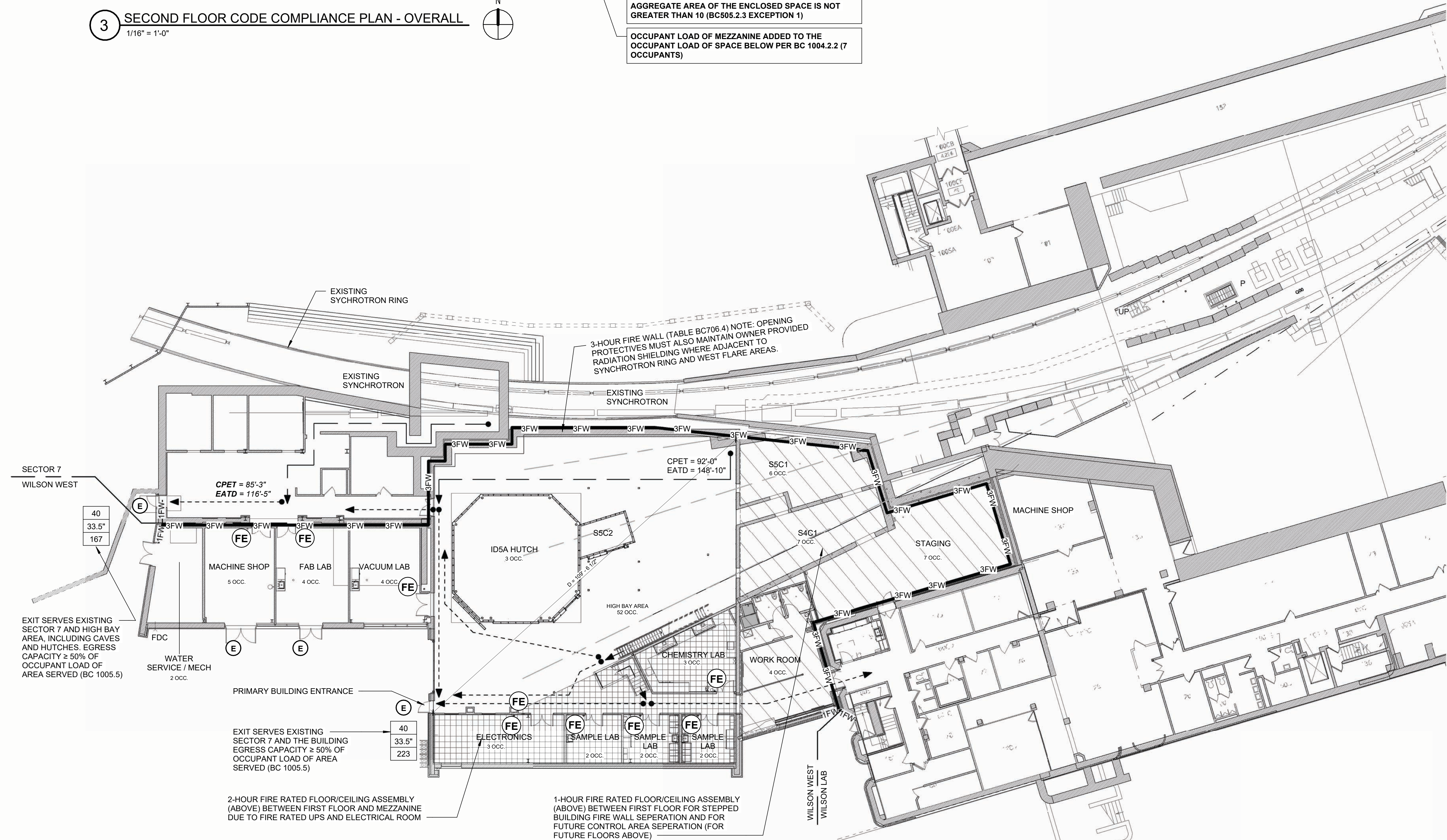
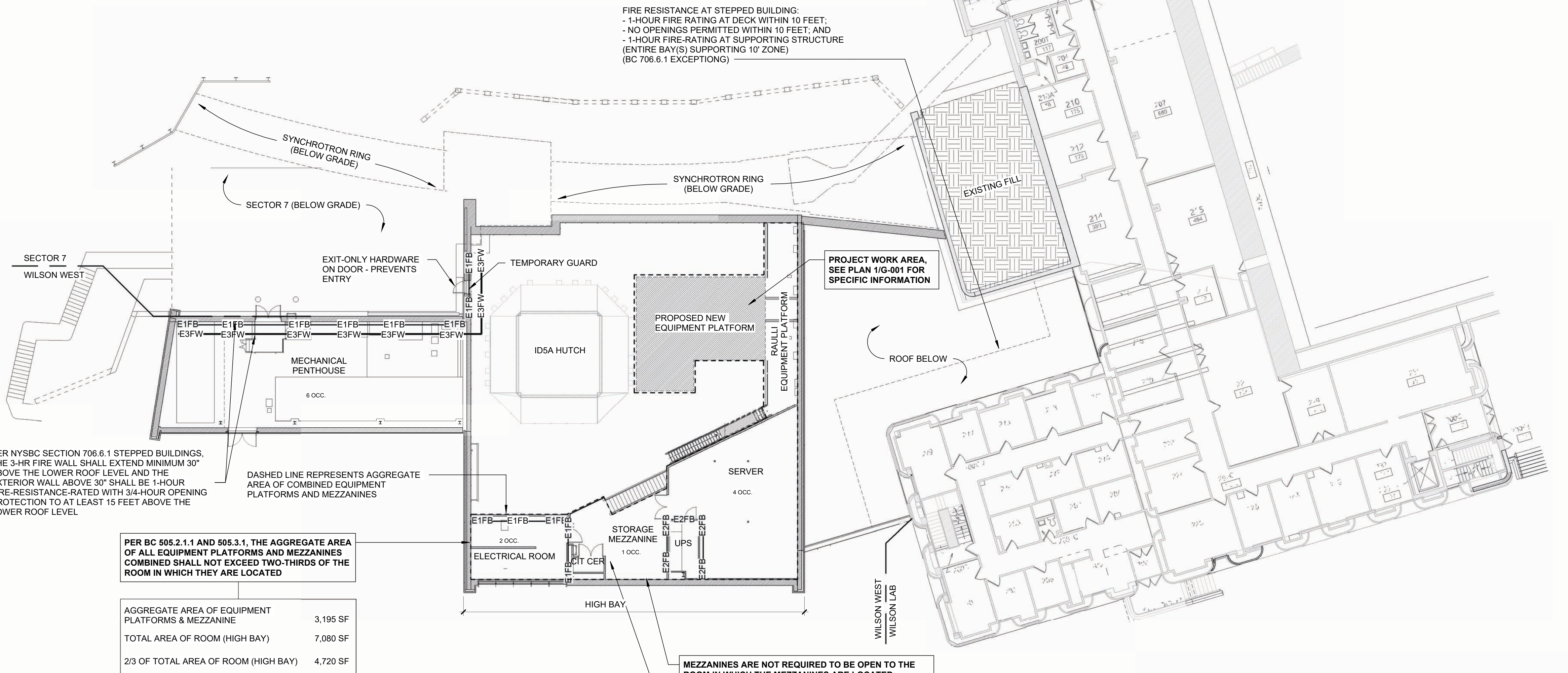
MEP Consultant:

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585 288 5590



Architect

SWBR
387 East Main Street
Rochester, NY 14604
585 232 8300
rochester@swbr.com



FIRE-RESISTANT CONSTRUCTION LEGEND		
DESCRIPTION	PLAN DESIGNATION	
FIRE WALL	2FW	2FW
	3FW	3FW
FIRE BARRIER (HORIZONTAL EXIT, INCIDENTAL USE/HAZARD, OCCUPANCY SEPARATION)	1FB	1FB
	2FB	2FB
SHAFT ENCLOSURE (FIRE BARRIER AT STAIR OR MECHANICAL SHAFT)	1SE	1SE
	2SE	2SE
FIRE PARTITION (CORRIDOR WALL)	1FP	1FP
PRESUMED EXISTING FIRE-RATED ASSEMBLIES	E	E
	PREFIX E. SEE NOTE 1	

NOTES:

- WHEN THE PREFIX "E" IS INDICATED ON THE CODE COMPLIANCE FLOOR PLAN, IT DENOTES EXISTING WALL CONSTRUCTION WITH A PRESUMED FIRE-RESISTANCE RATING OF THE TYPE INDICATED, AS SHOWN ON RECORD DRAWINGS PROVIDED BY THE OWNER. THE ACTUAL CONDITIONS IN THE FIELD HAVE NOT BEEN VERIFIED TO CONFIRM COMPLIANCE. NEW PENETRATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL LISTED THROUGH-PENETRATION FIRE STOP SYSTEMS FOR THE HOURLY RATING INDICATED.
- FIRE-RESISTANT WALL CONSTRUCTION SHALL BE PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING AS FOLLOWS:
 - LOCATED IN ACCESSIBLE CONCEALED FLOOR, FLOOR-CEILING OR ATTIC SPACE
 - INCLUDE LETTERING NO LESS THAN 3" IN HEIGHT WITH A MINIMUM 3/8" STROKE IN A CONTRASTING COLOR
 - LOCATED WITHIN 15 FEET OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30 FEET MEASURED HORIZONTALLY
 - WORKING SHALL IDENTIFY THE TYPE OF FIRE-RESISTANT WALL CONSTRUCTION, THE HOURLY FIRE-RATING AND INCLUDE THE WORDING: "PROTECT ALL OPENINGS AND PENETRATIONS"
 - AREAS EXPOSED TO VIEWINGS BY THE PUBLIC SHALL BE EXEMPT FROM STENCILING
- PENETRATIONS THROUGH FIRE-RESISTANT CONSTRUCTION SHALL BE BUILT IN ACCORDANCE WITH U.L. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE CODE COMPLIANCE PLAN FOR FIRE-RATED PARTITIONS LOCATIONS.

CODE COMPLIANCE PLAN GENERAL NOTES

- THE FOLLOWING BUILDING AND ACCESSIBILITY CODES AND STANDARDS ARE APPLICABLE TO THIS PROJECT:
 - 2020 BUILDING CODE OF NEW YORK STATE
 - 2020 EXISTING BUILDING CODE OF NEW YORK STATE
 - 2020 FIRE CODE OF NEW YORK STATE
 - 2020 PLUMBING CODE OF NEW YORK STATE
 - 2020 MECHANICAL CODE OF NEW YORK STATE
 - 2020 FUEL GAS CODE OF NEW YORK STATE
 - 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE
 - NATIONAL ELECTRICAL CODE, NFPA 70, - 2017 EDITION AS REFERENCED BY THE NYS CODES ABOVE
 - ICC A117.1, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES - 2009 EDITION AS REFERENCED BY THE NYS CODES ABOVE
 - U.S. DEPARTMENT OF JUSTICE, 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN
- REFERENCE FCNYS CHAPTER 33 FOR FIRE SAFETY PROVISIONS DURING CONSTRUCTION, DEMOLITION.

EGRESS TRAVEL DISTANCE:

MAXIMUM ALLOWABLE COMMON PATH OF EGRESS TRAVEL (CPET) DISTANCE: 100 FT
MAXIMUM ALLOWABLE EGRESS ACCESS TRAVEL DISTANCE: 300 FT

CODE COMPLIANCE PLAN LEGEND

INDICATES FIRE-RESISTANT WALL CONSTRUCTION OF VARIOUS TYPES AND HOURLY RATINGS. SEE FIRE-RESISTANT CONSTRUCTION WALL LEGEND.
POINT OF ORIGIN DECISION POINT COMMON PATH OF EGRESS TRAVEL CPET = X'-X"
EATD = X'-X"
EGRESS ACCESS TRAVEL DISTANCE EATD = X'-X"
EXIT LOAD CLEAR EXIT WIDTH (INCHES) EXIT CAPACITY (OCCUPANTS)
EXIT, MAINTAIN OPERATIONAL AT ALL TIMES DURING CONSTRUCTION
FIRE EXTINGUISHER
ACCESSIBLE ENTRANCE, EXIT OR TOILET ROOM

CODE COMPLIANCE GENERAL NOTES

CODE COMPLIANCE DRAWINGS ARE INTENDED TO ASSIST IN THE PERMIT PROCESS AND TO PROVIDE GENERAL INFORMATION TO THE CONTRACTORS WITH RESPECT TO LIFE-SAFETY PROVISIONS OF THE PROJECT. THESE DRAWINGS SHOULD NOT BE USED TO DETERMINE THE SCOPE OF OTHER WORK SPECIFICALLY INDICATED ELSEWHERE IN THE DOCUMENTS. THESE DRAWINGS SHALL BE USED FOR THE LOCATIONS OF FIRE-RESISTANT RATED WALL CONSTRUCTION.

GENERAL FIRE RESISTANCE RATING SCHEDULE FOR OR 7 AND WILSON WEST BUILDING ELEMENTS

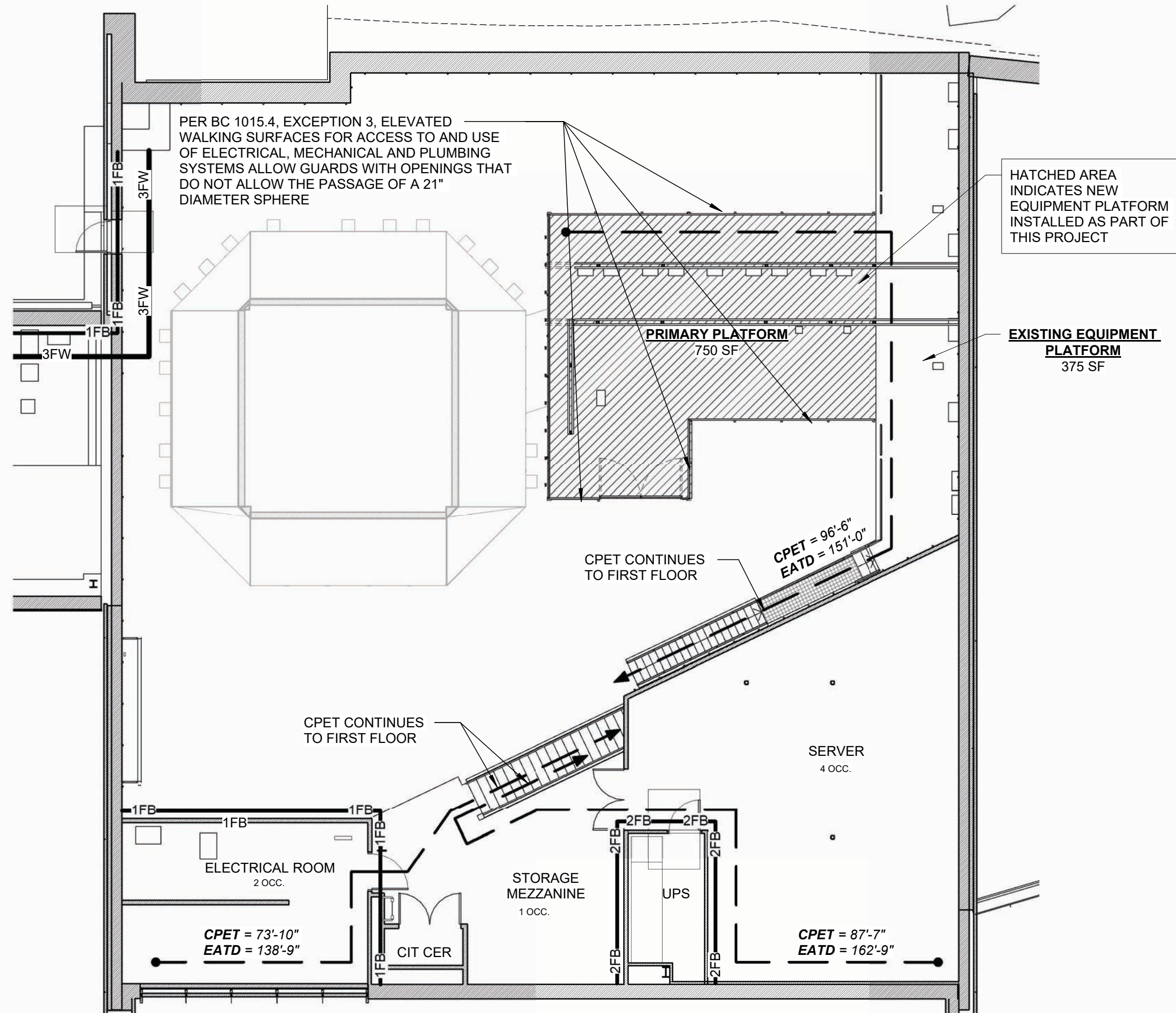
CONSTRUCTION CLASSIFICATION TYPE IIB.

DESCRIPTION	FIRE RESISTANCE RATING
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS AND TRUSSES	0
INTERIOR AND EXTERIOR BEARING WALLS	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	0
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	0

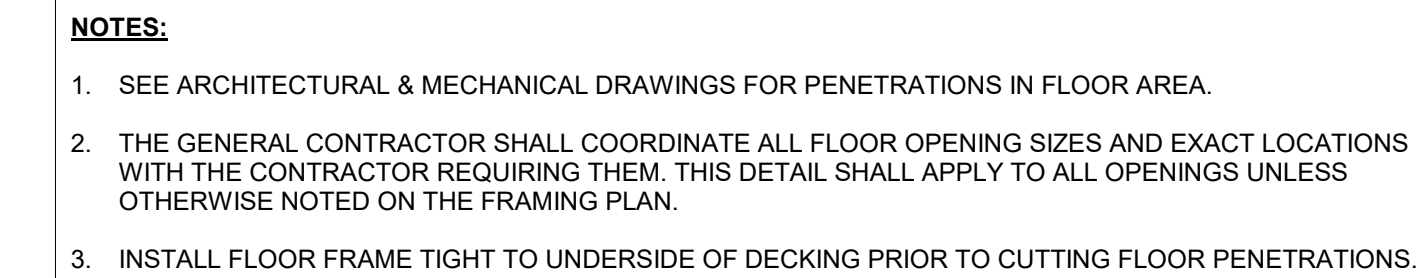
FIRE RESISTANCE RATING SCHEDULE FOR USE IN WILSON LAB

CONSTRUCTION CLASSIFICATION TYPE IIB.

DESCRIPTION	FIRE RESISTANCE RATING
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS AND TRUSSES	2 HR
INTERIOR AND EXTERIOR BEARING WALLS	2 HR
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2 HR
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1 HR



Revisions



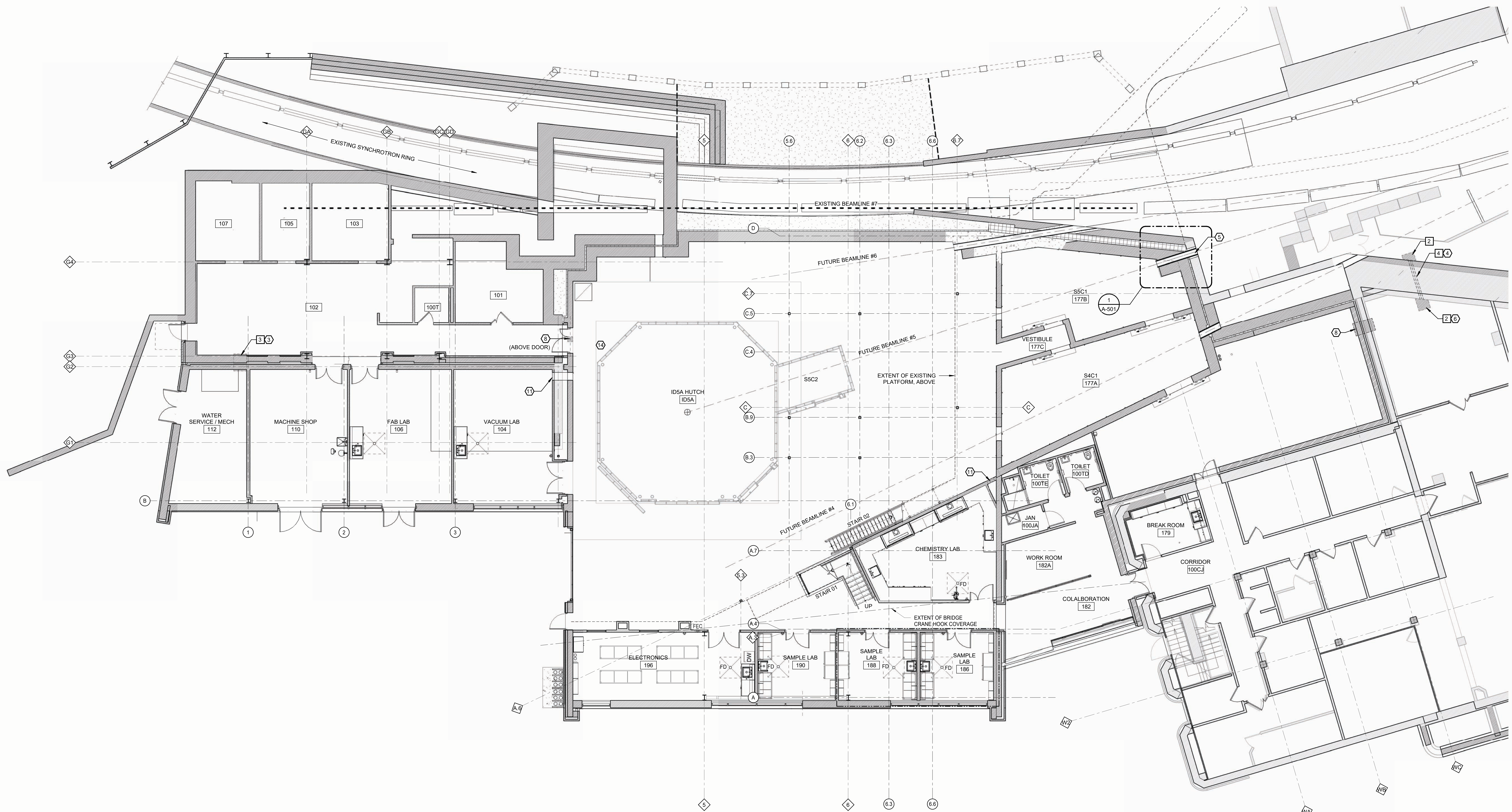
November 17, 2023
Construction Documents

CONSTRUCTION KEYNOTES		*NOTED AS <input type="radio"/> ON PLAN
NO.	DESCRIPTION	
1	SURFACE MOUNTED REMOVABLE RAILING (TYPE 2)	
2	6" Ø SURFACE MOUNTED UNISTRUT (P1000 OR EQUIVALENT) @ 4'-3" Ø C.C. HORIZ. TOP OF UNISTRUT TO 1' HIGHER W/ BOTTOM OF HORIZONTAL BATTEN BETWEEN EXISTING LEAF PANEL AND SLOPPED LEAF PANEL. UNISTRUT LENGTH TO BE MODIFIED (GAPPED) TO ACCOMMODATE CONT LEAF BATTENS TYPE.	
3	PROVIDE PENETRATION FIRESTOPPING AT EXISTING PARTITION FOR SCHEDULED UTILITY - COORDINATE WITH P.P. H & E-SERIES DRAWINGS	
4	PATCH PORTION OF EXISTING FIRESTOP SYSTEM BELOW EXISTING FOUNDATION WALL (WITHIN TRENCH) AROUND SCHEDULED UTILITY - COORDINATE WITH P.P. H & E-SERIES DRAWINGS	
5	PROVIDE UL LISTED PENETRATION FIRESTOPPING ASSEMBLY AT BEAMLINE PENETRATION - REFER TO A-501	
6	MODIFY & RE-INSTALL SALVAGED TRENCH COVER PLATE	
7	PATCH PORTIONS OF EXISTING UN-TOPPED METAL DECK FLOOR AT GUARDRAIL REMOVAL LOCATIONS. T	
8	PROVIDE PENETRATION FIRESTOPPING BETWEEN EXISTING SLEEVE AND SCHEDULED UTILITY BEING ROUTED - COORDINATE WITH P.P. H & E-SERIES DRAWINGS	
9	USE 1" SUPPORT FRAME W/ INTERMEDIATE HORIZONTAL UNISTRUT FRAMING (P1001 OR EQUIVALENT) SPACING OF INTERMEDIATE UNISTRUT FRAMING TO BE BASED ON UTILITIES BEING SUPPORTED (ASSUME 3 LBS/LF. FOR CABLE TRAY, 12 LBS/LF. FOR MECHANICAL PIPING, 3 LBS/LF. FOR CONDUCTIVE PROTECTIVE SHEATHING OR 5 C.F. FOR CONDUITS) - REFER TO S-SERIES DRAWINGS	
10	SURFACE MOUNTED RAILING (TYPE 1)	
11	FILL ANNULAR SPACE BETWEEN EXISTING SLEEVE & NEW PENETRATION TO PREVENT THE PASSAGE OF SMOKE	
12	OPENING THROUGH PLATFORM SYSTEM FOR SCHEDULED MEP/ OWNER FURNISHED UTILITY ROUTING	
13	ACCESS SWING GATE W/ SPRING-LOADED BARREL BOLT LATCH AT BOTTOM OF EACH LEAF & INTERLOCKING LEAF HARDWARE	
14	REMOVE SOUTHERN PORTION OF SALVAGED GUARDRAIL - UTILIZE EXISTING ANCHOR LOCATION TO THE NORTH	

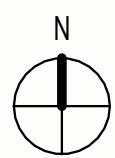
DEMOLITION KEYNOTES	
	<i>*NOTED AS</i> <input type="checkbox"/> <i>ON PLAN</i>
NO.	DESCRIPTION
1	REMOVE PORTION OF EXISTING GUARDRAIL AND ASSOCIATED ANCHORING ACCESSORIES TO ENABLE INSTALLATION OF STRUCTURAL STEEL FRAMING - REFER TO S-SERIES DRAWINGS
2	REMOVE PORTION OF EXISTING GUARDRAIL AND ASSOCIATED ANCHORING ACCESSORIES TO ENABLE INSTALLATION OF STRUCTURAL STEEL FRAMING, SALVAGE GUARDRAIL FOR RE-INSTALLATION IN NEW LOCATION - REFER TO S-SERIES DRAWINGS
3	PROVIDE CORE THROUGH EXISTING CONSTRUCTION TO ACCOMMODATE MECHANICAL PIPING. EXISTING CONSTRUCTION IS ASSUMED TO BE (1) 12" CMU PARTITION AND (1) 6" CMU PARTITION WALL FACE BRICK & METAL STUD FURNISH WITH GYP. BD. (OVERALL THICKNESS IS APPROX. 2'-10") - REFER TO S-SERIES DRAWINGS
	REMOVE PORTION OF EXISTING FIRESTOP SYSTEM (LOOSE-LAP FIRESTOP PILLOWS) TO ACCOMMODATE MECHANICAL PIPING. INSTALL FIRESTOPPING UPON COMPLETION OF NEW WORK. REFER TO H-SERIES DRAWINGS.

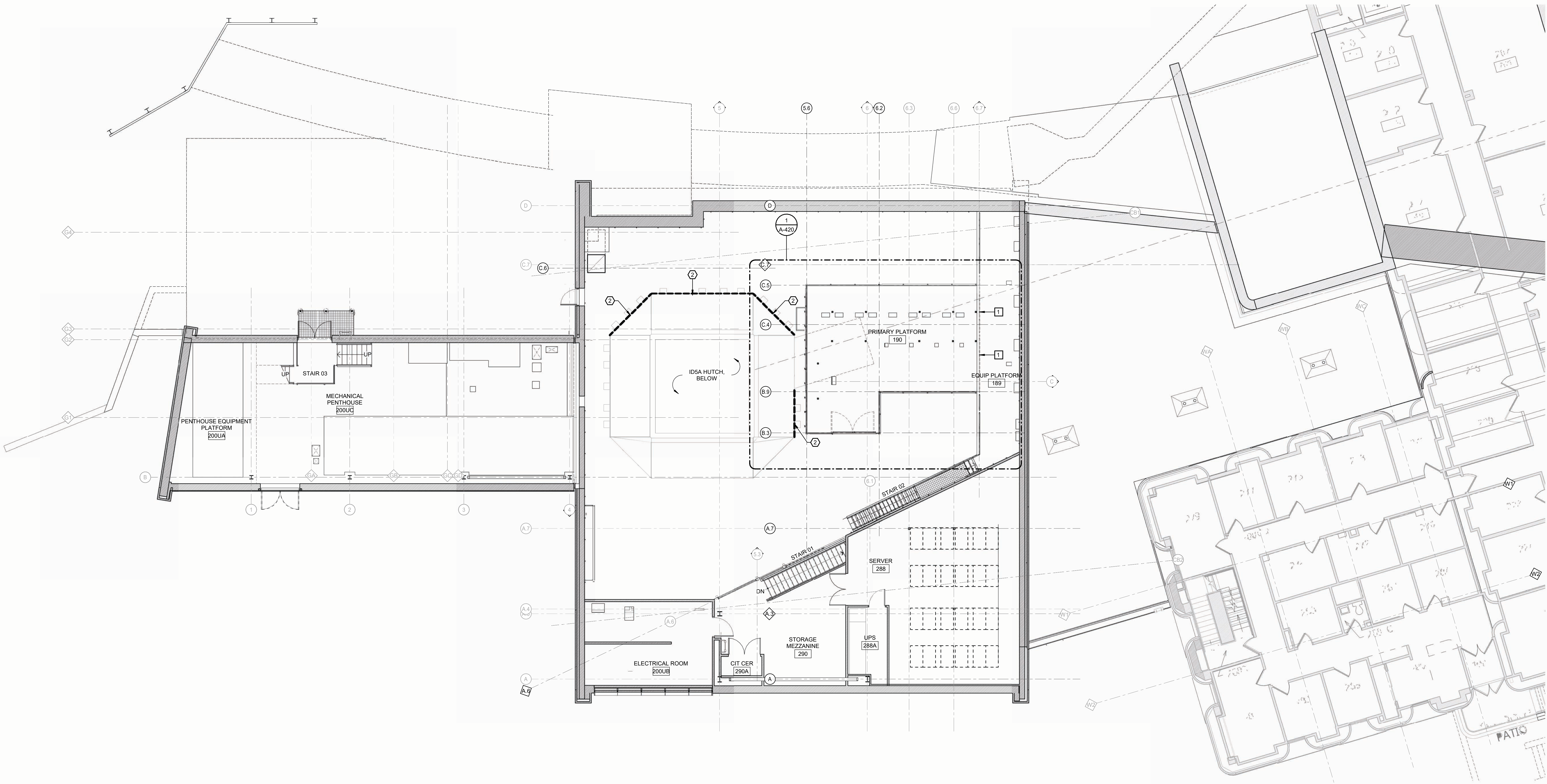
GENERAL NOTE:

SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO ID5A HUTCH AND/ OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION



1 FIRST FLOOR PLAN - OVERALL
1/8" = 1'-0"



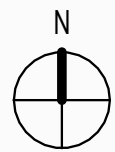


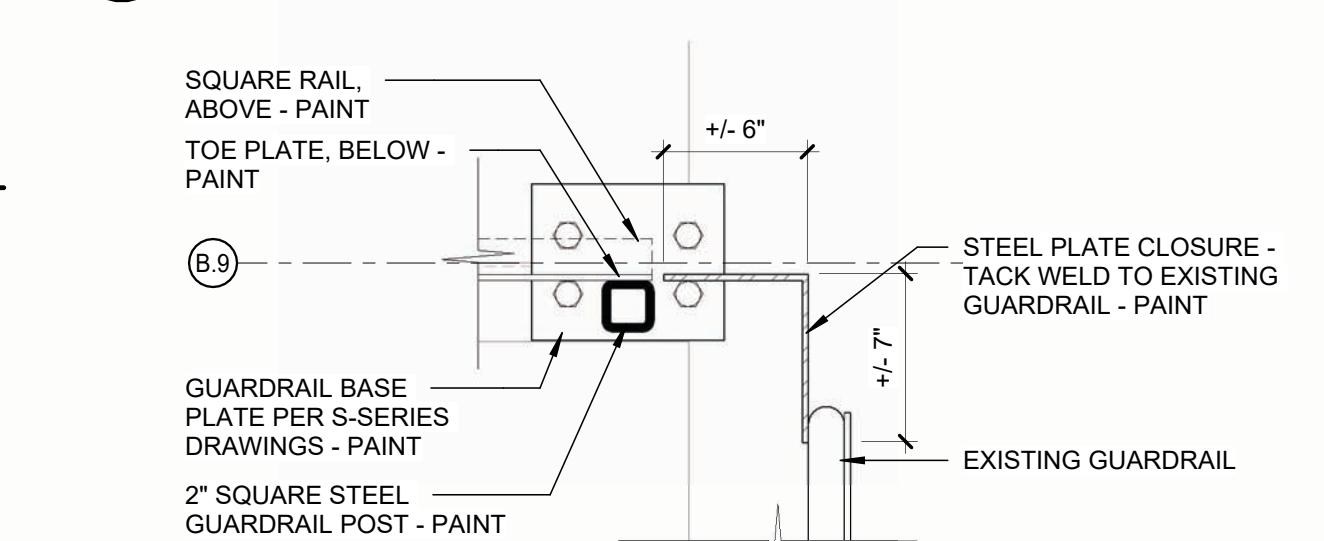
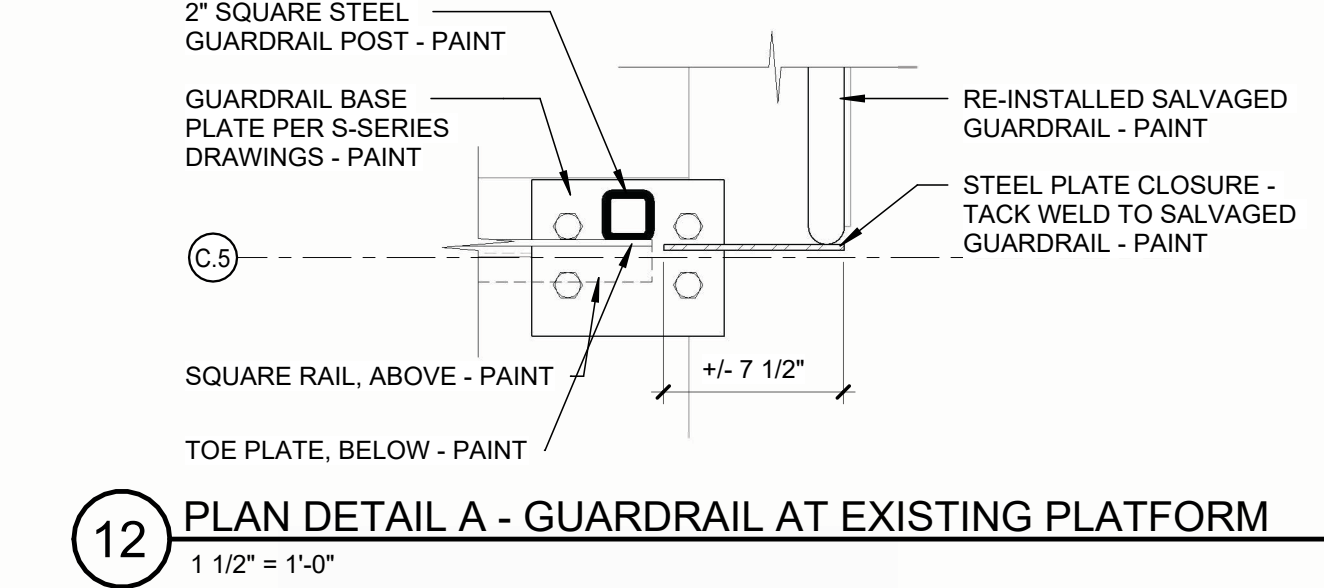
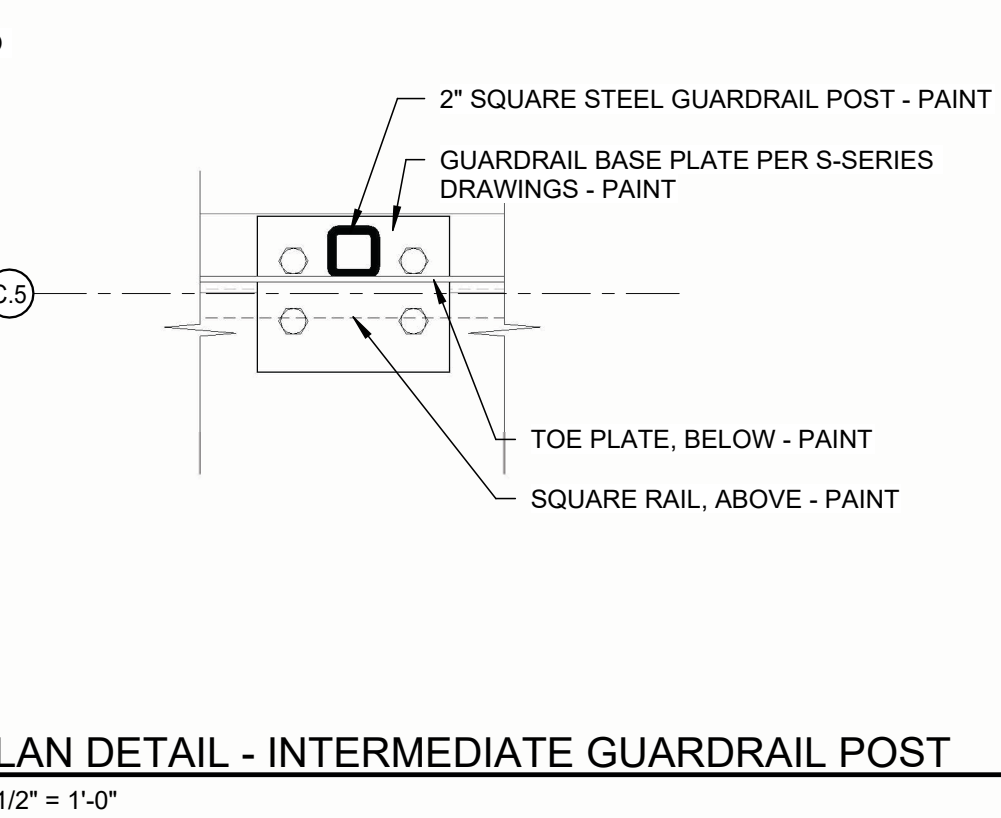
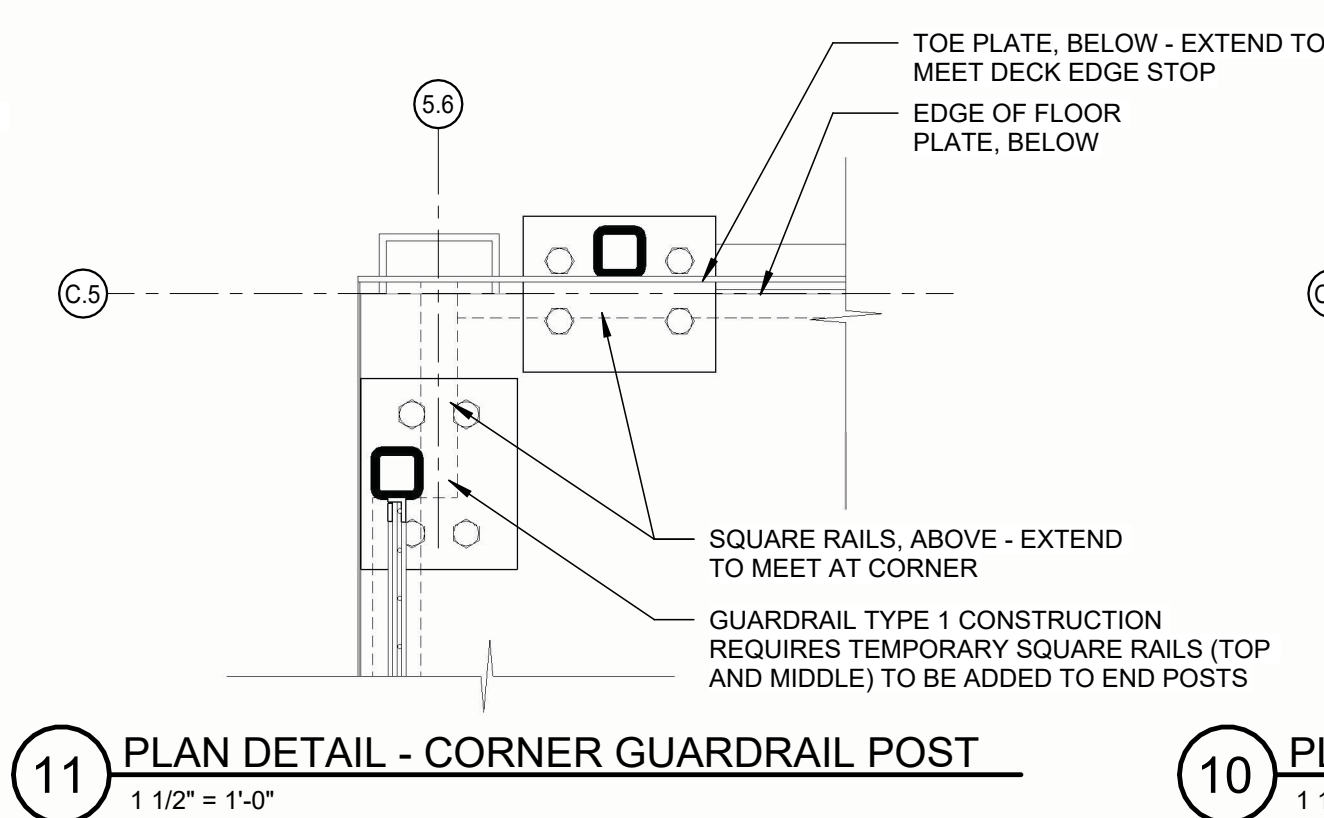
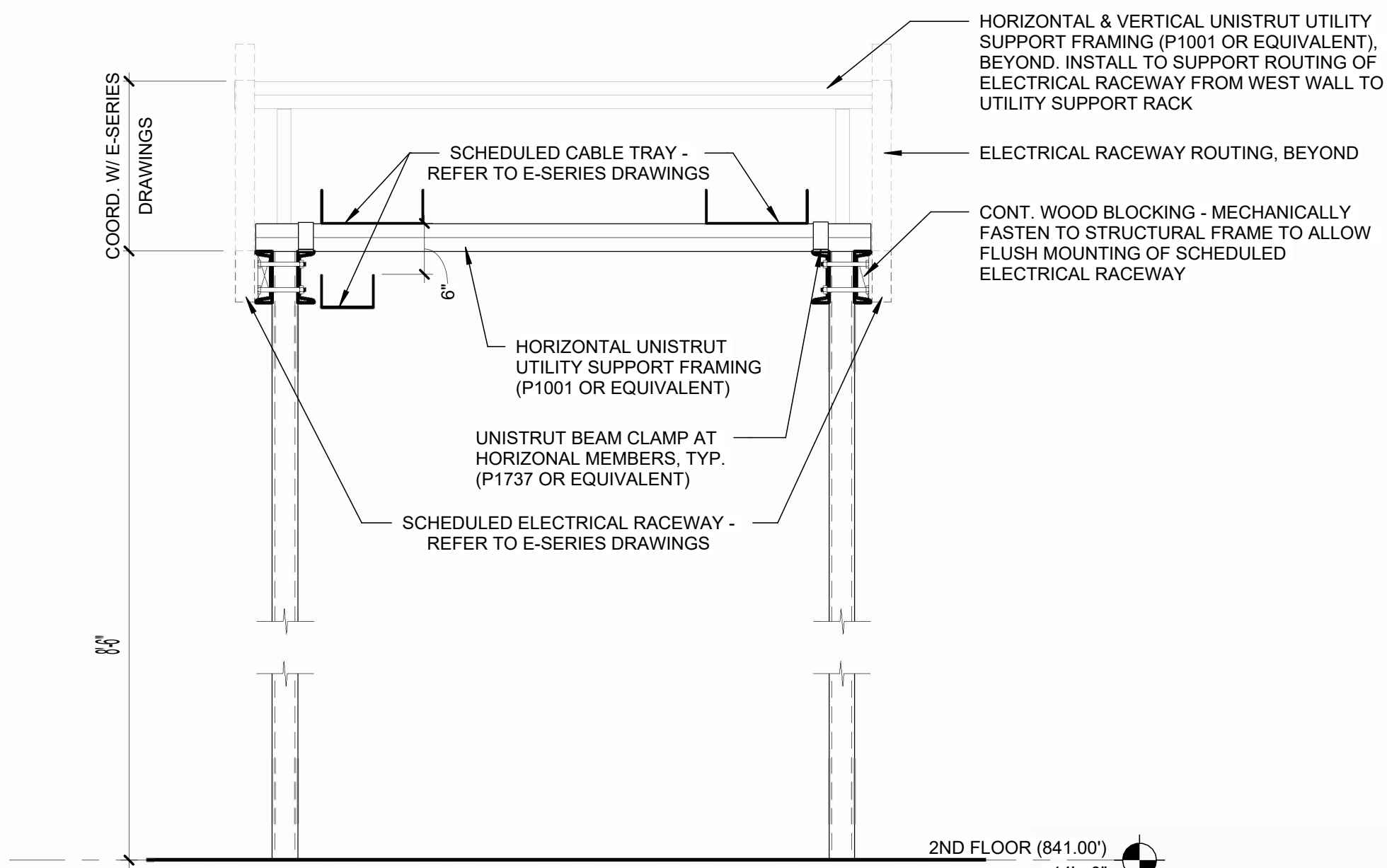
CONSTRUCTION KEYNOTES	
NO.	DESCRIPTION
1	SURFACE MOUNTED REMOVABLE RAILING (TYPE 2)
2	8'-0" SURFACE MOUNTED UNISTRUT (P1000 OR EQUIVALENT) @ +/- 3'-6" O.C. HORIZ. TOP OF UNISTRUT TO ALIGN W/ BOTTOM OF HORIZONTAL BATTEN BETWEEN VERTICAL LEAD PANEL AND SLOPPED LEAD PANEL. UNISTRUT LENGTH TO BE MODIFIED (GAPPED) TO ACCOMMODATE CONT. LEAD BATTENS TYP.
3	PROVIDE PENETRATION FIRESTOPPING AT EXISTING PARTITION FOR SCHEDULED UTILITY - COORDINATE WITH P, FP, H & E-SERIES DRAWINGS
4	PATCH PORTION OF EXISTING FIRESTOP SYSTEM BELOW EXISTING FOUNDATION WALL (WITHIN TRENCH) AROUND SCHEDULED UTILITY - COORDINATE WITH P, FP, H & E-SERIES DRAWINGS
5	PROVIDE UL LISTED PENETRATION FIRESTOPPING ASSEMBLY AT BEAMLINE PENETRATION - REFER TO A-501
6	MODIFY & RE-INSTALL SALVAGED TRENCH COVER PLATE
7	PATCH PORTIONS OF EXISTING UN-TOPPED METAL DECK FLOOR AT GUARDRAIL REMOVAL LOCATIONS, TYP.
8	PROVIDE PENETRATION FIRESTOPPING BETWEEN EXISTING SLEEVE AND SCHEDULED UTILITY BEING ROUTED - COORDINATE WITH P, FP, H & E-SERIES DRAWINGS
9	UTILITY SUPPORT FRAME W/ INTERMEDIATE HORIZONTAL UNISTRUT FRAMING (P1001 OR EQUIVALENT) SPACING OF INTERMEDIATE UNISTRUT FRAMING TO BE BASED ON UTILITIES BEING SUPPORTED (ASSUME 30 LBS/LF FOR CABLE TRAY, 12 LBS/LF FOR MECHANICAL PIPING, 3 LBS/LF FOR FIRE PROTECTION PIPING & 3 LBS/LF FOR CONDUITS) - REFER TO S-SERIES DRAWINGS
10	SURFACE MOUNTED RAILING (TYPE 1)
11	FILL ANNULAR SPACE BETWEEN EXISTING SLEEVE & NEW PENETRATION TO PREVENT THE PASSAGE OF SMOKE
12	OPENING THROUGH PLATFORM SYSTEM FOR SCHEDULED MEP/ OWNER FURNISHED UTILITY ROUTING
13	ACCESS SWING GATE W/ SPRING-LOADED BARREL BOLT LATCH AT BOTTOM OF EACH LEAF & INTERLOCKING LEAF HARDWARE
14	MODIFY & RE-INSTALL PORTION OF SALVAGED GUARDRAIL - UTILIZE EXISTING ANCHOR LOCATION TO THE NORTH

DEMOLITION KEYNOTES	
NO.	DESCRIPTION
1	REMOVE PORTION OF EXISTING GUARDRAIL AND ASSOCIATED ANCHORING ACCESSORIES TO ENABLE INSTALLATION OF STRUCTURAL STEEL FRAMING - REFER TO S-SERIES DRAWINGS
2	REMOVE PORTION OF EXISTING GUARDRAIL AND ASSOCIATED ANCHORING ACCESSORIES TO ENABLE INSTALLATION OF STRUCTURAL STEEL FRAMING. SALVAGE GUARDRAIL FOR RE-INSTALLATION IN NEW LOCATION - REFER TO S-SERIES DRAWINGS
3	PROVIDE CORE THROUGH EXISTING CONSTRUCTION TO ACCOMMODATE MECHANICAL PIPING. EXISTING CONSTRUCTION IS ASSUMED TO BE (1) 12" CMU PARTITION AND (1) 8" CMU PARTITION W/ FACE BRICK & METAL STUD FURRING WITH GYP. BD. (OVERALL THICKNESS IS APPROX. 2'-10") - REFER TO H-SERIES DRAWINGS
4	REMOVE PORTION OF EXISTING FIRESTOP SYSTEM (LOOSE-LAID FIRESTOP PILLOWS) TO ACCOMMODATE MECHANICAL PIPING. REINSTALL FIRESTOPPING UPON COMPLETION OF NEW WORK. REFER TO H-SERIES DRAWINGS.

GENERAL NOTE:
SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDSA HUTCH AND/ OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION

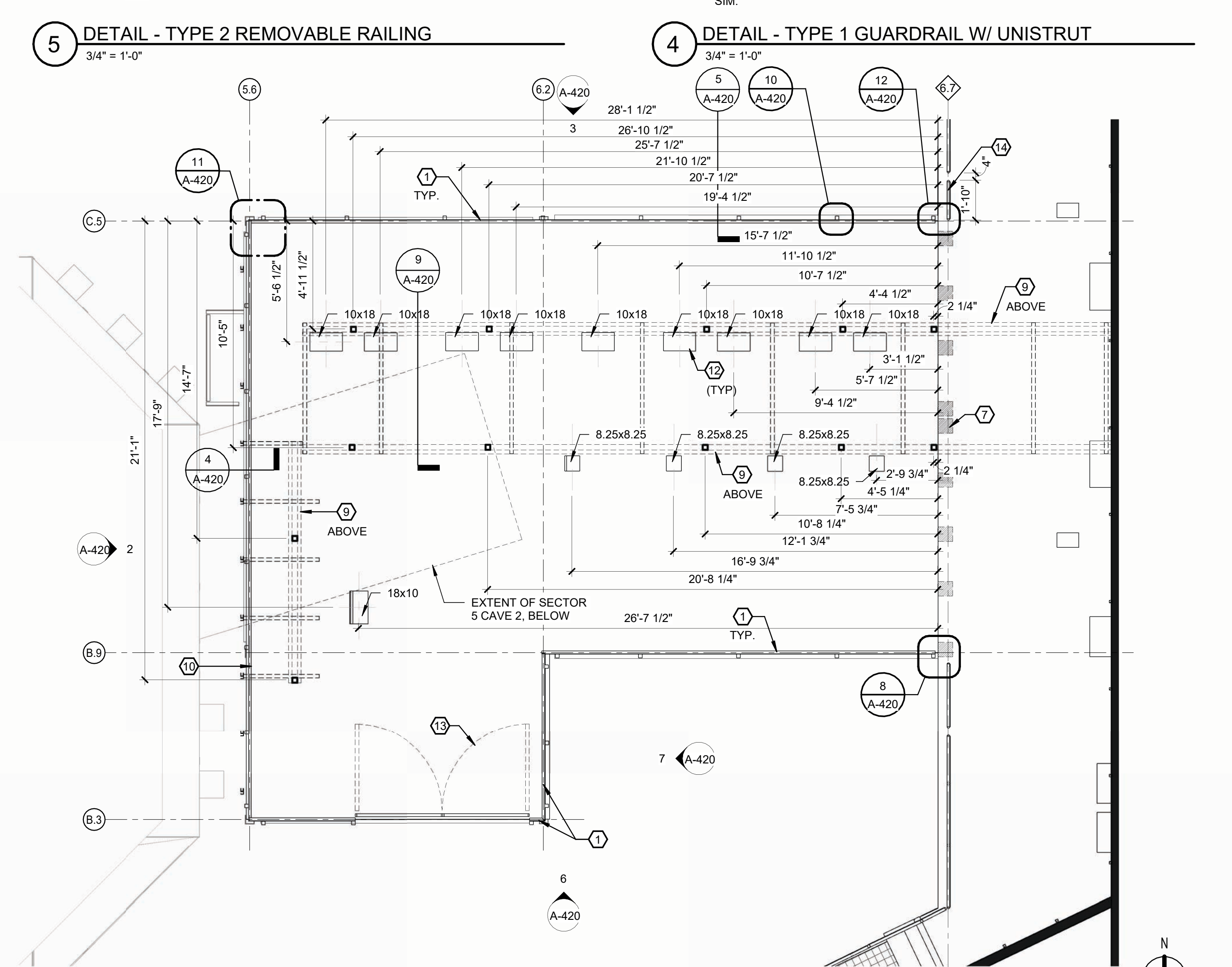
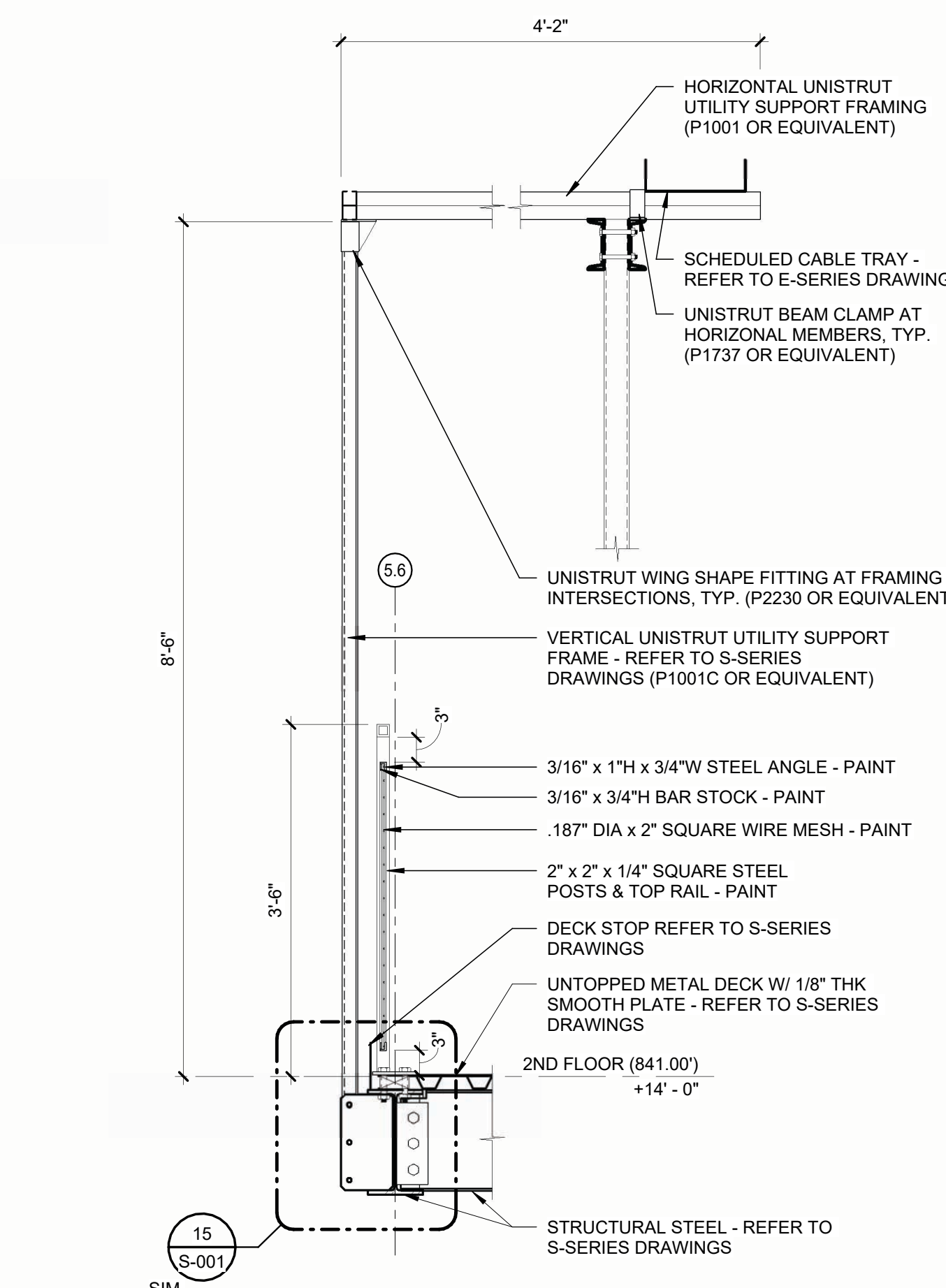
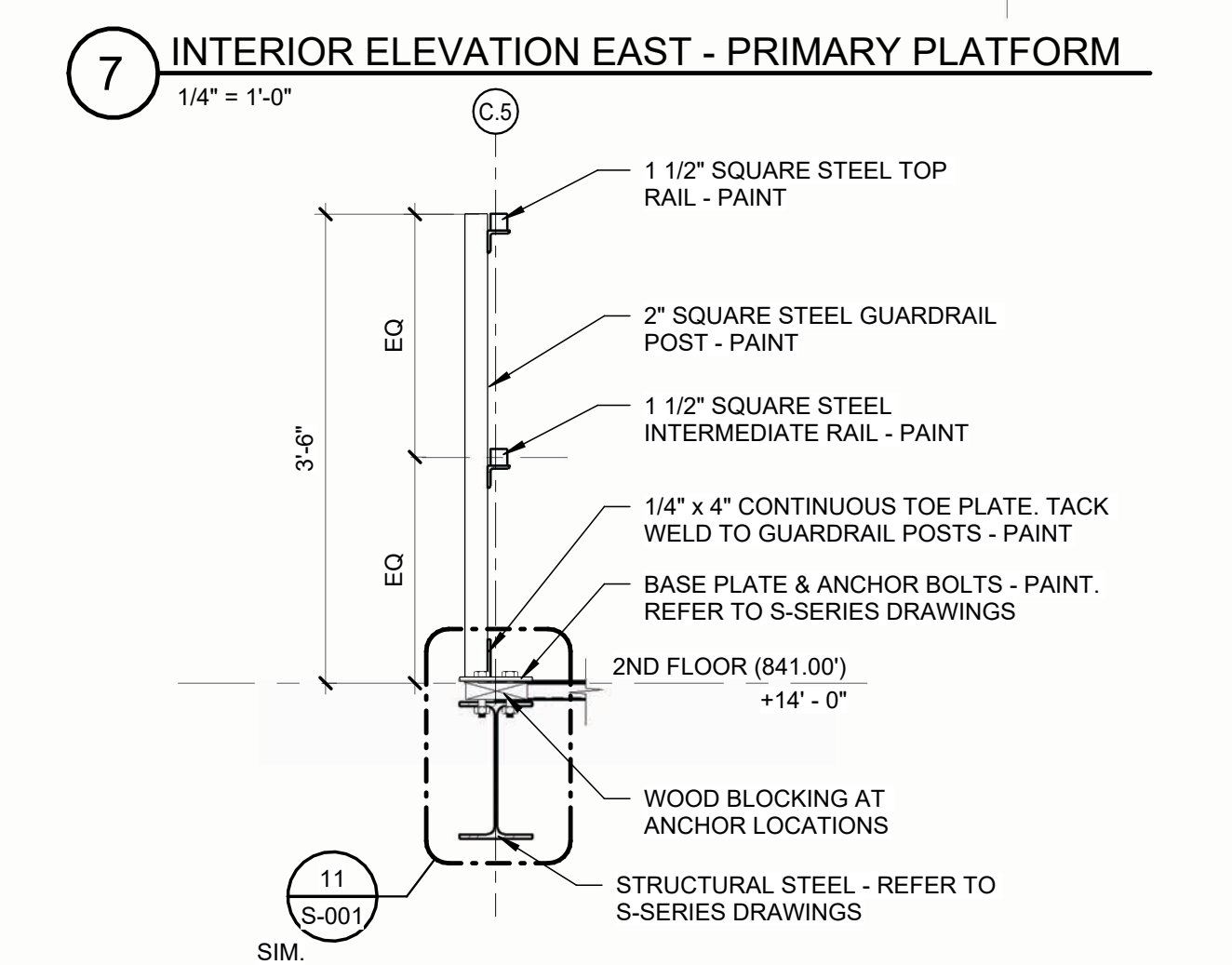
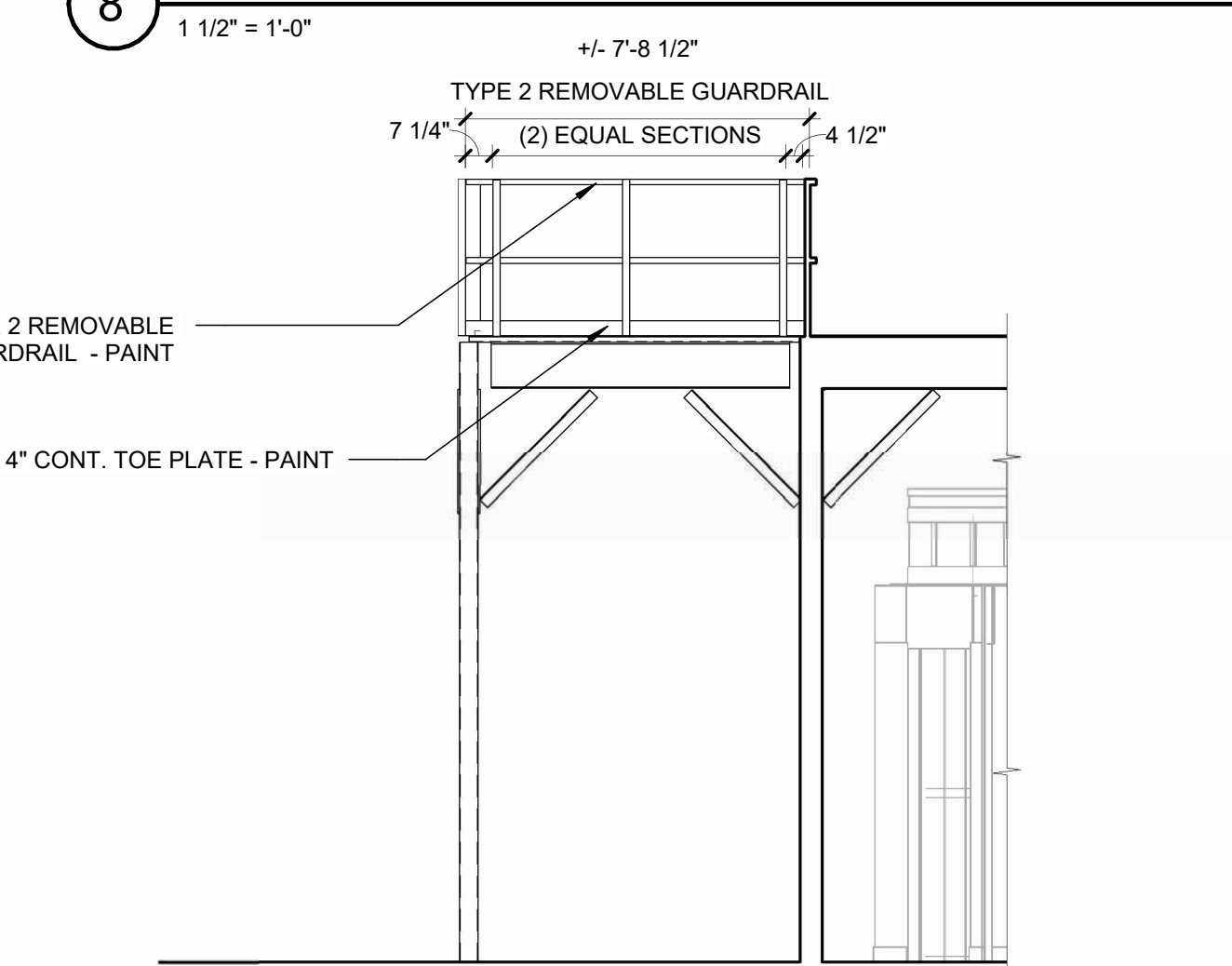
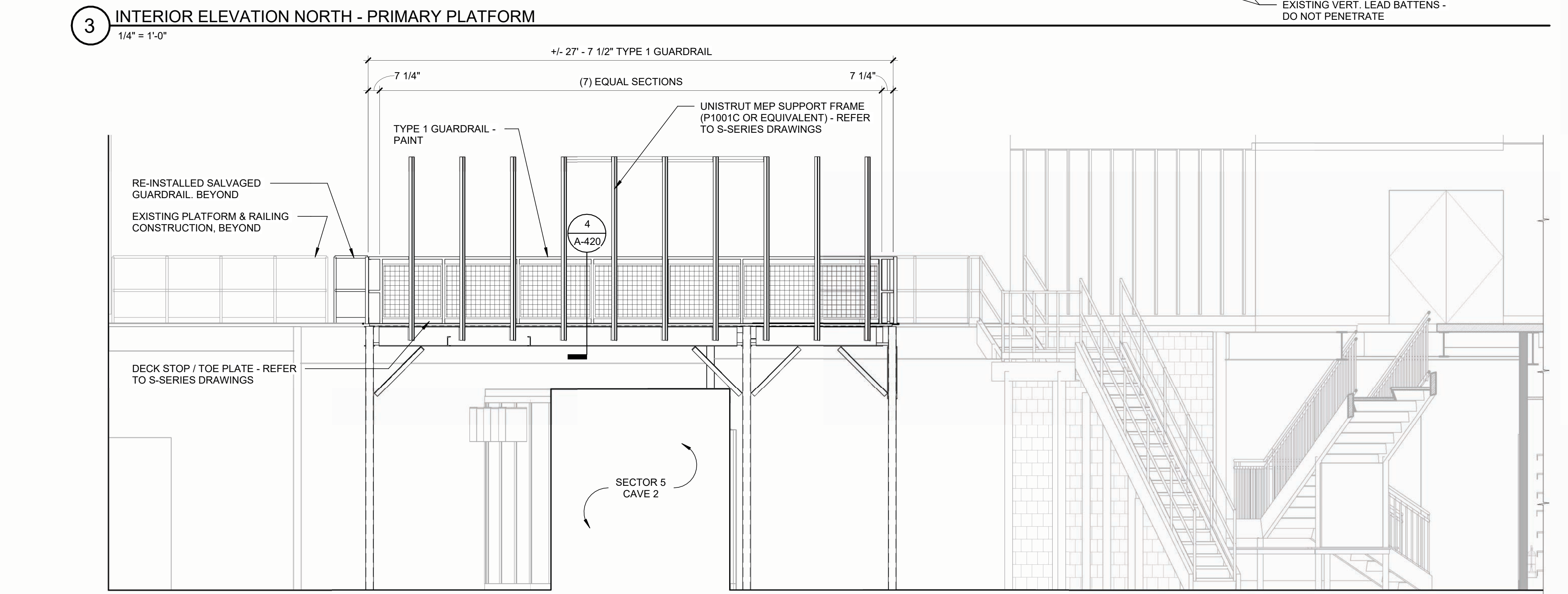
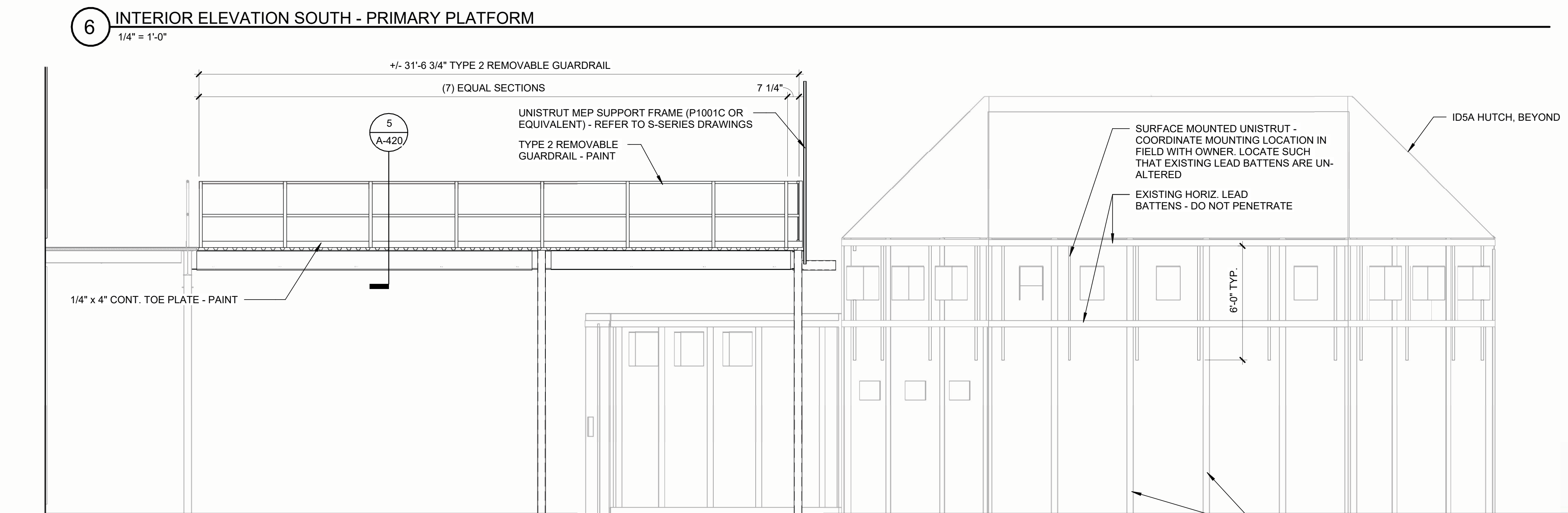
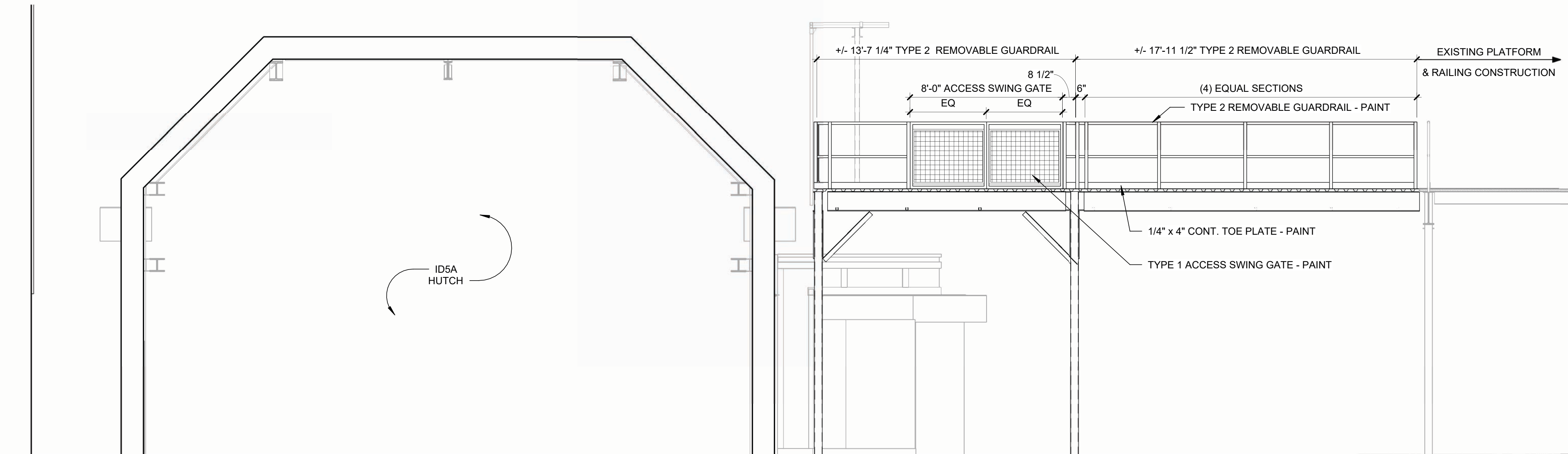
Revisions





CONSTRUCTION KEYNOTES	
NO.	DESCRIPTION
1	SURFACE MOUNTED REMOVABLE RAILING (TYPE 2)
2	6'-0\"/>
3	PROVIDE PENETRATION FIRESTOPPING AT EXISTING PARTITION FOR SCHEDULED UTILITY - COORDINATE WITH P. FP. H & E-SERIES DRAWINGS
4	PATCH PORTION OF EXISTING FIRESTOP SYSTEM BELOW EXISTING FOUNDATION WALL (WITHIN TRENCH) AROUND SCHEDULED UTILITY - COORDINATE WITH P. FP. H & E-SERIES DRAWINGS
5	PROVIDE UL LISTED PENETRATION FIRESTOPPING ASSEMBLY AT BEAMLINE PENETRATION - REFER TO A-501
6	MODIFY & RE-INSTALL SALVAGED TRENCH COVER PLATE
7	PATCH PORTIONS OF EXISTING UN-TOPPED METAL DECK FLOOR AT GUARDRAIL REMOVAL LOCATIONS, TYP.
8	PROVIDE PENETRATION FIRESTOPPING BETWEEN EXISTING SLEEVE AND SCHEDULED UTILITY BEING ROUTED - COORDINATE WITH P. FP. H & E-SERIES DRAWINGS
9	UTILITY SUPPORT FRAME W/ INTERMEDIATE HORIZONTAL UNISTRUT FRAMING (P1001 OR EQUIVALENT) SPACING OF INTERMEDIATE UNISTRUT FRAMING TO BE BASED ON UTILITIES BEING SUPPORTED (ASSUME 30 LBS/LF FOR CABLE TRAY, 12 LBS/LF FOR MECHANICAL PIPING, 3 LBS/LF FOR FIRE PROTECTION PIPING & 3 LBS/LF FOR CONDUITS) - REFER TO S-SERIES DRAWINGS
10	SURFACE MOUNTED RAILING (TYPE 1)
11	FILL ANNULAR SPACE BETWEEN EXISTING SLEEVE & NEW PENETRATION TO PREVENT THE PASSAGE OF SMOKE
12	OPENING THROUGH PLATFORM SYSTEM FOR SCHEDULED MEP/ OWNER FURNISHED UTILITY ROUTING
13	ACCESS SWING GATE W/ SPRING-LOADED BARREL BOLT LATCH AT BOTTOM OF EACH LEAF & INTERLOCKING LEAF HARDWARE
14	MODIFY & RE-INSTALL PORTION OF SALVAGED GUARDRAIL - UTILIZE EXISTING ANCHOR LOCATION TO THE NORTH

GENERAL NOTE:
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Revisions



See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

A. **Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipes.

B. Iron Pipes — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.

C. Conduit — Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit, steel electrical metallic tubing (EMT) or nom 2 in. (51 mm) diam (or smaller) flexible steel conduit.

3. **Firestop System** — The firestop system shall consist of the following:

A. Fill, Void or Cavity Material • Pillows — Max 9 in. (229 mm) long by 6 in. (152 mm) wide by 3 in. (76 mm) thick plastic covered intumescent pillows. Pillows to be installed lengthwise through the opening and positioned to extend equally in both directions from the approximate centerline of the wall. Pillows tightly packed (min 30 percent compression) into opening to fill the annular space between the through penetrants and between the through penetrants and the periphery of the opening.

SPECIFIED TECHNOLOGIES INC — SpecSeal Firestop Pillows

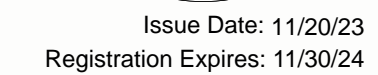
B. Fill, Void or Cavity Material - Putty or Sealant — (Not Shown) - At point contact locations between through penetrant and periphery of opening, min 1/2 in. diam bead of fill material applied at metallic penetrant/concrete wall interface on both sides of wall assembly. For 4 hr F and FH Ratings a nom 3/16 in. (5 mm) thick band of putty with a width equal to the thickness of the wall assembly shall be applied around each pipe, conduit or tube within the wall.

Feedback

2/3

 $1\frac{1}{2}'' = 1'-0''$ 

1 1/2" = 1'-0"


$$1/2'' = 1'-0''$$


Drawn By:	SL
Checked By:	JMB
Project Manager:	JMB

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Revisions

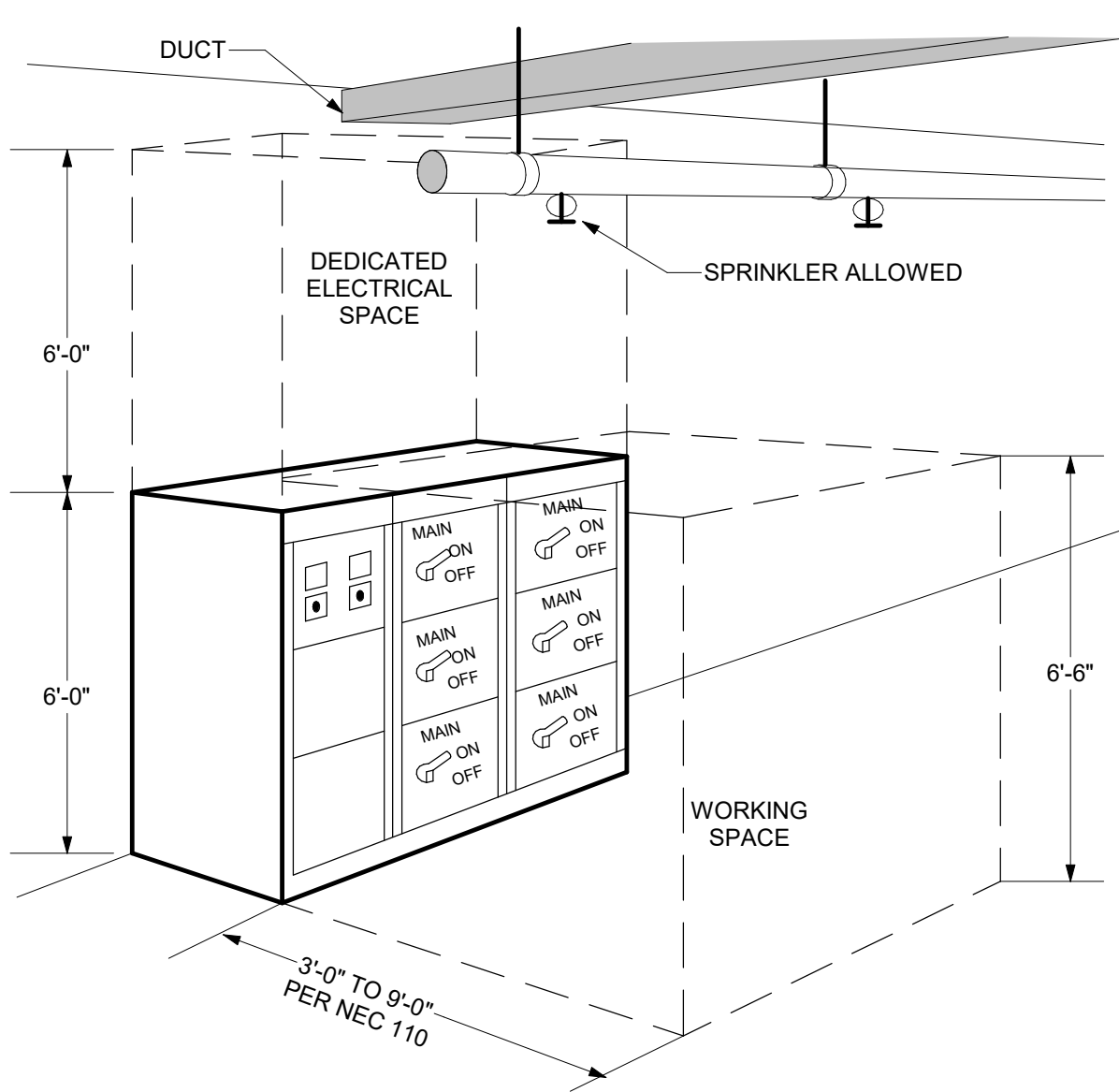
Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.0

Cornell University
Ithaca, NY 14853

A-501

ENLARGED PLAN &
DETAILS -
BEAMLINE
PENETRATION

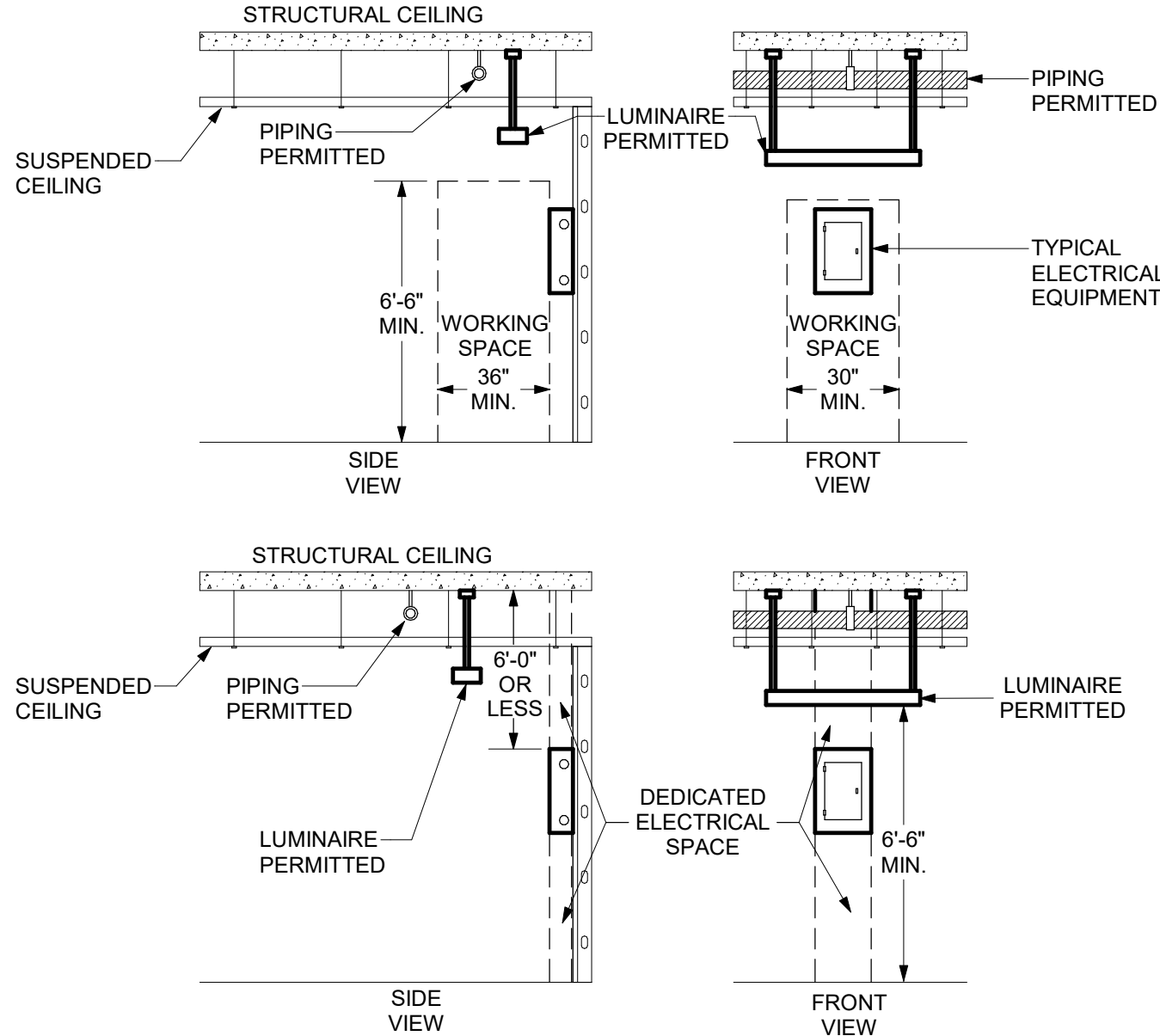
November 17, 2023
Construction Documents



DETAIL NOTES:

- A. ELECTRICAL EQUIPMENT INCLUDES PANELS, TRANSFORMERS, DISCONNECTS, STARTERS, MOTOR CONTROL CENTERS, SWITCHGEAR, ADJUSTABLE SPEED DRIVES, AND FUSED SWITCHES (THIS ALSO APPLIES TO ELECTRICAL GEAR MOUNTED DIRECTLY ON MECHANICAL EQUIPMENT).
- B. DEDICATED ELECTRICAL SPACE IS DEFINED BY NEC 110.
- C. NO PIPING OR DUCTWORK MAY BE INSTALLED IN DEDICATED ELECTRICAL SPACE OR WORKING SPACE.

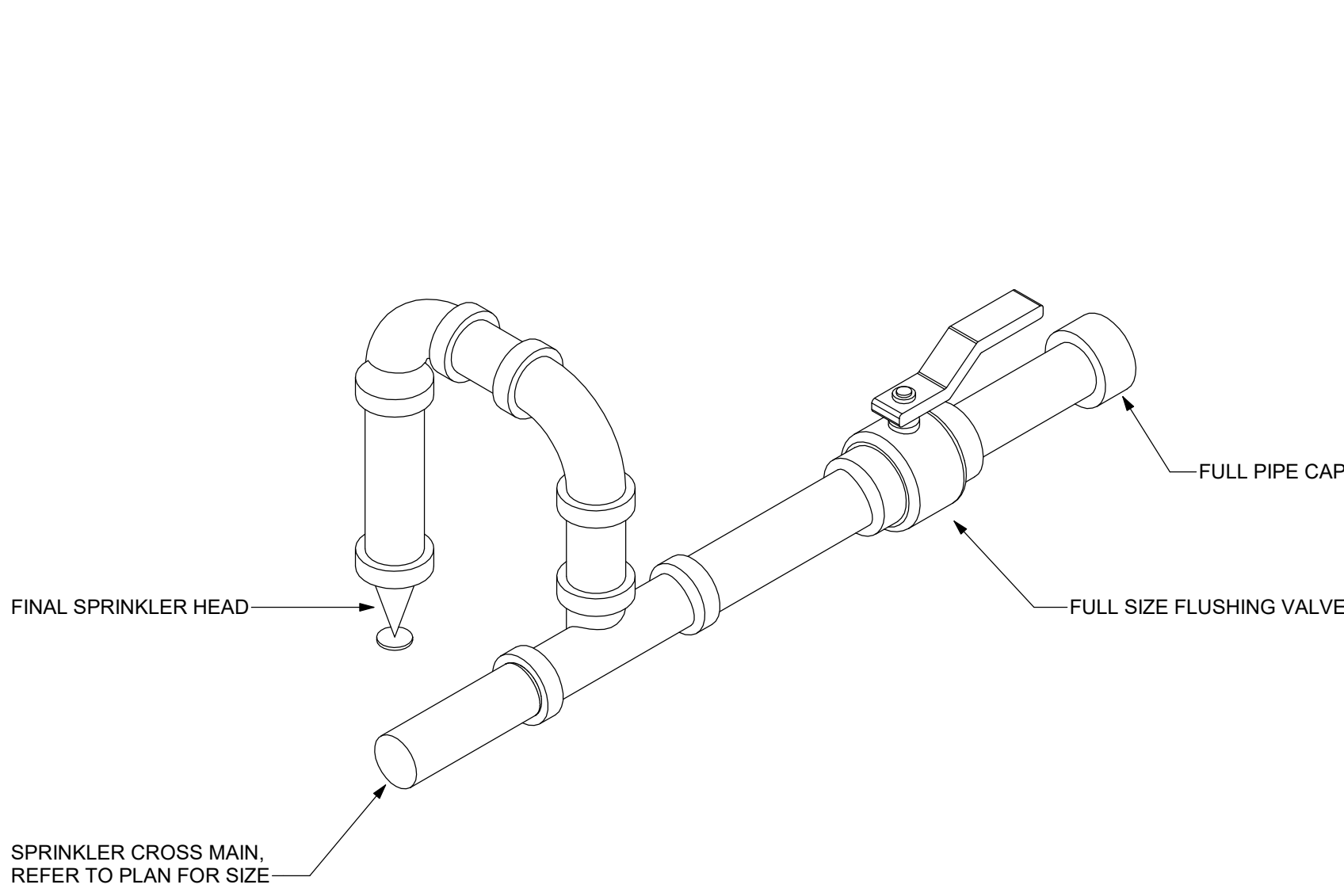
1 PIPING OVER ELECTRICAL EQUIPMENT DETAIL
NOT TO SCALE



DETAIL NOTES:

- A. PROVIDE A PIPE LABEL FOR EACH PIPE FUNCTION.
- B. PROVIDE AT LEAST ONE LABEL ON EACH PIPE FOR EVERY ROOM THE PIPE PASSES THROUGH.
- C. PROVIDE LABELS IN LARGE SPACES ON MAXIMUM 20' CENTERS FOR EVERY PIPE UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS.
- D. LABELS TO BE LOCATED IN AN EASILY VISIBLE LOCATION AS THEY WOULD NORMALLY BE SEEN, IE. ON THE BOTTOM HALF OF PIPES IN THE AIR AND ON THE TOP HALF OR SIDES OF PIPES MOUNTED LOW.
- E. LABELS SHALL BE, COLOR CODED, PRE-PRINTED, SELF ADHESIVE VINYL.
- F. SEE SPECIFICATION FOR OTHER REQUIREMENTS AND LIST OF PIPE FUNCTIONS.

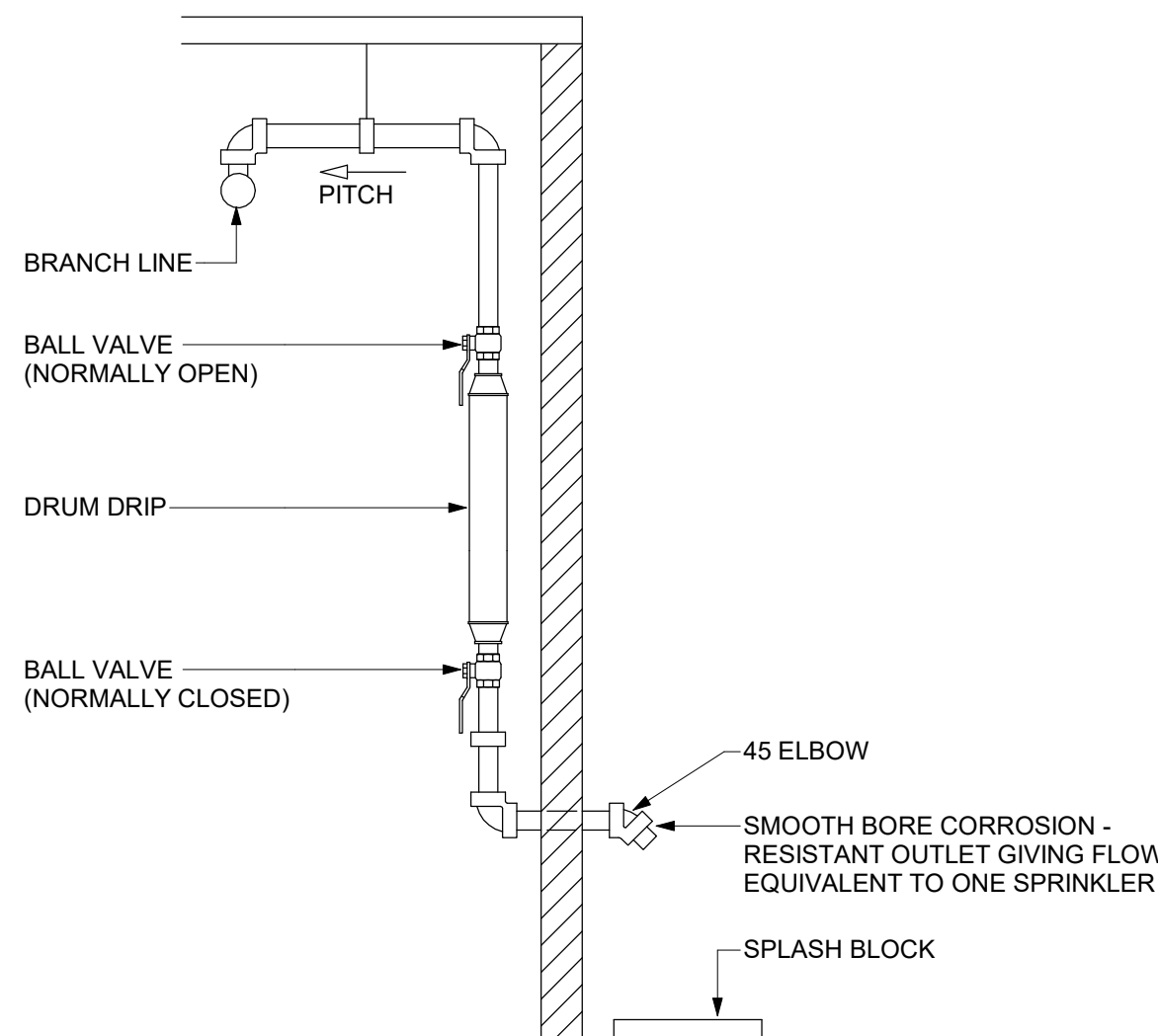
2 PIPING IDENTIFICATION LABEL DETAIL
NOT TO SCALE



FLUSHING DETAIL NOTES:

- A. REFER TO FP-000 FOR ADDITIONAL NOTES.

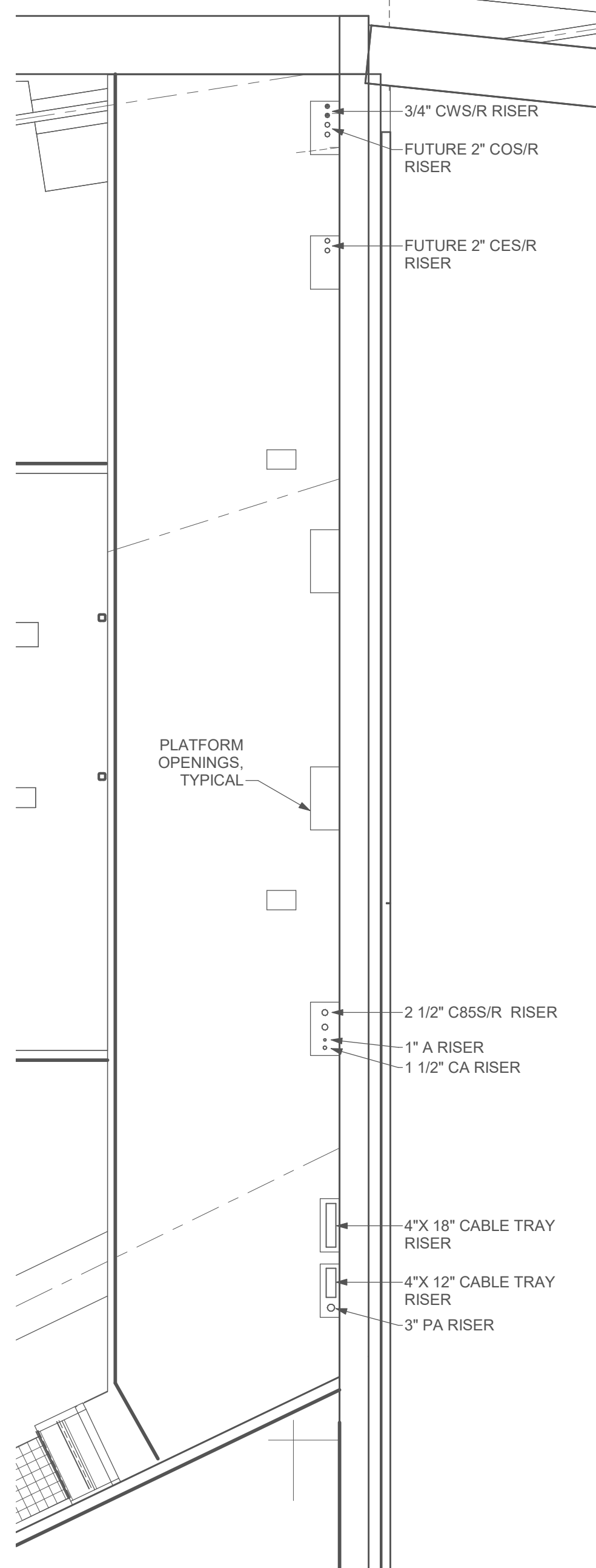
3 CORNELL UNIVERSITY TYPICAL FLUSH ASSEMBLY
NOT TO SCALE



DETAIL NOTES:

- A. TO MINIMIZE CONDENSATION OF WATER IN THE DROP TO THE TEST CONNECTION, PROVIDE A NIPPLE-UP OFF OF THE BRANCH LINE.
- B. INSPECTOR'S TEST CONNECTION SHALL BE LOCATED AT HYDRAULICALLY MOST REMOTE BRANCH OF DRY SYSTEM IN ACCORDANCE WITH NFPA 13.

4 DRUM DRIP DRAIN DETAIL
NOT TO SCALE



5 PLATFORM UTILITY PENETRATIONS DETAIL
1/4" = 1'-0"

GENERAL NOTES:

- A. THESE NOTES ARE APPLICABLE TO THE FULL SET OF CONTRACT DRAWINGS.
- B. PROVIDE A COMPLETE FIRE PROTECTION SPRINKLER SYSTEM FOR THE SPACES INDICATED IN COMPLIANCE WITH 2020 NEW YORK STATE BUILDING CODE, NFPA 13, FM GLOBAL, CORNELL UNIVERSITY DESIGN STANDARDS, AND THE AUTHORITY HAVING JURISDICTION. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY CALCULATED, REFER TO SPECIFICATIONS AND DRAWING NOTES. THE CONTRACTOR SHALL CONFIRM ALL PIPE SIZES BY HYDRAULIC CALCULATIONS. THERE SHALL BE NO DECREASE IN PIPE SIZES UNLESS DIRECTED BY ENGINEER.
- C. THE PLANS ARE DIAGRAMMATIC AND INDICATE ONLY THE GENERAL ARRANGEMENT OF PIPING, SPRINKLERS AND EQUIPMENT. ALL MAINS, BRANCH LINES, SPRINKLERS, EQUIPMENT AND SYSTEM COMPONENTS SHALL BE PROVIDED. THE PLANS ARE NOT INTENDED TO SHOW EVERY ITEM OF WORK OR EQUIPMENT. THE CONTRACTOR SHALL FURNISH AND INSTALL ANY COMPONENT NECESSARY TO COMPLETE THE SYSTEM IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE, NFPA AND THE AHJ WITHOUT ADDITIONAL COST.
- D. DRAWINGS DO NOT INDICATE ALL OFFSETS, CHANGES IN ELEVATION, ETC. WHICH MAY BE REQUIRED, THE CONTRACTOR SHALL MAKE SUCH CHANGES IN PIPING AND LOCATION OF EQUIPMENT, ETC. TO ACCOMMODATE WORK, OBSTACLES, AND WORK OF OTHER CONTRACTORS.
- E. INSTALL EQUIPMENT AND PIPING TO AVOID INTERFERENCE WITH THE OPERATION, SERVICE, AND MAINTENANCE OF EQUIPMENT.
- F. ALL NEW PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS SHALL BE PROVIDED BY THIS CONTRACTOR FOR INSTALLATION OF FP SYSTEMS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, PIPING, ETC., UNLESS OTHERWISE SHOWN ON THE ARCHITECTURAL DRAWINGS. THIS CONTRACTOR SHALL UTILIZE SLEEVES, FIRESTOPPING SYSTEM, AND A SHIELDING SYSTEM AS DIRECTED BY THE ARCHITECT OF RECORD AND CORNELL UNIVERSITY.
- G. ALL PENETRATIONS THROUGH NON-RATED WALLS SHALL BE SLEEVED AND SEALED WITH A NON-HARDENING SEALANT ON BOTH SIDES OF THE WALL.
- H. INSTALL TAMPER SWITCHES AND LOCKS FOR ALL FIRE PROTECTION VALVES. ALL SHUTOFF VALVES SHALL BE CHAINED AND LOCKED IN THE OPEN POSITION.
- I. DISPOSE OF ALL WASTE MATERIALS CAUSED BY WORK OF THIS CONTRACTOR. LEGALLY DISPOSE ALL MATERIALS TO A LOCATION OFF SITE.
- J. COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH THE OWNER AND OTHER TRADES PRIOR TO CONSTRUCTION.
- K. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT, ADVISE OTHER TRADES OF THE REQUIRED SERVICE CLEARANCES FOR SPRINKLER EQUIPMENT.
- L. LABEL ALL PIPING, SHUT OFF VALVES AND TEST CONNECTIONS.
- M. ARRANGE WET AND PRE-ACTION SPRINKLER SYSTEMS TO DRAIN BACK TO A LOW POINT DRAIN VALVE, WHERE NOT POSSIBLE PROVIDE AUXILIARY DRAINS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13.
- N. ALL COSTS FOR CUTTING, PATCHING, AND PAINTING OF EXISTING WALLS, CEILINGS AND FLOORS TO ACCOMMODATE THE INSTALLATION OF WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR UNLESS INDICATED OTHERWISE. MATERIALS FOR RESTORATION OF EXISTING SURFACES SHALL MATCH THE EXISTING SURFACES.
- O. THIS CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING OF EXISTING OR NEW FIRE PROOFING WHICH IS DISTURBED OR REMOVED DURING THE COURSE OF ANY DEMOLITION OR INSTALLATION OF WORK THAT IS PART OF THIS CONTRACT.
- P. DO NOT DRILL, CORE OR CUT ANY PORTION OF EXISTING COLUMNS, BEAMS, JOISTS OR ANY OTHER STRUCTURAL COMPONENT.
- Q. PRIOR TO CUTTING, DETERMINE THE LOCATION OF PROPOSED OPENINGS SUCH THAT NO PORTION OF EXISTING BEAMS OR JOISTS WILL BE ALTERED IN ANY WAY.
- R. PAINT ALL EXPOSED PIPING TO MATCH CEILING.
- S. PROVIDE WIRE CAGES ON ALL SPRINKLERS IN ELECTRICAL ROOMS.

FIRE PROTECTION SYMBOL LIST	
SYMBOL	DESCRIPTION
OR	EXISTING WORK TO BE REMOVED
POINT OF CONNECTION	POINT OF CONNECTION
POINT OF DISCONNECTION	POINT OF DISCONNECTION
NTS	NOT TO SCALE
(E)	EXISTING
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
FC	FLUSHING CONNECTION
(E)	EXISTING PIPING
NEW PIPING	NEW PIPING
PA	PRE-ACTION MAIN/BRANCH PIPING (PA)
FP	FIRE PROTECTION PIPING (FP)
S	WET SPRINKLER MAIN/BRANCH PIPING (S)
D	SPRINKLER DRAIN PIPING (D)
ELBOW DOWN	ELBOW DOWN
SHUT OFF VALVE WITH TAMPER SWITCH (TS)	SHUT OFF VALVE WITH TAMPER SWITCH (TS)
ELBOW UP	ELBOW UP
BOTTOM/TEE CONNECTION	BOTTOM/TEE CONNECTION
TOP TEE CONNECTION	TOP TEE CONNECTION
PIPE CONTINUATION	PIPE CONTINUATION
FLUSHING CONNECTION	FLUSHING CONNECTION
UPRIGHT SPRINKLER	UPRIGHT SPRINKLER
PENDENT SPRINKLER	PENDENT SPRINKLER
DRAIN VALVE	DRAIN VALVE
ELECTRIC ALARM BELL	ELECTRIC ALARM BELL
DRAWING KEYNOTE	DRAWING KEYNOTE
DEMOLITION/REMOVAL KEYNOTE	DEMOLITION/REMOVAL KEYNOTE
H	HEAT DETECTOR FOR ACUATION OF PRE-ACTION SYSTEMS

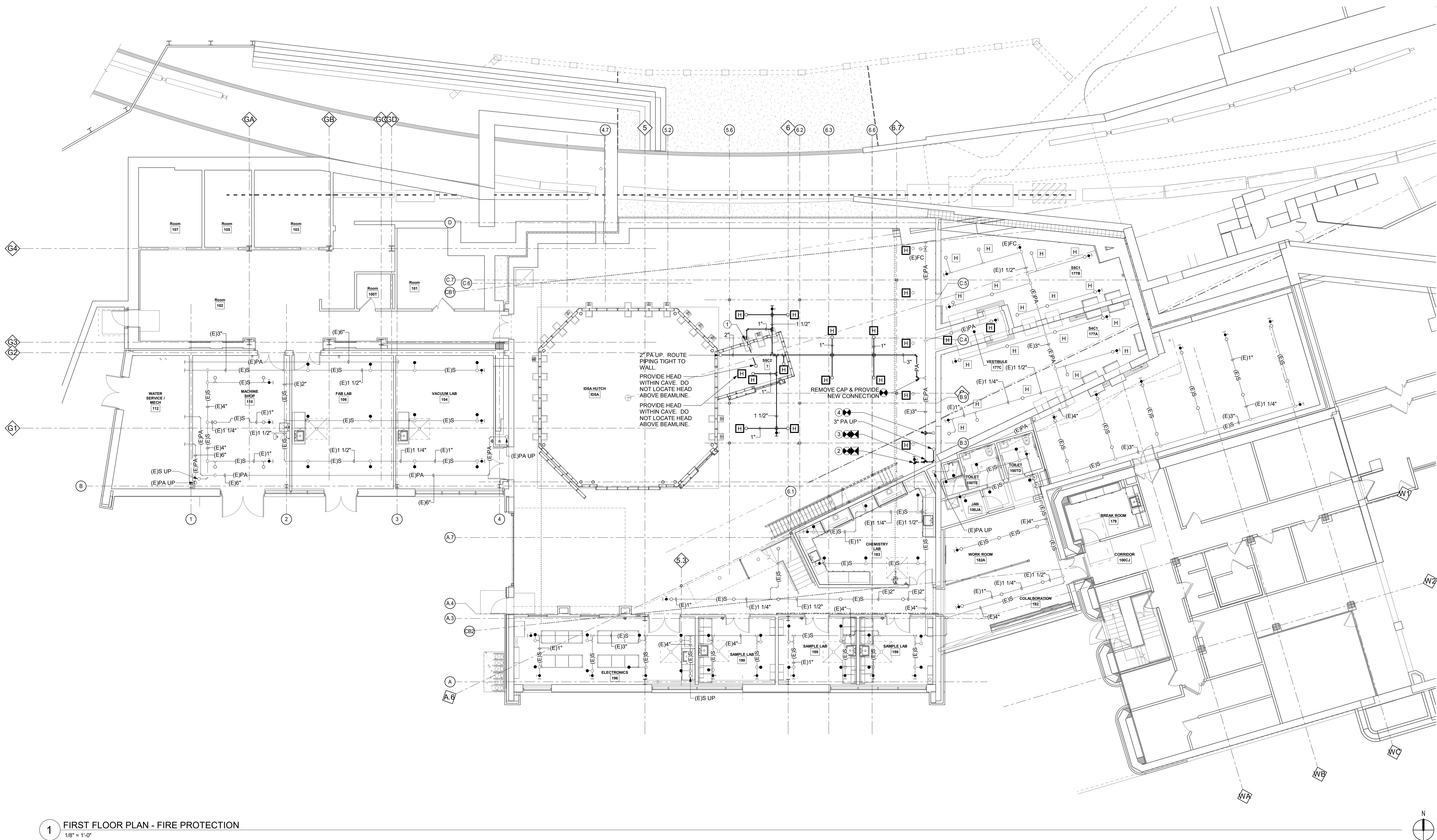
FLUSHING NOTES:

- A. FLUSHING FULL-PORT BALL VALVES SHALL BE PROVIDED ON UNDERGROUND MAINS (INSIDE THE BUILDING) AND ABOVE-GROUND MAINS, CROSS-MAINS, BRANCH LINES AND RUN OUTS OF NEW SPRINKLER SYSTEMS (WET AND DRY), TO FACILITATE ANY FUTURE PERIODIC INTERNAL INSPECTIONS, OBSTRUCTION INVESTIGATIONS AND AS-NEEDED FLUSHING WORK.
- B. VALVES SHALL BE SIZED PER NFPA 25. IN ORDER TO OBTAIN THE NFPA REQUIRED MINIMUM VELOCITY OF 10 FT/S FOR ANY GIVEN PIPE SIZE, AS AN ALTERNATIVE TO THE HYDRAULIC CALCULATION VALVE SIZING METHOD, THE FOLLOWING SIZING RULES CAN BE APPLIED:
- 1-INCH THRU 2 1/2-INCH PIPE: LINE-SIZE FULL-PORT BALL VALVE
 - 3-INCH PIPE: ONE (1) 2 1/2-INCH BALL VALVE
 - 4-INCH PIPE: TWO (2) 2 1/2-INCH BALL VALVES
 - 6-INCH PIPE: THREE (3) 2 1/2 INCH BALL VALVES
 - 8-INCH PIPE: FOUR (4) 2 1/2 INCH BALL VALVES

PRE-ACTION GENERAL NOTES:

- A. THE CABINET ASSEMBLY SHALL CONTAIN A PREACTION DOUBLE INTERLOCK SYSTEM, ELECTRIC RELEASE COMPLETE WITH NITROGEN GENERATOR SYSTEM, PRE-ASSEMBLED, PRE-WIRED AND FACTORY TESTED.
- B. CABINET SHALL INTEGRATE A SELF-CONTAINED DOUBLE INTERLOCK PREACTION SYSTEM, ELECTRIC RELEASE, AND SHALL CONTAIN ALL HYDRAULIC, PNEUMATIC DEVICES, AND ELECTRICAL COMPONENTS REQUIRED FOR THE CONTROL OF A SELF-CONTAINED PREACTION SYSTEM. ALL COMPONENTS SHALL BE UL LISTED AND FM APPROVED.
- C. NITROGEN GENERATION SYSTEM SHALL INCLUDE A CORROSION INHIBITING SYSTEM COMPLETE WITH CONTROL PANEL LOCATED WITHIN THE CABINET.
- D. PROVIDE FIXED-TEMPERATURE, RATE OF RISE, OR COMBINATION FIXED TEMPERATURE/RATE OF RISE DETECTION DEVICES. SMOKE OR FLAME DETECTORS SHALL NOT BE USED. SINGLE-ZONE CIRCUITRY FOR DETECTION AND ACUATION DEVICES SHALL BE PROVIDED. CROSS-ZONED CIRCUITS ARE NOT ACCEPTABLE.
- E. REFER TO SPECIFICATION FOR COMPLETE PRE-ACTION SYSTEM REQUIREMENTS.
- F. PROVIDE HEAT DETECTORS COMPATIBLE WITH PANEL. ENSURE THE SPACING OF HEAT DETECTORS DOES NOT EXCEED ONE-HALF THE FM APPROVED LINEAR DETECTOR SPACING OR THE FULL ALLOWABLE SPRINKLER SPACING, WHICHEVER IS GREATER. ASSURE ADDITIONAL HEAT DETECTORS WILL NOT SURPASS PANEL CAPACITY. CONFIRM WITH MANUFACTURER AND PROVIDE DOCUMENTATION TO E.O.R. FOR COMPATIBILITY AND CAPACITY OF HEAT DETECTORS. DO NOT SURPASS FM 5-48 SPACING REQUIREMENTS FOR HEAT DETECTORS.
- G. REMOTE ANNUNCIATOR(S) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS. COMMUNICATION WIRES SHALL BE SHIELDED AS REQUIRED. BASIS OF DESIGN IS POTTER MODEL RA-4410RC

Revisions



1 FIRST FLOOR PLAN - FIRE PROTECTION
1/8" = 1'-0"

GENERAL NOTES:

- NEW PIPING SHALL NOT BE SUPPORTED BY THE HIGH BAY ROOF STRUCTURE. PROVIDE UNISTRUT FOR WALL MOUNTING.
- LABYRINTHS ARE RADIATION SHIELDING INSTALLED BY OWNER AT ANY PENETRATION INTO SPACES WITH RADIATION (HUTCH AND CAVES). ALL UTILITIES SHOWN IN THE HUTCH OR CAVES SHALL BE ROUTED THROUGH THE LABYRINTH.
- PIPING BELOW THE PLATFORMS (REFER TO ARCHITECTURAL PLAN FOR LOCATIONS) CAN BE SUPPORTED FROM THE STRUCTURE ABOVE. REFER TO STRUCTURAL PLAN FOR REQUIREMENTS.
- SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDSA HUTCH AND/OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.

DRAWING NOTES

- OFFSET PIPING THROUGH LABYRINTH. COORDINATE LABYRINTH CONFIGURATION WITH CORNELL.
- DISCONNECT PIPING AT POINT OF DISCONNECT AND PROVIDE A FLUSHING VALVE.
- DISCONNECT PIPING AT POINT OF DISCONNECT AND PROVIDE NEW CONNECTION TO PRE-ACTION SYSTEM.
- CUT IN MECHANICAL TEE AND PROVIDE DRUM DRIP. REFER TO DETAIL 6 ON FP-000.

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Reg. Exp: 04/30/2026
Cert. of Auth: 0018443

Drawn By: CMD
Checked By: THK
Project Manager: GDD

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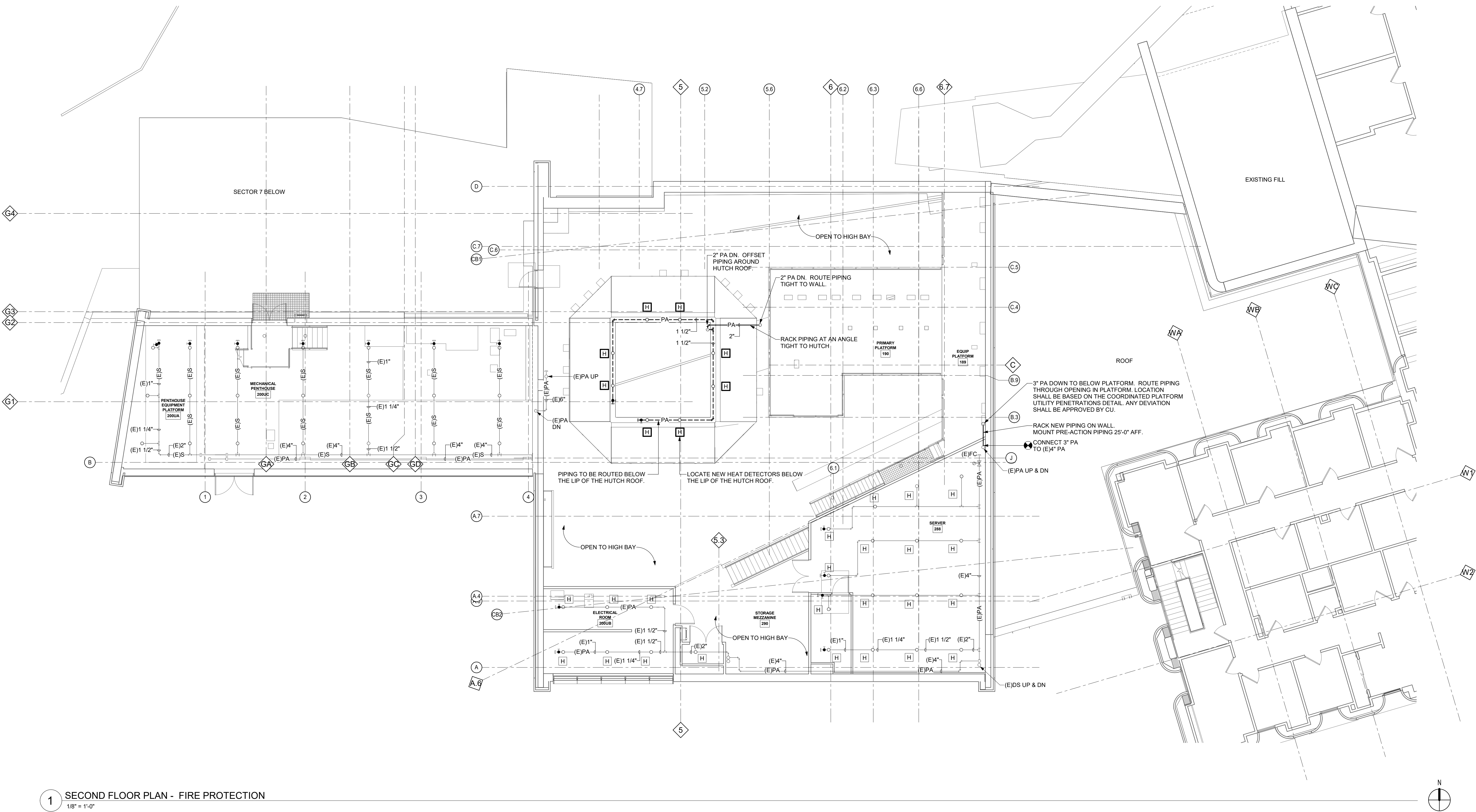
Revisions

Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

FP-111
FIRST FLOOR PLAN
- FIRE PROTECTION

November 17, 2023
100% Construction
Documents



1 SECOND FLOOR PLAN - FIRE PROTECTION
1/8" = 1'-0"

GENERAL NOTE

- A. NEW PIPING SHALL NOT BE SUPPORTED BY THE HIGH BAY STRUCTURE. PROVIDE UNISTRUT FOR WALL MOUNTING.
- B. COORDINATE MOUNTING OF ALL UTILITIES TO HUTCH AND CAVE WITH CORNELL RADIATION SHIELDING SYSTEM MUST REMAIN INTACT.
- C. SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO ID5A HUTCH AND/ OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.

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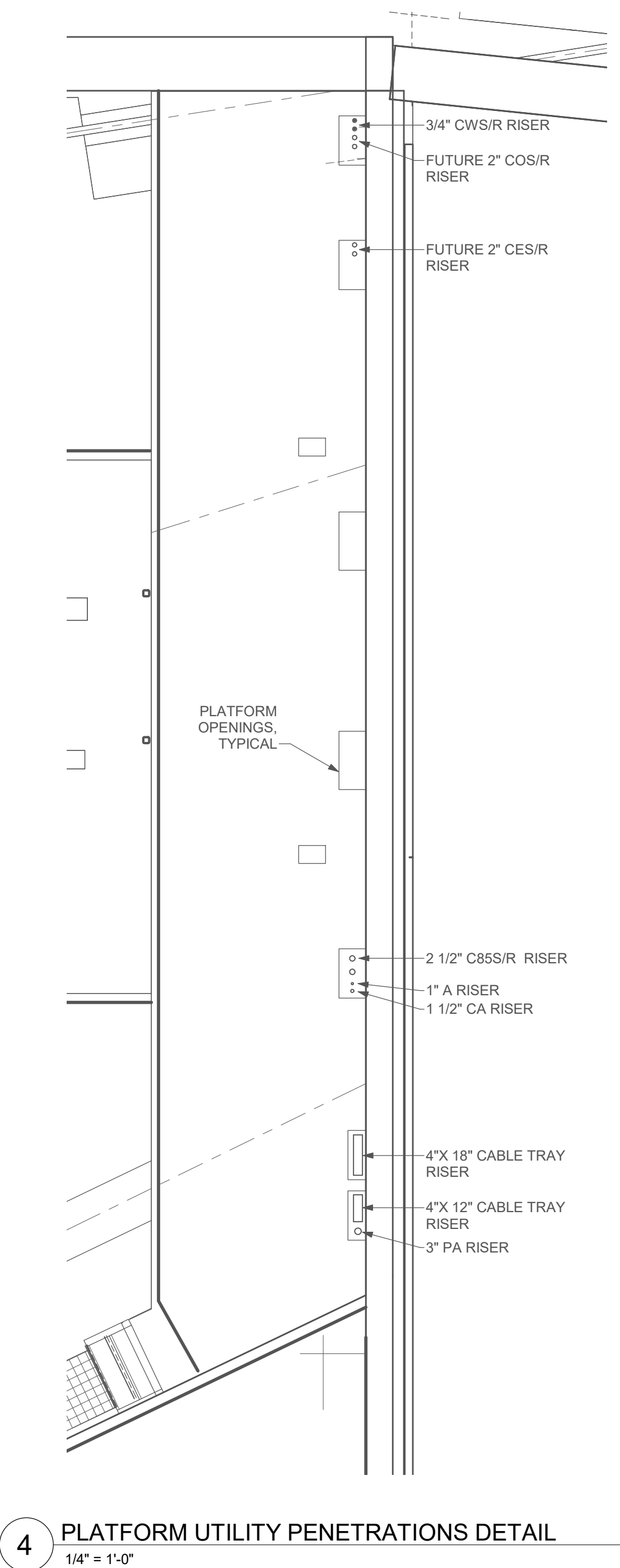
Revisions

Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

FP-112
SECOND FLOOR
PLAN - FIRE
PROTECTION

November 17, 2023
100% Construction
Documents



4 PLATFORM UTILITY PENETRATIONS DETAIL
1/4" = 1'-0"

PUMP SCHEDULE											
NO.	LOCATION	SERVICE	GPM	HEAD FT WATER	MOTOR HP	VOLTAGE	PHASE	RPM	TYPE	DESIGN MAKE	
CP-1	MECH ROOM	INDIRECT WASTE	-	-	1/30	115	1	-	DRAIN	LIBERTY MODEL LG-20	

EXPANSION JOINT SCHEDULE - PIPING											
JOINT NO.	LOCATION	TYPE	APPLICATION	MATERIAL	LINE SIZE	MAX. PRESS. (PSIG)	MIN. TEMP. (DEG. F)	MAX. TEMP. (DEG. F)	MINIMUM COMPRESSION TRAVEL	MINIMUM EXTENSION TRAVEL	TOTAL AXIAL MOVEMENT
EJP-1	FIRST FLOOR	CLEAN AIR	-	SS HOSE, CARBON STEEL NIPPLE	1"	400 @ 250 DEG. F	-	-	4	4	4
EJP-2	FIRST FLOOR	CLEAN AIR	-	SS HOSE, CARBON STEEL NIPPLE	1"	400 @ 250 DEG. F	-	-	4	4	4

REMARKS:
1. PROVIDE DELEGATED DESIGN FOR ANCHORS AND GUIDES.
2. PROVIDE CONNECTIONS FOR STAINLESS STEEL TUBING.

EXPANSION COMPENSATOR PIPE GUIDE SCHEDULE		
PIPE SIZE	MAX. DISTANCE FROM EXPANSION COMPENSATOR TO FIRST GUIDE	MAX DISTANCE FROM FIRST GUIDE TO SECOND GUIDE
1"	4"	1'-2"

NOTE:
1. EACH EXPANSION COMPENSATOR TO HAVE FOUR (4) GUIDES, TWO (2) UPSTREAM AND TWO (2) DOWNSTREAM.

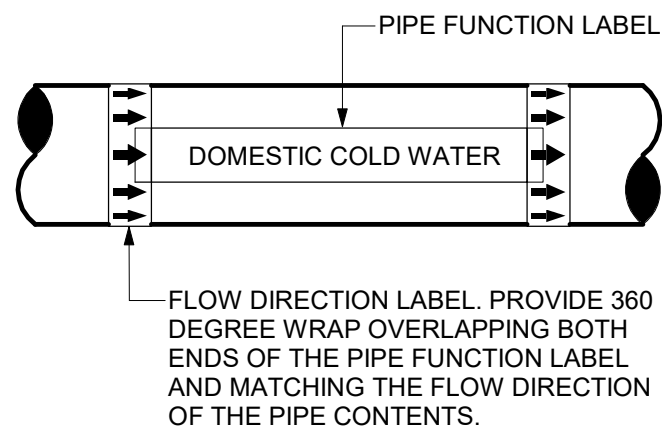
GENERAL NOTES:

- THESE NOTES ARE APPLICABLE TO THE FULL SET OF CONTRACT DOCUMENTS.
- EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS WHEN AVAILABLE. THE LOCATIONS SHOWN MUST BE CONSIDERED APPROXIMATE. OTHER SUCH WORK MAY EXIST, HOWEVER, LOCATION AND SIZE ARE NOT PRESENTLY KNOWN. IT IS STRONGLY ENCOURAGED TO VISIT SITE PRIOR TO BID TO REVIEW EXISTING CONDITIONS AND CONFIRM SCOPE OF WORK.
- WHEN EXISTING CONSTRUCTION IS DAMAGED DURING WORK BY THIS CONTRACTOR, REPAIR AND/OR REPLACE WITH SIMILAR MATERIALS AS MUCH AS POSSIBLE, SUBJECT TO ARCHITECTS APPROVAL.
- DISPOSE OF ALL DEMOLITION AND/OR OTHER WASTE MATERIALS CAUSED BY WORK OF THIS CONTRACTOR. LEGALLY DISPOSE ALL MATERIALS TO A LOCATION OFF SITE.
- COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH THE OWNER AND OTHER TRADES PRIOR TO DEMOLITION.
- ALL EXISTING PIPING TO REMAIN SHALL BE RECONNECTED TO ACTIVE SERVICE PIPING.
- ALL PIPING TO BE REMOVED, SHALL BE REMOVED BACK TO ACTIVE PIPING AND CAPPED. VALVE AND CAP ALL WATER PIPING. REMOVE ALL INACTIVE PIPING UNLESS NOTED.
- ALL PIPING TO BE REMOVED AND LOCATED WITHIN A WALL TO REMAIN MAY BE ABANDONED IN PLACE UNLESS NOTED. REMOVE PIPING BACK TO BEHIND THE FINISHED WALL SURFACE AND CAP.
- PATCH HOLES IN EXISTING CONSTRUCTION LEFT BY THE REMOVAL OF PIPING OR EQUIPMENT WITH MATERIALS TO MATCH EXISTING CONSTRUCTION. MAINTAIN FIRE/SMOKE RATING.
- DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: PIPING, VALVES, FIXTURES, EQUIPMENT, HANGERS, SUPPORTS, AND INSULATION EXCEPT ASBESTOS.
- REMOVE EXISTING CONSTRUCTION IN THE WAY OF NEW WORK. PROTECT BUILDING AND FURNISHINGS FROM DAMAGE.
- WHERE NEW WORK IS TO BE INSTALLED ABOVE AN EXISTING CEILING, PROVIDE FOR THE REMOVAL OF THE CEILING. UPON COMPLETION OF WORK, REPAIR ALL DAMAGED CEILING SURFACES, REPLACE ALL DAMAGED TILES.
- SLEEVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS.
- MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT. ADVISE OTHER TRADES OF THE REQUIRED SERVICE CLEARANCES.
- PROVIDE FOR THE DRAINING AND REFILLING OF PIPING SYSTEMS, INCLUDING AIR REMOVAL, RESETTING OF FLUSH VALVES, FLUSHING SYSTEMS OF DIRT AND SCALE CAUSED BY SHUTDOWNS AND STARTUPS.
- REFER TO EQUIPMENT/ FIXTURE SCHEDULE FOR FINAL CONNECTION SIZES.
- PROVIDE CLEANOUTS AT THE BASE OF ALL STORM, SANITARY AND WASTE STACKS.
- PITCH 4" AND LARGER SANITARY AND WASTE PIPING AT 1/8" PER FOOT UNLESS OTHERWISE NOTED. FOR SANITARY AND WASTE PIPING 3" AND SMALLER PITCH AT 1/4" PER FOOT UNLESS OTHERWISE NOTED.
- COORDINATE LOCATION AND ELEVATION OF STORM AND SANITARY LATERALS AND WATER SERVICE WITH THE SITE CONTRACTOR. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO THE CONTRACTORS FAILURE TO COORDINATE TERMINATION POINTS. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR THE FINAL CONNECTION TO THE SITE UTILITIES.
- MINIMUM SIZE OF WASTE PIPING BELOW SLAB SHALL BE 3" EXCEPT PIPING SERVING FLOOR DRAINS SHALL BE 4". MINIMUM SIZE OF VENT PIPING BELOW SLAB SHALL BE 2".

CLEAN AIR TUBING PREPARATIONS:

- REMOVE MANUFACTURER ENDS IF DAMAGED IN TRANSPORT.
- ISOPROPYL-SOAKED RAG PUSHED THROUGH ENTIRETY OF TUBING.
- COVER ENDS AFTER CLEANING UP UNTIL FINAL INSTALLATION. (OPEN PIPE ENDS SHOULD BE PROTECTED ON DISTRIBUTION TIE-IN SIDE AS WELL.).
- SYSTEM REQUIRES PURGING BY CUSTOMER AFTER ANY MODIFICATIONS (BHR).

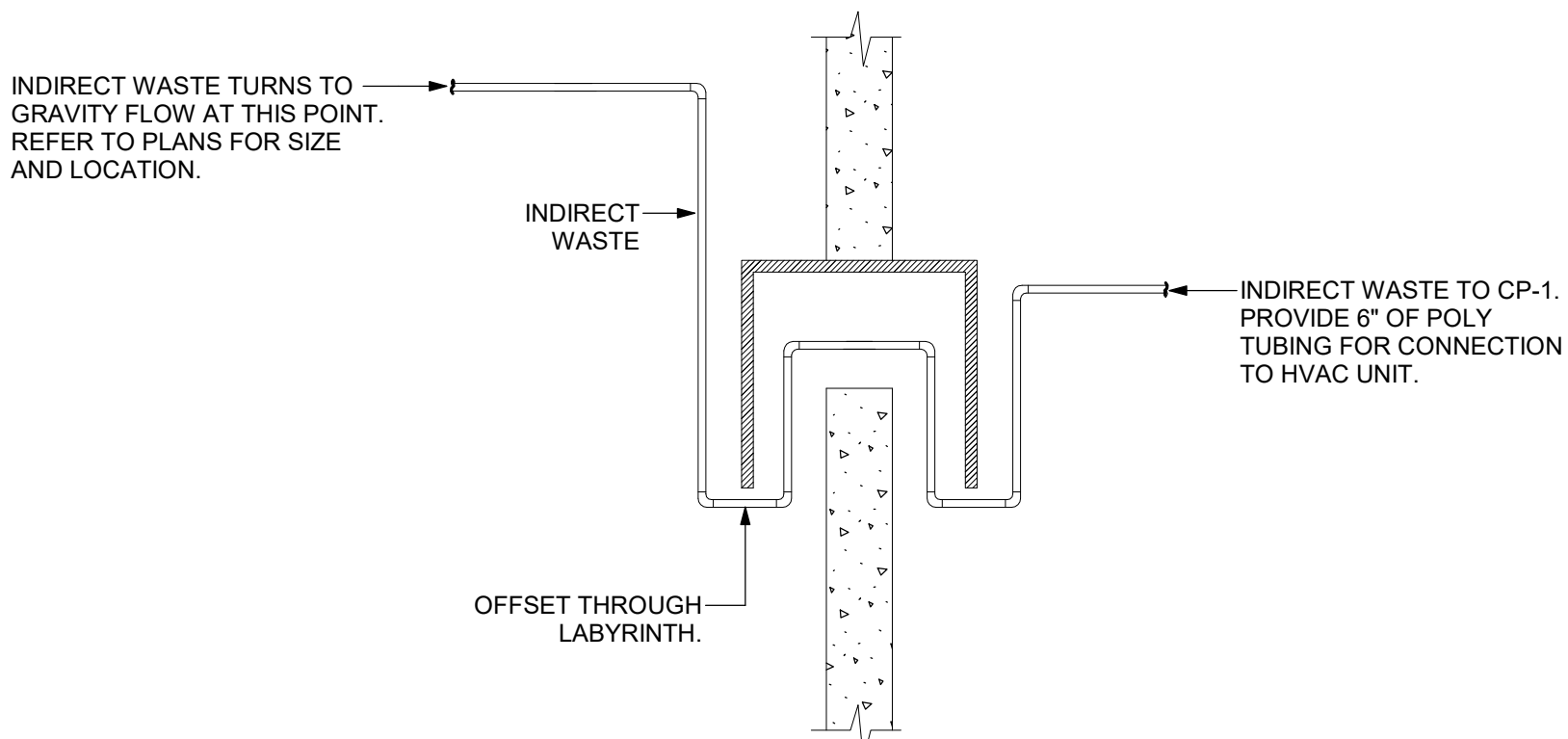
PLUMBING SYMBOL LIST	
SYMBOL	DESCRIPTION
---	EXISTING WORK TO BE REMOVED
⊙	POINT OF CONNECTION
⊠	POINT OF DISCONNECTION
NTS	NOT TO SCALE
(E)	EXISTING
(ETR)	EXISTING TO REMAIN
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
VTR	VENT THRU ROOF
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
(E)	EXISTING PIPING
---	NEW PIPING LOCATED ABOVE FLOOR/SLAB
---	NEW PIPING LOCATED BELOW FLOOR/SLAB
•	COLD WATER PIPING (CW)
••	HOT WATER PIPING (HW)
•••	HOT WATER RECIRCULATING PIPING (HWR)
---TW---	TEMPERED HOT WATER PIPING (TW)
---TWR---	TEMPERED HOT WATER RETURN PIPING (TWR)
---W---	WATER SERVICE - EXTERIOR
---DI---	DEIONIZED WATER PIPING (DI)
---DIR---	DEIONIZED WATER RETURN PIPING (DIR)
---NP---	NON POTABLE WATER
---SAN---	SANITARY SEWER PIPING
---LW---	LAB WASTE PIPING (LW)
---IW---	INDIRECT WASTE PIPING (IW)
---V---	VENT PIPING
---LV---	LAB VENT PIPING (AV)
---ST---	STORM WATER SEWER PIPING (ST)
---ST(2)---	SECONDARY STORM WATER SEWER PIPING (ST(2))
---G---	NATURAL GAS PIPING (G)
---CA---	WW COMPRESSED AIR PIPING (CA)
---WCA---	W COMPRESSED AIR PIPING (WCA)
---A---	CLEAN AIR PIPING (A)
---PD---	PUMP DISCHARGE
---	ELBOW DOWN
---	45° OFFSET
---	ELBOW UP
---	BOTTOMTEE CONNECTION
---	TOP TEE CONNECTION
---	"P" TRAP
---	PIPE CONTINUATION
---	CAP OR PLUG
---	DECK PLATE CLEANOUT (DPCO)
---	WALL PLATE CLEANOUT (WPCO)
---	CLEANOUT (CO)
---	FLOOR DRAIN (FD) / FLOOR SINK (FS)
---	ROOF DRAIN
---	WALL HYDRANT (WH) / HOSE BIBB (HB)
---	STRAINER
---	WATER METER
---	SHUT OFF VALVE
---	BALANCING VALVE
---	CHECK VALVE
---	PRESSURE REDUCING VALVE
---	RELIEF VALVE
---	PIPE ANCHOR
---	PIPE GUIDE
---	UNION
---	BACKFLOW PREVENTER (BFP)
---	SHOCK ABSORBER (SA)
---	RECIRCULATION PUMP
---	THERMOMETER
---	PRESSURE GAUGE
---	TRAP PRIMER (TP)
---	DRAWING KEYNOTE
---	DEMOLITION/REMOVAL KEYNOTE
---	PIPE RISER CALLOUT



DETAIL NOTES:

- PROVIDE A PIPE LABEL FOR EACH PIPE FUNCTION.
- PROVIDE AT LEAST ONE LABEL ON EACH PIPE FOR EVERY ROOM THE PIPE PASSES THROUGH.
- PROVIDE LABELS IN LARGE SPACES ON MAXIMUM 20' CENTERS FOR EVERY PIPE UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS.
- LABELS TO BE LOCATED IN AN EASILY VISIBLE LOCATION AS THEY WOULD NORMALLY BE SEEN, I.E. ON THE BOTTOM HALF OF PIPES IN THE AIR AND ON THE TOP HALF OR SIDES OF PIPES MOUNTED LOW.
- LABELS SHALL BE, COLOR CODED, PRE-PRINTED, SELF-ADHESIVE VINYL.
- SEE SPECIFICATION FOR OTHER REQUIREMENTS AND LIST OF PIPE FUNCTIONS.

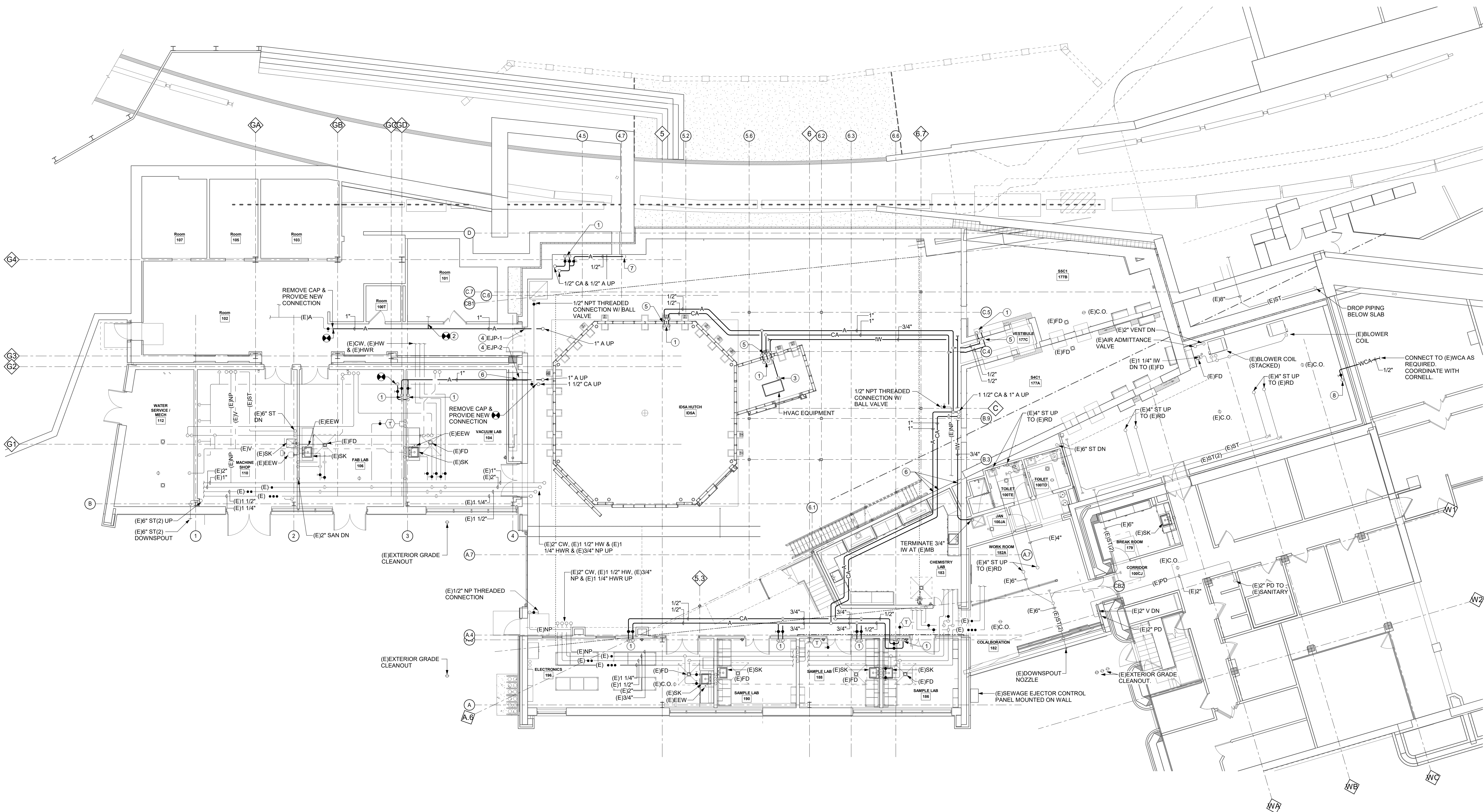
1 PIPING IDENTIFICATION LABEL DETAIL
NOT TO SCALE



2 PUMPED CONDENSATE THROUGH LABYRINTH
NOT TO SCALE

Revisions

1 FIRST FLOOR - PLUMBING
1/8" = 1'-0"



GENERAL NOTES:

- NEW PIPING SHALL NOT BE SUPPORTED BY THE HIGH BAY ROOF STRUCTURE. PROVIDE UNISTRUT FOR WALL MOUNTING.
- LABYRINTHS ARE RADIATION SHIELDING INSTALLED BY OWNER AT ANY PENETRATION INTO SPACES WITH RADIATION (HUTCH AND CAVES). ALL UTILITIES SHOWN IN THE HUTCH OR CAVES SHALL BE ROUTED THROUGH THE LABYRINTH AND REQUIRE A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW.
- PIPING BELOW THE PLATFORMS (REFER TO ARCHITECTURAL PLAN FOR LOCATIONS) CAN BE SUPPORTED FROM THE STRUCTURE ABOVE, REFER TO STRUCTURAL PLAN FOR REQUIREMENTS.
- ALL ABOVE FINISHED FLOOR(AFF) ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR LEVEL.
- SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDSA HUTCH AND/ OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.

DRAWING NOTES

- 1/2" CA & 1/2" A DOWN. PROVIDE SHUT OFF VALVE AND QUICK CONNECT. QUICK CONNECT SHALL BE LOCATED 5'-0" AFF.
- RECONNECT TO EXISTING CLEAN AIR PIPING AS REQUIRED. MATCH EXISTING PIPE SIZE.
- PROVIDE IW CONNECTION TO HVAC EQUIPMENT. PROVIDE CONDENSATE PUMP CP-1. ROUTE IW FROM CONDENSATE PUMP THROUGH LABYRINTH. REFER TO DETAIL 2 ON P-000.
- PROVIDE PIPING EXPANSION JOINT. REFER TO SCHEDULE FOR MORE INFORMATION. INSTALL PER MANUFACTURERS REQUIREMENTS AT THE HIGH BAY WALL PENETRATION.
- OFFSET PIPING THROUGH LABYRINTH. COORDINATE LABYRINTH CONFIGURATION WITH CORNELL.
- ROUTE PIPING THROUGH EXISTING SLEEVE / PASS THROUGH IN CONCRETE WALL.
- 1/2" A WITH SHUT OFF VALVE AND QUICK CONNECT. QUICK CONNECT SHALL BE LOCATED 5'-0" AFF.
- 1/2" CA WITH SHUT OFF VALVE AND QUICK CONNECT. QUICK CONNECT SHALL BE LOCATED 5'-0" AFF.

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Reg. Exp: 04/30/2026
Cert. of Auth: 0018443

Drawn By: CMD
Checked By: THK
Project Manager: GDD

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Revisions

Beamline Enabling - Phase 3
Synchrontron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

P-111
FIRST FLOOR -
PLUMBING

November 17, 2023
100% Construction
Documents

GENERAL NOTES:

- A. NEW PIPING SHALL NOT BE SUPPORTED BY THE HIGH BAY STRUCTURE. PROVIDE UNISTRUT FOR WALL MOUNTING.
- B. ALL ABOVE FINISHED FLOOR(AFF) ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR LEVEL.

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Revisions

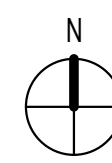
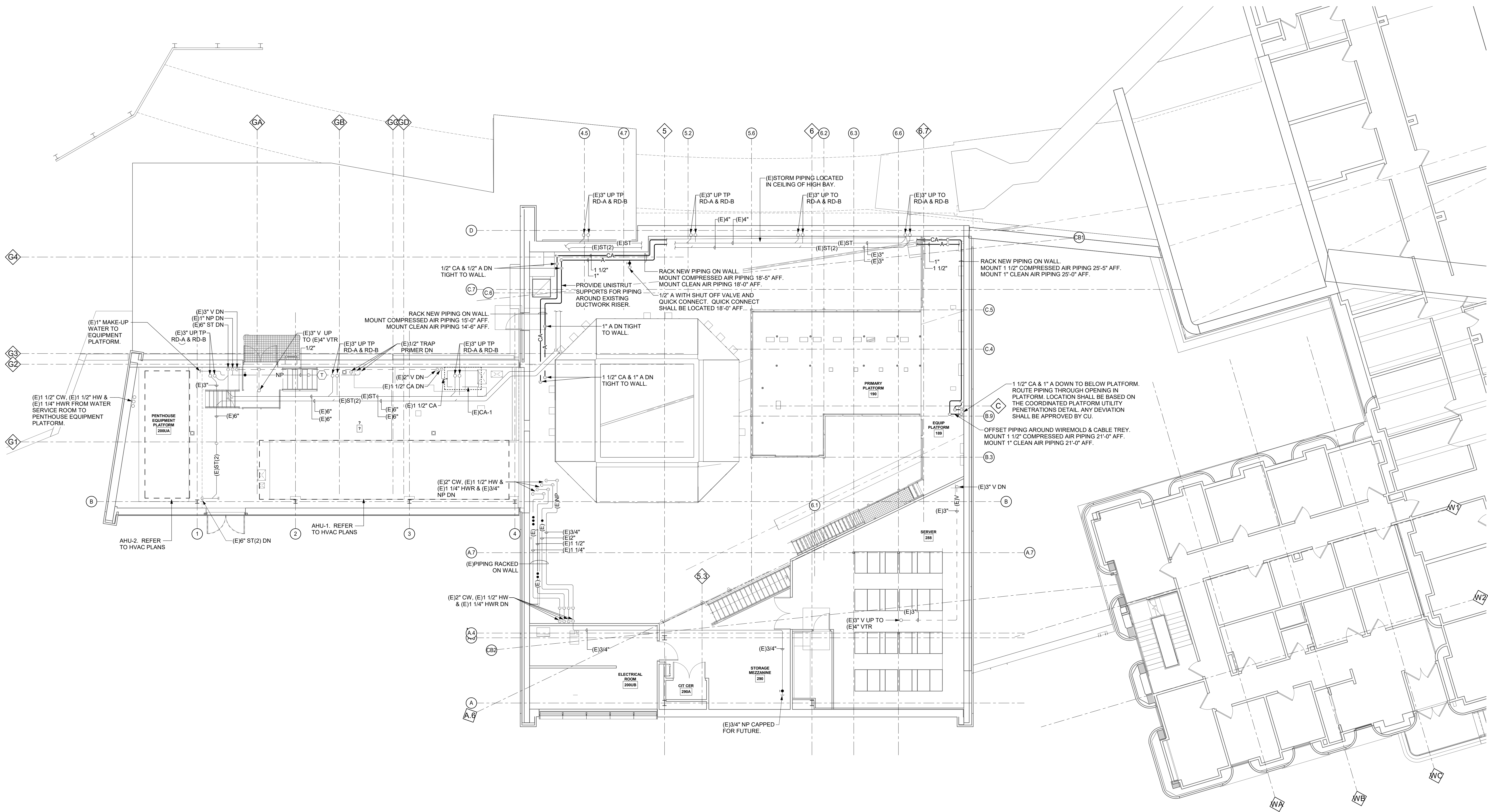
NO.	DESCRIPTION	DATE

Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

P-112
SECOND FLOOR
PLAN - PLUMBING

November 17, 2023
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Documents



HVAC SYMBOL LIST

CONTROLS SCHEMATIC SYMBOL LIST

A. REFER TO STRUCTURAL AND ARCHITECTURAL PLAN DETAILS FOR DUCTWORK AND UTILITY PENETRATION REQUIREMENTS THROUGH CAVE, HUTCH, AND WALLS WITH SHIELDING.

B. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVERTED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

C. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT FIELD VERIFY AND ALL DIMENSIONS BEFORE FABRICATION.

D. ALL MATERIAL AND EQUIPMENT SHALL BE NEW.

E. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTION AND LOCAL, STATE, AND NATIONAL CODES.

F. MECHANICAL CONTRACTOR SHALL PROVIDE ALL PENETRATIONS THROUGH WALLS, CEILING, FLOORS AND ROOFS TO ACCOMMODATE ALL MECHANICAL SYSTEMS. DO NOT DRILL, CORE OR CUT ANY PORTION OF COLUMNS, BEAMS, JOISTS OR BRIDGING RISERS.

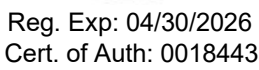
G. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL AIR VENTS OR DRAINS FOR THE INSTALLATION OF THE PIPING SYSTEMS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ROUTE TO THE EXTERIOR THROUGH THE HIGH POINTS AND AT AREAS WITHIN THE PIPING SYSTEMS THAT COULD ACCUMULATE OR TRAP AIR PREVENTING PROPER OPERATION OF THE SYSTEMS. DRAINS SHALL BE PROVIDED AT ALL LOW POINTS WITHIN THE PIPING SYSTEMS TO FACILITATE DRAINING OF THE SYSTEM COMPLETELY.

H. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE LOCATIONS OF ALL ROOM TEMPERATURE SENSORS WITH THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL PROVIDE PRE-INSTALLATION MEETING WITH THE OWNER/ENGINEER TO LOCATE SENSOR LOCATIONS PRIOR TO INSTALLATION. THE TEMPERATURE SENSORS SHALL BE INSTALLED IN ALIGNMENT WITH ELECTRICAL FIRE, AND OTHER CODES. WITHIN LOCAL ROOMS, THE TEMPERATURE SENSORS SHALL BE HEIGHT FOR ALL TEMPERATURE SENSORS SHALL BE 48 INCH TO TOP OF THE COVER.

I. ALL PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS SHALL BE PROVIDED FOR INSTALLATION OF MECHANICAL SYSTEMS INCLUDING, BUT NOT LIMITED TO, MECHANICAL DUCTWORK, PRE-INSTALLATION MEETING WITH THE OWNER THROUGH RATED WALLS AND FLOORS SHALL BE FIRE-SMOKE STOPPED. ALL PENETRATIONS THROUGH NON RATED WALLS SHALL BE SEALED WITH A NON-HARDENING SEALANT ON BOTH SIDES OF WALL PENETRATION TO REDUCE NOISE TRANSMISSION.

J. LABYRINTHS ARE RADIATION SHIELDING INSTALLED BY OWNER AT ANY PENETRATION THROUGH WALLS WITH SHIELDING (HUTCH AND CAVES). ALL UTILITIES SHOWN IN THE HUTCH OR CAVES SHALL BE ROUTED THROUGH THE LABYRINTH AND REQUIRE A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW.

K. SCOPED WORK WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO ISGA HUTCH AND/OR SECTION 5 GAVE 2 WILL REQUIRE FIELD VERIFICATION OF COORDINATION AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.



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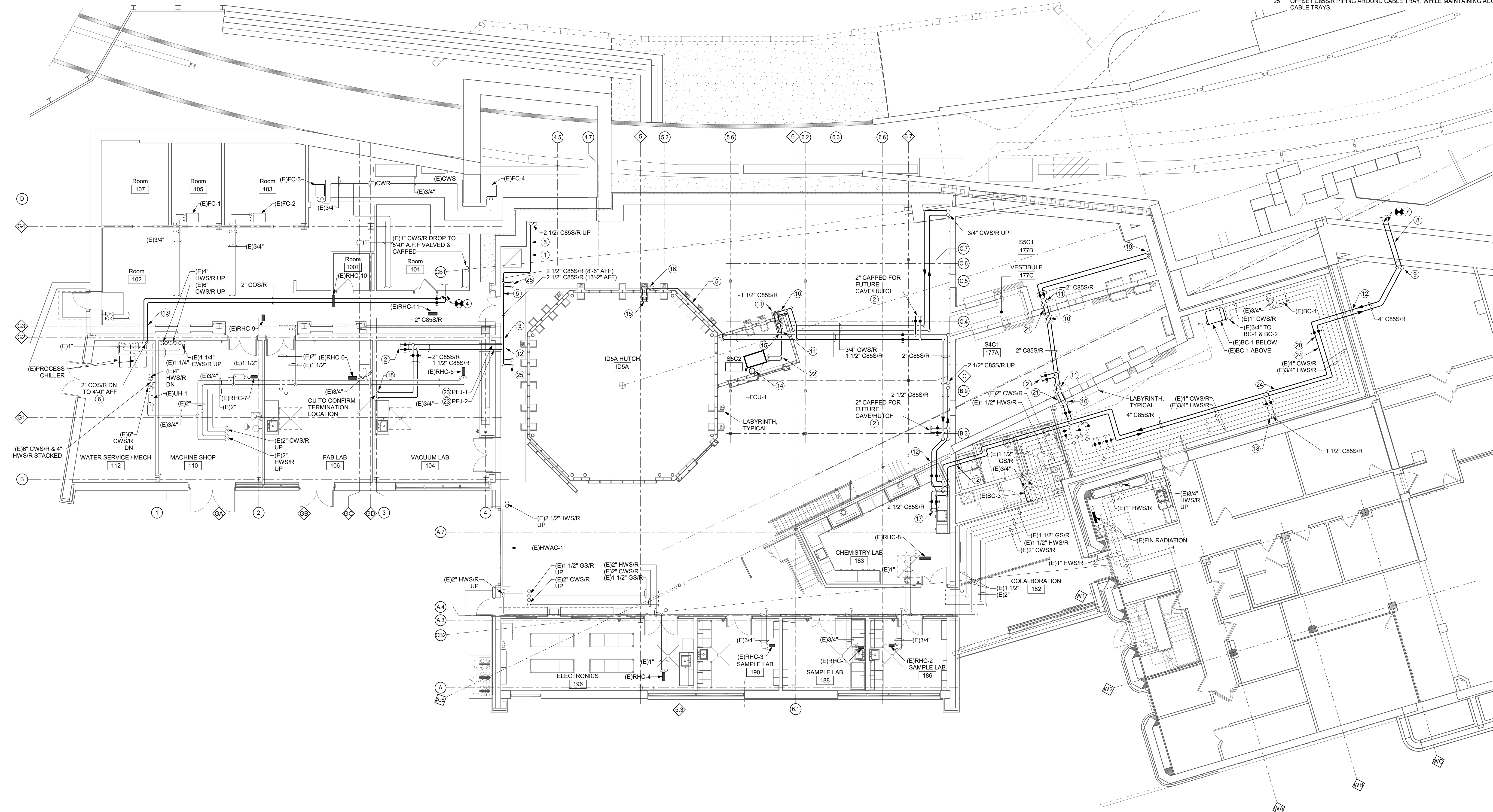
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Cornell University
Ithaca, NY 14853

November 17, 2023
100% Construction
Documents

1 FIRST FLOOR PLAN - PIPING

1/8" = 1'-0"



GENERAL NOTES:

- A. LABYRINTHS ARE RADIATION SHIELDING INSTALLED BY OWNER AT ANY PENETRATION INTO SPACES WITH RADIATION (HUTCH AND CAVES). ALL UTILITIES SHOWN IN THE HUTCH OR CAVES SHALL BE ROUTED THROUGH THE LABYRINTH AND REQUIRE A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW.
- B. PIPING BELOW THE PLATFORMS (REFER TO ARCHITECTURAL PLAN FOR LOCATIONS) CAN BE SUPPORTED FROM THE STRUCTURE ABOVE. REFER TO STRUCTURAL PLAN FOR REQUIREMENTS.
- C. EXISTING WALL MOUNTED UNISTRUT IS INSTALLED THROUGHOUT THE HIGHBAY. UNISTRUT IS LOCATED ON THE NORTH AND EAST WALLS. 4'-0" ON CENTER. FROM 10'-0" AFF TO 24'-0" AFF. PROVIDE ADDITIONAL UNISTRUT AS REQUIRED TO ROUTE UTILITIES.
- D. SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDSA HUTCH AND/ OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.

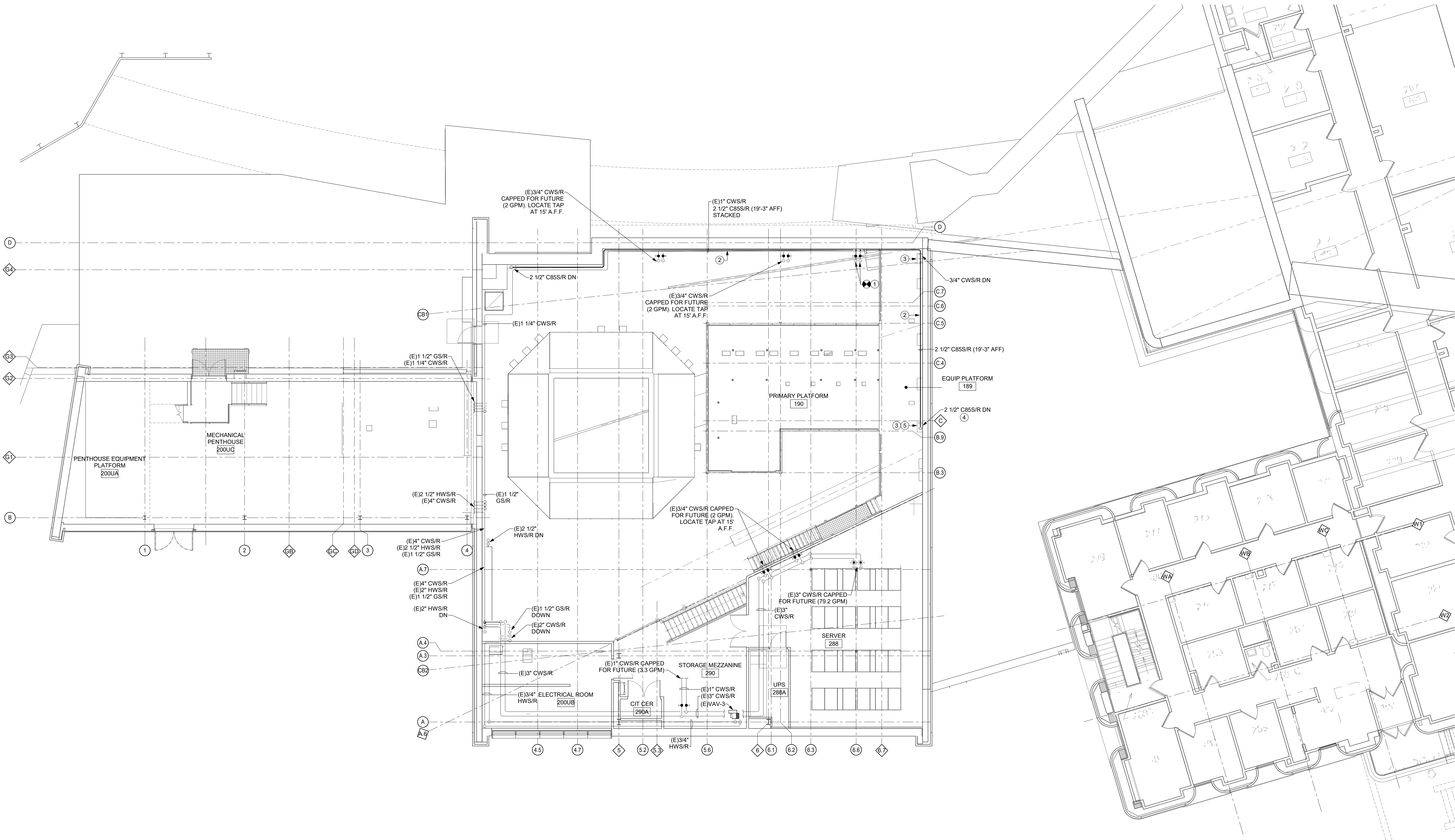
DRAWING NOTES:

- 1. PROVIDE UNISTRUT SUPPORTS FOR PIPING AROUND EXISTING DUCTWORK RISER. PIPING SHALL NOT BE SUPPORTED FROM THE STRUCTURE ABOVE.
- 2. 2" C85S/R BRANCH PIPES CAPPED FOR FUTURE CONNECTION.
- 3. PROVIDE PRESSURE GAUGE IN SUPPLY AND RETURN PIPING.
- 4. TIE PIPING INTO EXISTING. PROVIDE ALL PIPING MODIFICATIONS AS REQUIRED TO MAKE THE CONNECTION.
- 5. PIPING SHALL BE ROUTED TIGHT TO THE WALL. PIPING SHALL NOT BE SUPPORTED FROM THE STRUCTURE ABOVE.
- 6. PROVIDE 2" ISOLATION VALVES AND TERMINATE WITH 1 1/2" FEMALE THREADS. 4'-0" AFF. FINAL CONNECTION TO CHILLER BY OWNER.
- 7. TIE PIPING INTO THE EXISTING 4" STAINLESS STEEL VICTAULIC WITHIN THE UNDERGROUND TRENCH. OWNER TO REMOVE TRENCH COVERS AS REQUIRED TO COMPLETE INSTALLATION.
- 8. PROVIDE STAINLESS STEEL VICTAULIC PIPING WITHIN THE UNDERGROUND TRENCH. TRANSITION TO COPPER PIPING ABOVE THE FINISHED FLOOR.
- 9. PROVIDE A DRAIN VALVE IN PIPING AT LOW POINT AT THE EXIT OF LABYRINTH. ROUTE PIPING TO AN ELEVATION ABOVE THE LABYRINTH. PROVIDE AN AIR VENT AT THE HIGH POINT.
- 10. PROVIDE A DRAIN VALVE AT EXIT OF LABYRINTH.
- 11. ROUTE PIPING THROUGH EXISTING SLEEVE / PASS THROUGH IN CONCRETE WALL.
- 12. ROUTE PIPING THROUGH NEW SLEEVE / PASS THROUGH.
- 13. WALL MOUNTED LINE VOLTAGE THERMOSTAT.
- 14. 1 1/2" C85S/R PIPES WITH THREADED CAPPED (FOR CONNECTION BY OWNER) WITHIN THE HUTCH / CAVE AT THE EXIT OF THE LABYRINTH.
- 15. PROVIDE ISOLATION VALVES FOR 1 1/2" BRANCH PIPES TO THE HUTCH / CAVE PRIOR TO ENTRY INTO THE LABYRINTH. ISOLATION VALVES SHALL BE LOCATED IN DROP DOWN TO LABYRINTH ON THE EXTERIOR OF THE HUTCH / CAVE.
- 16. 4" C85S/R BRANCH PIPES CAPPED FOR FUTURE CONNECTION.
- 17. 1 1/2" C85S/R BRANCH PIPES WITH ISOLATION VALVES. TERMINATE PIPING 5'-0" AFF WITH A THREADED CAP (FOR CONNECTION BY OWNER).
- 18. TERMINATE PIPING AT THE MANIFOLD 5'-0" AFF. MANIFOLD SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. REFER TO DETAILS FOR FURTHER REQUIREMENTS.
- 19. PROVIDE VALVES AND GAUGES FOR THE CESR 85 PIPING PER THE BUILDING ENTRY DETAIL.
- 20. PROVIDE COPPER VICTAULIC PIPING THROUGH THE LABYRINTH TO ALLOW EASY REMOVAL OF PIPING WITHIN LABYRINTH.
- 21. TERMINATE DRAIN VALVE WITH THREADED CAP 8'-0" AFF.
- 22. PROVIDE PIPING EXPANSION JOINT. REFER TO SCHEDULE FOR MORE INFORMATION.
- 23. INSTALL PER MANUFACTURER'S REQUIREMENTS AT THE HIGH BAY WALL PENETRATION. ANCHORS AND GUIDES SHALL BE A DELEGATED DESIGN.
- 24. PIPING SHALL BE ROUTED AS TIGHT TO THE SOUTH AND EAST WALLS AS FEASIBLE, WHILE MAINTAINING ACCESS TO THE CABLE TRAYS.
- 25. OFFSET C85S/R PIPING AROUND CABLE TRAY, WHILE MAINTAINING ACCESS TO THE CABLE TRAYS.

Revisions

1 SECOND FLOOR PLAN - PIPING

1/8" = 1'-0"



GENERAL NOTES:

- A. EXISTING WALL MOUNTED UNISTRUT IS INSTALLED THROUGHOUT THE HIGHBAY. UNISTRUT IS LOCATED ON THE NORTH AND EAST WALLS, 4'-0" ON CENTER, FROM 10'-0" AFF TO 24'-6" AFF. PROVIDE ADDITIONAL UNISTRUT AS REQUIRED TO ROUTE UTILITIES.

DRAWING NOTES:

1. TIE PIPING INTO EXISTING. PROVIDE ALL PIPING MODIFICATIONS AS REQUIRED TO MAKE THE CONNECTION. ROUTE PIPING TIGHT TO WALL DOWN TO THE FLOOR BELOW.
2. PIPING SHALL BE STACKED AND ROUTED TIGHT TO THE WALL. PROVIDE WALL MOUNTED PIPE SUPPORTS PER THE DETAIL. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF ABOVE.
3. ROUTE PIPING THROUGH OPENING IN PLATFORM. LOCATION SHALL BE BASED ON THE COORDINATED PLATFORM UTILITY PENETRATIONS DETAIL. ANY DEVIATION SHALL BE APPROVED BY CU.
4. PROVIDE ISOLATION VALVES IN THE 2 1/2" C85/R PIPING RISER. INSTALL 4'-0" ABOVE PLATFORM.
5. PROVIDE PRESSURE GAUGE AND THERMO WELL IN SUPPLY AND RETURN PIPING.

Revisions

EXPANSION COMPENSATOR PIPE GUIDE SCHEDULE			
PIPE SIZE	MAX. DISTANCE FROM EXPANSION COMPENSATOR TO FIRST GUIDE	MAX. DISTANCE FROM FIRST GUIDE TO SECOND GUIDE	
2"	8'	2'-4"	

NOTE:
EACH EXPANSION COMPENSATOR TO HAVE FOUR (4) GUIDES, TWO (2) UPSTREAM AND TWO (2) DOWNSTREAM.

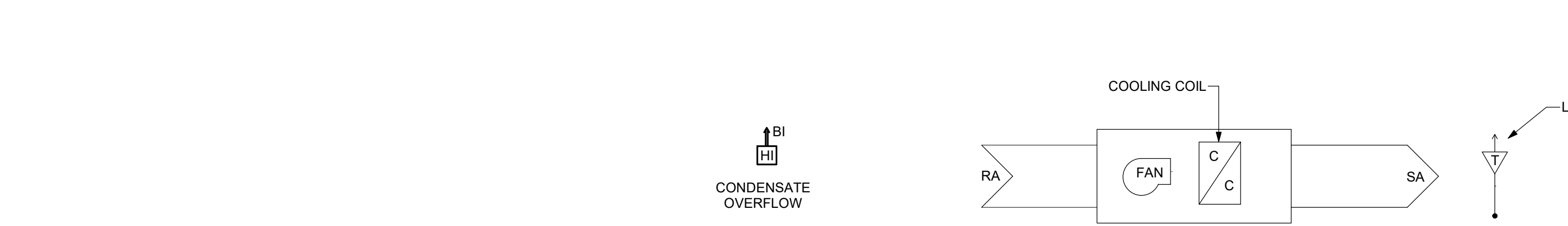
JOINT NO.	LOCATION	TYPE	APPLICATION	MATERIAL	LINE SIZE	MAX. PRESS. @ 250 DEG. F (PSIG)	MIN. TEMP. (DEG. F)	MAX. TEMP. (DEG. F)	MINIMUM COMPRESSION TRAVEL	MINIMUM EXTENSION TRAVEL	TOTAL AXIAL MOVEMENT	MANUFACTURER & MODEL NO.	REMARKS
PEJ-1	VACUUM LAB	CHILLED WATER	NESTED	SS HOSE, CARBON STEEL NIPPLE	2	460	45	120	4	4	4	MASON WMN	1,2
PEJ-2	VACUUM LAB	CHILLED WATER	NESTED	SS HOSE, CARBON STEEL NIPPLE	2	460	45	120	4	4	4	MASON VMN	1,2

REMARKS:
1. PROVIDE DELEGATED DESIGN FOR ANCHORS AND GUIDES.
2. REQUIRED AT BUILDING EXPANSION JOINT.

EQUIPMENT PRE-PURCHASED BY OWNER FOR INSTALLATION BY CONTRACTOR

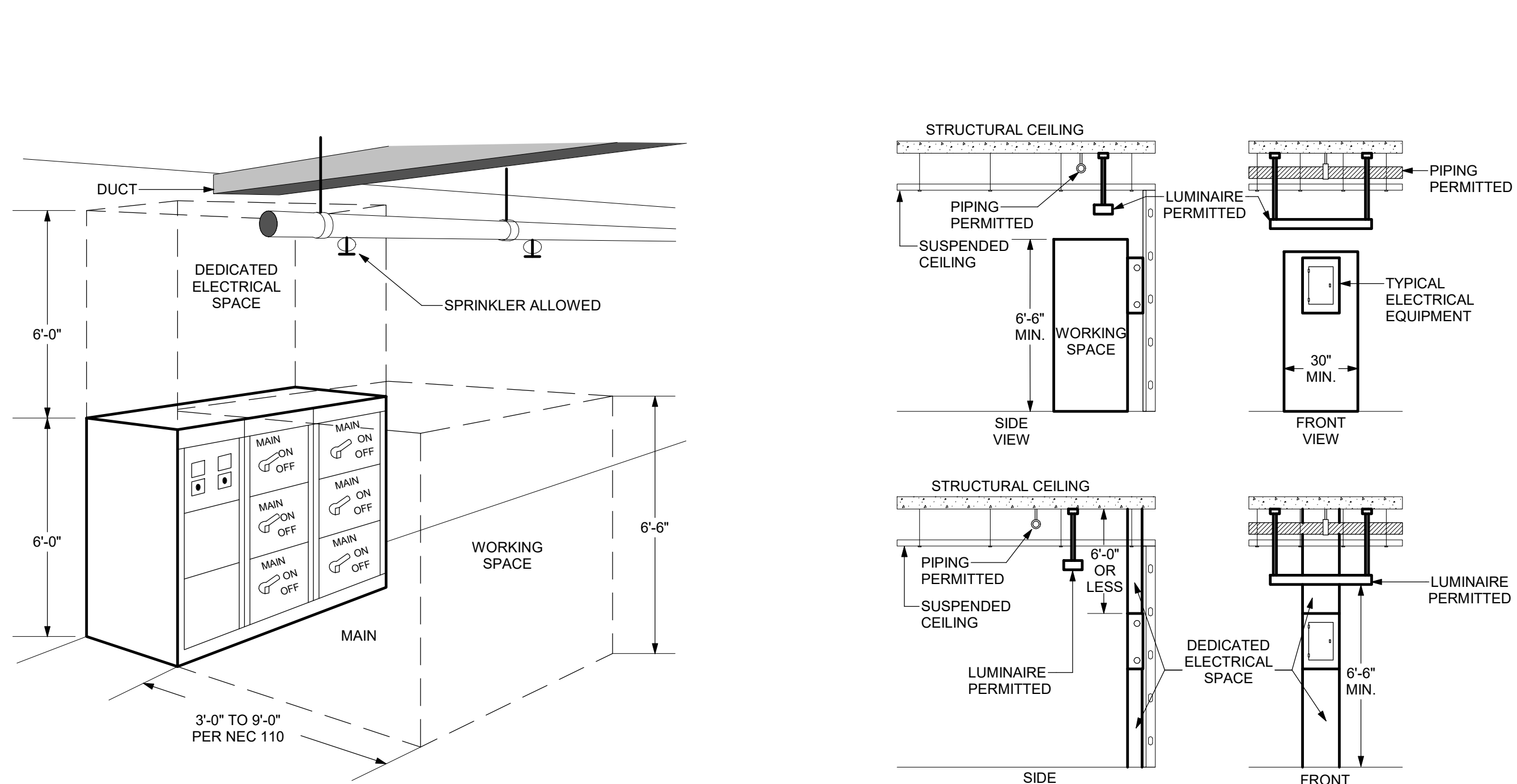
FAN COIL UNIT SCHEDULE - CHILLED WATER													
UNIT NO.	LOCATION	TYPE	AIR SIDE	COOLING COIL	EAT (DEG. F)	WB	WATER FLOW (GPM)	WATER P.D. (FT. HD)	ENT. WATER TEMP. (DEG. F)	LVG. WATER TEMP. (DEG. F)	ROWS	FAN MOTOR VOLTS	PHASE
FCU-1	HUTCH	HORZ. EXPOSED	270	8.5	75	63	1.8	3.98	47	56.4		115	1

FAN COIL UNIT SCHEDULE - CHILLED WATER													
UNIT NO.	LOCATION	TYPE	AIR SIDE	COOLING COIL	EAT (DEG. F)	WB	WATER FLOW (GPM)	WATER P.D. (FT. HD)	ENT. WATER TEMP. (DEG. F)	LVG. WATER TEMP. (DEG. F)	ROWS	FAN MOTOR VOLTS	PHASE
FCU-1	HUTCH	HORZ. EXPOSED	270	8.5	75	63	1.8	3.98	47	56.4		115	1



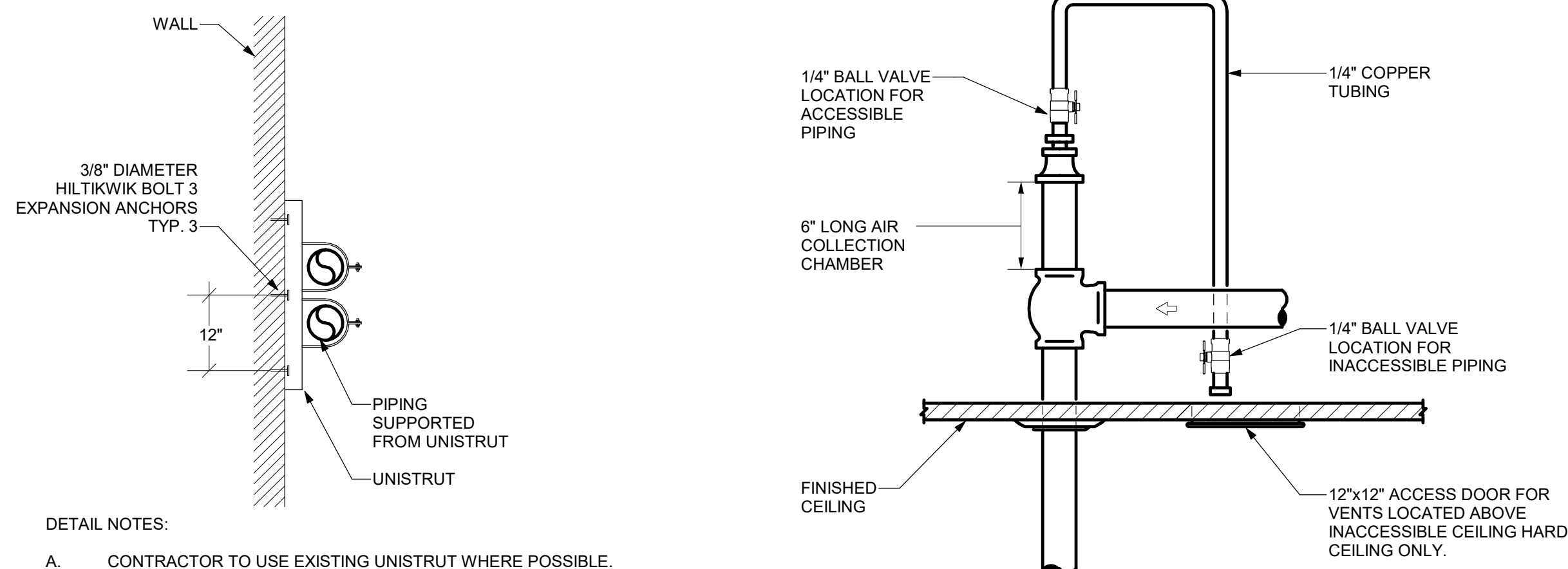
POINT SCHEDULE														
EQUIPMENT	HARDWARE POINTS				SOFTWARE POINTS								SHOWN ON GRAPHIC	NOTES
	BI	BO	AI	AO	AV	BV	SCH	TREND	ALARM					
									BACS	EMCS	DESCRIPTION			
FCU CONDENSATE OVERFLOW SWITCH	X							X	X			CONDENSATE OVERFLOW	X	VIA FLOAT SWITCH

1 CAVE COOLING ONLY FAN COIL UNIT CONTROL SCHEMATIC AND SYSTEM SUMMARY
Not To Scale



- DETAIL NOTES:
- ELECTRICAL EQUIPMENT INCLUDES PANELS, TRANSFORMERS, DISCONNECTS, STARTERS, MOTOR CONTROL CENTERS, SWITCHGEAR, ADJUSTABLE SPEED DRIVES, AND FUSED SWITCHES (THIS ALSO APPLIES TO ELECTRICAL GEAR MOUNTED DIRECTLY ON MECHANICAL EQUIPMENT).
 - DEDICATED ELECTRICAL SPACE IS DEFINED BY NEC 110.
 - NO PIPING OR DUCTWORK MAY BE INSTALLED IN DEDICATED ELECTRICAL SPACE OR WORKING SPACE.

2 PIPING AND DUCTWORK OVER ELECTRICAL EQUIPMENT DETAIL
NOT TO SCALE

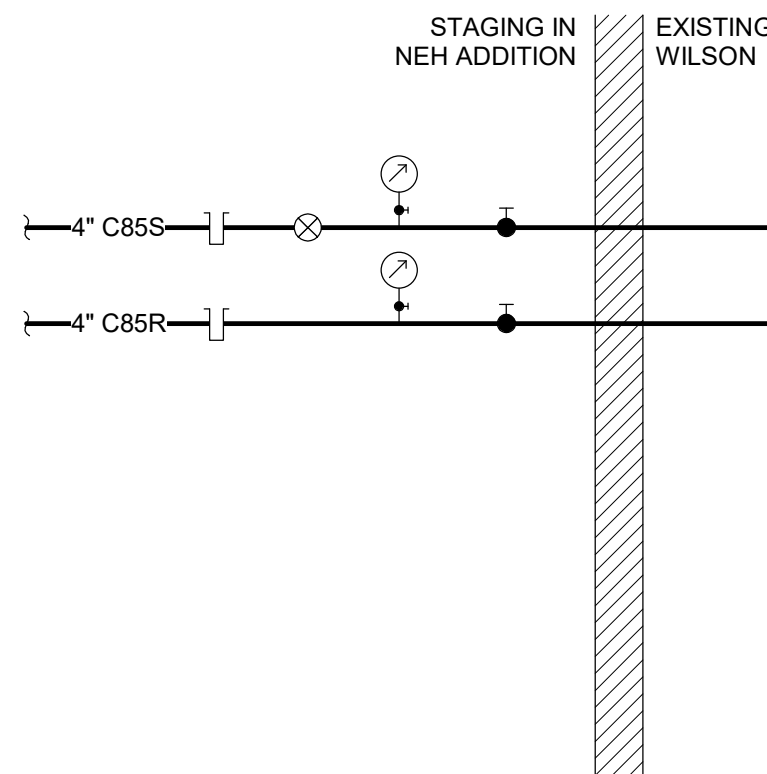


- DETAIL NOTES:
- CONTRACTOR TO USE EXISTING UNISTRUT WHERE POSSIBLE.

4 WALL MOUNTED PIPING SUPPORT DETAIL
NOT TO SCALE

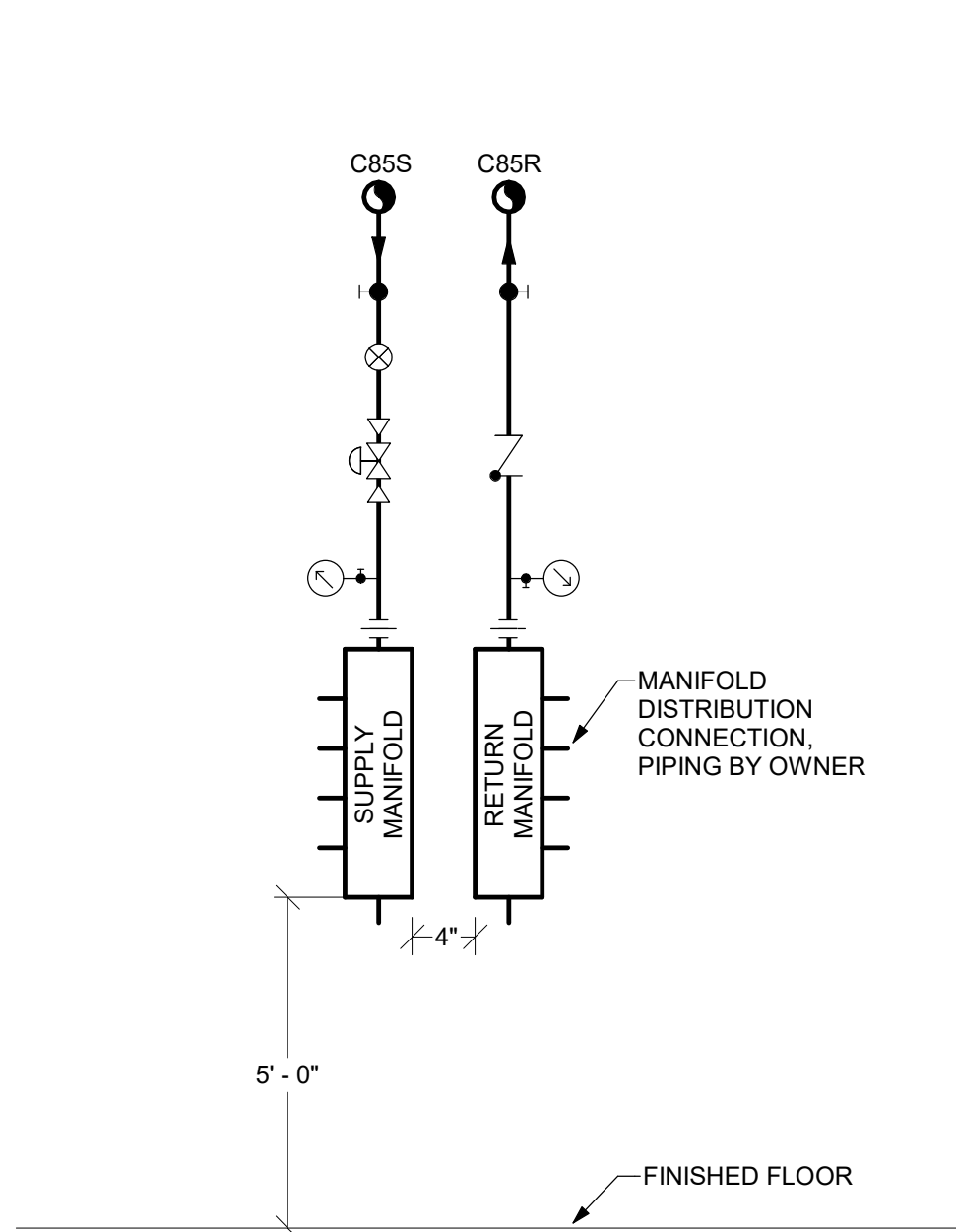
5 MANUAL AIR VENT DETAIL
NOT TO SCALE

3 CESR 85 PROCESS CHILLED WATER PIPING BUILDING ENTRY DETAIL
NOT TO SCALE



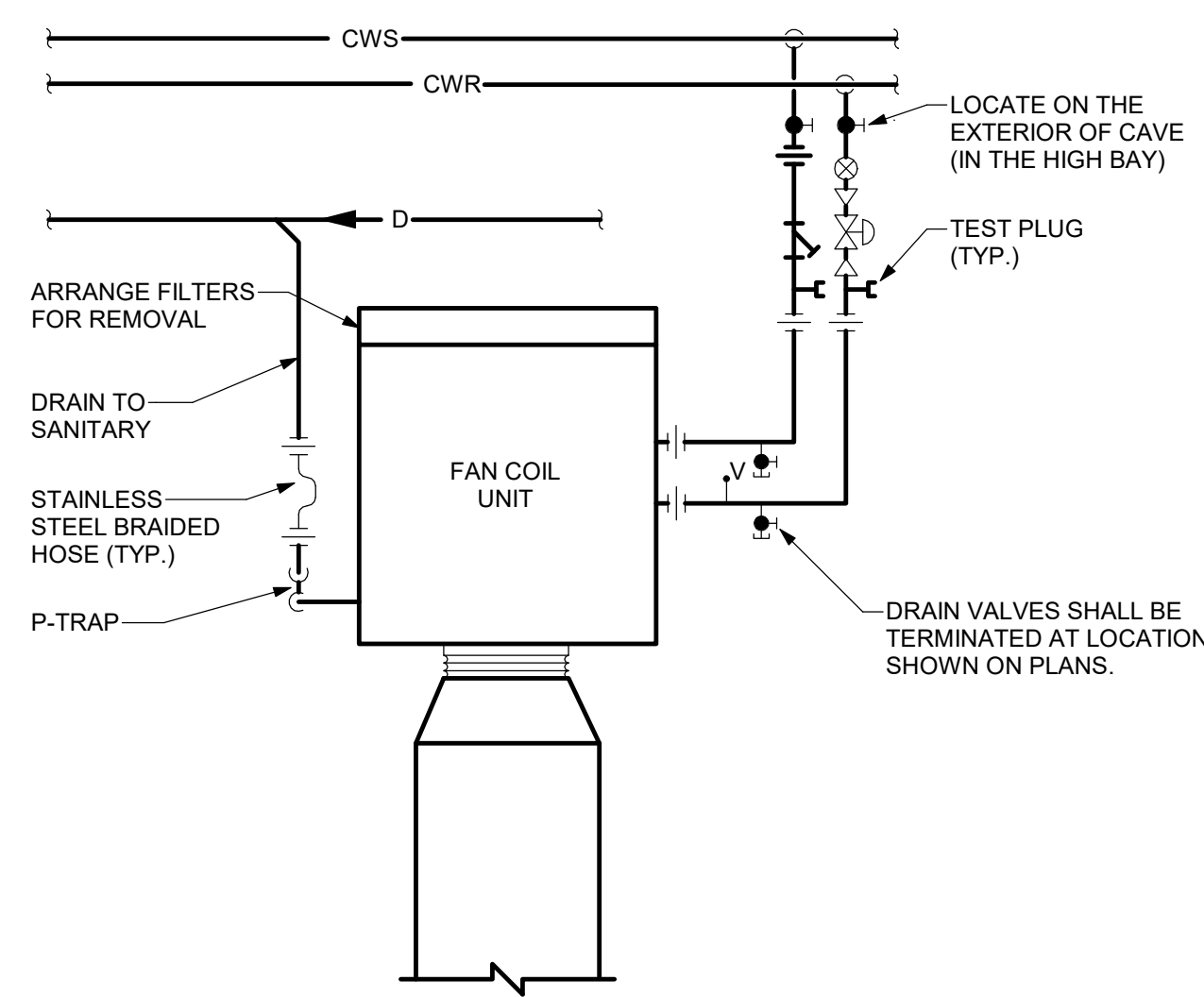
- DETAIL NOTES:
- LOCATE ALL VALVES AND PIPING SPECIALTIES TO BE ACCESSIBLE WITHIN STAGING ROOM.
 - BALANCE VALVE SHALL BE COMPATIBLE WITH DI WATER. REFER TO SPECIFICATIONS.

3 CESR 85 PROCESS CHILLED WATER PIPING BUILDING ENTRY DETAIL
NOT TO SCALE



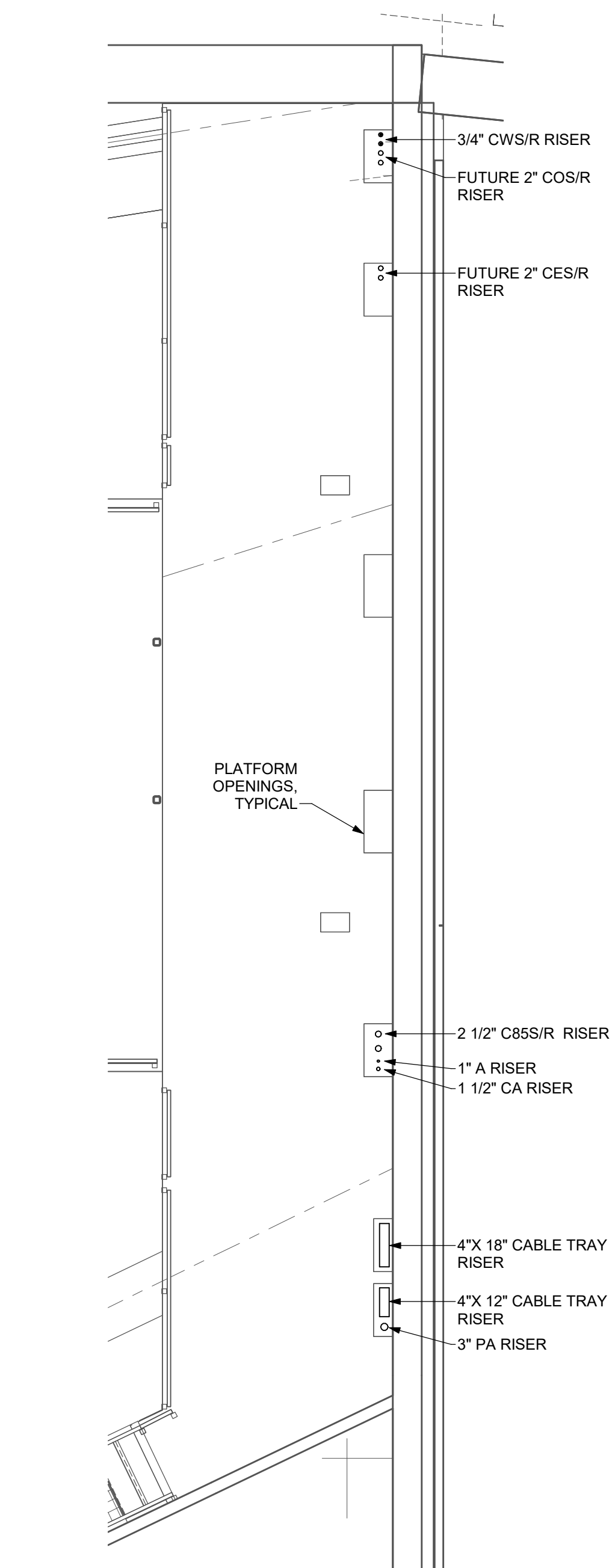
- DETAIL NOTES:
- PROVIDE WALL MOUNTED UNISTRUT TO SUPPORT MANIFOLDS.
 - MANIFOLD, UNION PRESSURE GAUGES, ISOLATION VALVES, BALANCE VALVE AND CONTROL VALVE SHALL BE PRE-PIPED AND FURNISHED BY OWNER FOR INSTALLATION BY CONTRACTOR.

6 CESR 85 PROCESS CHILLED WATER MANIFOLD DETAIL
NOT TO SCALE



- DETAIL NOTES:
- HANG UNIT FROM STRUCTURE AS HIGH AS POSSIBLE WITH STEEL ROD AND VIBRATION ISOLATORS.
 - UNIT SHALL BE ACCESSIBLE FROM BELOW. MECHANICAL AND ELECTRICAL WORK SHALL NOT BE LOCATED BELOW UNIT. ARRANGEMENT SHALL PERMIT REMOVAL OF FAN COIL UNIT FOR MAJOR SERVICING.
 - CONTROL PANEL SHALL BE ACCESSIBLE FOR SERVICING.
 - DRAIN PIPING BY PLUMBING CONTRACTOR.

7 CEILING MOUNTED FAN COIL UNIT DETAIL - COOLING ONLY
NOT TO SCALE



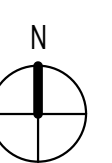
- DETAIL NOTES:
- UTILITIES SHALL BE ROUTED THROUGH THE PLATFORM OPENINGS AT THE SPECIFIED LOCATIONS. ANY DEVIATION SHALL BE COORDINATED WITH OWNER.
 - MAINTAIN SPACE AS REQUIRED FOR FUTURE UTILITIES SHOWN.

8 PLATFORM UTILITY PENETRATIONS DETAIL
1/4" = 1'-0"



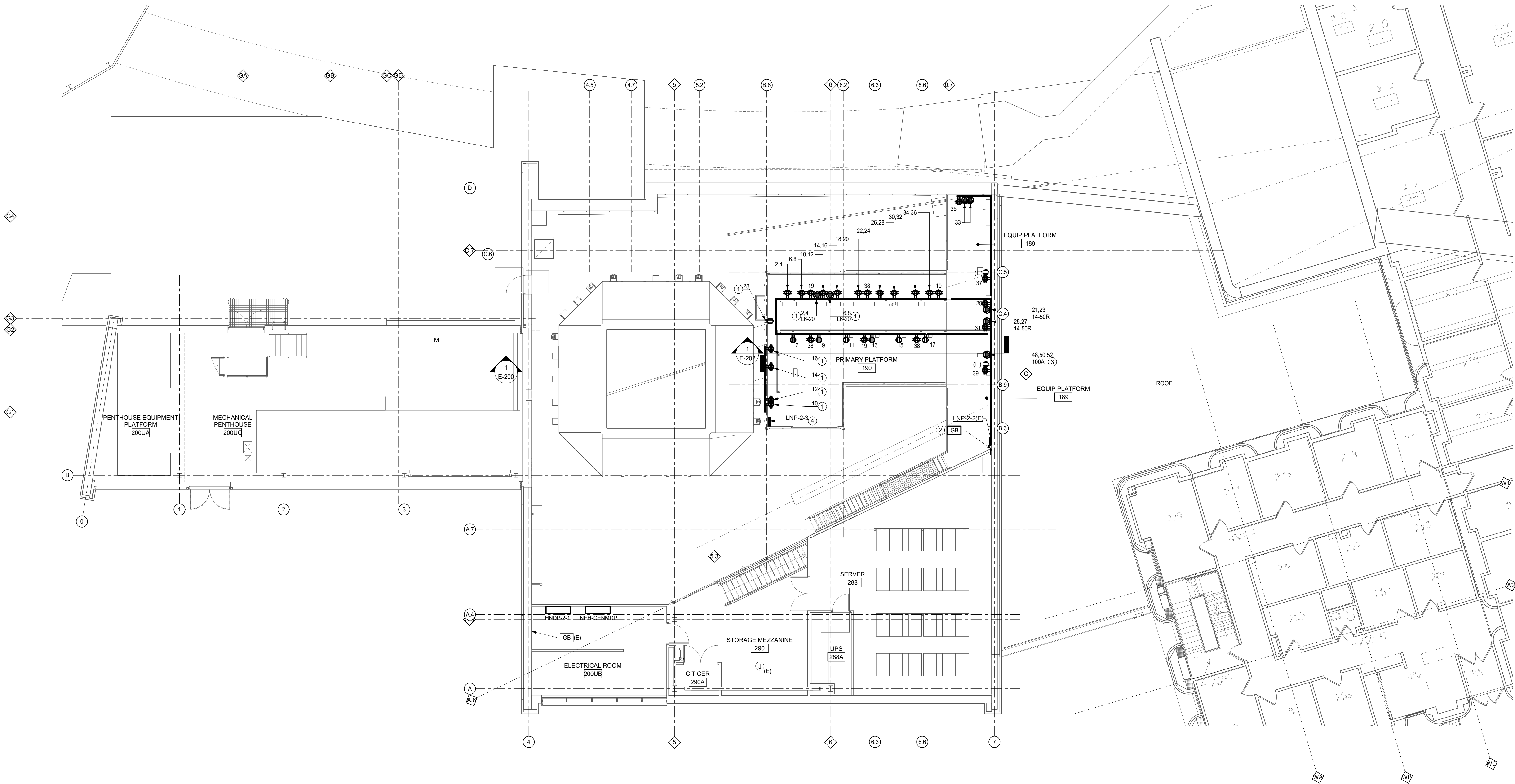
1. INSTALL NEW SURFACE METAL RACEWAY ABOVE EXISTING RACEWAY IN VACUUM LAB ROOM 104 WITH DEVICES SHOWN CIRCUITED TO PANEL LNP-1.9.
2. ALL DEVICES ON INTERIOR OF HUTCH SHALL BE CIRCUITED TO PANEL LNP-1.9 UNLESS OTHERWISE NOTED.
3. ALL DEVICES IN THIS VIEW SHALL BE CIRCUITED TO PANEL LNP-2.3 UNLESS OTHERWISE NOTED.
4. (TYPICAL, ALL QUAD RECEPTACLES WITH TWO CIRCUIT NUMBERS) CIRCUIT THE LEFT-HAND RECEPTACLE TO THE FIRST CIRCUIT NUMBER AND THE RIGHT-HAND RECEPTACLE TO THE SECOND CIRCUIT NUMBER. PANELS IN INDICATED AREAS, CIRCUIT BOTH RECEPTACLES TO A SINGLE CIRCUIT IF THERE IS ONLY ONE CIRCUIT NUMBER AT THE RECEPTACLE.
5. PANELBOARD WAS PROCURED IN PREVIOUS PROJECT AND IS IN POSSESSION OF THE ELECTRICAL CONTRACTOR FOR THE NEW PROJECT.
6. INSTALL JUNCTION BOX ON EITHER SIDE OF GAP. PROVIDE CONDUIT AND WIRING FOR 2 NEW RECEPTACLES AS SHOWN ACROSS THE SPICE EACH CONDUCTOR IN JUNCTION BOX ON EITHER SIDE SO THAT CONDUIT AND WIRING MAY BE REMOVED AND REWORKED IN FUTURE.
7. GROUND BAR FURNISHED BY OWNER, INSTALLED BY CONTRACTOR. ROUTE 40 AWG CU TO EQUIPMENT PLATFORM GROUND BAR PER DRAWING TO BE PROVIDED BY OWNER.
8. PROVIDE 1.5-20R RECEPTACLE FOR RADIATION MONITORING. CIRCUIT TO PANEL LNP2.2. CIRCUIT NUMBER 40.
9. INSTALL JUNCTION BOX ON EITHER SIDE OF GAP. PROVIDE CONDUIT AND WIRING FOR 5 NEW RECEPTACLES AS SHOWN IN VACUUM LAB. SPlice EACH CONDUCTOR IN JUNCTION BOX ON EITHER SIDE SO THAT CONDUIT AND WIRING MAY BE REMOVED AND REWORKED IN FUTURE.
10. ROUTE CONDUITS(A) AROUND INSIDE PERIMETER OF HUTCH FROM PANEL LNP-1.9 THROUGH LABRINTH TO JUNCTION BOX. COORDINATE WITH CHESS STAFF FOR LABRINTH ROUTING REQUIREMENTS.

- A. SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO D5A HUTCH AND/OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PROTECTION MEETING WITH THE OWNER TO REVIEW, COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.
- B. SUPERCONDUCTING MAGNET IN THE HUTCH HAS A MAGNETIC FIELD CONSTRAINT SPHERE OF ROUGHLY 33 FEET DIAMETER WHERE NO MAGNETIC MATERIALS ARE ALLOWED. ALL COMPONENTS WITHIN THAT SPHERE TO BE NON-FERROUS MATERIAL UNLESS SPECIFICALLY COORDINATED WITH CHESS STAFF.
- C. PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT UTILIZE THE PERIMETER WHERE POSSIBLE, AND DO NOT INTERFERE WITH THE USAGE FOOTPRINT OF THE BRIDGE CRANE.
- D. PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT DO NOT INTERFERE WITH FUTURE PLATFORMS, HUTCHES AND CAVES.
- E. IN GENERAL, FIELD LOCATE WALL-MOUNTED HORIZONTAL UTILITIES AND MULTICOMPARTMENT SURFACE RACEWAYS WITH CHESS AND ARCHITECT; COORDINATE WITH OBSTRUCTIONS.
- F. FINAL LOCATIONS OF ALL EQUIPMENT AND OUTLETS TO BE COORDINATED WITH CUSTOMER.



1 SECOND FLOOR PLAN - ELECTRICAL

1/8" = 1'-0"



GENERAL NOTES:

- SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO ID5A HUTCH AND/OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW, COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.
- ALL RECEPTACLES SHALL BE CIRCUITED TO PANEL LNP-2-2 UNLESS OTHERWISE NOTED. CIRCUIT NUMBER AS INDICATED.
- SUPERCONDUCTING MAGNET IN THE HUTCH HAS A MAGNETIC FIELD CONSTRAINT SPHERE OF ROUGHLY 33 FEET DIAMETER WHERE NO MAGNETIC MATERIALS ARE ALLOWED. ALL COMPONENTS WITHIN HUTCH TO BE NON-FERROUS MATERIAL UNLESS SPECIFICALLY COORDINATED WITH CHSS STAFF.
- PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT UTILIZE THE PERIMETER WHERE POSSIBLE, AND DO NOT INTERFERE WITH THE USAGE FOOTPRINT OF THE BRIDGE CRANE.
- PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT DO NOT INTERFERE WITH FUTURE PLATFORMS, HUTCHES AND CAVES.
- FINAL LOCATIONS OF ALL EQUIPMENT AND OUTLETS TO BE COORDINATED WITH CUSTOMER.

DRAWING NOTES:

- THIS RECEPTACLE SHALL BE CIRCUITED TO PANEL LNP-2-3, CIRCUIT NUMBER AS INDICATED.
- OWNER-FURNISHED EQUIPMENT PLATFORM GROUND BAR. PROVIDE (1) 500 KCML CU CABLE BACK TO GES GROUND BAR IN ELECTRICAL ROOM 200UB.
- PROVIDE RECEPTACLE TYPE HBL5100R9W WITH BACK BOX AS NEEDED.
- PANELBOARD WAS PROCURED IN PREVIOUS PROJECT AND IS IN POSSESSION OF THE ELECTRICAL CONTRACTOR FOR THE NEH PROJECT.

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Drawn By: ECS
Checked By: MRG
Project Manager: GDD

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Revisions

Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

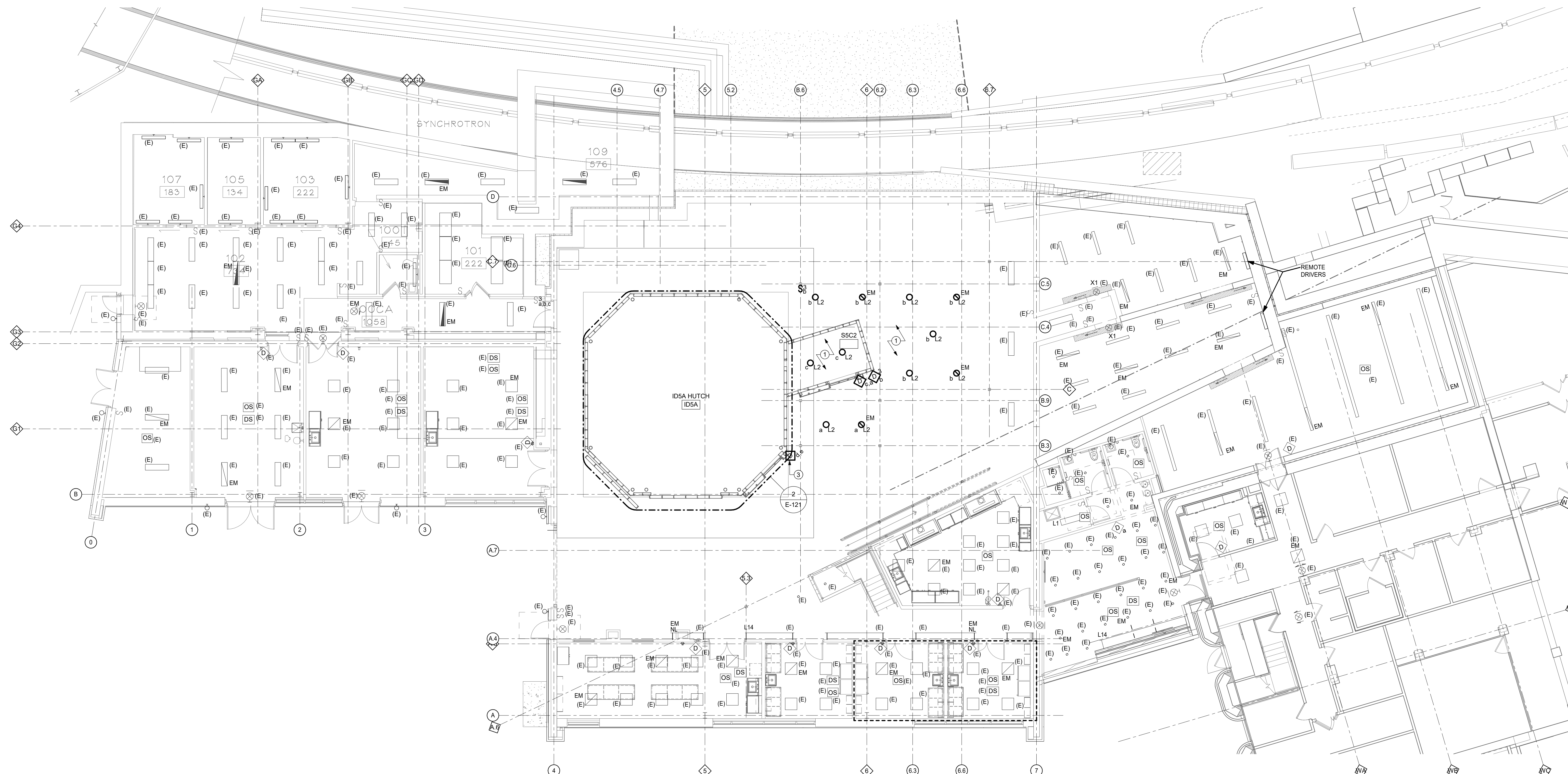
E-112
SECOND FLOOR
PLAN - POWER

November 17, 2023
100% Construction
Documents

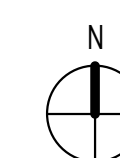


- A. SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDA HATCH AND/OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PROTECTION PLAN COORDINATING WITH THE OWNER TO REVIEW, COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.
- B. L2 LIGHT FIXTURES SHALL BE PENDANT-MOUNTED AT 8'-6" AFF. ALL L2 FIXTURES SHOWN AS EMERGENCY SHALL BE INSTALLED WITH MANUFACTURER BATTERY BACKUP.
- C. L1 LIGHT FIXTURES TO BE MOUNTED AT 45-DEGREE ANGLE AT THIS LOCATION POINTING TOWARDS CENTER OF HUTCH AREA. PROVIDE UL-94 DEGREE AND 120V LINE SAFETY CIRCUIT FOR EMERGENCY L1 LIGHTS. SUPERCONDUCTING MAGNET TRAP HUTCH HAS A MAGNETIC FIELD CONSTRAINT SPHERE OF APPROX. 33 FEET DIAMETER WHERE NO MAGNETIC MATERIALS ARE ALLOWED. ALL COMPONENTS WITHIN HUTCH TO BE NON-FERROUS MATERIAL UNLESS SPECIFICALLY COORDINATED WITH CHESS STAFF.
- D. TURN OVER FIXTURES TO CHESS STAFF FOR INSTALLATION OF LEAD "BOAT" AROUND FIXTURE BALLAST PRIOR TO FINAL INSTALLATION BY CONTRACTOR.

1. CIRCUIT LIGHT FIXTURES IN CAVE AND UNDER PLATFORM TO LNP-2-3 CIRCUIT # 37.
2. CIRCUIT LIGHT FIXTURES INSIDE HUTCH TO LNP-1-9, CIRCUIT #39.



1 FIRST FLOOR PLAN - LIGHTING
1/8" = 1'-0"



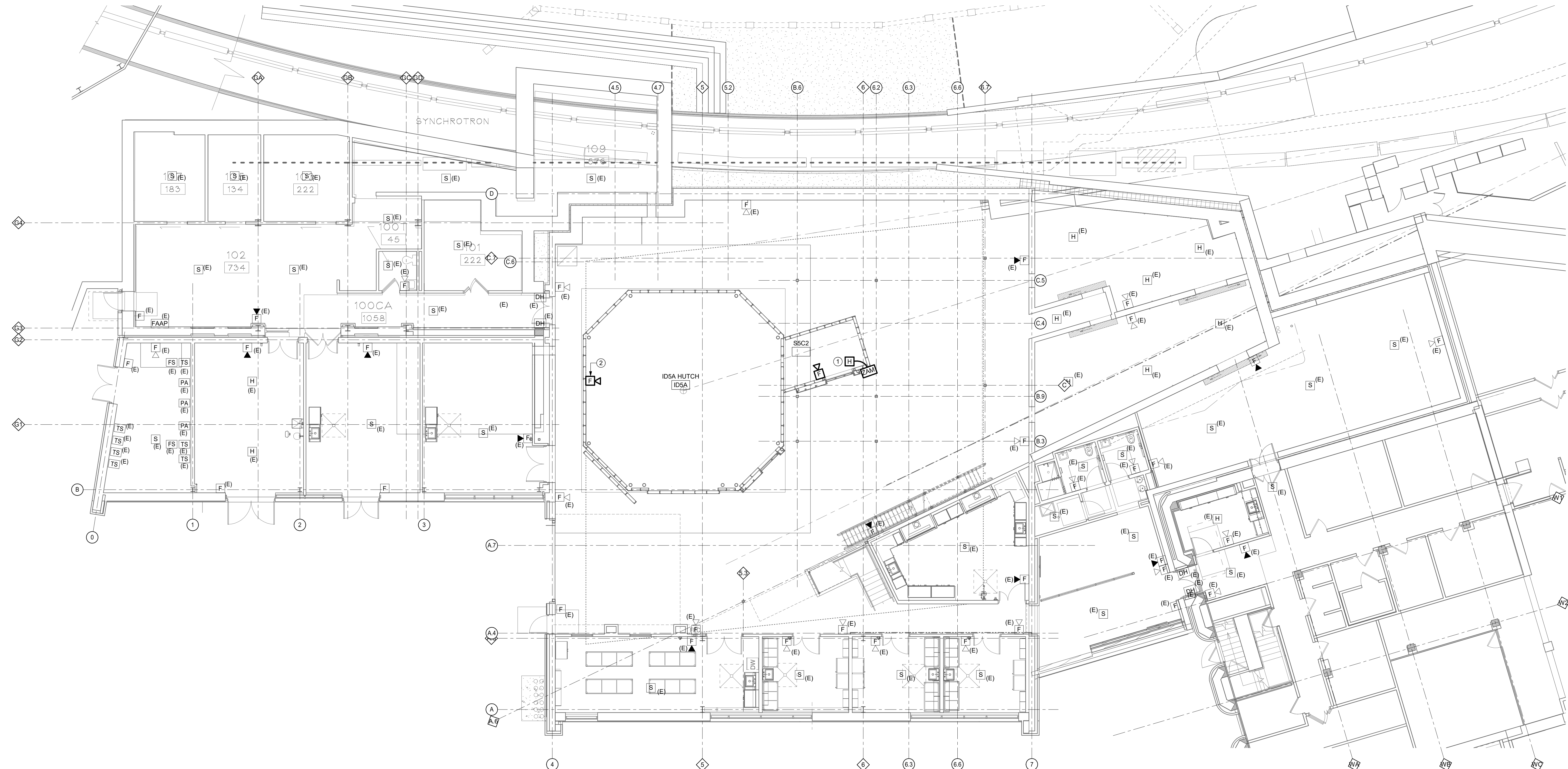
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1 FIRST FLOOR PLAN - FIRE ALARM



GENERAL NOTES:

- SCOPE WHICH INCLUDES SURFACE MOUNTING UTILITIES OR SUPPORT BRACKETS TO IDSA HUTCH AND/OR SECTOR 5 CAVE 2 WILL REQUIRE FINAL FIELD VERIFICATION OF ALL DIMENSIONS AND A PREINSTALLATION MEETING WITH THE OWNER TO REVIEW. COORDINATE AND ADDRESS ANY POTENTIAL OBSTRUCTIONS AND MODIFICATION REQUIREMENTS THAT MAY BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION.
- PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT UTILIZE THE PERIMETER WHERE POSSIBLE, AND DO NOT INTERFERE WITH THE USAGE FOOTPRINT OF THE BRIDGE CRANE.

DRAWING NOTES:

- CONVENTIONAL HEAT DETECTOR INSIDE CAVE WIRED TO ZONE ADDRESSABLE MODULE EXTERIOR OF CAVE. COORDINATE WITH CHSS STAFF FOR CONDUIT ROUTES INTO AND OUT OF HUTCH AND CAVE.
- ROUTE CONDUIT AROUND PERIMETER OF HUTCH. USE NON-FERROUS CONDUIT ON HUTCH INTERIOR. COORDINATE WITH CHSS STAFF FOR CONDUIT ROUTES INTO AND OUT OF HUTCH AND CAVE.

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Project Manager: GDD

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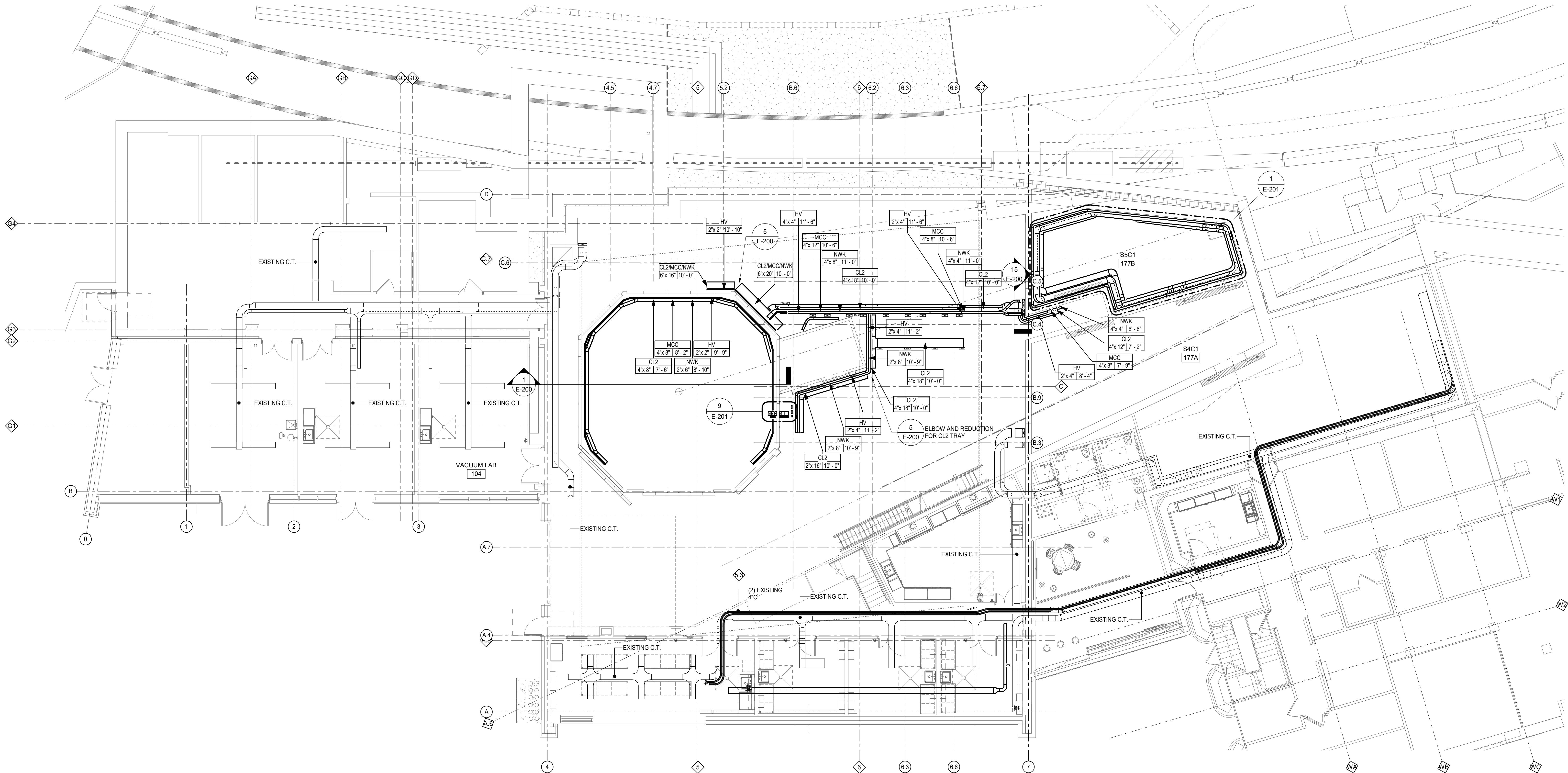
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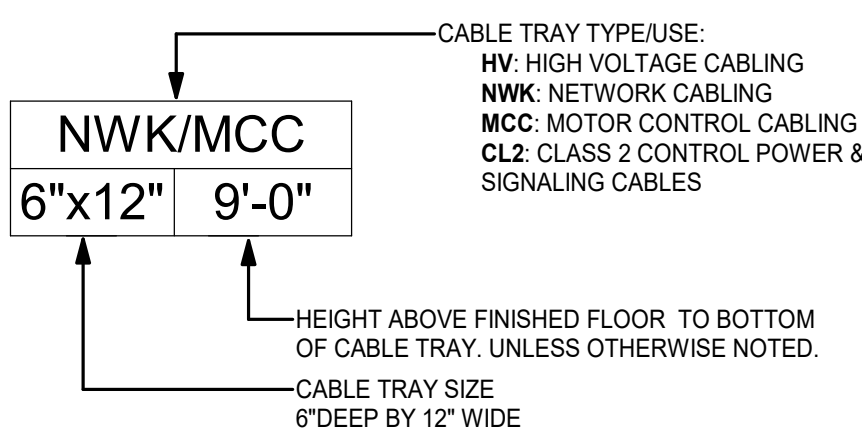
E-131
FIRST FLOOR PLAN
- FIRE ALARM

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1 FIRST FLOOR PLAN - CABLE TRAY PLAN
1/8" = 1'-0"



CABLE TRAY LEGEND:



LEGEND NOTES:

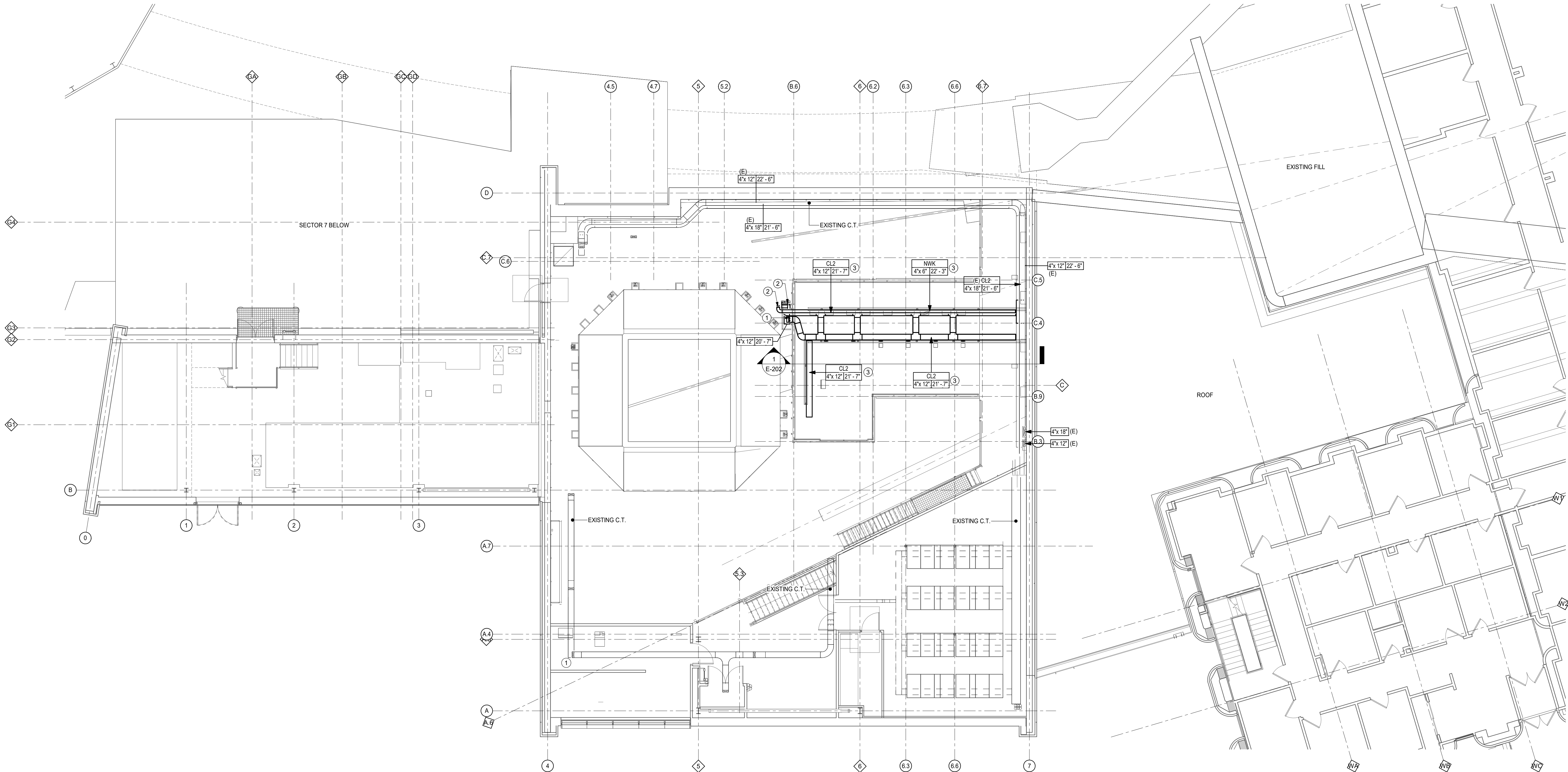
- A. PROVIDE DIVIDER FOR CABLE TRAY WITH MULTIPLE TYPE DESIGNATIONS. REFER TO ASSOCIATED DRAWING NOTES FOR DIVISION REQUIREMENTS. CONFIRM ALL DIVISIONS WITH OWNER PRIOR TO FINAL INSTALLATION.

GENERAL NOTES:

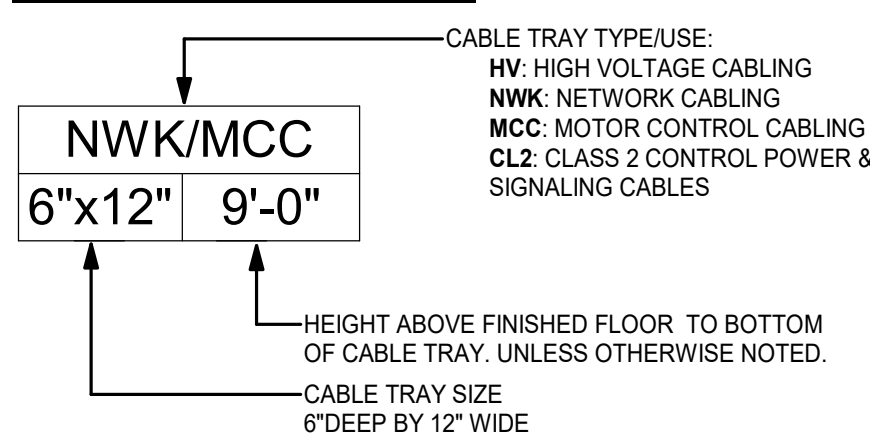
- A. CABLE TRAY SHALL BE WIRE MESH CABLE TRAY (WMCT) AT SIZE AND HEIGHT INDICATED, UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATIONS WITH CHSS. PROVIDE A FULLY COORDINATED SYSTEM WITH ALL OTHER OBSTACLES, INCLUDING ALL RISERS, WATERFALLS, TEES, TAPS, INTERSECTIONS, CONDUIT CONNECTORS, COMPONENTS, HANGERS, AND SUPPORT SYSTEM FOR THE MAXIMUM ALLOWABLE WEIGHT. PROVIDE CONTINUOUS GROUNDING COMPONENTS FOR A CONTINUOUS GROUNDED TRAY SYSTEM THROUGHOUT THE BUILDING BACK TO WILSON LAB DATA CENTER.
- B. PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT DO NOT INTERFERE WITH PLATFORMS, HUTCHES AND CAVES.
- C. ALL CABLE TRAY MUST HAVE ALL BURRS AND SHARP EDGES FILED SMOOTH, INCLUDING FACTORY EDGES, FACTORY SURFACES, AND FIELD CUTS.

Revisions

1 SECOND FLOOR PLAN - CABLE TRAY PLAN
1/8" = 1'-0"



CABLE TRAY LEGEND:



LEGEND NOTES:

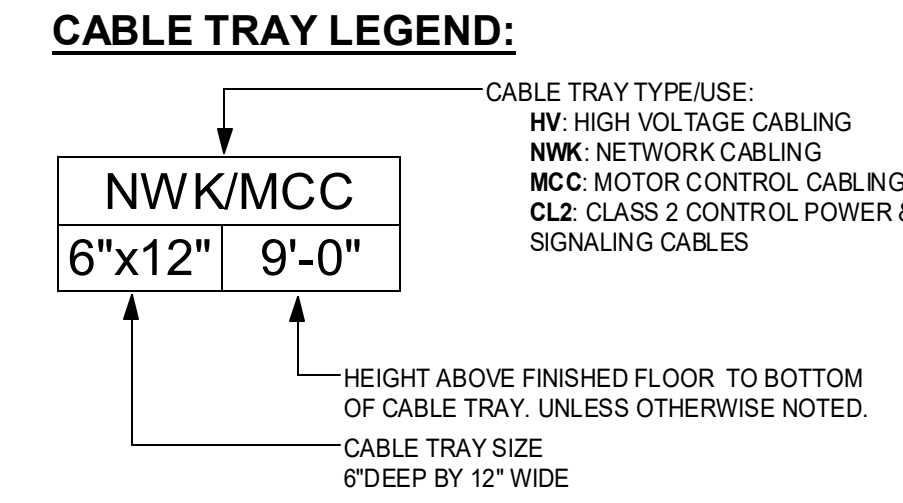
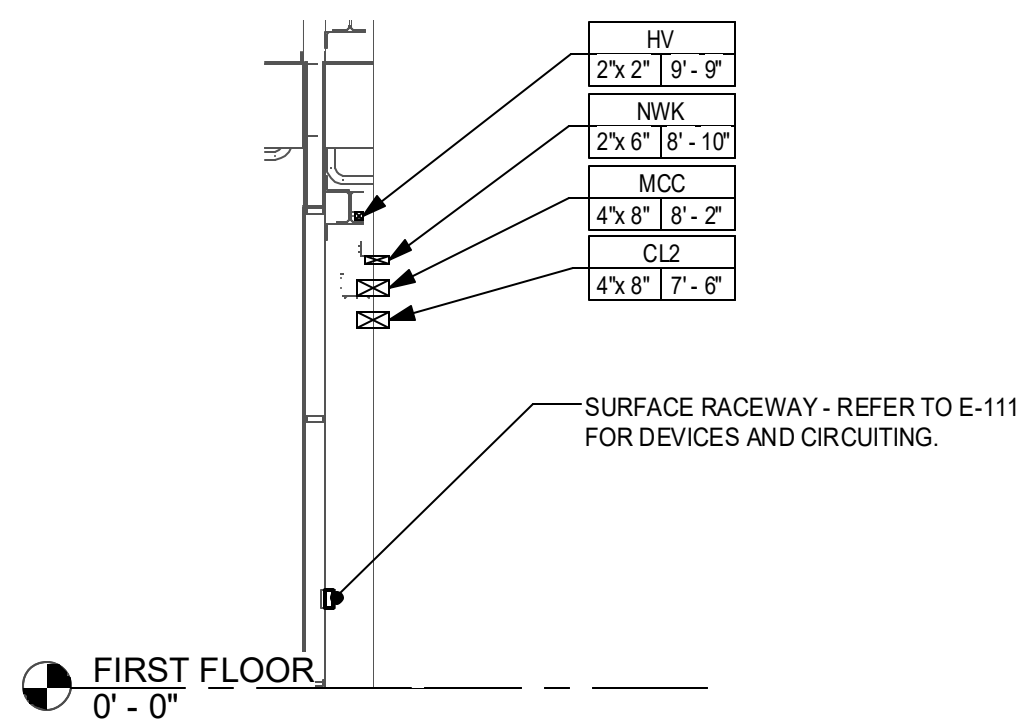
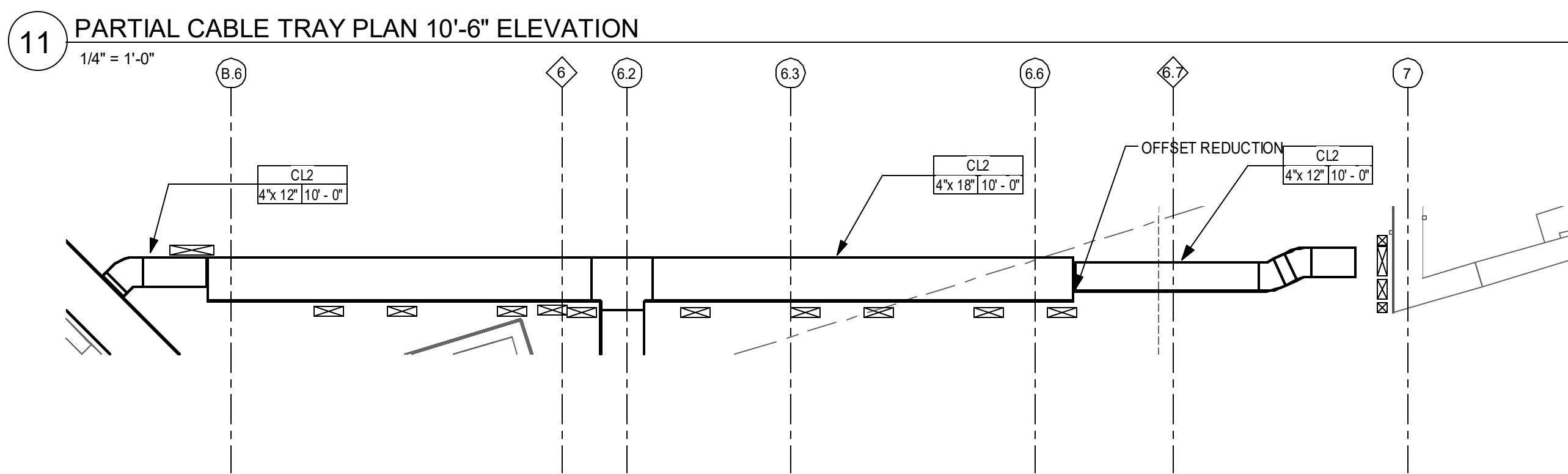
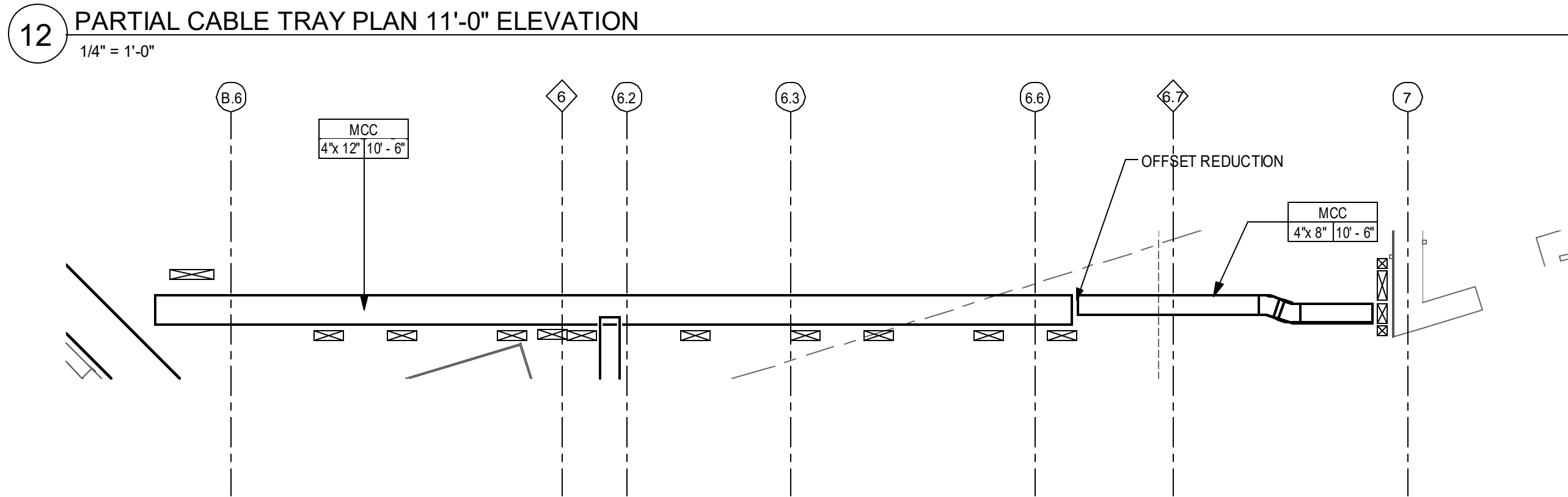
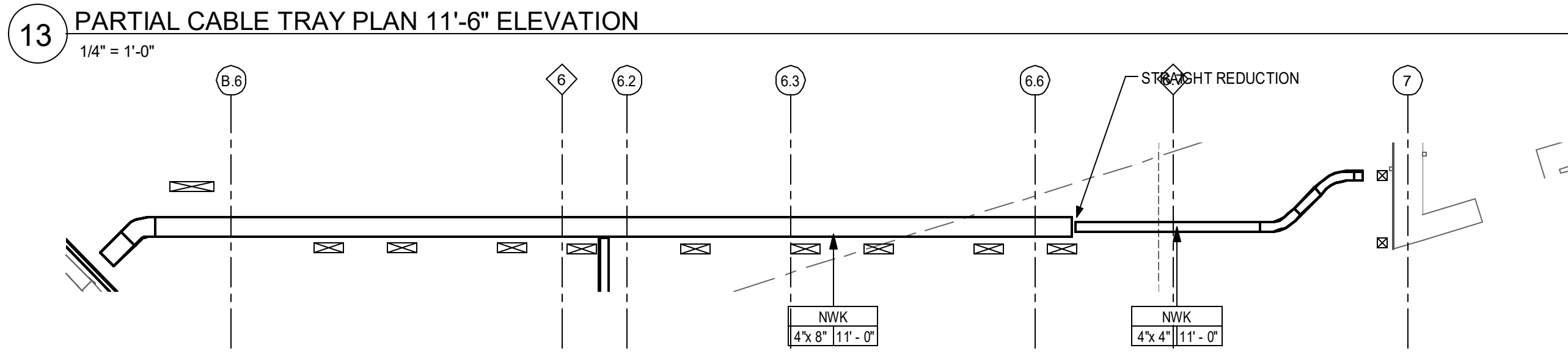
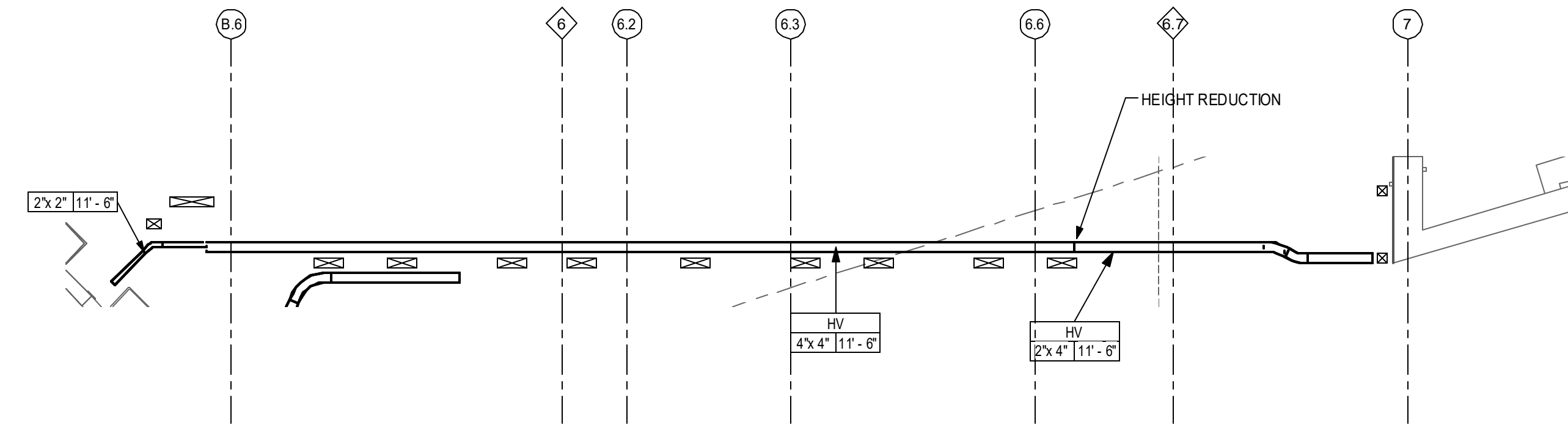
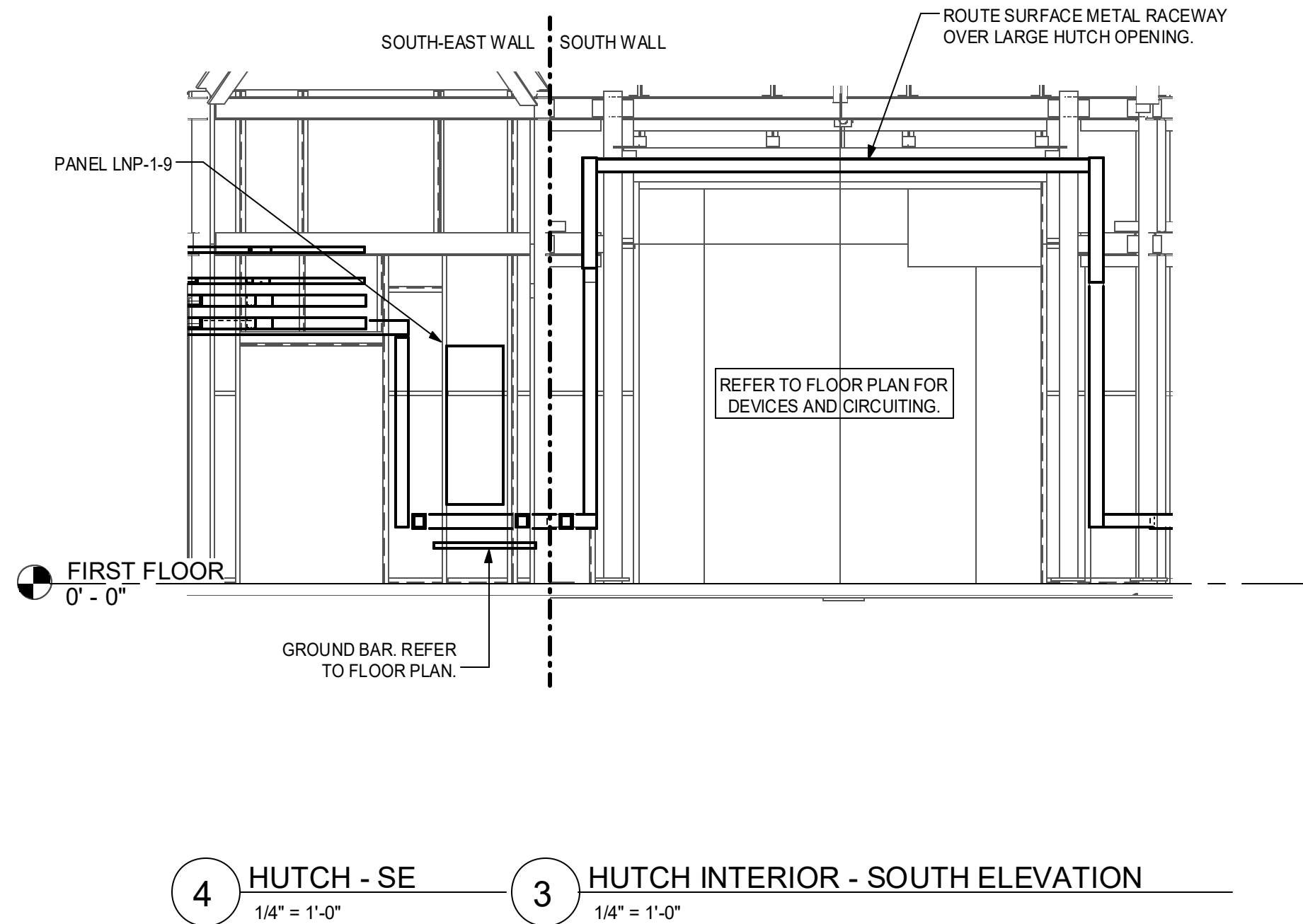
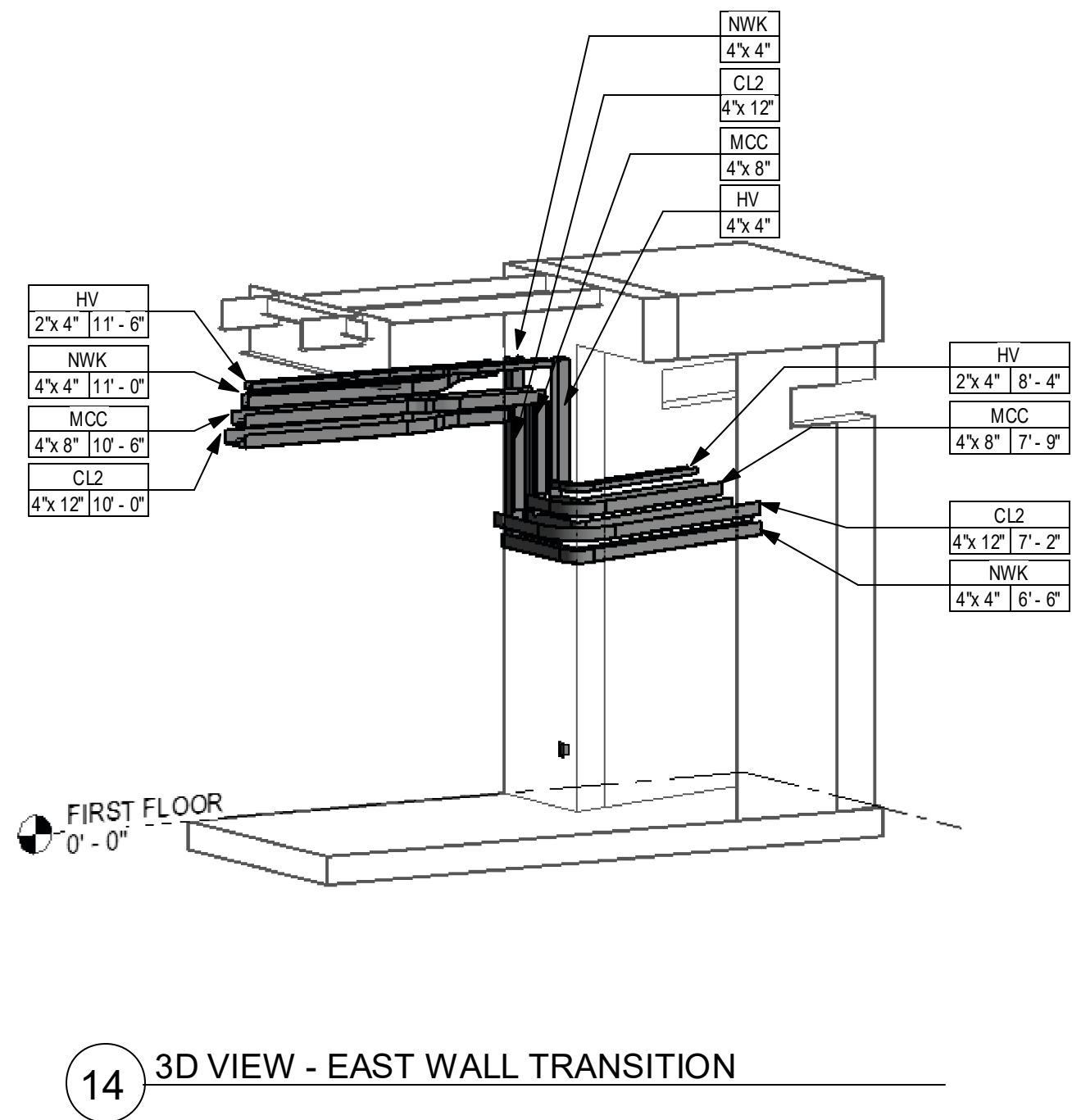
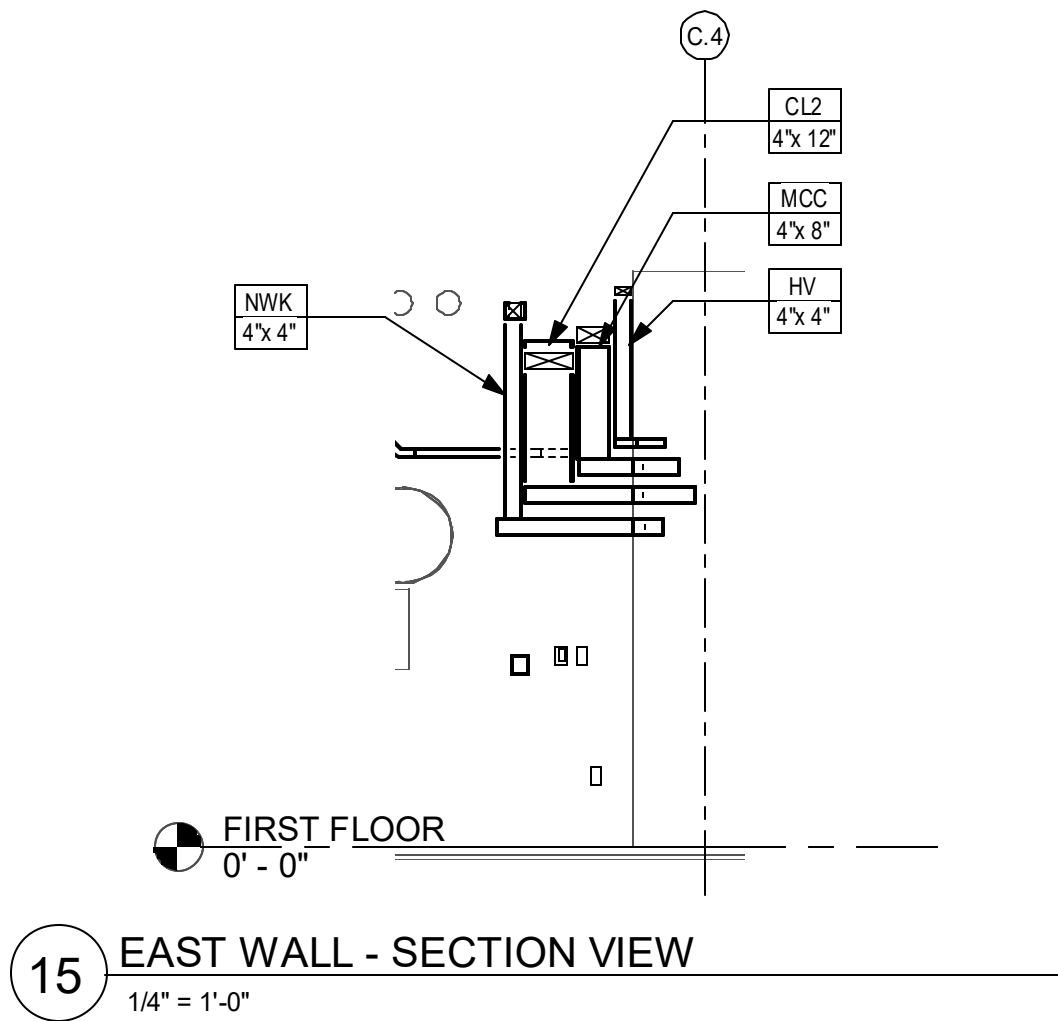
- A. PROVIDE DIVIDER FOR CABLE TRAY WITH MULTIPLE TYPE DESIGNATIONS. REFER TO ASSOCIATED DRAWING NOTES FOR DIVISION REQUIREMENTS. CONFIRM ALL DIVISIONS WITH OWNER PRIOR TO FINAL INSTALLATION.

GENERAL NOTES:

- A. CABLE TRAY SHALL BE WIRE MESH CABLE TRAY (WMCT) AT SIZE AND HEIGHT INDICATED, UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATIONS WITH CHSS. PROVIDE A FULLY COORDINATED SYSTEM WITH ALL OTHER OBSTACLES, INCLUDING ALL RISERS, WATERFALLS, TEES, TAPS, INTERSECTIONS, CONDUIT CONNECTORS, COMPONENTS, HANGERS, AND SUPPORT SYSTEM FOR THE MAXIMUM ALLOWABLE WEIGHT. PROVIDE CONTINUOUS GROUNDING COMPONENTS FOR A CONTINUOUS GROUNDING TRAY SYSTEM THROUGHOUT THE BUILDING BACK TO WILSON LAB DATA CENTER.
- B. PROVIDE WORK FOR ALL SYSTEMS USING ROUTES THAT DO NOT INTERFERE WITH PLATFORMS, HUTCHES AND CAVES.
- C. ALL CABLE TRAY MUST HAVE ALL BURRS AND SHARP EDGES FILED SMOOTH, INCLUDING FACTORY EDGES, FACTORY SURFACES, AND FIELD CUTS.

DRAWING NOTES:

1. PROVIDE WATERFALL FITTING FOR TRANSITION TO LOWER ELEVATION TRAY.
2. PROVIDE WATERFALL FITTING FOR TRANSITION TO VERTICAL TRAY.
3. TRAY HEIGHT TO BE DETERMINED BY FINAL STRUCTURE. COORDINATE INSTALLATION HEIGHT WITH STRUCTURAL DETAILS. PROVIDE HEIGHT TRANSITIONS TO THE CABLE TRAY INTO EXISTING TRAY AS NEEDED ON EAST WALL. CL2 TRAY TO BE ABOVE STRUCTURE, NWK TRAY TO BE ABOVE CL2 TRAY. ENSURE 6" MINIMUM CLEARANCE BETWEEN TRAYS. CONFIRM WITH CHSS STAFF PRIOR TO FINAL INSTALLATION.



LEGEND NOTES:

A. PROVIDE DIVIDER FOR CABLE TRAY WITH MULTIPLE TYPE DESIGNATIONS. REFER TO ASSOCIATED DRAWING NOTES FOR DIVISION REQUIREMENTS. CONFIRM ALL DIVISIONS WITH OWNER PRIOR TO FINAL INSTALLATION.

GENERAL NOTES:

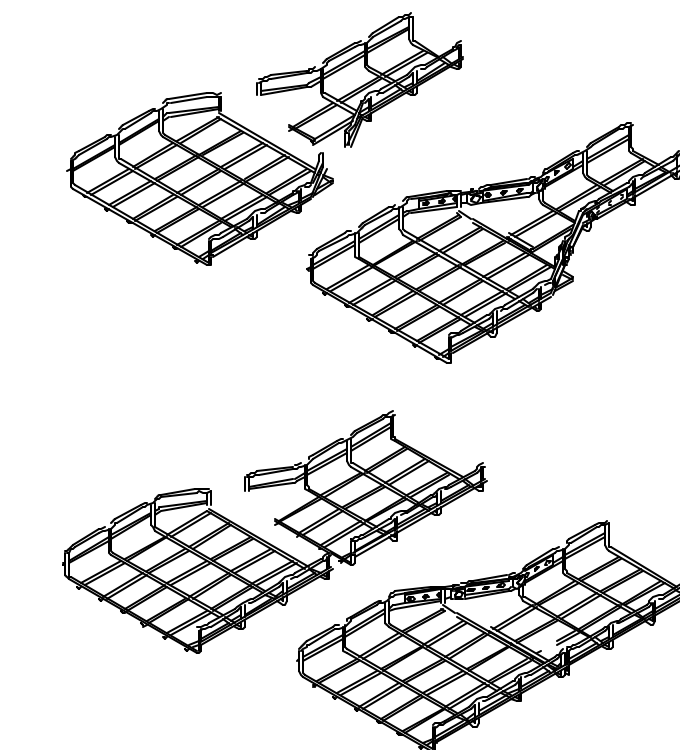
A. ALL CABLE TRAY TO BE WIRE MESH BASKET. ALL BENDS ARE TO BE MADE IN FIELD. PROVIDE DROPOUTS AT ENDS OF TRAY AND AT TRANSITIONS.

B. AT LOCATIONS OF TRAY INTERSECTIONS CONTRACTOR TO CUT AND DEBURR EDGES OF TRAY.

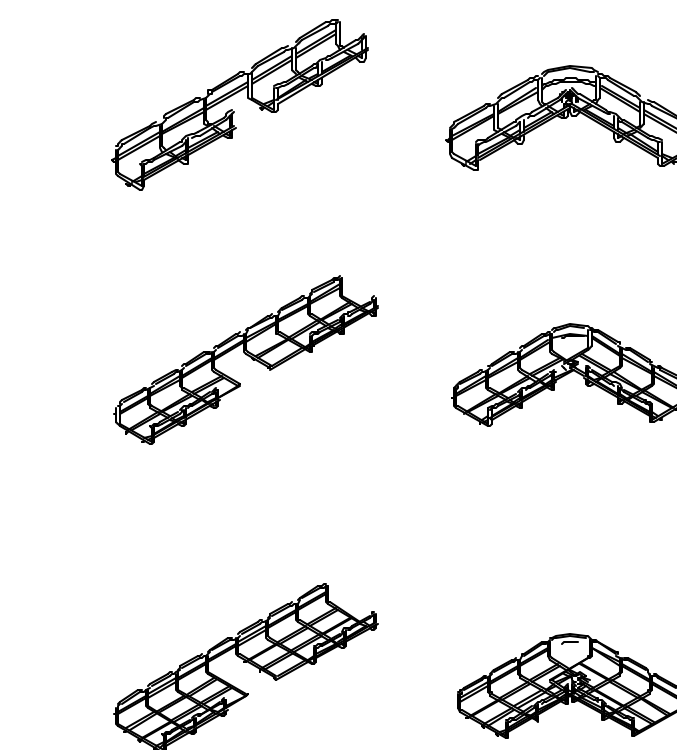
C. ANYWHERE BASKET TRAY HAD BEEN CUT CONTRACTOR TO DEBURR EDGES OF TRAY.

D. DO NOT PAINT TRAY AND HANGERS.

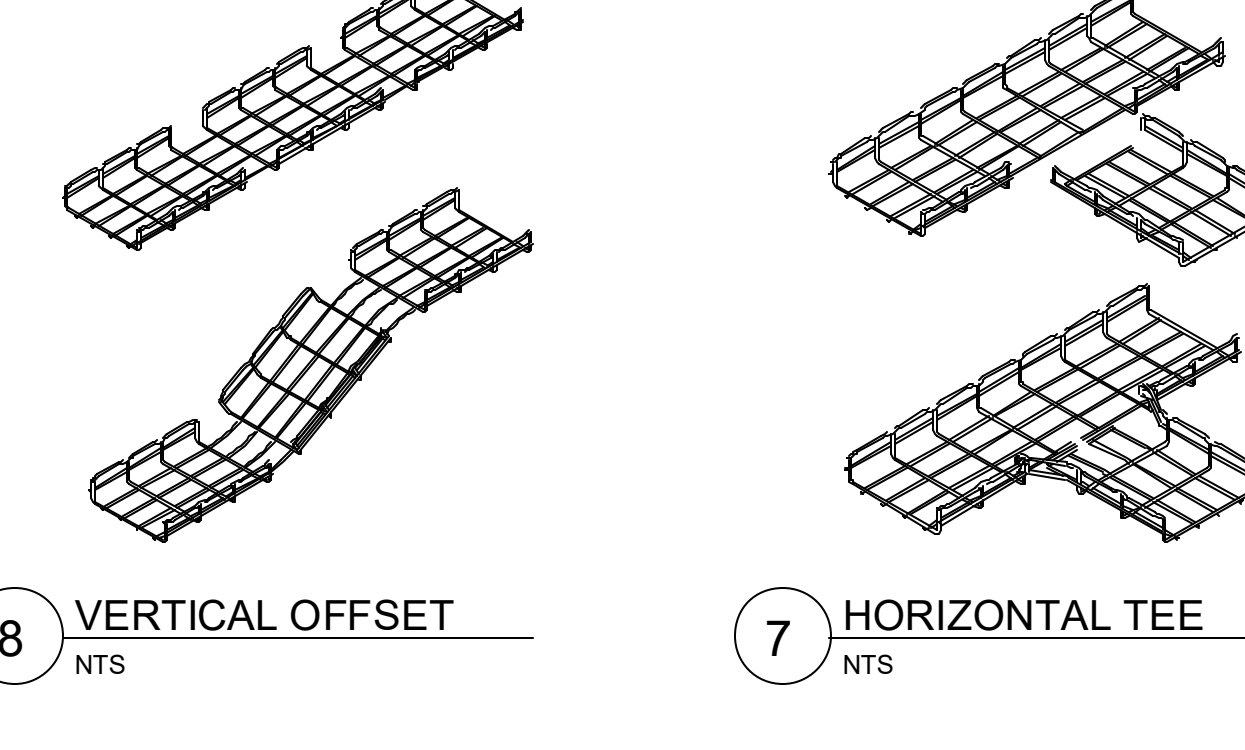
E. ALL CABLE TRAY MUST HAVE ALL BURRS AND SHARP EDGES FILED SMOOTH, INCLUDING FACTORY EDGES, FACTORY SURFACES, AND FIELD CUTS.



9 STRAIGHT AND OFFSET REDUCTIONS NTS

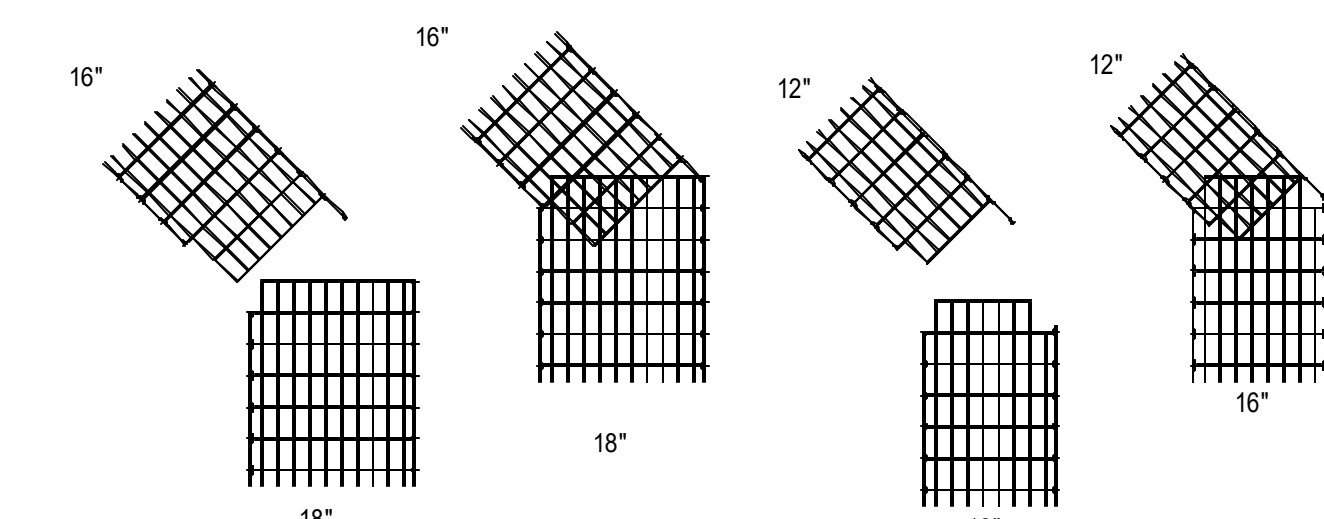


6 90-DEGREE BENDS NTS

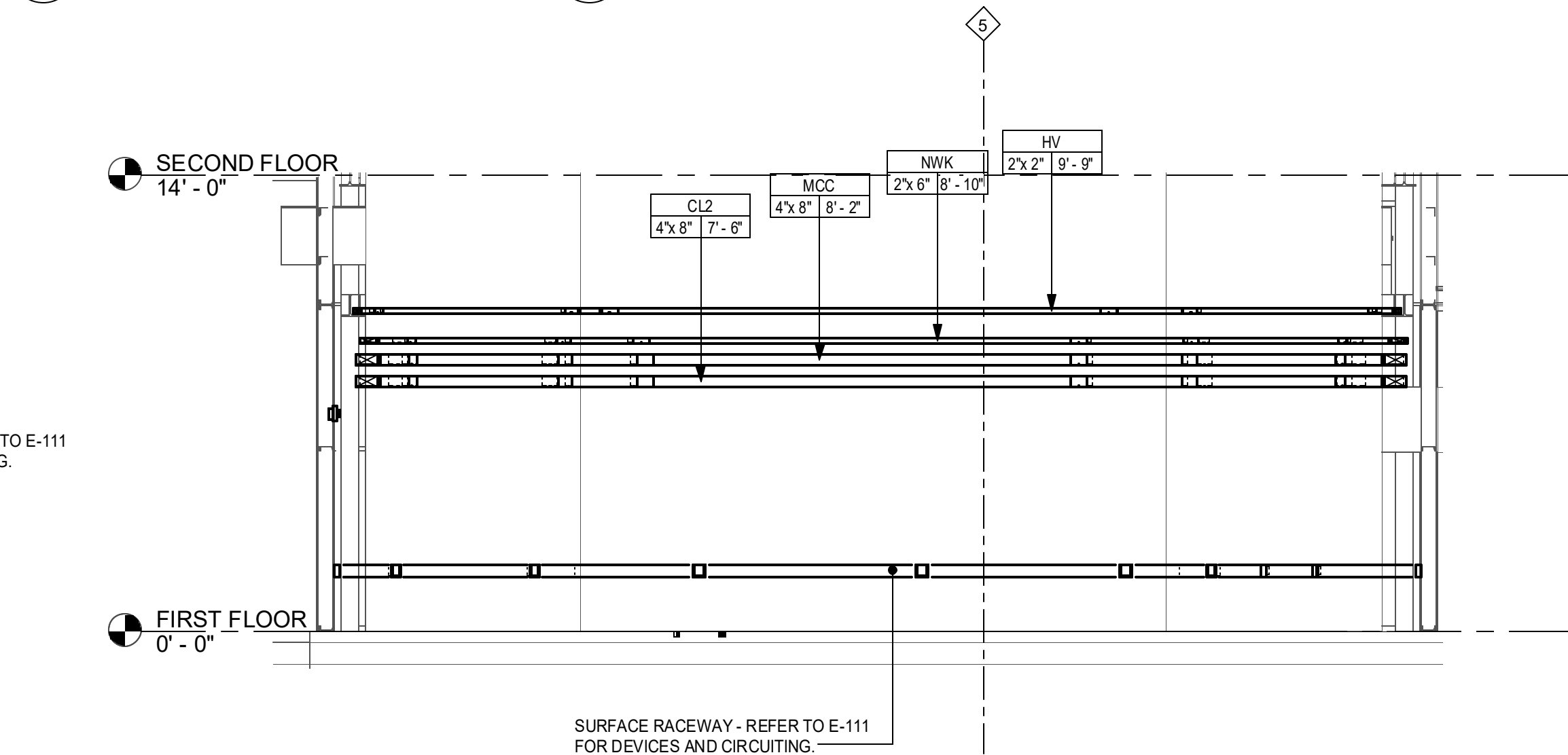


8 VERTICAL OFFSET NTS

7 HORIZONTAL TEE NTS

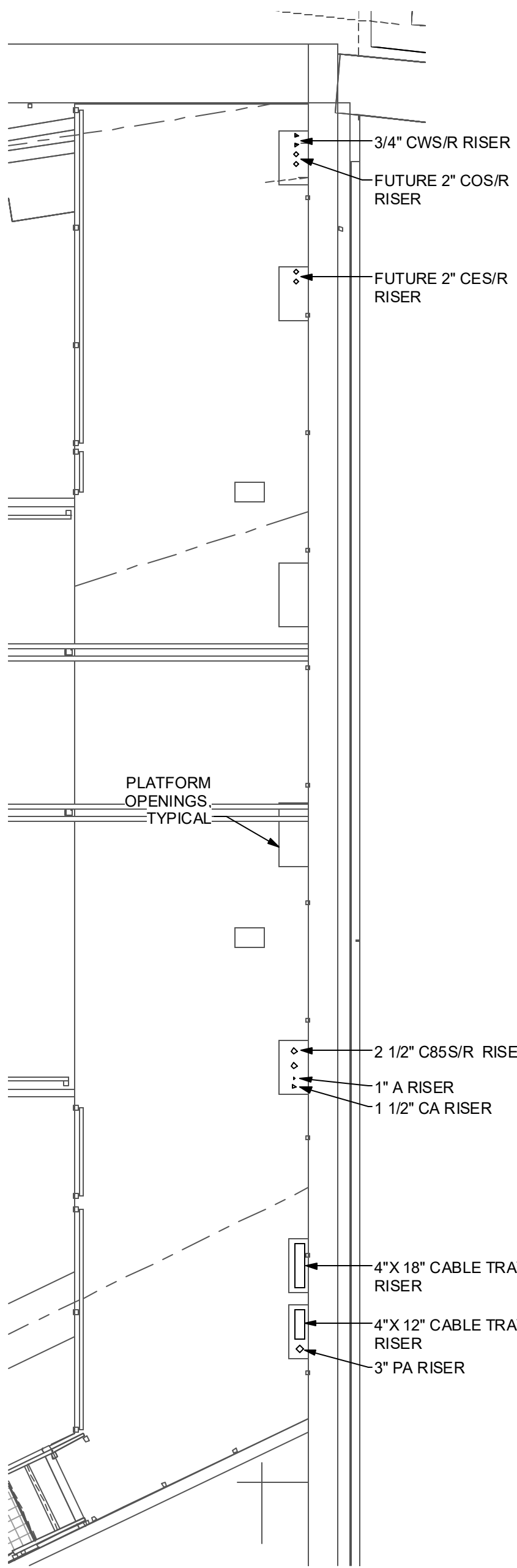


5 45 DEGREE TRANSITION WITH REDUCTION NTS



1 HUTCH INTERIOR - NORTH ELEVATION 1/4" = 1'-0"

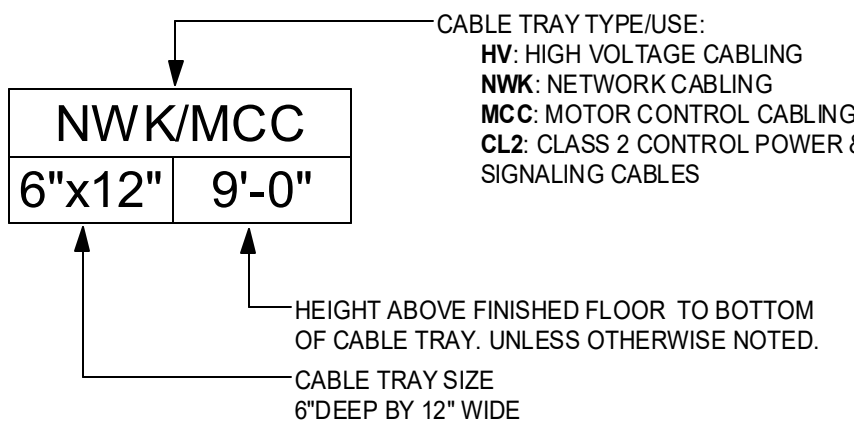
Revisions



- DETAIL NOTES:
- A. UTILITIES SHALL BE ROUTED THROUGH THE PLATFORM OPENINGS AT THE SPECIFIED LOCATIONS. ANY DEVIATION SHALL BE COORDINATED WITH OWNER.
- B. MAINTAIN SPACE AS REQUIRED FOR FUTURE UTILITIES SHOWN.

4 PLATFORM UTILITY PENETRATIONS DETAIL
1/4" = 1'-0"

CABLE TRAY LEGEND:



LEGEND NOTES:

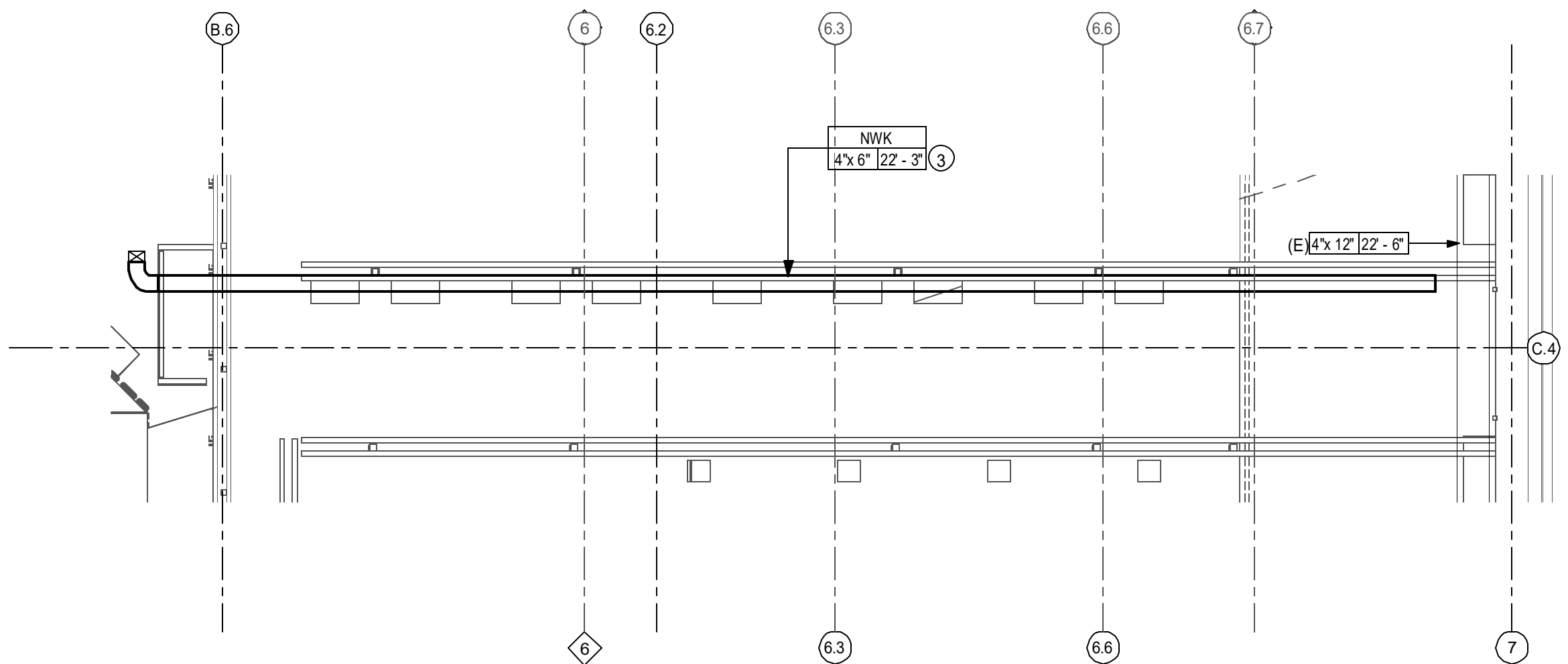
- A. PROVIDE DIVIDER FOR CABLE TRAY WITH MULTIPLE TYPE DESIGNATIONS. REFER TO ASSOCIATED DRAWING NOTES FOR DIVISION REQUIREMENTS. CONFIRM ALL DIVISIONS WITH OWNER PRIOR TO FINAL INSTALLATION.

GENERAL NOTES:

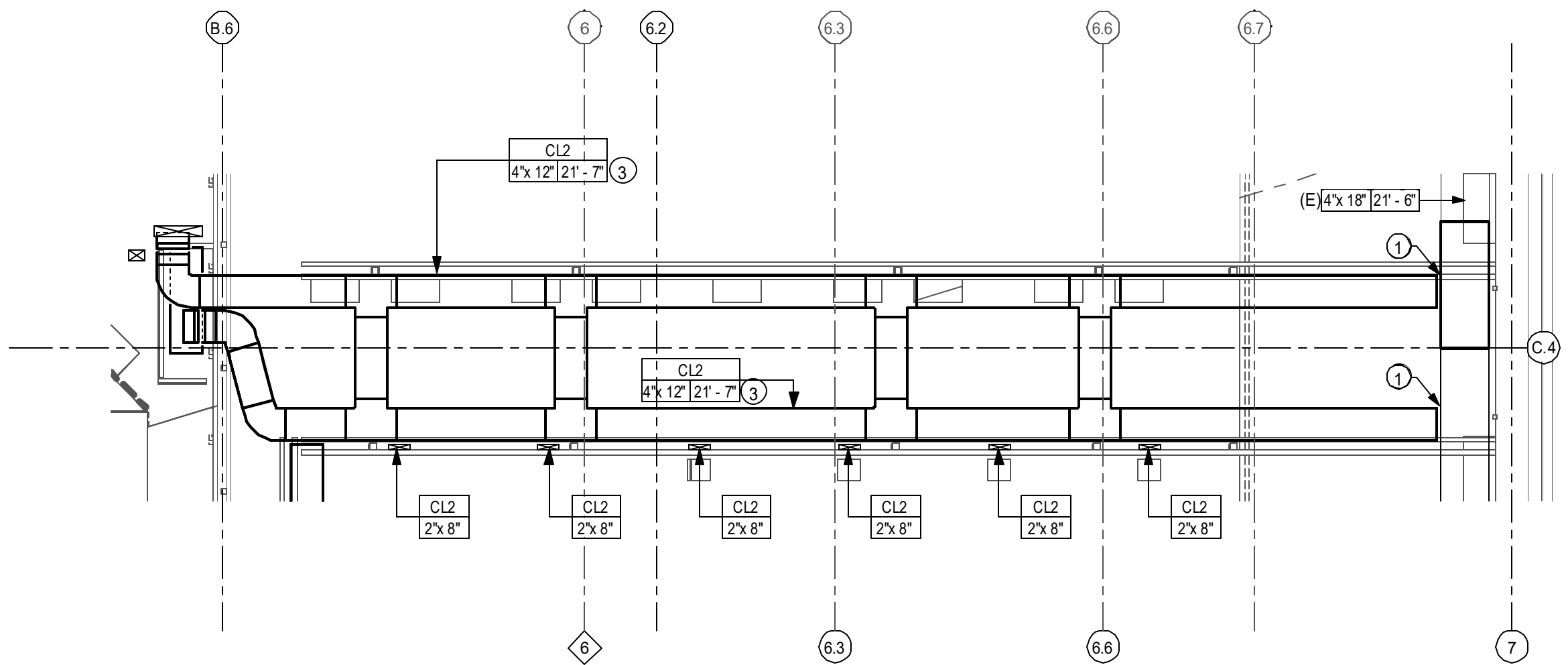
- A. ALL CABLE TRAY TO BE WIRE MESH BASKET. ALL BENDS ARE TO BE MADE IN FIELD. PROVIDE DROPOUTS AT ENDS OF TRAY AND AT TRANSITIONS.
- B. AT LOCATIONS OF TRAY INTERSECTIONS CONTRACTOR TO CUT AND DEBURR EDGES OF TRAY.
- C. ANYWHERE BASKET TRAY HAD BEEN CUT CONTRACTOR TO DEBURR EDGES OF TRAY.
- D. DO NOT PAINT TRAY AND HANGERS.
- E. ALL CABLE TRAY MUST HAVE ALL BURRS AND SHARP EDGES FILED SMOOTH, INCLUDING FACTORY EDGES, FACTORY SURFACES, AND FIELD CUTS.

DRAWING NOTES:

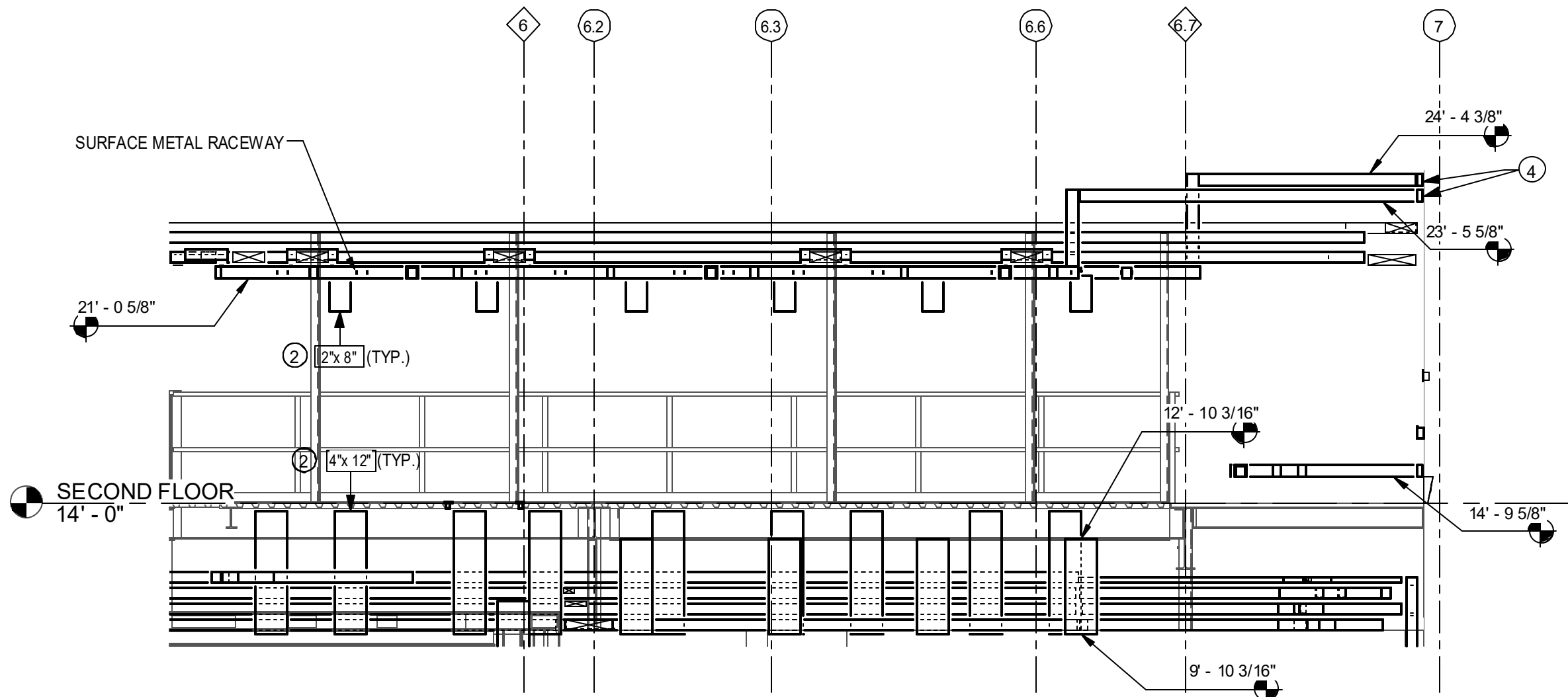
1. CUT EXISTING/PREVIOUS PROJECT CABLE TRAY AS NEEDED TO TIE IN NEW SECTIONS AND EXTENSIONS.
2. COORDINATE VERTICAL SECTIONS OF WIREWAY WITH OWNER EQUIPMENT AND PLATFORM PENETRATIONS.
3. TRAY HEIGHT TO BE DETERMINED BY FINAL STRUCTURE. COORDINATE INSTALLATION HEIGHT WITH STRUCTURAL DETAILS. PROVIDE HEIGHT TRANSITIONS TO TIE CABLE TRAY INTO EXISTING TRAY AS NEEDED ON EAST WALL. CL2 TRAY TO BE ABOVE STRUCTURE. NWK TRAY TO BE ABOVE CL2 TRAY. ENSURE 6" MINIMUM CLEARANCE BETWEEN TRAYS. CONFIRM WITH CHSS STAFF PRIOR TO FINAL INSTALLATION.
4. WIREWAY HEIGHT DETERMINED BY COORDINATING WITH OTHER SERVICES. ROUTE HIGH ALONG WALL TO PANEL AND TERMINATE AT PANELBOARD LNP-2-2.



3 PARTIAL CABLE TRAY PLAN 22'-3" ELEVATION
1/4" = 1'-0"



2 PARTIAL CABLE TRAY PLAN 21'-7" ELEVATION
1/4" = 1'-0"



1 PARTIAL PLATFORM NORTH ELEVATION
1/4" = 1'-0"

Revisions

NOTES:

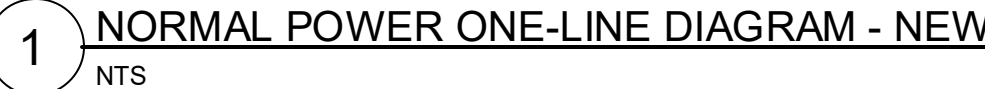
- A. WHERE MULTIPLE SETS ARE SPECIFIED, PROVIDE PHASE, NEUTRAL (IF REQUIRED), AND EGC OF WIRE SIZE INDICATED IN EACH CONDUIT. CONDUCTORS AND CONDUITS SHALL BE EQUAL IN LENGTH AND EACH BE OF SAME MANUFACTURER.
- B. MINIMUM EMT CONDUIT SIZE IS BASED ON 40% FILL.
- C. A 3-WIRE FEEDER IS (2) PHASE CONDUCTORS WHEN PROTECTED BY A 3-POLE OCPD.
A 3-WIRE FEEDER IS (2) PHASE CONDUCTORS AND (1) NEUTRAL CONDUIT WHEN PROTECTED BY A 2-POLE OCPD.
- D. A 4-WIRE FEEDER IS (3) PHASE CONDUCTORS & (1) NEUTRAL CONDUCTOR.
A 5-WIRE FEEDER IS (3) PHASE CONDUCTORS & (2) NEUTRAL CONDUCTORS.

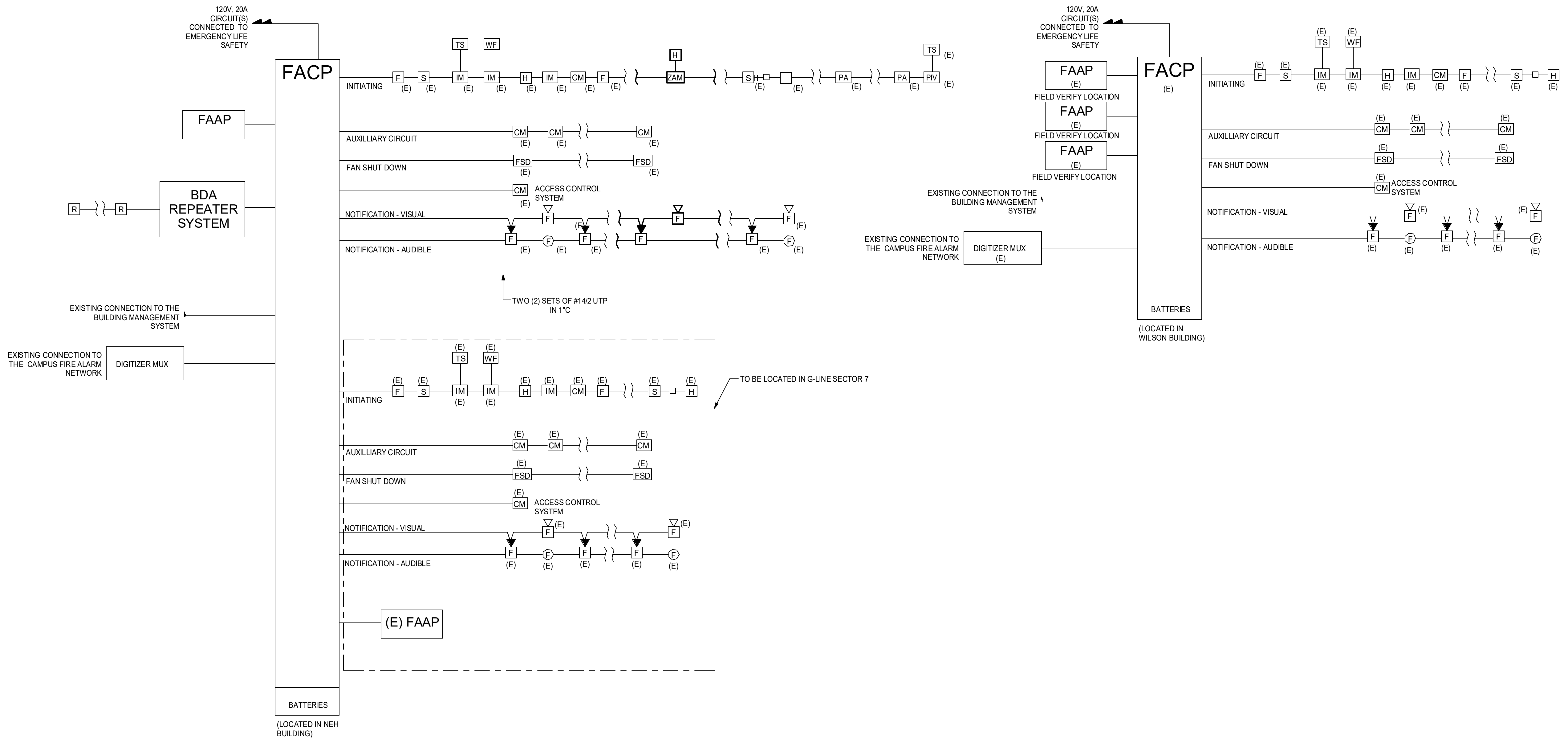
NTS

NTS

A. PROVIDE 2 HR RATED FEEDERS FOR ALL LIFE SAFETY BRANCH CIRCUITING. TYPE MI OR EQUAL

1. INSTALL PANELBOARDS AS SHOWN. PANELBOARDS ARE IN POSSESSION OF CURRENT NEH MAIN PROJECT ELECTRICAL CONTRACTOR





FIRE ALARM GENERAL NOTES:

- A. ALL FIRE ALARM WORK SHALL BE PER CORNELL FIRE ALARM GUIDELINES.
- B. DEVICES SHOWN ARE DIAGRAMMATIC ONLY. FOR EXACT LOCATIONS AND QUANTITIES SEE FLOOR PLANS.
- C. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND ALL CODES THAT MAY APPLY.
- D. CABLING MUST BE UNIQUELY IDENTIFIED AND LABELED, AND A PERMANENT, ACCURATE RECORD OF THE IDENTIFICATION AND USE OF EACH CABLE MUST BE MADE AT THE TIME OF INSTALLATION. LABELING IS TO BE DONE WITH PERMANENT MARKERS ON CLEAR MYLAR TAPE. THE TAPE SHALL BE LONG ENOUGH SO WHEN WRAPPED AROUND THE CABLE IT WILL WRAP OVER ITSELF, PROTECTING THE WRITING.
- E. FACP AND OTHER PANELS SHALL BE MOUNTED WITH CLEARANCES FOR OBSERVATION AND TESTING. THE FACP SHALL BE MOUNTED SO THAT THE LCD DISPLAY IS BETWEEN 60" AND 68" (EYE LEVEL).
- F. SPACE DETECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED DISTANCE. PROVIDE ADDITIONAL DETECTORS WHERE REQUIRED.
- G. ALL LOW VOLTAGE FIRE ALARM CIRCUITS MAY OCCUPY A COMMON CONDUIT. RUN AC POWER AND CONTROL WIRING (FAN SHUTDOWN, ETC.) IN SEPARATE CONDUIT. DO NOT RUN WITH ANY OTHER FIRE ALARM SYSTEM WIRING IN A COMMON CONDUIT.
- H. ALL CONDUIT, MOUNTING BOXES AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM. THE FACP SHALL BE MOUNTED USING VERTICAL STEEL CHANNEL SUPPORTS AS A STAND OFF.
- I. TRANSPOSING OR CHANGING COLOR CODING OF WIRES IS NOT PERMITTED. ALL CONDUCTORS IN CONDUIT CONTAINING MORE THAN ONE WIRE SHALL BE LABELED ON EACH END AND IN JUNCTION BOXES WITH "E-Z MARKERS".
- J. CONDUCTORS IN CABINETS SHALL BE FORMED AND HARNESSSED SO THAT EACH DROPS OFF DIRECTLY OPPOSITE ITS TERMINAL.
- K. ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO GROUNDS, OPENS, OR SHORTS.

- L. WIRING COLOR CODES SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY CONTROL CIRCUITS.
- M. THE FIRE ALARM RISER DENOTES THE GENERAL ARRANGEMENT OF THE SYSTEM WITH TYPICAL DEVICES AND MINIMUM QUANTITIES OF TERMINAL CABINETS & POWER BOOSTERS. PROVIDE ADDITIONAL TERMINAL CABINETS, BOOSTERS, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- N. ALL FIRE ALARM SYSTEM JUNCTION BOXES SHALL BE PAINTED RED WITH STENCIL LETTERING INDICATING "FIRE ALARM SYSTEM".
- O. WIRING INDICATED ON THE RISER DIAGRAM IS DIAGRAMMATIC ONLY. IT IS NOT INTENDED TO INDICATE ROUTING OR QUANTITY OF WIRES REQUIRED. PROVIDE WIRING FOR A COMPLETE SYSTEM AS REQUIRED BY SYSTEM MANUFACTURER.
- P. PROVIDE CONTROL RELAY MODULES FOR HEAT DETECTORS LOCATED IN ELEVATOR MACHINE ROOMS AND ELEVATOR HOIST WAYS FOR SHUNT TRIP CONTROL OF THE DISCONNECT SWITCHES SERVING THE ELEVATORS. PROVIDE ALL INTERCONNECTING WIRING, ADDRESSABLE MODULES, ETC.
- Q. A MINIMUM OF (4) FOUR PROGRAMMABLE FUNCTION SWITCHES SHALL BE LOCATED AT THE MAIN FACP AND ANNUNCIATOR(S).
- R. THE FOLLOWING SHALL BE CAPABLE OF BEING DISABLED FROM THE FACP: ALL HORNS, STROBES, DOOR HOLDERS, ELEVATORS, AND FAN SHUTDOWN.
- S. THE FACP SHALL BE PROVIDED WITH A MINIMUM OF TWO FREE EXPANSION CARD BAYS FOR FUTURE EXPANSION.
- T. ALL ADDRESSABLE INITIATING CIRCUITS SHALL HAVE A MINIMUM OF AT LEAST 30% SPARE CAPACITY PER LOOP AND FLOOR.
- U. ALL FACP OR AUXILIARY NAC OUTPUT CIRCUITS SHALL HAVE AT LEAST 30% SPARE OUTPUT POWER FOR FUTURE EXPANSION. ALL NOTIFICATION APPLIANCES SHALL BE ADDRESSABLE.
- V. ALL DEVICES LOCATED ABOVE CEILINGS SHALL HAVE A REMOTE LED INDICATOR MOUNTED ON THE WALL AT EYE LEVEL AS NEAR AS POSSIBLE BELOW THE DEVICE AND LABELED ACCORDINGLY.
- W. AUDIO AND VISUAL SIGNAL DEVICES TO BE ON SEPARATE CIRCUITS TO ALLOW AUDIO DEVICES TO BE SILENCED WHILE VISUAL DEVICES (STROBES) CONTINUE TO FLASH.
- X. PROVIDE SYNCHRONIZATION OF ALL NEW STROBES.

DETAIL GENERAL NOTES:

- A. PROVIDE NEW POINT ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) WITH VOICE EVACUATION SYSTEM CAPABILITIES IN TOWER FIRE COMMAND CENTER TO ALLOW FOR INSTALLATION OF NEW SPEAKER NOTIFICATION DEVICES IN RENOVATION AREAS. ALL EXISTING NOTIFICATION, INITIATING, FAN SHUTDOWN AND AUXILIARY CIRCUITS SHALL BE EXTENDED AND CONNECTED TO NEW FIRE ALARM CONTROL PANEL.
- B. ALL CABLING SHALL BE AS REQUIRED BY THE SYSTEM MANUFACTURER AND CORNELL FIRE ALARM GUIDELINES. ROUTE 24VDC POWER WITH ALL INITIATION CIRCUITING. TYPICAL UNLESS OTHERWISE INDICATED.
- C. PROVIDE LINE ISOLATORS ON INITIATING DEVICE CIRCUITS ALLOWING NO MORE THAN 30 DEVICES TO BE EFFECTED IN THE EVENT OF A WIRING FAULT (TYPICAL).
- D. FIRE ALARM CIRCUIT WIRING EXTENDING BACK TO THE MAIN FIRE ALARM CONTROL PANEL. ALL WIRING SHALL BE CLASS "A" UOI.
- E. RISER DIAGRAM IS DIAGRAMMATIC AND DOES NOT SHOW ALL DEVICES. REFER TO FLOOR PLANS FOR TYPES, LOCATIONS AND QUANTITIES OF DEVICES.

1 FIRE ALARM RISER DIAGRAM - NEW
N.T.S.



Reg. Exp: 04/30/2026
Cert. of Auth: 0018443

Drawn By: ECS
Checked By: MRG
Project Manager: GDD

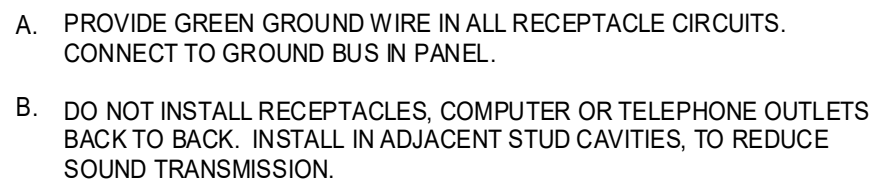
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Revisions

Beamline Enabling - Phase 3
Synchrotron Drive
Ithaca, NY 14853
SWBR Project Number 21198.02

Cornell University
Ithaca, NY 14853

E-301
FIRE ALARM RISER
DIAGRAM



ELECTRIC EQUIPMENT AND CONTROL SCHEDULE												ABBREVIATIONS						GENERAL NOTES														
												AU	AT UNIT	IU	INTEGRAL WITH UNIT	A	REFER TO SPECIFICATIONS FOR REQUIREMENTS OF MOTOR CONTROLLERS AND DISCONNECTING MEANS.															
												B	ASD WITH BYPASS	M	MULTIPLE MOTOR ASD	B	PROVIDE CONTROLLER SIZED PER HP RATING.															
												ECB	ENCLOSED CIRCUIT BREAKER	NF	NON-FUSED	C	LOCATIONS/QUANTITIES OF FIRE ALARM DUCT DETECTORS ARE SHOWN ON THE CONTRACT DRAWINGS.															
												F	FUSED	R	ASD WITH REDUNDANT ASD																	
												HDA	HAND-OFF-AUTO WITH RELAY	RE	REMOTE																	
EQUIPMENT									POWER SOURCE, PROTECTION & WIRING					MOTOR CONTROLLER				DISCONNECTING MEANS				CONNECTIONS			EQUIPMENT							
ITEM ID	NAME	ROOM LOCATION	HP	KW	AMPERAGE	PHASE	VOLTAGE	SOURCE	OCPD RATING	WIRING FROM SOURCE TO EQUIPMENT VIA CONTROLLER / DISCONNECTING MEANS				MANUAL MOTOR STARTER WITH RELAY	MAGNETIC MOTOR STARTER	COMBINATION MAGNETIC AND SAFETY SWITCH	ADJUSTABLE SPEED DRIVE	PACKAGED CONTROL UNIT	NEMA ENCLOSURE TYPE	NEMA STARTER SIZE	LOCATION	SAFETY SWITCH	SAFETY SWITCH AMPERE RATING	FUSE/ECB AMPERE RATING	NEMA ENCLOSURE TYPE	LOCATION	FIRE ALARM SHUTDOWN	FIRE ALARM DUCT DETECTOR(S)	MOTORED DAMPER	LINE VOLTAGE TEMPERATURE CONTROL	REFERENCE NOTES	ITEM ID
										PHASE	GROUND	CONDUIT																				
FCU-1	FAN COIL UNIT	HUTCH			0.2	1	120	LNP-2-3	20/1	2#12	1#12	3/4"					X			AU		Y	30	NF	1	AU						FCU-1

LUMINAIRE SCHEDULE							
TYPE	DESCRIPTION	MFR. & CATALOG No.	LAMP	VOLTAGE/BALLAST	MOUNTING	UNIT WATTS	REFERENCE NOTES
L1	4' LED VAPOR TIGHT FIXTURE.	PLT #PLT-90092	LED 4000K	120-277V	SURFACE	45	1
L2	ROUND LED LOW-BAY CANOPY LIGHT	#MCP03-45-27V-40K-W--D-LB-X	LED 4000K	120-277V	PENDANT	45	1
END OF SCHEDULE							

REFERENCE NOTES:

1. REFER TO FLOOR PLANS FOR MOUNTING INFORMATION.

WW_CH.ID5.B1 (LNP-1-9)			
Fed from WW_RM205.B2.1.3.5 225A			
225A MCB, 208/120V Panelboard, 10kA			
Feeders: 4-4/0 & 1-#4 Eeq Gr. Length:			
S5 Hutch Interior			
#	A	Description	# A Description
1			2 End Station Turbo Controller RM104
3	30	SPARE	4 20 2P/3W L6-20R
5			6 2 resp. one N. Wall Center S5 hutch & one in vac lab
7			8 End Station Turbo Controller RM104
9	20	ACP 600 Rough Pump - RM 104	10 20 2P/3W L6-20R
11			12 2 resp. one N. Wall Center S5 hutch & one in vac lab
13			14 20 (2 resp) Load Lock Turbo Upstream E. Wall
15			16 20 (2 resp) Optics Turbo Upstream E. Wall
17			18 Magnet Rotation Station Vac Pump Upstream/Large GV Differential Pump Upstream - 2 receptacles, NE Wall
19			20 E Quad Receptacles
21			22 E Quad Receptacles
23			24 E & SE Quad Receptacles
25			26 N & NE Quad Receptacles
27			28 SW & W Quad Receptacles
29			30 SW & NW Quad Receptacles
31			32 W & NW Quad Receptacles
33			34 W & NW Quad Receptacles
35			36 Helium Bath Pump dedicated receptacle
37			38 - Blank
39			40 - Blank
41			42 - Blank

WW_CH.S5Cave2.B1 (LNP-2-3)			
Fed from WW_RM205.B2.7.9.11 100A			
100A MCB, 208/120V Panelboard, 10kA			
Feeders: 4-#2 & 1-#4 Eeq Gr. Length:			
WW CHESS Equipment Platform, East			
#	A	Description	# A Description
1			2 SSC2 Turbo Pump 1, 2P/3W L6-20R
3	30	SPARE	4 20 19" rack right of door & SSC2 Vac Rack on equip platform
5			6 SSC2 Turbo Pump 1, 2P/3W L6-20R
7	20	Flexure Amplifier, Outside Hutch 5 North side	8 20 19" rack right of door & SSC2 Vac Rack on equip platform
9	20	S5 Cave2 N. Wall Receptacles	10 20 SSC2 Rough Pump straight blade, 20A, 4.1A (2 resp) on Equipment Platform
11	20	S5 Cave2 N. Wall Receptacles	12 20 SSC2 Rough Pump straight blade, 20A, 4.1A (2 resp) on Equipment Platform
13	20	S5 Cave2 E. Wall Receptacles	14 20 Detector Control 120v - on equip platform
15	20	S5 Cave2 E. Wall Receptacles	16 20 Magnet Control Rack - on equip platform
17	20	S5 Cave2 S. Wall Receptacles	18 20 3P/5W L21-30R N. exterior S5Cave2 General Use
19	20	S5 Cave2 S. Wall Receptacles	20 30 3P/5W L21-30R N. exterior S5Cave2 General Use
21	20	S5 Cave2 W. Wall Receptacles	22 20 3P/3W L6-20R N. exterior S5Cave2 General Use
23	20	S5 Cave2 W. Wall Receptacles	24 20 3P/3W L6-20R N. exterior S5Cave2 General Use
25	20	User station E. Wall Receptacles	26 20 Radiation Monitor
27	20	User station E. Wall Receptacles	28 20 Radiation Monitor
29	20	User station S5 Cave2 Exterior & E Receptacles	30 30 Magnet Control Rack - on equip platform, 14-50R
31	20	User station S5 Cave2 Exterior S & E Receptacles	32 30 - Blank
33	20	S5 Cave2 Exterior E. & N. Wall Receptacles	34 - Blank
35	20	S5 Cave2 Exterior E. & N. Wall Receptacles	36 - Blank
37	20	Cave2 & Under Platform Lighting	38 - Blank
39		- Blank	40 - Blank
41		- Blank	42 - Blank

WW_HB.B2 (LNP-2-2)			
Fed from WW_RM205.B3.28.28.30 225A			
225A MCB, 208/120V Panelboard, 10kA			
Feeders: 4-4/0 & 1-#4 Eeq Gr. Length:			
WW CHESS Equipment Platform, West Wall			
#	A	Description	# A Description
1			2 20 Hutch 5 Motor Rack, quad
3	30	SPARE	4 20 Hutch 5 Motor Rack, quad
5			6 20 S5 Hutch Vac Rack, quad
7	20	S5 Cryo Controls PLC Cabinet	8 20 S5 Hutch Vac Rack, quad
9	20	S5 Hutch EPS PLC Cabinet	10 20 SSC2 Vac Rack, quad
11	20	S5 Magnet PPS Cabinet	12 20 SSC2 Vac Rack, quad
13	20	S5 Wilson West PLC Cabinet	14 20 SSC2 Motor Rack, quad
15	20	S5Cave EPS Cabinet	16 20 SSC2 Motor Rack, quad
17	20	S5 PPS Cabinet	18 20 Network Equip Rack, quad
19	20	conv. Receptacles @ Racks 5-20R	20 20 Network Equip Rack, quad
21			22 20 WW_R2 Future, quad
23			24 20 WW_R2 Future, quad
25			26 20 WW_R1 Future, quad
27			28 20 WW_R1 Future, quad
29	20	CHESS Cryo Rack Power, quad	30 20 SSC1 Motors Rack, quad
31	20	CHESS Cryo Rack Power, quad	32 20 SSC1 Vac Rack, quad
33	20	N. DCM Pump, 2 dedicated 120v Resp.	34 20 conv. Receptacles @ Racks, quad
35	20	Quad @ N. DCM pump	36 20 conv. Receptacles @ Racks, quad
37	20	East Wall Platform Conv. Resp. - GF1	38 20 Radiation Monitors
39	20	East Wall Platform Conv. Resp. - GF1	40 20 Welding Outlet 1st Floor East Wall
41	20	Cryo oxygen sensors LOCATION?	42 100 Welding Outlet 2nd Floor East Wall HBL510R0W
43			44 46
45	100	Welding Outlet 1st Floor West Wall	46
47			48
49	20	East Wall 1st Floor Conv. Resp. - GF1	50 100 Welding Outlet 2nd Floor East Wall HBL510R0W
51	20	N. Wall 1st Floor Conv. Resp. - GF1	52
53	20	W. Wall 1st Floor Conv. Resp. - GF1	54 - Blank
55		- Blank	56 - Blank
57		- Blank	58 - Blank
59		- Blank	60 - Blank

PANELBOARD SCHEDULE REFERENCE NOTES:

1. CIRCUIT PATH THROUGH WM 1 - NOTE CONNECT WM1 & WM2 ON WEST SIDE WM1 RUNS FROM SOUTH SIDE OF EQUIPMENT RACK.
2. CIRCUIT PATH THROUGH WM 2 - NOTE CONNECT WM1 & WM2 ON WEST SIDE. WM2 RUNS FROM NORTH SIDE OF EQUIPMENT RACK.
3. CIRCUIT PATH THROUGH WM 3. WM3 RUNS ALONG HIGH BAY WALL.
4. (6) TOTAL RADIATION MONITORING RECEPTACLES. REFER TO DRAWING NOTE 8 ON SHEET E-111.



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E-500
SCHEDULES -
ELECTRICAL