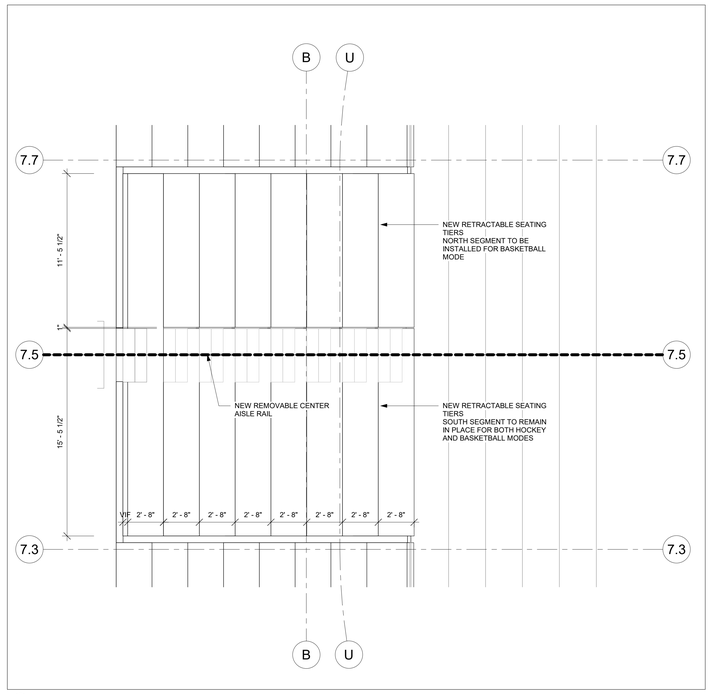
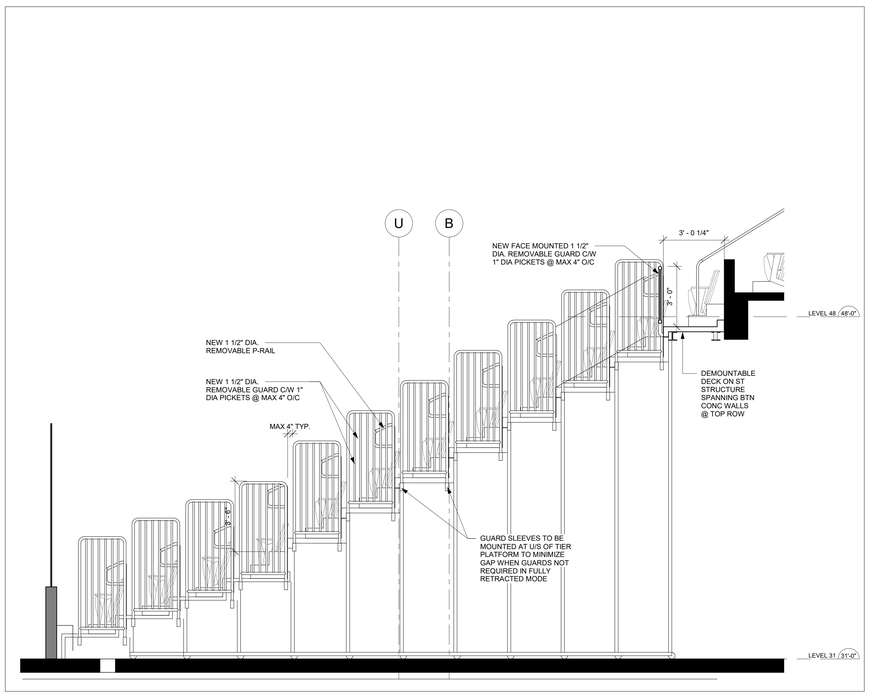
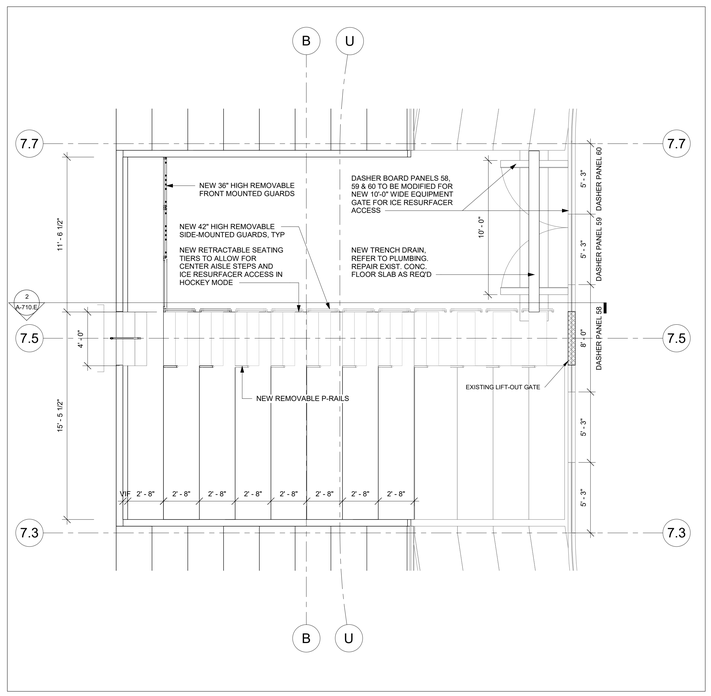


3 RETRACTABLE SEATING TIERS AT ICE RESURFACER ROUTE-BASKETBALL MODE
1/4" = 1'-0"



2 SECTION AT RETRACTABLE SEATING TIERS AT ICE RESURFACER ROUTE
3/8" = 1'-0"



1 RETRACTABLE SEATING TIERS AT ICE RESURFACER ROUTE
1/4" = 1'-0"

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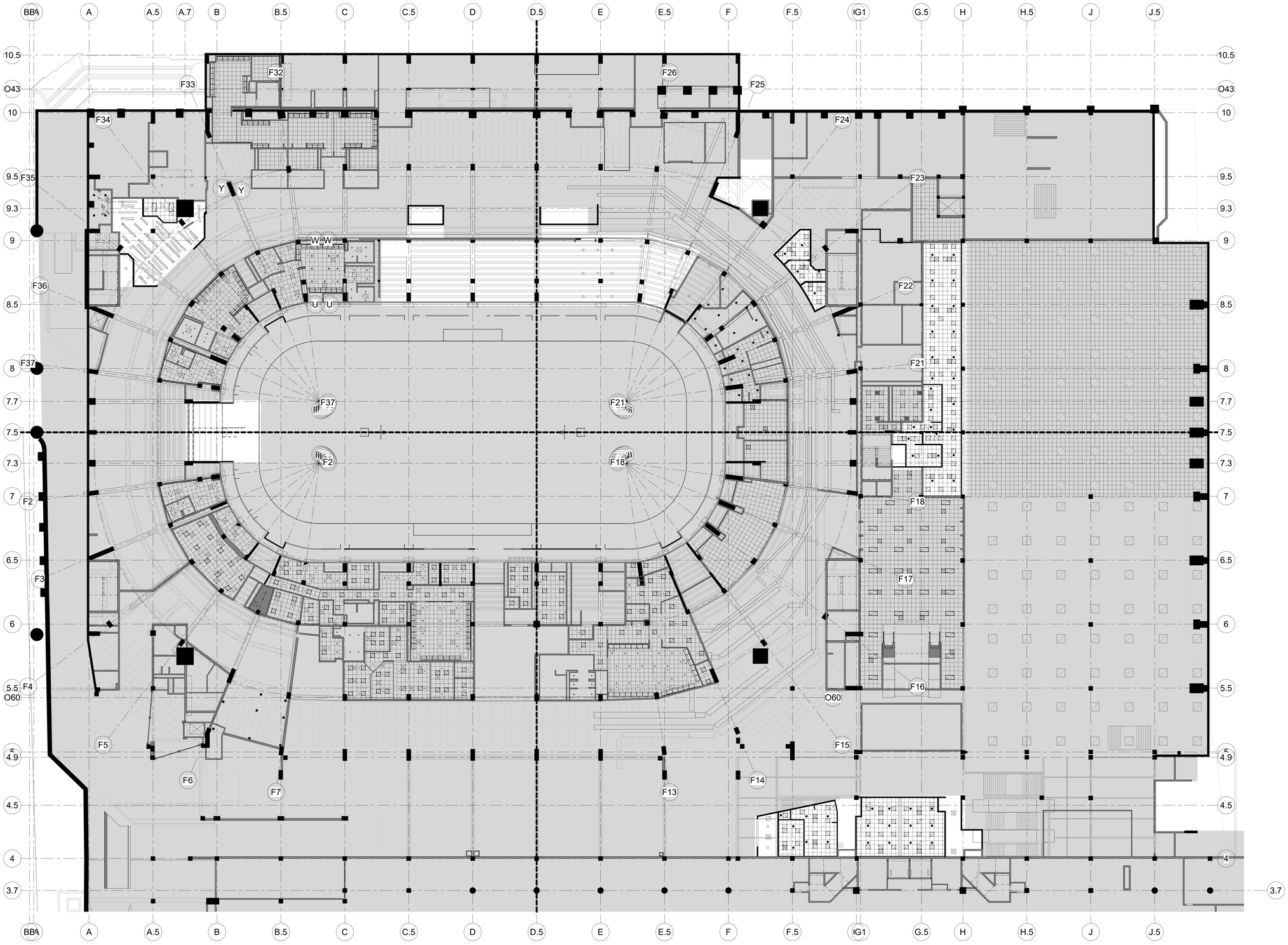
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
BOWL DETAILS

SCALE: As indicated
PROJ. NO.: 1605
DWG. NO.: A-710.E



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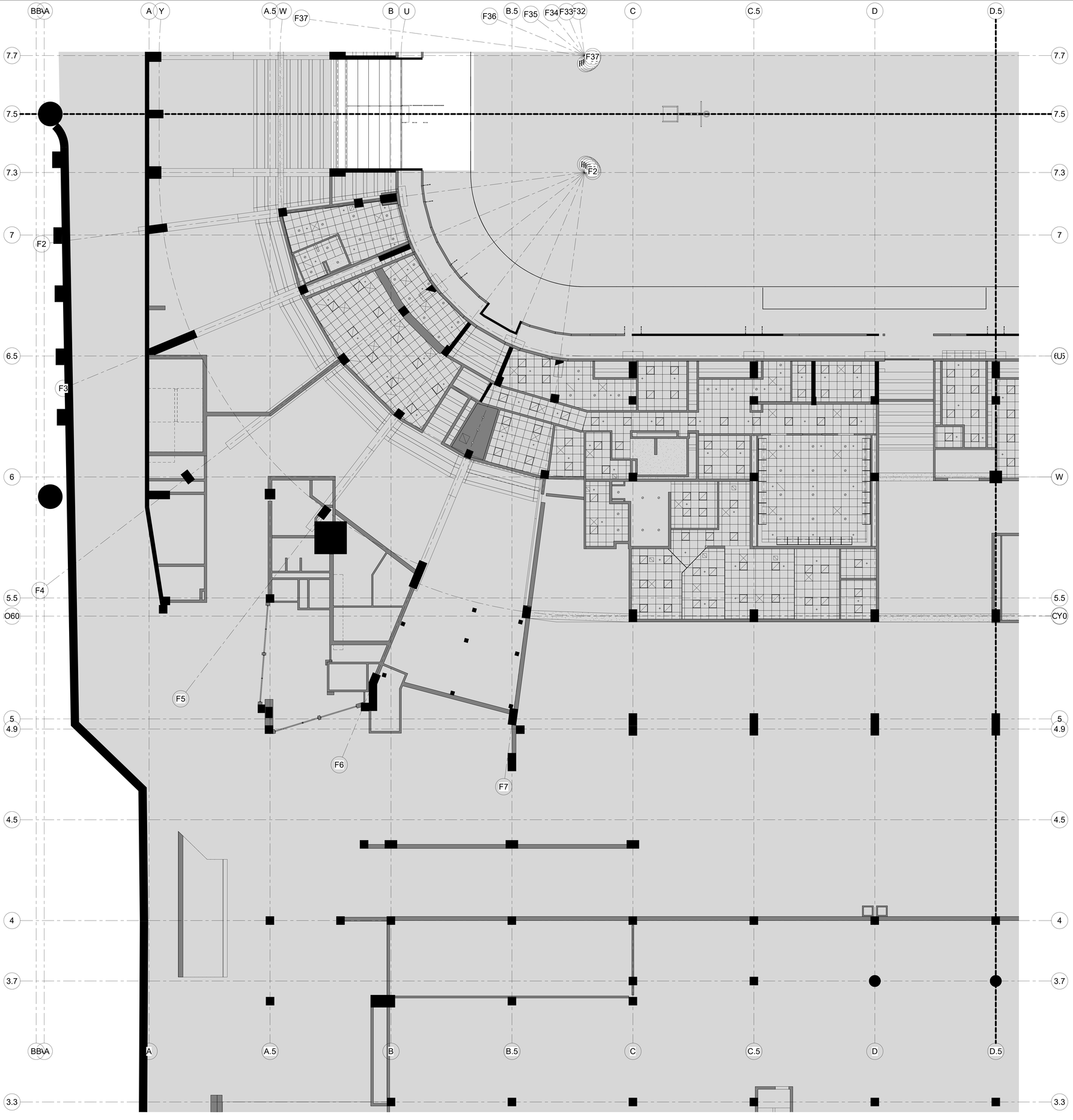
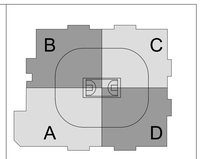
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - OVERALL RCP

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-801.E





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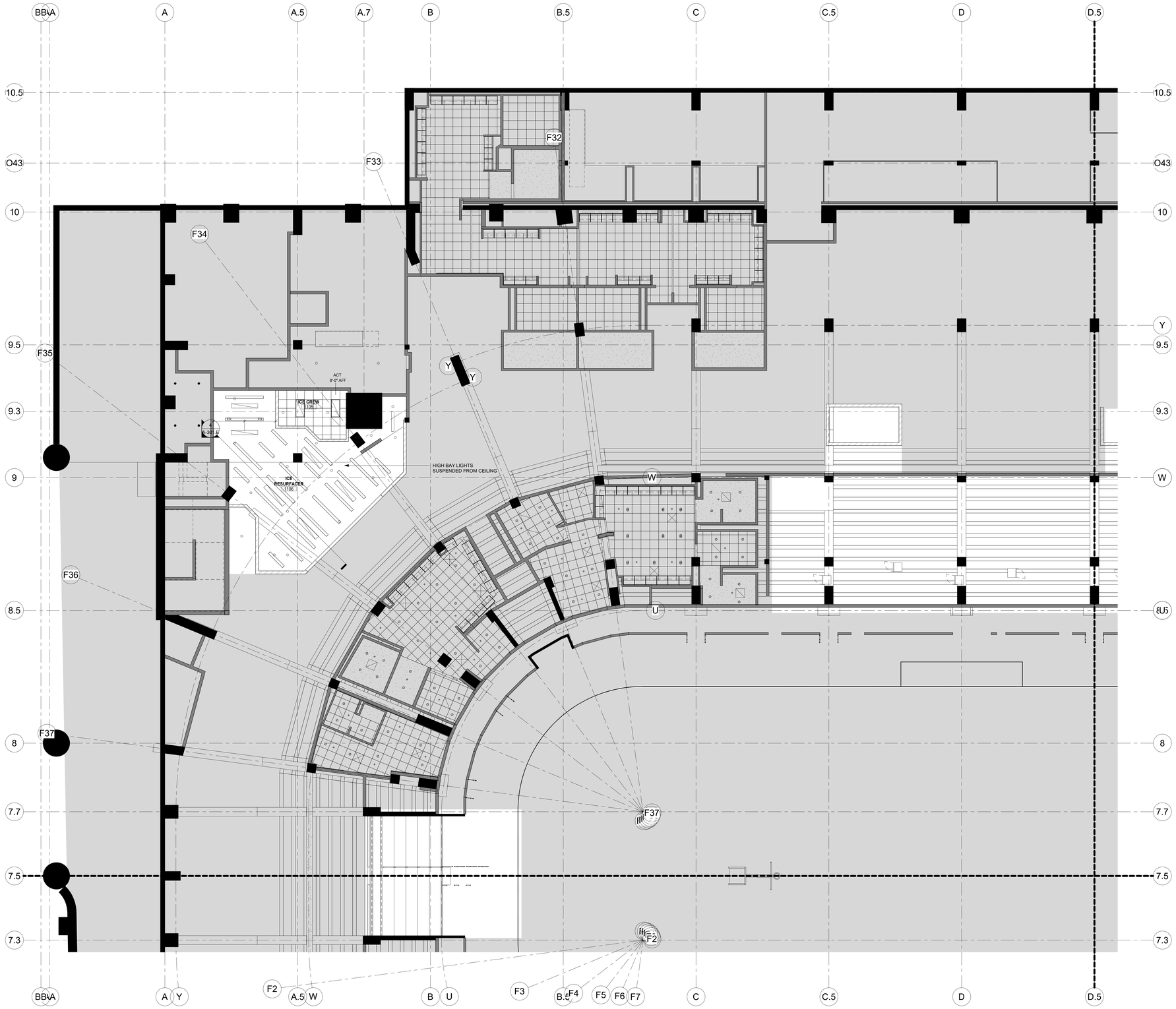
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - RCP - QUAD A - ENABLING WORK

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-801A.E



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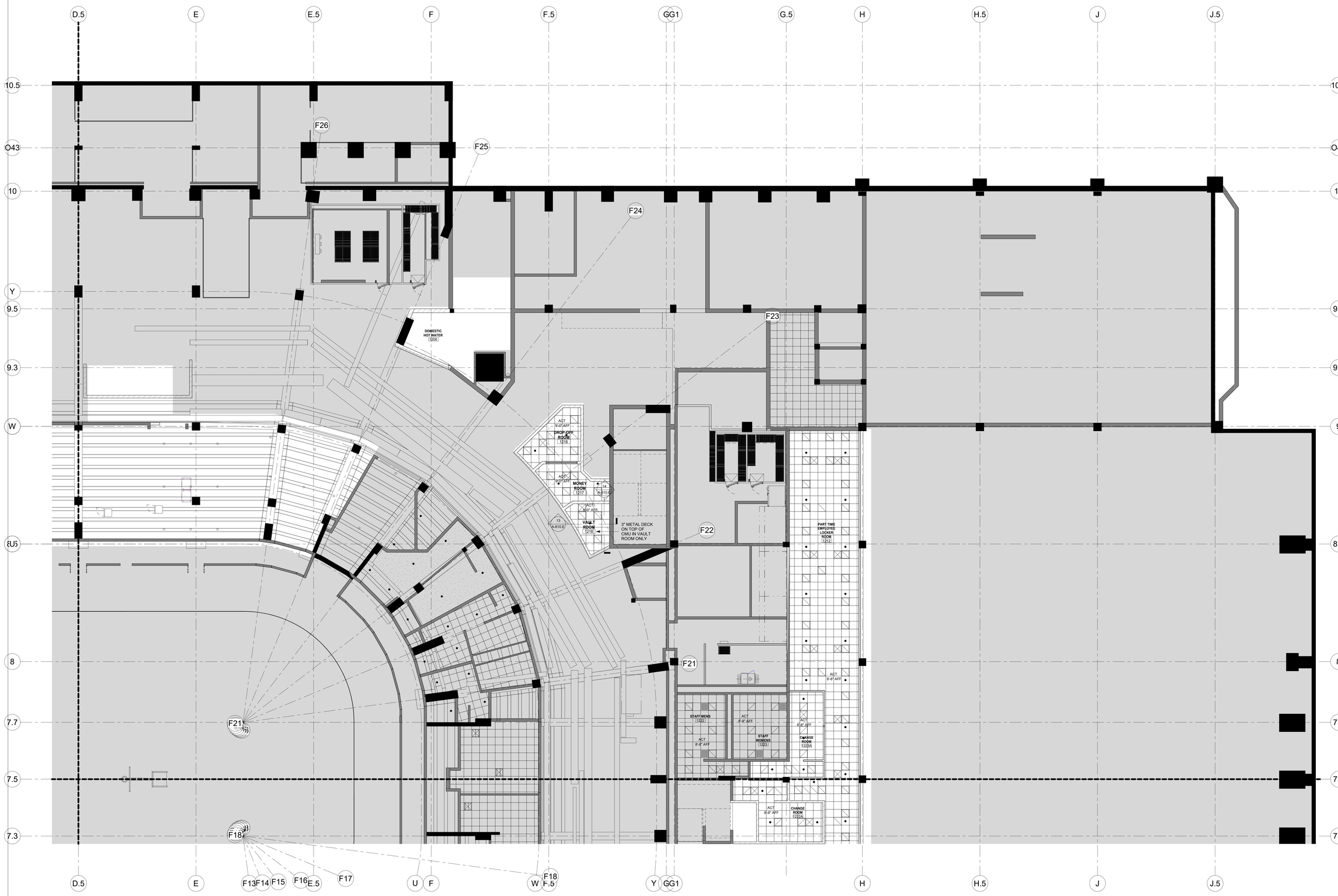
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - RCP - QUAD B - ENABLING WORK

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-801B.E



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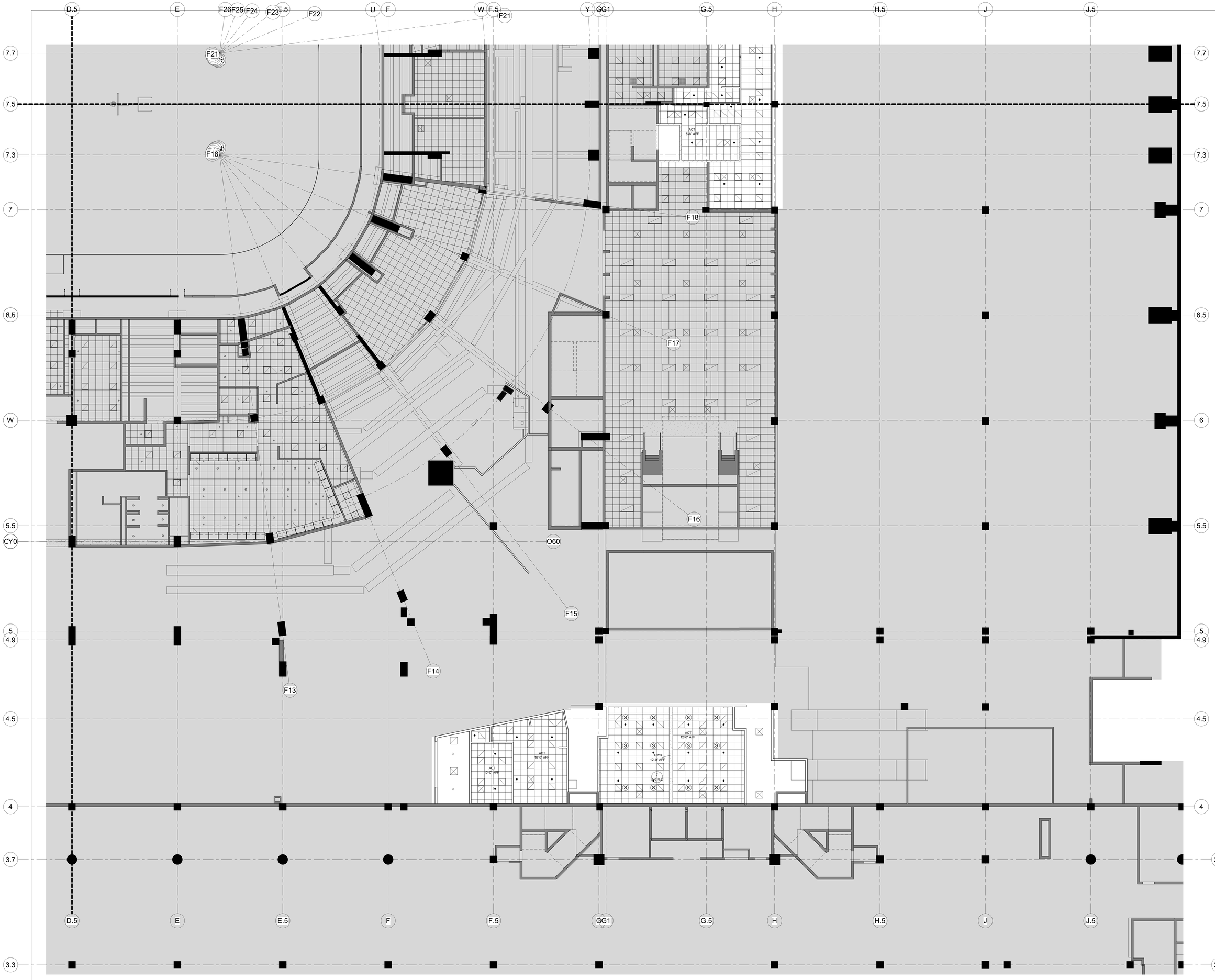
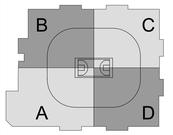
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - RCP - QUAD C - ENABLING WORK

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-801C.E





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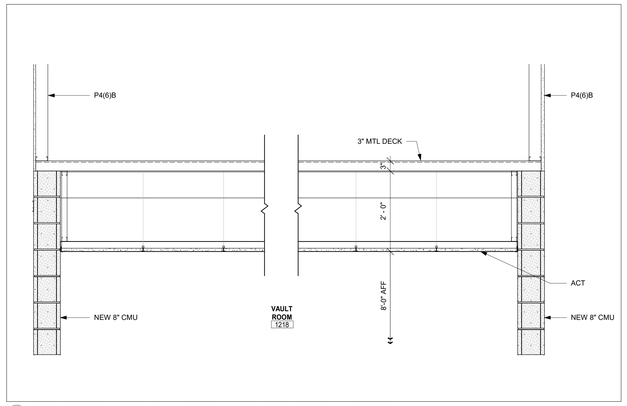
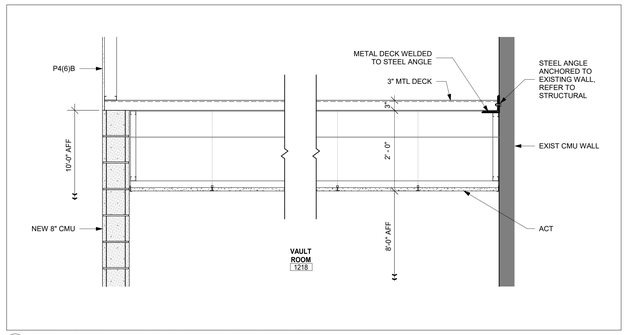
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - RCP - QUAD D - ENABLING WORK

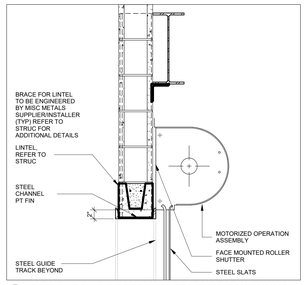
SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-801D.E



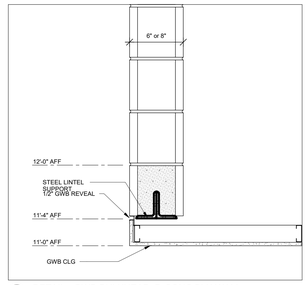
14 DETAIL SECTION - LEVEL 31 VAULT ROOM - METAL DECK @ DRYWALL TO DRYWALL
3/4" = 1'-0"



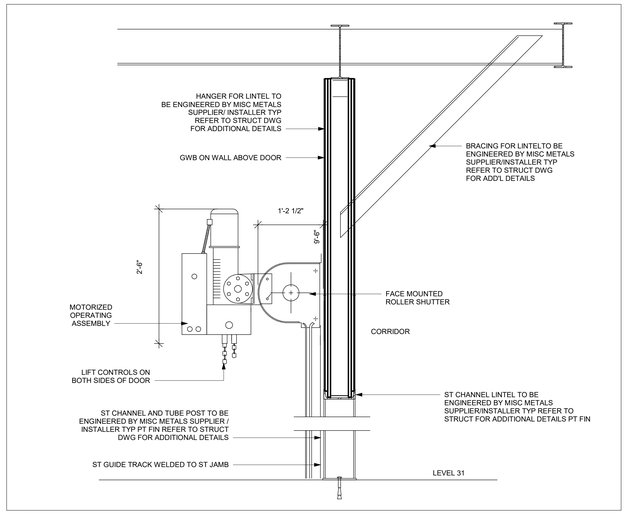
13 DETAIL SECTION - LEVEL 31 VAULT ROOM - METAL DECK @ CMU WALLS
3/4" = 1'-0"



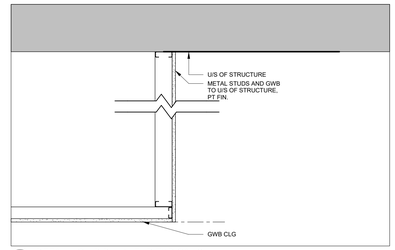
12 DETAIL - ROLLING DOOR MOUNTED ON MASONRY WALL
1" = 1'-0"



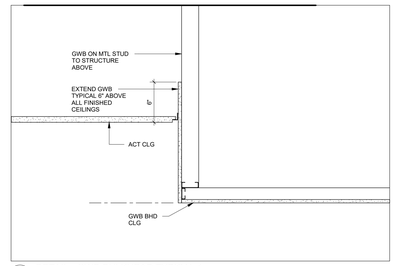
11 DETAIL - GWB BULKHEAD @ CONC BLK WALL
1 1/2" = 1'-0"



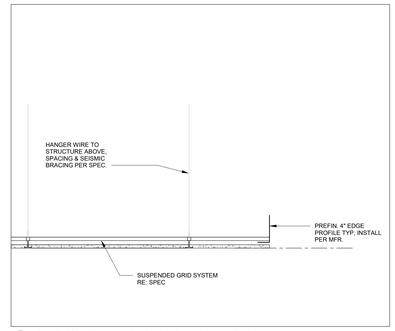
10 TYPICAL ROLL UP DOOR SECTION AT GWB WALL
1" = 1'-0"



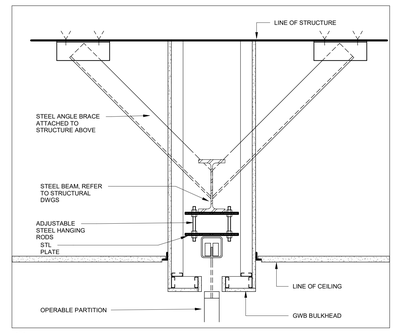
9B DETAIL - GWB BULKHEAD TYPICAL 2
1 1/2" = 1'-0"



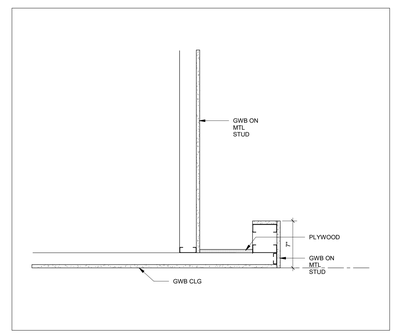
9A DETAIL - GWB BULKHEAD TYPICAL 1
1 1/2" = 1'-0"



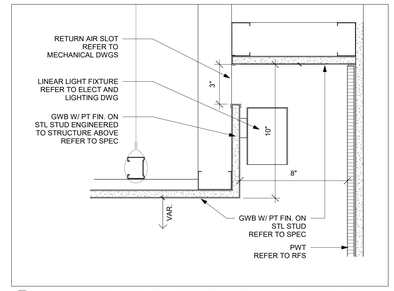
8 SECTION DETAIL - ACT CEILING WITH END TRIM
1 1/2" = 1'-0"



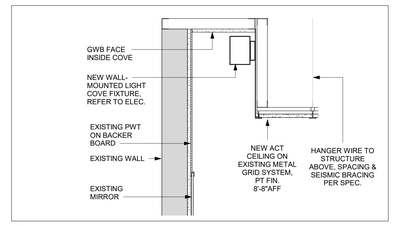
7 SECTION DETAIL - OPERABLE PARTITION SUPPORT
1 1/2" = 1'-0"



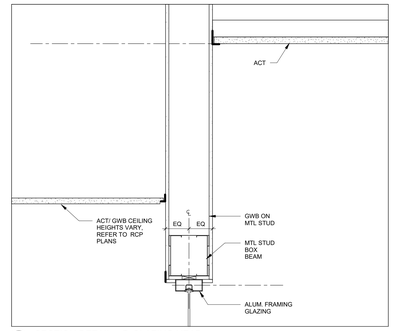
6 SECTION DETAIL - GWB COVE
1 1/2" = 1'-0"



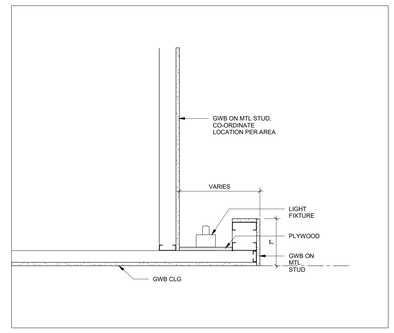
5 SECTION DETAIL - GWB CEILING COVE @ RESTROOM W/ SUPPLY AIR
3" = 1'-0"



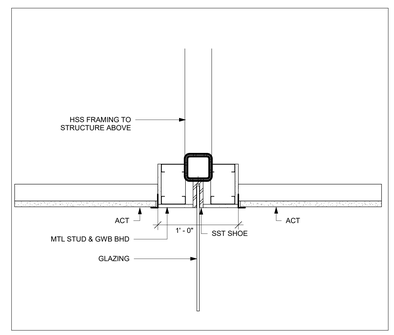
4 COVE DETAIL @ MIRROR - GWB CEILING
1 1/2" = 1'-0"



3 SECTION DETAIL - @ GLAZING HEAD
1 1/2" = 1'-0"



2 SECTION DETAIL - GWB LIGHT COVE
1 1/2" = 1'-0"



1 SECTION DETAIL - GLAZING HEAD
1 1/2" = 1'-0"

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1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
CEILING DETAILS

SCALE As indicated
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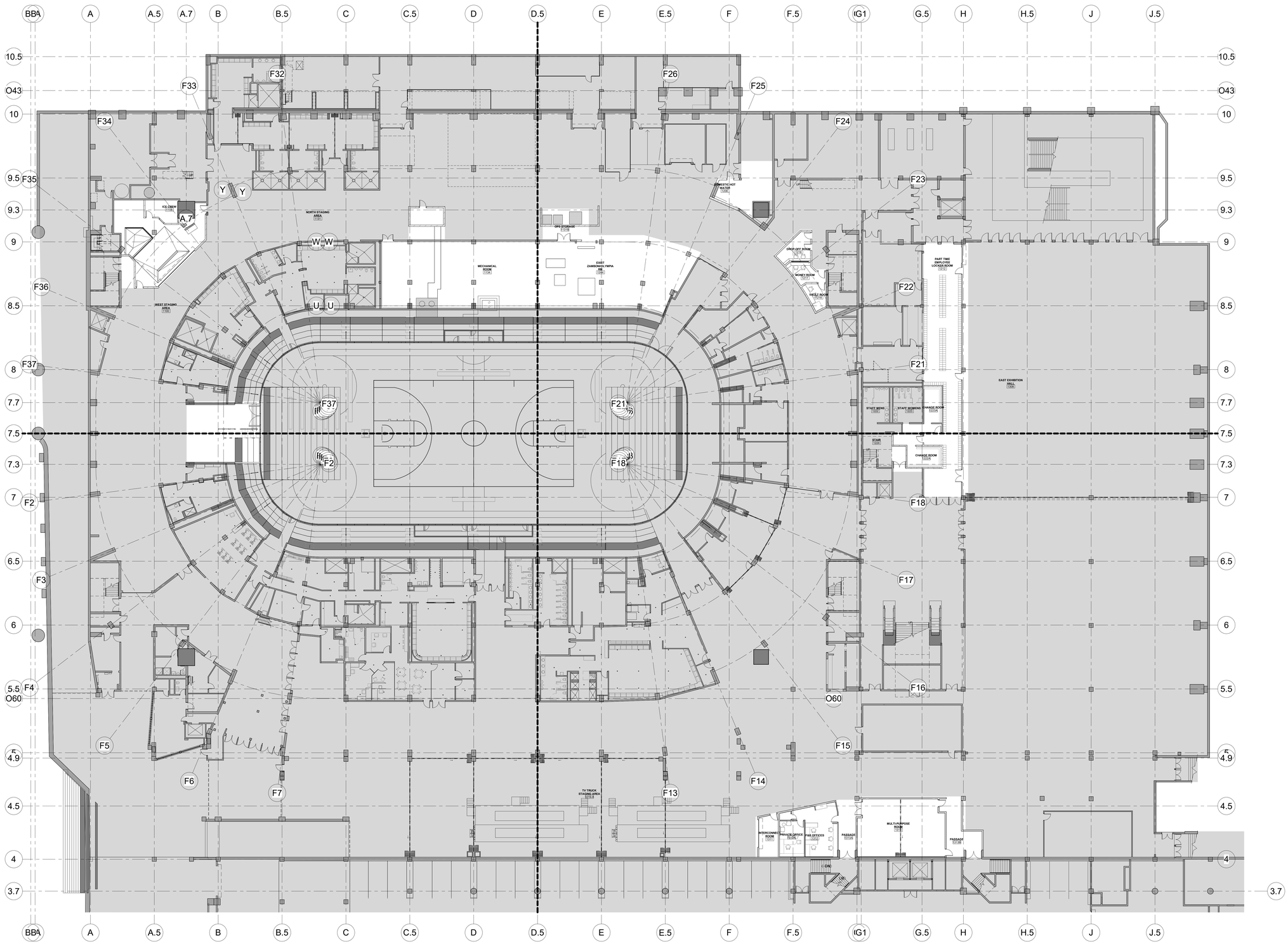
DWG. NO. A-810.E



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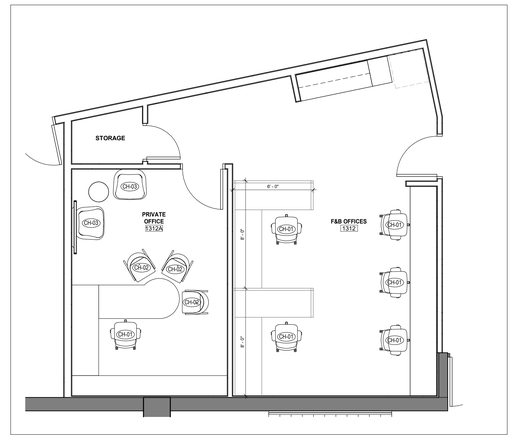
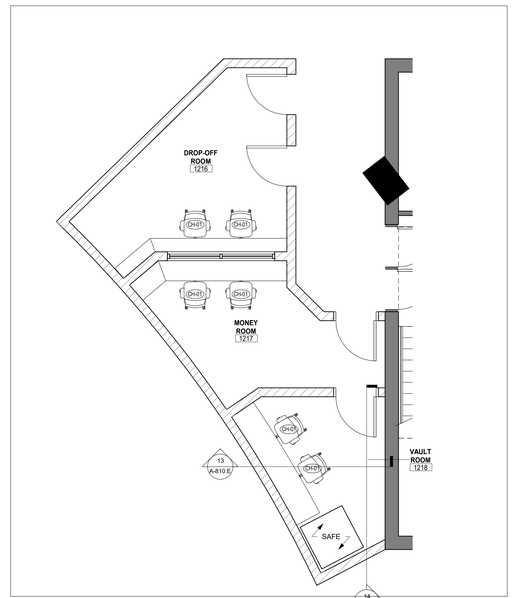
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 FF&E PLAN

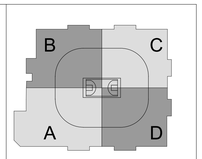
SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-901.E



2 FF&E PLAN DETAIL - LEVEL 31 - F&B OFFICES
1/4" = 1'-0"



1 FF&E PLAN DETAIL - LEVEL 31 - DROP-OFF, MONEY ROOM, & VAULT ROOM
1/4" = 1'-0"



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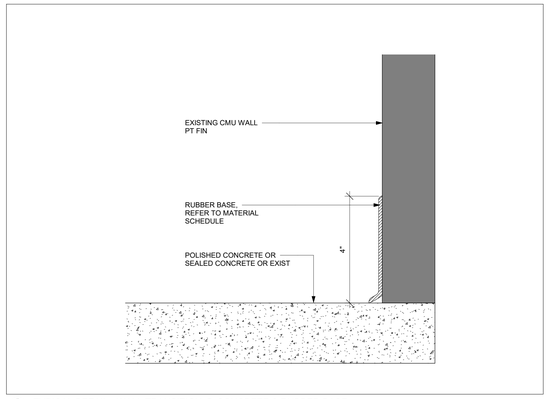
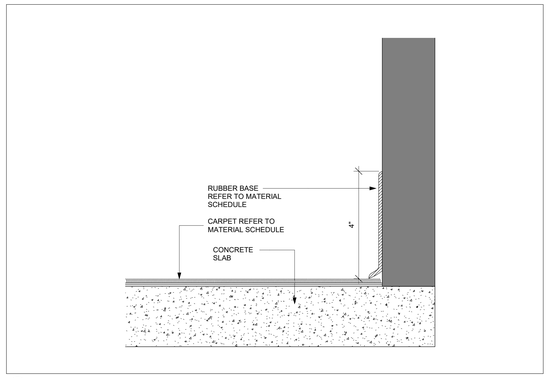
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FF&E PLAN
BLOW-UPS

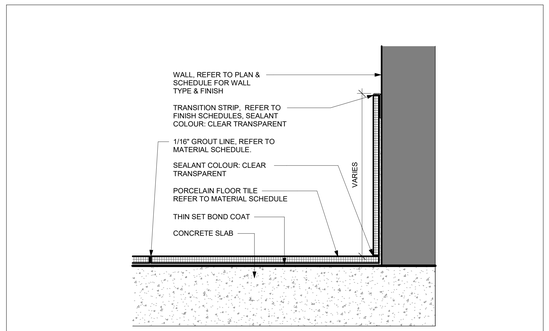
SCALE 1/4" = 1'-0"
PROJ. NO. 1605
DWG. NO. A-902.E



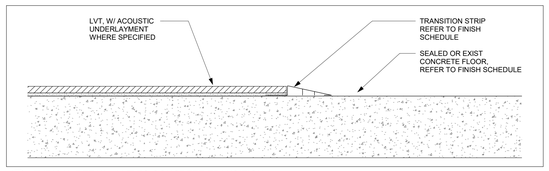
6 TYPICAL DETAIL - WALL TRANSITION @ CONCRETE & RUBBER BASE
6" = 1'-0"



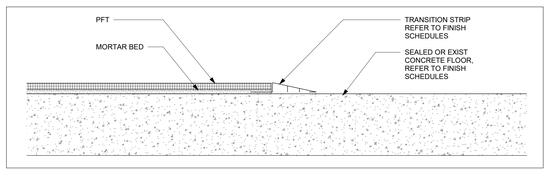
5 TYPICAL DETAIL - WALL TRANSITION @ CARP & RB BASE
6" = 1'-0"



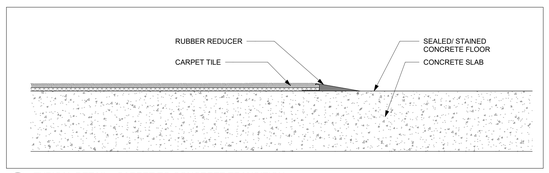
4 TYPICAL DETAIL - WALL TRANSITION @ WT BASE
6" = 1'-0"



3 TYPICAL DETAIL - LVT TO CONCRETE TRANSITION
6" = 1'-0"



2 TYPICAL DETAIL - PORCELAIN TILE TO CONCRETE FLOOR TRANSITION
6" = 1'-0"



1 TYPICAL DETAIL - CARPET TO CONCRETE TRANSITION
6" = 1'-0"

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REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
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DATE: 07/04/16
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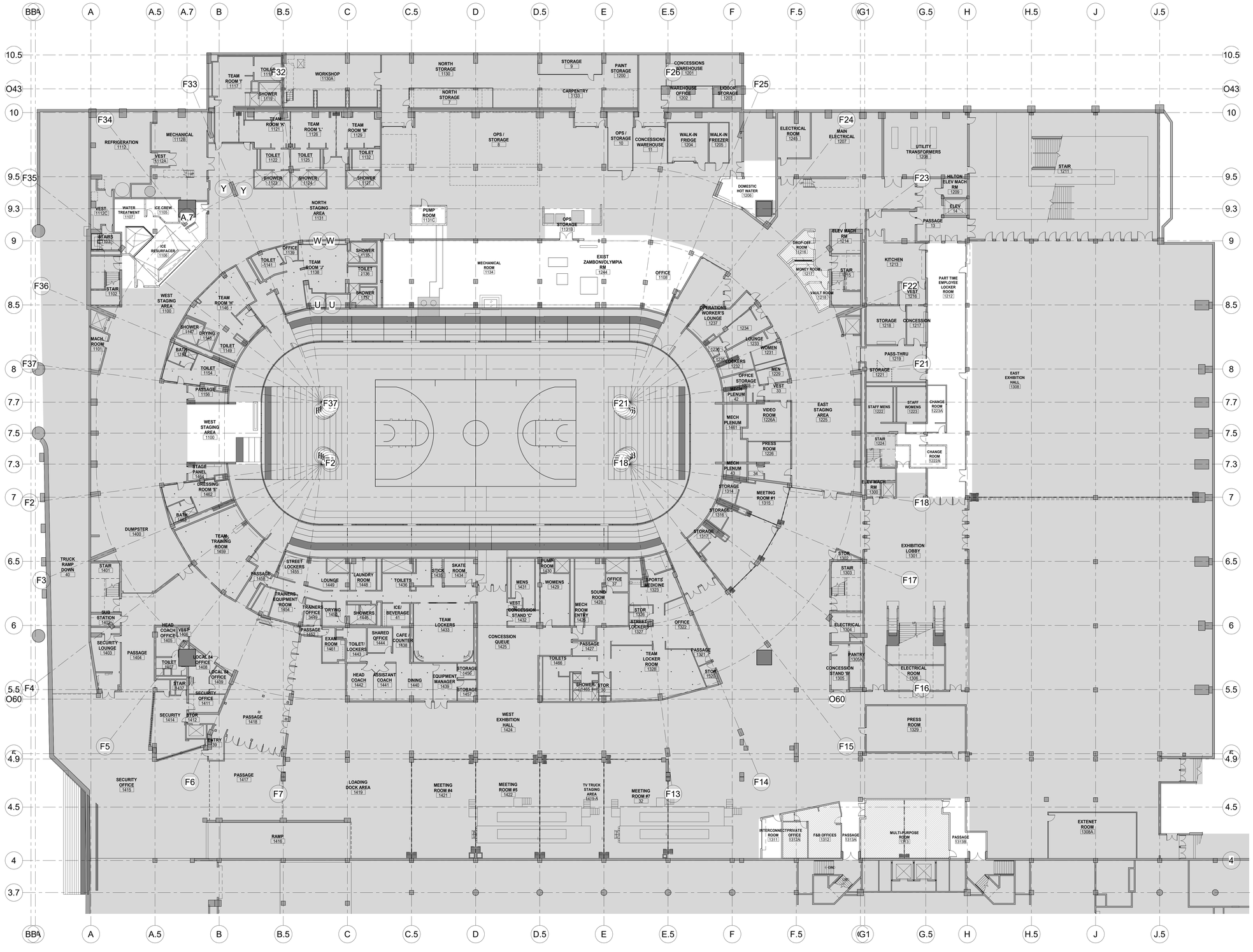
DATE PLOTTED: 2020-12-18 1:41:20 PM

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
TRANSITION DETAILS

SCALE: 6" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: A-910.E



NOTE:
ALL PFT TO BE INSTALLED IN BRICK PATTERN 30/70

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me engineers
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NEW YORK, NY 10018
(212) 447-6770

NO.	DESCRIPTION	DATE
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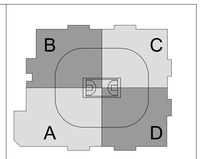
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FLOOR FINISH PLAN

SCALE As indicated
PROJ. NO. 1605
DWG. NO. A-911.E

FINISH PLAN LEGEND

- BROADLOOM CARPET
- REMOVABLE BROADLOOM
- CARPET TILE



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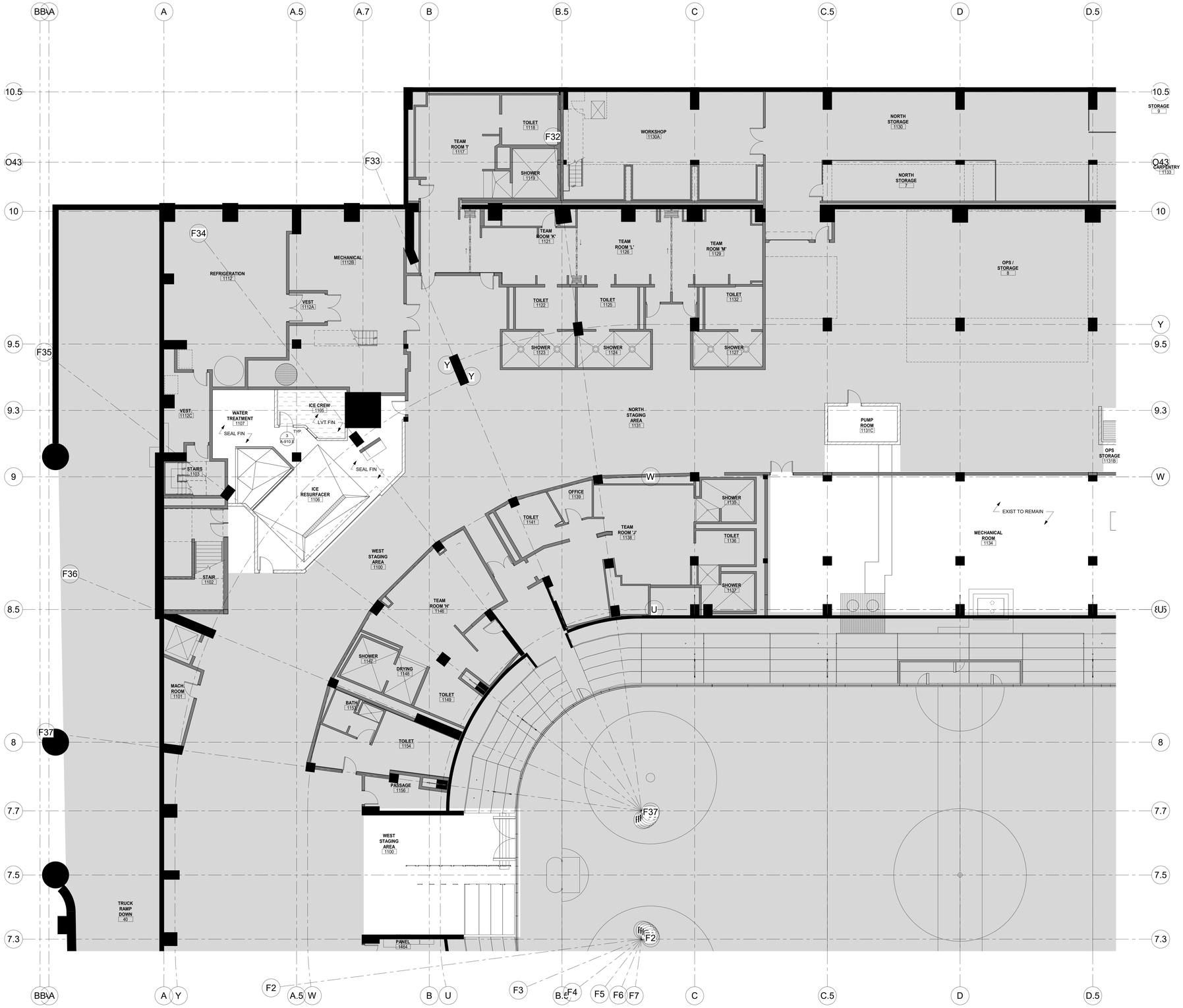
1 CIVIC CENTER PLAZA
HARTFORD, CT

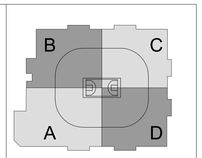
DWG. TITLE
LEVEL 31 - NEW FINISH PLAN
QUAD A

SCALE	DWG. NO.
As indicated	A-911A.E
PROJ. NO. 1605	

FINISH PLAN LEGEND

- BROADLOOM CARPET
- REMOVABLE BROADLOOM
- CARPET TILE





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HARTFORD, CT

DWG. TITLE
LEVEL 31 - NEW FINISH PLAN
QUAD B

SCALE: As indicated
PROJ. NO.: 1605
DWG. NO.: A-911B.E

FINISH PLAN LEGEND

- BROADLOOM CARPET
- REMOVABLE BROADLOOM
- CARPET TILE

B C A D

D.5 E E.5 F F.5 GG1 G.5 H H.5 J J.5

10.5 O43 10 Y 9.5 9.3 W 9 8.5 8 7.7 7.5 7.3

STORAGE 9 | PAINT STORAGE 1200 | CONCESSIONS WAREHOUSE 1201 | NORTH STORAGE 1130 | CARPENTRY 1133 | WAREHOUSE OFFICE 1202 | LIQUOR STORAGE 1203 | OPS / STORAGE 8 | OPS / STORAGE 10 | CONCESSIONS WAREHOUSE 11 | WALK-IN FRIDGE 1204 | WALK-IN FREEZER 1205 | ELECTRICAL ROOM 1245 | MAIN ELECTRICAL 1207 | UTILITY TRANSFORMERS 1208 | STAIR 1211 | HILTON ELEV MACH RM 1209 | ELEV 14 | PASSAGE 13 | NORTH STAGING AREA 1131 | OPS STORAGE 1131B | DOMESTIC HOT WATER 1206 | EXIST TO REMAIN | ELEV MACH RM 1214 | DROP-OFF ROOM 1216 | CARP FIN | MONEY ROOM 1217 | VAULT ROOM 1218 | KITCHEN 1213 | PART TIME EMPLOYEE LOCKER ROOM 1212 | STAIR 1215 | VEST 1216 | STORAGE 1218 | CONCESSION 1217 | PASS-THRU 1219 | PC FIN | STORAGE 1221 | MECHANICAL ROOM 1134 | EXIST ZAMBONI/OLYMPIA RM 1244 | OFFICE 1108 | OPERATIONS WORKER'S LOUNGE 1237 | 1234 | LOUNGE 1233 | 1236 | 1235 | LOCKERS 1232 | WOMEN 1231 | OFFICE STORAGE 1228 | MEN 1229 | VEST 33 | PLENUM 42 | MECH PLENUM 1461 | VIDEO ROOM 1226A | PRESS ROOM 1226 | MECH PLENUM 43 | 34 | EAST STAGING AREA 1225 | STAFF MENS 1222 | STAFF WOMENS 1223 | CHANGE ROOM 1223A | STAIR 1224 | CHANGE ROOM 1222A | PART TIME EMPLOYEE LOCKER ROOM 1212 | EAST EXHIBITION HALL 1308

F17 F16 F15 F14 F13 F18 F21 F22 F23 F24 F25 F26

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NO.	DESCRIPTION	DATE
5	PHASE 1 ENABLING WORKS - ISSUED FOR 75% CD	12/18/2020

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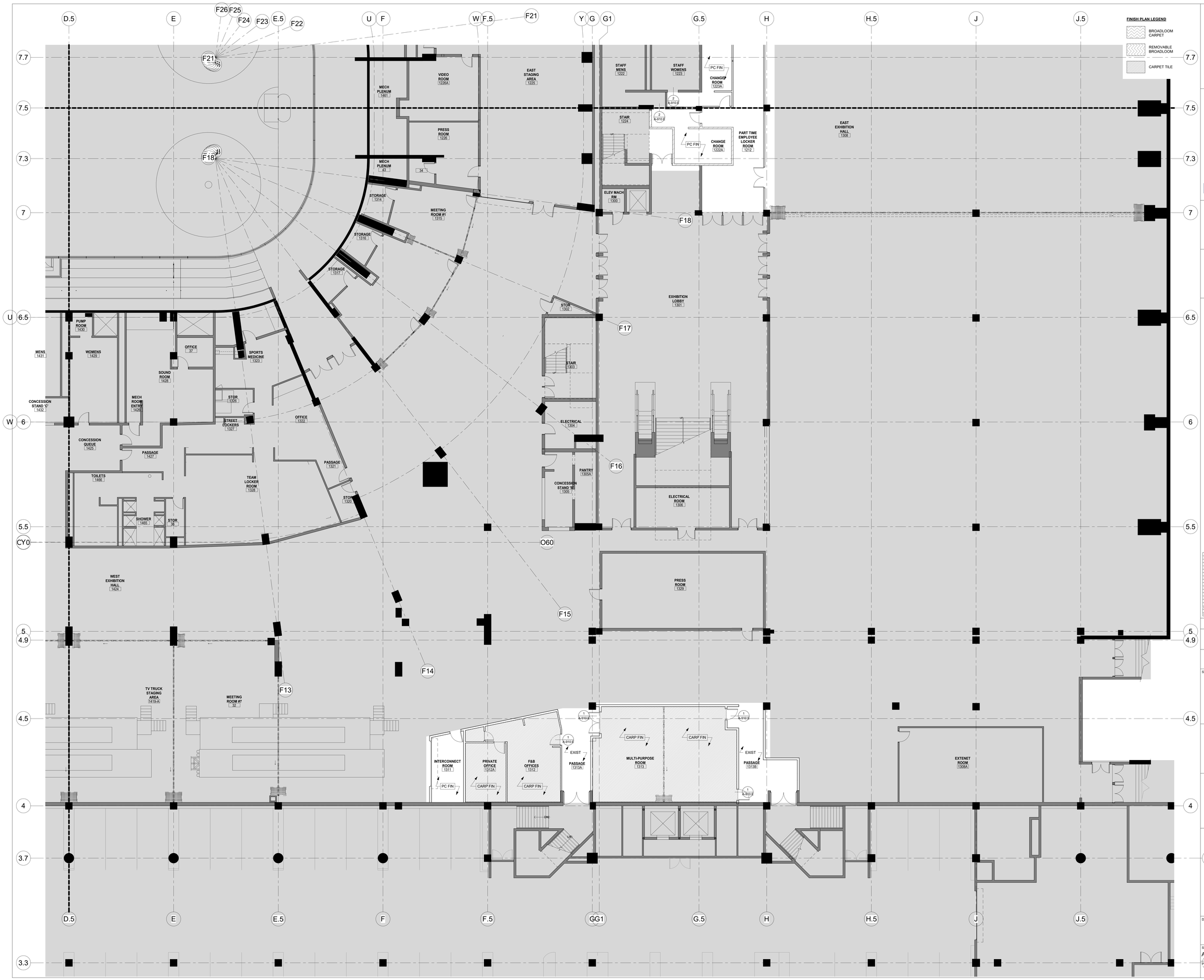
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - NEW FINISH PLAN
QUAD C

SCALE: As indicated
PROJ. NO.: 1605
DWG. NO.: A-911C.E



B C A D

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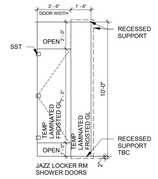
1 CIVIC CENTER PLAZA
HARTFORD, CT

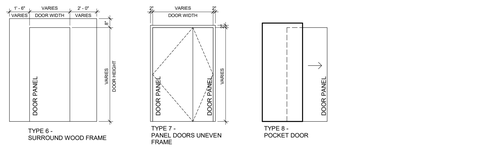
DWG. TITLE
LEVEL 31 - NEW FINISH PLAN
QUAD D

SCALE As indicated
PROJ. NO. 1605
DWG. NO. A-911D.E



JAZZ LOCKER RM SHOWER DOORS

SPECIALTY GLAZING DOORS



TYPE 6 - SURROUND WOOD FRAME

TYPE 7 - PANEL DOORS UNEVEN FRAME

TYPE 8 - POCKET DOOR

TYPE 1 - PANEL DOOR FRAME

TYPE 2 - FRAME WITH TRANSOM

TYPE 3 - FRAME WITH SIDELIGHT

TYPE 4 - FRAME WITH TRANSOM & SIDELIGHT

TYPE 5 - STOREFRONT

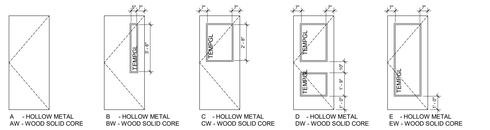
FRAME TYPES

F - HOLLOW METAL
FW - WOOD SOLID CORE

G
GT - THERMALLY BROKEN DOUBLE GLAZED
GTS - THERMALLY BROKEN DOUBLE GLAZED SLIDING
GS - SLIDING

H - ALL GLASS DOOR
HTB - TOP & BOTTOM RAIL
HS - SLIDING W/ TOP & BOTTOM RAIL

J - OVERHEAD DOOR



A - HOLLOW METAL
AW - WOOD SOLID CORE

B - HOLLOW METAL
BW - WOOD SOLID CORE

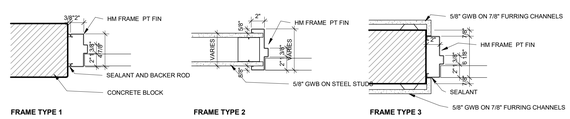
C - HOLLOW METAL
CW - WOOD SOLID CORE

D - HOLLOW METAL
DW - WOOD SOLID CORE

E - HOLLOW METAL
EW - WOOD SOLID CORE

DOOR TYPES

DOOR & FRAME TYPES
1/4" = 1'-0"



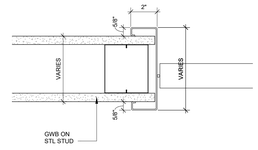
NOTES:

1. HARDWARE ABBREVIATIONS
- CL - CLOSER
- CLH - CLOSER W/ HOLD-OPEN FUNCTION
- CR - CARD READER
- CRK - CARD READER W/ KEYPAD
- DC - DOOR CONTACT
- DS - DOOR STOP
- EL - ELECTRIC LATCH
- ES - ELECTRIC STRIKE
- GR - AIR TRANSFER GRILLE
- HC - HANDICAP DOOR OPERATOR
- KP - KICK PLATE
- MCL - MECHANICAL CODE LOCK
- PB - PANIC BAR (NOTE: INCL CL, TYP.)
- RTE - REQUEST TO EXIT MOTION SENSOR
- TH - THRESHOLD
- WS - WEATHER STRIPPING

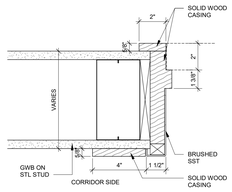
2. ALL EXTERIOR DOORS SHALL BE SUPPLIED W/ CL, WS, TH, PB, DC
EXT = EXTERIOR DOOR

3. GLAZING TYPES
IG - INSULATED GLAZING SB - SANDBLASTED
NOTE: IF GLAZING TYPE NOT INDICATED, GLASS SHALL BE TEMPERED

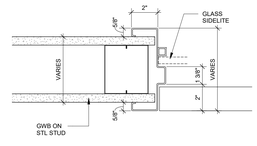
4. FOR "EXISTING/ NEW" COLUMN.
'EXIST' DENOTES EXISTING DOOR & FRAME TO REMAIN.
'EXIST' FRAME DENOTES EXISTING FRAME TO REMAIN. NEW DOOR & HARDWARE.
A BLANK CELL DENOTES NEW DOOR, FRAME, AND HARDWARE.



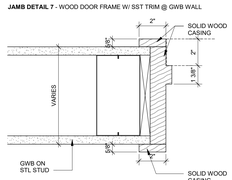
JAMB DETAIL 1 - HOLLOW METAL FRAME @ GWB WALL



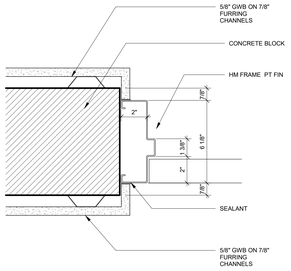
JAMB DETAIL 7 - WOOD DOOR FRAME W/ SST TRIM @ GWB WALL



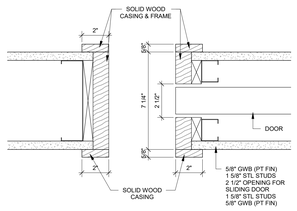
JAMB DETAIL 2 - HOLLOW METAL FRAME W/ SIDELITE @ GWB WALL



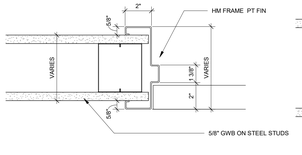
JAMB DETAIL 8 - WOOD DOOR FRAME @ GWB WALL



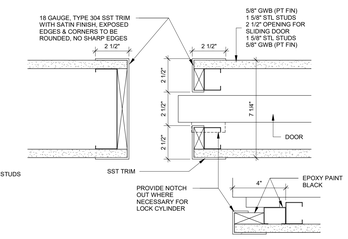
JAMB DETAIL 3 - HOLLOW METAL FRAME @ CONCRETE BLOCK WALL WITH GWB BOTH SIDES



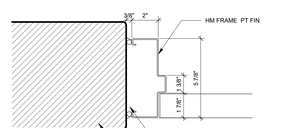
JAMB DETAIL 9 - WOOD POCKET DOOR FRAME @ GWB WALL



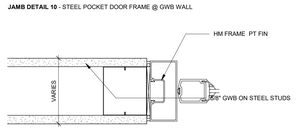
JAMB DETAIL 4 - HOLLOW METAL FRAME @ GWB WALL



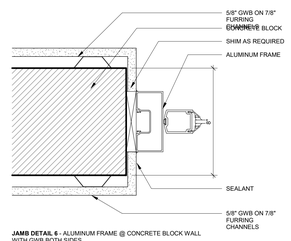
JAMB DETAIL 10 - STEEL POCKET DOOR FRAME @ GWB WALL



JAMB DETAIL 5 - HOLLOW METAL FRAME @ CONCRETE BLOCK WALL



JAMB DETAIL 11 - ALUMINUM FRAME @ GWB WALL



JAMB DETAIL 6 - ALUMINUM FRAME @ CONCRETE BLOCK WALL WITH GWB BOTH SIDES

JAMB DETAILS - ENABLING
3" = 1'-0"

DOOR FRAME TYPES - ENABLING
1 1/2" = 1'-0"

DOOR SCHEDULE - ENABLING

Level	FROM ROOM	TO ROOM	DOOR NUMBER	Exist / New	DOOR TYPE	PANEL FINISH	DOOR SIZE HEIGHT	DOOR SIZE WIDTH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FIRE RATING	HARDWARE TYPE	COMMENTS
LEVEL 31	ICE RESURFACER	ICE CREW	1105-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	NORTH STAGING AREA	ICE RESURFACER	1106-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	WEST STAGING AREA	ICE RESURFACER	1106-2	N	A		7'-0"	3'-0"	1					
LEVEL 31	WEST STAGING AREA	ICE RESURFACER	1106-OH	N	J		10'-0"	24'-0"						OVERHEAD DOOR; REFER TO DETAIL 12 / A-810.E
LEVEL 31	PUMP ROOM	NORTH STAGING AREA	1131C-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	DOMESTIC HOT WATER	NORTH STAGING AREA	1206-2	N	A		7'-0"	3'-0"	1					
LEVEL 31	EAST EXHIBITION HALL	PART TIME EMPLOYEE LOCKER ROOM	1212-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	EAST EXHIBITION HALL	PART TIME EMPLOYEE LOCKER ROOM	1212-2	N	A		7'-0"	3'-0"	1					
LEVEL 31	EAST EXHIBITION HALL	PART TIME EMPLOYEE LOCKER ROOM	1212-3	N	J		7'-0"	7'-8"						
LEVEL 31	EAST EXHIBITION HALL	PART TIME EMPLOYEE LOCKER ROOM	1212-4	N	A		7'-0"	5'-8"	1					
LEVEL 31	NORTH STAGING AREA	DROP-OFF ROOM	1216-1	N	B		7'-0"	3'-0"	1					
LEVEL 31	NORTH STAGING AREA	DROP-OFF ROOM	1216-2	N	B		7'-0"	3'-0"	1					
LEVEL 31	NORTH STAGING AREA	MONEY ROOM	1217-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	MONEY ROOM	VAULT ROOM	1218-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	PART TIME EMPLOYEE LOCKER ROOM	CHANGE ROOM	1222A-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	PART TIME EMPLOYEE LOCKER ROOM	CHANGE ROOM	1223-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	EXHIBITION LOBBY	STAIR	1224-1	N	A		7'-0"	5'-8"	1					
LEVEL 31	TV TRUCK STAGING AREA	INTERCONNECT ROOM	1311-2	N	A		7'-0"	3'-0"	1					
LEVEL 31	PASSAGE	F&B OFFICES	1312-1	N	A		7'-0"	3'-0"	1					
LEVEL 31	F&B OFFICES	F&B OFFICES	1312-2	N	A		7'-2"	2'-6"						
LEVEL 31	MULTI-PURPOSE ROOM	PASSAGE	1313-1	N	A		7'-0"	6'-0"	1					
LEVEL 31	MULTI-PURPOSE ROOM	PASSAGE	1313-2	N	A		7'-0"	3'-0"	1					
LEVEL 31	MULTI-PURPOSE ROOM	PASSAGE	1313-3	N	A		7'-0"	3'-0"	1					

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DATE: 10/16/20
CHECKED: SCI
DATE PLOTTED: 2020-12-18 1:42:16 PM

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
DOOR SCHEDULE - ENABLING

SCALE: As indicated
PROJ. NO.: 1605
DWG. NO.: A-1000.E

G GENERAL

G.1 ALL WORK SHALL COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE.

G.2 THE STRUCTURAL CONSTRUCTION DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND THE ARCHITECTURAL AND MECHANICAL CONSTRUCTION DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN ANY OF THE CONTRACT DOCUMENTS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

G.3 BEFORE PROCEEDING WITH ANY WORK, THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL VERIFY THAT ALL MAJOR DIMENSIONS (LOCATIONS OF GRID LINES, COLUMNS, SLAB EDGES, ETC.) SHOWN ON STRUCTURAL DRAWINGS ARE THE SAME AS SHOWN ON ARCHITECTURAL DRAWINGS AND THAT EXISTING CONDITIONS ARE AS INDICATED. ANY VARIANCES SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION IN WRITING.

G.4 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL COORDINATE THE LOCATION OF FRAMING AROUND ELEVATORS, STAIRS AND SHAFTS WITH THE ELEVATOR, STAIR, MECHANICAL, ELECTRICAL AND PLUMBING CONTRACTORS.

G.5 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL BE SOLELY RESPONSIBLE FOR COORDINATION BETWEEN TRADES INCLUDING BUT NOT LIMITED TO THE LOCATION OF SLOTS, TRENCHES AND SLEEVES AS REQUIRED FOR THE MECHANICAL OR OTHER TRADES AND THE PROVISION AND/OR INSTALLATION OF ANCHORS, INSERTS, HANGERS, ETC. AS REQUIRED FOR THE VARIOUS TRADES.

G.6 CONTROL OVER OR CHARGE OF AND RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK OF THE PROJECT ARE SOLELY THE GENERAL CONTRACTOR'S OR CONSTRUCTION MANAGER'S RESPONSIBILITY.

G.7 THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ACTS OR OMISSIONS OF CONTRACTORS OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

G.8 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL BE SOLELY AND FULLY RESPONSIBLE FOR THE SAFETY AND STABILITY OF EXISTING ADJACENT STRUCTURES INCLUDING BUT NOT LIMITED TO BUILDINGS, SIDEWALKS, ROADWAYS AND UTILITIES AND FOR ANY METHODS REQUIRED TO ENSURE THAT SAFETY AND STABILITY.

G.9 THE DESIGN, CONSTRUCTION, INSPECTION AND MAINTENANCE OF TEMPORARY STRUCTURES OR PROCEDURES INCLUDING BUT NOT LIMITED TO SUPPORT FOR AND STABILITY OF HOISTS OR LIFTS OR OTHER SIMILAR EQUIPMENT, TEMPORARY GUYING OR BRACING, SCAFFOLDING, FORMWORK OR SHORING, DEWATERING, SHEETING OR UNDERPINNING, CONSTRUCTION STORAGE OR STAGING AREAS, TEMPORARY ENCLOSURES AT OPENINGS, AT THE BUILDING'S PERIMETER, OR ELSEWHERE, ETC. ARE SOLELY THE RESPONSIBILITY OF THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR CONTRACTORS AND/OR CONSULTANTS RETAINED BY THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.

G.10 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL MAKE NO DEVIATION FROM CONTRACT DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT.

G.11 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL REPORT TO THE ARCHITECT, IN WRITING, ANY DISCREPANCIES, AMBIGUITIES OR CONTRADICTIONS IN THE CONSTRUCTION DOCUMENTS.

G.12 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER RESPONSIBLE FOR CONTROLLED OR SPECIAL INSPECTIONS, IN A TIMELY MANNER, WHEN WORK IS READY FOR INSPECTION.

SD SHOP DRAWINGS - STRUCTURAL

SD.1 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL SUBMIT STRUCTURAL SHOP DRAWINGS TO THE ARCHITECT AFTER THE GC OR CM HAS REVIEWED AND NOTED ON THESE SUBMITTALS THAT THEY ARE IN CONFORMANCE WITH CONTRACT REQUIREMENTS. THE STRUCTURAL ENGINEER, UPON RECEIPT OF THESE SUBMITTALS FROM THE ARCHITECT, WILL REVIEW AND APPROVE OR TAKE OTHER APPROPRIATE ACTION UPON AND RETURN TO THE ARCHITECT FOR FINAL DISPOSITION.

SD.2 CHANGES OR NON-CONFORMANCE TO CONTRACT REQUIREMENTS SHALL BE FLAGGED ON SUBMITTALS.

SD.3 SUBMITTALS SHALL NOT BE USED AS A SUBSTITUTE FOR REQUESTS FOR, OR APPROVALS OF SUBSTITUTIONS OR OTHER CHANGES OR PROCEDURES REQUIRED BY THE CONSTRUCTION CONTRACT.

SD.4 PRIOR TO SUBMITTING SHOP DRAWINGS, THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL SUBMIT A SHOP DRAWING SUBMITTAL SCHEDULE FOR THE APPROVAL OF THE STRUCTURAL ENGINEER AND THE ARCHITECT. THE SCHEDULE SHALL INCLUDE THE DATES WHEN DRAWINGS ARE TO BE SUBMITTED TO THE ARCHITECT AND THE NUMBER OF DRAWINGS AND TYPE OF DETAILS (PLANS, SCHEDULES, BEAMS, COLUMNS, ETC.) THAT WILL BE SUBMITTED ON EACH SUBMISSION DATE.

SD.5 THE STRUCTURAL ENGINEER'S REVIEW OF, APPROVAL OF, OR OTHER ACTION UPON THE SHOP DRAWINGS IS ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN INTENT AND INFORMATION EXPRESSED IN CONTRACT DOCUMENTS PREPARED BY THE STRUCTURAL ENGINEER.

SD.6 THE STRUCTURAL ENGINEER'S REVIEWS SHALL NOT INCLUDE THE ACCURACY OR COMPLETENESS OF DETAILS SUCH AS WEIGHTS, GAUGES, FABRICATION OR ERECTION PROCESS, CONSTRUCTION MEANS OR METHODS, COORDINATION OF THE WORK WITH OTHER TRADES, OR CONSTRUCTION SAFETY PRECAUTIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR.

SD.7 THE STRUCTURAL ENGINEER'S REVIEW OF A SPECIFIC ITEM SHALL NOT EXTEND TO A REVIEW OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT.

SD.8 THE STRUCTURAL ENGINEER WILL NOT REVIEW SUBMISSIONS WHICH ARE PARTIALLY COMPLETE.

SD.9 AFTER INITIAL REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER OF RECORD, ALL RESUBMISSIONS SHALL INDICATE THE DATE OF REVISION AND HAVE ALL CHANGES SINCE THE PRIOR REVIEW CLEARLY CLOUDED. THE REVIEW OF RESUBMISSIONS IS LIMITED TO THE CLOUDED AREAS.

SD.10 NO WORK MAY COMMENCE UNTIL ALL RELEVANT SHOP DRAWINGS HAVE BEEN REVIEWED AND FINAL "APPROVAL WITH NO EXCEPTIONS" HAS BEEN GRANTED BY THE ARCHITECT.

SD.11 THE USE OF THE "REQUEST FOR INFORMATION" (RFI) PROCESS IS STRICTLY A FORM OF COMMUNICATION BETWEEN CM/GC AND THE DESIGN TEAM AND ITS SOLE PURPOSE IS TO RESOLVE MINOR ISSUES AND SHALL NOT BE USED TO PRE-PREPARE SHOP DRAWINGS.

SD.12 SHOP DRAWINGS FOR CONCRETE WORK SHALL BE PREPARED UNDER THE SUPERVISION OF AN EXPERIENCED DETAILER FOR CONCRETE STRUCTURES WHO HAS A THOROUGH WORKING KNOWLEDGE OF THE REQUIREMENTS, SUGGESTIONS, EXAMPLES AND COMMENTARIES OF ACI 318- "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", AND THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE".

SD.13 SHOP DRAWINGS FOR CONCRETE WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BENDING DETAILS, LOCATION AND LENGTH OF ALL LAPS, AND VERTICAL AND HORIZONTAL LOCATION OF ALL REINFORCEMENT (BARS AND WELDED WIRE FABRIC AND REINFORCEMENT), INCLUDING THE REINFORCEMENT IN SLABS CAST ON GRADE.

F FOUNDATION WORK

F.1 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL BE SOLELY AND FULLY RESPONSIBLE FOR ALL EXCAVATION WORK INCLUDING BUT NOT LIMITED TO THE DESIGN, INSTALLATION AND MAINTENANCE OF SHEETING AND SHORING, PROTECTION OF SLOPES, UNDERPINNING AND DEWATERING.

F.2 THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE STATE TO DESIGN ALL SHEETING AND SHORING, UNDERPINNING, AND DEWATERING SYSTEMS.

F.3 HORIZONTAL JOINTS IN WALLS OR GRADE BEAMS SHALL BE NOT BE PERMITTED UNLESS SPECIFICALLY SHOWN AND DETAILED ON THE CONTRACT DRAWINGS.

F.4 FOUNDATION WALLS AND/OR GRADE BEAMS, SHALL BE TEMPORARILY BRACED LATERALLY TO RESIST EARTH PRESSURE, WIND, CONSTRUCTION LOADS AND OTHER LATERAL LOADS UNTIL FRAMED SLABS AND SLABS ON GRADE THAT PERMANENTLY BRACE THESE WALLS AND/OR GRADE BEAMS HAVE ATTAINED FULL 28-DAY DESIGN STRENGTH (f'c).

C CAST-IN-PLACE CONCRETE

C.1 ALL CONCRETE WORK SHALL CONFORM TO THE ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

C.2 CONCRETE

C.2A UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE NORMAL WEIGHT (STONE) CONCRETE HAVING A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED IN TABLE C.2.1 BELOW.

C.3 REINFORCING

C.3A BAR REINFORCING SHALL BE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO ASTM A 615, GRADE 60.

C.3B WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064/A1064M.

C.4 ADMIXTURES

C.4A ALL STONE CONCRETE FOR SLABS ON GRADE SHALL CONTAIN A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER).

C.5 DEVELOPMENT LENGTHS OF REINFORCING (Ld, Ldh or Ldc) SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, CHAPTER 12. FOR Ld AND Ldh, SEE SCHEDULE. FOR Ldc, SEE MANUFACTURER.

C.6 ALL HORIZONTAL BARS IN WALLS AND BEAMS, AND BARS MARKED CONT. (CONTINUOUS) SHALL BE LAPPED A DISTANCE Ld AT SPLICES AND AT CORNERS UNLESS OTHERWISE NOTED. LAP CONTINUOUS TOP BARS AT CENTER BETWEEN SUPPORTS AND BOTTOM BARS AT SUPPORTS. HOOK ALL TOP BARS AT NON-CONTINUOUS ENDS.

C.7 ALL LENGTHS OF HOOKED BARS INDICATED ON DRAWINGS DO NOT INCLUDE EXTENSIONS FOR HOOKS.

C.8 ALL DETAILS OF BENDS AND HOOKS SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, CHAPTER 7.

C.9 ALL REINFORCING SHALL BE HELD RIGIDLY AND ACCURATELY IN PLACE, AND PROTECTED AGAINST DISPLACEMENT BEFORE AND DURING CASTING. IF NECESSARY, ADDITIONAL BARS AND/OR STIRRUPS SHALL BE PROVIDED TO FURNISH SUPPORT FOR ALL REINFORCING.

C.10 FOR CLEARANCES FROM FACES OF CONCRETE TO REINFORCEMENT, SEE TABLE C.10.1 (ON THIS DRAWING).

C.11 PROVIDE SHRINKAGE AND TEMPERATURE REINFORCEMENT FOR ALL STRUCTURAL SLABS, WHERE THE FLEXURAL REINFORCING EXTENDS IN ONE DIRECTION ONLY, IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, CHAPTER 7.

C CAST-IN-PLACE CONCRETE (CONTINUOUS)

C.12 PRIOR TO THE START OF WORK, THE CONCRETE CONTRACTOR SHALL COORDINATE AND DETERMINE, WITH THE GENERAL CONTRACTOR OR THE CONSTRUCTION MANAGER, ALL DIMENSIONS AND LOCATIONS OF SLAB DEPRESSIONS, FLOOR DRAINS, OPENINGS, SLEEVES, CONCRETE CURBS, PADS AND EQUIPMENT BASES, AND OTHER SIMILAR ITEMS. THE PROVISION OF THESE ITEMS SHALL BE PART OF THE CONCRETE CONSTRUCTION WORK. CORING OF OPENINGS AFTER CONCRETE IS PLACED SHALL NOT BE PERMITTED.

C.13 THE CONCRETE CONTRACTOR SHALL INSTALL IN THE FORMS ALL SLOTS, SLEEVES, INSERTS, ANCHOR BOLTS, HANGERS, MASONRY ANCHORS, ETC., AS REQUIRED BY OTHER TRADES, AND SHALL COORDINATE WITH THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER FOR COMPLETENESS AND LOCATION BEFORE CONCRETE IS CAST.

C.14 IF PIPES OR CONDUITS ARE TO BE PLACED IN SLABS, THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER, PRIOR TO THE START OF WORK, SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL DRAWINGS SHOWING THE SIZE, LOCATION (VERTICALLY AND HORIZONTALLY), AND SPACING OF PIPES AND/OR CONDUITS.

C.15 GENERALLY, PIPES OR CONDUITS PLACED IN SLABS OR FOUNDATIONS SHOULD NOT BE LARGER THAN 1/3 THE SLAB THICKNESS AND SHOULD NOT BE SPACED CLOSER THAN 3 DIAMETERS ON CENTER AND SHOULD NOT BE PLACED IN THE INTERSECTION OF COLUMN STRIPS FOR FLAT SLABS.

C.16 ALUMINUM CONDUITS OR PIPES SHALL NOT BE PLACED IN CONCRETE.

C.17 ALL BEAMS AND SLABS SHALL BE CAST MONOLITHICALLY, AND THE SLABS FINISHED AS REQUIRED BY THE SPECIFICATIONS.

C.18 VERTICAL CONSTRUCTION JOINTS USING APPROVED BULKHEADS MAY BE MADE AT MID-SPAN OF BEAM OR SLAB SPANS WHERE A STOP IN CONCRETE WORK IS NECESSARY, PENDING REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD. FOR ADDITIONAL REINFORCING AT CONSTRUCTION JOINTS, SEE TYPICAL DETAILS.

C.19 HORIZONTAL CONSTRUCTION JOINTS SHALL BE PERMITTED IN SLABS, BEAMS, JOISTS, AND WALLS ONLY IF AND AS SHOWN ON THE CONTRACT DRAWINGS.

C.20 ALL PLUMBING SLOTS AROUND SLEEVES SHALL BE FILLED WITH CONCRETE TO THE SAME DEPTH AS THE FLOOR SLAB AFTER PIPING IS INSTALLED.

C.21 SLABS ON GROUND SHALL BE CAST OVER A 6" LAYER OF COMPACTED POROUS FILL, UNLESS OTHERWISE SHOWN. THE THICKNESS OF THE SLAB IS SHOWN ON PLANS. PROVIDE 6" X 6"-W5 X W5 WELDED WIRE REINFORCEMENT PLACED 1" FROM TOP OF SLAB IN ALL SLABS ON GROUND UNLESS OTHERWISE NOTED ELSEWHERE. SLABS SHALL BE CAST IN ALTERNATE PANELS NOT EXCEEDING 40 FEET IN ANY LENGTH OR WIDTH.

TABLE C.10.1 MINIMUM CONCRETE CLEAR COVER REQUIREMENTS

REINF. STEEL IN CONCRETE CAST AGAINST SOIL	3"
REINF. STEEL IN CONCRETE EXPOSED TO SOIL OR WEATHER #5 BARS AND SMALLER #6 BARS AND LARGER	 1 1/2" 2"
SLAB REINF. NOT EXPOSED TO SOIL OR WEATHER	3/4"
WALLS NOT EXPOSED TO SOIL OR WEATHER	3/4"
CONCRETE CURBS EXPOSED TO WEATHER (#5 BARS AND SMALLER)	1 1/2"
BEAM STIRRUPS AND COLUMN TIES	1 1/2"

SI STRUCTURAL INSPECTIONS AND OBSERVATIONS

SI1. ALL INSPECTIONS SHALL CONFORM TO CHAPTER 1 OF THE INTERNATIONAL BUILDING CODE. ALL SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS SHALL CONFORM TO CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

SI2. THE FOLLOWING SPECIAL INSPECTIONS ARE REQUIRED:

A. CONCRETE – CAST-IN-PLACE
B. SOILS – SITE PREPARATION
C. SOILS – FILL PLACEMENT
D. SOILS – IN-PLACE DENSITY

SI3. SPECIAL INSPECTIONS SHALL BE CONTINUOUS EXCEPT WHERE PERIODIC SPECIAL INSPECTIONS ARE SPECIFICALLY PERMITTED BY THE BUILDING CODE.

SI4. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED BY SPECIAL INSPECTORS AND AGENCIES QUALIFIED BY THE BUILDING DEPARTMENT AND ACCEPTABLE TO THE ENGINEER OF RECORD.

SI5. ALL WORK FOR WHICH SPECIAL INSPECTION IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL APPROVED BY THE SPECIAL INSPECTOR.

SI6. ALL SPECIAL INSPECTORS SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER AND ENGINEER OF RECORD.

SI7. ALL SPECIAL INSPECTORS SHALL FURNISH INSPECTION REPORTS TO THE OWNER AND TO THE ENGINEER OF RECORD.

SI8. ALL STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY REGISTERED DESIGN PROFESSIONALS ACCEPTABLE TO THE ENGINEER OF RECORD.

TYPICAL LAP SCHEDULE - CLASS "B" TENSION LAP SPLICE LENGTHS (1.3 x Ld)

REINF. STEEL Fy	BAR SIZE	BAR LOCATION	CONCRETE STRENGTH (f'c)					
			f'c =< 5 KSI	6 KSI	7 KSI	8 KSI	9 KSI	f'c >= 10 KSI
60 KSI	#3	TOP	2'-0"	1'-8"	1'-8"	1'-5"	1'-4"	1'-4"
		OTHERS	1'-6"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"
	#4	TOP	2'-8"	2'-3"	2'-1"	1'-11"	1'-9"	1'-9"
		OTHERS	2'-1"	1'-9"	1'-8"	1'-5"	1'-4"	1'-4"
	#5	TOP	3'-4"	2'-10"	2'-8"	2'-4"	2'-3"	2'-2"
		OTHERS	2'-7"	2'-2"	2'-1"	1'-10"	1'-9"	1'-8"

STAND. HOOK DEVELOPMENT LENGTH (Ldh) TABLE (INCHES)

BAR SIZE	fy (ksi)	CONCRETE STRENGTH (f'c)							
		3 ksi	4 ksi	5 ksi	6 ksi	7 ksi	8 ksi	9 ksi	>= 10 ksi
3	60	9	8	7	6	6	6	6	6
4	60	11	10	9	8	8	7	7	7
5	60	14	12	11	10	9	9	8	8

NOTES: DEVELOPMENT LENGTH TABLES (Ld, Ldh AND Ldt)

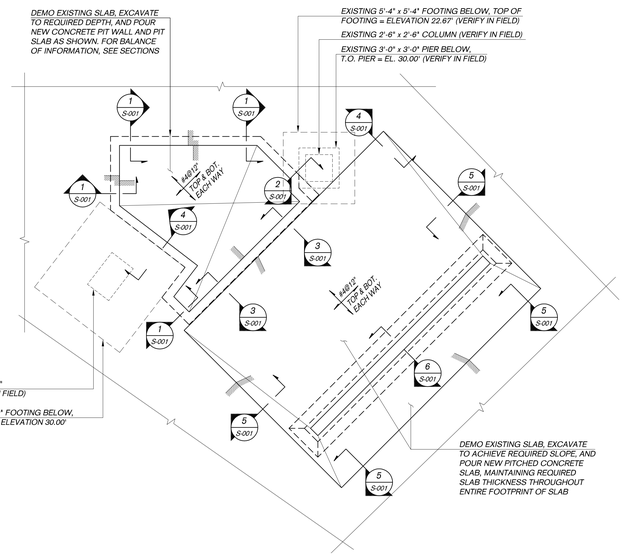
1. LENGTHS SHOWN IN TABLE ABOVE ARE APPLICABLE FOR REINFORCING STEEL BARS OCCURRING UNDER THE FOLLOWING CONDITIONS:
   - GRADE 60 REINFORCING STEEL (U.N.O.)
   - NORMAL WEIGHT CONCRETE
   - MINIMUM BAR SPACING REQUIREMENT
     -- CLEAR SPACING BARS AT BAR LOCATION ≥ BAR DIA. AND CLEAR COVER TO BARS ≥ BAR DIA. AND TIES OR STIRRUPS OCCURRING PER CODE SPACING WITHIN LENGTH OF DEVELOPMENT "Ld"
     -- CLEAR SPACING BETWEEN BARS AT LOCATION ≥ 2 x BAR DIA. AND CLEAR COVER ≥ BAR DIA.
2. INDICATED DEVELOPMENT LENGTH SHALL BE INCREASED BY THE FOLLOWING FACTORS WHERE THE FOLLOWING CONDITIONS OCCUR:

CONDITION	SPLICE LENGTH MULTIPLIER*
BAR SPACING OR CLEAR LESS THAN REQUIRED PER NOTE #1	1.5
LIGHTWEIGHT CONCRETE	1.3
EPOXY COATED REINF. WITH COVER < 3xBAR DIA. AND CLEAR SPACING < 6xBAR DIA.	1.5
ALL OTHER EPOXY COATED BARS	1.2

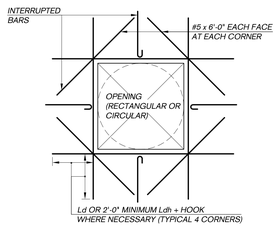
*WHERE MULTIPLE CONDITIONS OCCUR, APPLY EACH OF THE APPLICABLE FACTORS TO THE BASIC TENSION LAP SPLICE LENGTHS TO OBTAIN THE REQUIRED SPLICE LENGTH.

3. "TOP BARS" ARE HORIZONTAL BARS LOCATED WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BARS.
4. REINFORCING STEEL BARS WHERE fy > 75 KSI AND/OR THE BAR SIZE IS > #11 SHALL BE PROVIDED WITH ICC APPROVED MECHANICAL SPLICE COUPLERS CAPABLE OF DEVELOPING 125% OF THE TENSION CAPACITY OF THE REINFORCING STEEL BAR; ADDITIONALLY, THE AFOREMENTIONED GRADES AND BAR SIZES SHALL BE TERMINATED WITH ICC APPROVED MECHANICAL REINFORCING BAR TERMINATORS.

TYPICAL LAP SCHEDULE CLASS B — CJA S-001
N.T.S.

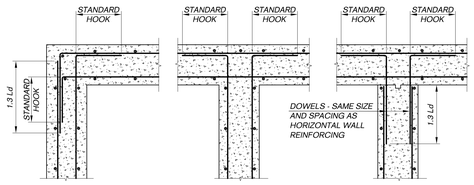


ZAMBONI ROOM FRAMING PART PLAN
1/4" = 1'-0"



NOTES:
1. HOOK ALL INTERRUPTED BARS.
2. FOR EACH FACE 50% OF REINFORCING BAR AREA INTERRUPTED BY OPENING SHALL BE PROVIDED EACH SIDE OF OPENING #5 MINIMUM EACH SIDE IN EACH FACE.
3. DEVELOPMENT LENGTH Ld OR Ldh TO BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI318 CHAPTER 12.

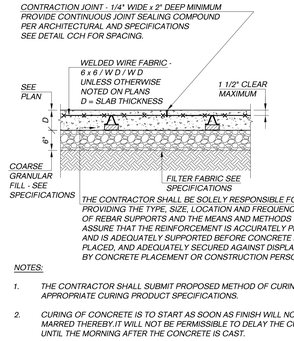
TYPICAL DETAIL OF OPENING IN CONCRETE WALLS — CBB S-001
N.T.S.



INTERSECTION

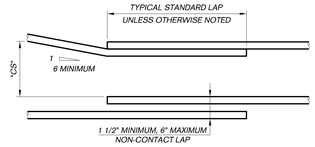
NOTES:
1. DEVELOPMENT LENGTH Ld TO BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, CHAPTER 12.

TYPICAL CONCRETE WALL CORNER AND INTERSECTION DETAILS — CBC S-001
N.T.S.



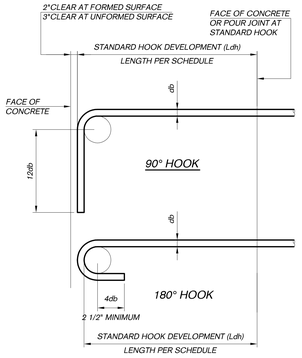
NOTES:
1. THE CONTRACTOR SHALL SUBMIT PROPOSED METHOD OF CURING AND APPROPRIATE CURING PRODUCT SPECIFICATIONS.
2. CURING OF CONCRETE IS TO START AS SOON AS FINISH WILL NOT BE MARRED THEREBY.IT WILL NOT BE PERMISSIBLE TO DELAY THE CURING UNTIL THE MORNING AFTER THE CONCRETE IS CAST.
3. THE CONTRACTOR SHALL SUBMIT A DRAWING FOR THE ARCHITECT'S REVIEW INDICATING THE SIZE AND LOCATION OF WELDED WIRE FABRIC. THE DETAILS AND LOCATION OF SPLICES AND THE LOCATION OF ALL JOINTS (CONSTRUCTION AND / OR EXPANSION AND / OR CONTROL).

TYPICAL SLAB ON GRADE DETAIL — CCA S-001
N.T.S



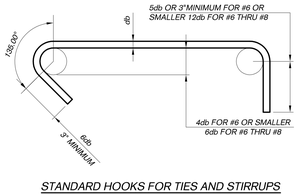
REINFORCING SPLICE NOTES:
1. DEVELOPMENT AND LAP SPLICE LENGTHS ARE IN ACCORDANCE WITH ACI 318-08 PER SCHEDULE. LENGTHS ARE MAXIMUM FROM CHAPTER 12 (NON-SEISMIC ELEMENTS).
2. FOR LAP SPLICE LENGTH SCHEDULE ON THIS DRAWING.
3. NOT ALL SPLICES ARE SHOWN ON THE CONTRACT DRAWINGS AND SHALL BE AT THE CONTRACTOR'S DISCRETION (PENDING EOR REVIEW AND APPROVAL). ALL SPLICES SHALL BE TENSION LAP SPLICES (1.3 Ld).

TYPICAL LAP SPLICE DETAIL — CJC S-001
N.T.S.



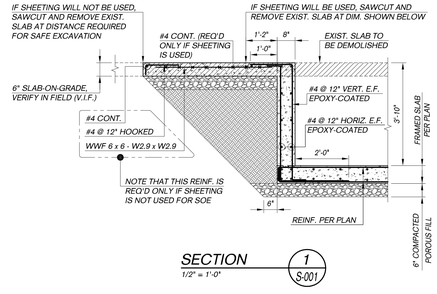
NOTES:
1. ALL HOOKED BARS SHALL EXTEND TO THE FACE OF CONCRETE, AS MUCH AS PRACTICAL, WITH 2" MINIMUM END COVER AND DEVELOPMENT NOT LESS THAN THE LENGTH IN THE SCHEDULE.
2. PROVIDE 2 1/2" MINIMUM CONCRETE SIDE COVER.

STANDARD HOOKS FOR BARS

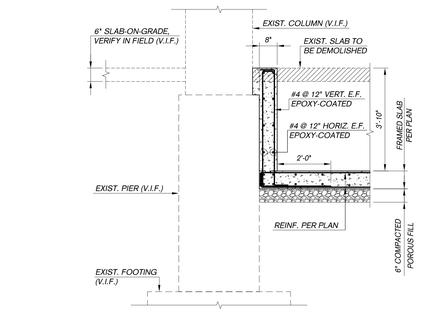


STANDARD HOOKS FOR TIES AND STIRRUPS

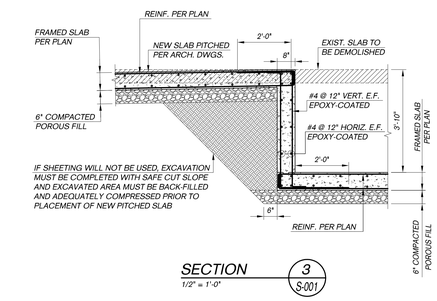
TYPICAL HOOKED BAR DETAILS — CJB S-001
N.T.S.



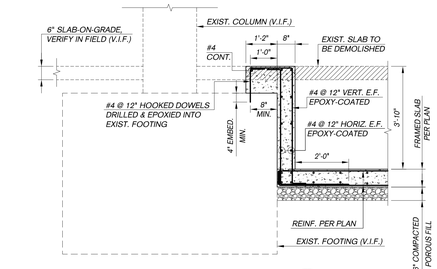
SECTION 1 S-001
1/2" = 1'-0"



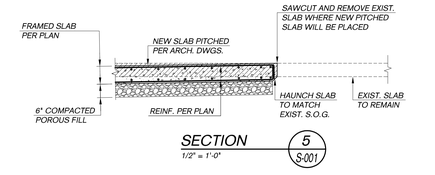
SECTION 2 S-001
1/2" = 1'-0"



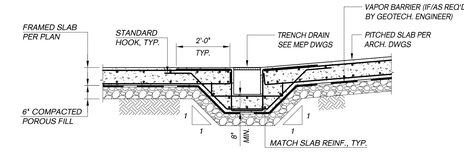
SECTION 3 S-001
1/2" = 1'-0"



SECTION 4 S-001
1/2" = 1'-0"



SECTION 5 S-001
1/2" = 1'-0"


VAPOR

MECHANICAL LEGEND

(NOT ALL SYMBOLS LISTED BELOW ARE BEING USED IN THIS SET OF MECHANICAL DRAWINGS)

GENERAL SYMBOLS/ ABBR.

SYMBOL	ABBR	DESCRIPTION
F M		SECTION NO.
		SECTION VIEW SHEET NO.
F M1		DETAIL DESIGNATION
F 1	F-1	EQUIPMENT DESIGNATION
1		SHEET KEY NOTES
	POC	POINT OF CONN. (CONN. NEW TO EXISTING)
	POD	POINT OF DISCONNECTION
OR A SIZE CFM (X) A CFM (X)		ARROW INDICATES DIRECTION OF FLOW AIR DEVICE CALL OUT. TYP. OF (X) DEVICES.
	(R)	REMOVE
	(E)	EXISTING
	DN	DOWN
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	TOP	TOP OF PIPE (AFF)
	NTS	NOT TO SCALE
	AMB	AMBIENT
	BTUH	BRITISH THERMAL UNIT PER HOUR
	CFH	CUBIC FEET PER HOUR
	CV	CONSTANT VOLUME
	dB	DECIBEL
	DB	DRY-BULB
	DDC	DIRECT DIGITAL CONTROL
	DEFL	DEFLECTION
	DIA	DIAMETER
	DWG	DRAWING
	EER	ENERGY EFFICIENT RATIO
	ENT	ENTERING
	°F	DEGREE FAHRENHEIT
	FPI	FINS PER INCH
	FPM	FEET PER MINUTE
	FT WC	FEET WATER COLUMN
	GAL	GALLON
	GPH	GALLONS PER HOUR
	GPM	GALLONS PER MINUTE
	IN WC	INCH WATER COLUMN
	LBS	POUNDS
	LVG	LEAVING
	MAX	MAXIMUM
	MBH	THOUSAND BTUH
	MIN	MINIMUM
	NC	NOISE CRITERIA
	O.C.	ON CENTER
	P.D.	PRESSURE DROP/ DIFFERENTIAL
	PRESS	PRESSURE
	PSIG	POUNDS PER SQUARE INCH GAUGE
	PWL	SOUND POWER LEVEL
	QTY	QUANTITY
	RH	RELATIVE HUMIDITY
	SPECS	SPECIFICATIONS
	SQ	SQUARE
	SQ.FT	SQUARE FEET
	SS	STAINLESS STEEL
	TYP	TYPICAL
	UON	UNLESS OTHERWISE NOTED
	VEL.	VELOCITY
	VTR	VENT THROUGH ROOF
	WB	WET-BULB
	W/	WITH
	W/O	WITHOUT

EQUIPMENT ABBREVIATIONS

SYMBOL	ABBR	DESCRIPTION
	AF	AFTER FILTER
	AH	AIR HANDLING UNIT
	B	BOILER
TYPE LENGTH	BB	BASEBOARD
	CAV	CONSTANT AIR VOLUME
	CC	COOLING COIL
	CH	CHILLER
	DOG FOG	DIESEL OIL GAUGE
	DOP FOP	DIESEL OIL PUMP
	EF	EXHAUST FAN
	FC	FAN COIL UNIT
	FF	FINAL FILTER
	FT	FLASH TANK
	FS	FLOOR SINK
	HC	HEATING COIL
	HU	HUMIDIFIER SECTION
	MUA	MAKE-UP AIR UNIT
	PF	PRE-FILTER
	P	PUMP
	RF	RETURN FAN
	SF	SUPPLY FAN
	ST	SOUND TRAP
	VAV	VARIABLE AIR VOLUME
	VFD	VARIABLE FREQUENCY DRIVE
	WF	WATER FILTRATION

HVAC DUCTWORK/DAMPERS

SYMBOL DOUBLE	SYMBOL SINGLE	DESCRIPTION
		RETURN DUCT UP
		SUPPLY DUCT UP
		EXHAUST DUCT UP
		SUPPLY DUCT DOWN
		RETURN DUCT DOWN
		EXHAUST DUCT DOWN
		ROUND DUCT DOWN
		ROUND DUCT UP
		DUCT DROP
		TRANSITION-RECT. TO RECT. OR ROUND TO ROUND
		TRANSITION-RECT. TO ROUND
		VANED ELBOW
		CAPPED DUCTWORK
		EXISTING DUCTWORK NO CHANGE (LIGHT SOLID LINE)
		EXISTING DUCTWORK TO BE REMOVED (DASHED LINE)
(1L)	(1L)	DUCT W/ INTERNAL LINING 1L= 1" THICK 2L= 2" THICK
		CONICAL TAP
		CONICAL SPIN-IN FITTING W/ MANUAL VOLUME DAMPER

SYMBOL DOUBLE	SYMBOL SINGLE	ABBR	DESCRIPTION
FI	FI	FD	FIRE DAMPER
SD	SD	SD	SMOKE DAMPER
FSD	FSD	FSD	FIRE SMOKE DAMPER, CONTROLLED BY DUCT SMOKE DETECTOR
C FSD	C FSD	FSD(C)	FIRE SMOKE DAMPER, CONTROLLED BY CORRIDOR AREA SMOKE DETECTOR
M	M	MD	MOTORIZED DAMPER
VD	VD	VD	MANUAL VOLUME DAMPER W/ LOCKING QUADRANT
COD	COD	COD	CABLE OPERATED MANUAL DAMPER
BD	BD	BD	BACKDRAFT DAMPER

GENERAL ELECTRICAL ABBR.

SYMBOL	ABBR	DESCRIPTION
	BHP	BRAKE HORSE POWER
	FLA	FULL LOAD AMP
	HP	HORSEPOWER
	HZ	HERTZ
	KW	KILOWATTS
	MCA	MINIMUM CIRCUIT AMP
	MCC	MOTOR CONTROL CENTER
	MFS	MAXIMUM FUSE SIZE
	MOCP	MAX. OVER CURRENT PROTECTION
	RLA	RUNNING LOAD AMP
	RPM	REVOLUTION PER MINUTE

HVAC SYMBOLS/ ABBR.

SYMBOL	ABBR	DESCRIPTION
	CD	SUPPLY DIFFUSER- 4-WAY THROW
	CD	SUPPLY DIFFUSER- 3-WAY THROW
	CD	SUPPLY DIFFUSER- 2-WAY THROW
	CD	SUPPLY DIFFUSER- 1-WAY THROW
	LD	SUPPLY SLOT DIFFUSER
	CR/RG	RETURN AIR GRILLE
		LOW PRESSURE FLEXIBLE DUCT
	AP	ACCESS PANEL
H		HUMIDIFIER
		FLEXIBLE DUCT CONNECTION
A LENGTH CFM (X)		AIR DEVICE CALL OUT. TYP. OF (X) DEVICES.
	WL	EXTERIOR WALL LOUVER (UNDER ARCH. SECTION)
UC	UC	UNDERCUT DOOR (UNDER ARCH. SECTION)
D/L	D/L	DOOR LOUVER (UNDER ARCH. SECTION)
L/D	L/D	LOUVER DOOR FULL HEIGHT. (UNDER ARCH. SECTION)
		RETURN/ EXHAUST AIR FLOW SYMBOL
		SUPPLY AIR FLOW SYMBOL
UP		RISE IN DIRECTION OF AIRFLOW
DN		DROP IN DIRECTION OF AIRFLOW
	BOD	BOTTOM OF DUCT (AFF)
	TOD	TOP OF DUCT (AFF)
	CFM	CUBIC FEET PER MINUTE
	DP	DISCHARGE PLENUM
	EA	EXHAUST AIR
	ESP	EXTERNAL STATIC PRESSURE
	FO	FLAT OVAL DUCT
	MA	MAKE-UP AIR
	OA	OUTSIDE AIR
	RA	RETURN AIR
	SA	SUPPLY AIR STANDARD AIR CUBIC FEET PER MINUTE
	SCFM	
	S.P.	STATIC PRESSURE
	TG	TRANSFER GRILLE
	TSP	TOTAL STATIC PRESSURE
	WMS	WIRE MESH SCREEN

CONTROLS

SYMBOL	ABBR	DESCRIPTION
A	A	CONTROL AIR (PNEUMATIC)
FS	FS	FLOW SWITCH
PS	PS	PRESSURE SWITCH
T (E)	(E) T	EXISTING THERMOSTAT
T	T	NEW THERMOSTAT
TS	TS	SPACE TEMPERATURE SENSOR
S	S	DUCT MOUNTED SMOKE DETECTOR
H	H	SPACE HUMIDISTAT
HS	HS	SPACE HUMIDITY SENSOR
PS	PS	SPACE PRESSURE SENSOR
CO	CO	CARBON DIOXIDE SENSOR
CO	CO	CARBON MONOXIDE SENSOR

MECHANICAL/PLUMBING/ SPRINKLER/ELECTRICAL COORDINATION REQUIREMENTS

FOR MECHANICAL AND PLUMBING EQUIPMENT AS INDICATED ON THE DIVISION 21, 22, AND 23 DRAWINGS, THE DIVISION 21, 22 AND 23 CONTRACTORS SHALL COORDINATE WITH DIVISION 26 CONTRACTOR TO CONNECT ALL MECHANICAL AND PLUMBING EQUIPMENT INDICATED ON THE MECHANICAL AND PLUMBING DRAWINGS. COORDINATE FOR COMPLETE WIRING, STARTERS, AND DISCONNECTING MEANS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT.

PIPING

SYMBOL	ABBR	DESCRIPTION
	(E)	EXISTING PIPING (LIGHT SOLID LINE)
	(R)	EXISTING PIPING TO BE REMOVED (DASHED LINE)
	HWS	HEATING WATER SUPPLY
	HWR	HEATING WATER RETURN
	BHF	BOOSTER HEATER SUPPLY
	BHR	BOOSTER HEATER RETURN
	CHS	CHILLED WATER SUPPLY
	CHR	CHILLED WATER RETURN
	CWS	CONDENSER WATER SUPPLY
	CWR	CONDENSER WATER RETURN
	IMS	ICE MELT SUPPLY
	IMR	ICE MELT RETURN
	JET ICE CW	JET ICE FILTERED COLD WATER
	JET ICE HW	JET ICE FILTERED HOT WATER
	DR	EQUIPMENT DRAIN
	D	INDIRECT DRAIN
	V	VENT
2"HWS		PIPE SIZE/ PIPE TYPE

STEAM

SYMBOL	ABBR	DESCRIPTION
	LPS	LOW PRESSURE STEAM SUPPLY
	MPS	MEDIUM PRESSURE STEAM SUPPLY
	HPS	HIGH PRESSURE STEAM SUPPLY
	LPR	LOW PRESSURE STEAM CONDENSATE RETURN
	MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
	HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
	PR	PUMPED CONDENSATE RETURN
		STEAM TRAP
	PRV	PRESSURE REDUCING VALVE
	CRU	CONDENSATE RETURN UNIT
	LBS/HR	POUNDS PER HOUR

VALVES

SYMBOL	ABBR	DESCRIPTION
	DV	DRAIN VALVE W/ HOSE END CONN.
	CV	CHECK VALVE W/ INDICATION OF FLOW DIRECTION
	PRV	PRESSURE REDUCING VALVE
	SV	SOLENOID VALVE
FCV	FCV	AUTO FLOW CONTROL VALVE W/ TEST PORTS
CS,BV	CS,BV	CIRCUIT SETTER OR BALANCING VALVE
	GLV	GLOBE VALVE (STRAIGHT PATTERN)
	GLV	GLOBE VALVE (ANGLE PATTERN)
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
	TCV	AUTOMATIC TEMP. CONTROL VALVE, 2-WAY
	TCV	AUTOMATIC TEMP. CONTROL VALVE, 3-WAY
P,MV S,MV	TPR	TEMPERATURE/ PRESSURE RELIEF VALVE
		VALVE IN RISER
	STR	STRAINER W/ BLOW-OFF & CAPPED HOSE-END CONNECTION
	GV	GATE VALVE
OS&Y	OS&Y	OUTSIDE STEM AND YOKE
		BALL VALVE W/ HOSE CONNECTION
	PV	PLUG VALVE

FITTINGS

SYMBOL	ABBR	DESCRIPTION
	P&T	PRESSURE/ TEMPERATURE PORT TAPS
	CR	CONCENTRIC REDUCER
	ER	ECCENTRIC REDUCER
EJ	EJ	EXPANSION JOINT
	U	UNION
		THERMOMETER W/THERMOWELL
	AV	AIR VENT
	FC	FLEXIBLE PIPE CONNECTOR
	PG	PRESSURE GAUGE W/GAUGE COCK
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		PIPE CAP OR PLUG
	TPR	TEMPERATURE/ PRESSURE RELIEF VALVE
	STR	STRAINER W/ BLOW-OFF & CAPPED HOSE- END CONNECTION

GENERAL MECHANICAL CONTRACT REQUIREMENTS:

GENERAL:

1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E. OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN.

2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS OF THE JOB.

3. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 23 WORK AND ITS INTERFACE WITH OTHER WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.
   A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
   B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.
   C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, "CONSTRUCTION DRAWINGS", OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT.

4. THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS.

5. DEFINITIONS AND TERMINOLOGY
   A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 23 CONTRACT DOCUMENTS.
   B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC., PREPARED BY ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE DIVISION 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS.
   C. "CONSTRUCTION DOCUMENTS", "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS.
   D. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.
   E. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".
   F. "PROVIDE" MEANS TO "FURNISH AND INSTALL".
   G. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER.
   H. "WORK BY OTHER(S) DIVISION(S)"; "RE: XX DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION/ SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HISHER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID.
   I. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB-CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS.
   J. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS).

EXISTING BUILDING:

1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC., AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID.

2. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION. INCORPORATE THESE NOTES INTO THE AS-BUILDING DRAWINGS.

3. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB PRIOR TO COMMENCING WORK. UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.

ELECTRICAL COORDINATION:

1. VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY MECHANICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.

2. PROVIDE PREMIUM EFFICIENCY MOTORS (NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13) WITH 1.15 SERVICE FACTOR ON ALL EQUIPMENT, MOTORS SHALL BE CAPABLE OF OPERATING CONTINUOUSLY AT 105°F UNDER JOBSITE CONDITIONS AND ALTITUDE.

3. UNLESS NOTED OTHERWISE, ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH HOA SWITCH AND STARTER COMPATIBLE WITH EQUIPMENT AND BMS SYSTEM. STARTERS SHALL BE PROVIDED BY DIVISION 23 UNLESS IN A MOTOR CONTROL CENTER. ALL DISCONNECTS SHALL BE FURNISHED BY DIVISION 26.

4. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER DIVISION 23 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND MUST BE PROVIDED BY AND FIELD COORDINATED BY THE DIVISION 23 TRADE REQUIRING SUCH POWER.

5. SUFFICIENT POWER FOR THIS PURPOSE SHALL BE FURNISHED AS "SPARE", DEDICATED CIRCUIT CAPACITY IN DIVISION 26'S PANELBOARDS. ALL WIRING, CONDUIT AND ELECTRICAL DEVICES DOWNSTREAM OF THE PANELBOARDS IS THE RESPONSIBILITY OF THE DIVISION 23 TRADE REQUIRING THE POWER UNLESS OTHERWISE SHOWN ON THE ELECTRICAL DRAWINGS.

   SUCH EQUIPMENT IS HEREBY DEFINED AS:
   A. TEMPERATURE CONTROL PANELS, CONTROL AIR COMPRESSORS AND LINE VOLTAGE POWER FOR 24V CONTROL TRANSFORMERS. REQUIRED CONNECTION ARE INCLUDED IN DIVISION 23 09 00 AND WILL BE SHOWN BY THAT CONTRACTOR'S CONTROL SUBMITTAL DRAWINGS.
   B. IT IS NOT PERMISSIBLE TO UTILIZE "SPARE" POWER FROM ADJACENT POWER CIRCUITS TO SERVE ANY OF THE ABOVE LOADS. ALL POWER MUST COME FROM DEDICATED CIRCUITS.

6. SMOKE DETECTORS:
   A. PROVIDE A SMOKE DETECTOR IN THE SUPPLY AND RETURN FOR ALL AIR HANDLERS 2,000 CFM OR GREATER. PROVIDE UL LISTED SMOKE DETECTORS IN RETURN AIR SYSTEMS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND ELSEWHERE AS SHOWN ON THE DRAWINGS.
   B. SMOKE DETECTORS WILL BE FURNISHED AND SET IN PLACE UNDER THIS DIVISION. DETECTORS WILL BE WIRED UNDER DIVISION 26. SMOKE DETECTORS MUST BE OF THE SAME MANUFACTURER, AND COMPATIBLE WITH THE FIRE ALARM SYSTEM PROVIDED UNDER DIVISION 26 (IF APPLICABLE).
   C. CONNECT RELAY(S) TO FAN CONTROL CIRCUIT TO STOP FAN WHEN SMOKE IS DETECTED.

INSTALLATION:

1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE. DUCTWORK SHALL BE HELD TIGHT TO STRUCTURE EXCEPT WHERE OTHERWISE SHOWN.

2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

3. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE AROUND ALL EQUIPMENT REQUIRING SAME.

4. PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL AND DISPOSITION OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS TO REMAIN UNDISTURBED.

5. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT, VALVES, CLEANOUTS, ACTUATORS AND CONTROLS WHICH REQUIRE ACCESS FOR ADJUSTMENT OR SERVICING AND WHICH ARE LOCATED IN OTHERWISE INACCESSIBLE LOCATIONS.
   A. FOR EQUIPMENT LOCATED IN "ACCESSIBLE LOCATIONS" SUCH AS LAY-IN CEILINGS: LOCATE EQUIPMENT TO PROVIDE ADEQUATE SERVICE CLEARANCE FOR NORMAL MAINTENANCE WITHOUT REMOVING ARCHITECTURAL, ELECTRICAL OR STRUCTURAL ELEMENTS SUCH AS THE CEILING SUPPORT SYSTEM, ELECTRICAL FIXTURES, ETC. "NORMAL MAINTENANCE" INCLUDES, BUT IS NOT LIMITED TO:FILTER CHANGING; GREASING OF BEARINGS; USING P/T PORTS FOR PRESSURE OR TEMPERATURE MEASUREMENTS; SERVICING CONTROL VALVES AND SERVICING CONTROL PANELS.

6. ISOLATE ALL PRESSURIZED PIPE (CHILLED WATER, STEAM, HOT WATER, ETC.) EACH RISER, BRANCH, PIECE OF EQUIPMENT, AND AREA SERVED.

7. NO CHILLED WATER OR HEATING WATER LINES SHALL BE LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

8. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONCRETE EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELECTION, TO THE STRUCTURAL AND GENERAL CONTRACTOR FOR INCLUSION IN THOSE CONTRACTOR'S WORK AS DESCRIBED BY THE GENERAL CONTRACTOR.

9. UNDER THE BASE CONTRACT, THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NECESSARY TO SPLIT EQUIPMENT INTO MULTIPLE PIECES TO FACILITATE RIGGING TO FINAL INSTALLED LOCATION. CONTRACTOR SHALL REASSEMBLE THE EQUIPMENT AND TEST TO CONFIRM PROPER OPERATION AND MAINTAIN ALL THE MANUFACTURERS WARRANTEES.

10. WARRANTY: AT A MINIMUM, THE ENTIRE MECHANICAL SYSTEM SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE OWNER. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRANTY REQUIREMENTS.

DUCTWORK INSTALLATION:

1. SEAL ALL SEAMS (LONGITUDINAL AND TRANSVERSE) AIR TIGHT WITH SEALANT PER SPECIFICATIONS.

2. DUCT DIMENSIONS ARE INSIDE CLEAR.

3. DIFFUSER NECK SIZE IS SAME AS FLEXIBLE DUCT SIZE.

4. UNLESS OTHERWISE NOTED, ALL CHANGES IN DIRECTION SHALL BE MADE WITH RADIUS ELBOWS WITH RADIUS TO CENTERLINE EQUAL TO 1.5 DUCT WIDTH.

5. WHERE REQUIRED FOR SPACE CONSTRAINTS, PROVIDE MITERED ELBOWS WITH TURNING VANES AS FOLLOWS:
   A. FOR DUCT WIDTHS OF 36" OR LESS, PROVIDE MANUFACTURED SINGLE VANE WITH TURNING VANES, WITH NO TRAILING EDGES AND SPACING IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR "STANDARD SPACING".
   B. USE DOUBLE THICKNESS (AIRFOIL) BLADES WITHOUT TRAILING EDGES FOR DUCT WIDTHS GREATER THAN 36".

6. ALL FLEXIBLE DUCTS SHALL NOT BE LESS THAN 0', OR MORE THAN 5' IN LENGTH. INSTALL FLEXIBLE DUCTWORK SUCH THAT:
   A. MINIMUM OVERALL LENGTH OF 3D, STRAIGHT INTO NECK OF DIFFUSER.
   B. MAXIMUM OF 135° OF TOTAL TURNING IN ENTIRE LENGTH OF FLEXIBLE DUCT.
   C. MINIMUM TURNING RADIUM OF R = 1.5D.
   D. WHERE:
   * D = FLEXIBLE DUCT DIAMETER
   * R = RADIUS OF TURN AS MEASURED TO CENTERLINE OF DUCT.

7. RETURN AIR PLENUM. THE HVAC SYSTEM WILL USE THE SPACE ABOVE THE CEILING AS A RETURN AIR PLENUM. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF NFPA AND LOCAL CODE REQUIREMENTS FOR ALL MATERIAL INSTALLED IN THE RETURN AIR PLENUM.
   A. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A COMPLETE RETURN AIR PATH BETWEEN ALL RETURN AIR DEVICES (GRILLES ETC.) AND THEIRRESPECTIVE HVAC UNIT. MAXIMUM VELOCITY OF RETURN AIR IN PLENUM SHALL GENERALLY NOT EXCEED 250 FEET PER MINUTE, NOR EXCEED 750 FEET PER MINUTE AT ANY CROSS-SECTION OF THE RETURN AIR PATH.

8. BRANCH LINES:
   A. MAKE ALL TAPS TO ROUND DUCTWORK WITH CONICAL TEES.
   B. MAKE ALL TAPS TO RECTANGLE DUCTWORK WITH 45° ENTRY OR CONICAL SPIN IN TO ROUND.
   C. INCLUDE DAMPERS AT ALL BRANCH LINES.

10. DUCT SIZES NOT CALLED OUT SHALL BE DETERMINED BASED ON 0.08" S.P. LOSS OR LESS PER 100 FT. OF LENGTH.

11. ASSUME ROUND OR OVAL DUCTS IN EXPOSED AREAS.

12. INCLUDE DAMPERS AT ALL BRANCH LINES, WHERE SHOWN ON THE DRAWINGS, AND WHERE OTHERWISE REQUIRED FOR BALANCING. DAMPERS SHALL BE INSTALLED A MINIMUM OF 3'-0" FROM ANY REGISTER.

PIPE INSTALLATION:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY MEANS OF HANGERS AND SUPPORTS. PIPING IS NOT TO BE SUPPORTED BY EQUIPMENT.

2. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR MATERIALS.

3. PROVIDE MANUAL AIR VENTS AND CAPPED HOSE-END DRAINS WITH ISOLATION VALVES AT PIPING HIGH AND LOW POINTS.

4. WELD PIPE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS. WELDERS SHALL BE CERTIFIED FOR TYPE OF WORK BEING PERFORMED.

5. FLUSH OUT PIPING AND REMOVE CONTROL DEVICES BEFORE PERFORMING PRESSURE TEST. DO NOT USE PIPING SYSTEM VALVES TO ISOLATE SECTIONS WHERE TEST PRESSURE EXCEEDS VALVE PRESSURE RATING. PRESSURIZE PIPING AT AS SPECIFIED IN THE SPECIFICATION OR TO 100 PSIG MINIMUM. IF LEAKAGE IS OBSERVED OR IF TEMPERATURE COMPENSATED PRESSURE DROP EXCEEDS 1% OF TEST PRESSURE, REPAIR LEAKS AND RETEST. DO NOT USE AIR PRESSURE TO TEST PLASTIC PIPE.

6. PROVIDE SUPPORT UNDER ELBOWS ON PUMP SUCTION AND DISCHARGE LINES.

7. ALL STRAINERS SHALL BE FURNISHED WITH A "ROUGHING" SCREEN AND TWO (2) SCREENS FOR NORMAL OPERATION. INSTALL STRAINER WITH ROUGHING SCREEN AND OPERATE SYSTEM FOR 24 HOURS MINIMUM (RUN DOMESTIC WATER SYSTEMS AT MAX FLOW FOR A MINIMUM OF ONE HALF (1/2) HOUR. REMOVE ROUGHING SCREEN AND INSTALL NORMAL SCREEN, AFTER TWO WEEKS OF NORMAL OPERATION INSTALL NEW NORMAL SCREEN.

8. PIPING SIZES SHALL BE BASED ON 2' OR LESS HEAD LOSS PER 100 FEET OF LENGTH. VELOCITIES SHALL NOT EXCEED 10 FEET PER SECOND.

9. INSTALL ALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHIN THE PIPING SYSTEM. ENSURE ALL REQUIRED PIPE EXPANSION WILL OCCUR IN THE PROPER DIRECTION AND SEGMENT OF PIPE. PROPERLY ANCHOR (RE: SPECIFICATIONS) ALL PIPING REQUIRING EXPANSION/CONTRACTION ISOLATION. COORDINATE PIPE EXPANSION/CONTRACTION TO PREVENT DAMAGE TO ANY AND ALL BUILDING COMPONENTS.

10. PROVIDE ISOLATION VALVES AT EVERY HYDRONIC BRANCH LINE WHERE INDICATED OR NOT.

CONDENSATE DRAINAGE:

1. PROVIDE CONDENSATE DRAINAGE FOR ALL COOLING COILS AND OVERFLOW PANS.

2. ROUTE CONDENSATE PIPING, FULL SIZE OF DRIP PAN CONNECTION, TO NEAREST CODE APPROVED RECEPTACLE. INSULATE WHERE LOCATED ABOVE FINISHED CEILINGS.

CUTTING, PATCHING AND DEMOLITION:

1. KEEP DEMOLITION & CUTTING TO MINIMUM REQUIRED FOR PROPER EXECUTION OF WORK.

2. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF THE WORK.

3. NO CUTTING (NOT SHOWN ON THE CONTRACT DOCUMENTS) SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT AS TO LOCATIONS, METHOD AND EXTENT OF THE CUTTING

VAV ENERGY RECOVERY AIR HANDLING UNITS

CODE (AHU)	AREA SERVED	LOCATION	MANUFACTURER/ MODEL NO.	WEIGHT (LBS)	MAX UNIT DIMENSIONS LENGTH (IN)	WIDTH (IN)	MAX HEIGHT (IN)	AIR FLOW SUMMARY SA CFM	RA CFM	EXHAUST CFM	OA CFM	SUPPLY FANS CFM (EA.)	TYPE	ESP "WC	TSP "WC	QTY	HP	BHP	RELIEF/ECONOMIZER FANS CFM (EA.)	TYPE	ESP "WC	TSP "WC	QTY	HP	BHP	HEATING CAPACITY (STEAM) EAT DB (°F)	LAT DB (°F)	CAP MBH	STEAM LBS/HR	PSI	APD "WC	COOLING CAPACITY (CHILLED WATER) EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	TOTAL MBH	SENS MBH	APD "WC
31-5	LEVEL 31 - EVENT HALL	EAST MER	POLAR/ H-AHU.B.4350.1150.1470. CW.SH.HREX.PE.SF.EF	1,900	171.3	45.3	57.9	1,825	0	1,900	1,825	1,825	PLUG	1.5	3.81	1	2.5	1.9	1,900	PLUG	1.5	2.88	1	2.3	1.2	50.4	85	69	75	5	0.14	79	67	54.5	53.7	114.4	45.6	0.22

CODE (AHU)	ENTHALPY ENERGY RECOVERY WHEEL EA CFM	SUMMER BTU CAPACITY REDUCTION	EFFECTIVENESS SENSIBLE	EFFECTIVENESS LATENT	OA (DB/WB) EAT	OA (DB/WB) LAT	EA (DB/WB) EAT	EA (DB/WB) LAT	WINTER BTU CAPACITY REDUCTION	EFFECTIVENESS SENSIBLE	EFFECTIVENESS LATENT	OA (DB/WB) EAT	OA (DB/WB) LAT	EA (DB/WB) EAT	EA (DB/WB) LAT	PRE FILTER TYPE	FINAL FILTER TYPE	ELECTRICAL VOLT	PH	HZ	MCA	MOP	REMARKS
31-2	1,825	46,022	77.3	66.3	92/74.2	79/67.2	75/64.1	87.7/71.3	140,336	78.9	84.9	7/5	50.4/44.6	70/56.1	20.8/18.4	MERV 8	MERV 13	460	3	60	8	15	

GENERAL NOTES:
1. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER MENA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
2. PROVIDE COMBINATION VFD/DISCONNECT FACTORY WIRED TO ALL MOTORS WITH AUXILIARY CONTACTS. PROVIDE ON SITE COMMISSIONING.
3. INSTALL UNITS WITH ADEQUATE CLEARANCE FOR COIL PULL , FILTER REPLACEMENT, WHEEL REPLACEMENT, FAN REPLACEMENT AND TO FULLY OPEN ACCESS DOORS.
PROVIDE A MINIMUM OF 3 FEET CLEARANCE IN FRONT OF DISCONNECTS SWITCHES, VFD'S, AND CONTROL PANELS. COMPLY FULLY WITH NEC.
4. UNIT STATIC PRESSURE CAPABILITY SHALL INCLUDE SCHEDULED EXTERNAL STATIC PRESSURE PLUS ALL INTERNAL PRESSURE DROPS. INTERNAL PRESSURE DROPS SHALL INCLUDE VALUES FOR WETTED COILS AND MID-LIFE FILTERS.
5. CHILLED WATER: EWT= 43 DEG F LWT= 53 DEG F, 0% PROPYLENE GLYCOL, 0.0005 FOULING FACTOR
6. STEAM COILS: 5 PSI
7. PROVIDE MANUAL RESET FREEZE STAT DOWNSTREAM OF HEATING COIL.
8. PROVIDE 2" PRE-FILTER RACK AND 4" FILTER RACK. FILTERS: 2" MERV 8 PRE-FILTER, 4" MERV 13 FILTER.
9. ENERGY RECOVERY SYSTEM SHALL HAVE A LEAKAGE POTENTIAL OF NO MORE THAN 5% OF THE TOTAL SUPPLY AIRSTREAM.
10. PROVIDE FACTORY INSTALLED AND WIRED TO AN EXTERIOR MOUNTED SWITCH, 120V POWER CONNECTION BY DIVISION 26 FOR MARINE LIGHTS IN FAN AND ACCESS SECTIONS.
11. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
12. PROVIDE ACCESS DOORS ON BOTH SIDES OF THE UNIT.
13. UNIT SHALL BE PROVIDED WITH STAINLESS STEEL DRAIN PANS, AND STAINLESS STEEL COOLING COIL SUPPORTS.
14. PROVIDE MAGNEHELIC FILTER GAUGES AT EACH FILTER BANK.
15. MOTOR DESIGN BREAK HORSEPOWER IS THE UNIT OPERATING ON A DESIGN DAY WITH CLEAN FILTERS. UNIT SHALL BE SUBMITTED FOR REVIEW WITH DIRTY FILTERS.
16. MANUFACTURER CONTACT INFORMATION: CARRIER ENTERPRISE; RICHARD.BARILETTO@CARRIERENTERPRISE.COM, (212) 465-7740
17. ALL FANS SHALL BE ECM TYPE.

REMARKS

AIR HANDLING UNIT SCHEDULE

CODE (AHU)	MANUFACTURER/ MODEL NO.	AREA SERVED	LOCATION	SUPPLY FAN CFM	TYPE	ESP ("W.C)	TSP ("W.C)	HP	CLEAN BHP*	MAX BHP	FAN RPM	MOTOR RPM	MIN. OSA (CFM)	HEATING CAPACITY (STEAM) EAT (°F)	LAT (°F)	CAP MBH	STEAM LBS/HR	PSI	APD ("W.C.)	COOLING CAPACITY (CHILLED WATER) EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	APD ("W.C.)	TOTAL MBH	SENS MBH	COIL ROWS	FINS PER IN	GPM	WPD (FT)	PRE-FILTER TYPE	PRE-FILTER APD ("W.C.) INITIAL	PRE-FILTER APD ("W.C.) FINAL	FINAL FILTER TYPE	FINAL FILTER APD ("W.C.) INITIAL	FINAL FILTER APD ("W.C.) FINAL	UNIT DIMENSIONS LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)	AHU CONFIG	ELECTRICAL VOLT	PH	HZ	FLA	MCA	MOCP	REMARKS
AHU-31-1	CARRIER / 39MN 06W	31 - STAFF LOCKERS	NORTH MARSHALLING	1,900	AF	1.5	3.55	5	2.1	3	4,111	3,600	905	42.6	85	110	115.18	5	0.02	81.9	68.6	53	53	.42	84	55.5	1, 6	11	17.7	1.7	MERV 8	0.08	0.5	MERV 13	0.17	0.75	198	47	37	2368	I	460	3	60	6	7.5	10	

GENERAL NOTES
1. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
2. PROVIDE FACTORY MOUNTED COMBINATION VFD/DISCONNECT WIRED TO MOTORS AND FACTORY COMMISSIONED WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS.
3. INSTALL UNITS WITH ADEQUATE CLEARANCE FOR COIL PULL , FILTER REPLACEMENT AND TO FULLY OPEN ACCESS DOORS. PROVIDE A MINIMUM OF 3 FEET CLEARANCE IN FRONT OF DISCONNECTS SWITCHES AND CONTROL PANELS. COMPLY FULLY WITH NEC.
4. UNIT TOTAL STATIC PRESSURE SHALL INCLUDE SCHEDULED EXTERNAL STATIC PRESSURE PLUS ALL SCHEDULED INTERNAL PRESSURE DROPS. INCLUDE VALVES FOR WETTED COILS AND DIRTY FILTERS.
6, CHILLED WATER: EWT=43°F LWT=53°F 0% PROPYLENE GLYCOL, 0.0005 FOULING FACTOR.
7. STEAM COILS: 5 PSI
8. PROVIDE DUCT SMOKE DETECTORS PER CODE IN THE SUPPLY AND RETURN AIR OF ALL UNITS 2000 CFM OR GREATER. RE: SPECIFICATIONS. INITIALIZATION OF A DUCT SMOKE DETECTOR SHALL STOP RESPECTIVE FANS.
9. PROVIDE MANUAL RESET FREEZE STAT DOWNSTREAM OF HEATING COIL.
10. PROVIDE ANGLED 2" PRE-FILTER AND CARTRIDGE 12" FINAL FILTER RACK.
11. PROVIDE STAINLESS STEEL DRIP PANS AND STAINLESS STEEL COOLING COIL SUPPORTS.
12. ALL FANS SHALL BE DELIVERED IN SECTIONS. ANY FURTHER FIELD DISASSEMBLY AND UNIT REASSEMBLY SHALL BE DONE BY THE CONTRACTOR UNDER THE SUPERVISION OF THE MANUFACTURER. THE LARGEST SECTIONS TO BE OF A SIZE THAT WILL PASS THROUGH A 38" DOORWAY. FANS SHALL BE DYNAMICALLY REBALANCED IN THE FIELD.
13. PROVIDE INTERNAL VIBRATION ISOLATION. SUSPEND UNIT FROM STRUCTURE ABOVE.
14. PROVIDE FACTORY INSTALLED AND WIRED TO AN EXTERIOR MOUNTED SWITCH, 120V POWER CONNECTIONS BY DIVISION 26 MARINE LIGHTS IN FAN AND ACCESS SECTIONS.
15. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
16. PROVIDE MAGNEHELIC FILTER GAUGES.
17. ESP IS THE SUPPLY PRESSURE AT THE PLENUM DISCHARGE, AFTER THE FINAL FILTERS.

*BHP VALUE FOR CLEAN FILTER USED FOR ENERGY COMPLIANCE ONLY.

CONFIGURATION:
I. VARIABLE VOLUME HORIZONTAL DRAW THRU UNIT, ANGLED FILTER SECTION, ACCESS SECTION, STEAM HEATING COIL, ACCESS SECTION, COOLING COIL, ACCESS SECTION AND SUPPLY FAN WITH VFD. COILS SHALL BE SIZED FOR 100% OA.

REMARK NOTES:

FAN COIL SCHEDULE (HYDRONIC)

CODE (FCU)	MANUFACTURER/ MODEL NO.	LOCATION	AREA SERVED	CONFIG	WEIGHT (LBS)	DIMENSIONS (IN) LENGTH	WIDTH	HEIGHT	FAN OA CFM	SA CFM	DRIVE	MOTOR TYPE	MOTOR RPM	CLEAN BHP*	HEATING COIL ESP ("WC)	TSP ("WC)	EAT (F)	LAT (F)	MBH	STEAM LBS/HR	PSI	APD (IN)	COOLING COIL EAT (F) DB	EAT (F) WB	LAT (F) DB	LAT (F) WB	TOTAL MBH	SENS MBH	GPM	# ROWS	WPD (FT)	APD (IN)	ELECTRICAL HP	VOLT	PH	HZ	FLA	REMARKS
FCU-31-6	CARRIER / 39S 00	ABOVE MONEY RM	MONEY RMS	HORIZONTAL	599	70	33	22	55	210	DIRECT	ECM	2,257		1.0	1.1	-	-	-	-	-	-	78.9	66	52.6	52.6	8.2	5.9	1.2	6	0.9	0.07	1.5	460	3	60	3	
FCU-31-9	CARRIER / 39MN 06W	ABOVE MULTIPURPOSE RM	MULTIPURPOSE RMS	HORIZONTAL	2,372	204	47	37	290	1,160	BELT	ECM	3,600		1.5	3.1	50	85	63	70	5	0.02	78.1	65	55	53.6	40.2	29.7		6	1.6	0.27	3	460	3	60	4.8	
FCU-31-10	CARRIER / 39S 00	ABOVE F&B OFFICE	F&B OFFICES	HORIZONTAL	599	70	33	22	94	490	DIRECT	ECM			1.5		-	-	-	-	-	-	77.5	63.7	55	53.3	15.1	12.1		6	0.9	0.07	3	460	3	60		

GENERAL NOTES:
1. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
2. CHILLED WATER: EWT = 43°F, LWT = 53°F,0% PROPYLENE GLYCOL.
3. STEAM: 5 PSI.
4. PROVIDE 2" MERVE 8 PRE-FILTER & 4" MERV 13 FINAL FILTER.
5. PROVIDE FLEXIBLE CONNECTION ON INLET AND OUTLET OF EACH UNIT.
6. PROVIDE CONDENSATE PUMP. POWER FROM DEDICATED 120V DUPLEX RECEPTACLE CIRCUIT. COORDINATE WITH ELECTRICAL ENGINEER.

* BHP VALUE IS BASED ON CLEAN FILTERS. THIS VALUE IS REFLECTIVE OF DESIGN CONDITIONS FOR ENERGY COMPLIANCE ONLY.

REMARK NOTES

STEAM SHELL AND TUBE HEAT EXCHANGER SCHEDULE

CODE (HX)	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	OPERATING WEIGHT (LBS)	MBH	TUBE SIDE FLUID	GPM	EWT (F)	LWT (F)	WPD (PSI)	NO. OF PASSES	RATED PRES. (PSI)	SURFACE AREA (SQFT)	SHELL SIDE PRESSURE (PSIG)	CAPACITY LBS/HR	WATER TEMP GPM	INLET	OUTLET	MAX PD (PSI)	RATED PRES. (PSI)	REMARKS
HX-JET	BELL & GOSSETT / QSU-67-4	JET ICE SYSTEM	NW MEZZANINE MER	333	1,472	R.O. WATER	33	70	160	6.5	4	150	32	5	1,523	-	-	-	-	150	C
HX-MELT	BELL & GOSSETT / QOFT 102-1	ICE MELT SYSTEM	ICE MELT RM	780	3,504	ICE MELT WATER	700	36	46	10	1	150	-	5	3,650	-	-	-	-	150	A,B
SHX-1	BELL & GOSSETT / TCW	DHW PREHEAT / CONDENSATE COOLER	WATER VALVE RM	450	1,000	DOM. WATER	50	40	80	3	2	150	45	-	-	50	180	140	4	150	D,E

GENERAL NOTES
1. HEAT EXCHANGER AND TANK TO BE ASSEMBLED AT THE FACTORY AND SHIPPED FULLY ASSEMBLED.
2. REFER TO DETAILS AND SPECIFICATIONS FOR PIPING ARRANGEMENT AND ACCESSORIES.

REMARK NOTES
A. TUBE BUNDLE INSTALLED INSIDE OF CONDENSATE RECEIVER TANK (CRT-1), REFER TO DRAWINGS AND CONDENSATE RECEIVER TANK SCHEDULE.
B. PROVIDE MIXING VALVE TO MAINTAIN TUBE SIDE LWT AT 140.
C. TUBES SHALL BE 316 STAINLESS STEEL.
D. PROVIDE DOUBLE WALL TUBES.
E. TUBE SIDE SHALL BE LEAD FREE CONSTRUCTION.

GRILLE REGISTER DIFFUSER SCHEDULE

CODE	MANUFACTURER/ MODEL NO.	SERVICE	TYPE	ACCESSORIES	FACE SIZE	NECK SIZE	FINISH	REMARKS
A	TITUS / OMNI	SUPPLY AIR	PLAQUE	PROVIDE OPPOSED BLADE DAMPER WHERE NOTED	24x24	SEE DRAWING	TBD BY ARCHITECT	
B	TITUS/ 300RL	RETURN	GRILLE	PROVIDE OPPOSED BLADE DAMPER WHERE NOTED	24x24	SEE DRAWING	TBD BY ARCHITECT	
C	TITUS/ 300RL	RETURN	GRILLE	-	SEE DRAWING	SEE DRAWING	TBD BY ARCHITECT	

GENERAL NOTES
1. SEE PLANS FOR CFM AND NECK SIZES.
2. MAXIMUM NOISE CRITERIA (NC) SHALL BE 30 UNLESS OTHERWISE NOTED.
3. COLOR TO BE COORDINATED WITH ARCHITECT PRIOR TO ORDERING.
4. MATERIAL IS STEEL UNLESS OTHERWISE NOTED.
5. PROVIDE BALANCING DEVICE FOR ALL GRILLES, REGISTERS, AND DIFFUSERS UNLESS OTHERWISE NOTED.
BALANCING DEVICES SHALL BE LOCATED AS FAR FROM THE GRILLES AS POSSIBLE.
6. CONTRACTOR TO CONFIRM GRILLES BORDER TYPE WITH ARCHITECTURAL REFLECTED CEILING PLANS PRIOR TO ORDERING.
7. CONTRACTOR SHALL PAINT THE INSIDE OF ALL DUCTWORK THAT IS VISIBLE THROUGH THE GRILL.

REMARKS
A. ALUMINUM CONSTRUCTION.
B. PROVIDE CONTINUOUS DIFFUSER FACE ACROSS ACTIVE AND BLANK SECTIONS SHOWN ON PLANS. REFER TO ARCHITECTURAL DRAWING FOR TOTAL DIFFUSER LENGTH.
PROVIDE DIFFUSER PLENUMS AT ACTIVE SECTIONS PER PLANS.
C. PROVIDE END CAPS, END BORDERS, OPEN BORDERS, AND ALIGNMENT CLIPS AS REQUIRED FOR CONTINUOUS DIFFUSER.
D. PROVIDE PLENUMS BEHIND ALL DUCTED LINEAR DIFFUSERS AND RETURNS.
E. PROVIDE ADJUSTABLE AIR SCOOP DAMPER FOR ALL SIDEWALL INSTALLATIONS.

SUPPPLY VAV BOX SCHEDULE

CODE (VAV)	AREA SERVED	MANUFACTURER/ MODEL NO.	DESIGN (CFM) MAX	MIN	CAPACITY (CFM) MIN.	MAX.	MAX. NC @ BOX MAX.	INLET SIZE	OUTLET SIZE	REMARKS
VAV-31-1	VISITOR LOCKER ROOM #1	TITUS / DESV 8	405	405	0	900	31	8	12 x 10	
VAV-31-2	VISITOR LOCKER ROOM #1	TITUS / DESV 8	580	580	0	900	31	8	12 x 10	
VAV-31-3	VISITOR LOCKER ROOM #2	TITUS / DESV 8	580	580	0	900	31	8	12 x 10	
VAV-31-4	DRESSING ROOM	TITUS / DESV 6	260	260	0	500	35	6	12 x 8	
VAV-31-5	MULTIPURPOSE ROOM	TITUS / DESV 8	580	300	0	900	31	8	12 x 10	
VAV-31-6	MULTIPURPOSE ROOM	TITUS / DESV 8	580	300	0	900	31	8	12 x 10	

GENERAL NOTES:
1. MOUNT WITH 4 STRAIGHT DUCT DIAMETERS UPSTREAM OF THE BOX.
2. MAXIMUM INLET S.P.= 1.5.
3. MAXIMUM NC LEVELS ARE RADIATED SOUND DATA AND BASED ON THE MAXIMUM BOX CFM LISTED AND AT A PRESSURE DROP ACROSS THE BOX OF 2.0".
4. CONTROLS SHALL BE BY MANUFACTURER OR BY CONTROL MANUFACTURER AND INSTALLED AT THE FACTORY. (SEE SPECS)
5. PROVIDE FACTORY MOUNTED 120V DISCONNECT SWITCH, CONTROL, TRANSFORMER AND AIR FLOW SWITCH.
6. INTERLOCK W/ SUPPLY AIR VAV BOX(ES) SERVING THE SAME SPACE. EVAV SHOULD BE SLAVE TO THE SUPPLY VAV AND SHALL MODULATE WITH THE SAME CFM.

REMARKS:

EXHAUST VAV BOX SCHEDULE

CODE (EAV)	AREA SERVED	MANUFACTURER/ MODEL NO.	DESIGN (CFM) MAX	MIN	CAPACITY (CFM) MIN.	MAX.	MAX. NC @ BOX MAX.	INLET SIZE	OUTLET SIZE	REMARKS
EAV-31-1	VISITOR LOCKER ROOM #1	TITUS / DESV 10	780	780	0	1400	39	10	14 x 12	
EAV-31-2	VISITOR LOCKER ROOM #1	TITUS / DESV 6	260	260	0	500	35	6	12 x 8	
EAV-31-3	VISITOR LOCKER ROOM #2	TITUS / DESV 8	630	630	0	900	31	8	12 x 10	
EAV-31-4	DRESSING ROOM	TITUS / DESV 6	310	310	0	500	35	6	12 x 8	

GENERAL NOTES:
1. MOUNT WITH 4 STRAIGHT DUCT DIAMETERS UPSTREAM OF THE BOX.
2. MAXIMUM INLET S.P.= 1.5.
3. MAXIMUM NC LEVELS ARE RADIATED SOUND DATA AND BASED ON THE MAXIMUM BOX CFM LISTED AND AT A PRESSURE DROP ACROSS THE BOX OF 2.0".
4. CONTROLS SHALL BE BY MANUFACTURER OR BY CONTROL MANUFACTURER AND INSTALLED AT THE FACTORY. (SEE SPECS)
5. PROVIDE FACTORY MOUNTED 120V DISCONNECT SWITCH, CONTROL, TRANSFORMER AND AIR FLOW SWITCH.
6. INTERLOCK W/ SUPPLY AIR VAV BOX(ES) SERVING THE SAME SPACE. EVAV SHOULD BE SLAVE TO THE SUPPLY VAV AND SHALL MODULATE WITH THE SAME CFM.

REMARKS:

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-5770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: Author
DATE: 12/18/20
CHECKED: Checker
DATE PLOTTED: 12/18/2020 10:29:26 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE: MECHANICAL SCHEDULES I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-010.E

PUMP SCHEDULE

GENERAL				PUMP DATA											ELECTRICAL							
CODE	BELL&GEOSSETT/ MODEL NO.	SERVICE	LOCATION	PUMP TYPE	GPM	DRIVE	RPM	HEAD (FT)	MAX PRESSURE (PSI)	FLUID TEMP. (F)	NPSHR (FT)	IMPELLER SIZE (IN.)	MIN. EFF. %	CONTROLS	BHP	HP	VOLT	PH	HZ	FLA	WEIGHT (LBS)	REMARKS
SMP-1	E -80sc 2.5x2.5x7B	ZAMBONI DUMP PIT	MEZZANINE MER	SPLIT-COUPLED VERTICAL IN-LINE	100	CONSTANT	1,750	40	175	80	4.26	6.875	70	I	1.44	2	460	3	60	3.4	235	
SMP-2	E -80sc 2.5x2.5x7B	ZAMBONI DUMP PIT	MEZZANINE MER	SPLIT-COUPLED VERTICAL IN-LINE	100	CONSTANT	1,750	40	175	80	4.26	6.875	70	I	1.44	2	460	3	60	3.4	235	

GENERAL NOTES
1. PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS WHERE VARIABLE FREQUENCY DRIVES ARE NOT SPECIFIED.
2. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
3. FOR PARALLEL PUMP APPLICATIONS MANUFACTURER SHALL REVIEW SINGLE PUMP OPERATON SUCH THAT PUMP CAN OPERATE AND NOT EXCEED THE END OPERATION POINT ON THE PUMP CURVE AND MOTOR HP IS PROPERLY SELECTED TO PREVENT OVERLOADING.
4. PUMP MOTORS SHALL BE CAPABLE OF OPERATING AT 60 HZ WITHOUT OVERLOADING AT ANY POINT ON THE PUMP CURVE.
5. NPSHR AT SCHEDULED OPERATING POINT SHALL NOT EXCEED 0.8"NPSHA.
6. REFER TO DRAWINGS TO DETERMINE REQUIRED PUMP ROTATION. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING.
7. PUMP HOUSING SHALL BE COMPLETELY INSULATED.
8. PARALLEL PUMP APPLICATION WITH ONE PUMP IN STANDBY
9. ALL PUMPS SHALL BE PROVIDED INERTIA BASE AND SPRING ISOLATORS
10. PROVIDE A SEAL FLUSH SYSTEM WITH CYCLONE SEPARATOR WITH SIGHT FLOW INDICATOR.
11. PUMP SHALL BE PROVIDED WITH A CONSTANT PRESSURE CONTROL TO ALLOW THE PUMP TO MAINTAIN CONSTANT PRESSURE
12. PUMP SHALL BE SUPPLIED WITH A CLOSED, PERFECTLY MOLDED INSULATION SHELL THAT FITS THE PUMP HOUSING EXACTLY.
13. WATER CONTAINS 0% PROPYLENE GLYCOL.
14. PROVIDE BELL AND GOSSETT SUCTION DIFFUSER ON THE SUCTION SIDE OF THE PUMP.

CONTROL NOTES
I. INTERLOCK PUMPS WITH LOCAL SWITCH.

REMARK NOTES

DUPLEX STEAM CONDENSATE PUMP SCHEDULE

CODE	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	RECEIVER SIZE (GAL)	GPM (EA)	DISCH. DIA (IN)	INLET DIA. (IN)	VENT DIA. (IN)	DISCH. PRESS. (PSIG)	EDR	RPM	NO. OF PUMPS	OPER. TEMP (F)	IMPELLER SIZE (IN)	DIMENSIONS (IN) W	L	H	WEIGHT (LBS)	ELECTRICAL HP	VOLT	PH	HZ	FLA	EMERG. POWER	REMARKS
CP-10	ITT / 223CC	DOMESTIC HOT WATER	WATER VALVE RM	36	22	1-1/2	3	2	30	44,000	1,750	2	212	8-7/16	38	38	44	924	1.5	200	3	60	13.2	YES	
CP-11	ITT / 123CC	ICE MELT	ICE MELT RM	23	12	3/4	2	2	30	24,000	1,750	2	212	8-7/16	38	38	37	809	1.5	200	3	60	13.2	NO	

GENERAL NOTES
1. PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS.
2. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER MENA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
3. FOR PARALLEL PUMP APPLICATIONS MANUFACTURER SHALL REVIEW SINGLE PUMP OPERATON SUCH THAT PUMP CAN OPERATE AND NOT EXCEED THE END OPERATION POINT ON THE PUMP CURVE AND MOTOR HP IS PROPERLY SELECTED TO PREVENT OVERLOADING. PROVIDE HOUSE KEEPING PAD.
4. NPSHR AT SCHEDULED OPERATING POINT SHALL NOT EXCEED 0.8"NPSHA.
5. REFER TO DRAWINGS TO DETERMINE REQUIRED PUMP ROTATION. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING.
6. 100% STANDBY OPERATION. PROVIDE AUTOMATIC LEAD/LAG CHANGEOVER
7. UNIT SHALL BE SUPPLIED WITH A SINGLE POINT ELECTRICAL CONNECTION. PROVIDE ANY NECESSARY CONTROL TRANSFORMER.
8. 2" INLET BASKET STRAINER.
9. PROVIDE A NEMA 1 HIGH LEVEL FLOAT SWITCH, PUMP INLET BUTTERFLY VALVES, DIAL THERMOMETER, GAUGE GLASS, AND DISCHARGE PRESSURE GAUGE AND LIFTING EYES.
10. PIPE DRAIN/OVERFLOW TO NEAREST FLOOR DRAIN.

REMARKS:

COIL SCHEDULE (ELECTRIC)

CODE	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	CONTROL	STAGES	AIRSIDE EAT (F)	LAT (F)	CFM	MIN. VELOCITY	MBH	APD (IN)	L (IN)	H (IN)	ELECTRICAL kW	VOLT	PH	HZ	FLA	REMARKS
EDH-1	INDEECO / TFXU	ICE CREW	CEILING	I	1	50	75	200	600	5.4	0.02	8	6	1.6	120	1	60	13.3	
EDH-2	INDEECO/ QUZ	MULTIPURPOSE	MULTIPURPOSE	I	3	50	75	1,160	600	31	0.1	18	10	9	208	3	60		

GENERAL NOTES
1. PROVIDE INTEGRAL AIRFLOW SWITCH AND THERMAL CUTOUTS.
2. INSTALL SHEET METAL DUCT LINER ON INSIDE OF INTERNAL DUCT INSULATION. DUCT LINER SHALL EXTEND MINIMUM 6" BEYOND HEATER TERMINAL BOX ON BOTH SIDES.
3. COIL SHALL BE INSTALLED MINIMUM 4 FEET AWAY FROM ANY DUCTWORK TRANSITIONS, EQUIPMENT, OR OUTLET.
4. NEMA 1 CONTROL ENCLOSURE - CONTRACTOR TO VERIFY TERMINAL BOX OVERHANG CONFIGURATION AND AIRFLOW DIRECTION.
5. PROVIDE WALL MOUNTED THERMOSTAT.
6. PROVIDE FACTORY MOUNTED DISCONNECT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. FINNED TUBULAR COIL, 80% NICKEL, 20% CHROMIUM HEATING ELEMENTS.
8. MAGNETIC DE-ENERGIZING CONTACTORS.
9. MANUAL THERMAL CUTOUT, AUTOMATIC THERMAL CUTOUT.
10. INTEGRAL DIFFERENTIAL PRESSURE AIRFLOW SWITCH TO DE-ENERGIZE THE HEATER CONTROL CIRCUIT UPON LOSS OF AIRFLOW.
11. CONTROL CIRCUIT TRANSFORMER, WITH [24] [120] VOLT SECONDARY AS SPECIFIED, INCLUDING ANY OVERCURRENT PROTECTION REQUIRED BY UL / NEC.
12. INTEGRAL, DOOR INTERLOCKED DISCONNECT SWITCH TO PROTECT SERVICE PERSONNEL.
13. MAINTAIN MINIMUM CLEARANCES REQUIRED BY THE MANUFACTURER AND THE NATIONAL ELECTRIC CODE (NEC).

CONTROL
I. PROVIDE FULL SCR WITH 0-10 VOLT CONTROL SIGNAL FROM BMS. .

REMARKS

STEAM CONDENSATE RECEIVER TANKS

CODE	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	RECEIVER SIZE (GAL)	DIMENSIONS (IN) LENGTH	DIAMETER	DUMP DRAIN DIA (IN)	OVERFLOW DRAIN DIA (IN)	VENT DIA. (IN)	IMMERSION HEATER	ELECTRICAL VOLT	PH	HZ	FLA	REMARKS
CRT-1	CEMLINE	NE STEAM CONDENSATE	WATER VALVE RM	340	84	36	2	4	2	SHX-1. SEE SCH	115	1	60		A,C
CRT-2	CEMLINE	NW STEAM CONDENSATE	NW MEZZANINE MER	340	84	35	2	4	2	-	115	1	60		B,D

GENERAL NOTES
1. PROVIDE 4" HOUSEKEEPING PAD BELOW TANKS.
2. STEAM CONDNESATE RECEIVER TANKS SHALL BE INSULATED AND WRAPPED IN AN ALUMINUM JACKET.
3. TANK TO BE FURNISHED WITH A 2" TEMPERATURE OPEN DUMP VALVE THAT DISCHARGES THE STEAM CONDENSATE TO NEAREST FLOOR SINK WHEN TANK WATER TEMPERATURE DROPBS BELOW 130 F (ADJ.)
4. TANK TO BE FURNISHED WITH A 4" OVERFLOW LEG WITH A DOMESTIC WATER QUENCH SYSTEM. EXTEND 1-1/4" DOMESTIC COLD WATER TO QUENCH VALVE. EXTEND DRAIN TO NEAREST FLOOR SINK.
5. UNIT SHALL BE SUPPLIED WITH A SINGLE POINT ELECTRICAL CONNECTION. PROVIDE ANY NECESSARY CONTROL TRANSFORMER.
6. PROVIDE A Y-STRAINER AT ALL STEAM CONDENSATE LINES CONNECTED TO THE TANK. PROVIDE Y-STRAINER UPSTREAM OF EACH CONTROL VALVE.
7. PROVIDE A DIAL THERMOMETER ON TANK AND BOTH DRAIN LINES, GAUGE GLASS, INTERCONNECT WIRING.

REMARKS:
A. CONDENSATE RECEIVER TO BE SUPPLIED WITH INTERNAL TUBE BUNDLE FOR DOMESTIC WATER PRE-HEAT, REFER TO DRAWING AND HEAT EXCHANGER SCHEDULE.
B. PROVIDE A MOTORIZED ISOLATION VALVE ON THE DRAIN LINE THAT WILL ALLOW THE STEAM CONDENSATE TO DRAIN TO THE ZAMBONI DUMP PIT. PROVIDE A TOGGLE SWITCH IN NEAR THE ZAMBONI DUMP PIT TO OPERATE THE VALVE.
C. MOUNT TANK 12" ABOVE THE HOUSEKEEPING PAD.
D. MOUNT TANK A MINIMUM OF 36" ABOVE THE HOUSEKEEPING PAD

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REVISIONS/ ISSUES

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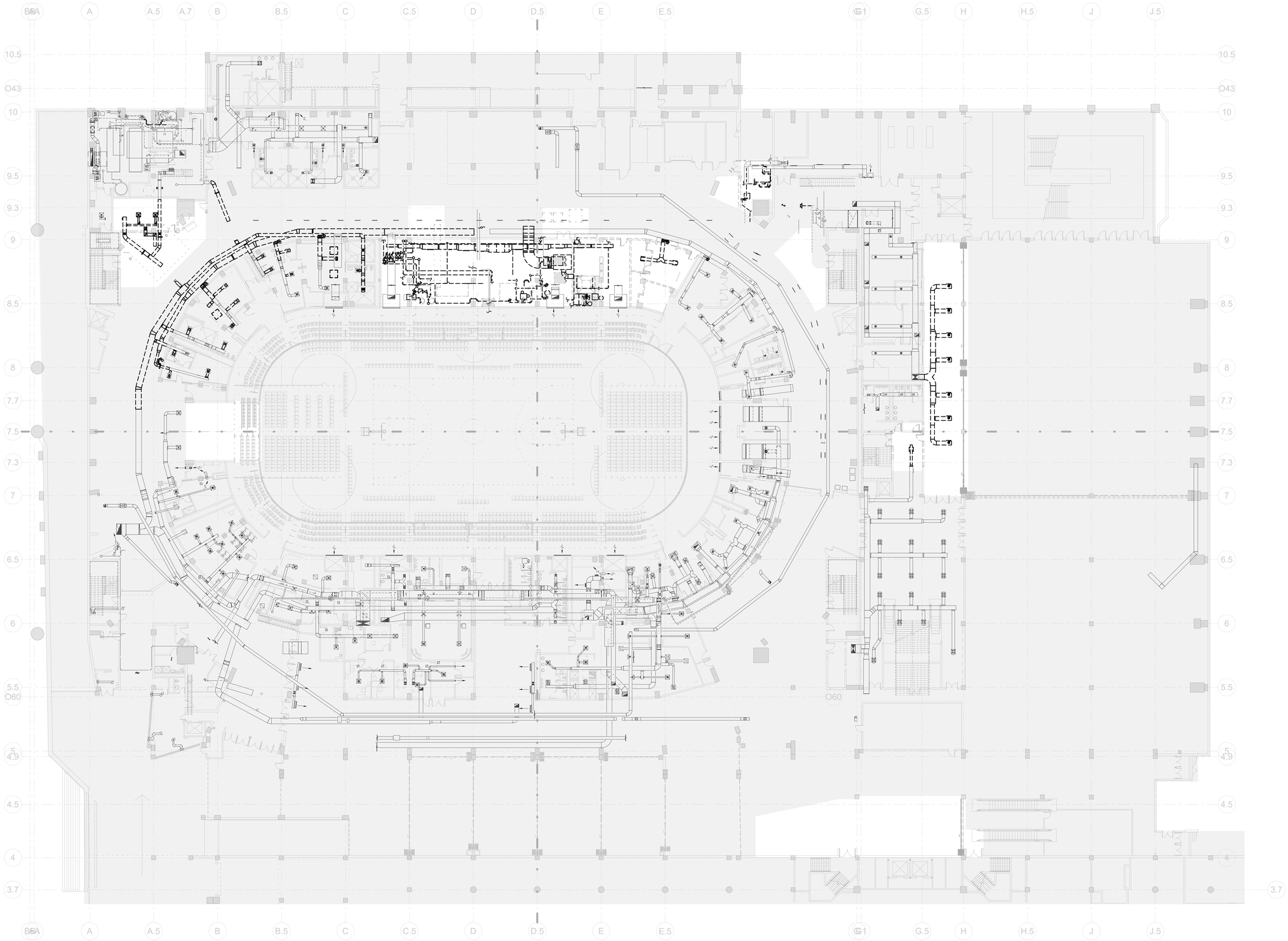
DWG. TITLE
MECHANICAL SCHEDULES II - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: M-011.E
PROJ. NO.: 1605



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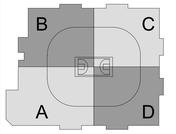
KEYNOTES



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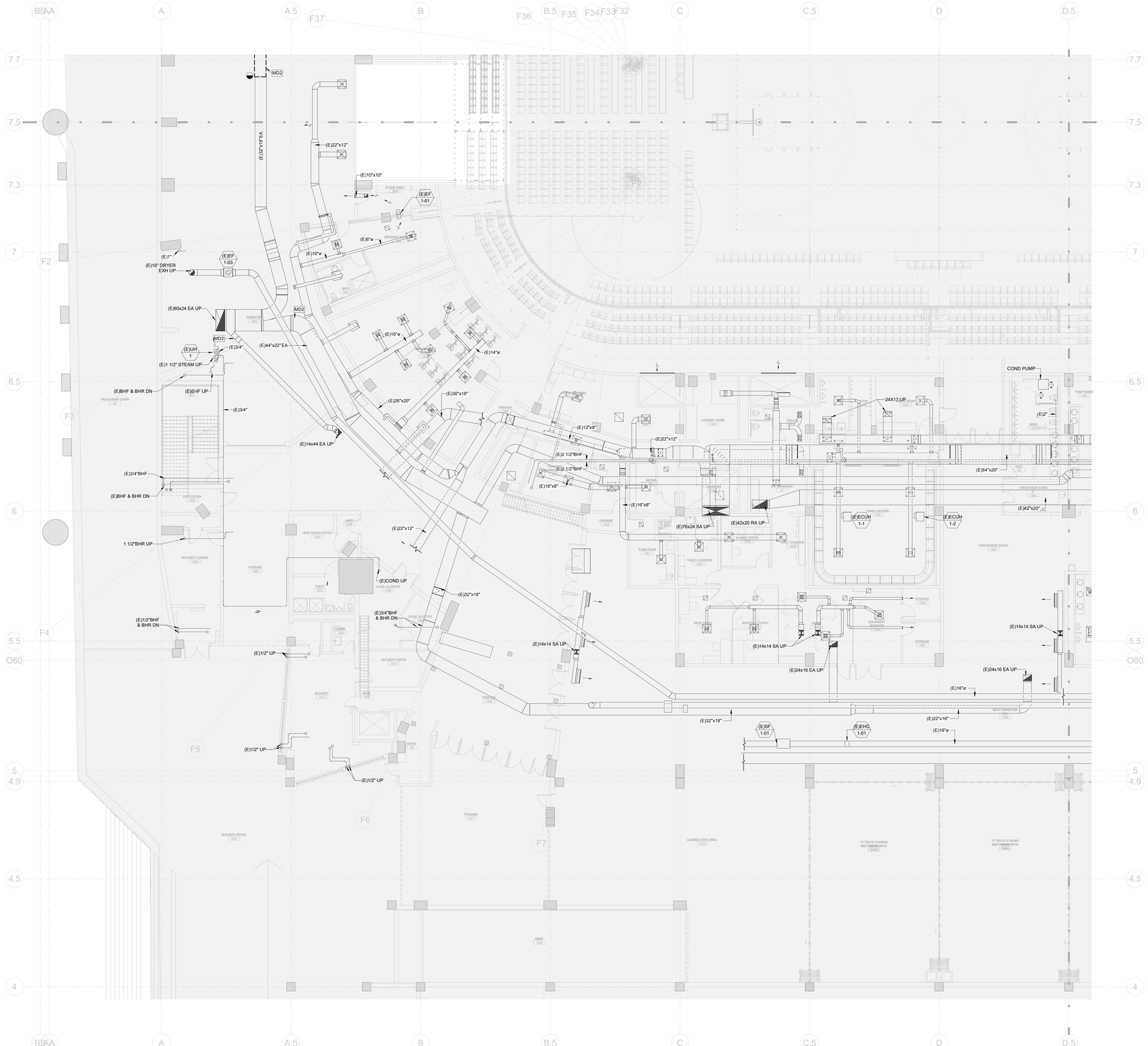
DWG. TITLE
LEVEL 31 - MECHANICAL DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-101.E



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KEYNOTES

MD2	PROVIDE PRE-DEMOLITION AIRFLOW TRAVERSE READINGS AT ALL LOCATION INDICATED.

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DWG. TITLE
LEVEL 31 - MECHANICAL DEMOLITION QUADRANT A - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-101A.E

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KEYNOTES

MD1	DEMOLISH ALL REHEAT PIPING.
MD2	PROVIDE PRE-DEMOLITION AIRFLOW TRAVERSE READINGS AT ALL LOCATION INDICATED.

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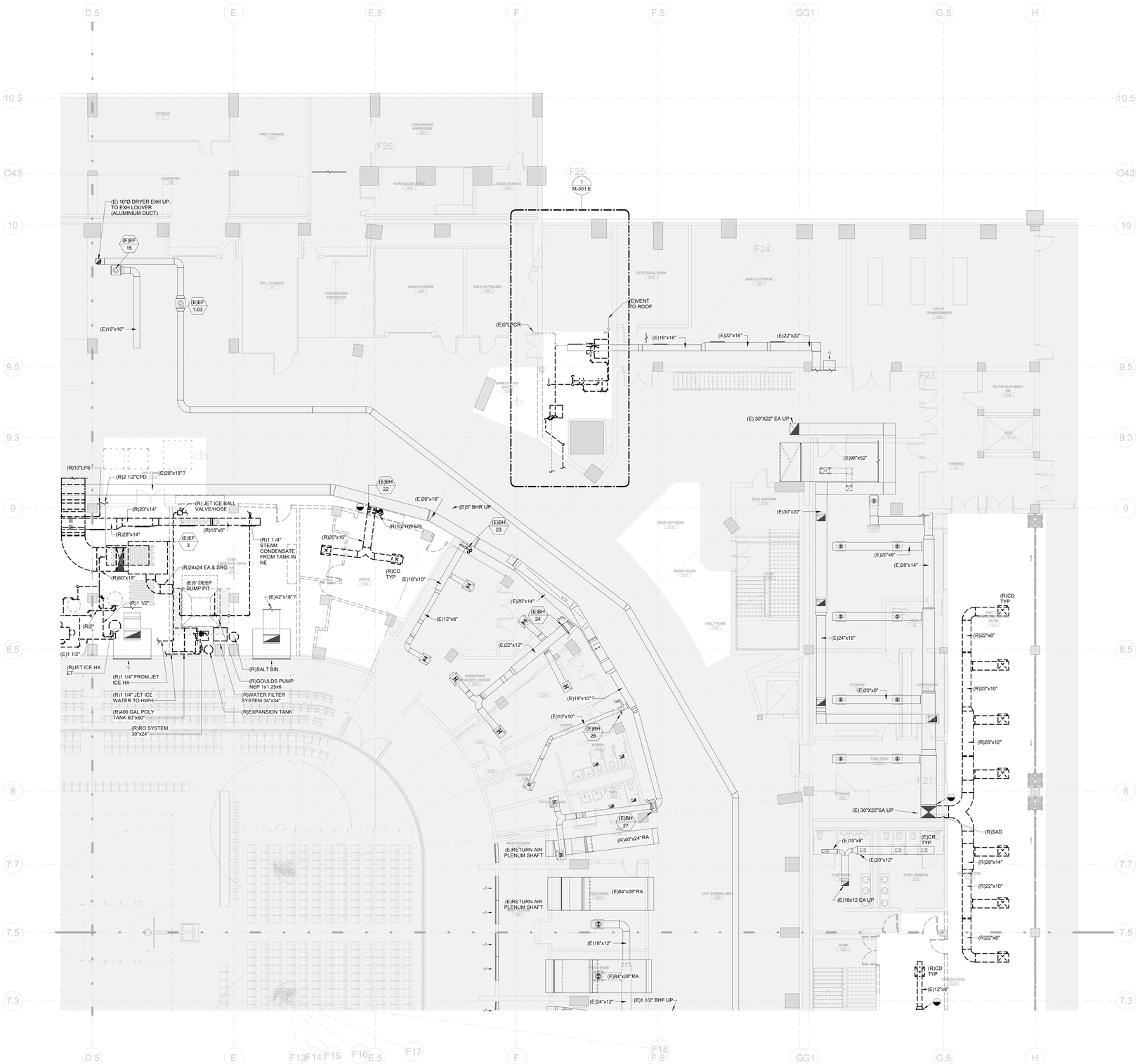
DWG. TITLE
LEVEL 31 - MECHANICAL DEMOLITION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-101B.E



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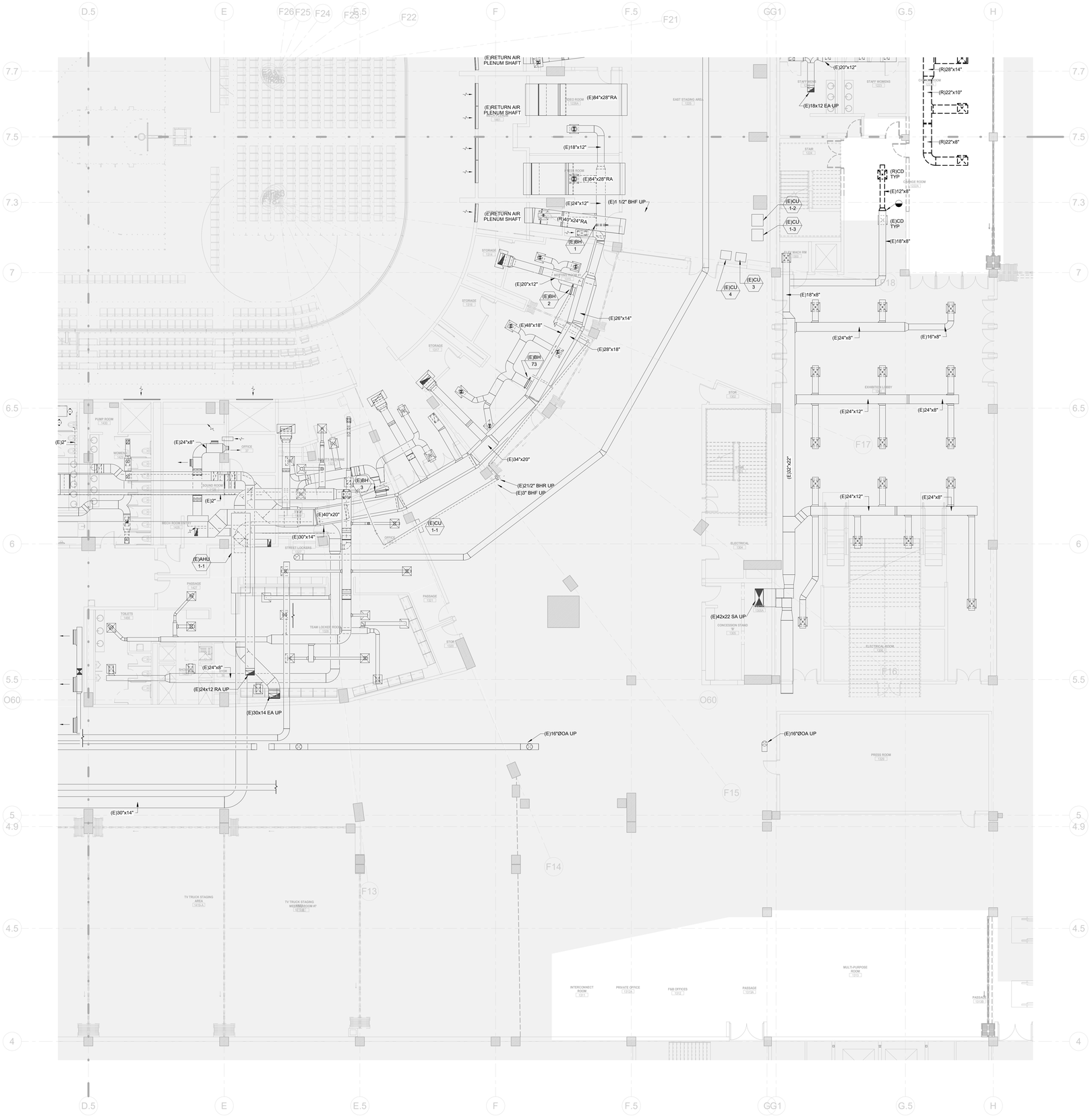
DWG. TITLE
LEVEL 31 - MECHANICAL DEMOLITION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-101C.E



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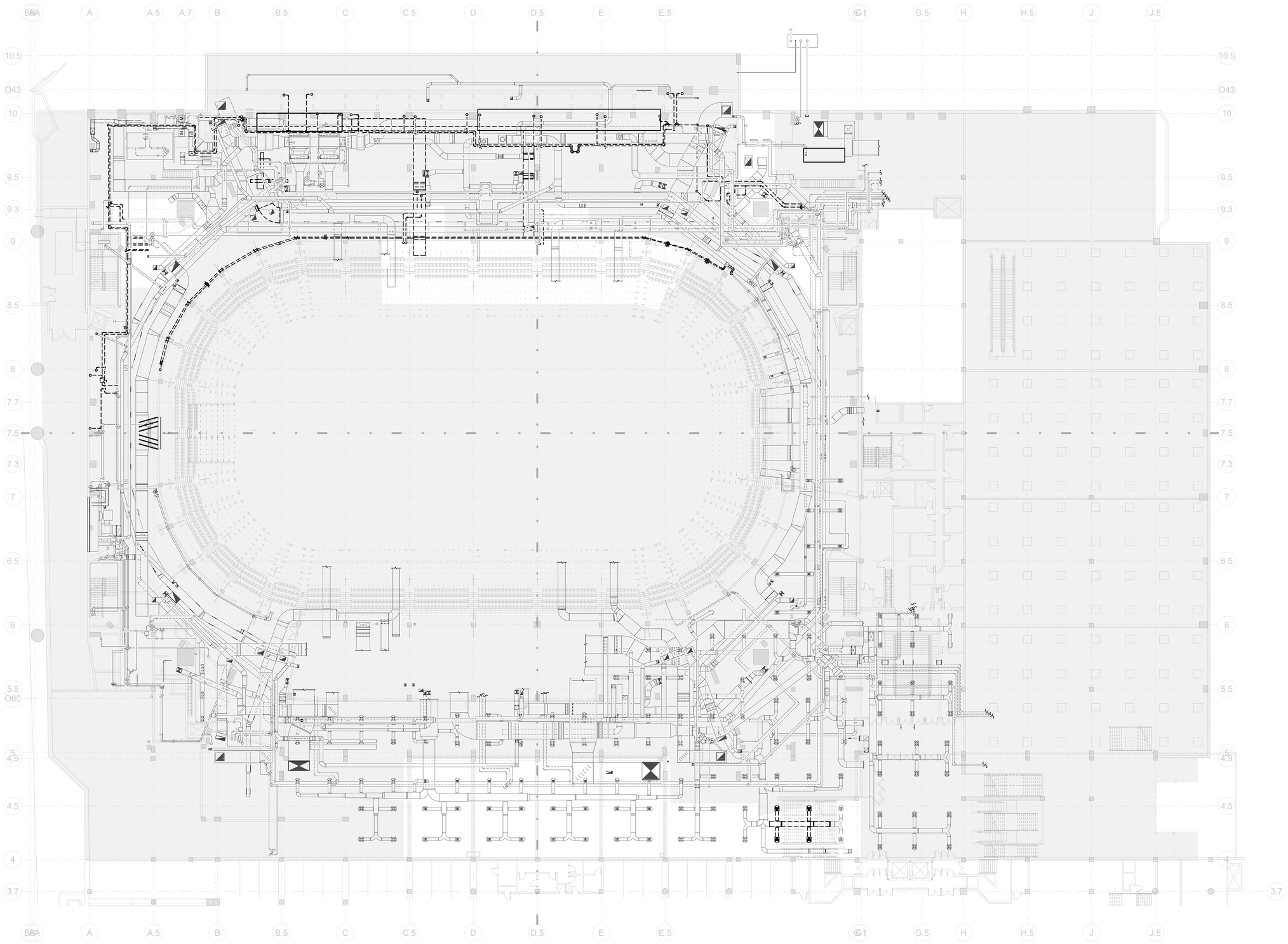
DWG. TITLE
LEVEL 31 - MECHANICAL DEMOLITION QUADRANT D - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-101D.E



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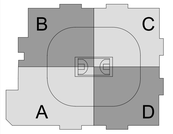

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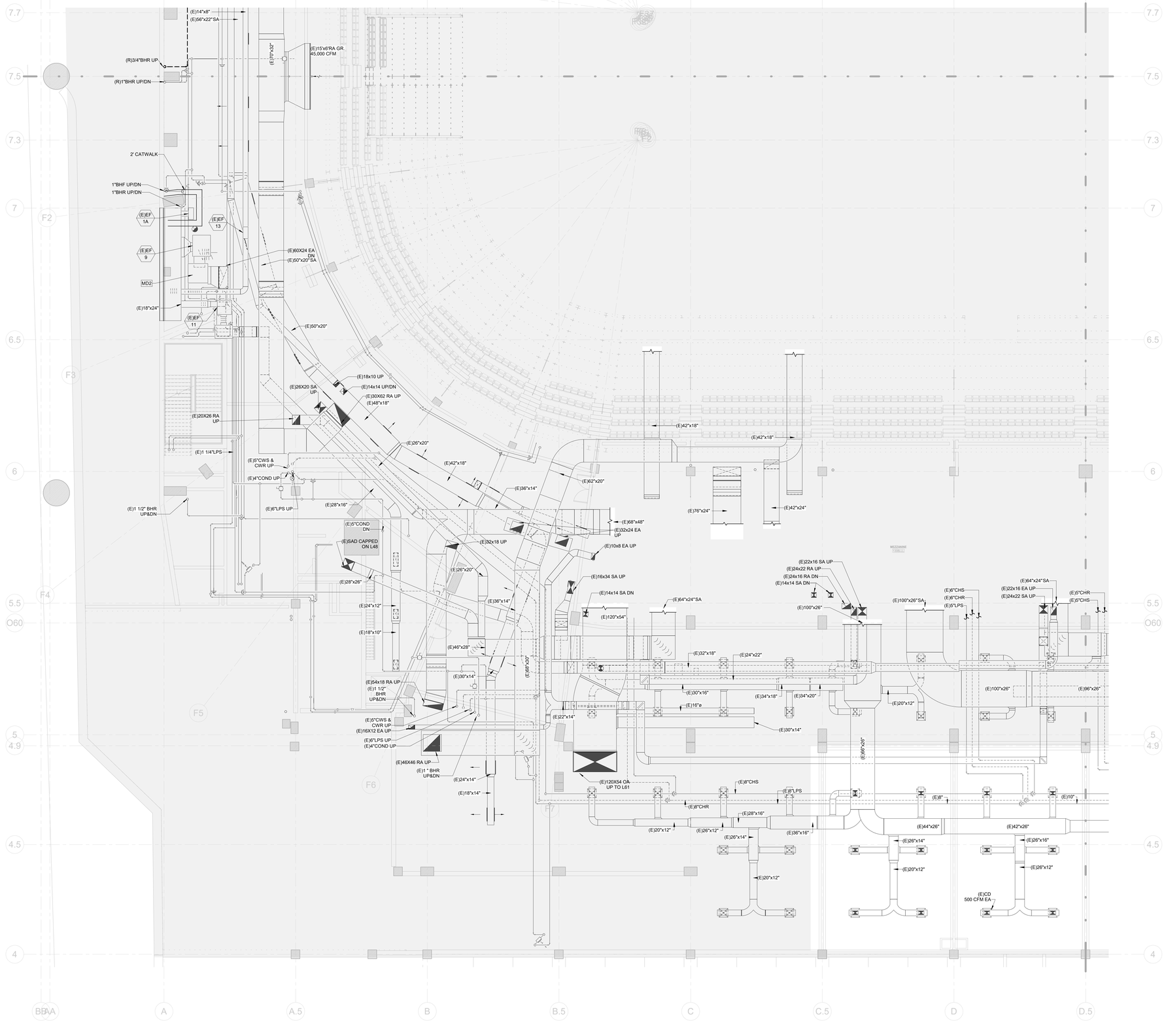
DWG. TITLE
LEVEL 48 - MECHANICAL DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-102.E



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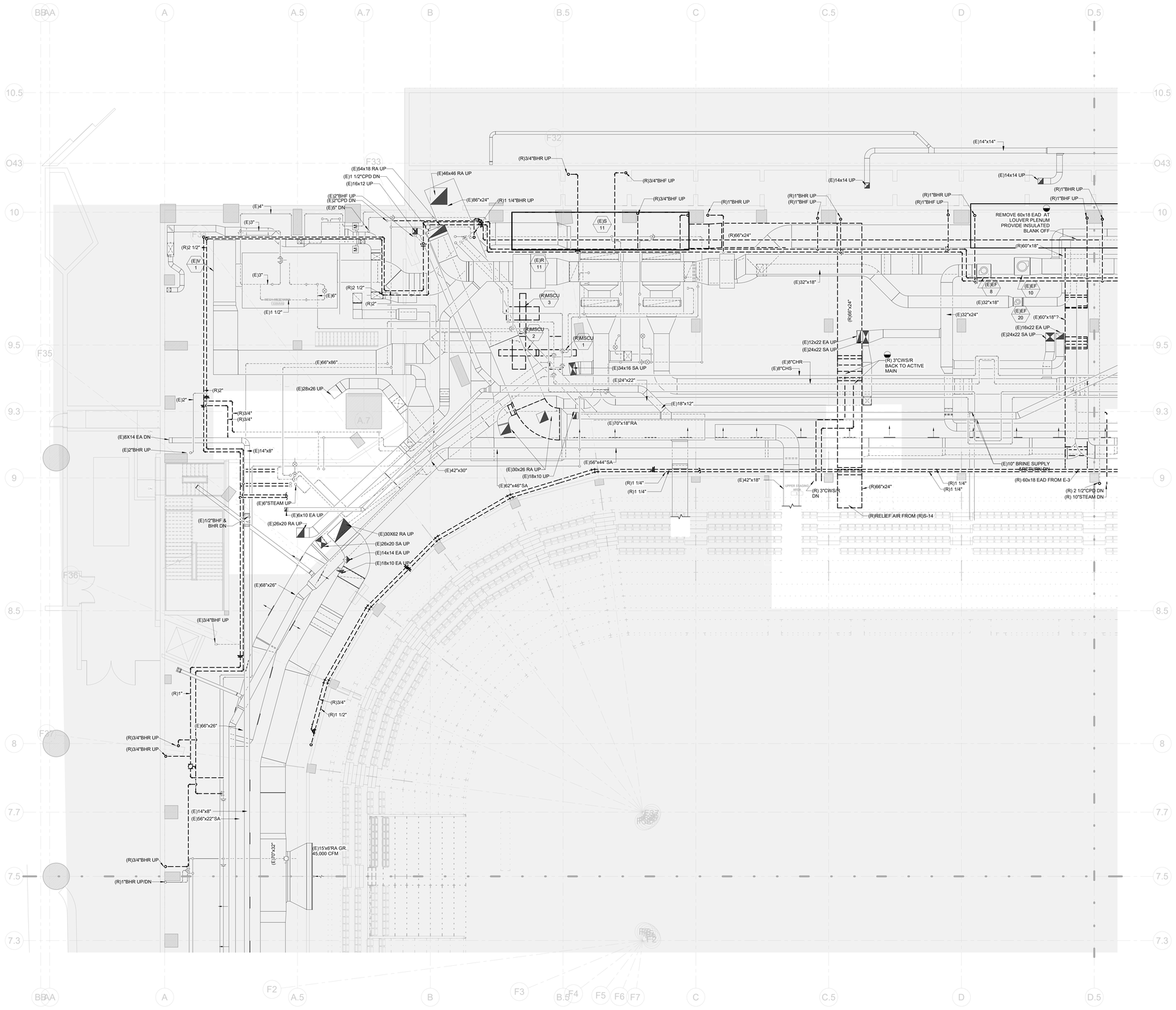
DWG. TITLE
LEVEL 48 - MECHANICAL DEMOLITION QUADRANT A - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-102A.E



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8. ALL WORK AFFECTING BUILDING SYSTEM OPERATION SHALL BE COORDINATED WITH BUILDING ENGINEERING.

KEYNOTES

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REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
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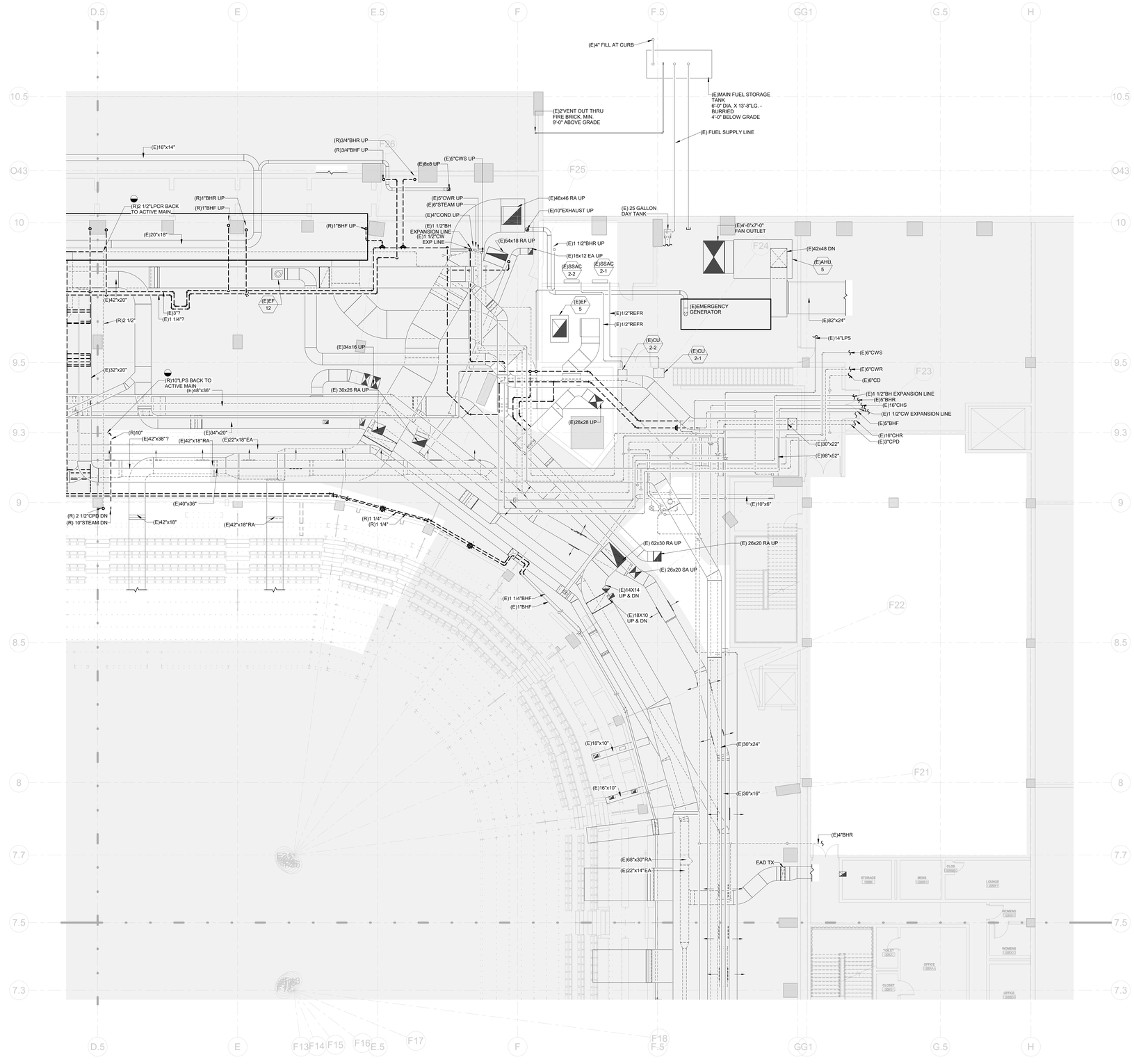
HARTFORD, CT

DWG. TITLE
LEVEL 48 - MECHANICAL DEMOLITION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-102B.E



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3. DEMOLITION TO OCCUR ONLY WHEN SPACES ARE NOT OCCUPIED.
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5. CUT ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK AND ASSOCIATED DIFFUSERS, GRILLES AND REGISTERS AT EACH POINT OF DISCONNECTION INDICATED ON DEMOLITION PLANS.
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HARTFORD, CT

DWG. TITLE
LEVEL 48 - MECHANICAL DEMOLITION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-102C.E

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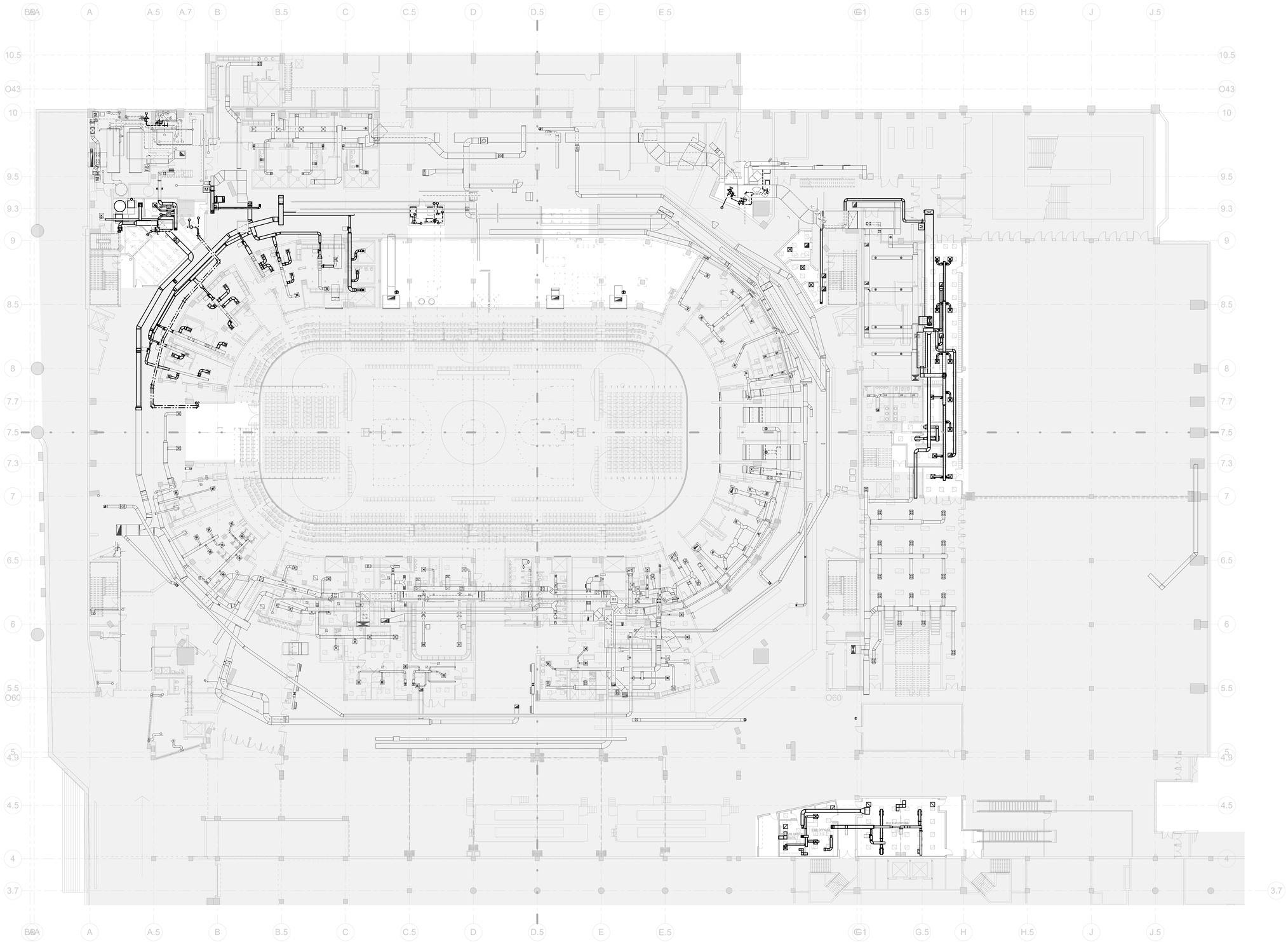
DWG. TITLE
LEVEL 48 - MECHANICAL DEMOLITION QUADRANT D - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-102D.E



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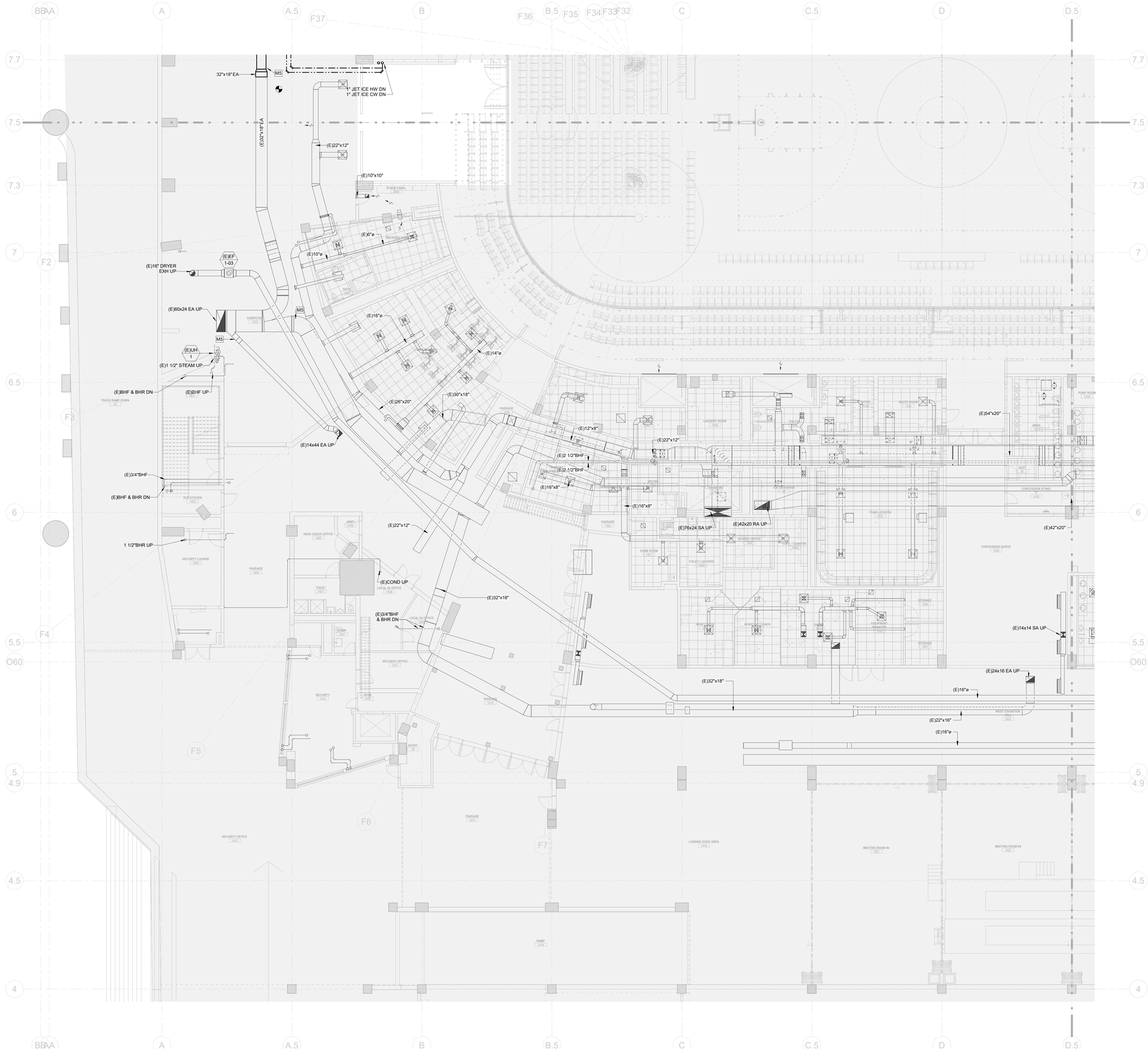
DWG. TITLE
LEVEL 31 - MECHANICAL CONSTRUCTION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-201.E



KEYNOTES

M5	BALANCE DUCTWORK TO PRE-DEMOLISH AIRFLOW READINGS. PROVIDE VOLUME DAMPER IN EXISITNG DUCTWORK.

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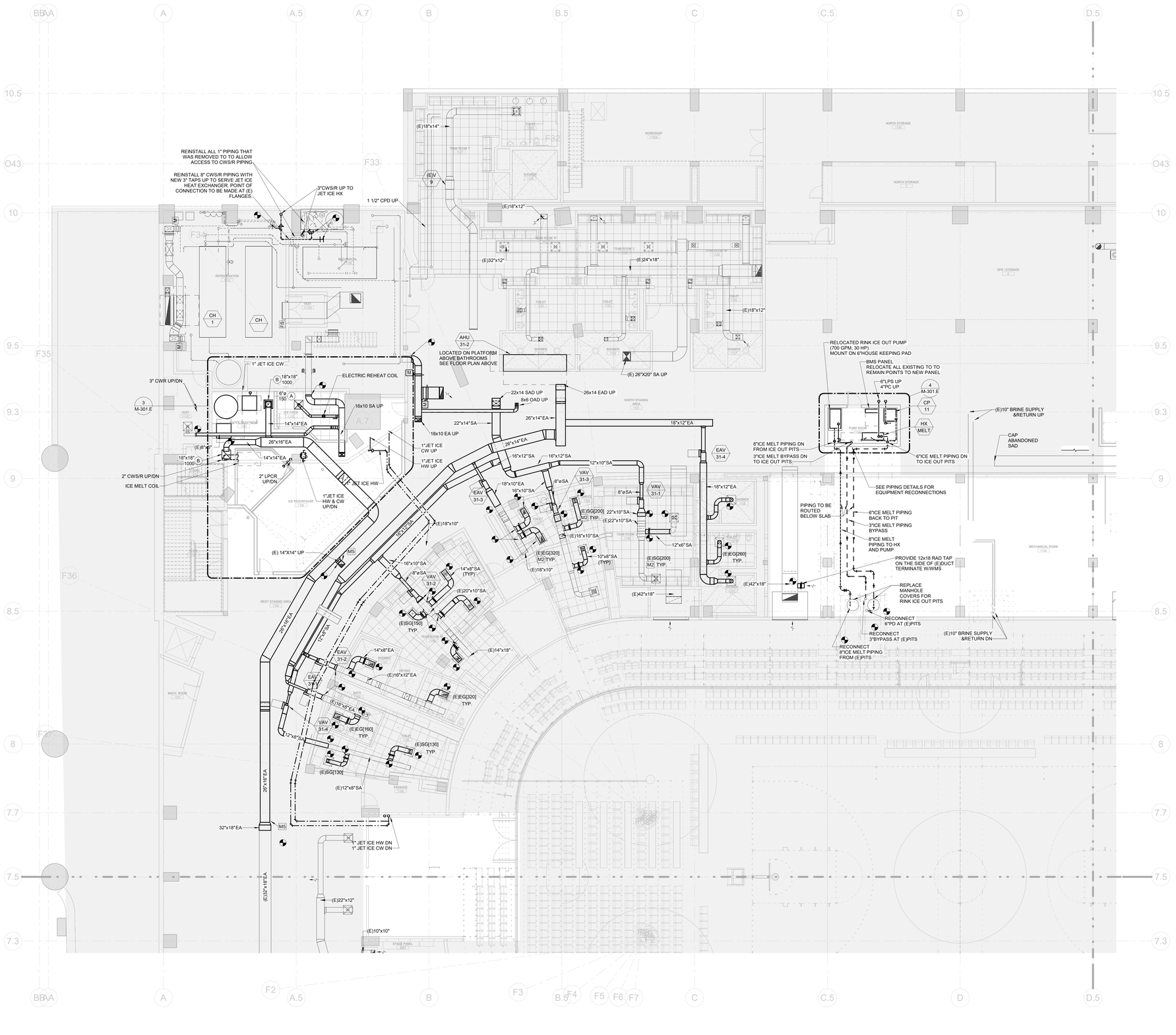
DWG. TITLE
LEVEL 31 - MECHANICAL CONSTRUCTION QUADRANT A - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-201A.E



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KEYNOTES

M2	REBALANCE AIRFLOW TO MATCH DIFFUSER TAG.
M5	BALANCE DUCTWORK TO PRE-DEMOLISH AIRFLOW READINGS. PROVIDE VOLUME DAMPER IN EXISITNG DUCTWORK.

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DWG. TITLE
LEVEL 31 - MECHANICAL CONSTRUCTION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
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KEYNOTES

M1	ROOMS IN THIS AREA HAVE A CONCRETE DECK SLAB CEILING FOR SECURITY PURPOSES. CONTRACTOR SHALL PROVIDE BURGLAR BARS AT ALL DUCTWORK PENETRATIONS THRU THIS CEILING SLAB. TYPICAL.

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DWG. TITLE
LEVEL 31 - MECHANICAL CONSTRUCTION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
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DWG. TITLE
LEVEL 31 - MECHANICAL CONSTRUCTION QUADRANT D - ENABLING

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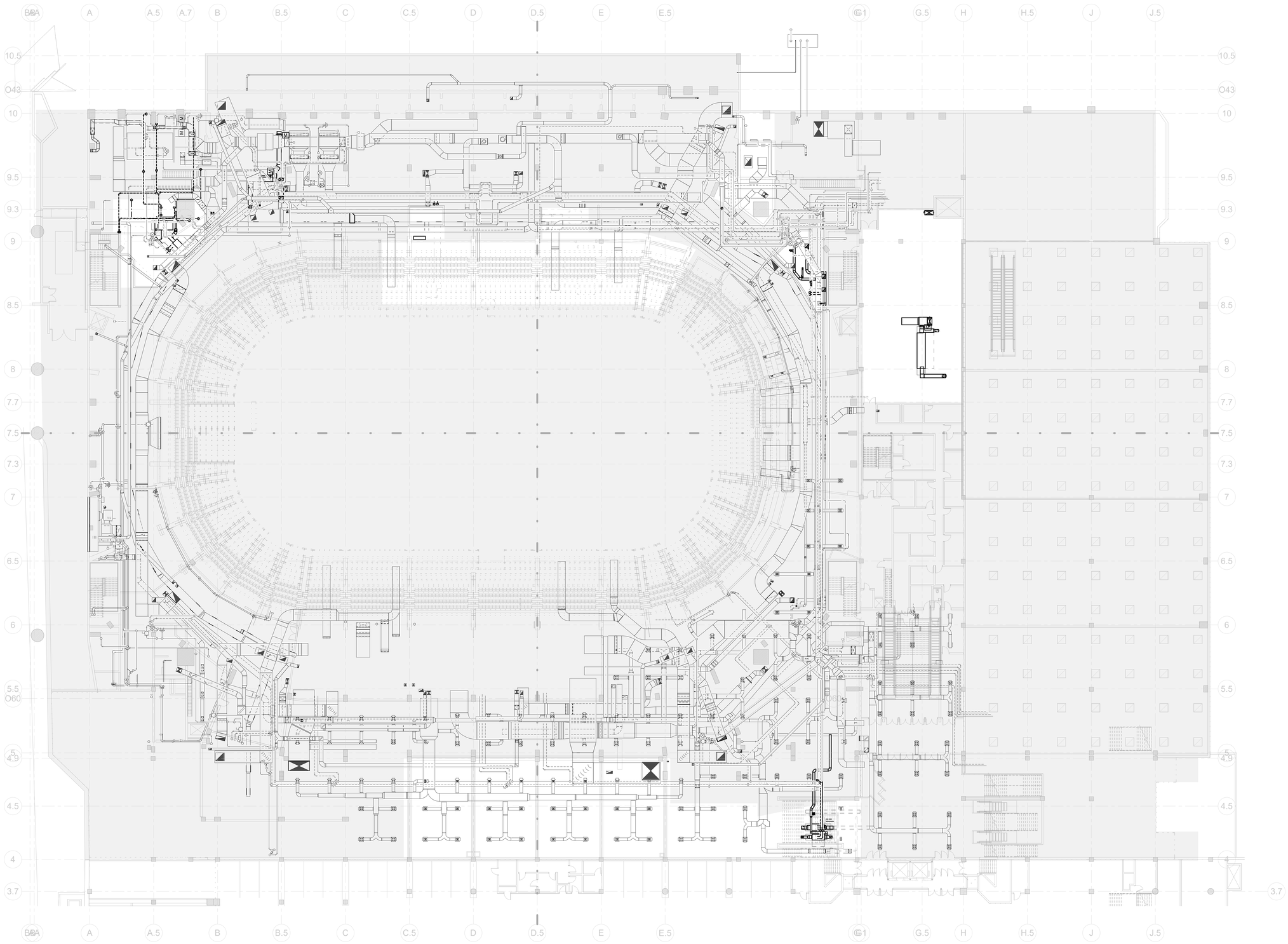

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KEYNOTES

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REVISIONS/ ISSUES

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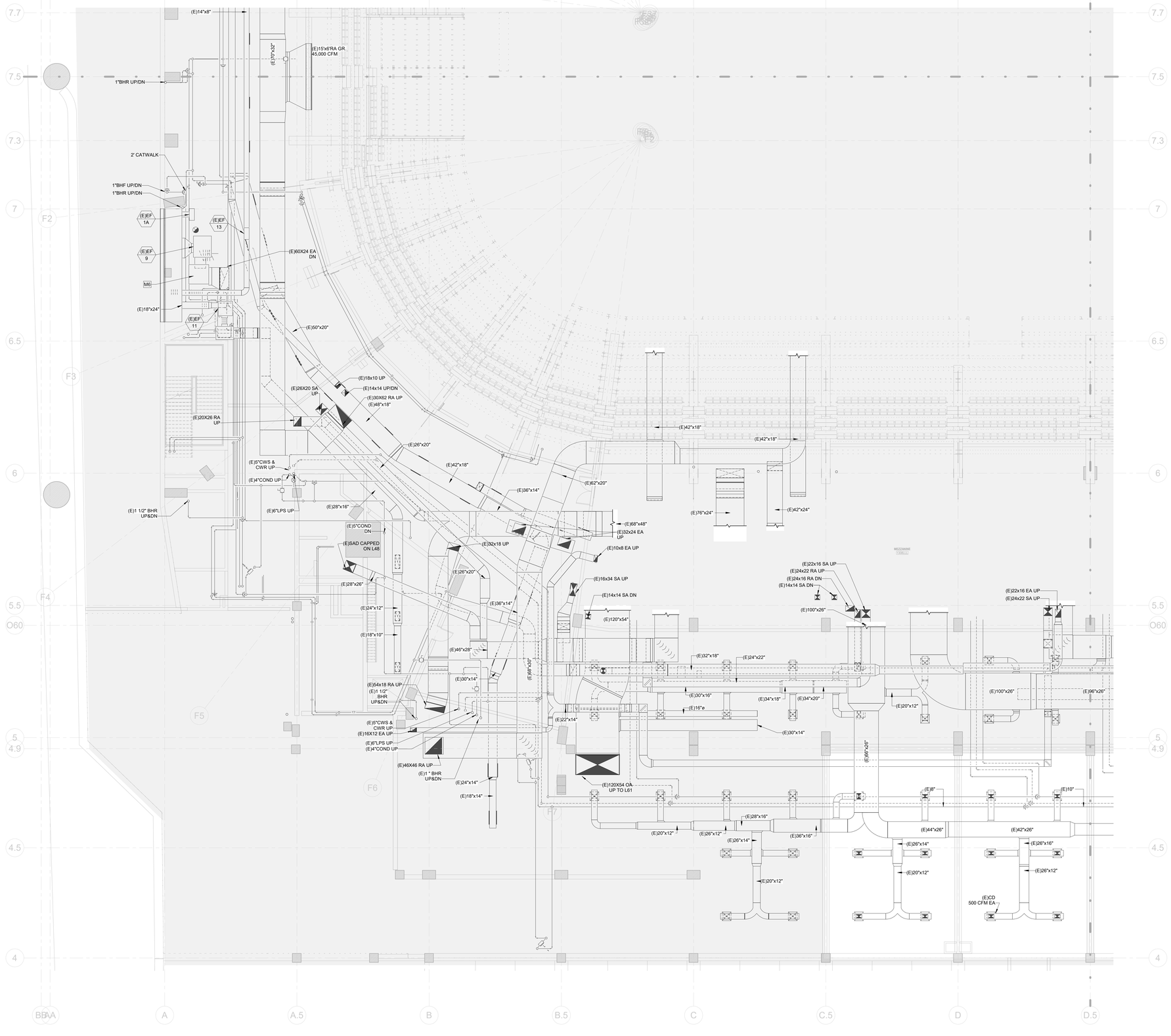
DWG. TITLE
LEVEL 48 - MECHANICAL CONSTRUCTION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-202.E



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KEYNOTES

M6	BALANCE EXISTING EXHAUST FAN TO CFM/ESP AS DIRECTED BY THE ENGINEER AS A RESULT OF THE PRE-DEMOLITION AIRFLOW READING.

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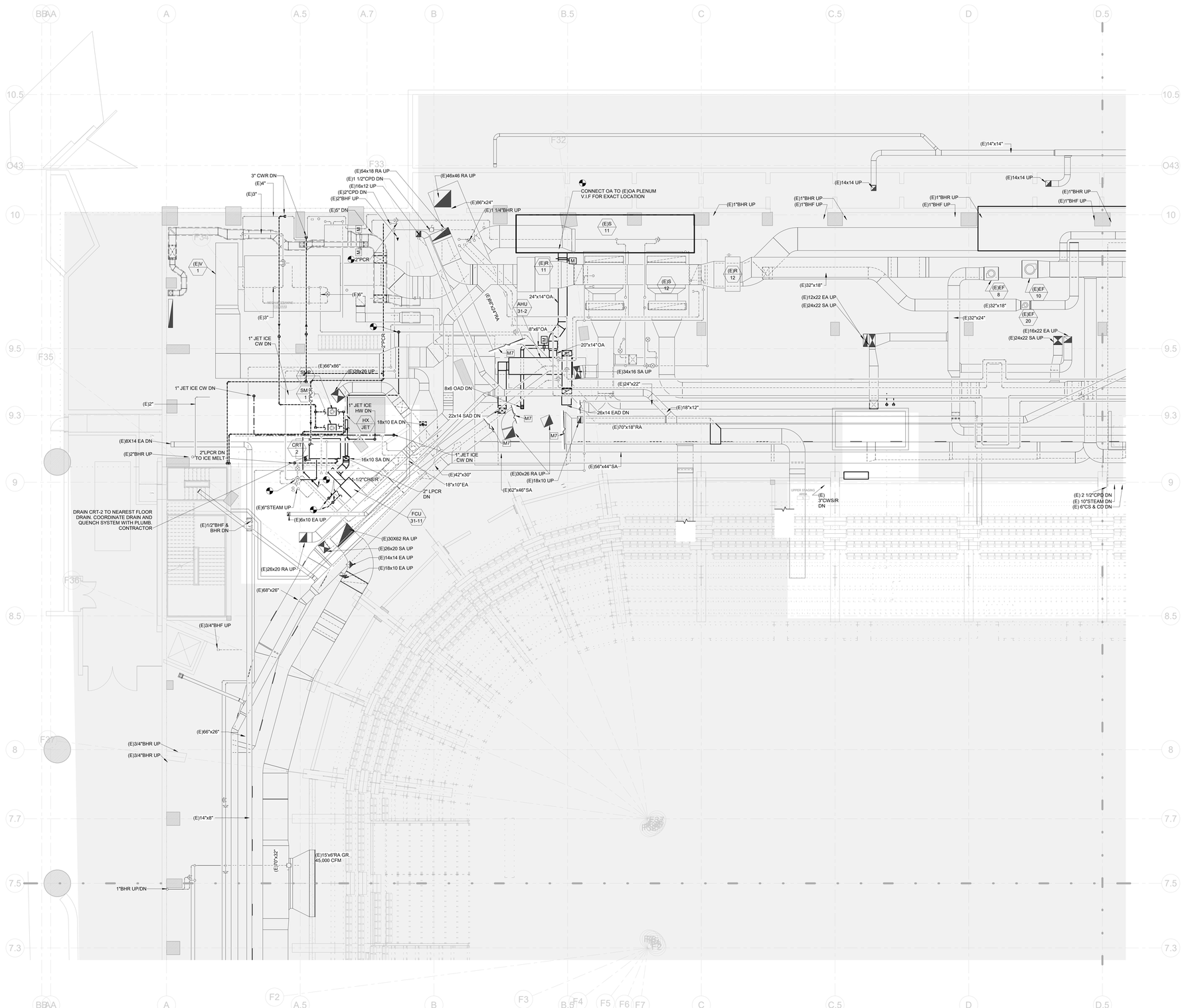
DWG. TITLE
LEVEL 48 - MECHANICAL CONSTRUCTION QUADRANT A - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-202A.E



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KEYNOTES

M7	EXISTING DUCTWORK OMITTED FROM VIEW TO CLARIFY NEW WORK IN AREA. SEE DEMOLITION DRAWINGS FOR EXISTING DUCTWORK ROUTING IN AREA TO COORDINATE WITH.

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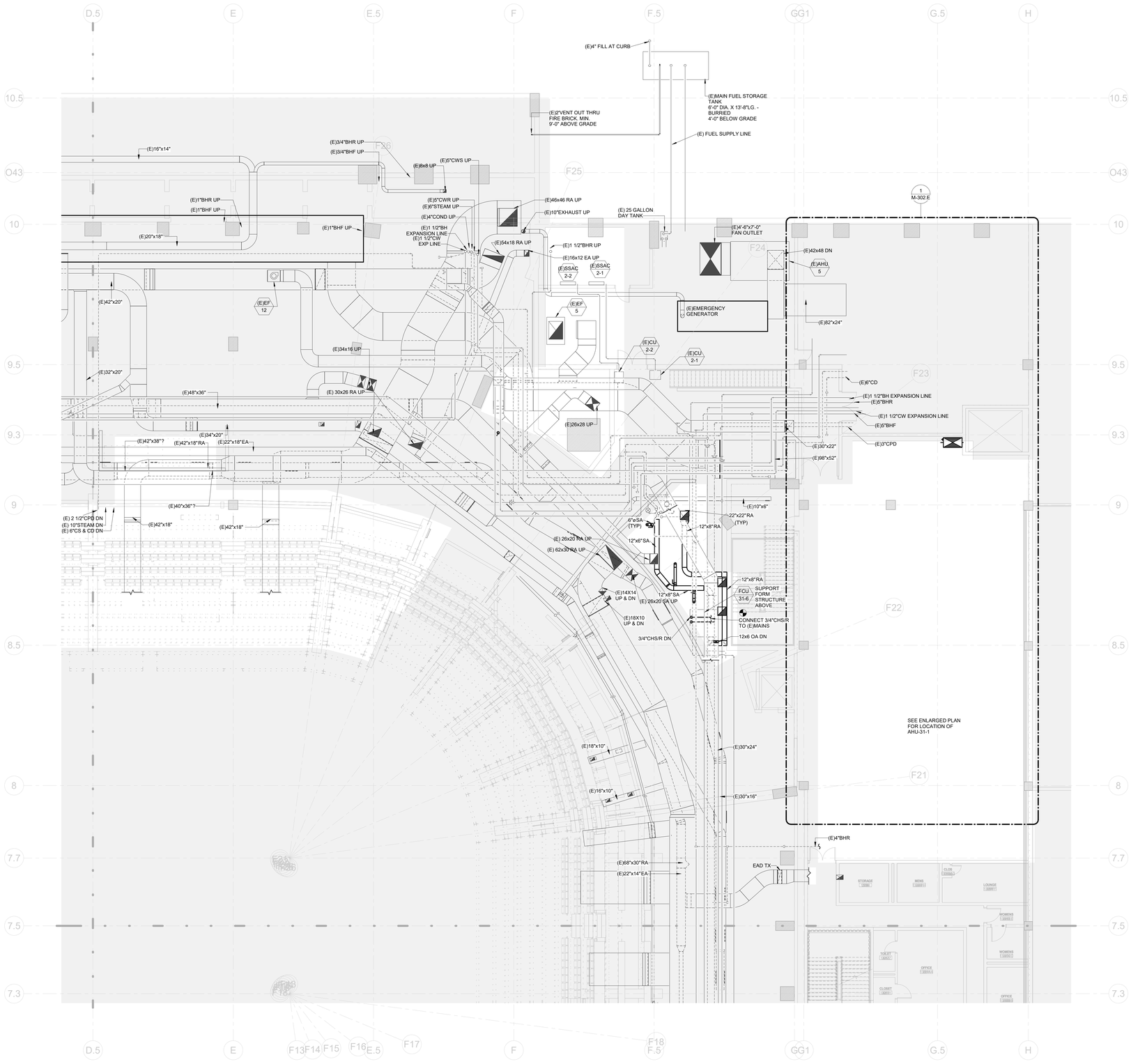
DWG. TITLE
LEVEL 48 - MECHANICAL CONSTRUCTION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-202B.E



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DWG. TITLE
LEVEL 48 - MECHANICAL CONSTRUCTION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-202C.E

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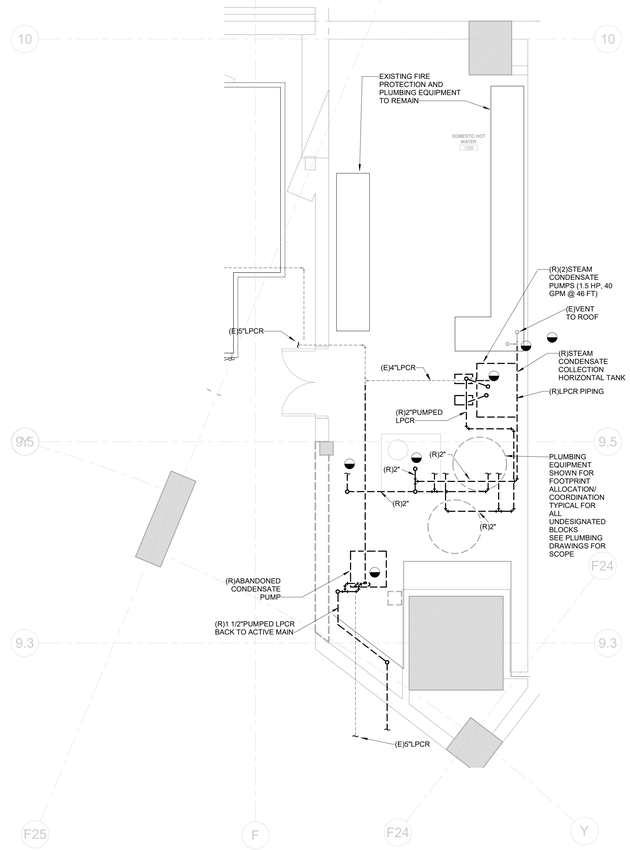
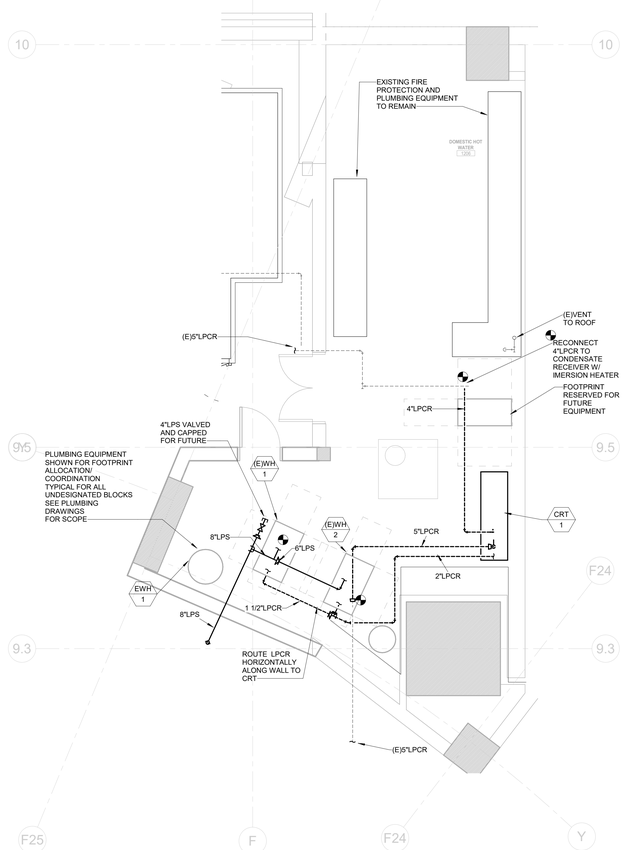
DWG. TITLE
LEVEL 48 - MECHANICAL CONSTRUCTION QUADRANT D - ENABLING

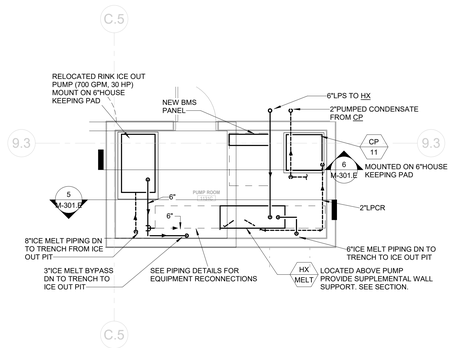
SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-202D.E



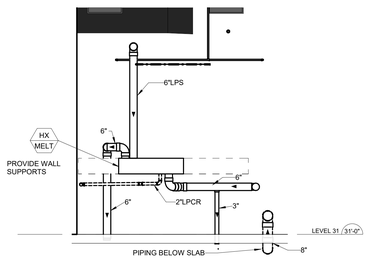
1 MECHANICAL DEMO ENLARGED PLAN - LEVEL 31 ENABLING - WATER VALVE ROOM
1/4" = 1'-0"



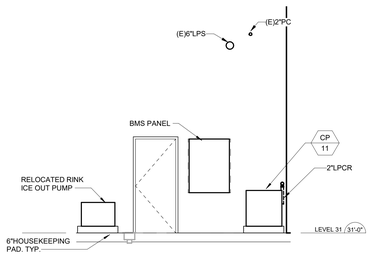
2 MECHANICAL ENLARGED PLAN - LEVEL 31 ENABLING WATER VALVE ROOM
1/4" = 1'-0"



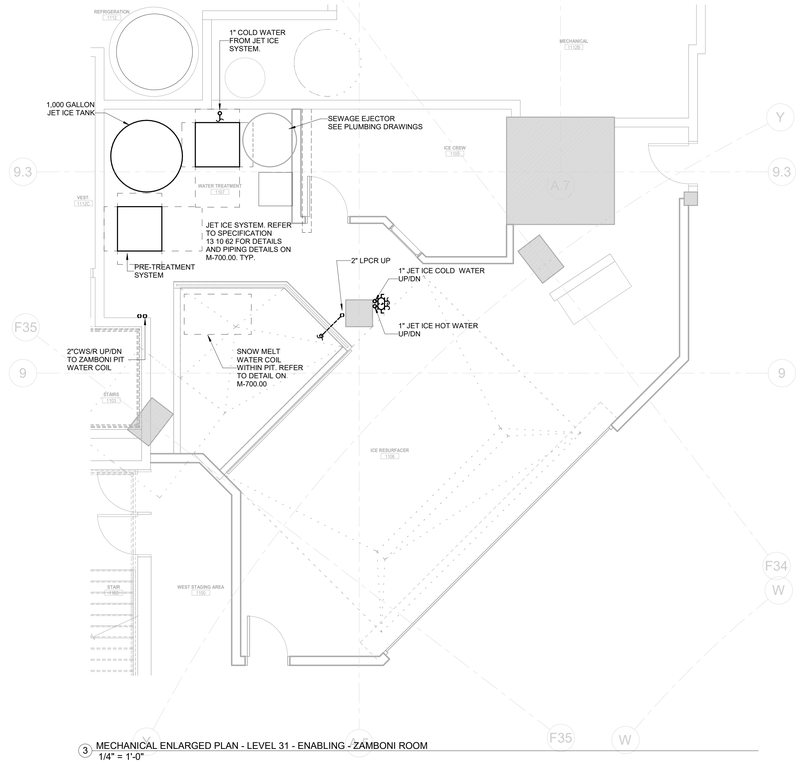
4 MECHANICAL ENLARGED PLAN - LEVEL 31 - ENABLING - PUMP ROOM
1/4" = 1'-0"



5 MECHANICAL SECTION 1 - PUMP ROOM
1/4" = 1'-0"



6 MECHANICAL SECTION 2 - PUMP ROOM
1/4" = 1'-0"



3 MECHANICAL ENLARGED PLAN - LEVEL 31 - ENABLING - ZAMBONI ROOM
1/4" = 1'-0"

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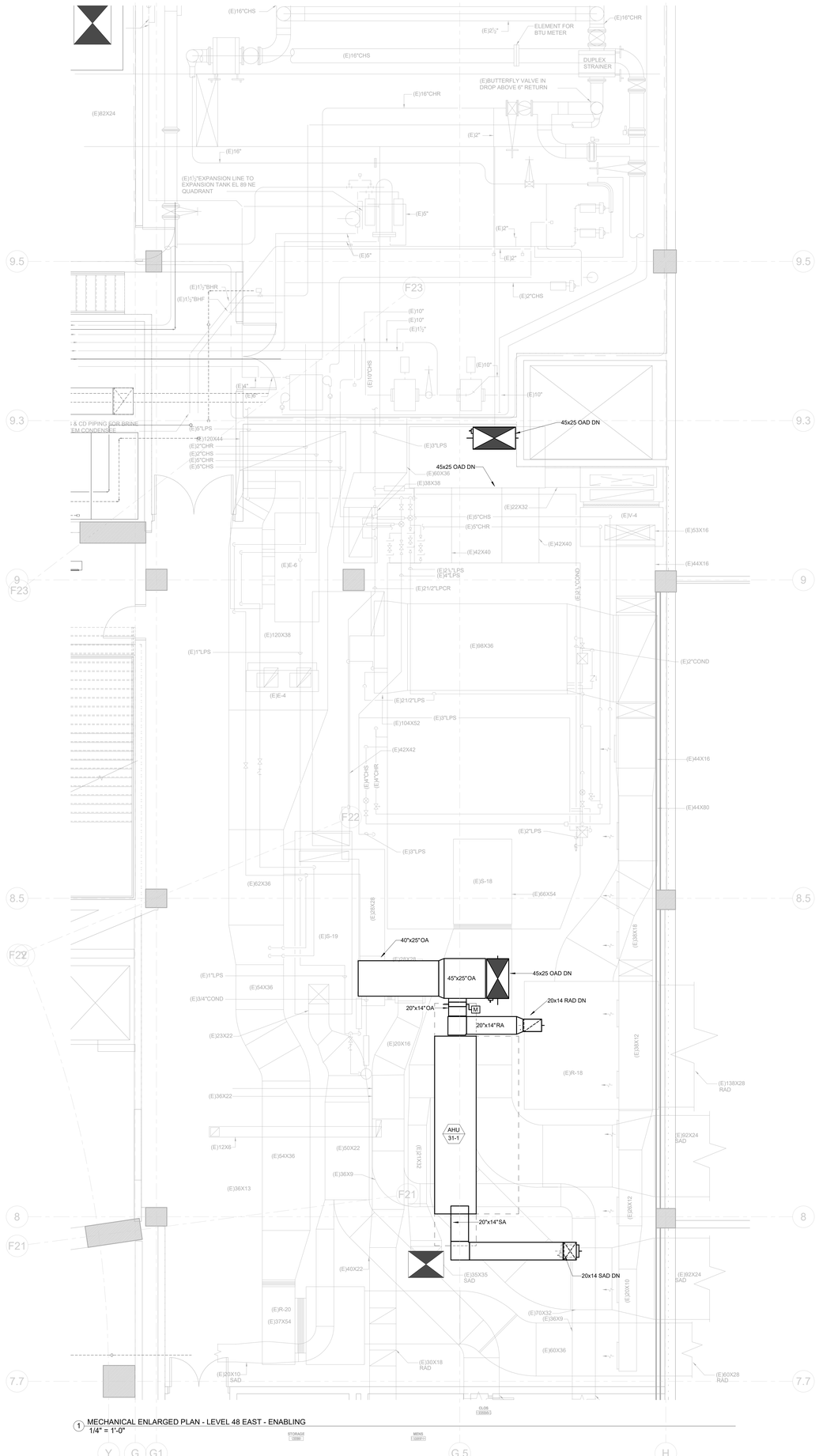
DWG. TITLE
MECHANICAL ENLARGED PLANS - LEVEL 31 - ENABLING

SCALE: 1/4" = 1'-0"
DWG. NO.: M-301.E
PROJ. NO.: 1605



1 MECHANICAL ENLARGED PLAN - LEVEL 48 EAST - ENABLING
1/4" = 1'-0"

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7. PROVIDE VOLUME DAMPERS AT ALL DUCT BRANCH TAKE OFFS. PROVIDE CORD OPERATED DAMPERS (COD)'S WHERE CEILINGS ARE NOT READILY ACCESSIBLE. EXTEND CORD FROM COD TO EACH REGISTER FOR BALANCING.
8. INTERIM RELOCATIONS OF EXISTING SYSTEMS MAY BE REQUIRED TO ACCOMPLISH THE FINAL INDICATED SCOPE IN A STAGED MANNER. CONTRACTOR'S SCOPE SHALL INCLUDE A PHASED APPROACH AND ALL COSTS ASSOCIATED WITH THIS MAKE-READY WORK.
9. PROVIDE FIRE/SMOKE DAMPERS AT ALL SHAFT PENETRATIONS, MECHANICAL ROOM WALL PENETRATIONS AND RATED ASSEMBLY PENETRATIONS. REFER TO ARCH. FOR RATED ASSEMBLY TYPES AND LOCATIONS.
10. PROVIDE 1/2"X1/2" WIRE MESH SCREEN ON ALL OPEN DUCTS TAPPED TO SHAFT PLENUM.

KEYNOTES

B C A D

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469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
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NEW YORK, NY 10018
(212) 447-5770

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1 CIVIC CENTER PLAZA
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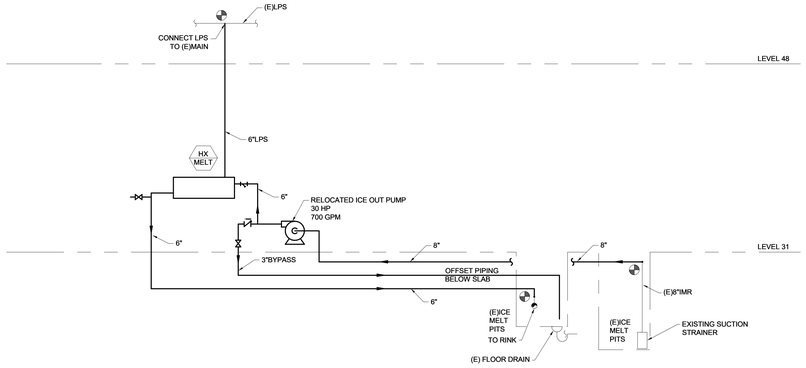
DWG. TITLE
MECHANICAL ENLARGED PLANS - LEVEL 48 - ENABLING

SCALE: 1/4" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-302.E



ICE MELT ONE LINE

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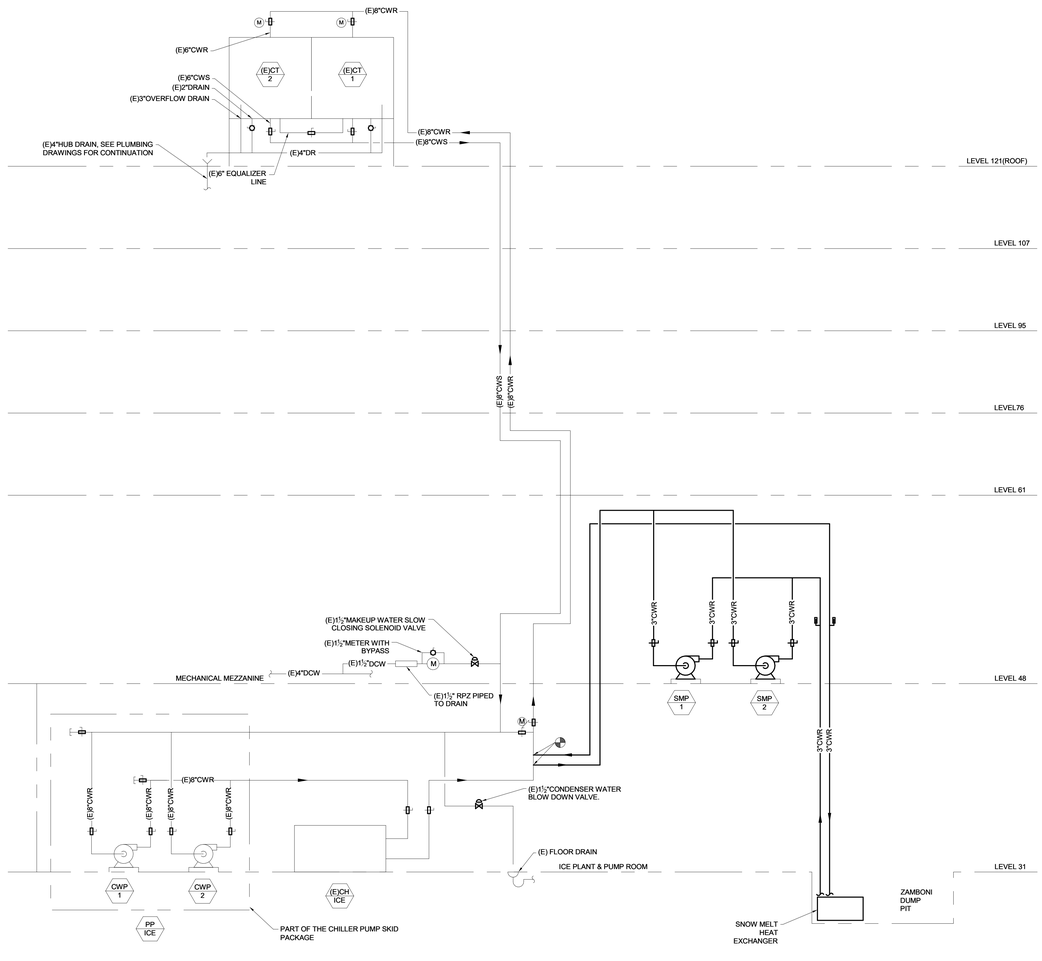
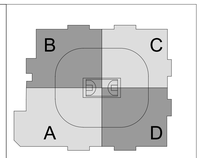


CONDENSER WATER ONE LINE

NOT TO SCALE



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XL CENTER

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DWG. TITLE
MECHANICAL ONE-LINES I - ENABLING

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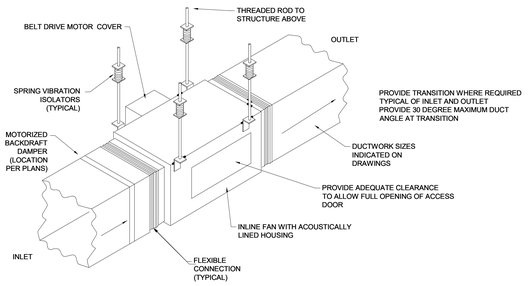
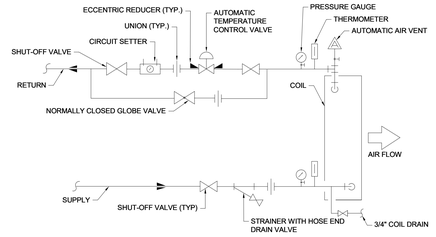


NOTE:
INSTALL FAN WITH PROPER SERVICE CLEARANCE TO MOTOR AND DRIVE AND ALL PARTS FOR PROPER AIR MOVEMENT AS RECOMMENDED BY THE MANUFACTURER.

A INLINE FAN DETAIL

NO SCALE

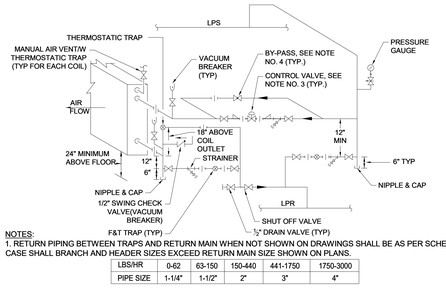


NOTES:
1. COIL CONNECTIONS SHALL BE SIZED ACCORDING TO CHART BELOW, UNLESS OTHERWISE INDICATED ON CONTRACT DOCUMENTS.
2. EXTEND CONDENSATE DRAIN PIPE TO NEAREST FLOOR DRAIN OR JANITOR'S SINK. PROVIDE CONDENSATE PUMP FOR ALL UNITS SUSPENDED ABOVE CEILINGS.
3. PROVIDE LIQUID DETECTOR TO SHUT DOWN UNIT AND CLOSE AUTOMATIC SUPPLY & RETURN VALVES UPON SENSING LIQUID.

PIPE SIZE	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
GPM	0-3	3-6	6-12	12-18	18-38	38-58	58-100	100-210	210-610	610-1300

B CHILLED WATER COIL PIPING DETAIL

NO SCALE



NOTES:
1. RETURN PIPING BETWEEN TRAPS AND RETURN MAIN WHEN NOT SHOWN ON DRAWINGS SHALL BE AS PER SCHEDULE BUT IN NO CASE SHALL BRANCH AND HEADER SIZES EXCEED RETURN MAIN SIZE SHOWN ON PLANS.

LBS/HR	0-62	63-150	150-440	441-1750	1750-3000
PIPE SIZE	1-1/4"	1-1/2"	2"	3"	4"

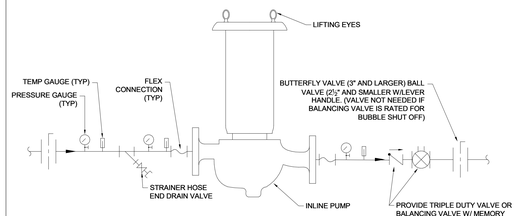
2. RETURN PIPING BETWEEN COILS AND TRAPS SHALL BE UNINSULATED.
3. MAX. AUTOMATIC CONTROL VALVE SIZE 2-1/2 INCHES. FOR STEAM FLOW RATE GREATER THAN 2-1/2 INCHES VALVE CAPACITY, FURNISH TWO CONTROL VALVES IN PARALLEL AS INDICATED.
4. BY-PASS PIPING AROUND CONTROL VALVES TO BE ONE LINE SIZE SMALLER THAN MAIN STEAM SUPPLY LINE UPSTREAM OF CONTROL VALVES.
5. ARRANGE PIPING TO PERMIT COIL REMOVAL BY ONLY REMOVING UNIONS AT COILS WITH MINIMUM DISTURBANCE TO PIPING.
6. UNIONS (OR FLANGED BODY) INDICATED TO PERMIT REMOVAL OF CONTROL VALVES.
7. SEE COIL PIPING DETAILS FOR ADDITIONAL INFOMATION.
8. PROVIDE A CHECK VALVE BEFORE SHUT OFF VALVE IF THE DISCHARGE OF THE F&T TRAP IS LOWER THAN THE CONDENSATE RETURN MAIN.

MAXIMUM STEAM SUPPLY PIPE CAPACITY (LOW PRESSURE SYSTEM) AT 0.25 PSI/100 FT

LBS/HR	0-36	37-85	86-125	126-235	236-660	661-1400	1401-4000	4001-8500	8501-15,500	15,501-25,000
PIPE SIZE	1"	1-1/4"	1 1/2"	2"	3"	4"	6"	8"	10"	12"

C STEAM COIL CONNECTION, OPEN GRAVITY SYSTEM - SINGLE COIL

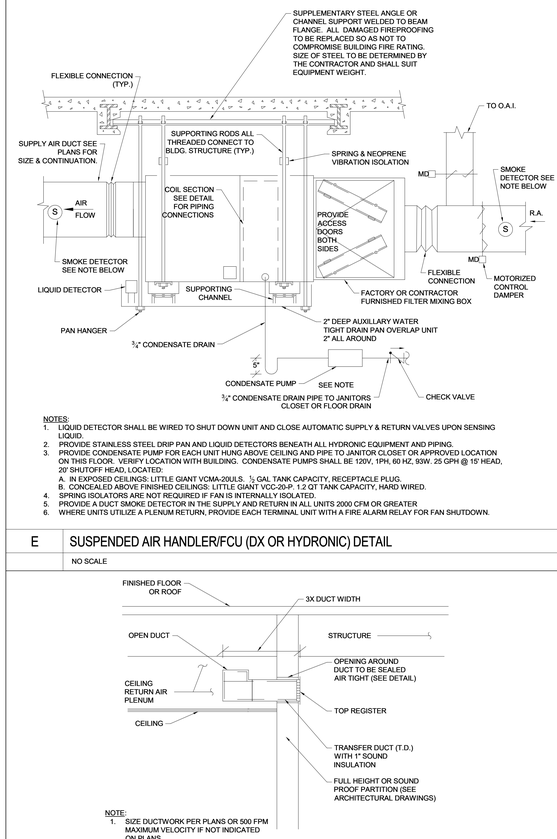
NO SCALE



NOTE:
1. PROVIDE ANGLE IRON OR UNISTRUT SUPPORTS FROM FLOOR FOR ALL INLINE PUMPS 7 ½ HP & LARGER. SMALLER PUMPS MAY BE SUPPORTED FROM STRUCTURE ABOVE. PUMPS MUST BE SUPPORTED WITH VIBRATION ISOLATORS. PROVIDE LAYOUT AND SUPPORT DETAILS FOR APPROVAL.
2. VALVES SHALL BE THE SAME SIZE AS PIPE, REDUCE AS REQUIRED TO PUMP CONNECTIONS.
3. FOR PUMPS OVER 1 HP: PUMP & PIPE WITHIN 20' SHALL BE SUPPORTED FROM SPRING ISOLATORS.
4. SUBSTITUTE BALL VALVES FOR BUTTERFLY VALVES FOR ALL PIPING 2" AND SMALLER.

D IN-LINE PUMP DETAIL

NO SCALE



NOTES:
1. LIQUID DETECTOR SHALL BE WIRED TO SHUT DOWN UNIT AND CLOSE AUTOMATIC SUPPLY & RETURN VALVES UPON SENSING LIQUID.
2. PROVIDE STAINLESS STEEL DRIP PAN AND LIQUID DETECTORS BENEATH ALL HYDRONIC EQUIPMENT AND PIPING.
3. PROVIDE CONDENSATE PUMP FOR EACH UNIT HUNG ABOVE CEILING AND PIPE TO JANITOR CLOSET OR APPROVED LOCATION ON THIS FLOOR. VERIFY LOCATION WITH BUILDING. CONDENSATE PUMPS SHALL BE 120V, 1PH, 60 HZ, 93W. 25 GPH @ 15' HEAD, 20' SHUTOFF HEAD, LOCATED:
   A. IN EXPOSED CEILINGS: LITTLE GIANT VCMA-20ULS. ½ GAL TANK CAPACITY, RECEPTACLE PLUG.
   B. CONCEALED ABOVE FINISHED CEILINGS: LITTLE GIANT VCC-20-P. 1.2 QT TANK CAPACITY, HARD WIRED.
4. SPRING ISOLATORS ARE NOT REQUIRED IF FAN IS INTERNALLY ISOLATED.
5. PROVIDE A DUCT SMOKE DETECTOR IN THE SUPPLY AND RETURN IN ALL UNITS 2000 CFM OR GREATER.
6. WHERE UNITS UTILIZE A PLENUM RETURN, PROVIDE EACH TERMINAL UNIT WITH A FIRE ALARM RELAY FOR FAN SHUTDOWN.

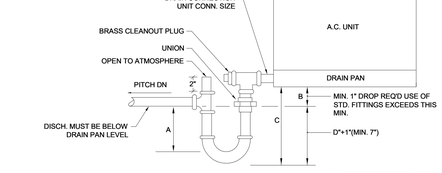
E SUSPENDED AIR HANDLER/FCU (DX OR HYDRONIC) DETAIL

NO SCALE

NOTE:
1. SIZE DUCTWORK PER PLANS OR 500 FPM MAXIMUM VELOCITY IF NOT INDICATED ON PLANS.
2. SUPPORT DUCTWORK TO STRUCTURE AT 16" INTERVALS.
3. PAINT INSIDE OF VISIBLE DUCTWORK FLAT BLACK.

I CEILING GRILLE & TRANSFER DUCT DETAIL

NO SCALE



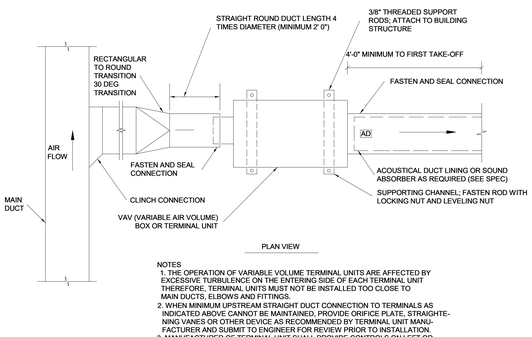
NOTES:
1. LIQUID DETECTOR SHALL SHUT DOWN UNIT AND CLOSE AUTOMATIC SUPPLY & RETURN VALVES UPON SENSING LIQUID.
2. PROVIDE STAINLESS STEEL DRIP PAN AND LIQUID DETECTORS BENEATH ALL HYDRONIC EQUIPMENT AND PIPING.
3. PROVIDE CONDENSATE PUMP FOR EACH UNIT HUNG ABOVE CEILING AND PIPE TO JANITOR CLOSET OR APPROVED LOCATION ON THIS FLOOR. VERIFY LOCATION WITH BUILDING. CONDENSATE PUMPS SHALL BE 120V, 1PH, 60 HZ, 93W. 25 GPH @ 15' HEAD, 20' SHUTOFF HEAD, LOCATED:
   A. IN EXPOSED CEILINGS: LITTLE GIANT VCMA-20ULS. ½ GAL TANK CAPACITY, RECEPTACLE PLUG.
   B. CONCEALED ABOVE FINISHED CEILINGS: LITTLE GIANT VCC-20-P. 1.2 QT TANK CAPACITY, HARD WIRED.

NEGATIVE PRESSURE TRAP LOCATION:
A=½"B+1
B=1"+(1" FOR EACH 1" OF MAXIMUM NEGATIVE PRESSURE)
C=B+A+PIPE DIAMETER+INSULATION

POSITIVE PRESSURE TRAP LOCATION:
A=2"+(MAXIMUM TOTAL STATIC PRESSURE)
B=1" MIN (MUST BE LOWER THAN PAN OUTLET)
C=B+A+PIPE DIAMETER+INSULATION

J CONDENSATE DRAIN PIPING

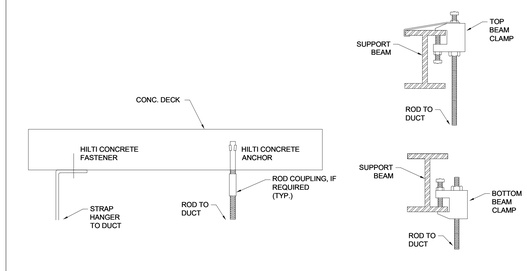
NO SCALE



NOTES
1. THE OPERATION OF VARIABLE VOLUME TERMINAL UNITS ARE AFFECTED BY EXCESSIVE TURBULENCE ON THE ENTERING SIDE OF EACH TERMINAL UNIT THEREFORE, TERMINAL UNITS MUST NOT BE INSTALLED TOO CLOSE TO MAIN DUCTS, ELBOWS AND FITTINGS.
2. WHEN MINIMUM UPSTREAM STRAIGHT DUCT CONNECTION TO TERMINALS AS INDICATED ABOVE CANNOT BE MAINTAINED, PROVIDE ORIFICE PLATE, STRAIGHTENING VANES OR OTHER DEVICE AS RECOMMENDED BY TERMINAL UNIT MANUFACTURER AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
3. MANUFACTURER OF TERMINAL UNIT SHALL PROVIDE CONTROLS ON LEFT OR RIGHT SIDE AS REQUIRED BY FIELD CONDITIONS.
4. ARRANGE ACCESS TO PERMIT EASY FIELD BALANCE AND MAINTENANCE OF TERMINAL UNIT.

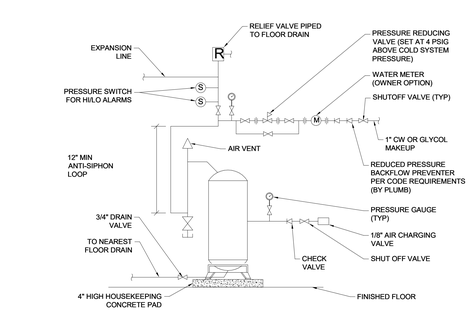
K VAV BOX TERMINAL DETAIL

NO SCALE



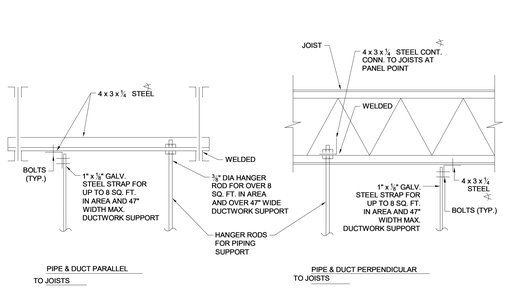
L HANGER FASTENED TO STRUCTURE DETAIL

NO SCALE



M VERTICAL DIAPHRAGM EXPANSION TANK PIPING CONNECTION DETAIL

NO SCALE



N DUCT AND PIPE SUPPORT FROM OPEN WEB TRUSS

NO SCALE

F DETAIL OF PIPE THRU FLOOR SLAB

NO SCALE

NOTE:
THIS DETAIL REFERS TO PIPES BEING INSTALLED THROUGH EXISTING FLOOR SLABS USING A CORE DRILL. SLAB THICKNESS SHALL BE CONFIRMED BY CORE DRILLING THROUGH THE SLAB FOR THE RISER BEFORE DRILLING FOR SLEEVE.

G DETAIL OF PIPE THRU EXISTING FLOOR SLAB

NO SCALE

CONCRETE FLOOR SECTION VIEW

CONCRETE WALL SECTION VIEW

NOTES:
1. WALL PENETRATION FIRESTOPS MUST BE INSTALLED ON BOTH SIDES OF THE WALL, THE FLOOR PENETRATION FIRESTOP IS TO BE INSTALLED FOR THE TOP OF THE FLOOR SURFACE.
2. THE ANNULAR SPACE MUST BE LARGE ENOUGH TO ACCOMODATE THE MIN. NUMBER OF WRAP/STRIPS REQUIRED IN BOTH THE FLOOR OR WALL. THE MINIMUM ANNULAR SPACE MUST ACCOMODATE THE MINIMUM NUMBER OF WRAP/STRIPS REQUIRED PER INSULATION THICKNESS. (SEE TABLE BELOW)

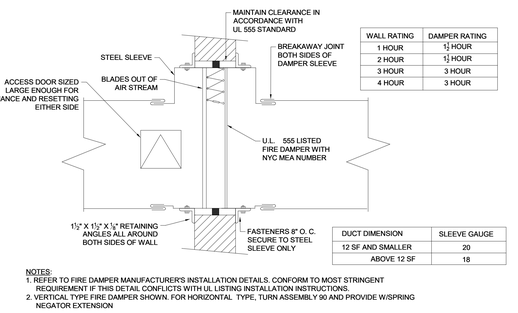
TABLE 1

WRAP	CAULK (MIN.)	INSULATION	HOUR RATING
2 WRAPS	1/2" DEPTH	1" THICK	3
3 WRAPS	1/2" DEPTH	2" THICK	2
4 WRAPS	1/2" DEPTH	3" THICK	2

3. IF THE ANNULAR SPACE IS GREATER THAN 1/2" AFTER THE INSTALLATION OF THE WRAP/STRIP, IT MAY BE FILLED WITH ADDITIONAL WRAP/STRIPS UP TO LESS THAN 1/2" OR FILLED WITH THE PROPER AMOUNT OF CAULK (SEE TABLE 1). A SUITABLE DAMMING MATERIAL SUCH AS MINERAL WOOL MUST BE PROVIDED TO SUPPORT THE CAULK AND PREVENT LEAKAGE.
4. SEAL THE SURFACE AND EDGES OF THE THROUGH OPENINGS WITH A MINIMUM 1/4" BEAD OF CAULK.
5. INSTALLATION MUST CONFORM WITH PRODUCT MANUFACTURERS PERFORMANCE RATINGS PER ASTM E-814 (UL 1479) FIRE TEST AND UL RESPECTIVE CLASSIFICATION FOR FIRE STOPPING.

H FIRESTOP FOR 20" MAX. INSULATED METAL PIPE THROUGH A CONCRETE FLOOR OR WALL

NO SCALE



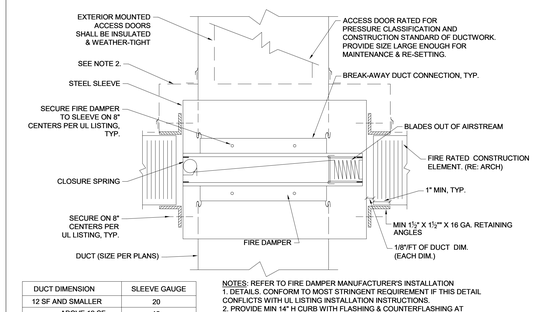
WALL RATING	DAMPER RATING
1 HOUR	1] HOUR
2 HOUR	1] HOUR
3 HOUR	3 HOUR
4 HOUR	3 HOUR

DUCT DIMENSION	SLEEVE GAUGE
12 SF AND SMALLER	20
ABOVE 12 SF	18

NOTES:
1. REFER TO FIRE DAMPER MANUFACTURER'S INSTALLATION DETAILS. CONFORM TO MOST STRINGENT REQUIREMENT IF THIS DETAIL CONFLICTS WITH UL LISTING INSTALLATION INSTRUCTIONS.
2. VERTICAL TYPE FIRE DAMPER SHOWN. FOR HORIZONTAL TYPE, TURN ASSEMBLY 90 AND PROVIDE W/SPRING NEGATOR EXTENSION

O FIRE DAMPER INSTALLATION DETAIL

NO SCALE



DUCT DIMENSION	SLEEVE GAUGE
12 SF AND SMALLER	20
ABOVE 12 SF	18

NOTES: REFER TO FIRE DAMPER MANUFACTURER'S INSTALLATION
1. DETAILS. CONFORM TO MOST STRINGENT REQUIREMENT IF THIS DETAIL CONFLICTS WITH UL LISTING INSTALLATION INSTRUCTIONS.
2. PROVIDE MIN 14" H CURB WITH FLASHING & COUNTERFLASHING AT ROOF & DUCT FOR PENETRATIONS THRU ROOFS

P HORIZONTAL FIRE DAMPER DETAIL

NO SCALE

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MECHANICAL DETAILS I - ENABLING

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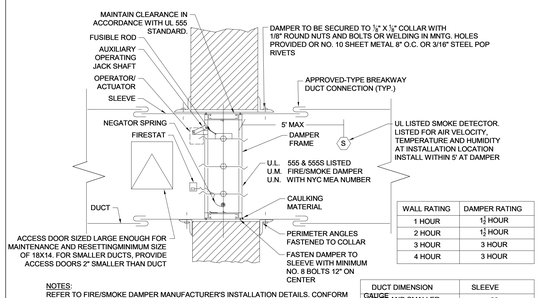
DWG. NO.: M-700.E



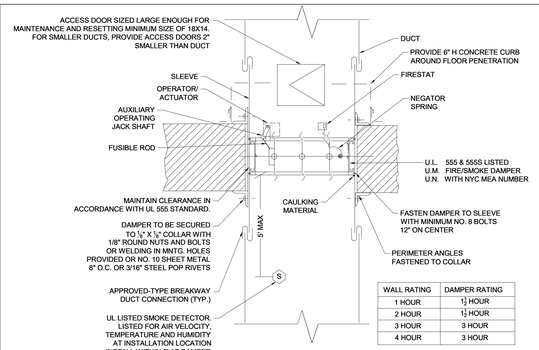
WALL RATING	DAMPER RATING
1 HOUR	1½ HOUR
2 HOUR	1½ HOUR
3 HOUR	3 HOUR
4 HOUR	3 HOUR

DUCT DIMENSION	SLEEVE GAUGE
12 SF AND SMALLER	20
ABOVE 12 SF	18

NOTES:
REFER TO FIRE/SMOKE DAMPER MANUFACTURER'S INSTALLATION DETAILS. CONFORM TO MOST STRINGENT REQUIREMENT IF THIS DETAIL CONFLICTS WITH UL LISTING INSTALLATION INSTRUCTIONS.

A COMBINATION FIRE/SMOKE DAMPER DETAIL

NO SCALE



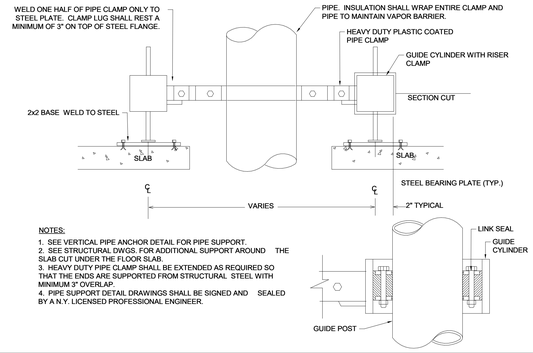
WALL RATING	DAMPER RATING
1 HOUR	1½ HOUR
2 HOUR	1½ HOUR
3 HOUR	3 HOUR
4 HOUR	3 HOUR

DUCT DIMENSION	SLEEVE GAUGE
12 SF AND SMALLER	20
ABOVE 12 SF	18

NOTES:
REFER TO FIRE/SMOKE DAMPER MANUFACTURER'S INSTALLATION DETAILS. CONFORM TO MOST STRINGENT REQUIREMENT IF THIS DETAIL CONFLICTS WITH UL LISTING INSTALLATION INSTRUCTIONS.

B COMBINATION FIRE/SMOKE DAMPER DETAIL

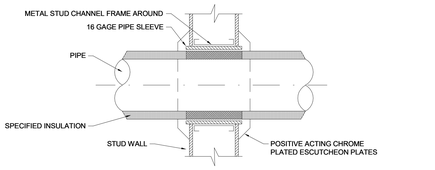
NO SCALE



NOTES:
1. SEE VERTICAL PIPE ANCHOR DETAIL FOR PIPE SUPPORT.
2. SEE STRUCTURAL DWGS. FOR ADDITIONAL SUPPORT AROUND THE SLAB CUT UNDER THE FLOOR SLAB.
3. HEAVY DUTY PIPE CLAMP SHALL BE EXTENDED AS REQUIRED SO THAT THE ENDS ARE SUPPORTED FROM STRUCTURAL STEEL WITH MINIMUM 3" OVERLAP.
4. PIPE SUPPORT DETAIL DRAWINGS SHALL BE SIGNED AND SEALED BY A N.Y. LICENSED PROFESSIONAL ENGINEER.

C VERTICAL PIPE GUIDE FOR SLAB CUT

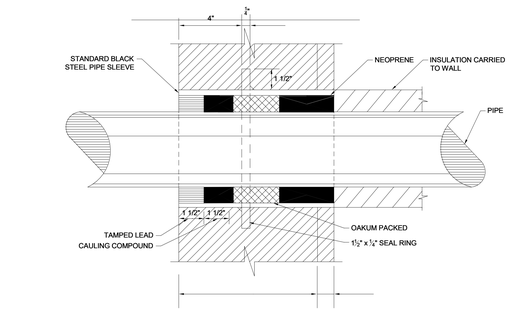
NO SCALE



NOTE: OMIT ESCUTCHEON PLATES FOR CONCEALED PIPES.

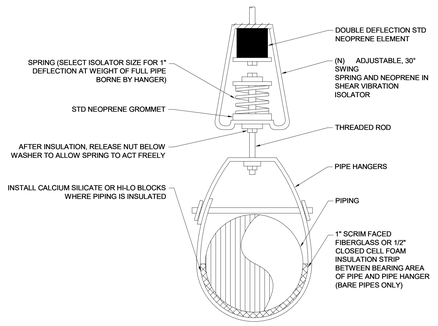
D DETAIL OF PIPE THRU STUD WALL

NO SCALE



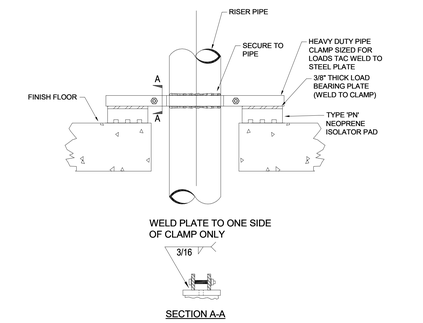
E WATERPROOF SLEEVE

NO SCALE



F VIBRATION ISOLATION HANGER DETAIL

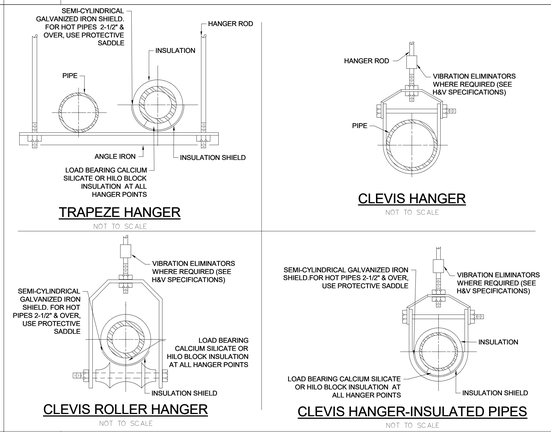
NO SCALE



SECTION A-A

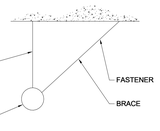
G RISER ISOLATION SUPPORT

NO SCALE



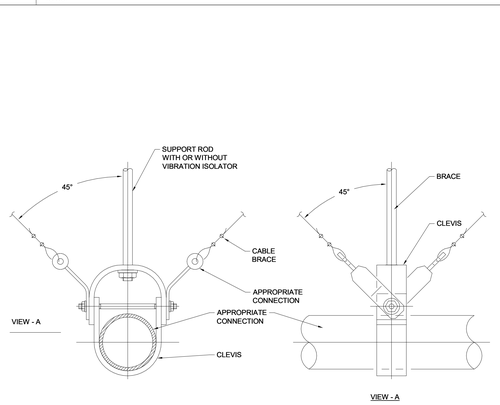
H PIPE HANGER DETAIL

NO SCALE



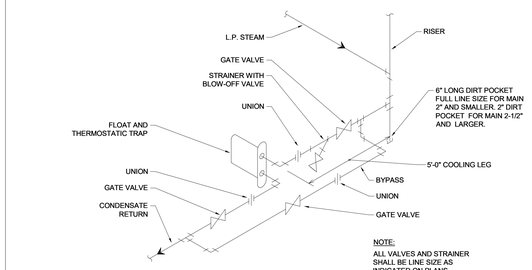
I SEISMIC BRACING DETAIL

NO SCALE



J SEISMIC CABLE BRACE FOR PIPEWORK MOUNTING DETAIL

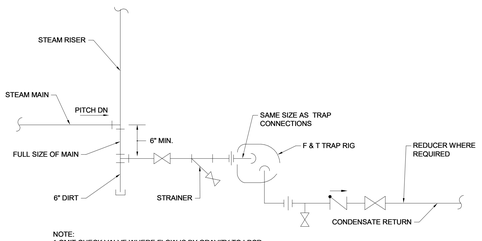
NO SCALE



NOTE:
ALL VALVES AND STRAINER SHALL BE LINE SIZE AS INDICATED ON PLANS

K LOW PRESSURE STEAM DRIP TRAP RIG WITH BYPASS

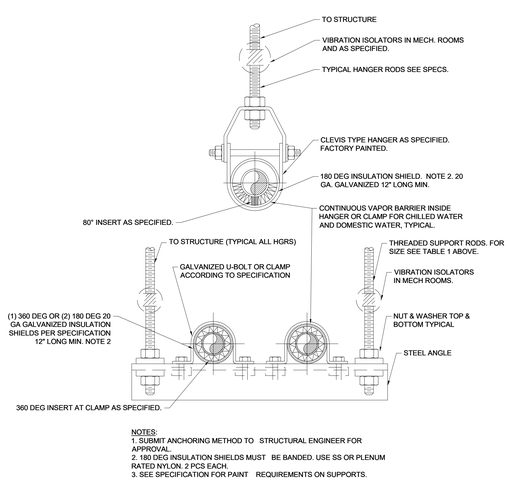
NO SCALE



NOTE:
1.OMIT CHECK VALVE WHERE FLOW IS BY GRAVITY TO LPCR.

L TYPICAL F&T TRAP PIPING

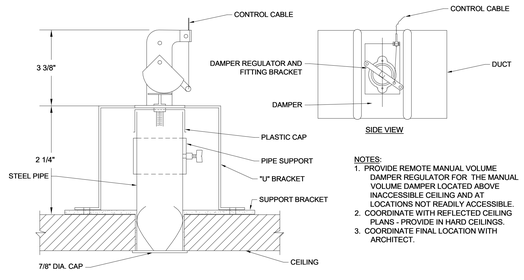
NO SCALE



NOTES:
1. SUBMIT ANCHORING METHOD TO STRUCTURAL ENGINEER FOR APPROVAL.
2. 180 DEG INSULATION SHIELDS MUST BE BANDED. USE SS OR PLENUM RATED NYLON, 2 PCS EACH.
3. SEE SPECIFICATION FOR PAINT REQUIREMENTS ON SUPPORTS.

M TYPICAL WATER PIPE HANGER DETAIL

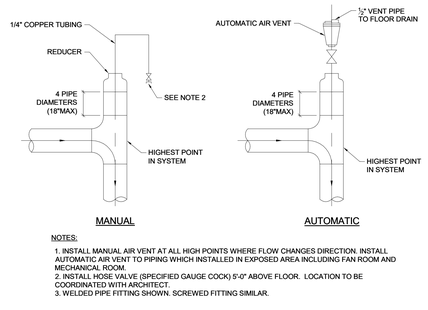
NO SCALE



NOTES:
1. PROVIDE REMOTE MANUAL VOLUME DAMPER REGULATOR FOR THE MANUAL VOLUME DAMPER LOCATED ABOVE INACCESSIBLE CEILING AND AT LOCATIONS NOT READILY ACCESSIBLE.
2. COORDINATE WITH REFLECTED CEILING PLANS - PROVIDE IN HARD CEILINGS.
3. COORDINATE FINAL LOCATION WITH ARCHITECT.

N VOLUME DAMPER REMOTE REGULATOR DETAIL

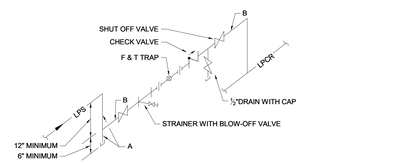
NO SCALE



NOTES:
1. INSTALL MANUAL AIR VENT AT ALL HIGH POINTS WHERE FLOW CHANGES DIRECTION. INSTALL AUTOMATIC AIR VENT TO PIPING WHICH INSTALLED IN EXPOSED AREA INCLUDING FAN ROOM AND MECHANICAL ROOM.
2. INSTALL HOSE VALVE (SPECIFIED GAUGE COCK) 5'-0" ABOVE FLOOR. LOCATION TO BE COORDINATED WITH ARCHITECT.
3. WELDED PIPE FITTING SHOWN. SCREWED FITTING SIMILAR.

O AIR VENT DETAILS

NO SCALE



NOTE:
1. PROVIDE THIS PIPING ARRANGEMENT WHERE LOW PRESSURE TRAPS ARE REQUIRED.
2. OMIT CHECK VALVE WHERE FLOW IS BY GRAVITY TO LPCR.

PIPE SIZES			TRAP CAPACITY LB / HR
LPS	A	B	
3/4"	SAME SIZE AS LPS	3/4"	30
1" & 1½"		3/4"	60
1½" & 2"		1"	90
2½" & 3"		1½"	180
4" & 5"	3"	1½"	360
6" & 8"	3"	1½"	700
10" & 12"	4"	2"	1200
14" & 16"	4"	2"	1800

P LOW PRESSURE (<15 PSI) STEAM DRIP ASSEMBLY

NO SCALE

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

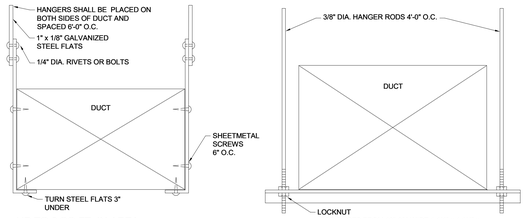
DRAWN: Author
DATE: 12/18/20
CHECKED: Checker
DATE PLOTTED: 12/18/2020 10:32:37 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
MECHANICAL DETAILS II - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-701.E



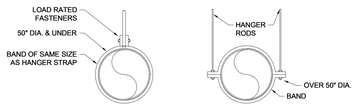
UP TO 8 SQ.FT. IN AREA AND 47" WIDTH MAX.

OVER 8 SQ.FT. IN AREA AND OVER 47" WIDE

NOTE:
1. PROVIDE WHEN NO SEISMIC REQUIREMENT. SEE SPECIFICATIONS SECTION 23 05 49.

A METHOD OF SUPPORTING DUCTS

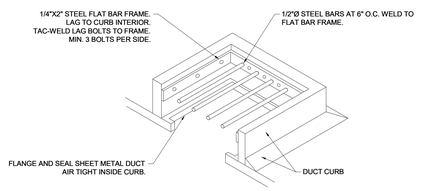
NO SCALE



HANGER STRAPS OR RODS			
MAX DUCT DIA. (IN.)	QUANTITY/SIZE (IN.)	MAX LOAD (LBS.)	MAX SPACING (FT.)
26	ONE 1 X 22 GA STRAP	260	12
36	ONE 1 X 18 GA STRAP	420	12
50	ONE 1 X 16 GA STRAP	700	12
60	TWO ⅜ DIA RODS	1,320	12
84	TWO ½ DIA. RODS	2,500	12

B ROUND DUCT HANGING DETAIL

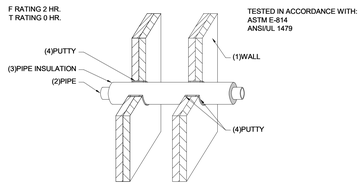
NO SCALE



NOTE:
TO BE INSTALLED ON ALL DUCT CURBS AT MONEY ROOM THAT ARE 8"X8" OR GREATER IN SIZE.

C BURGLAR BARS AT MONEY ROOM PENTRATIONS

NO SCALE

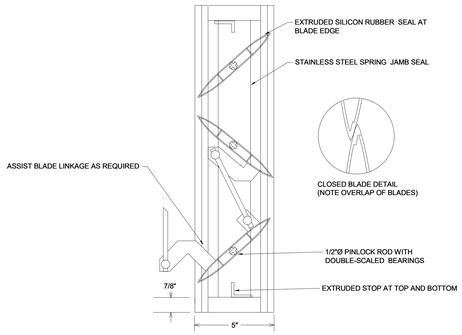


1. WALL ASSEMBLY - CONSTRUCTED IN THE MANNER SPECIFIED IN THE U300 OR U400 SERIES DESIGNS AS SHOWN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAMETER OF OPENING IS 16".
2. METALLIC PIPE - THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES MAY BE USED:
   (A) STEEL PIPE - NOM. 6" DIAMETER (OR SMALLER) SCHEDULE 10 OR HEAVIER STEEL PIPE.
   (B) IRON PIPE - NOM. 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE
   (C) COPPER TUBING OR PIPE - NOM. 4" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING OR REGULAR (OR HEAVIER) COPPER PIPE FOR STEEL OR CAST IRON PIPE THE T RATING IS 2 HOURS, FOR COPPER TUBING OR PIPE THE T RATING IS 0
3. PIPE INSULATION - NOMINAL 1½" THICK (OR THINNER) FIBERGLASS OR MINERAL FIBER PIPE INSULATION. THE MAX ANNULAR SPACE FOR PIPE LARGER THAN 4" DIAMETER IS 3/16" AND 3/4" OTHERWISE.
4. NELSON FSP PUTTY (PART# AA445) - APPLY FSP TO FILL THE ANNULAR SPACE TO A NOMINAL 1⅝" DEPTH ON BOTH SIDES OF THE WALL. ADDITIONAL MATERIAL TO BE INSTALLED SUCH THAT A ½" THICK CROWN IS FORMED AROUND THE PENETRATING ITEM.

UL SYSTEM NUMBER W-L-5036

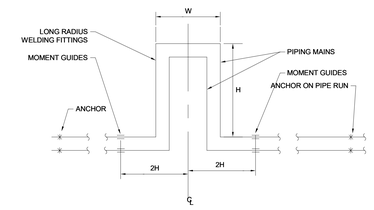
D GYPSUM WALL INSULATED METALLIC PIPE FIRE STOPPING DETAIL

NO SCALE



E OPPOSED BLADE DAMPER DETAIL

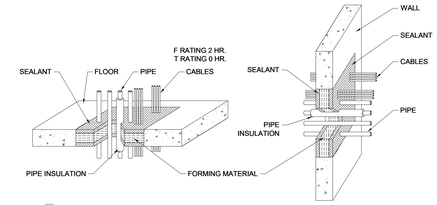
NO SCALE



ANCHOR TO ANCHOR EXPANSION, (INCHES)												
PIPE SIZE (IN.)	2		4		6		8		10		12	
	W	H	W	H	W	H	W	H	W	H	W	H
¾, 1, 1¼	2	4	3	6	3.5	7	4	8	4.5	9	5	10
1½, 2	3	6	4	8	5	10	5.5	11	6	12	7	14
2½, 3	3.5	7	5	10	6	12	6.5	13	7.5	15	8	16
4	4	8	5.5	11	6.5	13	7.5	15	8.5	17	9	18
5, 6	5	10	6.5	13	8	16	9	18	10	20	11	22
8	5.5	11	7.5	15	9	18	10.5	21	12	24	13	26
10	6	12	8.5	17	10	20	11.5	23	13	H	14	28
12	6.5	13	9	18	11	22	12.5	25	14	28	15.5	31
14	7	14	9.5	19	11.5	23	13	26	15	30	16	32

F EXPANSION LOOP DETAIL FOR BUILDING EXPANSION JOINTS

NO SCALE



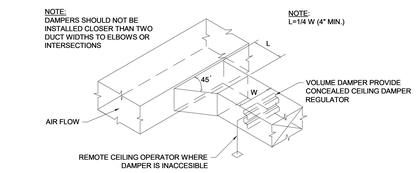
1. FLOOR OR WALL ASSEMBY - MIN 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR MIN 5" THICK WALL, OR CMU BLOCK WALL. THE MAX AREA OF THE OPENING IS 144 SQ IN WITH A MAX DIMENSION OF 24". OF THE FOUR PENETRANTS, ONLY ONE PIPE SHALL HAVE A NOM DIAMETER GREATER THAN 2".
2. METALLIC PIPE - MAX NOMINAL 4" DIAMETER, OR SMALLER, SCH. 5 OR HEAVIER STEEL, CAST IRON, RMC, EMT OR TYPE L OR HEAVIER COPPER PIPE OR TUBING. SPACE BETWEEN PIPES IS NOM 1". SPACE BETWEEN PIPES AND PERIPHERY OF OPENING IS 1" TO 2".
3. NONMETALLIC PIPE - ONE OR MORE NOMINAL 2" DIAMETER, OR SMALLER, SCH. 40 OR PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
4. PIPE INSULATION - MAX 1" THICK ABI/PVC (ARMAFLEX) FOAM INSULATION. THE INSULATION MAY BE INSTALLED ON ONE OF THE METALLIC PIPES OR TUBING HAVING A NOM DIAMETER OF 2" OR LESS. THE INSULATED PIPE OR TUBING SHALL BE SPACED A NOM 1" FROM THE OTHER THROUGH PENETRANTS. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE OR TUBING AND PERIPHERY OF THE OPENING SHALL BE A NOM 1".
5. CABLES - MAX 12 LENGTHS OF CABLES TO BE INSTALLED WITHIN THE OPENING. THE SPACE BETWEEN THE CABLES AND THE PERIPHERY OF OPENING SHALL RANGE FROM A MIN 1-7/16" TO A MAX 2-5/8". CABLES TO BE BUNDLED TOGETHER OR SPACED A NOM 1/8" APART. MAX 25PR #24AWG CABLES OR 62.5/125 UM FIBER OPTIC CABLES, BOTH JACKETED.
6. FORMING MATERIAL - TIGHTLY PACK MIN 6PCF MINERAL WOOL BATT INSULATION TO FILL THE ANNULAR SPACE TO A MIN 2 1/2" DEPTH, AND RECESS 1-1/4" FROM THE TOP SURFACE OF THE FLOOR OR BOTH SIDES OF THE WALL.
7. NELSON LBS3 SEALANT - APPLY OVER THE FORMING MATERIAL TO A MIN 1-1/4" DEPTH, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.

UL SYSTEM C-AJ-8141

NELSON DWG/SHD# FS-0544 R0

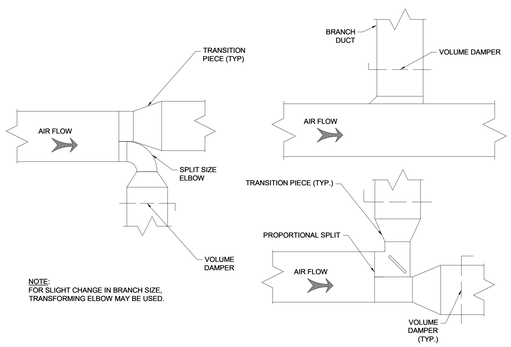
G CONCRETE FLOOR OR WALL MULTIPLE METALLIC PIPES FIRE STOPPING DETAIL

NO SCALE



H BRANCH DUCT TAKE-OFF DETAIL

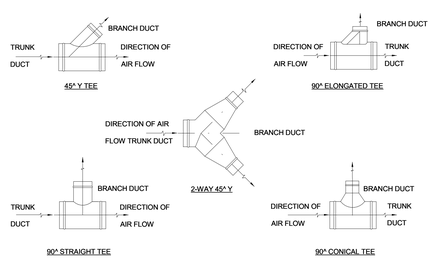
NO SCALE



NOTE:
FOR SLIGHT CHANGE IN BRANCH SIZE, TRANSFORMING ELBOW MAY BE USED.

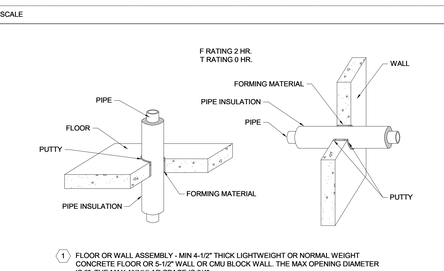
I LOW VELOCITY DUCT CONNECTIONS

NO SCALE



J ROUND DUCT BRANCH TAKE-OFF DETAILS

NO SCALE



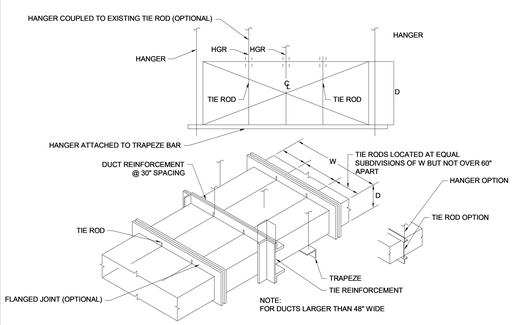
1. FLOOR OR WALL ASSEMBLY - MIN 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR 5-1/2" WALL OR CMU BLOCK WALL. THE MAX OPENING DIAMETER IS 8". THE MAX ANNULAR SPACE IS 3/4".
2. METALLIC PIPE OF CONDUIT - MAX NOMINAL 4" DIAMETER, SCH. 5 OR HEAVIER STEEL OR CAST IRON PIPE.
3. PIPE INSULATION - NOMINAL 1" THICK, OR THINNER, FIBERGLASS OR MINERAL WOOL PIPE INSULATION.
4. FORMING MATERIAL - TIGHTLY PACK MIN 4PCF MINERAL WOOL BATT INSULATION TO FILL THE ANNULAR SPACE TO A MIN 3-1/2" DEPTH, AND RECESS 1" FROM THE TOP SURFACE OF THE FLOOR OR FROM BOTH SURFACES OF THE WALL.
5. NELSON FSP PUTTY - APPLY OVER THE FORMING MATERIAL TO A MIN DEPTH OF 1", FLUSH WITH THE TOP SURFACE OF THE FLOOR OR WITH BOTH SURFACES OF THE WALL WITH AN ADDITIONAL 3/4" CROWN AROUND THE PIPE WHERE IT PENETRATES THE FLOOR OR WALL.

UL SYSTEM C-AJ-5012

NELSON DWG/SHD# FS-0093 R3

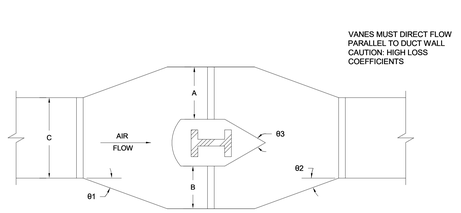
K CONCRETE FLOOR OR WALL INSULATED METALLIC PIPE FIRE STOPPING DETAIL

NO SCALE



K LARGE DUCT REINFORCEMENT DETAIL

NO SCALE



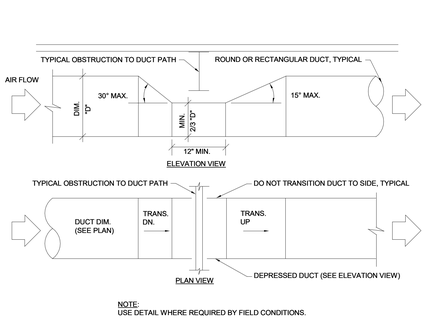
A+B = 1.25C (MIN) AT CONSTANT DEPTH.

(USED WHEN OBSTRUCTION EXCEEDS 20% OF SECTION AREA AND OFFSETS AROUND ARE NOT POSSIBLE).

θ1 = 20° MAX
θ2 = 30° MAX
θ3 = 60° MAX

L LARGE DUCT REINFORCEMENT DETAIL

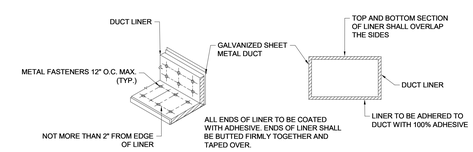
NO SCALE



NOTE:
USE DETAIL WHERE REQUIRED BY FIELD CONDITIONS.

M DUCT "VENTURI" DEPRESSION DETAIL

NO SCALE



N DUCT LINER DETAIL

NO SCALE

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

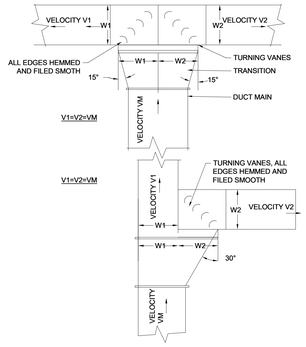
DRAWN: Author
DATE: 12/18/20
CHECKED: Checker
DATE PLOTTED: 12/18/2020 10:32:39 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

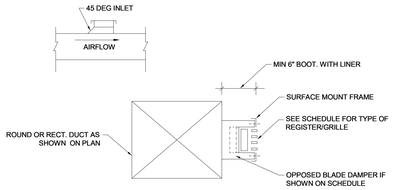
DWG. TITLE
MECHANICAL DETAILS III - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: M-702.E
PROJ. NO.: 1605



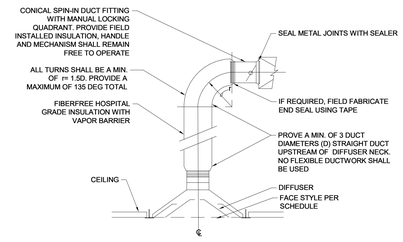
A | DUCT SPLIT DETAIL

NO SCALE



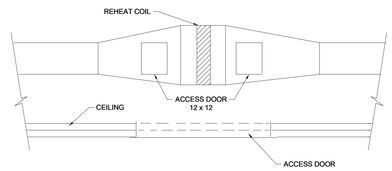
B | DUCT MUNTED AIR DEVICE

NO SCALE



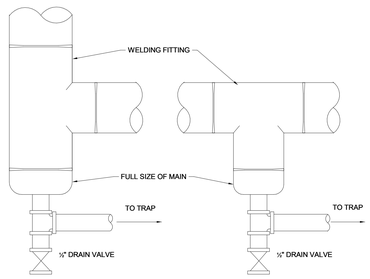
C | CEILING DIFFUSER DETAIL (HARD DUCT)

NO SCALE



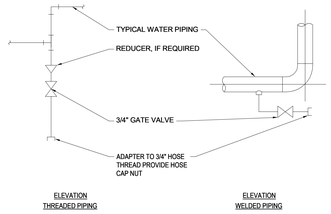
D | DUCT MOUNTED REHEAT COIL

NO SCALE



E | STEAM DRIP CONNECTION DETAIL

NO SCALE

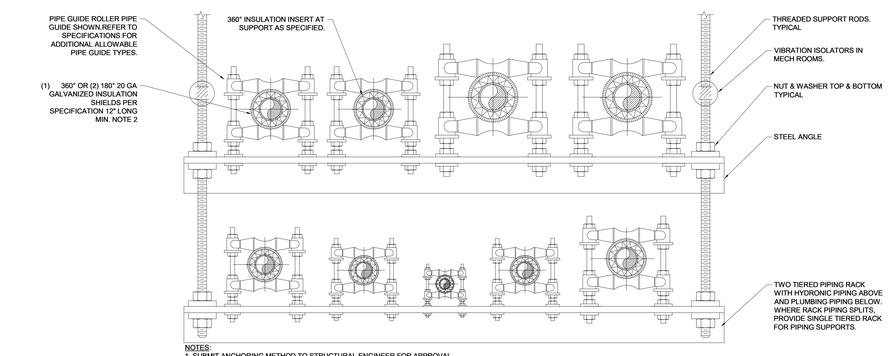


NOTES:

1. PROVIDE DRAIN VALVES AT LOW POINTS OF WATER SYSTEM.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

F | DRAIN VALVE CONNECTION

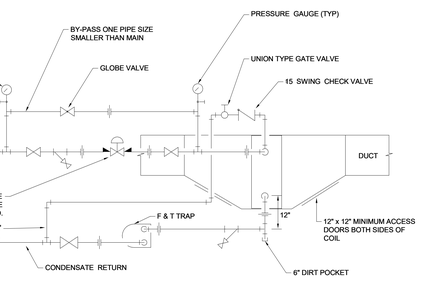
NO SCALE



NOTES:
1. SUBMIT ANCHORING METHOD TO STRUCTURAL ENGINEER FOR APPROVAL.
2. 180° INSULATION SHIELDS MUST BE BANDED. USE SS OR PLENUM RATED NYLON. 2 PIECES EACH.
3. SEE SPECIFICATION FOR PAINT REQUIREMENTS ON SUPPORTS.
4. REFER TO SPECIFICATIONS FOR OTHER PIPE SUPPORT REQUIREMENTS FOR LOCATIONS
5. PIPE SUPPORT HANGER ROD SPACING SHALL NOT EXCEED SPACING AS DIRECTED BY THE STRUCTURAL ENGINEER OR IN THE SPECIFICATIONS.
6. CONCEPTION ONLY, REFER TO PLANS FOR PIPE QUANTITIES AND SIZES.

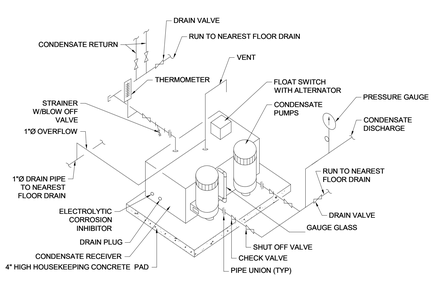
G | MAIN WATER LOOP PIPING HANGER DETAIL

NO SCALE



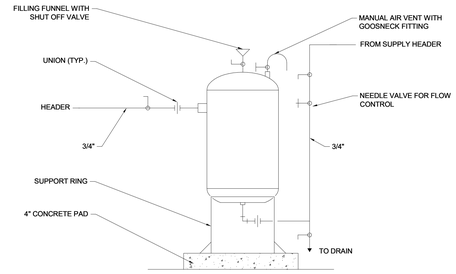
H | STEAM REHEAT COIL PIPING

NO SCALE



I | DUPLEX CONDENSATE PUMP AND RECEIVER CONNECTIONS

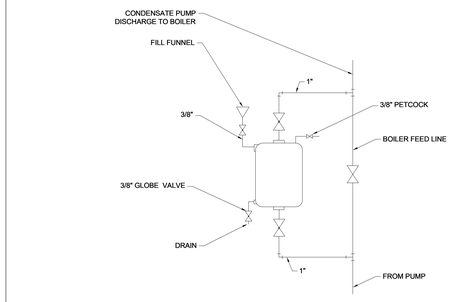
NO SCALE



PROVIDE ONE FOR HEATING WATER AND ONE FOR CHILLED WATER.

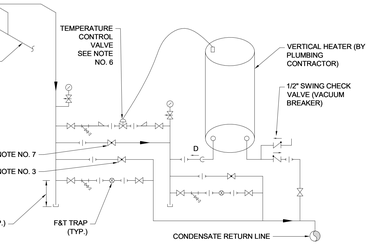
J | CHEMICAL POT FEEDER

NO SCALE



K | SHOT TYPE CHEMICAL FEEDER

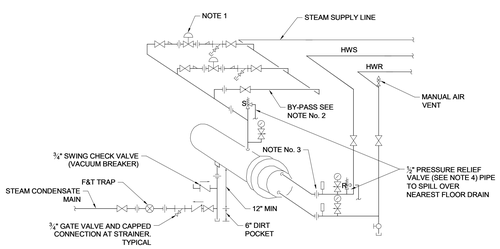
NO SCALE



NOTES:
1. CONDENSATE SHALL DRAIN BY GRAVITY TO CONDENSATE RETURN LINE.
2. ALL PIPING SHALL BE ARRANGED TO ALLOW REMOVAL OF HEATER COIL WITH MINIMUM DISTURBANCE TO PIPING.
3. BY-PASS PIPING AROUND F&T TRAP LEG SHALL BE SAME SIZE AS TRAP.
4. DIRT POCKETS SHALL BE FULL SIZE OF RISER BUT NOT OVER 3 INCHES IN DIAMETER, OR LESS THAN 2 INCHES IN DIAMETER.
5. RETURN PIPING BETWEEN COILS AND TRAPS SHALL BE UNINSULATED.
6. MAX. AUTOMATIC CONTROL VALVE SIZE 2-1/2 INCHES. FOR STEAM FLOW RATE GREATER THAN 2-1/2 INCHES VALVE CAPACITY, FURNISH TWO CONTROL VALVES IN PARALLEL AS INDICATED.
7. BY-PASS PIPING AROUND CONTROL VALVES TO BE ONE LINE SIZE SMALLER THAN MAIN STEAM SUPPLY LINE UPSTREAM OF CONTROL VALVES.
8. UNIONS (OR FLANGED BODY) INDICATED TO PERMIT REMOVAL OF CONTROL VALVES.

L | STEAM CONNECTIONS TO INSTANTANEOUS DOMESTIC HOT WATER HEATER

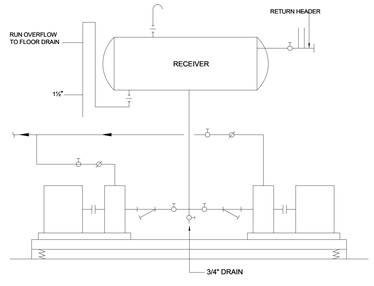
NO SCALE



NOTE:
1. MAX. AUTOMATIC CONTROL VALVE SIZE 2-½ INCHES. FOR STEAM FLOW RATE GREATER THAN 2-½ INCHES VALVE CAPACITY, FURNISH TWO CONTROL VALVES IN PARALLEL AS INDICATED.
2. BY-PASS PIPING AROUND CONTROL VALVES TO BE ONE LINE SIZE SMALLER THAN MAIN STEAM SUPPLY LINE UPSTREAM OF CONTROL VALVES.
3. PROVIDE PIPE UNIONS, FLANGES & ARRANGE WATER PIPING TO FACILITATE TUBE BUNDLE REMOVAL WITH MINIMUM DISTURBANCE TO PIPING.
4. PRESSURE RELIEF VALVE SET AT 20% OVER WORKING PRESSURE.

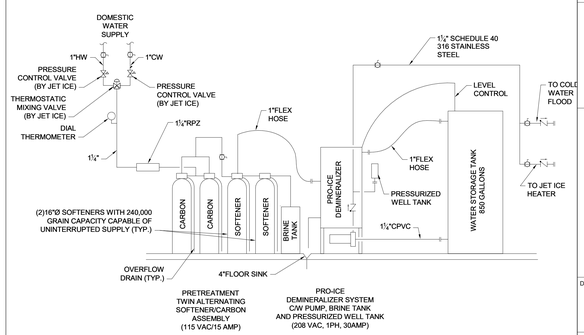
M | STEAM TO WATER HEAT EXCHANGER

NO SCALE



N | CONDENSATE RECIVER MAIN PUMP ASSEMBLY

NO SCALE



O | PRO-ICE DEMINERALIZER WITH 850 USG STORAGE TANK (JET ICE)

NO SCALE

B C A D

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469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

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NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

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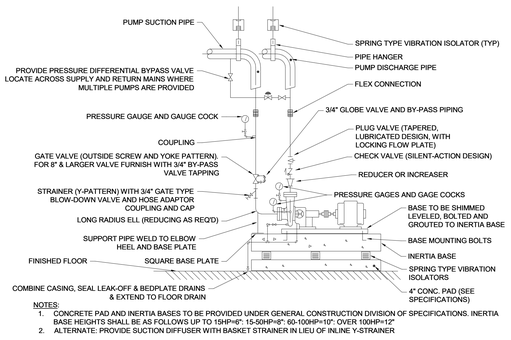
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
MECHANICAL DETAILS IV - ENABLING

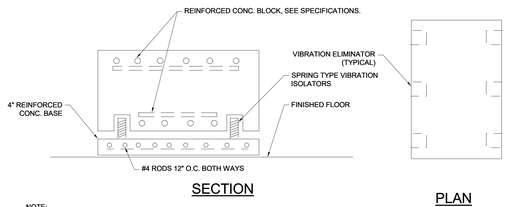
SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-703.E



NOTES:
1. CONCRETE PAD AND INERTIA BASES TO BE PROVIDED UNDER GENERAL CONSTRUCTION DIVISION OF SPECIFICATIONS. INERTIA BASE HEIGHTS SHALL BE AS FOLLOWS UP TO 15HP="6"; 15-50HP="8"; 60-100HP="10"; OVER 100HP="12"
2. ALTERNATE: PROVIDE SUCTION DIFFUSER WITH BASKET STRAINER IN LIEU OF INLINE Y-STRAINER

A VERTICAL SPLIT CASE, END SUCTION WATER PUMP DETAIL

NO SCALE



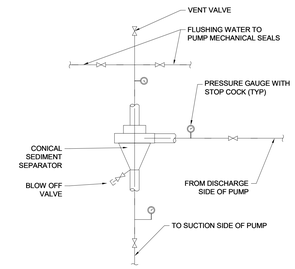
SECTION

PLAN

NOTE:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. CONCRETE PAD AND INERTIA BASES TO BE PROVIDED UNDER GENERAL CONSTRUCTION DIVISION OF SPECIFICATIONS. INERTIA BASE HEIGHTS SHALL BE AS FOLLOWS UP TO 15HP="6"; 15-50HP="8"; 60-75HP="10"; OVER 75HP="12"

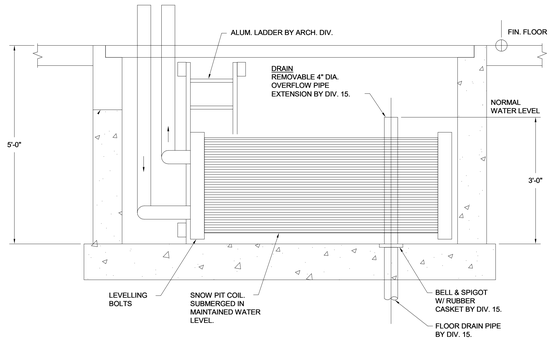
B PUMP INERTIA BLOCK

NO SCALE



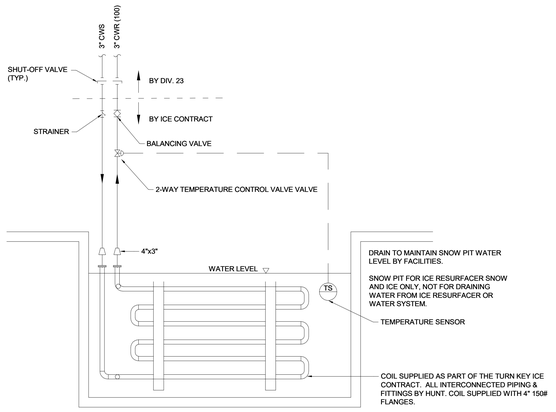
C PIPING ASSEMBLY FOR EXTERNALLY FLUSHED MECH SEALS AT END SUCTION PUMP

NO SCALE



D ZAMBONI SNOW MELT PIT COIL DETAIL

NO SCALE



E ZAMBONI SNOW MELT DETAIL

NO SCALE

F -

NO SCALE

G -

NO SCALE

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J -

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O -

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P -

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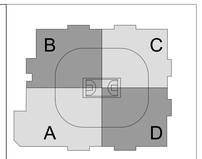

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HARTFORD, CT

DWG. TITLE: MECHANICAL DETAILS V - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-704.E

CONTROL LEGEND (NOT ALL ABBREVIATION ARE USED FOR THIS PROJECT)					
AI	ANALOG INPUT	E/S	END SWITCH	PE	PNEUMATIC ELECTRIC SWITCH
AO	ANALOG OUTPUT	FCU	FAN COIL UNIT	PT	PRESSURE TRANSMITTER
BDD	BACKDRAFT DAMPER	FAP	FIRE ALARM PANEL	RA	RETURN AIR
C	CONTROLLER	FS	FLOW SWITCH	RF	RETURN FAN
CC	COOLING COIL	F	FILTER ASSEMBLY	SA	SUPPLY AIR
CD	CONTROL DAMPER	FT	FLOW TRANSDUCER	SD	SMOKE DETECTOR (BY ELECTRICAL)
CHR	CHILLED WATER RETURN	FR	FREEZESTAT	SF	SUPPLY FAN
CHS	CHILLED WATER SUPPLY	HT	HUMIDITY TRANSMITTER	SPT	STATIC PRESSURE TRANSMITTER
CI	COMMUNICATION INTERFACE	HC	HEATING COIL	SR	SWITCHING RELAY
CO	CARBON MONOXIDE SENSOR	HH	HIGH LIMIT HUMIDITY SWITCH	S/S	START/STOP
COND	CONDENSATE OVERFLOW	HI	HARDWIRED INTERFACE	T	THERMOSTAT
CSEN	CURRENT SENSOR	HWR	HOT WATER RETURN	TS	SPACE TEMPERATURE SENSOR
DI	DIGITAL INPUT	HWS	HOT WATER SUPPLY	TT	TEMPERATURE TRANSMITTER
DO	DIGITAL OUTPUT	IR	INTERLOCK RELAY	TTAB	TEMPERATURE TRANSMITTER W/AVERAGING BULB
DP	DIFFERENTIAL PRESSURE SWITCH	M	MOTORIZED CONTROL	V	VALVE
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	MIN	MINIMUM	VFD	VARIABLE FREQUENCY DRIVE
EA	EXHAUST AIR	OA	OUTSIDE AIR	VS	VELOCITY SENSOR
EP	ELECTRICAL-PNEUMATIC TRANSDUCER SWITCH	OS	OCCUPANCY SENSOR	WBT	WET BULB TEMPERATURE TRANSMITTER
ED	ENABLE/DISABLE	PC	PREHEAT COIL		

BUILDING MANAGEMENT SYTEM (BMS) GENERAL NOTES:

GENERAL:

A. BMS CONTRACTOR SHALL COORDINATE ALL INTERFACE REQUIREMENTS. CONTROLS SHALL BE AUTOMATED LOGIC.

B. BMS/ATC CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING NEW YORK STATE ENERGY CODE AND ALL OTHER RELEVANT NEW YORK STATE STANDARDS.

C. TC CONTRACTOR SHALL COORDINATE WITH ENGINEER CM/GC, AND MC FOR VALVE ACTUATOR AND OTHER CONTROL COMPONENT REPLACEMENT OR INSTALLATION PROVISIONS SHOWN OR IMPLIED THROUGHOUT THE CONTRACT DOCUMENTS. PROVIDE ALL MISCELLANEOUS ACCESSORIES, DEVICES,, TRANSLATORS, AND MODULES REQUIRED FOR A COMPLETE SYSTEM.

D. PROVIDE INDIVIDUAL INPUTS OR OUTPUTS FOR EACH POINT LISTED IN THE DIAGRAMS AND POINTS LIST. PROVIDE ANY ADDITIONAL CONTROL POINTS NOT LISTED IN THE DIAGRAMS OR POINTS LISTS, BUT REQUIRED TO MEET THE SEQUENCES OF OPERATION. ALL ANALOG OUTPUTS SHALL BE 4-20MA, 0-10VDC OR 0-20VDC UNLESS OTHERWISE INDICATED. AO=ANALOG OUTPUT, AI=ANALOG INPUT, DO=DIGITAL (BINARY) OUTPUT, DI=DIGITAL (BINARY) INPUT.

E. ALL SETPOINTS SHALL BE MAPPED WITH GRAPHIC DISPLAY AND BE FULLY ADJUSTABLE AT THE OPERATOR WORKSTATION.

F. PROVIDE OVERRIDE CONTROL OF ALL POINTS AT THE OPERATOR WORKSTATION.

G. ALL "MONITORING" POINTS SHALL BE MAPPED TO THE BMS WORKSTATION GRAPHIC DISPLAY

H. ALL CONTROL POINTS SHALL BE DISPLAYED AT THE OPERATOR WORKSTATION.

I. "OPERATOR" IS DEFINED AS THE OWNER'S REPRESENTATIVE DESIGNATED TO OPERATE THE BMS.

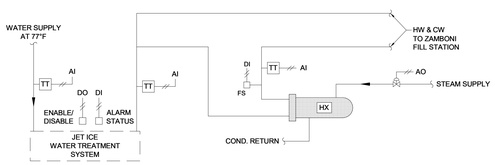
J. THE BMS SHALL MONITOR CONTROL, AND CALCULATE ALL THE POINTS AND FUNCTIONS LISTED.

K. THE BMS SHALL MONITOR EACH HEAT TRACE CIRUCIT ON THE PIPING BY THE COOLING TOWER.

L. THE BMS SHALL MONITOR THE WATER LEVEL IN THE SUMP PUMP.

A CONTROL SYSMBOL LEGEND

NO SCALE



JET ICE WATER TREATMENT SYSTEM:

A. ON A SIGNAL FROM CENTRAL WORKSTATION THE JET ICE WATER TREATMENT SYSTEM IS ENABLED. STEAM CONTROL VALVE MODULATES TO MAINTAIN AN ADJUSTABLE HOT WATER SUPPLY TO THE ZAMBONI FILL STATION.

B. MONITOR INLET AND OUTLET TEMPERATURES TO JET ICE WATER TREATMENT SYSTEM. MONITOR JET ICE ALARM STATUS.

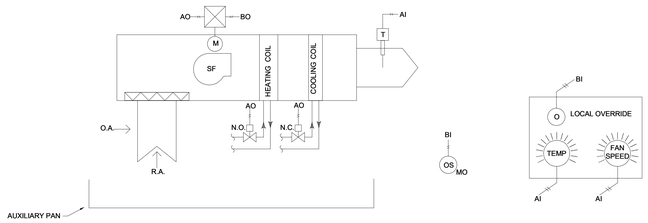
C. ON A SIGNAL FROM CENTRAL WORKSTATION THE JET ICE WATER TREATMENT SYSTEM SHALL BE DISABLED AND STEAM VALVE SHALL BE CLOSED.

D. JET ICE SYSTEM OPERATES UNDER SELF CONTAINED CONTROLS.

POINT DESCRIPTION	ANALOG INPUT: INPUT VALUE	TEMP	PRES	HUMIDITY	AMPS	GPM	CFM	PPM	PERCENT	ANALOG OUTPUT: DDC 4-20 ma, 0-10 VDC	SETPOINT ADJ	BINARY INPUT: INPUT VALUE	STATUS ON/OFF	FILTER STATUS	STATUS OPEN/CLOSED	STATUS - ALARM	BINARY OUTPUT: START/STOP	OPEN/CLOSED	LOCK OUT	ENABLE/DISABLE	ALARMS: HIGH ANALOG	LOW ANALOG	BINARY	SENSOR FAIL	COMM FAIL	ALARM LABEL	CALCULATED VALUE	BACNET	TREND	DISPLAY ON GRAPHIC
STEAM VALVE POSITION COMMAND										X																		X	X
JET ICE LEAVING WATER TEMPERATURE (LWT)		X																										X	X
JET ICE LEAVING WATER TEMPERATURE SETPOINT	X																				X	X				SUPPLY WATER TEMPERATURE OUT OF RANGE			X	X
JET ICE ENTERING WATER TEMPERATURE (EWT)		X																										X	X
FLOW SWITCH						X																				NO FLOW			X	X
JET ICE SYSTEM START/STOP																X	X								X	JET ICE SYSTEM TROUBLE	X		X	X

B JET ICE SYSTEM

NO SCALE



POINT DESCRIPTION	ANALOG INPUT: INPUT VALUE	TEMP	PRES	HUMIDITY	AMPS	GPM	CFM	PPM	PERCENT	ANALOG OUTPUT: DDC 4-20 ma, 0-10 VDC	SETPOINT ADJ	BINARY INPUT: INPUT VALUE	STATUS ON/OFF	STATUS - FILTER	STATUS OPEN/CLOSED	STATUS - ALARM	BINARY OUTPUT: START/STOP	OPEN/CLOSED	LOCK OUT	ENABLE/DISABLE	ALARMS: HIGH ANALOG	LOW ANALOG	BINARY	SENSOR FAIL	COMM FAIL	ALARM LABEL	CALCULATED VALUE	BACNET	TREND	DISPLAY ON GRAPHIC
FAN COIL UNIT FAN MOTOR START (LOW)																X												X	X
FAN COIL UNIT FAN MOTOR START (MED)																X												X	X
FAN COIL UNIT FAN MOTOR START (HIGH)																X												X	X
HEATING COIK CONTROL VALVE										X																		X	X
COOLING COIL CONTROL VALVE										X																		X	X
SPACE TEMPERATURE SETPOINT	X																											X	X
SPACE TEMPERATURE		X																			X	X				SPACE TEMP OUT OF RANGE			X	X
SPACE OCCUPANCY																												X	X
CENTRAL OCCUPANCY INPUT																												X	X
FCU STATUS																X										FAN COIL UNIT TROUBLE (CURRENT SENSOR)			X	X
DISCHARGE AIR TEMPERATURE		X																			X	X				DISCHARGE AIR TEMPERATURE OUT OF RANGE			X	X
FIRE ALARM START/STOP																X												X	X
FAN CURRENT					X																							X	X

NOTES:

GENERAL

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK.

FAN SPEED SHALL BE MODULATED TO ADDRESS LOAD WITH THE LOWEST POSSIBLE FAN SPEED AND NOISE.

SETPOINTS

SPACE COOLING TEMPERATURE SETPOINTS:

OCCUPIED: 75 °F +/- 1.5 °F
OCCUPIED SETBACK: 75 °F +/- 3 °F
UNOCCUPIED: 75 °F +/- 6 °F

SPACE HEATING TEMPERATURE SETPOINTS:

OCCUPIED: 70 °F +/- 1.5 °F
OCCUPIED SETBACK: 70 °F +/- 3 °F
UNOCCUPIED: 70 °F +/- 6 °F

SPACE HIGH LIMIT TEMPERATURE: 85 °F

SPACE LOW LIMIT TEMPERATURE: 60 °F

FCU DISCHARGE AIR LOW LIMIT TEMPERATURE: 45 °F

DEFAULT ZONE OCCUPANCY SCHEDULE: 6 AM TO 8 PM, MON-FRI

INITIAL FAN SPEED : 20%

SPACE OCCUPANCY

ZONE OCCUPANCY SHALL BE DETERMINED BASED ON A COMBINATION OF A TIME OF DAY SCHEDULE, SPACE OCCUPANCY SENSOR, AND CENTRAL OCCUPANCY INPUT.

DURING THE SCHEDULED OCCUPANCY PERIOD, THE ZONE SHALL BE INITIALLY INDEXED TO OCCUPIED AND OPERATE FOR A MINIMUM OF 30 MINUTES, UNLESS OVERRIDDEN BY CENTRAL OCCUPANCY INPUT AT WHICH TIME THE SPACE OCCUPANCY SENSOR SHALL INDEX THE SPACE BETWEEN OCCUPIED AND OCCUPIED SETBACK MODE.

IF THE SPACE BECOMES OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, AS DETERMINED VIA THE OCCUPANCY SENSOR, THE ZONE SHALL BE INDEXED TO OCCUPIED. THE ZONE SHALL INDEX BACK TO UNOCCUPIED WHEN OCCUPANCY IS NOT SENSED FOR A PERIOD OF 30 MINUTES.

FOR ZONES WITH MULTIPLE SPACES, AN OCCUPANCY SENSOR SHALL BE PROVIDED IN EACH SPACE, AND ZONE OCCUPANCY SHALL BE BASED ON OCCUPANCY INPUTS FROM ANY OF THE SPACE OCCUPANCY SENSORS ASSOCIATED WITH THAT ZONE.

SAFETY SHUTDOWN:

WHEN THE DISCHARGE AIR TEMPERATURE (DAT) DROPS BELOW THE LOW LIMIT SETPOINT, THE HEATING VALVE SHALL OPEN FULLY AND COOLING VALVE SHALL CLOSE THE FAN SHALL SHUT OFF AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

WARM UP:

WHEN A WARM-UP IS INITIATED, THE FAN SHALL ENERGIZE AT HIGH SPEED AND THE HEATING VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE REACHES THE HEATING SETPOINT, THE FAN COIL UNIT SHALL OPERATE IN OCCUPIED MODE.

COOLDOWN:

WHEN A COOL DOWN SHALL BE INITIATED, THE FAN SHALL TURN ON AT HIGH SPEED, THE COOLING VALVE SHALL FULLY OPEN, AND THE HEATING VALVE SHALL FULLY CLOSE, WHEN THE SPACE TEMPERATURE REACHES SETPOINT THE FAN COIL UNIT SHALL OPERATE IN OCCUPIED MODE AT REQUIRED FAN SPEED.

START/STOP

THE FAN COIL UNIT SHALL OPERATE WHENEVER THE SPACE IS IN OCCUPIED OR OCCUPIED SETBACK MODE.

THE SPACE CONTROLLER SHALL BE PROVIDED WITH A MANUAL OVERRIDE SWITCH TO ALLOW THE OCCUPANT TO HAVE THE CAPABILITY OF MANUALLY SELECTING TEMPERATURE AND FAN SPEED. IF THE SYSTEM IS PLACED IN MANUAL CONTROL, SYSTEM SHALL REVERT BACK TO AUTOMATIC CONTROL AT THE START OF THE SCHEDULED OCCUPANCY PERIOD.

MANUAL CONTROL SHALL ALSO BE OVER RIDDEN IF SPACE CONDITIONS RISE ABOVE THE HIGH LIMIT SPACE TEMPERATURE, IF SPACE CONDITIONS FALL BELOW THE LOW LIMIT SPACE TEMPERATURE, AND IF THE FCU DISCHARGE AIR TEMPERATURE FALLS BELOW THE LOW LIMIT DISCHARGE AIR TEMPERATURE.

THE FAN COIL UNIT SHALL ALSO START AND OPERATE DURING UNOCCUPIED MODE WHEN IT IS NEEDED TO MAINTAIN THE UNOCCUPIED HEATING AND COOLING TEMPERATURE SET POINTS OR LOW LIMITS.

FAN SPEED CONTROL

THE FAN SHALL OPERATE AT CONSTANT SPEED WHENEVER THE SYSTEM IS INDEXED TO OPERATE. FAN SPEED SHALL BE THE LOWEST REQUIRED SPEED TO SERVICE THE LOAD.

REVIEW FAN SPEED EVERY 30 SECONDS. IF SET POINT IS NOT REACHED WITHIN 2 MINUTES WITH COIL VALVE AT 100%, THE FAN SPEED SHALL INCREASE BY 5%. IF SPACE TEMPERATURE IS MAINTAINED WITH COIL VALVE LESS THAN 70% (ADJ) OPEN, THEN FAN SPEED SHALL DECREASE BY 5%.

ZONE TEMPERATURE CONTROL

TEMPERATURE SET POINTS SHALL BE DETERMINED BASED ON A COMBINATION OF PROGRAMMED SCHEDULE AND A SPACE OCCUPANCY SENSOR.

OCCUPIED HEATING: IF THE SPACE IS OCCUPIED DURING THE OCCUPIED PERIOD, THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SET POINT, IF THE FAN IS OFF, AND THE TEMPERATURE FALLS BELOW THE SPACE LOW LIMIT TEMPERATURE, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE. THE UNIT FAN SHALL START, AND THE HEATING COIL CONTROL VALVE SHALL MODULATE AS NEEDED TO MAINTAIN SET POINT.

OCCUPIED COOLING: IF THE SPACE IS OCCUPIED DURING THE OCCUPIED PERIOD, THE FAN SHALL START AND THE COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SET POINT. IF THE FAN IS OFF AND THE TEMPERATURE RISES ABOVE THE SPACE HIGH LIMIT TEMPERATURE, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE. THE UNIT SHALL START, AND THE COOLING COIL CONTROL VALVE SHALL MODULATE AS NEEDED TO MAINTAIN SET POINT.

OCCUPIED SETBACK: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, THE ABOVE OCCUPIED HEATING/COOLING SEQUENCES SHALL APPLY. IF THE SPACE IS NOT OCCUPIED THE SPACE SHALL BE MAINTAINED AT THE OCCUPIED SETBACK TEMPERATURE SET POINTS.

UNOCCUPIED HEATING: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD AND THE ZONE TEMPERATURE FALLS BELOW THE UNOCCUPIED HEATING TEMPERATURE SET POINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL, THE UNIT FAN SHALL BE ON, AND THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SET POINT.

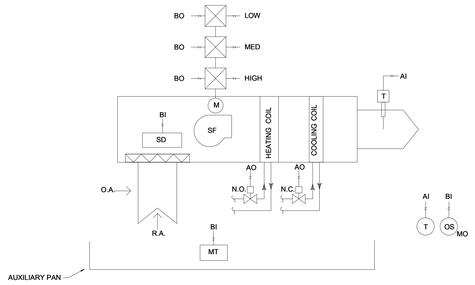
UNOCCUPIED COOLING: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD AND THE ZONE TEMPERATURE RISES ABOVE THE UNOCCUPIED COOLING TEMPERATURE SET POINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL, THE UNIT FAN SHALL START, AND THE COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SET POINT.

IF AT ANY TIME THE FAN COIL UNIT DISCHARGE AIR TEMPERATURE FALLS BELOW THE LOW LIMIT TEMPERATURE SET POINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL MODE, THE UNIT FAN SHALL START, AND THE HEATING CONTROL VALVE SHALL OPEN. THE SYSTEM SHALL RUN FOR A PERIOD OF AT LEAST 30 MINUTES, AFTER WHICH THE SYSTEM SHALL REVERT BACK TO NORMAL CONTROL.

THE COIL CONTROL VALVES SHALL BE CLOSED WHEN THE FAN COIL UNIT FAN IS OFF.

C 4 PIPE VARIABLE SPEED FAN COIL UNIT

NO SCALE



POINT DESCRIPTION	ANALOG INPUT: INPUT VALUE	TEMP	PRES	HUMIDITY	AMPS	GPM	CFM	PPM	PERCENT	ANALOG OUTPUT: DDC 4-20 ma, 0-10 VDC	SETPOINT ADJ	BINARY INPUT: INPUT VALUE	STATUS ON/OFF	STATUS - FILTER	STATUS OPEN/CLOSED	STATUS - ALARM	BINARY OUTPUT: START/STOP	OPEN/CLOSED	LOCK OUT	ENABLE/DISABLE	ALARMS: HIGH ANALOG	LOW ANALOG	BINARY	SENSOR FAIL	COMM FAIL	ALARM LABEL	CALCULATED VALUE	BACNET	TREND	DISPLAY ON GRAPHIC
FAN COIL UNIT FAN MOTOR START (LOW)																	X											X	X
FAN COIL UNIT FAN MOTOR START (MED)																	X											X	X
FAN COIL UNIT FAN MOTOR START (HIGH)																	X											X	X
HEATING COIL CONTROL VALVE										X																		X	X
COOLING COIL CONTROL VALVE										X																		X	X
SPACE TEMPERATURE SETPOINT	X																											X	X
SPACE TEMPERATURE		X																			X	X				SPACE TEMP OUT OF RANGE			X	X
SPACE OCCUPANCY													X															X	X
CENTRAL OCCUPANCY INPUT																X												X	X
FCU STATUS																	X						X			FAN COIL UNIT TROUBLE (CURRENT SENSOR)			X	X
DISCHARGE AIR TEMPERATURE		X																			X	X				DISCHARGE AIR TEMPERATURE OUT OF RANGE			X	X
FAN MOISTURE TRANSDUCER													X										X			MOISTURE IN DRAIN PAN			X	X
FIRE ALARM SHUT-DOWN																								X	X	FIRE ALARM SHUT-DOWN			X	X
SMOKE DETECTOR													X											X	X	SMOKE DETECTOR ACTIVATION			X	X

NOTES:

GENERAL

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK.

WHERE A FAN COIL UNIT HAS A MULTIPLE SPEED FAN THE FAN SPEED SHALL BE MODULATED OR STEPPED TO ADDRESS LOAD WITH THE LOWEST POSSIBLE FAN SPEED AND NOISE.

SETPOINTS

SPACE COOLING TEMPERATURE SETPOINTS:

OCCUPIED: 75 °F +/- 1.5 °F
OCCUPIED SETBACK: 75 °F +/- 3 °F
UNOCCUPIED: 75 °F +/- 6 °F

SPACE HEATING TEMPERATURE SETPOINTS:

OCCUPIED: 70 °F +/- 1.5 °F
OCCUPIED SETBACK: 70 °F +/- 3 °F
UNOCCUPIED: 70 °F +/- 6 °F

SPACE HIGH LIMIT TEMPERATURE: 85 °F

SPACE LOW LIMIT TEMPERATURE: 60 °F

FCU DISCHARGE AIR LOW LIMIT TEMPERATURE: 45 °F

DEFAULT ZONE OCCUPANCY SCHEDULE: 6 AM TO 8 PM, MON-FRI

SPACE OCCUPANCY

ZONE OCCUPANCY SHALL BE DETERMINED BASED ON A COMBINATION OF A TIME OF DAY SCHEDULE, SPACE OCCUPANCY SENSOR, AND CENTRAL OCCUPANCY INPUT.

DURING THE SCHEDULED OCCUPANCY PERIOD, THE ZONE SHALL BE INITIALLY INDEXED TO OCCUPIED AND OPERATE FOR A MINIMUM OF 30 MINUTES, UNLESS OVERRIDDEN BY CENTRAL OCCUPANCY INPUTER AT WHICH TIME THE SPACE OCCUPANCY SENSOR SHALL INDEX THE SPACE BETWEEN OCCUPIED AND OCCUPIED SETBACK MODE.

IF THE SPACE BECOMES OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, AS DETERMINED VIA THE OCCUPANCY SENSOR, THE ZONE SHALL BE INDEXED TO OCCUPIED. THE ZONE SHALL INDEX BACK TO UNOCCUPIED WHEN OCCUPANCY IS NOT SENSED FOR A PERIOD OF 30 MINUTES. OR OVERRIDDEN BY CENTRAL OCCUPANCY INPUT.

FOR ZONES WITH MULTIPLE SPACES, AN OCCUPANCY SENSOR SHALL BE PROVIDED IN EACH SPACE, AND ZONE OCCUPANCY SHALL BE BASED ON OCCUPANCY INPUTS FROM ANY OF THE SPACE OCCUPANCY SENSORS ASSOCIATED WITH THAT ZONE.

SAFETY SHUTDOWN:

WHEN THE DISCHARGE AIR TEMPERATURE (DAT) DROPS BELOW THE LOW LIMIT SETPOINT, THE HEATING VALVE SHALL OPEN FULLY AND COOLING VALVE SHALL CLOSE THE FAN SHALL SHUT OFF AND THE OUTSIDE AIR DAMPER SHALL CLOSE. THE SAFETY SHUT DOWN SHALL ALSO OCCUR WHEN THERE IS A SMOKE ALARM OR CONDENSATE OVERFLOW ALARM INPUT.

WARM UP:

WHEN A WARM-UP IS INITIATED, THE FAN SHALL ENERGIZE AND THE HEATING VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE REACHES THE HEATING SETPOINT, THE FAN COIL UNIT SHALL OPERATE IN OCCUPIED MODE.

COOLDOWN:

WHEN A COOL DOWN SHALL BE INITIATED, THE FAN SHALL TURN AT HIGH SPEED, THE COOLING VALVE SHALL FULLY OPEN, AND THE HEATING VALVE SHALL FULLY CLOSE. WHEN THE SPACE TEMPERATURE REACHES SETPOINT THE FAN COIL UNIT SHALL OPERATE IN OCCUPIED MODE AT REQUIRED FAN SPEED.

START/STOP

THE FAN COIL UNIT SHALL OPERATE WHENEVER THE SPACE IS IN OCCUPIED OR OCCUPIED SETBACK MODE.

THE SPACE SENSOR SHALL BE PROVIDED WITH A MANUAL OVERRIDE SWITCH TO ALLOW THE OCCUPANT TO HAVE THE CAPABILITY OF MANUALLY SELECTING FAN START/STOP. IF THE SYSTEM IS PLACED IN MANUAL CONTROL, SYSTEM SHALL REVERT BACK TO AUTOMATIC CONTROL AT THE START OF THE SCHEDULED OCCUPANCY PERIOD.

MANUAL CONTROL SHALL ALSO BE OVER RIDDEN IF SPACE CONDITIONS RISE ABOVE THE HIGH LIMIT SPACE TEMPERATURE, IF SPACE CONDITIONS FALL BELOW THE LOW LIMIT SPACE TEMPERATURE, AND IF THE FCU DISCHARGE AIR TEMPERATURE FALLS BELOW THE LOW LIMIT DISCHARGE AIR TEMPERATURE.

THE FAN COIL UNIT SHALL ALSO START AND OPERATE DURING UNOCCUPIED MODE WHEN IT IS NEEDED TO MAINTAIN THE UNOCCUPIED HEATING AND COOLING TEMPERATURE SET POINTS OR LOW LIMITS.

FAN SPEED CONTROL

THE FAN SHALL OPERATE AT CONSTANT SPEED WHENEVER THE SYSTEM IS INDEXED TO OPERATE. FAN SPEED SHALL BE THE LOWEST REQUIRED SPEED TO SERVICE THE LOAD. FAN SPEED SHALL NOT CHANGE MORE THAN TWICE IN A 30 MINUTE PERIOD.

ZONE TEMPERATURE CONTROL

TEMPERATURE SETPOINTS SHALL BE DETERMINED BASED ON A COMBINATION OF PROGRAMMED SCHEDULE AND A SPACE OCCUPANCY SENSOR.

OCCUPIED HEATING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD AND THE ZONE TEMPERATURE FALLS BELOW THE OCCUPIED HEATING TEMPERATURE SETPOINT, THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SETPOINT, WHETHER THE FAN IS ON OR OFF. IF THE FAN IS OFF, AND THE TEMPERATURE FALLS BELOW THE SPACE LOW LIMIT TEMPERATURE, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL MODE, THE UNIT FAN SHALL START, AND THE HEATING COIL CONTROL VALVE SHALL MODULATE AS NEEDED TO MAINTAIN SETPOINT.

OCCUPIED COOLING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD, THE FAN IS ON, AND THE ZONE TEMPERATURE RISES ABOVE THE OCCUPIED COOLING TEMPERATURE SETPOINT, THE COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SETPOINT. IF THE FAN IS OFF AND THE TEMPERATURE RISES ABOVE THE SPACE HIGH LIMIT TEMPERATURE, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL MODE, THE UNIT SHALL START, AND THE COOLING COIL CONTROL VALVE SHALL MODULATE AS NEEDED TO MAINTAIN SETPOINT.

OCCUPIED SETBACK: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, THE ABOVE OCCUPIED HEATING/COOLING SEQUENCES SHALL APPLY. THE SPACE SHALL BE MAINTAINED AT THE OCCUPIED SETBACK TEMPERATURE SETPOINTS.

UNOCCUPIED HEATING: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD AND THE ZONE TEMPERATURE FALLS BELOW THE UNOCCUPIED HEATING TEMPERATURE SETPOINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL, THE UNIT FAN SHALL BE ON, AND THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SETPOINT.

UNOCCUPIED COOLING: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD AND THE ZONE TEMPERATURE RISES ABOVE THE UNOCCUPIED COOLING TEMPERATURE SETPOINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL, THE UNIT FAN SHALL START, AND THE COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SETPOINT.

IF AT ANY TIME THE FAN COIL UNIT DISCHARGE AIR TEMPERATURE FALLS BELOW THE LOW LIMIT TEMPERATURE SETPOINT, THE BACS SHALL INDEX THE UNIT TO AUTOMATIC MODE IF IT HAS BEEN PLACED IN MANUAL MODE, THE UNIT FAN SHALL START, AND THE HEATING CONTROL VALVE SHALL OPEN. THE SYSTEM SHALL RUN FOR A PERIOD OF AT LEAST 30 MINUTES, AFTER WHICH THE SYSTEM SHALL REVERT BACK TO NORMAL CONTROL.

THE COIL CONTROL VALVES SHALL BE CLOSED WHEN THE FAN COIL UNIT FAN IS OFF.

D 4 PIPE FAN COIL UNIT

NO SCALE

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE
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REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: Author
DATE: 12/18/20
CHECKED: Checker
DATE PLOTTED: 12/18/2020 10:32:47 PM

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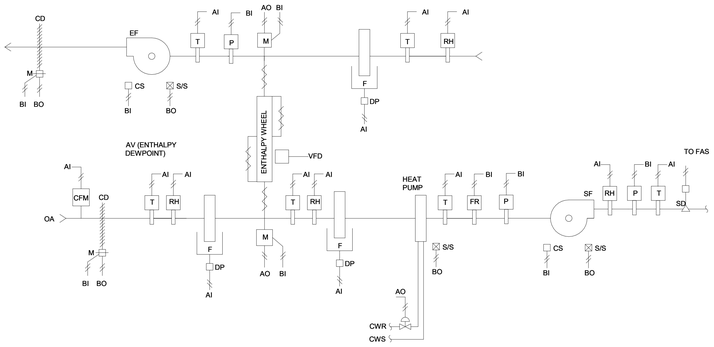
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
MECHANICAL CONTROLS I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-800.E



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SUPPLY FAN START/STOP					X					X						X	X								X	SUPPLY FAN ALARM				X
SUPPLY FAN CURRENT SWITCH															X									X		SUPPLY FAN FAILURE				X
SUPPLY FAN DISCHARGE PRESSURE			X																		X					SUPPLY FAN HIGH DISCHARGE PRESSURE				X
RETURN FAN START/STOP					X					X						X	X								X	RETURN FAN ALARM				X
RETURN FAN CURRENT SWITCH															X									X		RETURN FAN FAILURE				X
RETURN FAN SUCTION PRESSURE			X																		X					RETURN FAN HIGH SUCTION PRESSURE				X
SUPPLY AIR TEMPERATURE		X																			X			X		SA TEMPERATURE OUT OF RANGE				X
SUPPLY AIR HUMIDITY				X																	X	X				RA TEMPERATURE OUT OF RANGE				X
CONDENSER WATER 2-WAY VALVE										X													X			CONTROL VALVE FAILURE				X
COMPRESSOR ENABLE/DIABLE																	X						X							X
OA DAMPER										X					X											OA DAMPER FAILURE				X
RA DAMPER										X					X											RA DAMPER FAILURE				X
SA SMOKE DETECTOR																X							X			SA SMOKE DETECTOR ACTIVATION				X
FILTER PRESSURE DROP			X																		X					HIGH FILTER PRESSURE DROP				X
FREEZESTAT																X							X			FREEZESTAT ACTIVATION				X
SUPPLY AIR HIGH STATIC			X																		X			X		SUPPLY AIR HIGH STATIC PRESSURE				X
RETURN AIR HIGH STATIC			X																			X		X		RETURN AIR HIGH STATIC PRESSURE				X
AHU ALARM STATUS												X				X										AHU ALARM				
OUTSIDE AIR TEMPERATURE (INTAKE SENSOR)	X																								X	OUTSIDE AIR TEMPERATURE SENSOR FAILURE				X
OUTSIDE AIR HUMIDITY (INTAKE SENSOR)				X																					X	OUTSIDE HUMIDITY SENSORT FAILURE				X

NOTES:

GENERAL

1. SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING MANAGEMENT AND CONTROL SYSTEM (BMS). ALL SETPOINTS SHALL BE ADJUSTABLE. THE BMS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK. THE BMS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST TEN HOURS.

START/STOP

AIR HANDLING UNIT SUPPLY FAN SHALL BE INTERLOCKED WITH THE ASSOCIATED HEAT RECOVERY EXHAUST FAN.

OCCUPIED: SUPPLY AIR FAN AND ASSOCIATED EXHAUST FAN SHALL START AND OPERATE CONTINUOUSLY BASED ON THE TIME OF DAY SCHEDULE.

SHUTOFF DAMPER CONTROL

WHEN THE SYSTEM FANS ARE OFF, THE OUTSIDE AIR AND ASSOCIATED EXHAUST DAMPERS SHALL BE CLOSED.

WHEN THE SYSTEM FANS ARE INDEXED TO START, THE OUTSIDE AIR AND ASSOCIATED EXHAUST DAMPERS SHALL PROVE OPEN VIA AN END SWITCH PRIOR TO STARTING THE SYSTEM FANS.

FILTER STATUS

THE DDC CONTROL SYSTEM SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE SYSTEM FILTER BANKS.

AIRFLOW MONITORING

THE DDC CONTROL SYSTEM SHALL MONITOR THE OUTSIDE AIR, SUPPLY AND EXHAUST AIRFLOW RATES AS MEASURED BY THEIR RESPECTIVE AIRFLOW MEASURING STATIONS.

SUPPLY AIR TEMPERATURE/HUMIDITY CONTROL

WHEN THE AHU DISCHARGE AIR TEMPERATURE FALLS BELOW SETPOINT, THE HEAT PUMP SHALL ENERGIZE AND THE COMPRESSOR SHALL MODULATE AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.

WHEN THE AHU DISCHARGE AIR TEMPERATURE RISES ABOVE SETPOINT, THE HEAT PUMP SHALL ENERGIZE AND THE COMPRESSOR SHALL MODULATE AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.

ENERGY RECOVERY WHEEL CONTROL

WINTER MODE: WINTER MODE SHALL BE INITIATED WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW THE RETURN AIR TEMPERATURE, AND THE WHEEL SUPPLY LEAVING AIR TEMPERATURE IS BELOW SETPOINT. THE WHEEL SHALL BE ENABLED, AND SHALL MODULATE TO MAINTAIN THE WHEEL LEAVING AIR TEMPERATURE SETPOINT.

SUMMER MODE: SUMMER MODE SHALL BE INITIATED WHEN THE OUTSIDE AIR TEMPERATURE IS 3-5 °F ABOVE THE RETURN AIR TEMPERATURE. THE WHEEL SHALL BE ENABLED, AND SHALL RUN AT MAXIMUM SPEED.

ANTI-FROST MODE: ANTI-FROST MODE SHALL BE INITIATED WHEN THE EXHAUST AIR TEMPERATURE FALLS BELOW 34 °F. THE WHEEL SHALL MODULATE TO MAINTAIN THE EXHAUST AIR TEMPERATURE AT A MINIMUM OF 34 °F.

PURGE MODE: FOR EVERY HOUR THE WHEEL IS OFF, THE WHEEL SHALL START AND OPERATE FOR ONE MINUTE TO PURGE THE WHEEL.

FAILURE MODE: UPON WHEEL ROTATION FAILURE, AS SENSED BY THE ROTATION DETECTION SENSOR, THE SUPPLY AND EXHAUST AIR BYPASS DAMPERS SHALL OPEN.

SAFETIES

FREEZE PROTECTION: THE SUPPLY AIR FAN SHALL SHUT DOWN, THE OUTSIDE AIR DAMPER SHALL CLOSE, AND THE CONTROL VALVES SHALL OPEN UPON ACTIVATION OF THE LOW LIMIT TEMPERATURE SWITCH.

HIGH FAN STATIC: THE SUPPLY AIR FAN SHALL SHUT DOWN AND THE OUTSIDE AIR DAMPER SHALL CLOSE UPON ACTIVATION OF THE HIGH FAN DISCHARGE STATIC PRESSURE SWITCH.

LOW FAN STATIC: THE SUPPLY AIR FAN SHALL SHUT DOWN AND THE OUTSIDE AIR DAMPER SHALL CLOSE UPON ACTIVATION OF THE LOW FAN DISCHARGE STATIC PRESSURE SWITCH.

SMOKE DETECTION: THE FAN SHALL SHUT DOWN AND THE OUTSIDE AIR/RELIEF AIR DAMPER SHALL CLOSE UPON ACTIVATION OF A DUCT SMOKE DETECTOR.

FAN SAFETY CONTROLS: DE-ENERGIZE THE SUPPLY AND EXHAUST FAN WHENEVER THE STOP/AUTO INTERLOCK IS OPEN OR HEAT RECOVERY WHEEL ROTATION DETECTION FAILS, ALARM BMS WITH APPROPRIATE ALARM MESSAGE.

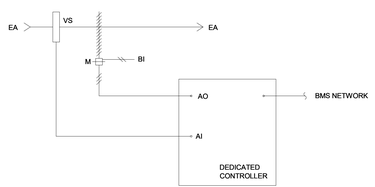
FREEZE PROTECTION: A MANUAL RESET MIXED AIR LOW LIMIT SHALL TURN THE FANS OFF IF ANY 12 INCHES OF ITS SENSING ELEMENT IS BELOW ITS SETPOINT (55F, ADJ). THE OUTSIDE AIR DAMPERS SHALL BE CLOSED. HEAT WHEEL ROTOR SPEED SHALL BE MINIMIZED. COIL FREEZE PROTECTION PUMPS SHALL RUN IF THE OUTDOOR AIR TEMPERATURE IS BELOW 40°F.

A AHU14 DEDICATED OUTSIDE AIR SYSTEM

NO SCALE

A 100% OUTSIDE AIR HANDING UNIT

NO SCALE



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EXHAUST VAV BOX AIR VALVE										X						X							X		X	VAV BOX TROUBLE				X
SPACE OCCUPANCY SENSOR (S)												X																		X
EXHAUST ENABLE SIGNAL												X																		X
REQUIRED FLOW																											X		X	X
MEASURED AIR FLOW							X														X	X				FLOW OUT OF RANGE			X	X

NOTES:

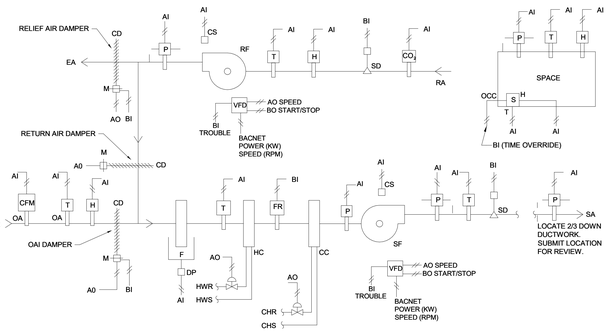
A. ENABLED MODE:
1. WHEN EXHAUST IS ENABLED BY TIME CLOCK, FUME HOOD OPERATOR OR MANUAL START EAV SHALL MODULATE TO FLOW SETPOINT.

B. DISABLED MODE:
1. DAMPER SHALL BE FULLY CLOSED.

C. ALARMS:
1. ALARM THE TIME AND DURATION OF ALL VAV OVERRIDES AND FLOW FAILURES.

C EXHAUST AIR VAV

NO SCALE



NOTES:

A. OCCUPIED MODE:
1. WHEN THE AHU IS IN THE OCCUPIED MODE, THE SUPPLY AND RETURN FANS SHALL OPERATE CONTINUOUSLY. THE SUPPLY FAN VFD SHALL MODULATE TO MAINTAIN THE DUCT STATIC PRESSURE. THE RETURN FAN VFD SHALL TRACK WITH THE SUPPLY FAN VFD TO MAINTAIN RETURN STATIC PRESSURE OF 0.1 INCHES WC (ADJ). THE COOLING VALVES, HEATING VALVES, AND ECONOMIZER DAMPERS SHALL MODULATE IN SEQUENCE TO MAINTAIN DISCHARGE AIR TEMPERATURE (DAT) OF 55F (ADJ.). THE EA (RELIEF) AND RA DAMPERS SHALL MODULATE IN SEQUENCE TO MAINTAIN A SPACE POSITIVE PRESSURE OF 0.05" WC.

B. UNOCCUPIED MODE:
1. WHEN THE AHU IS IN THE UNOCCUPIED MODE, THE SUPPLY AND RETURN FAN SHALL BE OFF. THE OUTSIDE AIR DAMPER AND COOLING VALVE SHALL BE CLOSED, AND THE HEATING VALVE SHALL BE CLOSED, UNLESS THE FREEZE STAT OR NIGHT SETBACK OVERRIDES THE VALVE POSITION. THE EA IS CLOSED AND THE RA DAMPERS ARE OPEN.

C. NIGHT SETBACK MODE:
1. CYCLE SUPPLY AND RETURN FANS TO MAINTAIN SETBACK SPACE TEMPERATURE SETPOINT OF ALL SPACE T-STATS.
2. OA DAMPERS SHALL BE CLOSED. EA DAMPERS SHALL BE CLOSED. RETURN AIR DAMPERS SHALL BE OPEN.
3. COOLING SHALL BE LOCKED OUT.
4. MAINTAIN A 6F (ADJ.) OFFSET TO SETPOINT.
5. OPEN HEATING VALVE FULLY AND ENERGIZE FAN AT OFFSET. RUN UNTIL SETPOINT OF COLDEST T-STAT IS REACHED, THEN DE-ENERGIZE FAN.
6. ASSOCIATED VAV BOXES TO MODULATE TO ACHIEVE ALL SETBACK SPACE TEMERATURE SETPOINTS. UPON ALL SPACE T-STATS REACHING SETPOINT, AHU TO RETURN TO UNOCCUPIED MODE. VAV HEATING TO REMAIN CLOSED DURING NIGHT SETBACK MODE.

D. WARM-UP MODE:
1. SUPPLY AND RETURN FANS SHALL RUN CONTINUOUSLY AND BE ENERGIZED ONE HOUR (ADJ.) PRIOR TO SCHEDULED OCCUPIED MODE START. MODULATE HEATING VALVE TO WARM-UP SPACE TO OCCUPIED SETPOINT OF ALL SPACE STATS.
2. OA DAMPERS SHALL BE CLOSED. EA DAMPERS SHALL BE CLOSED. RA DAMPERS SHALL BE OPEN.
3. COOLING SHALL BE LOCKED OUT.
4. REVERT TO OCCUPIED MODE WHEN ALL SPACE STATS HAVE REACHED OCCUPIED HEATING SETPOINT.

E. FAN SAFETY CONTROLS:
1. DE-ENERGIZE THE SUPPLY AND RETURN FANS WHENEVER THE FREEZE STAT IS TRIPPED, EITHER SMOKE DETECTOR HAS TRIPPED OR A FAN STATUS INDICATES A FAILURE (AFTER A TWO-MINUTE DELAY). THE SMOKE DETECTORS, FREEZE STAT AND THE FAN FAILURES REQUIRE A MANUAL RESET.
2. DE-ENERGIZE THE SUPPLY AND RETURN FANS WHEN THE DISCHARGE STATIC PRESSURE HIGH-LIMIT REACHES 4.0 INCHES WC (ADJ.).
3. DE-ENERGIZE THE SUPPLY AND RETURN FAN WHEN THE RETURN FAN DISCHARGE STATIC PRESSURE HIGH-LIMIT REACHES 2.0 INCHES WC (ADJ.).
4. PROVIDE SUCTION STATIC PRESSURE SWITCH AT INLET OF SUPPLY FAN. SWITCH TO BE TIED TO SUPPLY FAN START CIRCUIT. DE-ENERGIZE SUPPLY AND RETURN FAN WHEN SUCTION SUPPLY FAN STATIC PRESSURE HIGH-LIMIT REACHES 2.0 INCHES WC (ADJ.)
5. ALARM THE BMS WITH THE APPROPRIATE ALARM MESSAGE.

F. VFD CONTROL:
1. WHEN THE SUPPLY AND RETURN FANS ARE TURNED ON, THE VFD SHALL SLOWLY RAMP UP TO SETPOINT AND MODULATE TO MAINTAIN THE PROPER DUCT STATIC PRESSURES. THE STATIC PRESSURE SENSORS SHALL BE LOCATED BY THIS DIVISION.
2. SUBMIT SENSOR LOCATIONS TO ENGINEER FOR REVIEW.
3. SENSING DEVICE SHALL BE MULTIPLE POINT, NON-PULSATING STATIC SENSING SECTION WITH SELF AVERAGING MANIFOLD.

G. OUTSIDE AIR CONTROL:
1. PROVIDE CO2 SENSOR IN RETURN AIR DUCTWORK TO MONITOR CO2 LEVEL.
2. MODULATE OA DAMPER ABOVE MINIMUM POSITION TO MAINTAIN RETURN AIR CO2 LEVEL BELOW 1000 PPM AS NECESSARY.
3. MONITOR THE MIXED AIR TEMPERATURE AND DAT AND OVERRIDE THE OA CONTROL IF MA TEMP FALLS BELOW 45F (ADJ.) OR DAT EXCEEDS 60F (ADJ.). ALARM THE BMS IF EITHER OCCURS.
4. OA DAMPERS ARE CLOSED IN UNOCCUPIED MODE.

H. ECONOMIZER CONTROL:
1. WHEN THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY, AND COOLING IS REQUIRED, THE ECONOMIZER CONTROL SHALL BE ENABLED. THE ECONOMIZER DAMPERS SHALL MODULATE BETWEEN THE ADJUSTABLE MINIMUM POSITION AND FULL OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE. COOLING SHALL BE ENABLED WITH THE OUTSIDE AIR DAMPERS FULLY OPEN AS LONG AS OUTSIDE AIR ENTHALPY IS LESS THAN RETURN AIR ENTHALPY. HEATING SHALL BE LOCKED OUT UNTIL THE ECONOMIZER DAMPERS HAVE RETURNED TO THE MINIMUM VENTILATION POSITION. WHEN OUTSIDE AIR ENTHALPY EXCEEDS RETURN AIR ENTHALPY, ECONOMIZER CONTROL SHALL BE DISABLED. EXHAUST DAMPER TO MODULATE BETWEEN THE ADJUSTABLE MINIMUM POSITION AND FULL OPEN TO MAINTAIN BUILDING STATIC PRESSURE SETPOINT. BMS SHALL CALCULATE ALL ENTHALPIES.

I. DISCHARGE AIR TEMPERATURE CONTROL:
1. MAINTAIN 55F (ADJ.) DAT.
2. IF DAT DROPS BELOW 40F (ADJ) DE-ENERGIZE FANS AND CLOSE OA AND EA DAMPERS. ALARM BMS.
3. MONITOR VALVE POSITION AND MAINTAIN A D.A.T. WHICH RESETS D.A.T. SETPOINT UP IF ALL HEATING VALVES ARE MORE THAN 10% (ADJ.) OPEN AND RESETS THE D.A.T. SETPOINT DOWN IF A GIVEN ZONE'S HEATING VALVE IS FULLY CLOSED AND ZONE TEMPERATURE IS 2°F (ADJ) OR MORE ABOVE SETPOINT.

J. FREEZE PROTECTION:
1. A MANUAL RESET HEATING COIL DISCHARGE AIR LOW LIMIT SHALL TURN THE FANS OFF IF ANY 12-INCHES OF ITS SENSING ELEMENT IS BELOW ITS SETPOINT (35 ADJ.).
2. THE OA AND EA DAMPERS SHALL CLOSE.
3. THE HEATING VALVE SHALL OPEN TO FULL OPEN POSITION.
4. THE HEATING VALVE SHALL REMAIN FULL OPEN IF THE MIXED AIR TEMPERATURE IS BELOW 40F (ADJ.) WHEN THE FANS ARE OFF.

K. TIMED OVERRIDE:
1. PROVIDE A TWO HOUR TIMED OVERRIDE VIA SWITCH AT ALL SPACE SENSORS TO RETURN AHU TO OCCUPIED MODE.

L. HEATING VALVE CONTROL:
1. THE HEATING VALVES SHALL MODULATE TO MAINTAIN THE DAT (ADJ.). THE HEATING VALVES SHALL BE FULLY CLOSED IF THE FANS ARE OFF.

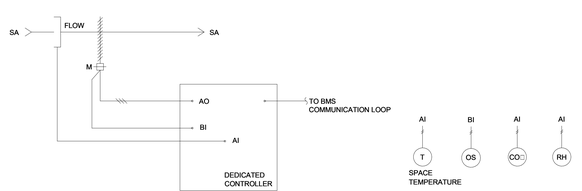
M. COOLING VALVE CONTROL:
1. THE COOLING VALVES SHALL MODULATE TO MAINTAIN THE DAT (ADJ.). THE COOLING VALVES SHALL BE FULLY CLOSED IF THE FANS ARE OFF OR COOLING VALVE IS OPEN.

N. HUMIDITY CONTROL:
1. UPON A CALL FOR DEHUMIDIFICATION, HUMIDITY SENSOR SHALL MODULATE CHILLED WATER VALVE OPEN TO LOWER D.A.T. TO 48°F (ADJ). TERMINAL REHEAT COIL TO REHEAT AIR TO 55°F (ADJ).

POINT DESCRIPTION	ANALOG INPUT: INPUT VALUE	TEMP	PRES	HUMIDITY	AMPS	GPM	CFM	PPM	PERCENT	ANALOG OUTPUT: DDC 4-20 ma, 0-10 VDC	SETPOINT ADJ	BINARY INPUT: INPUT VALUE	STATUS ON/OFF	STATUS - FILTER	STATUS OPEN/CLOSED	STATUS - ALARM	BINARY OUTPUT: START/STOP	OPEN/CLOSED	LOCK OUT	ENABLE/DISABLE	ALARMS: HIGH ANALOG	LOW ANALOG	BINARY	SENSOR FAIL	COMM FAIL	ALARM LABEL	CALCULATED VALUE	BACNET	TREND	DISPLAY ON GRAPHIC
SUPPLY FAN VFD SPEED COMMAND										X															X				X
SUPPLY FAN START/STOP																	X												X
SUPPLY FAN POWER (KW)																											X		X
SUPPLY FAN SPEED (RPM)																											X		X
SUPPLY FAN VFD TROUBLE															X											SUPPLY FAN VFD TROUBLE				X
SUPPLY FAN DISCHARGE PRESSURE			X																		X					SUPPLY FAN HIGH DISCHARGE PRESSURE				X
SUPPLY AIR TEMPERATURE		X																			X	X		X		SUPPLY AIR TEMPERATURE OUT OF RANGE			X	X
SUPPLY FAN SUCTION PRESSURE			X																		X	X		X		SUPPLY FAN HIGH SUCTION PRESSURE			X	X
SUPPLY AIR DUCT SYSTEM STATIC PRESSURE			X																		X	X		X		SUPPLY DUCT STATIC PRESSURE OUT OF RANGE				X
SUPPLY FAN CURRENT SWITCH															X									X		SUPPLY FAN CS FAILURE				X
RETURN FAN VFD SPEED COMMAND										X															X					X
RETURN FAN START/STOP																	X													X
RETURN FAN POWER (KW)																											X			X
RETURN FAN SPEED (RPM)																											X			X
RETURN FAN VFD TROUBLE															X											RETURN FAN VFD TROUBLE				X
RETURN FAN DISCHARGE PRESSURE			X																		X					RETURNFAN HIGH DISCHARGE PRESSURE				X
RETURN FAN SUCTION PRESSURE			X																		X	X		X		RETURN FAN HIGH SUCTION PRESSURE			X	X
RETURN FAN CURRENT SWITCH															X									X		RETURN FAN CS FAILURE				X
RETURN AIR TEMPERATURE		X																						X		RETURN AIR TEMPERATURE SENSOR FAILURE			X	X
RETURN AIR HUMIDITY				X																				X		RETURN AIR HUMIDITY SENSOR FAILURE			X	X
HEATING COIL 2-WAY VALVE										X															X	HEATING COIL CONTROL VALVE FAILURE				X
COOLING COIL 2-WAY VALVE										X															X	COOLING COIL CONTROL VALVE FAILURE				X
MIXED AIR TEMPERATURE		X																			X	X		X		MIXED AIR TEMPERATURE OUT OF RANGE			X	X
OA DAMPER										X					X										X	OA DAMPER FAILURE				X
RA DAMPER										X					X										X	RA DAMPER FAILURE				X
EA DAMPER										X					X										X	EA DAMPER FAILURE				X
RA SMOKE DETECTOR																X							X			RA SMOKE DETECTOR ACTIVATION				X
SA SMOKE DETECTOR																X							X			SA SMOKE DETECTOR ACTIVATION				X
FILTER PRESSURE DROP			X																		X					HIGH FILTER PRESSURE DROP			X	X
FREEZESTAT															X								X			FREEZESTAT ACTIVATION				X
RA CARBON DIOXIDE SENSOR									X												X	X		X		RA CARBON DIOXIDE OUT OF RANGE			X	X
SUPPLY AIR HIGH STATIC			X																		X			X		SUPPLY AIR HIGH STATIC PRESSURE				X
RETURN AIR HIGH STATIC			X																		X			X		RETURN AIR HIGH STATIC PRESSURE				X
SPACE OCCUPANCY SENSOR (S)																		X											X	X
SPACE TEMPERATURE		X																			X	X		X		SPACE TEMPERATURE OUT OF RANGE			X	X
SPACE HUMIDITY				X																	X	X		X		SPACE HUMIDITY OUT OF RANGE			X	X
SPACE TEMPERATURE SETPOINT	X																												X	X
SPACE PRESSURE																					X	X		X		SPACE PRESSURE OUT OF RANGE				X
AHU ALARM STATUS																X										AHU TROUBLE				X
TIMED OVERRIDE																														X
OUTSIDE AIR FLOW									X																					X
OUTSIDE AIR TEMPERATURE (INTAKE SENSOR)		X																							X	OA TEMPERATURE SENSOR FAILURE				X
OUTSIDE AIR HUMIDITY (INTAKE SENSOR)				X																					X	OA HUMIDITY SENSOR FAILURE				X

B VAV AIR HANDING UNIT WITH RETURN FAN

NO SCALE



POINT DESCRIPTION	ANALOG INPUT: INPUT VALUE	TEMP	PRES	HUMIDITY	AMPS	GPM	CFM	PPM	PERCENT	ANALOG OUTPUT: DDC 4-20 ma, 0-10 VDC	SETPOINT ADJ	BINARY INPUT: INPUT VALUE	STATUS ON/OFF	STATUS - FILTER	STATUS OPEN/CLOSED	STATUS - ALARM	BINARY OUTPUT: START/STOP	OPEN/CLOSED	LOCK OUT	ENABLE/DISABLE	ALARMS: HIGH ANALOG	LOW ANALOG	BINARY	SENSOR FAIL	COMM FAIL	ALARM LABEL	CALCULATED VALUE	BACNET	TREND	DISPLAY ON GRAPHIC
VAV BOX AIR VALVE POSITION COMMAND										X						X									X	VAV BOX TROUBLE			X	X
VAV BOX AIRFLOW FEEDBACK																					X	X				10% DEVIATION FROM SETPOINT	X	X	X	X
VAV BOX AIRFLOW SETPOINT																											X	X	X	X
VAV BOX AIRFLOW POSITION FEEDBACK																										10% DEVIATION FROM SETPOINT			X	X
SPACE OCCUPANCY SENSOR (S)													X																X	X
CENTRAL OCCUPANCY INPUT																												X	X	X
SPACE CO2 SENSOR										X																			X	X
SPACE TEMPERATURE			X																		X	X		X		SPACE TEMPERATURE OUT OF RANGE			X	X
SPACE TEMPERATURE SETPOINT	X																												X	X

D VARIABLE AIR VOLUME TERMINAL

NO SCALE

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE CONSTRUCTION. THESE DRAWINGS DO NOT SCALE THE DRAWINGS

SEAL

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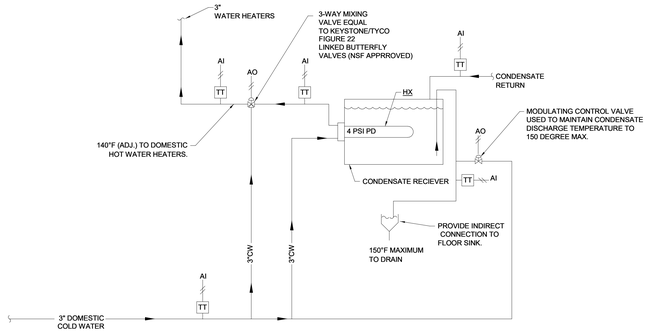
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
MECHANICAL CONTROLS II - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-801.E



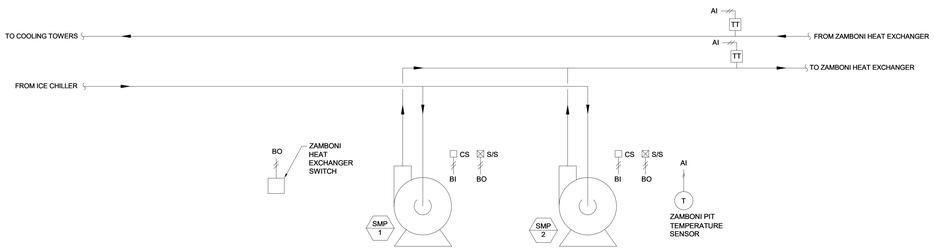
DOMESTIC WATER 3-WAY MIXING VALVE SHALL MODULATE TO MAINTAIN 140 DEG F IN DOMESTIC HOT WATER.

MODULATE CONDENSATE COOLER CONTROL VALVE ON DOMESTIC WATER COOLING LINE TO MAINTAIN 150 DEG F DISCHARGE TEMPERATURE TO DRAIN.

PROVIDE TEMPERATURE MONITORING AT BMS FOR LOCATIONS SHOWN ON SCHEMATIC:

A STEAM CONDENSATE DOMESTIC HOT WATER HEAT RECOVERY SYSTEM

NO SCALE



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SWP-1 START/STOP																	X												X	X
SWP-1 CURRENT SWITCH					X																	X				SWP-1 FAILURE			X	X
SWP-2 START/STOP																	X												X	X
SWP-2 CURRENT SWITCH					X																	X				SWP-2 FAILURE			X	X
HEAT EXCHANGER START SWITCH																	X													X
ZAMBONI PIT TEMPERATURE		X																			X	X								X
SUPPLY WATER TEMPERATURE		X																			X	X							X	X
RETURN WATER TEMPERATURE		X																			X	X				RETURN TEMPERATURE OUT OF RANGE			X	X

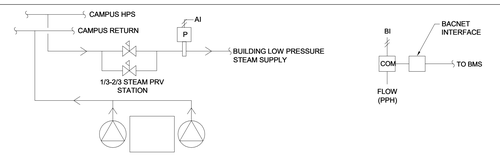
NOTES:

A. START PUMPS WHEN THE ZAMBONI HEAT EXCHANGER SWITCH IS ENERGIZED AND THE ZAMBONI PIT TEMPERATURE IS BELOW 80 F (ADJ.).

B. STOP PUMPS WHEN THE ZAMBONI HEAT EXCHANGER SWITCH IS DISABLED.

B ZAMBONI PIT HEATING SYSTEM

NO SCALE



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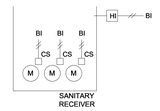
BUILDING STEAM PRESSURE LEAVING PRV			X																			X				LOW STEAM PRV DISCHARGE PRESSURE			X	X
BUILDING STEAM PRESSURE SETPOINT	X																												X	X
CONDENSATE FLOW FROM CIMETRICS PANEL VIA EMCS I/P																											X		X	X

C STEAM AND CONDENSATE MONITORING

NO SCALE



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SANITARY RECEIVER HIGH LEVEL SWITCH												X									X					SANITARY RECEIVED HIGH LEVEL			X	X
PUMP #1 RUNNING												X											X			PUMP RUNNING			X	X
PUMP #2 RUNNING (IF PROVIDED)												X											X			PUMP RUNNING			X	X
PUMP #3 RUNNING (IF PROVIDED)												X											X			PUMP RUNNING			X	X

D SANITARY SUMP PIT SERVICE MONITORING

NO SCALE

C -

NO SCALE

B C A D

XL CENTER

CAPITAL REGION DEVELOPMENT AUTHORITY

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469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

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1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

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DO NOT SCALE THE DRAWINGS

SEAL

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE: MECHANICAL CONTROLS III - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: M-802.E

PLUMBING LEGEND

(NOT ALL SYMBOLS LISTED BELOW ARE BEING USED IN THIS SET OF PLUMBING DRAWINGS)

GENERAL SYMBOLS/ ABBR.

SYMBOL	ABBR	DESCRIPTION
F M		SECTION NO.
		SECTION VIEW SHEET NO.
F 1		EQUIPMENT DESIGNATION
1		SHEET KEY NOTES
	POC	POINT OF CONN. (CONN. NEW TO EXISTING)
	POD	POINT OF DISCONNECTION
		ARROW INDICATES DIRECTION OF FLOW
UP		RISE IN DIRECTION OF FLOW
DN		DROP IN DIRECTION OF FLOW
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	BOP	BOTTOM OF PIPE (AFF)
	BS	BELL & SPIGOT
	CL	CENTERLINE
	DN	DOWN
	EL	ELEVATION
	INV	INVERT
	NTS	NOT TO SCALE
	SQ.FT	SQUARE FEET
	TOP	TOP OF PIPE (AFF)
	(E)	EXISTING
	(R)	REMOVE

SITE/BLDG INFRASTRUCTURE

SYMBOL	ABBR	DESCRIPTION
	F	FIRE
	SP	SPRINKLER
	BFP	BACKFLOW PREVENTER
DCDA		DOUBLE CHECK DETECTOR ASSEMBLY
DCVA		DOUBLE CHECK VALVE ASSEMBLY
	DCV	DOUBLE CHECK VALVE
	FAI	FRESH AIR INTAKE
	HT	HOUSE TRAP
	I.E.	INVERT ELEVATION
	MOCV	METER OUTLET CONTROL VALVE
RPZ		REDUCED PRESSURE ZONE ASSEMBLY
	TB	THRUST BLOCK
M	M	METER

GENERAL PIPING

SYMBOL	ABBR	DESCRIPTION
	(E)	EXISTING PIPING (LIGHT SOLID LINE)
	(R)	EXISTING PIPING TO BE REMOVED (DASHED LINE)
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	T	TEMPERED WATER
	HWC	DOMESTIC HOT WATER CIRCULATING
	PHW	PREHEAT DOMESTIC HOT WATER
	THW	DOMESTIC TEMP. HOT WATER
	SAN	SANITARY WASTE ABOVE FLOOR
	UGS	SANITARY WASTE BELOW FLOOR (UNDER GROUND)
	V	SANITARY VENT
	DR	EQUIP. DRAIN
2"SAN		PIPE SIZE/ PIPE TYPE

ROOF/ STORM

SYMBOL	ABBR	DESCRIPTION
	ST	STORM PIPING ABOVE FLOOR
	ST	STORM PIPING BELOW FLOOR
	OD	STORM OVERFLOW ABOVE FLOOR
	OD	STORM OVERFLOW BELOW FLOOR
	RD	ROOF DRAIN
	OD	OVERFLOW ROOF DRAIN
	DSN	DOWNSPOUT NOZZLE
	AD	AREA DRAIN

KITCHEN/ GAS EQUIPMENT

SYMBOL	ABBR	DESCRIPTION
	GW	GREASE WASTE BELOW FLOOR
	G	NATURAL GAS
		GAS COCK
		PLUG VALVE
	CFH	CUBIC FEET PER HOUR

FITTINGS

SYMBOL	ABBR	DESCRIPTION
EJ	EJ	EXPANSION JOINT
	U	UNION
		THERMOMETER WITHERMOWELL
	AV	AIR VENT
	FC	FLEXIBLE PIPE CONNECTOR
FS	FS	FLOW SWITCH
PS	PS	PRESSURE SWITCH
PS	PG	PRESSURE GAUGE W/GAUGE COCK
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		PIPE CAP OR PLUG
	CO	CLEANOUT PLUG
	HB/ WH	HOSE BIBB, WALL HYDRANT
	VB	VACUUM BREAKER
	SA	SHOCK ARRESTOR W/BALL VALVE
	FD	FLOOR DRAIN
	CODP/ FCO	FLOOR CLEANOUT
	FS	FLOOR SINK
	CR	CONCENTRIC REDUCER
	WCO	WALL CLEANOUT
	CR	CONCENTRIC REDUCER
	ER	ECCENTRIC REDUCER
	VTR	VENT THRU ROOF

VALVES

SYMBOL	ABBR	DESCRIPTION
	DV	DRAIN VALVE W/ HOSE END CONN.
	CV	CHECK VALVE W/ INDICATION OF FLOW DIRECTION
PRV	PRV	PRESSURE REDUCING VALVE
S	SV	SOLENOID VALVE
FC	FCV	AUTO FLOW CONTROL VALVE W/ TEST PORTS
CS.BV	CS.BV	CIRCUIT SETTER OR BALANCING VALVE
GLV	GLV	GLOBE VALVE (STRAIGHT PATTERN)
GLV	GLV	GLOBE VALVE (ANGLE PATTERN)
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
TCV	TCV	THERMOSTATIC MIXING VALVE, 2-WAY
TCV	TCV	THERMOSTATIC MIXING VALVE, 3-WAY
(E).ME (E).EV	TPR	TEMPERATURE/ PRESSURE RELIEF VALVE
		VALVE IN RISER
STR	STR	STRAINER W/ BLOW-OFF & CAPPED HOSE-END CONNECTION
	GV	GATE VALVE
OS&Y	OS&Y	OUTSIDE STEM AND YOKE

MECHANICAL/PLUMBING/ SPRINKLER/ELECTRICAL COORDINATION REQUIREMENTS

FOR MECHANICAL AND PLUMBING EQUIPMENT AS INDICATED ON THE DIVISION 21, 22, AND 23 DRAWINGS, THE DIVISION 21, 22 AND 23 CONTRACTORS SHALL COORDINATE WITH DIVISION 26 CONTRACTOR TO CONNECT ALL MECHANICAL AND PLUMBING EQUIPMENT INDICATED ON THE MECHANICAL AND PLUMBING DRAWINGS. COORDINATE FOR COMPLETE WIRING, STARTERS, AND DISCONNECTING MEANS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT.

GENERAL PLUMBING CONTRACT REQUIREMENTS:

GENERAL:

1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E. OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN.
2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS OF THE JOB.
3. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 23 WORK AND ITS INTERFACE WITH OTHER WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.
   A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
   B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.
   C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, CONSTRUCTION DRAWINGS, OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT.
4. THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS.
5. DEFINITIONS AND TERMINOLOGY
   A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 23 CONTRACT DOCUMENTS.
   B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC., PREPARED BY ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE DIVISION 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS.
   C. "CONSTRUCTION DOCUMENTS", "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS.
   D. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.
   E. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".
   F. "PROVIDE" MEANS TO "FURNISH AND INSTALL".
   G. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER.
   H. "WORK BY OTHER(S) DIVISIONS"; "RE: XX DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS PRIMARILY UNDER THE DIVISION OR SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID.
   I. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB-CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS.
   J. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS).

EXISTING BUILDING:

1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC., AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID.
2. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION. INCORPORATE THESE NOTES INTO THE AS-BUILT DRAWINGS.
3. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB PRIOR TO COMMENCING WORK. UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.

GENERAL PLUMBING DEMOLITION NOTES:

1. THE CONTRACTOR SHALL CAREFULLY INSPECT, REVIEW AND DOCUMENT THE EXISTING BUILDING PLUMBING SYSTEMS WITHIN THE PROJECT WORK AREAS SHOWN TO BE DEMOLISHED. PRIOR DOCUMENTATION OF EXISTING CONDITIONS, CAPACITIES AND PHYSICAL ARRANGEMENTS IS LIMITED. THESE DOCUMENTS ATTEMPT TO DEFINE AREAS BUT MAY NOT ACCURATELY SHOW ALL EXISTING CONDITIONS.
2. ALL EXISTING SANITARY AND STORM PIPING BEING REUSED SHALL BE INSPECTED AND VERIFIED TO BE IN GOOD CONDITION PRIOR TO CONNECTION OF ANY NEW PLUMBING SYSTEMS.
3. ALL PIPING SYSTEMS NO LONGER IS USE DUE TO RENOVATION SHALL BE REMOVED. NO PIPING WILL BE ABANDONED IN PLACE.

GENERAL PLUMBING NOTES:

1. ALL DRAIN GRATES, CLEANOUT COVERS, AND OTHER FINISHED-EXPOSED COMPONENTS SHALL BE PROTECTED FROM DAMAGE. DAMAGED COMPONENTS SHALL BE REPLACED BY CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.
2. COORDINATE ROUTING OF ALL PLUMBING PIPING WITH STRUCTURAL BEAMS, COLUMNS, ETC. ALLOW FOR REROUTING OF PIPING AS REQUIRED.
3. PIPING ROUTING ON DRAWINGS IS GENERALLY DIAGRAMMATIC WITH EFFORTS DURING DESIGN TO AVOID STRUCTURAL CONFLICTS. CONTRACTOR SHALL COORDINATE ROUTING OF ALL PIPING THROUGH BUILDING WITH STRUCTURAL CONDITIONS. CONTRACTOR COORDINATION DRAWINGS SHALL REFLECT ALL PIPE ROUTING AND PIPING THAT MAY HAVE TO BE SHIFTED AND/OR MOVED TO AVOID CONFLICTS. SHIFTED OR MOVED PIPING SHALL REFLECT NO ADDITIONAL COST TO THE PROJECT.
4. ALL REQUIRED OPENINGS IN STEEL BEAMS AND STRUCTURAL WALLS ARE TO BE ACCOMPLISHED USING SLEEVES/PENETRATIONS PROPERLY SIZED FOR THE PIPE THEY SERVE. ALL BEAM PENETRATIONS SHALL BE APPROVED BY THE STRUCTURAL CONSTRUCTION ENGINEER. CORE DRILLING OCCURRED UPON PRIOR APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER.
5. ALL HORIZONTAL SANITARY PIPING 3" AND SMALLER WHETHER BELOW OR ABOVE GRADE SHALL SLOPE AT 1/4"/FT. SLOPE. ALL PIPING 4" AND LARGER SHALL SLOPE AT 1/8"/FT. SLOPE UNLESS OTHERWISE NOTED. ALL STORM AND OVERFLOW PIPING SHALL SLOPE AT 1/8"/FT. SLOPE UNLESS OTHERWISE NOTED. ALL GREASE WASTE PIPING SHALL SLOPE AT 1/4"/FT.
6. IN GENERAL THE POINT OF CONNECTION FOR SANITARY AND STORM PIPE IS AT 5 FEET OUTSIDE OF BUILDING FOOTPRINT. CONFORM WORK TO MEET INVERT.
7. CAP ALL SANITARY AND STORM TEES FOR FUTURE BRANCH PIPING AND STAKE LOCATION OF PIPING FOR CONNECTION TO FUTURE BRANCH LINES.
8. ALL PIPING TO BE INSTALLED IN CONCEALED AREAS, IF NOT POSSIBLE PIPING TO BE PERPENDICULAR AND PARALLEL TIGHT TO STRUCTURE. INSTALL WITHIN WEBBING OF STEEL. REFER TO ARCH. DRAWINGS FOR AREAS WHICH NO PIPING CAN BE INSTALLED, "NO PI" ZONINGS ARE RESTRICTED AREAS. ALL SHOP DRAWINGS AND COORDINATION DRAWINGS MUST BE SUBMITTED TO OWNER FOR APPROVAL BEFORE INSTALLATION.
9. ALL CLEANOUTS FOR HORIZONTAL STORM DRAINAGE SYSTEM SHALL BE PIPE SIZE OR MAXIMUM 6" FOR LARGER PIPE. IN ADDITION TO THE CLEANOUT LOCATIONS SHOWN ON DRAWINGS, CLEANOUTS SHALL BE PROVIDED PROVIDED IN ACCORDANCE WITH THE LOCAL GOVERNING CODE. ADDITIONAL CLEANOUTS SHALL BE PROVIDED AS FOLLOWS;
   A. EACH RUN OF PIPING WHICH IS MORE THAN 75 FEET IN LENGTH OR FRACTION THEREOF
   B. HORIZONTAL LINES 5 FEET OR MORE
   C. HORIZONTAL LINES FOR EACH AGGREGATE CHANGE OF DIRECTION EXCEEDING 45 DEGREES.
   D. AT THE BASE OF ALL SANITARY AND STORM RISERS. ALL VERTICAL CLEANOUTS SHALL BE SIZED TO ACCOMMODATE THE LARGEST PIPE ON THAT BRANCH OR LINE, BUT NEVER LARGER THAN 4". ALL GREASE WASTE PIPING SHALL HAVE CLEANOUTS EVERY 50 FEET OR FRACTIONS THEREOF AND AS NOTED ABOVE. ALL
10. PROVIDE ISOLATION VALVES ON ALL PIPING SERVING HOSE BIBBS.
11. ALL FLOOR DRAINS IN BUILDING, EXCEPT DRAINS IN SHOWERS, SHOWER AREA, AND KITCHEN/ CONCESSION WET AREAS SHALL BE INSTALLED WITH PRIMER TAP AND A 12" LONG PIPE NIPPLE FROM FLOOR DRAIN PRIMER TAP AND STUBBED UP AT PLUMBING CHASES +12"AFF FOR CONNECTION TO TRAP PRIMER UNIT.COLD WATER (CW) PIPING IN OR BELOW FLOOR SLAB SHALL BE WRAPPED WITH POLYWRAP OR APPROVED EQUAL MATERIAL TO PROVIDE PROTECTION TO PIPING. ALL PIPING SHALL BE ONE PIECE FROM PRIMER TAP TO STUB UP.
12. ALL DOMESTIC WATER PIPING SERVING TOILET/RESTROOM GROUPS SHALL BE INSTALLED WITH ISOLATION VALVES IN ORDER TO ISOLATE THESE AREAS WITHOUT CLOSING DOWN ANY OTHER PORTION OF THE BUILDING WATER SUPPLY SYSTEMS. ALL ISOLATION VALVES SHALL BE ACCESSIBLE WITH ACCESS PANELS. MINIMUM ACCESS PANEL SIZE SHALL BE 12"x12". ACCESS PANELS SHALL BE OF THE SAME RATING AS THE STRUCTURAL ELEMENT IN WHICH THEY ARE INSTALLED.
13. EXTEND NEAREST DOMESTIC HOT WATER CIRCULATOR BRANCH TO EACH PUBLIC LAVATORY SINK. CIRCULATOR PIPE SHALL BE INSTALLED SO THAT THERE IS NO MORE THAN 2 FEET BETWEEN THE DOMESTIC HOT WATER CIRCULATED PIPE AND THE SINK ISOLATION VALVE STOP. INSTALL CIRCULATOR CONNECTION TRIM (TWO ISOLATION VALVES, CHECK VALVE, AND CIRCUIT SETTER) IN A SERVICE ABLE LOCATION. PROVIDE ACCESS DOOR AS REQUIRED.
14. ALL EQUIPMENT AND PIPING SHALL BE BRACED FOR SEISMIC REQUIREMENTS APPLICABLE FOR SEISMIC ZONE REQUIREMENTS FOR THIS PROJECT.
15. PROVIDE DIELECTRIC FITTINGS AT ALL CONNECTIONS BETWEEN DISSIMILAR METALS AND AS SHOWN ON DRAWINGS.
16. ALL TEMPERING VALVES TO BE SET FOR 110 DEGREE WATER TEMPERATURE MAXIMUM UNLESS OTHERWISE NOTED.

ELECTRICAL COORDINATION:

1. VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY PLUMBING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.
2. PROVIDE PREMIUM EFFICIENCY MOTORS (NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13) WITH 1.15 SERVICE FACTOR ON ALL EQUIPMENT, MOTORS SHALL BE CAPABLE OF OPERATING CONTINUOUSLY AT 105°F UNDER JOBSITE CONDITIONS AND AL TITUDE.
3. UNLESS NOTED OTHERWISE, ALL PLUMBING EQUIPMENT SHALL BE PROVIDED WITH HOA SWITCH AND STARTER COMPATIBLE WITH EQUIPMENT AND BMS SYSTEM. STARTERS SHALL BE PROVIDED BY DIVISION 22 UNLESS IN A MOTOR CONTROL CENTER. ALL DISCONNECTS SHALL BE FURNISHED BY DIVISION 26.
4. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER DIVISION 22 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND MUST BE PROVIDED BY AND FIELD COORDINATED BY THE DIVISION 22 TRADE REQUIRING SUCH POWER.

INSTALLATION:

1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE. DUCTWORK SHALL BE HELD TIGHT TO STRUCTURE EXCEPT WHERE OTHERWISE SHOWN.
2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
3. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE AROUND ALL EQUIPMENT REQUIRING SAME.
4. PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL AND DISPOSAL OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS TO REMAIN UNDISTURBED.
5. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT, VALVES, CLEANOUTS, ACTUATORS AND CONTROLS WHICH REQUIRE ACCESS FOR ADJUSTMENT OR SERVICING AND WHICH ARE LOCATED IN OTHERWISE INACCESSIBLE LOCATIONS.
   A. FOR EQUIPMENT LOCATED IN "ACCESSIBLE LOCATIONS" SUCH AS LAY-IN CEILINGS: LOCATE EQUIPMENT TO PROVIDE ADEQUATE SERVICE CLEARANCE FOR NORMAL MAINTENANCE WITHOUT REMOVING ARCHITECTURAL, ELECTRICAL OR STRUCTURAL ELEMENTS SUCH AS THE CEILING SUPPORT SYSTEM, ELECTRICAL FIXTURES, ETC. "NORMAL MAINTENANCE" INCLUDES, BUT IS NOT LIMITED TO:FILTER CHANGING; GREASING OF BEARINGS; USING P/T PORTS FOR PRESSURE OR TEMPERATURE MEASUREMENTS; SERVICING CONTROL VALVES AND SERVICING CONTROL PANELS.
6. ISOLATE ALL PRESSURIZED PIPE (DOMESTIC COLD WATER, DOMESTIC HOT WATER, MEDICAL GASES, ETC.) EACH RISER, BRANCH, PIECE OF EQUIPMENT, AND AREA SERVED.
7. PLUMBING CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONCRETE EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELECTION, TO THE STRUCTURAL AND GENERAL CONTRACTOR IN SUFFICIENT TIME TO COORDINATE CONTRACTOR'S WORK AS DESCRIBED BY THE GENERAL CONTRACTOR.
8. UNDER THE BASE CONTRACT, THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NECESSARY TO SPLIT EQUIPMENT INTO MULTIPLE PIECES TO FACILITATE RIGGING TO FINAL INSTALLED LOCATION. CONTRACTOR SHALL REASSEMBLE THE EQUIPMENT AND TEST TO CONFIRM PROPER OPERATION AND MAINTAIN ALL THE MANUFACTURERS WARRANTEES.
9. WARRANTY: AT A MINIMUM, THE ENTIRE PLUMBING SYSTEM SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE OWNER. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRANTY REQUIREMENTS.

PIPE INSTALLATION:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY MEANS OF HANGERS AND SUPPORTS. PIPING IS NOT TO BE SUPPORTED BY EQUIPMENT.
2. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR MATERIALS.
3. PROVIDE MANUAL AIR VENTS AND CAPPED HOSE-END DRAINS WITH ISOLATION VALVES AT PIPING HIGH AND LOW POINTS.
4. FLUSH OUT PIPING AND REMOVE CONTROL DEVICES BEFORE PERFORMING PRESSURE TEST. DO NOT USE PIPING SYSTEM TO ISOLATE SECTIONS WHERE PRESSURIZE PIPING AT AS SPECIFIED IN THE SPECIFICATION OR TO 100 PSIG MINIMUM. IF LEAKAGE IS OBSERVED OR IF TEMPERATURE COMPENSATED PRESSURE DROP EXCEEDS 1% OF TEST PRESSURE, REPAIR LEAKS AND RETEST.
5. PROVIDE SUPPORT UNDER ELBOWS ON PUMP SUCTION AND DISCHARGE LINES.
6. ALL STRAINERS SHALL BE FURNISHED WITH A "ROUGHING" SCREEN AND TWO (2) SCREENS FOR NORMAL OPERATION. INSTALL STRAINER WITH ROUGHING SCREEN AND OPERATE SYSTEM FOR 24 HOURS MINIMUM (RUN DOMESTIC WATER SYSTEMS AT MAX FLOW FOR A MINIMUM OF ONE HALF (1/2) HOUR. REMOVE ROUGHING SCREEN AND INSTALL NORMAL SCREEN. AFTER TWO WEEKS OF NORMAL OPERATION INSTALL NEW NORMAL SCREEN.
7. PIPING SIZES SHALL BE BASED ON 2' OR LESS HEAD LOSS PER 100 FEET OF LENGTH. VELOCITIES SHALL NOT EXCEED 10 FEET PER SECOND.
8. INSTALL ALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHIN THE PIPING SYSTEM. ENSURE ALL REQUIRED PIPE EXPANSION WILL OCCUR IN THE PROPER DIRECTION AND SEGMENT OF PIPE. PROPERLY ANCHOR (RE: SPECIFICATIONS) ALL PIPING REQUIRING EXPANSION/CONTRACTION ISOLATION. COORDINATE PIPE EXPANSION/CONTRACTION TO PREVENT DAMAGE TO ANY AND ALL BUILDING COMPONENTS.
9. PROVIDE ISOLATION VALVES AT EVERY BRANCH LINE WHERE INDICATED OR NOT.

CUTTING, PATCHING AND DEMOLITION:

1. KEEP DEMOLITION & CUTTING TO MINIMUM REQUIRED FOR PROPER EXECUTION OF WORK.
2. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF THE WORK.
3. NO CUTTING (NOT SHOWN ON THE CONTRACT DOCUMENTS) SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT AS TO LOCATIONS, METHOD AND EXTENT OF THE CUTTING.
4. REPAIR ALL ACCIDENTAL OR INTENTIONAL DAMAGE TO MATCH EXISTING CONSTRUCTION WITH NO NOTICEABLE DIFFERENCE IN CONTINUITY, APPEARANCE OR FUNCTION.
5. DEMOLISH AND CAP ALL INDICATED PIPING BACK AT NEAREST MAIN.

STRUCTURE:

1. DO NOT PENETRATE STRUCTURAL MEMBERS. ALL EQUIPMENT SUPPORTS SHALL BE ATTACHED TO THE LOAD BEARING MEMBERS OF STRUCTURAL ELEMENTS. DO NOT OVER-STRESS ANY STRUCTURAL MEMBERS. CONTACT STRUCTURAL ENGINEER FOR ALLOWABLE LOADS FOR SPECIFIC MEMBERS.
2. DO NOT UTILIZE POWDER DRIVEN ANCHORS FOR ANY LOCATIONS WHICH REQUIRE THE LOAD TO BE HELD IN TENSION. SEE STRUCTURAL DIVISION FOR ADDITIONAL RESTRICTIONS.
3. SEE ALSO STRUCTURAL DIVISION FOR ACCEPTABLE ANCHORING AND SUPPORT MEANS, METHODS, AND LOCATIONS.
4. PROVIDE FLEXIBLE CONNECTORS, EXPANSION LOOPS, EXPANSION JOINTS, ADDITIONAL FITTINGS OR EQUIVALENT TO ACCOMMODATE THE THERMAL EXPANSION OF THE BUILDING THROUGH STRUCTURAL EXPANSION JOINTS. PROVIDE SUCH FITTING AT EVERY PIPE, DUCT, CONDUIT, ETC. CROSSING OF A STRUCTURAL EXPANSION JOINT.

FIRE STOPPING:

1. FIRE STOPPING REQUIREMENT: PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM-E-814. ACCEPTANCE MATERIALS INCLUDE: DOW CORNING RTV FIRE STOP FOAM FOR BARE PIPE, METAL CONDUIT, AND ELECTRICAL CABLE; 3M FIRE DAM 150 CAULK FOR BARE PIPE, METAL CONDUIT, AND BUILDING CONSTRUCTION GAPS 3M FS-195 INTUMESCENT STRIPS FOR INSULATED PIPES, PLASTIC PIPE OR CONDUIT, AND ELECTRICAL CABLE. FIRE STOPPING SHALL ADHERE TO SECTION 714 OF THE IBC.

SCOPE CLARIFICATION NOTES:

1. THESE DOCUMENTS SERVE TO DEFINE THE NATURE OF THE SYSTEMS, LEVEL OF CONTROL AND FINISH, RELATIONSHIPS WITH OTHER BUILDING SYSTEMS, AND GENERAL DESIGN INTENT OF THIS DIVISION'S WORK. THE CONTRACTOR SHALL EXAMINE THE DOCUMENTS OF ALL TRADES TO COMPLETELY FAMILIARIZE HIM/HERSELF WITH THE VARIOUS CONCEPTS PRESENTED BY OTHER TRADES AND ADAPT THIS WORK AND ANY ASSOCIATED PRICING ACCORDING. WHERE CONFLICTS EXIST BETWEEN THESE DOCUMENTS AND THOSE OF OTHER DIVISIONS, THE MORE STRINGENT (AS DETERMINED BY THE ENGINEER) SHALL TAKE PRECEDENCE. IN PARTICULAR, WHERE ARCHITECTURAL BACKGROUNDS INDICATE PROGRAMMATIC DIFFERENCES IN ROOM LOCATIONS, ROOM FUNCTIONS, PLUMBING FIXTURE COUNTS, CEILING TYPES, RATED CONSTRUCTION, CLEARANCES, OR ROOM RELATIONSHIPS, THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE AND THIS CONTRACTOR SHALL ADAPT HIS/HER WORK ACCORDINGLY WHILE MAINTAINING THE DESIGN INTENT REPRESENTED BY THE DOCUMENTS OF THIS DIVISION.
2. PROVIDE FIRE STOPPING ON ALL PIPES, DEVICES, ETC. PENETRATING ALL FIRE RATED CONSTRUCTION ASSEMBLIES.
3. EQUIPMENT SHOWN IS NOT NECESSARILY TO SCALE.
4. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED IN DUCTWORK, PIPING, SUPPORTS, ETC. TO COMPLETE HIS/HER WORK IN A CLEAN, FUNCTIONAL INSTALLATION.
5. THIS CONTRACTOR IS RESPONSIBLE FOR ALL SLEEVES FOR PENETRATIONS THROUGH SLABS AND BEAMS REQUIRED BY THE INTENT OF THE SCOPE OF WORK INDICATED ON THE DRAWINGS. COORDINATION OF QUANTITY AND LOCATIONS OF ALL PENETRATIONS SHALL BE DONE BY THIS CONTRACTOR DURING THE SHOP DRAWINGS PROCESS FOR REVIEW BY THE STRUCTURAL ENGINEER.

PHASING AND PREMIUM TIME:

1. ALL CONTRACTORS SHALL REVIEW DRAWINGS FOR PHASING PLAN. UNIT REPLACEMENTS SHALL OCCUR ON A ONE BY ONE BASIS, EACH UNIT REPLACEMENT IDENTIFIES A DIFFERENT PHASE OF THE PROJECT.
2. WORK IN THE PRIMARY WORK AREA (FIRST FLOOR DINING AREAS) SHALL BE COMPLETED ON STRAIGHT TIME; UNLESS NOTED OTHERWISE, WITH THE EXCEPTION OF WORK THAT I

EJECTOR PUMP SCHEDULE (ENABLING)

GENERAL				PUMP DATA						PREFABRICATED BASIN			ELECTRICAL							
								PUMP	SYSTEM		INSIDE CLEARANCE									
							HEAD	DISCHARGE		MIN.		DIMENSIONS (FT)							EMERGENCY	
CODE	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	PUMP TYPE	APPLICATION	GPM	(FT)	(DIA. IN)		DESIGN PRESS.	SHAPE	DIAMETER	DEPTH	HP	VOLT	PH	HZ	RPM	POWER (# PUMPS)	REMARKS
SEP-1	FLGYT/ NP3039, IMPELLER 275A	ZAMBONI ICE MELT PIT	ZAMBONI RM	DUPLEX, SUBMERSIBLE	CLEAR LIQUID	92	44	(2)2.5	4		ROUND	5	12	(2)3	460	3	60	1750	0	
SEP-2	FLGYT/ NP3153, IMPELLER 276	LEVEL 31 SEWAGE	NORTH MARSHALLING	DUPLEX, SUBMERSIBLE	SEWAGE	450	65	(2)3	6		ROUND	7	15	(2)20	460	3	60	1750	2	
SEP-4	FLGYT/ NP3127, IMPELLER 489A	SUBSURFACE DRAIN SYSTEM	NORTH MARSHALLING	DUPLEX, SUBMERSIBLE	CLEAR LIQUID	191	55	(2)4	4		ROUND	7	12.5	(2)10	460	3	60	1750	2	

GENERAL NOTES
1. PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS.
2. PROVIDE HIGH EFFICIENCY MOTORS.(RELIANCE E+ OR EQUIVALENT)
2. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
3. FOR PARALLEL PUMP APPLICATIONS MANUFACTURER SHALL REVIEW SINGLE PUMP OPERATON SUCH THAT PUMP CAN OPERATE AND NOT EXCEED THE END OPERATION POINT ON THE PUMP CURVE AND MOTOR HP IS PROPERLY SLELCTED TO PREVENT OVERLOADING.
4. NPSHR AT SCHEDULED OPERATING POINT SHALL NOT EXCEED 0.8*NPSHA.
5. REFER TO DRAWINGS TO DETERMINE REQUIRED PUMP ROTATION. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING.
6. N- SUPERIOR NON-CLOG, HIGH EFFICIENCY DESIGN WITH ADAPTIVE TECHNOLOGY; SELF CLEANING FEATURE WITH LEAD CUTTING EDGE FOR TEARING FIBROUS SOLIDS
7. CONTINUOUS RUN DRY CAPABILITY
8. TOP DISCHARGE CONFIGURATION
9. PANEL RATING = NEMA 4. PANEL SHALL BE FIELD CONFIGURED FOR A SINGLE POINT POWER CONNECTION
10. WARRANTY = 5 YEAR PUMP WARRANTY - WET END. 5 YEAR MOTOR WARRANTY. PROVIDE 1 YEAR MAINTENANCE CONTRACT, ELECTRO-MECHANICAL BACKUP.
11. ODOR PREVENTION = PROVIDE PIT SCOUR FEATURE, SYSTEM FLUSH FEATURE, GAS TIGHT FRAME & COVER
12. PACKAGE SHALL INCLUDE STEEL FRAME & COVER. PROVIDE REVERE "FLEETWAY" CONTROLLER WITH PRESSURE TRANSDUCER & BACKUP MECHANICAL FLOAT. ALL COMPONENTS PROVIDED AS COMPLETE PACKAGE BY PUMP SUPPLIER. LEVEL CONTROLLER SHALL BE PLC BASED WITH PRIMARY PRESSURE TRANSDUCER & BACKUP FLOAT. FLOAT SHALL OPERATE INDEPENDENT OF PLC TO PROVIDE TRUE REDUNDANCY.
13. PROVIDE DUPLEX CONTROL PANEL WITH BMS ALARM CONTACTS AND ALTERNATING CAPABILITIES.

PUMP SCHEDULE

GENERAL				PUMP DATA								ELECTRICAL							
CODE	MANUFACTURER/ MODEL NO.	SERVICE	LOCATION	PUMP TYPE	GPM	HEAD (FT)	MIN. DESIGN PRESS.	TEMP. RANGE (F)	NPSHR (FT)	IMPELLER SIZE (IN.)	MIN EFF. %	BHP	HP	VOLT	PH	HZ	RPM	REMARKS
DHWP-1	BELL & GOSSETT/ ECOCIRC XL 40-275	PREHEAT TANK	WATER ROOM	INLINE	100	30	100	40-100	N/A		N/A	1.43	2	460	3	60		A, B
DHWP-2	BELL & GOSSETT/ ECOCIRC XL 110-180	BUILDING RECIRC	WATER ROOM	INLINE	25	80	100	90-140	N/A		N/A	1.72	3	460	3	60		A

GENERAL NOTES
1. PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS.
2. PROVIDE HIGH EFFICIENCY MOTORS.(RELIANCE E+ OR EQUIVALENT)
2. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER NEMA STANDARD MG1-2003, TABLES 12-12 AND 12-13.
3. FOR PARALLEL PUMP APPLICATIONS MANUFACTURER SHALL REVIEW SINGLE PUMP OPERATON SUCH THAT PUMP CAN OPERATE AND NOT EXCEED THE END OPERATION POINT ON THE PUMP CURVE AND MOTOR HP IS PROPERLY SLELCTED TO PREVENT OVERLOADING.
4. NPSHR AT SCHEDULED OPERATING POINT SHALL NOT EXCEED 0.8*NPSHA.
5. REFER TO DRAWINGS TO DETERMINE REQUIRED PUMP ROTATION.
6. PROVIDE A HIGHLY EFFICIENT ELECTRONICALLY COMMUTATE PERMANENT MAGNET MOTOR (ECM/ PM TECHNOLOGY)
7. PROVIDE ALL BRONZE CONSTRUCTION THAT IS LEAD FREE
8. PUMP SHALL BE SUPPLIED WITH A CLOSED, PERFECTLY MOLDED INSULATION SHELL THAT FITS THE PUMP HOUSING EXACTLY.
9. PUMP SHALL BE CONNECTED TO A TEMPERATURE SENSOR THAT OPERATES THE PUMP WHEN THE WATER TEMPERATURE DROPS BELOW 100 DEG F.
10. PUMP SHALL BE SUPPLIED WITH A BUILT-IN TEMPERATURE SENSOR.

REMARK NOTES
A. PROVIDE ALL BRONZE CONSTRUCTION (INLINE PUMPS).
B. CONTROL VIA AQUASTAT. PUMP ON BELOW 140DEGF, OFF AT 150DEGF. MOUNT AQUASTAT IN STORAGE TANK.

PLUMBING FIXTURE SCHEDULE (ENABLING)

CODE	FIXTURE	MANUFACTURER / MODEL NO.	CW CONN.	HW CONN.	SAN CONN.	VENT CONN.	ACCESSORIES / COMMENTS
FD-A	FLOOR DRAIN	ZURN / Z-505	-	-	SEE PLANS	2"	TP
FD-B	FLOOR DRAIN	ZURN / ZN-415-B	-	-	SEE PLANS	2"	TP
FS	FLOOR SINK	ZURN / Z-1900-4	-	-	SEE PLANS	2"	
HB	HOSE BIBB	ZURN / Z1333XL	3/4"	-	-	-	VB
WH	WALL HYDRANT	ZURN / Z1330XL	3/4"	-	-	-	
FPWH	FREEZE PROOF WALL HYDRANT	ZURN / Z1320XL	3/4"	-	-	-	

GENERAL NOTES
1. PLUMBING DESIGN AND SIZES ARE BASED ON THE 2015 CONNECTICUT PLUMBING CODE.
2. FINISH AND TYPE OF ALL FIXTURES AND FAUCETS ARE SUBJECT TO ARCHITECT APPROVAL.
3. EACH PLUMBING FIXTURE SHALL BE PROVIDED WITH A P-TRAP, EXCEPT THOSE WITH INTEGRAL TRAPS.
4. EXTEND INDIRECT WASTE FULL SIZE TO NEAREST FLOOR DRAIN OR FLOOR SINK, UNLESS OTHERWISE NOTED ON PLANS.

ACCESSORY CODES
TP = TRAP PRIMER
VB = VACUUM BREAKER

DOMESTIC WATER HEATER SCHEDULE (ELECTRIC)

CODE	MANUFACTURER/		STORAGE	RECOVERY	TEMP.		ELECTRICAL			
(EWH)	MODEL NO.	LOCATION	(GAL)	(GPH)	RISE	KW	VOLT	PH	FLA	REMARKS
EWH-1	PVI/ 180I 119A-VE	WATER SERVICE RM	119	150	100	36	460	3	44	

GENERAL NOTES
1. HEAT EXCHANGER AND TANK TO BE ASSEMBLED AT THE FACTORY AND SHIPPED FULLY ASSEMBLED.
2. HOT WATER HEATER SHALL BE FURNISHED WITH IMMERSION THERMOSTAT.
3. ROUTE ALL T&P RELIEF VALVES TO APPROVED RECEPTOR.
4. MUST BE NSF APPROVED.
5. TANK SHALL BE AN AQUAPLEX TANK (UNLINED DUPLEX STAINLESS STEEL)
6. TANK SHALL BE NON-FERROUS, REMOVABLE TANK FITTINGS (LOW LEAD)
7. TANK SHALL BE SUPPLIED WITH FIBERGLASS INSULATION AND COATED IN STEEL JACKET PANELS
8. TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE REQUIREMENTS, STAMPED AND RESGISTERED
9. PROVIDE FACTORY CONTROL PACKAGE, COMPLETE WITH RELIEF VALVE, TANK DRAIN, ETC.
10. TANK SHALL BE FURNISHED WITH A 25-YEAR WARRANTY
11. ACSA-RATED TEMPERATURE AND PRESSURE RELIEF VALVE(S)
12. TANK SHALL BE PROVIDED WITH AN INTRA-TANK CIRCULATOR
13. MOUNT ON 4" HOUSEKEEPING PAD

EXISTING DOMESTIC WATER HEATER SCHEDULE (STEAM)

CODE	EQUIPMENT	MANUFACTURER/		STORAGE	RECOVERY	TEMP.	STEAM	PUMP ELECTRICAL			
(WH)	STATUS	MODEL NO.	LOCATION	(GAL)	(GPH)	RISE	LBS. PER HR.	PSIG	V	PH	REMARKS
(E) WH-1	EXISTING TO BE RELOCATED	CEMLINE/ V140SWH1230-DW	LVL 31 - WATER VALVE RM	140	2900	100	2459.06	5	120	1	A
(E) WH-2	EXISTING TO BE RELOCATED	CEMLINE/ V140SWH1230-DW	LVL 31 - WATER VALVE RM	140	2900	100	2459.06	5	120	1	

GENERAL NOTES
1. RELOCATE EXISTING STEAM FIRED DOMESTIC HOT WATER HEATER AS INDICATED. PROVIDE ALL NEW PIPING TRIM AT HOT WATER HEATER.
2. REPLACE EXISTING IMMERSION THERMOSTAT.
3. ROUTE ALL T&P RELIEF VALVES TO APPROVED RECEPTOR.
4. MUST BE NSF APPROVED.
5. PROVIDE ALL NEW PIPING TRIM AND ACCESSORIES INCLUDING CONTROL VALVE AND STEAM STRAINER.
6. PROVIDE 16" HOUSEKEEPING PAD BELOW EACH UNIT.
7. PROVIDE A NEW THERMOSTATIC TEMPERING VALVE AT HOT WATER DISCHARGE.
8. MAINTAIN EXISTING HOT WATER TANK CIRCULATION SYSTEM AT EACH HEAT EXCHANGER. COORDINATE WITH ELECTRICAL FOR POWER CONNECTION.
9. RELOCATE ALL PIPING TRIM AND ACCESSORIES INCLUDING CONTROL VALVE AND STEAM STRAINER
10. MOUNT ON 4" HOUSEKEEPING PAD

EXPANSION TANK SCHEDULE

					DESIGN PARAMETERS			OPERATING PARAMETERS						
CODE	MANUFACTURER/			OPERATING				RELIEF VALVE	CW MU	TANK		MIN.		PHYSICAL
(DET)	MODEL NO.	SERVICE	LOCATION	WEIGHT LBS.	SYSTEM VOLUME	MIN. TEMP (F)	MAX TEMP (F)	SETTING (PSIG)	PRV REQ'T (PSIG)	CONFIG	TYPE	ACCEPT. (GAL)	PRECHARGE (PSIG)	SIZE (IN) DIA. X LEN
DET-1	AMTROL/ ST-447-C	DOMESTIC HW	WATER VALVE RM	593	650	40	140	100	40	V	B	53	35	24 X 45

GENERAL NOTES
1. TYPE: B=FULL BLADDER
D=PARTIAL DIAPHRAGM
V=VERTICAL
H=HORIZONTAL
2. TANK SHALL BE LEAD FREE
3. PROVIDE 4" HOUSEKEEPING PAD BELOW UNIT.

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
PLUMBING SCHEDULES I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-010.E

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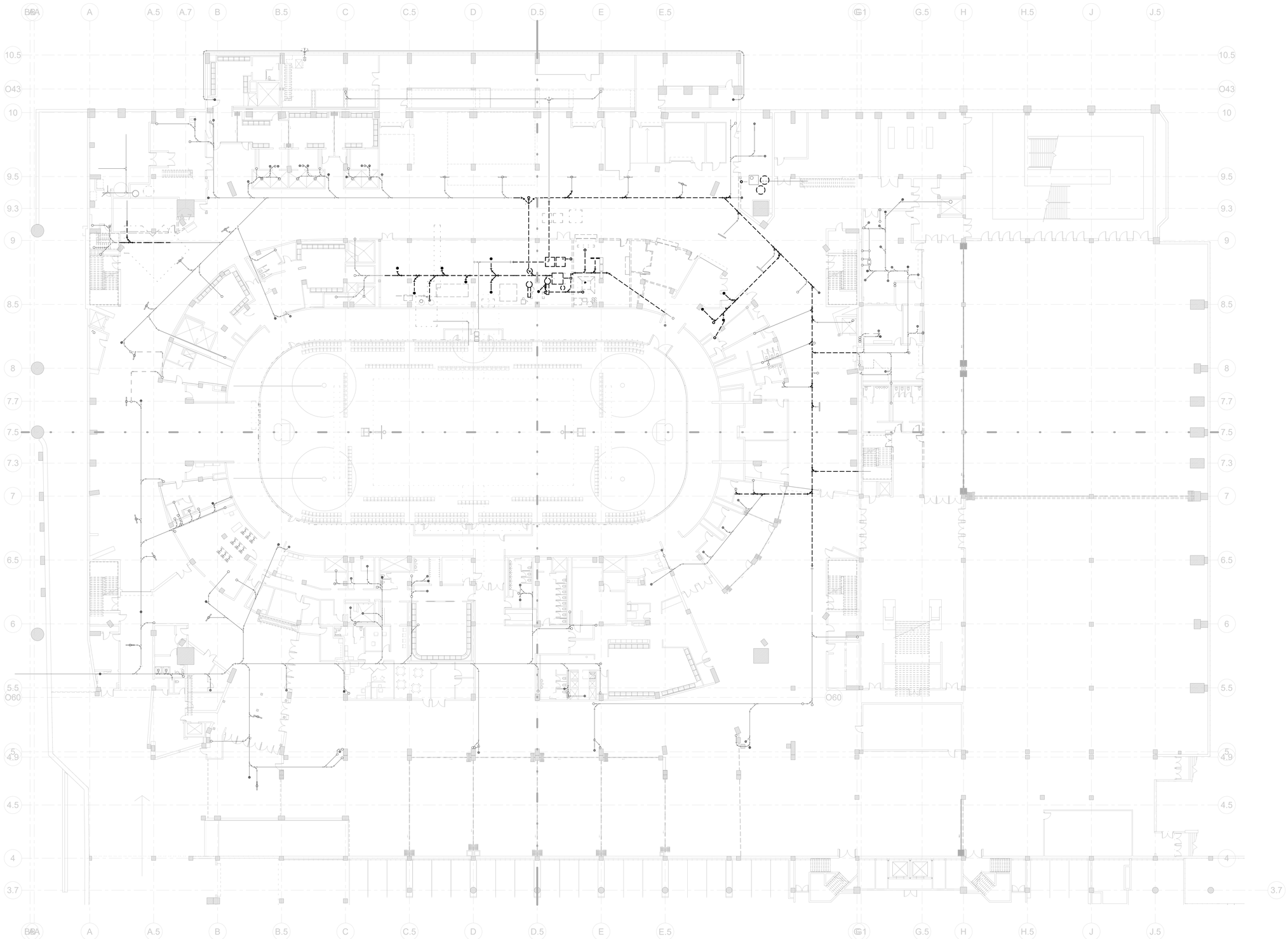

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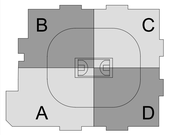

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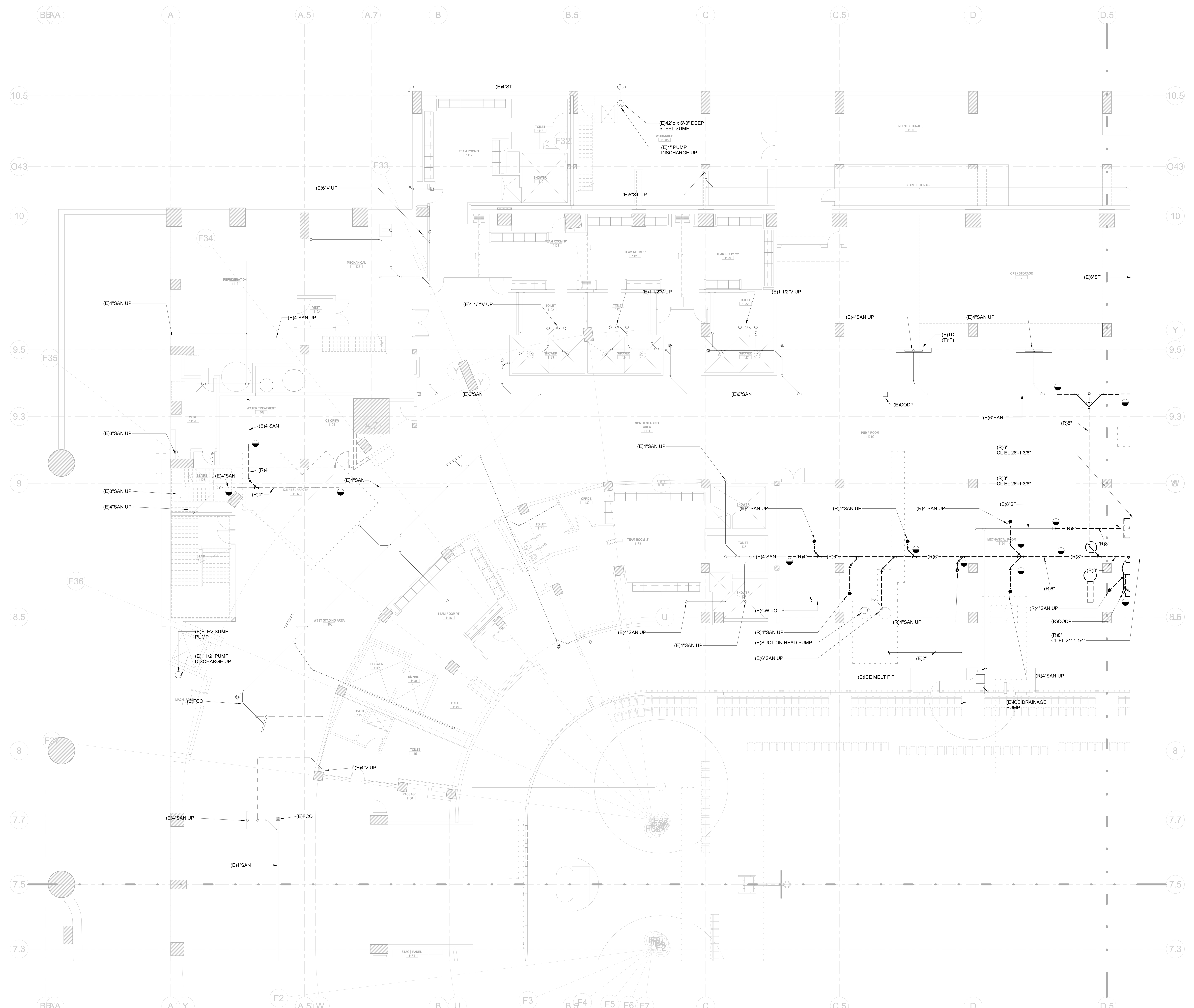
DWG. TITLE
UNDERGROUND - PLUMBING DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-100.E



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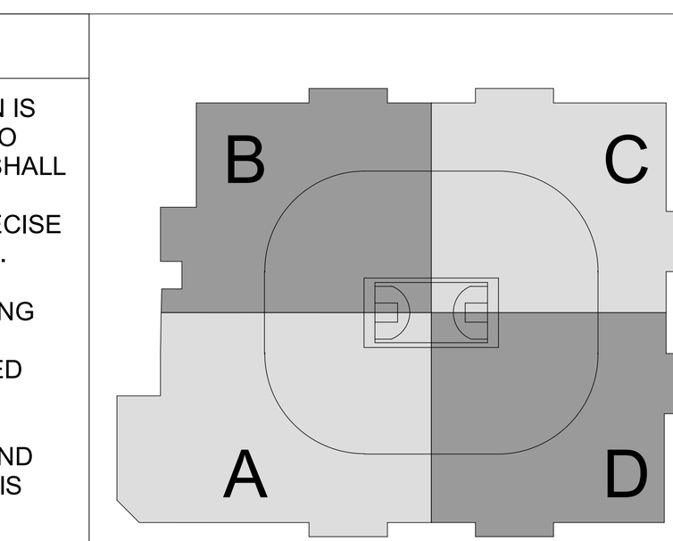

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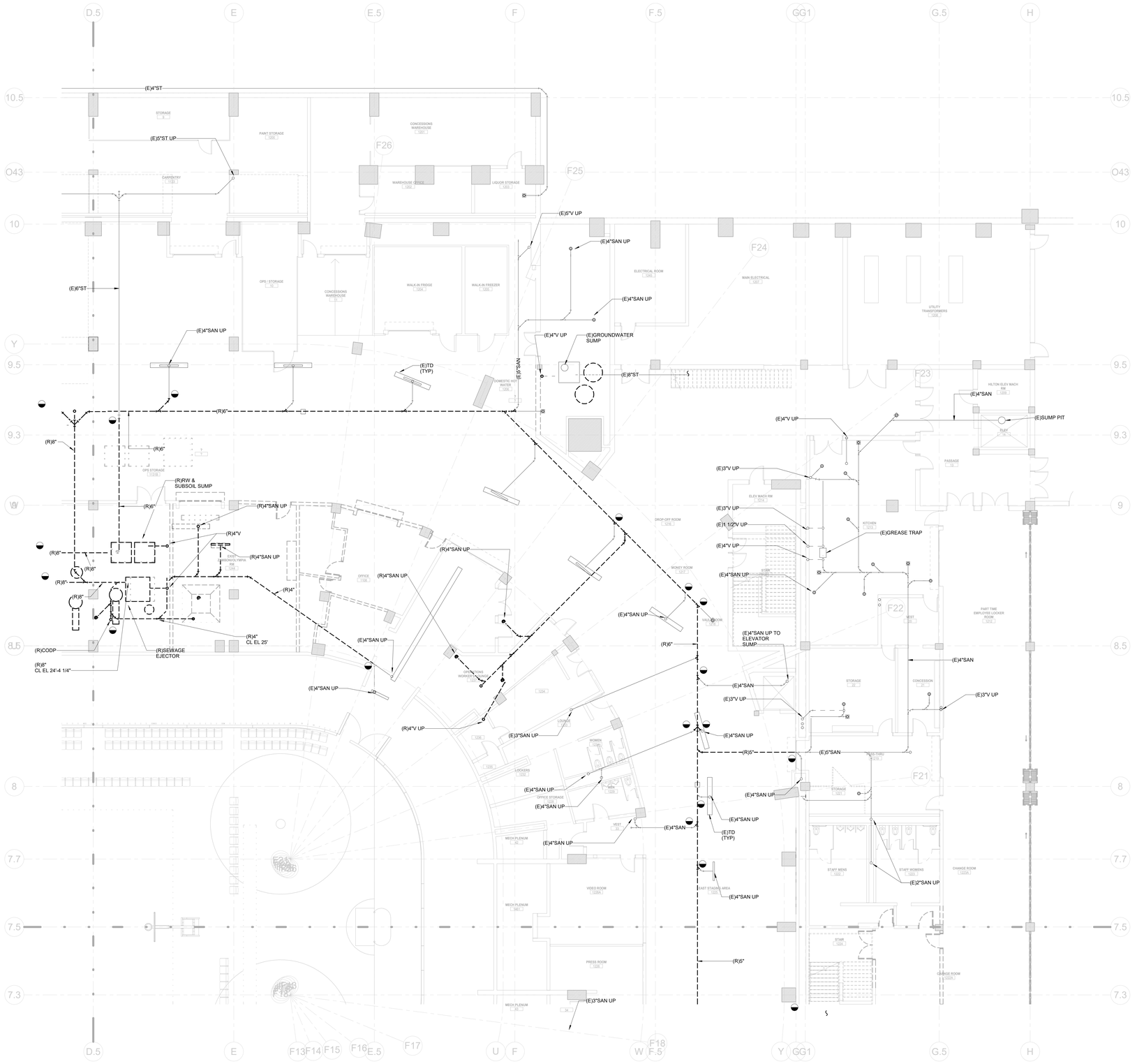
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING DEMOLITION QUADRANT B - ENABLING

SCALE 1/8" = 1'-0"
DWG. NO. P-100B.E
PROJ. NO. 1605



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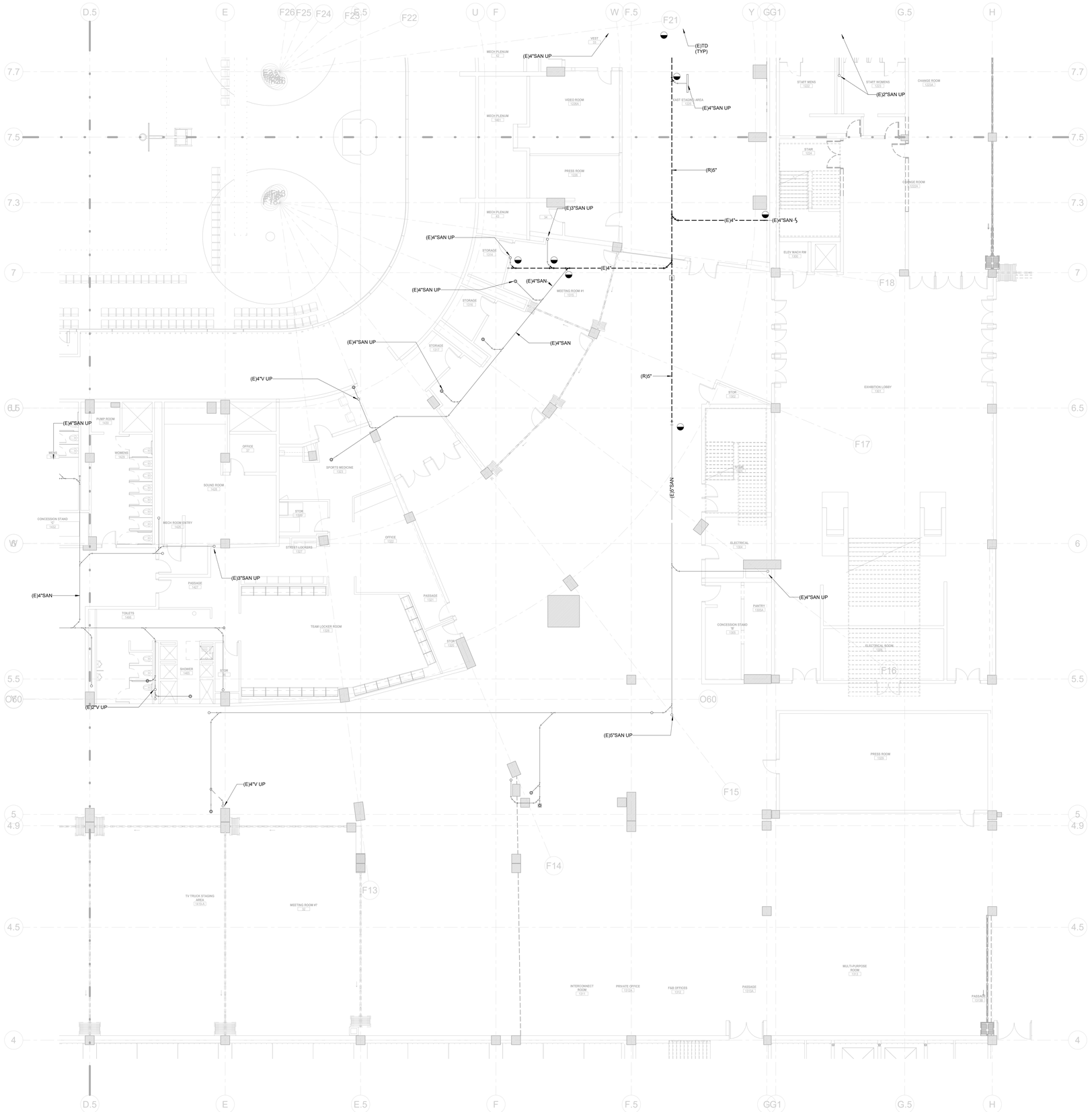
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING DEMOLITION QUADRANT C - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. P-100C.E



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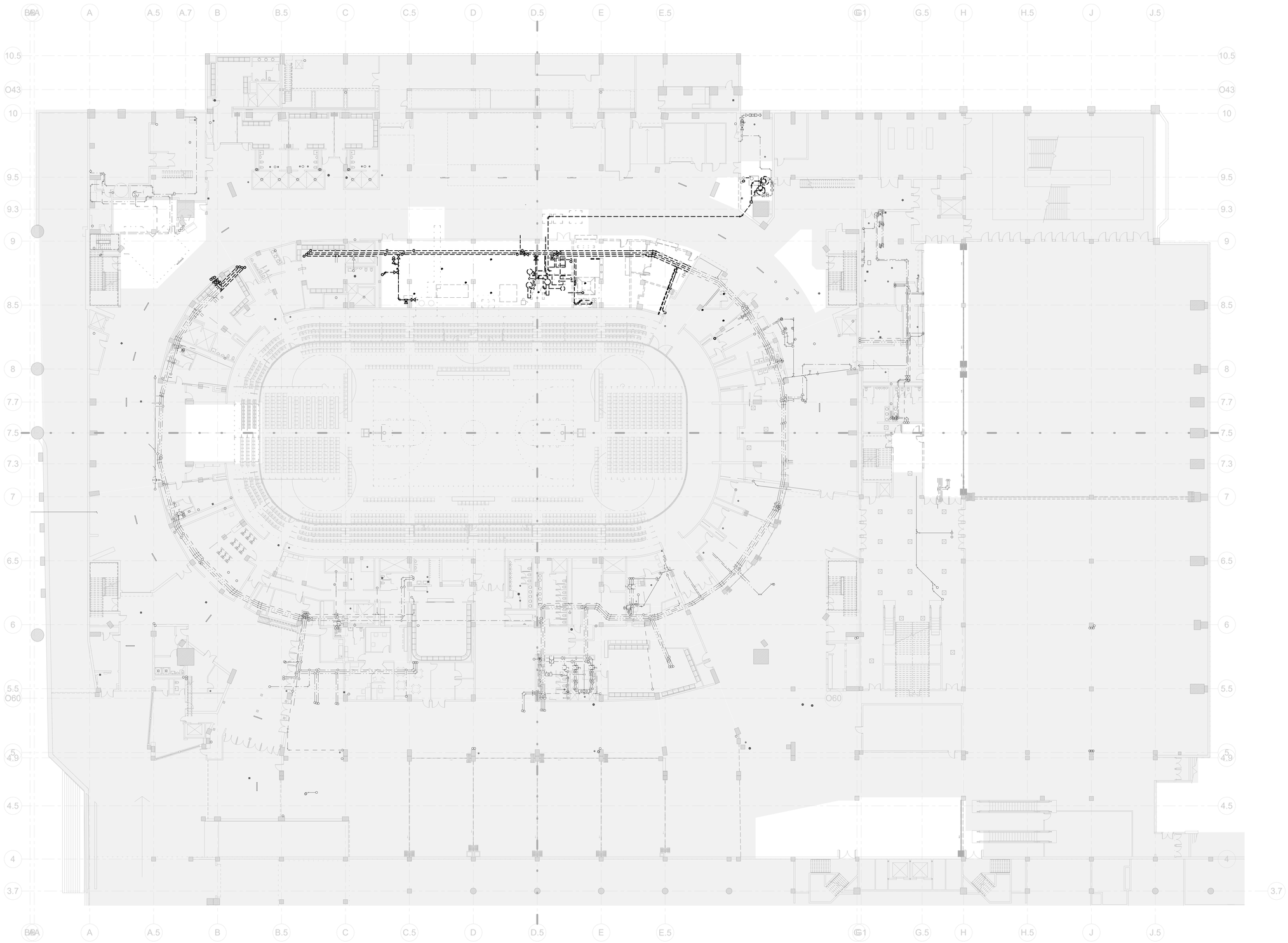
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING DEMOLITION QUADRANT D - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. P-100D.E



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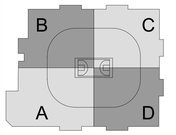

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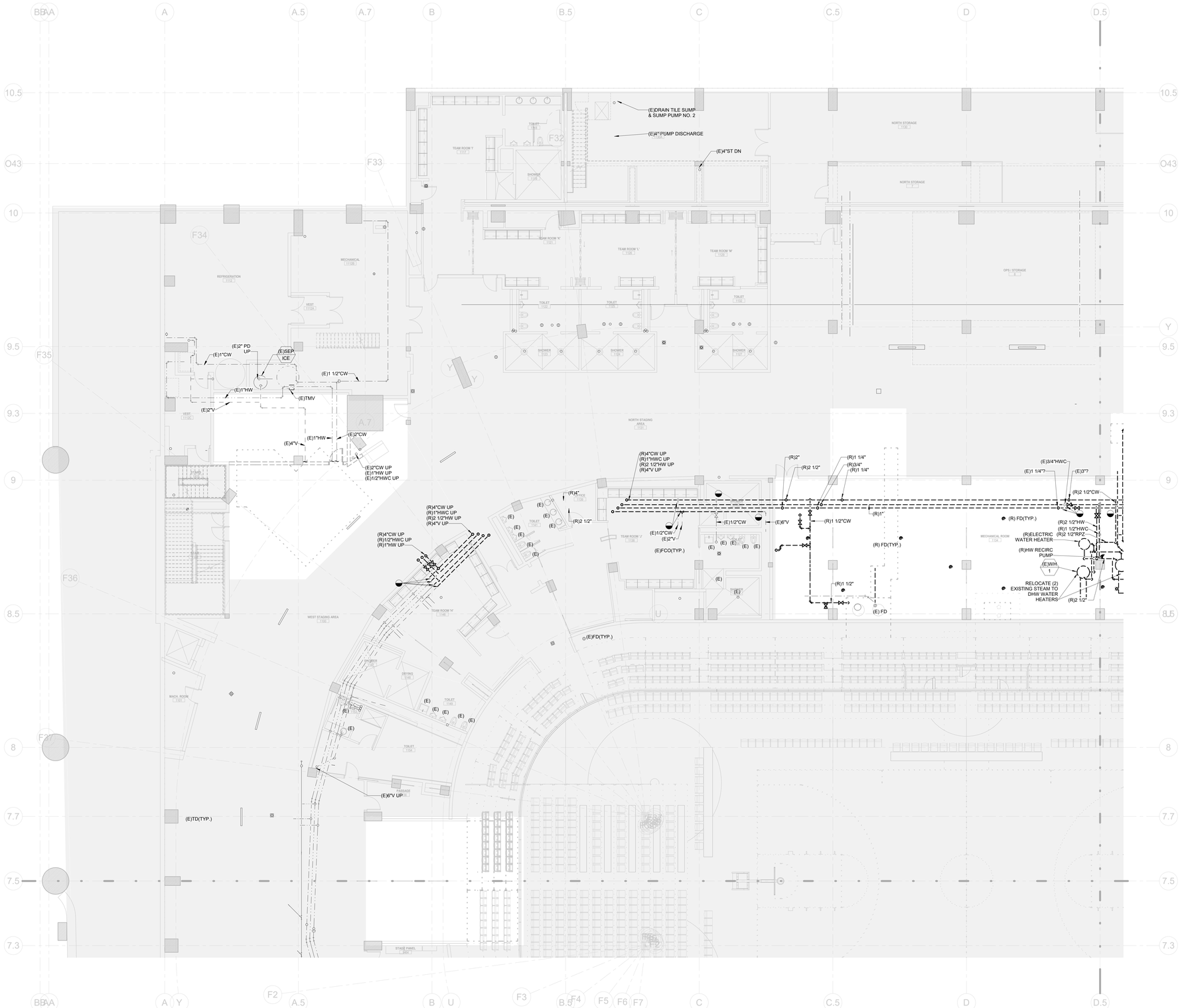
HARTFORD, CT

DWG. TITLE
LEVEL 31 - PLUMBING DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-101.E



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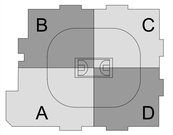

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HARTFORD, CT

DWG. TITLE
LEVEL 31 - PLUMBING DEMOLITION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
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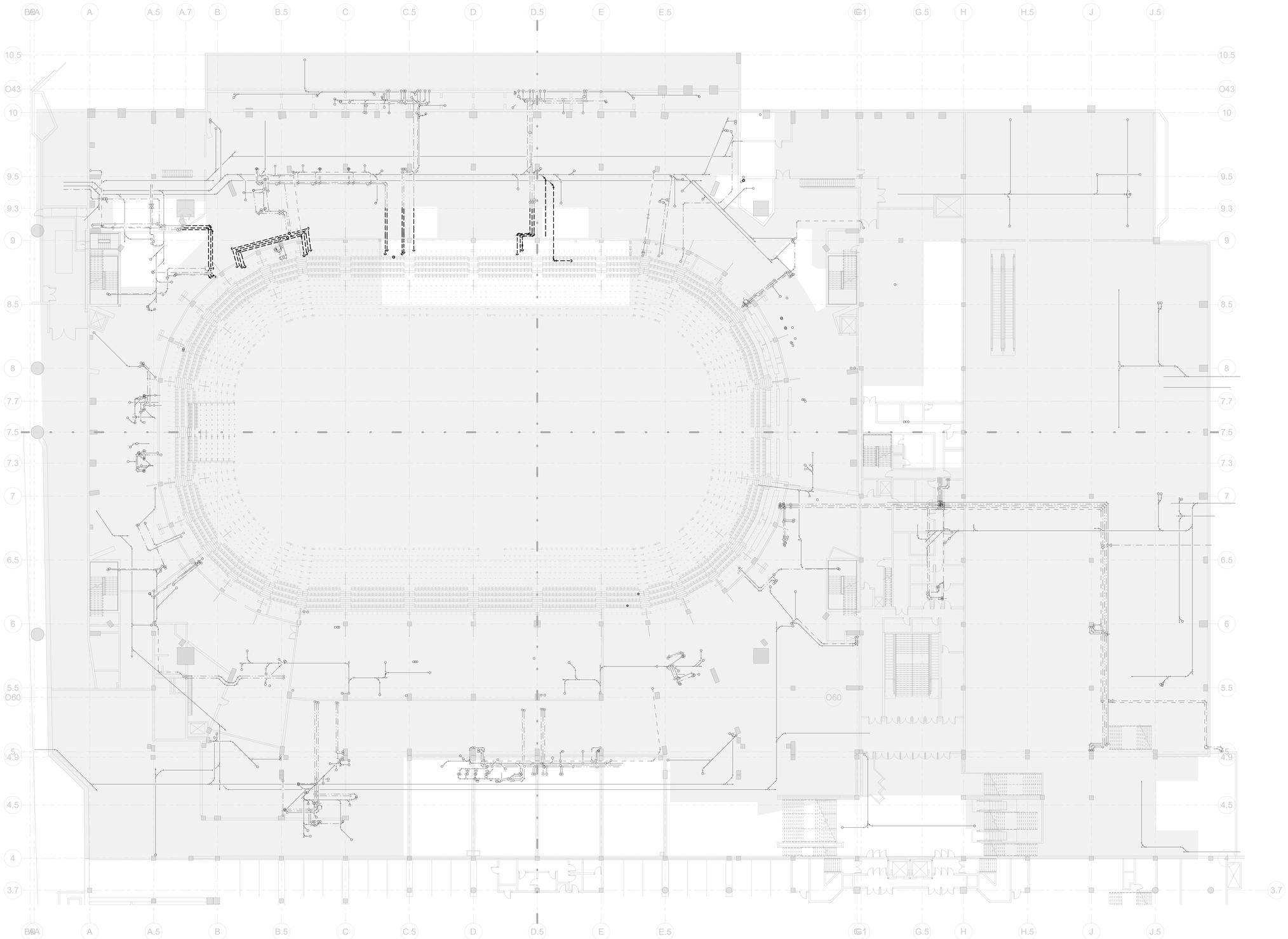
PROJ. NO. 1605
DWG. NO. P-101C.E



GENERAL NOTES:

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3. DEMOLITION TO OCCUR ONLY WHEN SPACES ARE NOT OCCUPIED.
4. THE CONTRACTOR SHALL FREEZE ANY AND ALL PIPING THAT DOES NOT HAVE A POSITIVE SHUT DOWN OR OPERATING/ EXISTING VALVE.
5. PROVIDE VALVES AND CAPS AND TAGS FOR ALL BRANCH CONNECTIONS TO MAINS WHERE BRANCH PIPING HAS BEEN DEMOLISHED.
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7. MAINTAIN ALL PIPING CONNECTIONS TO FIXTURES TO REMAIN.
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KEYNOTES

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

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1	IE - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
DO NOT SCALE THE DRAWINGS

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-102.E

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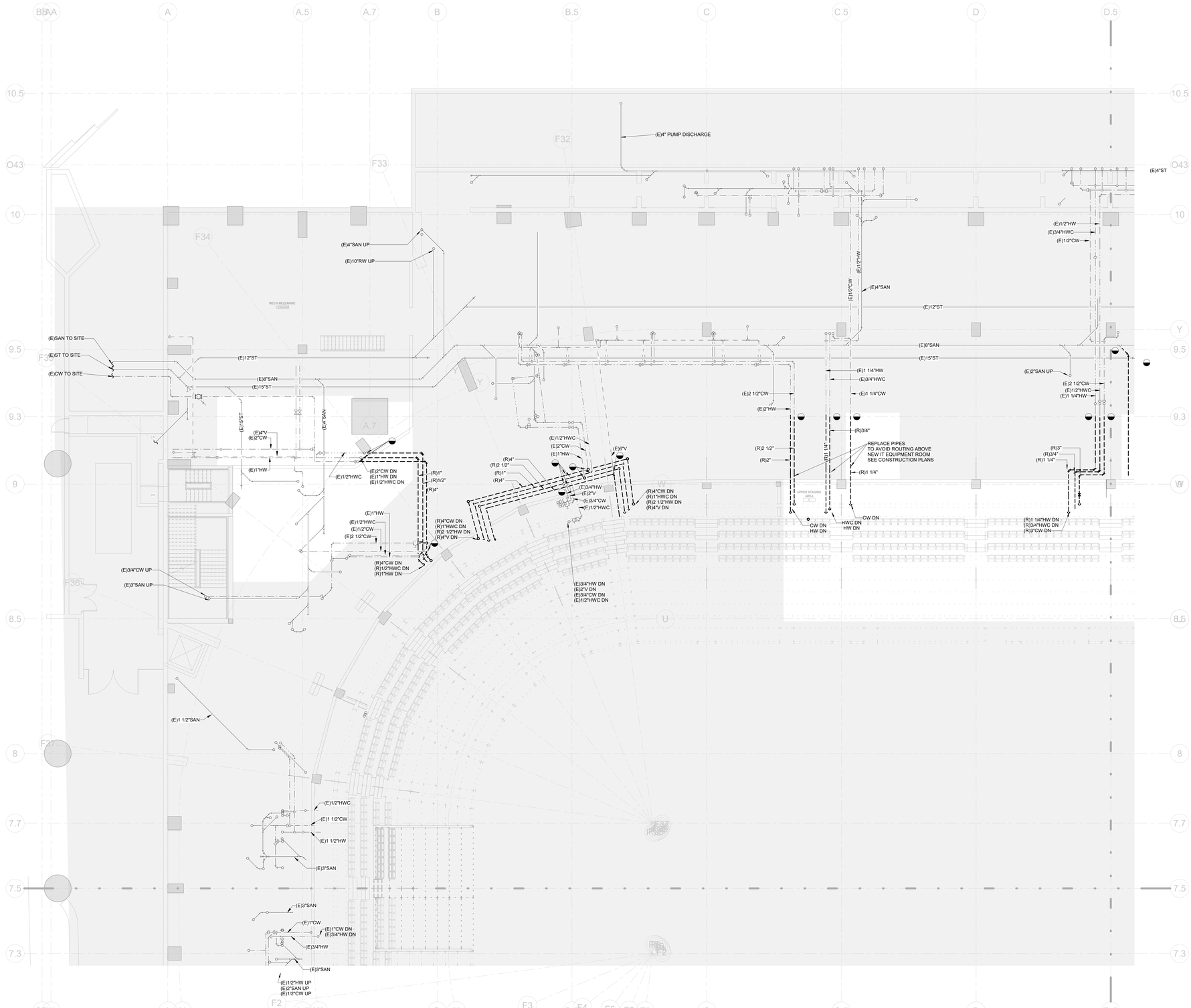

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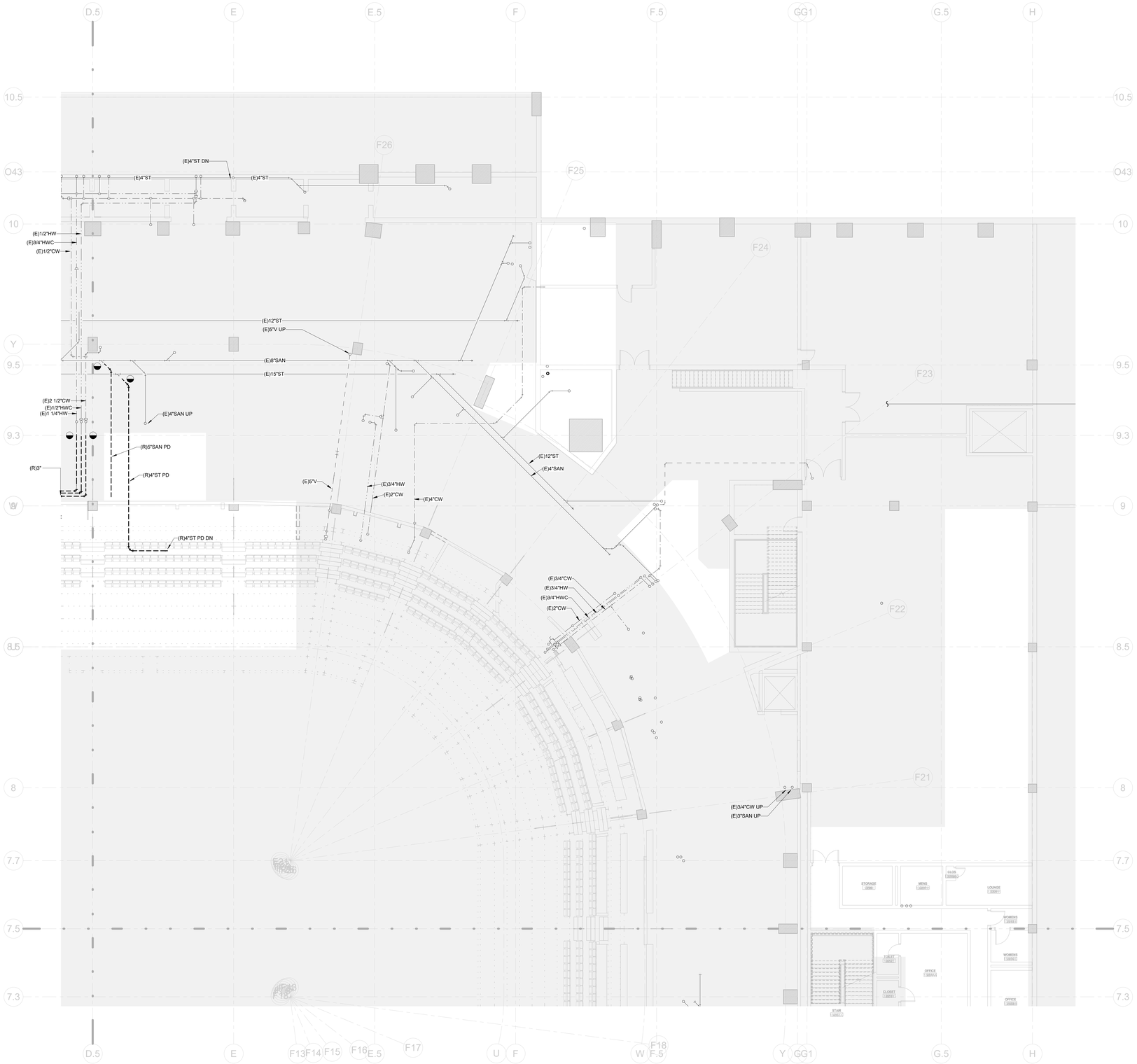
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING DEMOLITION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-102B.E
PROJ. NO.: 1605



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KEYNOTES

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NO	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

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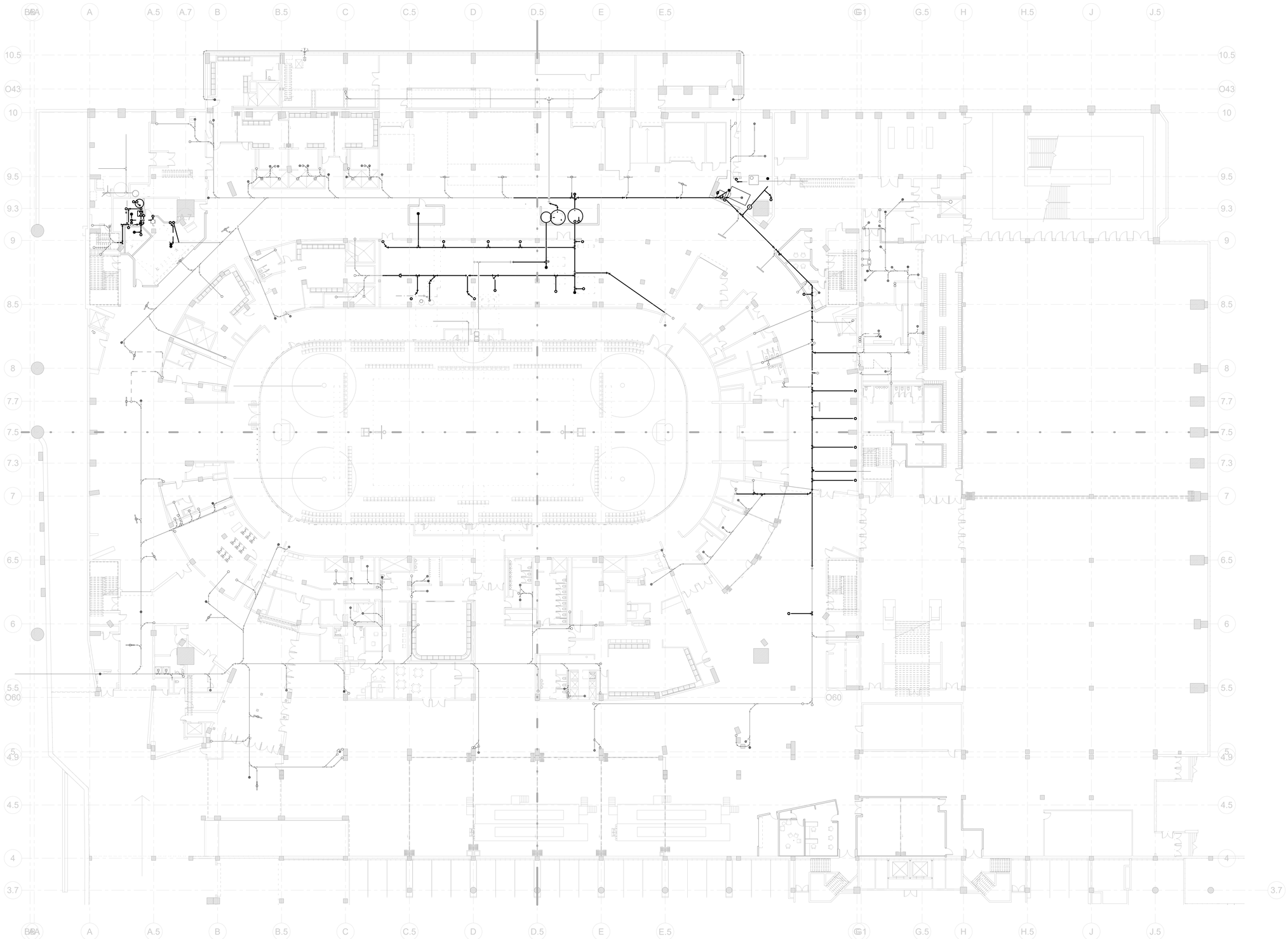
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING DEMOLITION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-102C.E
PROJ. NO.: 1605



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KEYNOTES

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING CONSTRUCTION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-200.E

GENERAL NOTES:

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PIPE KEYNOTE LEGEND:

PIPING SYSTEM DESIGNATION (XX)	PIPE KEYNOTE NOMENCLATURE
CW = COLD WATER	
HW = HOT WATER	
HC = HOT WATER CIRCULATION	[4]3"(XX)
S = SANITARY	
V = VENT	QUANTITY
ST = STORM	PIPE SIZE
OD = OVERFLOW	XX: PIPE SYSTEM
G = GAS	U: PIPE UP
GW = GREASE WASTE	D: PIPE DOWN
PD = PUMPED DISCHARGE	

KEYNOTES

P1	SANITARY PIPING STUBBED UP FOR FUTURE PLUMBING FIXTURES. COORDINATE WITH ARCHITECTURAL PLANS FOR FINAL DIMENSION OF FUTURE WET CHASES. TERMINATE PIPE WITH A FULL PIPE SIZE CODP FOR FUTURE CONNECTION.

NO.	DESCRIPTION	DATE
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NOT FOR CONSTRUCTION

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING CONSTRUCTION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-200B.E

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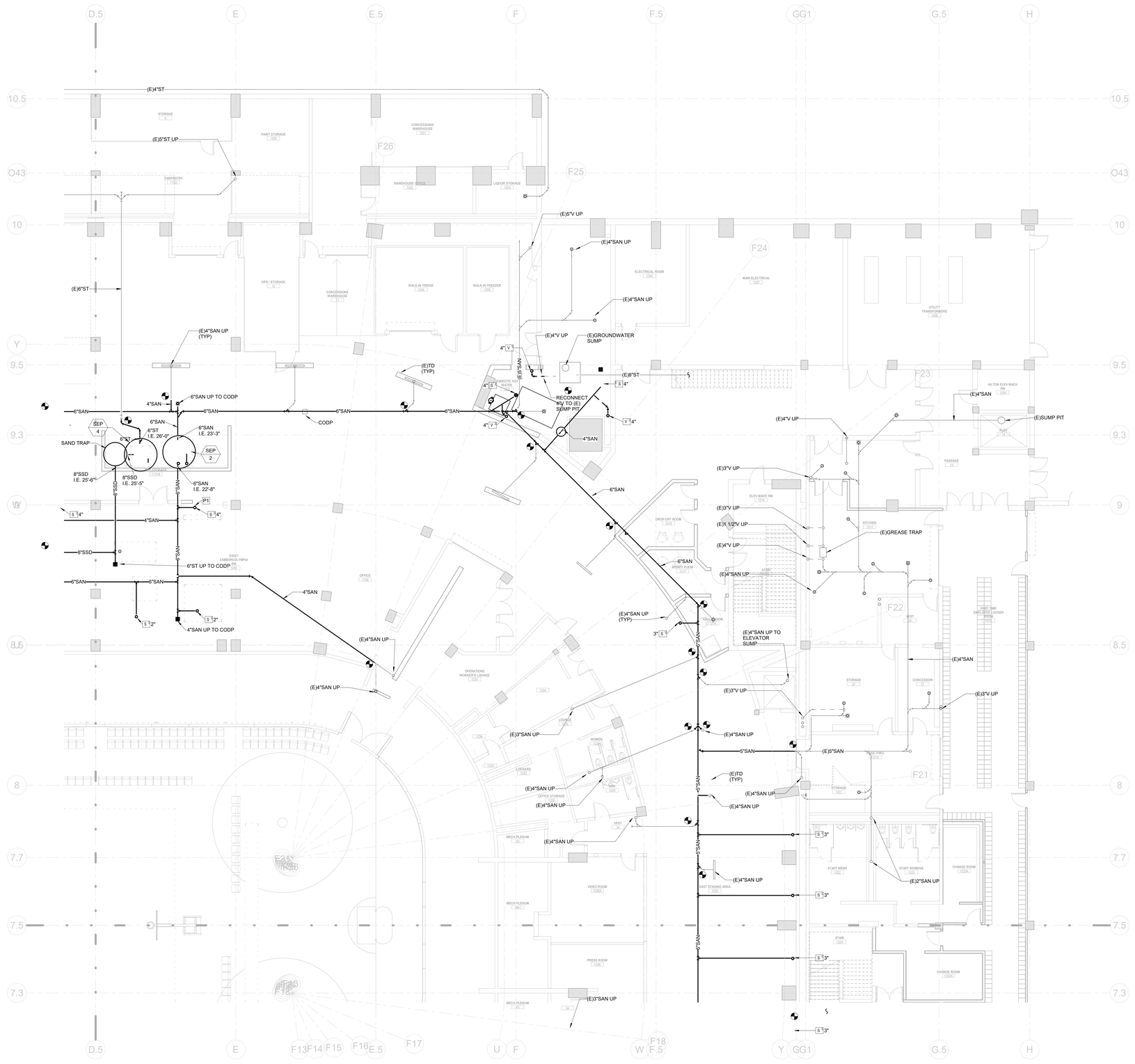

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REVISIONS/ ISSUES

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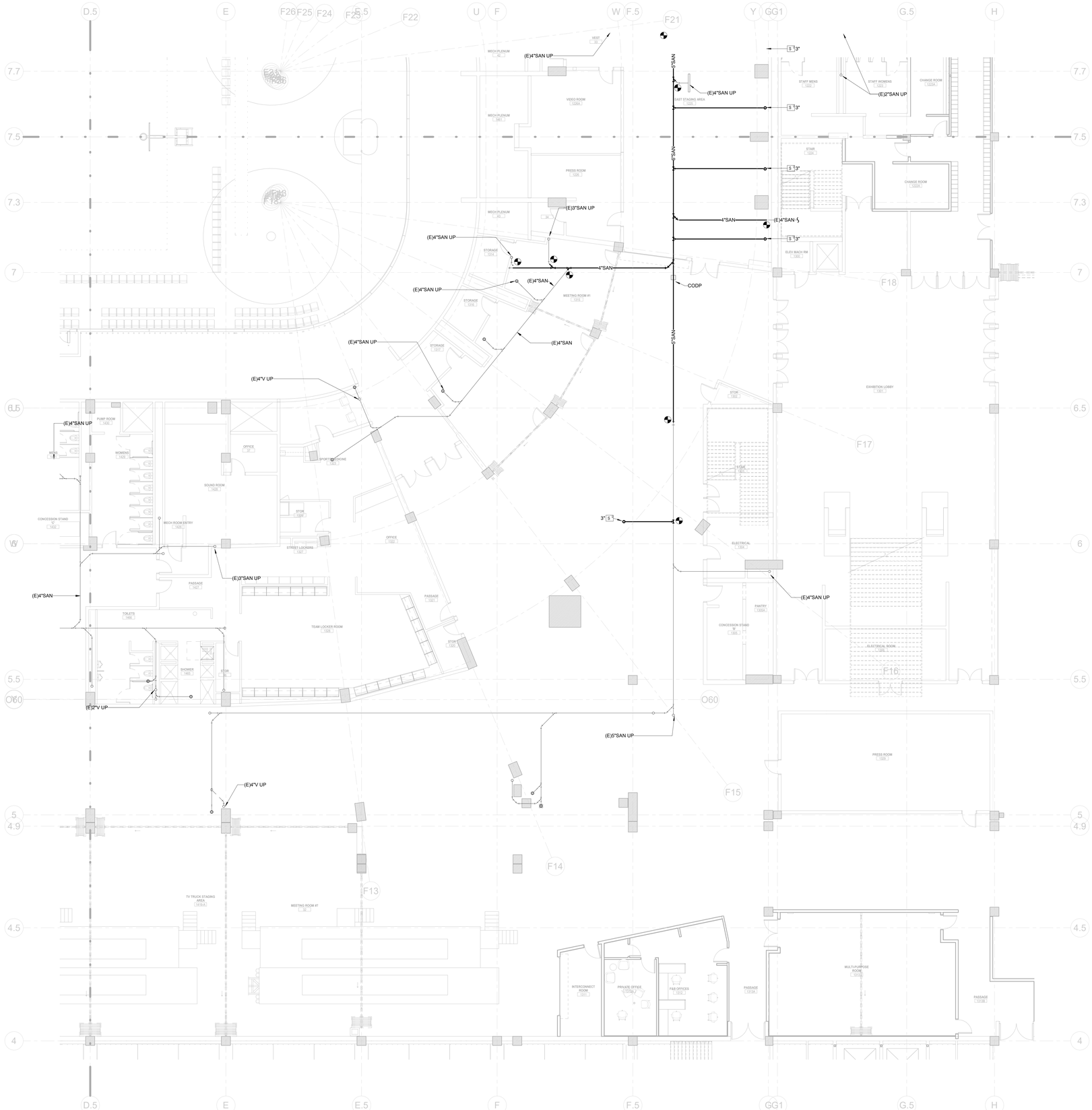
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING CONSTRUCTION QUADRANT C - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. P-200C.E



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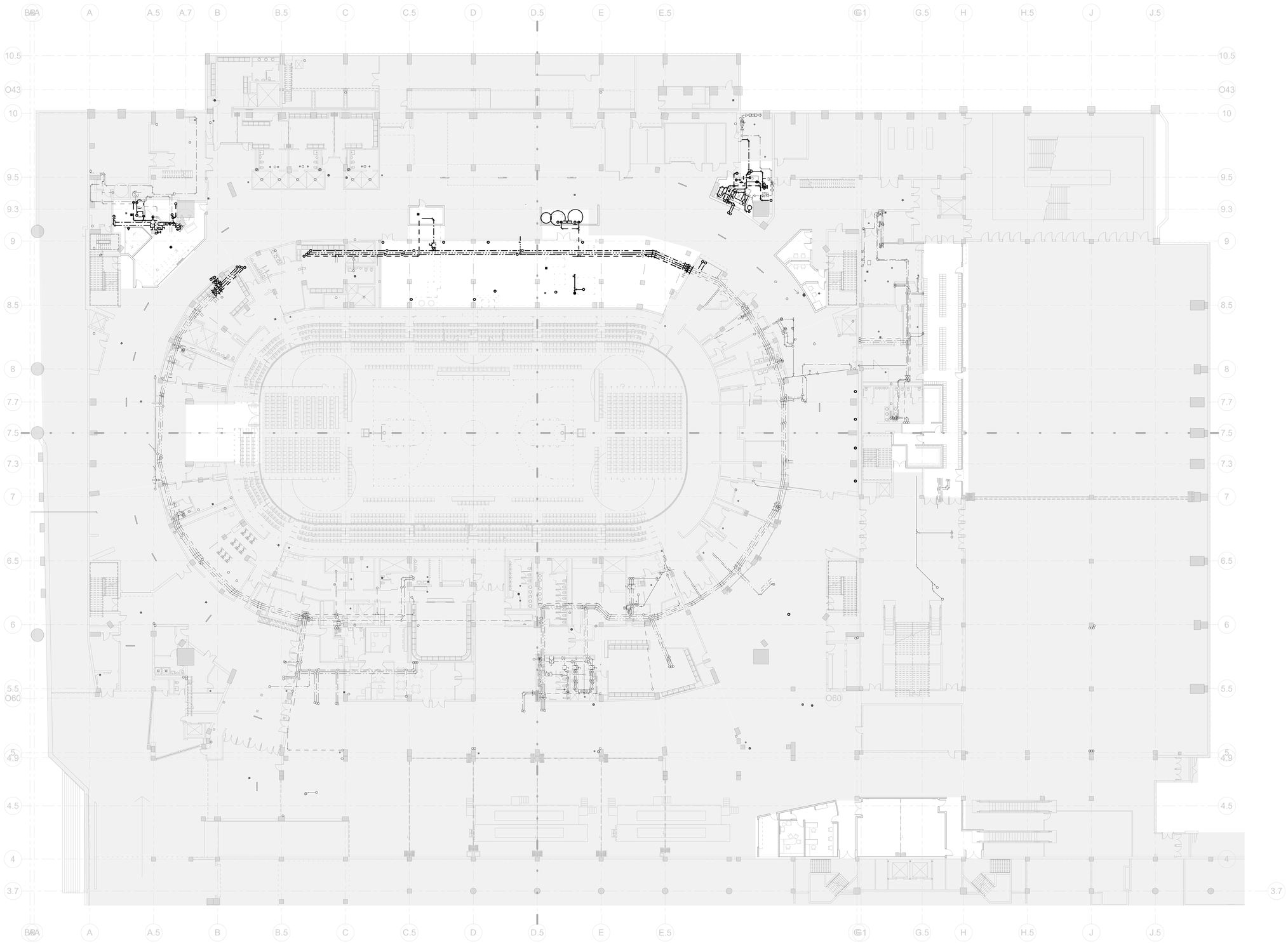
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
UNDERGROUND - PLUMBING
CONSTRUCTION QUADRANT
D - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-200D.E



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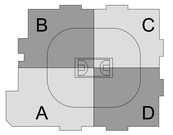

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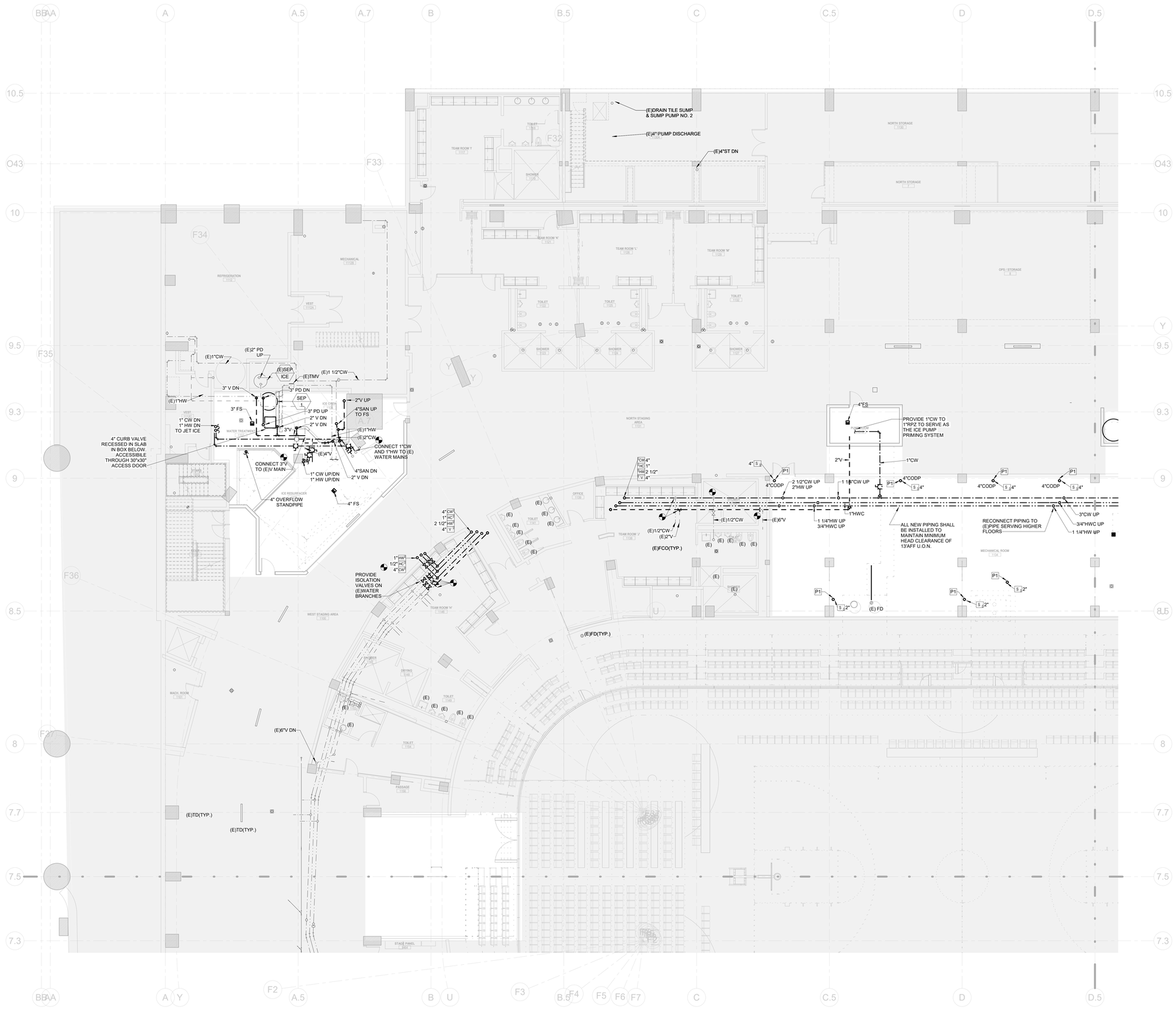
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - PLUMBING CONSTRUCTION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-201.E



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PIPE KEYNOTE LEGEND:

PIPING SYSTEM DESIGNATION (XX)	PIPE KEYNOTE NOMENCLATURE
CW = COLD WATER	[4]3"XX[5]
HW = HOT WATER	QUANTITY
HC = HOT WATER CIRCULATION	PIPE SIZE
S = SANITARY	XX: PIPE SYSTEM
V = VENT	U: PIPE UP
ST = STORM	D: PIPE DOWN
OD = OVERFLOW	
G = GAS	
GW = GREASE WASTE	
PD = PUMPED DISCHARGE	

KEYNOTES

P1	SANITARY PIPING STUBBED UP FOR FUTURE PLUMBING FIXTURES. COORDINATE WITH ARCHITECTURAL PLANS FOR FINAL DIMENSION OF FUTURE WET CHASES. TERMINATE PIPE WITH A FULL PIPE SIZE CODP FOR FUTURE CONNECTION.

B C A D

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(212) 447-6770

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1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

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1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - PLUMBING CONSTRUCTION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-201B.E

GENERAL NOTES:

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CW = COLD WATER HW = HOT WATER HC = HOT WATER CIRCULATION S = SANITARY V = VENT ST = STORM OD = OVERFLOW G = GAS GW = GREASE WASTE PD = PUMPED DISCHARGE	[4]3"XX QUANTITY PIPE SIZE XX: PIPE SYSTEM U: PIPE UP D: PIPE DOWN

KEYNOTES

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P2	PROVIDE TEMPORARY FLOOR SUPPORTS FOR CONTROL PANEL. MOUNT MINIMUM 3'AFF.

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REVISIONS/ ISSUES

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HARTFORD, CT

DWG. TITLE
LEVEL 31 - PLUMBING CONSTRUCTION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-201C.E
PROJ. NO.: 1605

GENERAL NOTES:

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V = VENT
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OD = OVERFLOW
G = GAS
GW = GREASE WASTE
PD = PUMPED DISCHARGE

PIPE KEYNOTE NOMENCLATURE

[4]3" XX U/D

QUANTITY
PIPE SIZE
XX: PIPE SYSTEM
U: PIPE UP
D: PIPE DOWN

KEYNOTES

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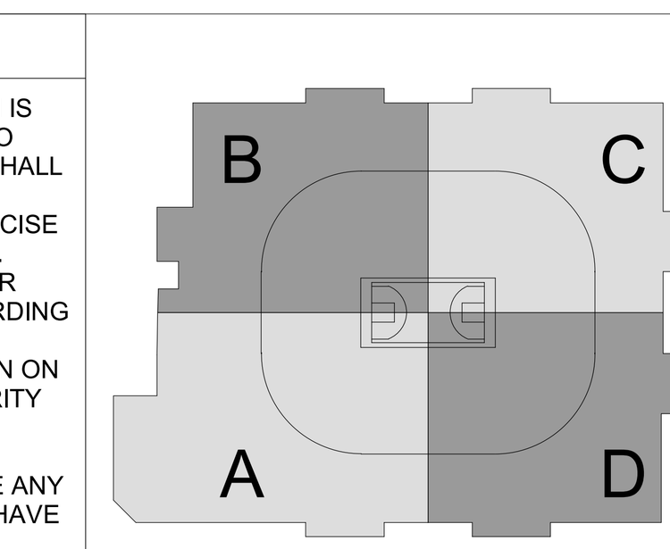

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REVISIONS/ ISSUES

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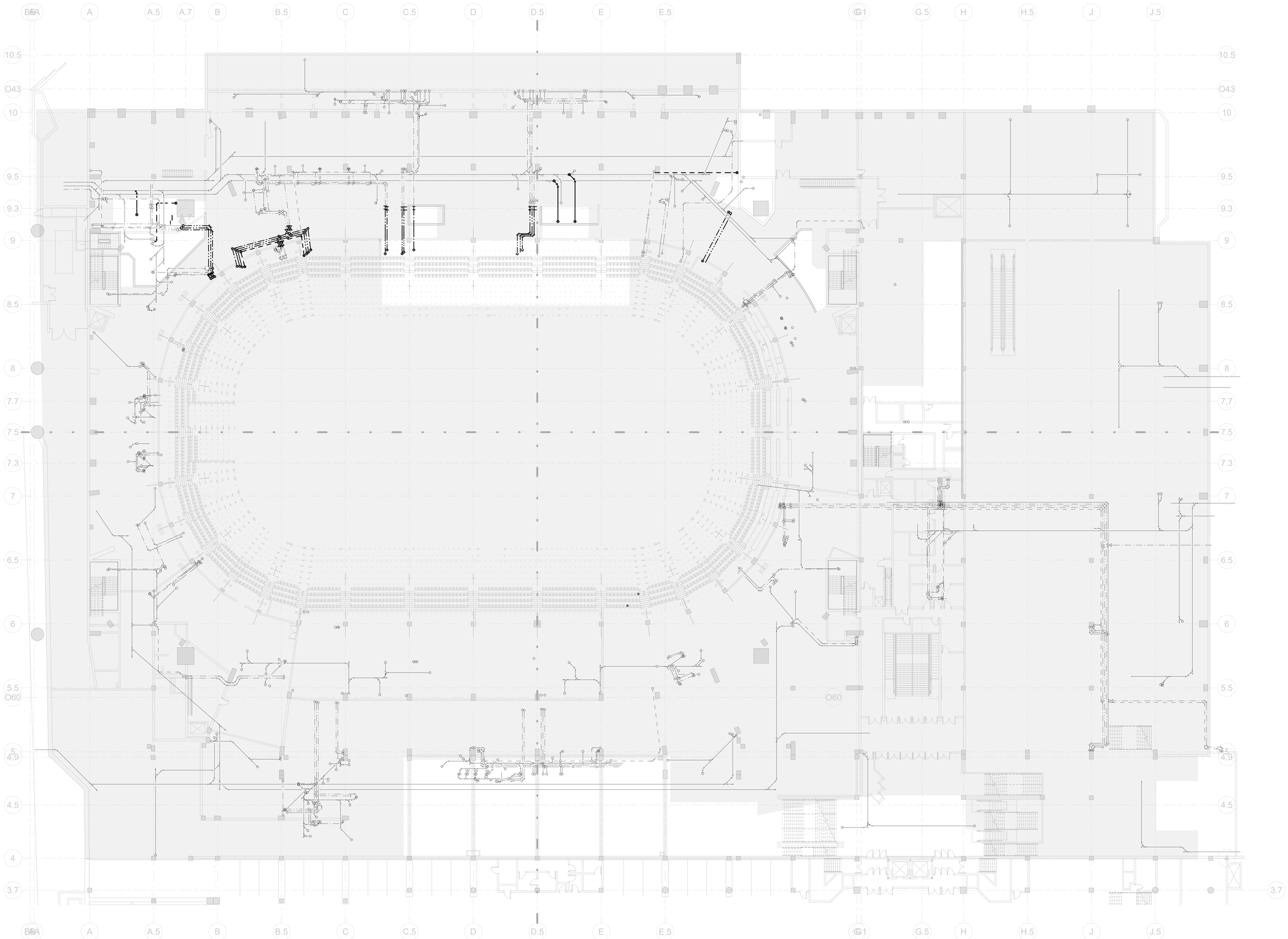
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE: LEVEL 31 - PLUMBING CONSTRUCTION QUADRANT D - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-201D.E
PROJ. NO.: 1605



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KEYNOTES

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HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING CONSTRUCTION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-202.E

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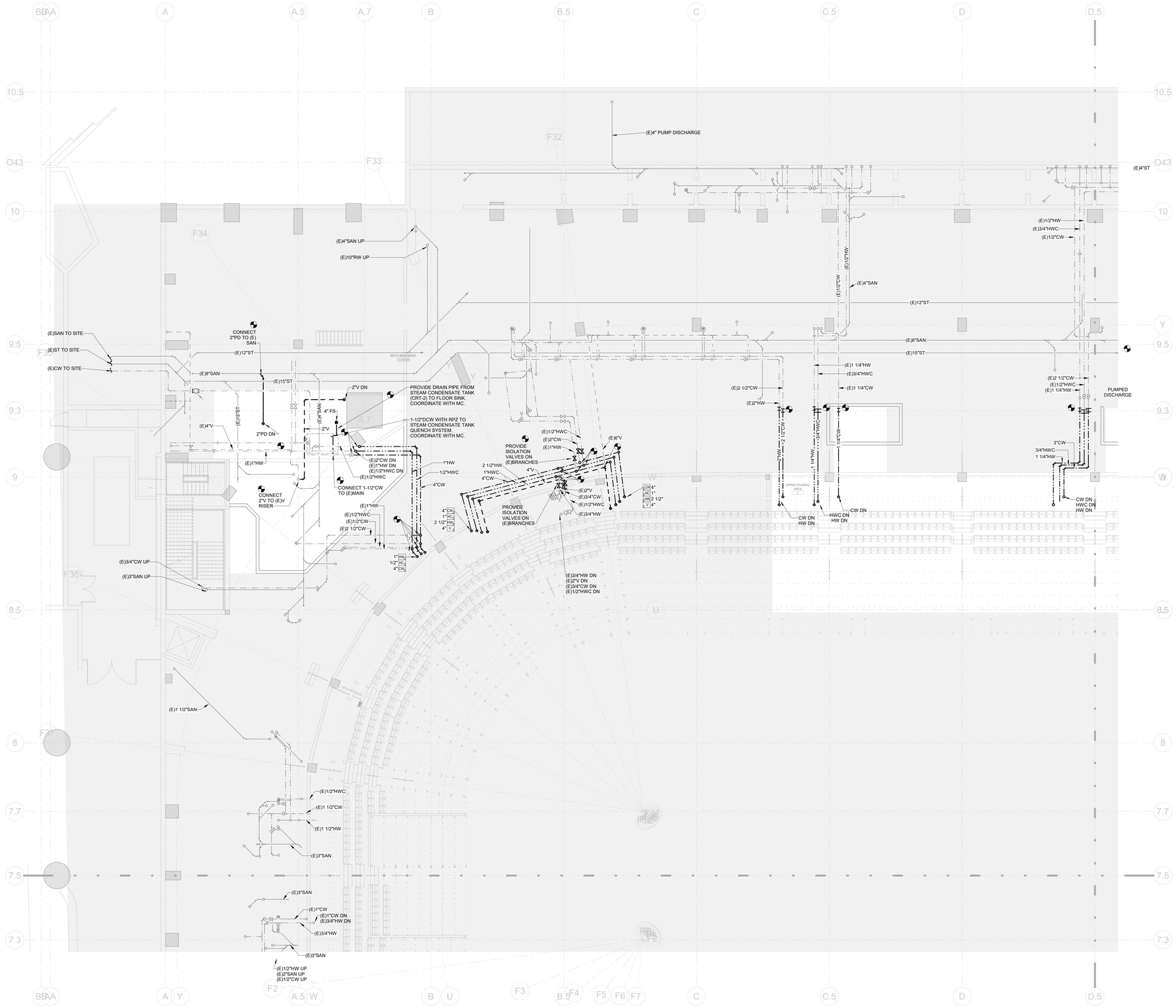
KEYNOTES



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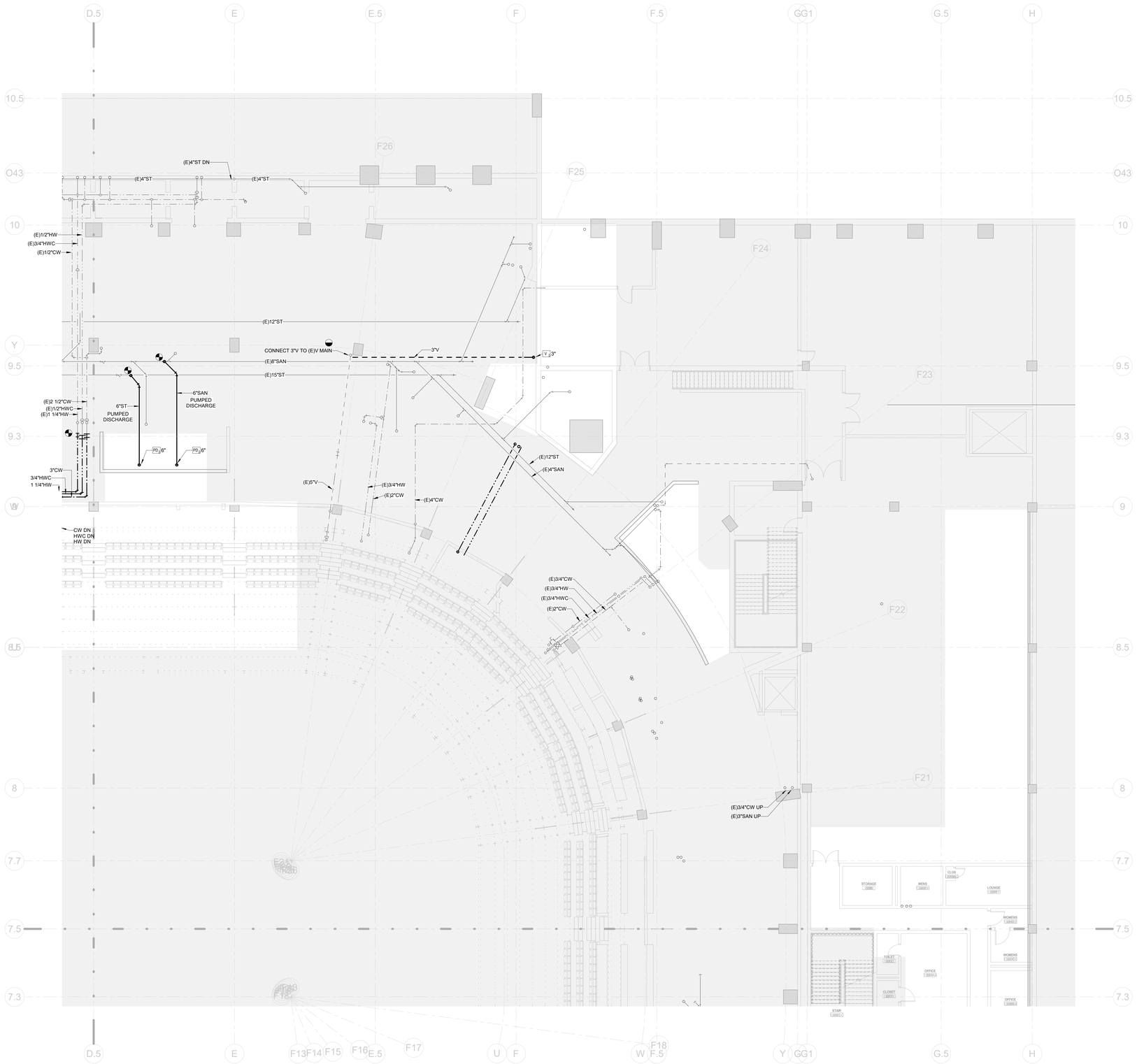
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING CONSTRUCTION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-202B.E



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[4]3"(XX)
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KEYNOTES

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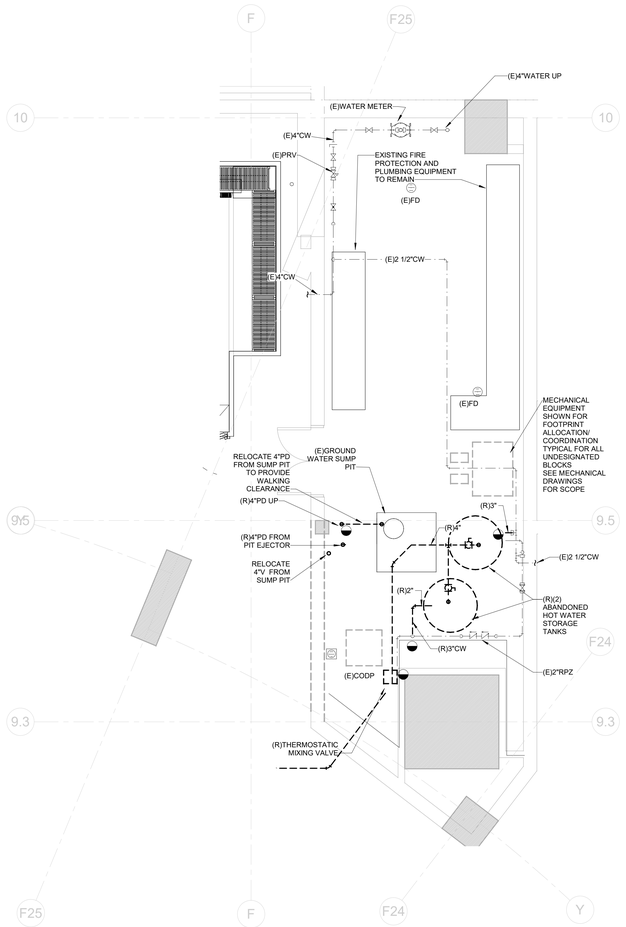
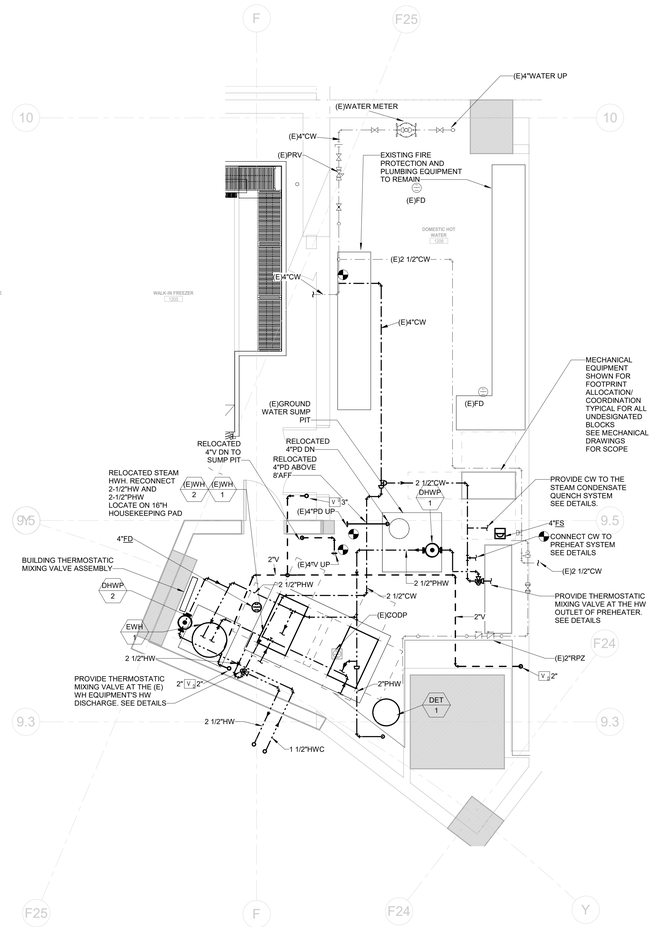
HARTFORD, CT

DWG. TITLE
LEVEL 48 - PLUMBING CONSTRUCTION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-202C.E
PROJ. NO.: 1605





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KEYNOTES

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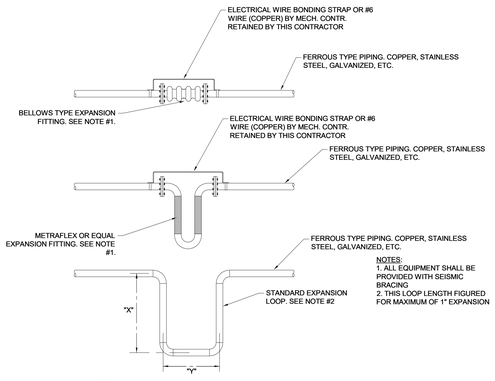
DWG. TITLE
PLUMBING ENLARGED PLANS - LEVEL 31 - ENABLING

SCALE: 1/4" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-300.E



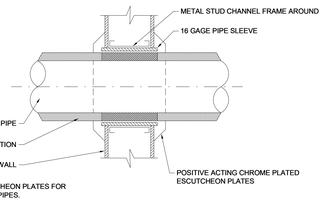
NOTES:
3-(3) OPTIONAL TYPE EXPANSION TYPE JOINTS ARE SHOWN. SIZING FOR EXPANSION JOINTS USING FITTINGS SHALL BE doIN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. 4-EXPANSION LOOP TYPE JOINTS SHALL BE SIZED IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES.
5-PIPE ANCHORS AND GUIDES FOR ALL EXPANSION JOINTS AND LOOPS SHALL BE AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS AND STANDARD ENGINEERING PRACTICES.

SCHEDULES FOR PIPE EXPANSION LOOPS

PIPE SIZE	Y	X	TOT. DEVELOPED LENGTH
3/4"	1'-2"	2'-11"	7'-0"
1"	1'-4"	3'-4"	8'-0"
1 1/2"	1'-7"	3'-9"	9'-1"
2"	1'-10"	4'-6"	10'-10"
2 1/2"	2'-0"	5-0"	12'-0"
3"	2'-2"	5'-6"	13'-2"
4"	2'-7"	6'-6"	15'-7"

A PIPING EXPANSION TYPES

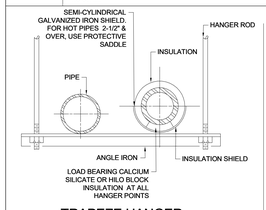
NO SCALE



NOTE:
OMIT ESCUTCHEON PLATES FOR CONCEALED PIPES.

E PIPE THRU STUD WALL DETAIL

NO SCALE



TRAPEZE HANGER

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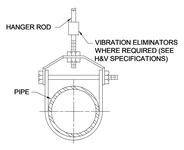
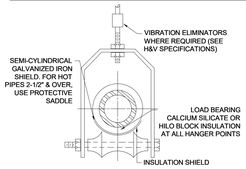


CLEVIS HANGER

NOT TO SCALE



CLEVIS ROLLER HANGER

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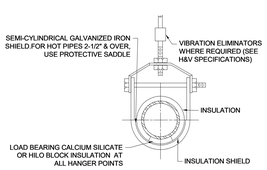
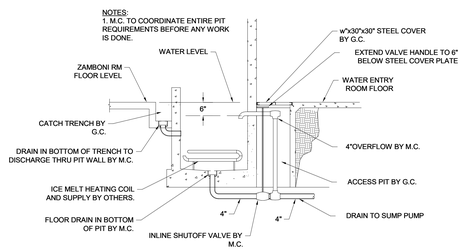


CLEVIS HANGER-INSULATED PIPES

NOT TO SCALE

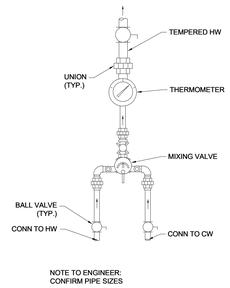
H PIPE HANGER DETAIL

NO SCALE



K ICE MELT PIT DRAINAGE DETAIL

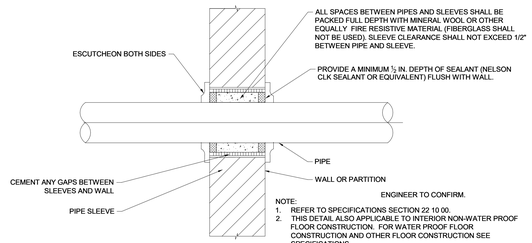
NO SCALE



NOTE TO ENGINEER:
CONFIRM PIPE SIZES

B TEMPERING VALVE DETAIL

NO SCALE

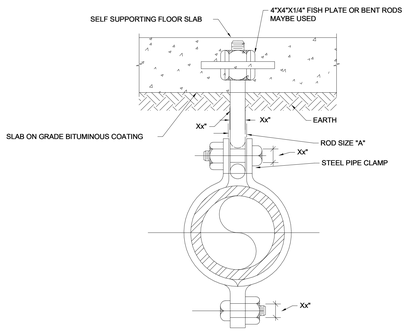


ENGINEER TO CONFIRM.

NOTE:
1. REFER TO SPECIFICATIONS SECTION 22 10 00.
2. THIS DETAIL ALSO APPLICABLE TO INTERIOR NON-WATER PROOF FLOOR CONSTRUCTION. FOR WATER PROOF FLOOR CONSTRUCTION AND OTHER FLOOR CONSTRUCTION SEE SPECIFICATIONS.
3. F RATING: 1 OR 2 HOUR
4. UL W-L-1083 SYSTEM ASSEMBLY
5. TESTED IN ACCORDANCE WITH ASTM E-814 AND ANSI/UL 1479
6. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

F DETAIL OF PIPING PIERCING REQUIRED FIRE RATED PARTITIONS AND WALL

NO SCALE



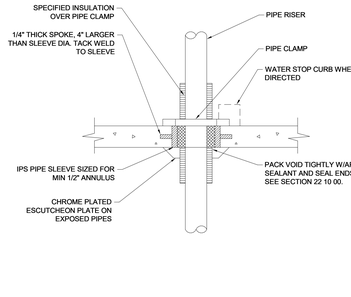
NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING
2. UNDERGROUND PIPE HANGERS SIMILAR OR EQUAL TO F & S #275

DIMENSIONS	NOMINAL PIPE SIZES					
	3" & 4"	5" & 6"	8"	10"	12"	15"
A	5/8"	3/4"	7/8"	1"	1"	1 1/8"
B	3/4"	7/8"	1"	1 1/8"	1 1/8"	1 1/4"
C X D	1/4" X 1 1/4"	3/8" X 1 1/2"	3/8" X 1 1/2"	1/2" X 2"	1/2" X 2"	1/2" X 2 1/2"
E	5/8"	3/4"	3/4"	7/8"	7/8"	7/8"

NOTE:
PROVIDE HANGERS ON ALL UNDERGROUND SOIL, VENT AND STORM DRAINAGE PIPING. ALL JOINTS ON THE UNDERGROUND PIPING SHALL BE SEALED WATER TIGHT SO THAT THERE WILL BE NO GROUND WATER INFILTRATION INTO THE DRAINAGE SYSTEM.

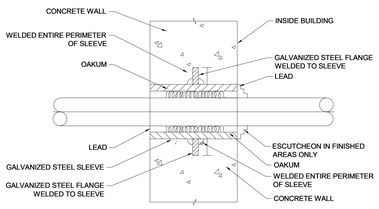
L DETAIL OF PIPE IN FILL

NO SCALE



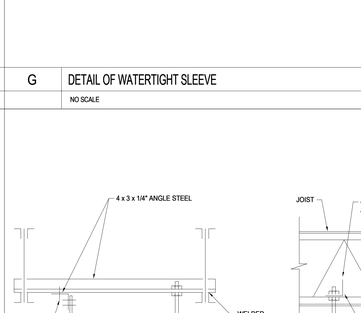
C PIPE THRU FLOOR SLAB DETAIL

NO SCALE



G DETAIL OF WATERTIGHT SLEEVE

NO SCALE



PIPE PARALLEL TO JOISTS

NOTES:

1. PROVIDE RUBBER INSULATORS OR COPPER PLATED TRAPEZE WHERE COPPER PIPE IS IN CONTACT WITH TRAPEZE.

2. PROVIDE VIBRATION ISOLATORS IN PIPE HANGERS WITHIN 10 FEET OF ROTATING EQUIPMENT.

PIPE PERPENDICULAR TO JOISTS

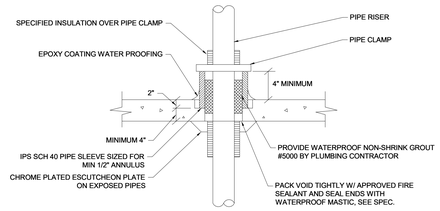
NOTES:

1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

I METHODS OF PIPE SUPPORT

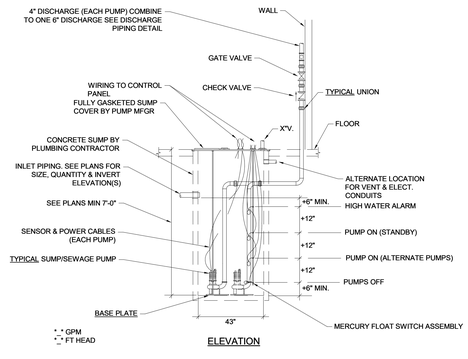
NO SCALE

NOTE:
THIS DETAIL REFERS TO PIPES BEING INSTALLED THROUGH EXISTING FLOOR SLABS USING A CORE DRILL. SLAB THICKNESS SHALL BE CONFIRMED BY CORE DRILLING THROUGH THE SLAB FOR THE RISER BEFORE DRILLING FOR SLEEVE.

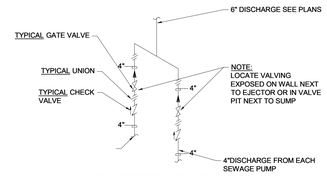


D DETAIL OF PIPE THRU EXISTING FLOOR SLAB

NO SCALE



ELEVATION



DISCHARGE PIPING DIAGRAM

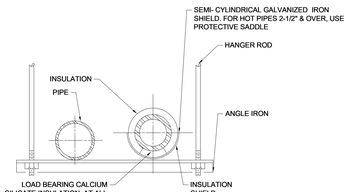
NOTES: SEWAGE EJECTOR ONLY, NOT FOR GENERAL PURPOSE SUMP PUMPS:
1. PROVIDE FRESH AIR INLET CONNECT WITHIN 4 FEET UPSTREAM OF SEWAGE EJECTOR. EXTEND FRESH AIR INLET TO OUTER AIR AND TERMINATE MINIMUM 6" ABOVE GRADE WITH PERFORATED METAL PLATE. REFER TO SPECIFICATIONS FOR FRESH AIR INLET DETAILS.

DESIGNER NOTE:
DO NOT LEAVE ON DETAIL
A. ADJUST MERCURY SWITCH SETTINGS
B. ADJUST ALL PIPING SIZES.

NOTE:
DETAIL DOES NOT SHOW REMOVAL SYSTEM EVEN THOUGH IT MAY BE REQUIRED. RE: SCHEDULES & SPEC'S.

J DUPLEX SUMP PUMP/SEWAGE EJECTOR DETAIL

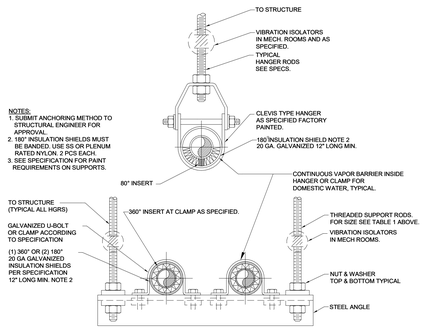
NO SCALE



NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

M TRAPEZE HANGER

NO SCALE



N DOMESTIC PIPE HANGER DETAIL

NO SCALE

SCI ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

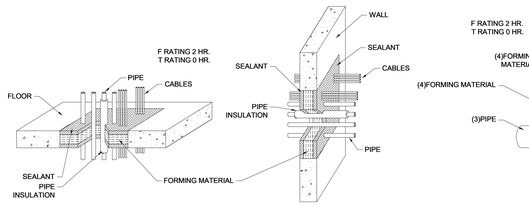
DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 10:35:31 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
PLUMBING DETAILS I - ENABLING

SCALE: 1/8" = 1'-0"
DWG. NO.: P-700.E
PROJ. NO.: 1605



1. FLOOR OR WALL ASSEMBY - MIN 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR MIN 5" THICK WALL, OR CMU BLOCK WALL. THE MAX AREA OF THE OPENING IS 144 SQ IN WITH A MAX DIMENSION OF 24". OF THE FOUR PENETRANTS, ONLY ONE PIPE SHALL HAVE A NOM DIAMETER GREATER THAN 2".

2. METALLIC PIPE - MAX NOMINAL 4" DIAMETER, OR SMALLER, SCH. 5 OR HEAVIER STEEL, CAST IRON, RMC, EMT OR TYPE L OR HEAVIER COPPER PIPE OR TUBING. SPACE BETWEEN PIPES IS NOM 1". SPACE BETWEEN PIPES AND PERIPHERY OF OPENING IS 1" TO 2".

3. NONMETALLIC PIPE - ONE OR MORE NOMINAL 2" DIAMETER, OR SMALLER, SCH. 40 OR PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

4. PIPE INSULATION - MAX 1" THICK AB/PVC (ARMAFLEX) FOAM INSULATION. THE INSULATION MAY BE INSTALLED ON ONE OF THE METALLIC PIPES OR TUBING HAVING A NOM DIAMETER OF 2" OR LESS. THE INSULATED PIPE OR TUBING SHALL BE SPACED A NOM 1" FROM THE OTHER THROUGH PENETRANTS. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE OR TUBING AND PERIPHERY OF THE OPENING SHALL BE A NOM 1".

5. CABLES - MAX 12 LENGTHS OF CABLES TO BE INSTALLED WITHIN THE OPENING. THE SPACE BETWEEN THE CABLES AND THE PERIPHERY OF OPENING SHALL RANGE FROM A MIN 1-7/16" TO A MAX 2-5/8". CABLES TO BE BUNDLED TOGETHER OR SPACED A NOM 1/8" APART. MAX 25PR #24AWG CABLES OR 62.5/125 UM FIBER OPTIC CABLES, BOTH JACKETED.

6. FORMING MATERIAL - TIGHTLY PACK MIN 4PCF MINERAL WOOL BATT INSULATION TO FILL THE ANNULAR SPACE TO A MIN 2 1/2" DEPTH, AND RECESS 1-1/4" FROM THE TOP SURFACE OF THE FLOOR OR BOTH SIDES OF THE WALL.

7. NELSON LBS3 SEALANT - APPLY OVER THE FORMING MATERIAL TO A MIN 1-1/4" DEPTH, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.

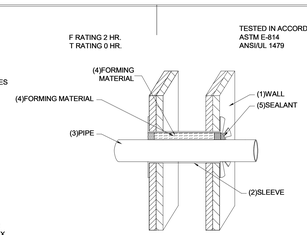
UL SYSTEM
NO. C-AJ-8141

NELSON FIRESTOP DWG
NO. FS-0544 RO

CONCRETE FLOOR OR WALL MULTIPLE METALLIC PIPES FIRE STOPPING DETAIL

NOT TO SCALE

A	CONCRETE FLOOR OR WALL MULTIPLE METALLIC PIPES FIRE STOPPING DETAIL
	NO SCALE



1. WALL ASSEMBLY - CONSTRUCTED IN THE MANNER SPECIFIED IN THE U300 OR U400 SERIES DESIGNS AS SHOWN IN THE UL FIRE RESISTANCE DIRECTORY.

2. METALLIC SLEEVE - NOMINAL 6⅝" DIAMETER (OR SMALLER) STEEL SLEEVE FABRICATED FROM .018" (26 GA.) GALVANIZED SHEET STEEL, WITH A 2" OVERLAP ALONG LONGITUDINAL SEAM AND 1½" LONG ANCHOR TABS SPACED A MAX. 6" ON CENTER, SECURE TO BOTH SIDES OF WALL WITH TOGGLE BOLTS AND FENDER WASHERS.

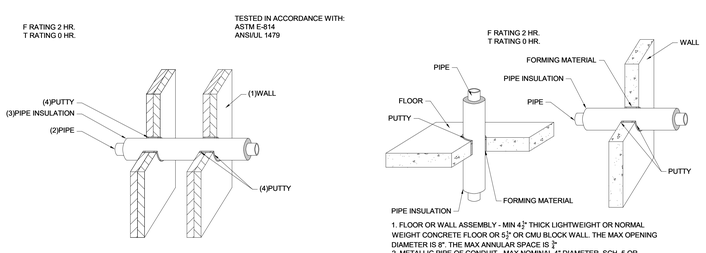
3. METALLIC PIPE - THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES MAY BE USED:
(A) STEEL PIPE - NOM. 4" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE
(B) IRON PIPE - NOM. 4" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE ANNULAR SPACE RANGE IS MIN. 0" (POINT CONTACT) TO MAX. 2".

4. FORMING MATERIAL - TIGHTLY PACK MIN. 4PCF MINERAL WOOL BATT INSULATION TO FILL THE ANNULAR SPACE TO MIN. 3⅞" DEPTH FOR 1 HR. WALLS OR 4" DEPTH FOR 2 HR. WALLS. RECESS FIBER ⅝" FROM BOTH SURFACES OF WALL.

5. NELSON CLK SEALANT - APPLY OVER THE FORMING MATERIAL TO A MIN. ½" DEPTH, FLUSH WITH WALL, AT AREAS OF POINT CONTACT, APPLY A ½" BEAD AT THE INTERFACE OF THE PIPE AND SLEEVE ON BOTH WALL SURFACES.

UL SYSTEM NUMBER W-L-1083

GYPSUM WALL UNINSULATED METALLIC PIPE FIRE STOPPING DETAIL
NOT TO SCALE



1. WALL ASSEMBLY - CONSTRUCTED IN THE MANNER SPECIFIED IN THE U300 OR U400 SERIES DESIGNS AS SHOWN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAMETER OF OPENING IS 10".

2. METALLIC PIPE - THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES MAY BE USED:
(A) STEEL PIPE - NOM. 6" DIAMETER (OR SMALLER) SCHEDULE 10 OR HEAVIER STEEL PIPE
(B) IRON PIPE - NOM. 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE
(C) COPPER TUBING OR PIPE - NOM. 4" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING OR REGULAR (OR HEAVIER) COPPER PIPE.
FOR STEEL OR CAST IRON PIPE THE T RATING IS 2 HOURS, FOR COPPER TUBING OR PIPE THE T RATING IS 0

3. PIPE INSULATION - NOMINAL 1½" THICK (OR THINNER) FIBERGLASS OR MINERAL FIBER PIPE INSULATION. THE MAX ANNULAR SPACE FOR PIPE LARGER THAN 4" DIAMETER IS 3/16" AND 3/4" OTHERWISE.

4. NELSON FSP PUTTY (PART# AA445) - APPLY FSP TO FILL THE ANNULAR SPACE TO A NOMINAL 1¾" DEPTH ON BOTH SIDES OF THE WALL. ADDITIONAL MATERIAL TO BE INSTALLED SUCH THAT A ½" THICK CROWN IS FORMED AROUND THE PENETRATING ITEM.

UL SYSTEM NUMBER W-L-5036

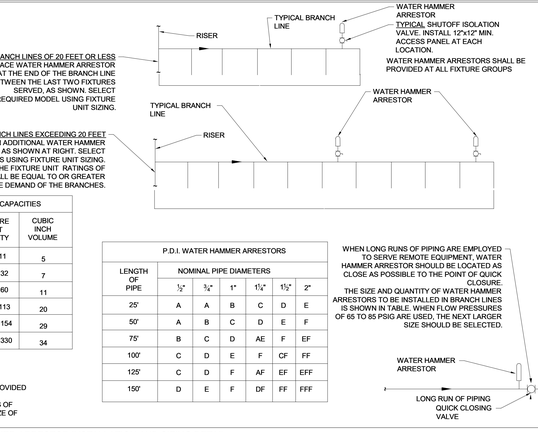
GYPSUM WALL INSULATED METALLIC PIPE FIRE STOPPING DETAIL
NOT TO SCALE

1. FLOOR OR WALL ASSEMBLY - MIN 4½" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR 5½" OR CMU BLOCK WALL. THE MAX OPENING DIAMETER IS 8". THE MAX ANNULAR SPACE IS ¾".
2. METALLIC PIPE OF CONDUIT - MAX NOMINAL 4" DIAMETER, SCH. 5 OR HEAVIER STEEL OR CAST IRON PIPE.
3. PIPE INSULATION - NOMINAL 1" THICK, OR THINNER, FIBERGLASS OR MINERAL WOOL PIPE INSULATION.
4. FORMING MATERIAL - TIGHTLY PACK MIN 4PCF MINERAL WOOL BATT INSULATION TO FILL THE ANNULAR SPACE TO A MIN 3⅞", AND RECESS 1" FROM THE TOP SURFACE OF THE FLOOR OR FROM BOTH SURFACES OF THE WALL.
5. NELSON FSP PUTTY - APPLY OVER THE FORMING MATERIAL TO A MIN DEPTH OF 1", FLUSH WITH THE TOP SURFACE OF THE FLOOR OR WITH BOTH SURFACES OF THE WALL WITH AN ADDITIONAL ¾" AROUND THE PIPE WHERE IT PENETRATES THE FLOOR OR WALL.

UL SYSTEM
NO. C-AJ-5012

NELSON FIRESTOP DWG
NO. FS-0093 R3

B	WATER HAMMER ARRESTOR INSTALLATION AND SIZING DETAIL
	NO SCALE



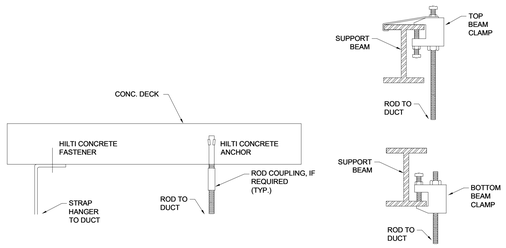
WATER HAMMER ARRESTOR CAPACITIES

CONN. SIZE	CODE	PDI SIZE	FIXTURE UNIT CAPACITY	CUBIC INCH VOLUME
1/2"	SA-1	A	1 TO 11	5
3/4"	SA-2	B	12 TO 32	7
1"	SA-3	C	33 TO 60	11
1"	SA-4	D	61 TO 113	20
1"	SA-5	E	114 TO 154	29
1"	SA-6	F	155 TO 330	34

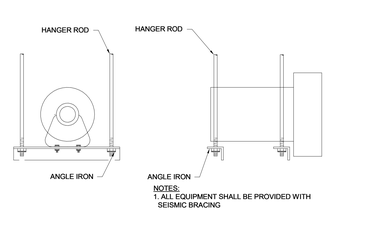
P.D.I. WATER HAMMER ARRESTORS

LENGTH OF PIPE	NOMINAL PIPE DIAMETERS					
	½"	¾"	1"	1¼"	1½"	2"
25'	A	A	B	C	D	E
50'	A	B	C	D	E	F
75'	B	C	D	AE	F	EF
100'	C	D	E	F	CF	FF
125'	C	D	F	AF	EF	EFF
150'	D	E	F	DF	FF	FFF

NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING
2. MATCH TOTAL FIXTURE UNITS OF BRANCH LINE TO CORRECT SIZE OF WATER HAMMER ARRESTOR

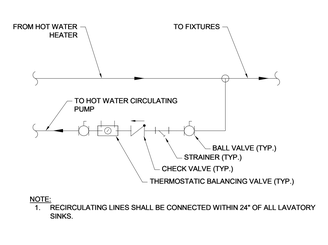


C	HANGER FASTENED TO STRUCTURE DETAIL
	NO SCALE



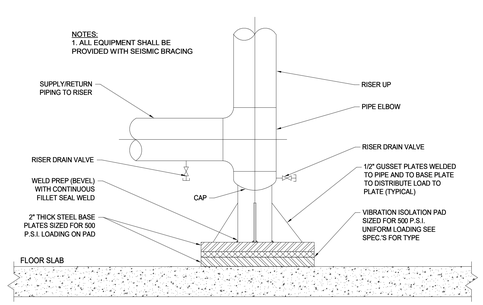
NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

D	SMALL IN-LINE PUMP SUPPORT DETAIL
	NO SCALE

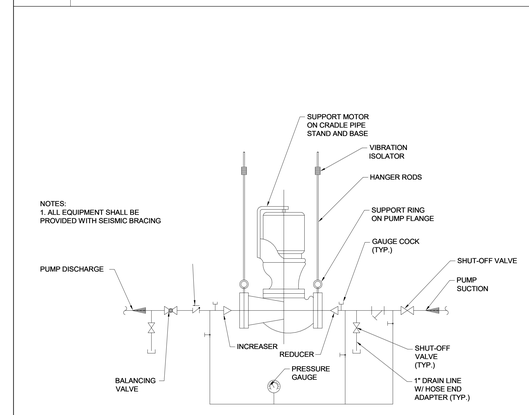


NOTE:
1. RECIRCULATING LINES SHALL BE CONNECTED WITHIN 24" OF ALL LAVATORY SINKS.

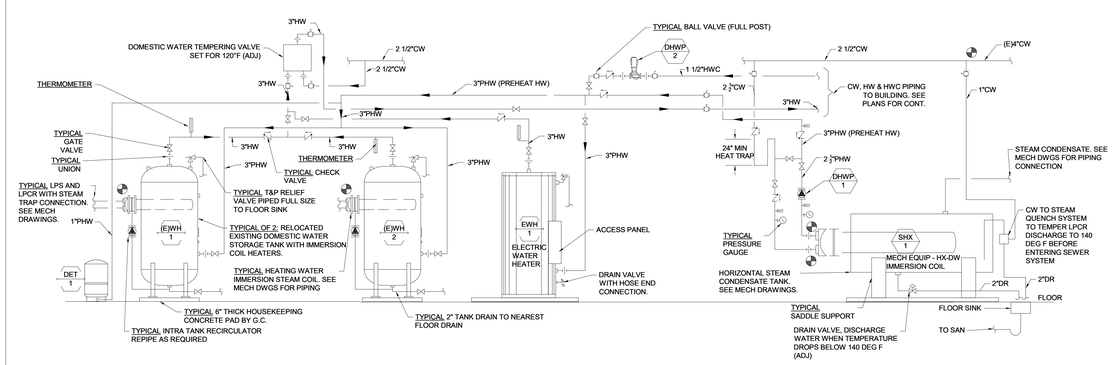
E	HOT WATER CIRCULATION CONNECTION DETAIL
	NO SCALE



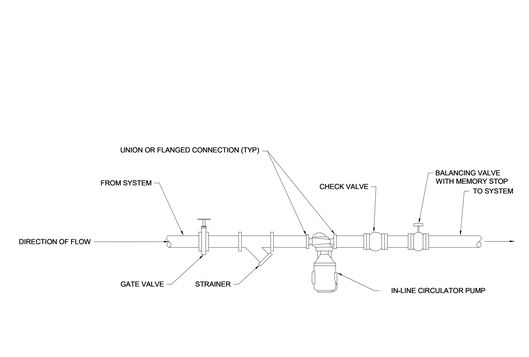
F	TYPICAL BASE SUPPORT DETAIL FOR PIPE RISERS
	NO SCALE



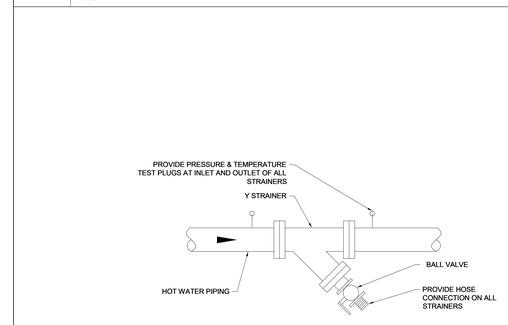
G	IN-LINE CENTRIFUGAL PUMP DETAIL
	NO SCALE



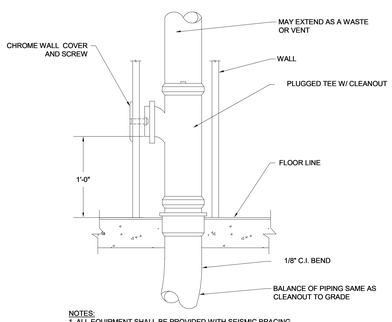
H	DOMESTIC WATER HEATING ASSEMBLY WITH PREHEAT PIPING DETAIL
	NO SCALE



I	IN-LINE CIRCULATING PUMP INSTALLATION DETAIL
	NO SCALE

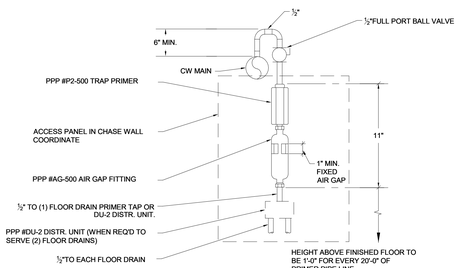


J	STRAINER INSTALLATION DETAIL
	NO SCALE



NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

K	WALL CLEANOUT DETAIL
	NO SCALE



L	TRAP PRIMER DETAIL
	NO SCALE

M	-
	NO SCALE

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

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SEAL

DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 10:35:33 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
PLUMBING DETAILS II - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: P-701.E

SPRINKLER LEGEND

(NOT ALL SYMBOLS LISTED BELOW ARE BEING USED IN THIS SET OF SPRINKLER DRAWINGS)

GENERAL SYMBOLS/ ABBR.

SYMBOL	ABBR	DESCRIPTION
F M		SECTION NO.
		SECTION VIEW SHEET NO.
1		SHEET KEY NOTES
	POC	POINT OF CONN. (CONN. NEW TO EXISTING)
	POD	POINT OF DISCONNECTION
		ARROW INDICATES DIRECTION OF FLOW
UP		RISE IN DIRECTION OF FLOW
DN		DROP IN DIRECTION OF FLOW
	DN	DOWN
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	TOP	TOP OF PIPE (AFF)
	BOP	BOT. OF PIPE (AFF)
	I.E.	INVERT ELEVATION
	NTS	NOT TO SCALE
	(E)	EXISTING
	(R)	REMOVE
	FD	FLOOR DRAIN
	O.C.	ON CENTER
	SPR.	SPRINKLER
	SQ.FT	SQUARE FEET
	TEMP	TEMPERATURE

GENERAL PIPING

SYMBOL	ABBR	DESCRIPTION
	(E)	EXISTING SPRINKLER PIPING (LIGHT SOLID LINE)
	(R)	EXISTING SPRINKLER PIPING TO BE REMOVED (DASHED LINE)
	SP	SPRINKLER PIPING
	ST	STANDPIPE PIPING
	DR	DRAIN
3/4"		PIPE SIZE

SPRINKLER HEADS

SYMBOL	ABBR	DESCRIPTION
E		EXISTING HEAD TO REMAIN
R	R	EXISTING HEAD TO BE REMOVED
	U	UPRIGHT
UO	UO	UPRIGHT UNDER OBSTRUCTION
		CONCEALED PENDANT
EC	EC	EXTENDED COVERAGE CONCEALED PENDANT HEAD
D	D	DRY CONCEALED PENDANT HEAD
D	D	DRY UPRIGHT HEAD
IT	IT	INTERMEDIATE TEMPERATURE RATED HEAD
HT	HT	HIGH TEMPERATURE RATED HEAD
		SIDEWALL HEAD
EC		EXTENDED COVERAGE SIDEWALL HEAD

FIRE PUMP ABBR.

SYMBOL	ABBR	DESCRIPTION
	FP	FIRE PUMP
	JP	JOCKEY PUMP

FIRE PROTECTION ASSEMBLIES

SYMBOL	ABBR	DESCRIPTION
	SIA	FIRE DEPARTMENT (SIAMESE) CONNECTION
	FCVA	FLOOR CONTROL VALVE ASSEMBLY
FHC	FHC	FIRE HOSE CABINET
FHV	FHV	FIRE HOSE VALVE
	DCDA	DOUBLE CHECK DETECTOR ASSEMBLY

VALVES

SYMBOL	ABBR	DESCRIPTION
	DV	DRAIN VALVE W/ HOSE END CONN.
	CV	CHECK VALVE W/ INDICATION OF FLOW DIRECTION
	PRV	PRESSURE REDUCING VALVE
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
PI-PR PI-PR	TPR	TEMPERATURE/ PRESSURE RELIEF VALVE
		VALVE IN RISER
	STR	STRAINER W/ BLOW-OFF & CAPPED HOSE-END CONNECTION
	GV	GATE VALVE
	OS&Y	OUTSIDE STEM AND YOKE
TS		VALVE WITH TAMPER SWITCH

FITTINGS

SYMBOL	ABBR	DESCRIPTION
EJ	EJ	EXPANSION JOINT
	U	UNION
	FC	FLEXIBLE PIPE CONNECTOR
FS	FS	FLOW SWITCH
PS	PS	PRESSURE SWITCH
TS	TS	TAMPER SWITCH
	PG	PRESSURE GAUGE W/GAUGE COCK
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		PIPE CAP OR PLUG
	CR	CONCENTRIC REDUCER
	ER	ECCENTRIC REDUCER

MECHANICAL/PLUMBING/ SPRINKLER/ELECTRICAL COORDINATION REQUIREMENTS

FOR MECHANICAL, PLUMBING AND SPRINKLER EQUIPMENT AS INDICATED ON THE DIVISION 21, 22, AND 23 DRAWINGS, THE DIVISION 21, 22 AND 23 CONTRACTORS SHALL COORDINATE WITH DIVISION 26 CONTRACTOR TO CONNECT ALL MECHANICAL AND PLUMBING EQUIPMENT INDICATED ON THE MECHANICAL, PLUMBING AND SPRINKLER DRAWINGS. COORDINATE FOR COMPLETE WIRING, STARTERS, AND DISCONNECTING MEANS FOR ALL MECHANICAL, PLUMBING AND SPRINKLER EQUIPMENT.

SPRINKLER HEAD SCHEDULE

DESCRIPTION	MANUFACTURER	MODEL NO.	K-FACTOR	REQ. PRESSURE (PSI)	MEA #	REMARKS
QUICK RESPONSE SIDEWALL	RELIABLE	F1FR	5.6	7	258-93-E	NONE
QUICK RESPONSE CONCEALED PENDANT	RELIABLE	G5-56	5.6	7	258-93-E	NONE
QUICK RESPONSE PENDANT	RELIABLE	F1FR	5.6	7	258-93-E	NONE
QUICK RESPONSE RECESSED PENDANT	RELIABLE	F1FR	5.6	7	258-93-E	NONE
QUICK RESPONSE UPRIGHT	RELIABLE	F1FR	5.6	7	258-93-E	NONE
QUICK RESPONSE DRY HEADS	RELIABLE	F3QR	5.6	7	258-93-E	NONE

GENERAL FIRE PROTECTION CONTRACT REQUIREMENTS:

GENERAL:

1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E. OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN.

2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS OF THE JOB.

3. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 23 WORK AND ITS INTERFACE WITH OTHER WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.

   A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

   B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.

   C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, "CONSTRUCTION DRAWINGS" OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT.

4. THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS.

5. DEFINITIONS AND TERMINOLOGY

   A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 23 CONTRACT DOCUMENTS.

   B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC. PREPARED BY THE ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE DIVISION 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS.

   C. "CONSTRUCTION DOCUMENTS", "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS.

   D. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.

   E. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".

   F. "PROVIDE" MEANS TO "FURNISH AND INSTALL".

   G. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER.

   H. "WORK BY OTHER(S) DIVISIONS", "RE- 23 DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION OR SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID.

   I. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB-CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS.

   J. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS).

EXISTING BUILDING:

1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC.; AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID.

2. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION. INCORPORATE THESE NOTES INTO THE AS-BUILT DRAWINGS.

3. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB PRIOR TO COMMENCING WORK. UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.

GENERAL FIRE PROTECTION DEMOLITION NOTES:

1. THE CONTRACTOR SHALL CAREFULLY INSPECT, REVIEW AND DOCUMENT THE EXISTING BUILDING FIRE PROTECTION SYSTEMS WITHIN THE PROJECT WORK AREAS SHOWN TO BE DEMOLISHED. PRIOR DOCUMENTATION OF EXISTING CONDITIONS, CAPACITIES AND PHYSICAL ARRANGEMENTS IS LIMITED. THESE DOCUMENTS ATTEMPT TO DEFINE AREAS BUT MAY NOT ACCURATELY SHOW ALL EXISTING CONDITIONS.

2. ALL EXISTING FIRE PROTECTION PIPING BEING REUSED SHALL BE INSPECTED AND VERIFIED TO BE IN GOOD CONDITION PRIOR TO CONNECTION OF ANY NEW FIRE PROTECTION SYSTEMS.

3. ALL PIPING SYSTEMS NO LONGER IS USE DUE TO RENOVATION SHALL BE REMOVED. NO PIPING WILL BE ABANDONED IN PLACE.

GENERAL FIRE PROTECTION NOTES:

1. ALL FIRE PROTECTION PIPING SHALL BE SCHEDULE 40 OR GREATER. THE USE OF SCHEDULE 10 PIPE WILL NOT BE ACCEPTED FOR ANY REASON.

2. THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AS-BUILT DRAWING AND HYDRAULIC CALCULATIONS AND OBTAIN APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION OVER THE SPRINKLER WORK AND OBTAIN AGENCY APPROVALS FOR DRAWING AND HYDRAULICS PRIOR TO INSTALLATION OF NEW WORK. DRAWING AND HYDRAULIC CALCULATIONS SHALL BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER RETAINED BY THE SPRINKLER CONTRACTOR. SPRINKLER CONTRACTOR SHALL PREPARE ALL DOCUMENTS REQUIRED FOR ANY SUBSEQUENT FILING WITH AUTHORITIES HAVING JURISDICTION.

3. COORDINATE ROUTING OF ALL FIRE PROTECTION PIPING WITH STRUCTURAL BEAMS, COLUMNS, ETC. ALLOW FOR REROUTING OF PIPING AS REQUIRED.

4. PIPING ROUTING ON DRAWINGS IS GENERALLY DIAGRAMMATIC WITH EFFORTS DURING DESIGN TO AVOID STRUCTURAL CONFLICTS. CONTRACTOR SHALL COORDINATE ROUTING OF ALL PIPING THROUGH BUILDING WITH STRUCTURAL CONDITIONS. CONTRACTOR COORDINATION DRAWINGS SHALL REFLECT ALL PIPE ROUTING AND PIPING THAT MAY HAVE TO BE SHIFTED AND/OR MOVED TO AVOID CONFLICTS. SHIFTED OR MOVED PIPING SHALL REFLECT NO ADDITIONAL COST TO THE PROJECT.

5. ALL REQUIRED OPENINGS IN STEEL BEAMS AND STRUCTURAL WALLS ARE TO BE ACCOMPLISHED USING SLEEVES/PENETRATIONS PROPERLY SIZED FOR THE PIPE THEY SERVE. ALL BEAM PENETRATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. CORE DRILLING IN PANS IS ALLOWED UPON PRIOR APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER.

6. ALL EQUIPMENT AND PIPING SHALL BE BRACED FOR SEISMIC REQUIREMENTS APPLICABLE FOR SEISMIC ZONE REQUIREMENTS FOR THIS PROJECT.

ELECTRICAL COORDINATION:

1. VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY PLUMBING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.

2. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER DIVISION 21 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND MUST BE PROVIDED BY AND FIELD COORDINATED BY THE DIVISION 21 TRADE REQUIRING SUCH POWER.

INSTALLATION:

1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE.

2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

3. SPRINKLER PIPING SHALL NOT BE IN CONTACT WITH ANY OTHER TRADE.

4. PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL AND DISPOSAL OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS TO REMAIN UNDISTURBED.

5. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONCRETE EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELECTION, TO THE STRUCTURAL AND GENERAL CONTRACTOR FOR INCLUSION IN THOSE CONTRACTORS WORK AS DESCRIBED BY THE GENERAL CONTRACTOR.

6. WARRANTY: AT A MINIMUM, THE ENTIRE FIRE PROTECTION SYSTEM SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE OWNER. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRANTY REQUIREMENTS.

PIPE INSTALLATION:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY MEANS OF HANGERS AND SUPPORTS. PIPING IS NOT TO BE SUPPORTED BY EQUIPMENT.

2. FLUSH OUT PIPING AND REMOVE CONTROL DEVICES BEFORE PERFORMING PRESSURE TEST. THE ENTIRE FIRE PROTECTION SYSTEM SHALL BE TESTED HYDROSTATICALLY AT NOT LESS THAN 200 PSI PRESSURE FOR TWO HOURS, OR AT 50 PSI IN EXCESS OF THE MAXIMUM STATIC PRESSURE WHEN THE MAXIMUM STATIC PRESSURE IN EXCESS OF 150 PSI. ANY SYSTEM FAILING TO MEET THE PRESSURE TEST SHALL BE REPAIRED AND RETESTED AT NO ADDITIONAL COST, UNTIL THE TEST REQUIREMENTS ARE MET.

3. INSTALL ALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHIN THE PIPING SYSTEM. ENSURE ALL REQUIRED PIPE EXPANSION WILL OCCUR IN THE PROPER DIRECTION AND SEGMENT OF PIPE. PROPERLY ANCHOR (RE: SPECIFICATIONS) ALL PIPING REQUIRING EXPANSION/CONTRACTION ISOLATION. COORDINATE PIPE EXPANSION/CONTRACTION TO PREVENT DAMAGE TO ANY AND ALL BUILDING COMPONENTS.

CUTTING, PATCHING AND DEMOLITION:

1. KEEP DEMOLITION & CUTTING TO MINIMUM REQUIRED FOR PROPER EXECUTION OF WORK.

2. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF THE WORK.

3. NO CUTTING (NOT SHOWN ON THE CONTRACT DOCUMENTS) SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT AS TO LOCATIONS, METHOD AND EXTENT OF THE CUTTING.

4. REPAIR ALL ACCIDENTAL OR INTENTIONAL DAMAGE TO MATCH EXISTING CONSTRUCTION WITH NO NOTICEABLE DIFFERENCE IN CONTINUITY, APPEARANCE OR FUNCTION.

5. DEMOLISH AND CAP ALL INDICATED PIPING BACK AT NEAREST MAIN.

SUBMITTAL REQUIREMENTS:

1. AFTER RECEIPT OF NOTICE TO PROCEED, THE CONTRACTOR SHALL SUBMIT A TYPED LIST OF SUBMITTALS AND THE SCHEDULED DATE OF SUBMISSION. LIST SHALL INCLUDE SUBMITTAL NUMBER, SECTION NUMBER AND SCHEDULED DATE OF SUBMISSION.

2. REFER TO THE SPECIFICATIONS FOR ADDITIONAL SUBMITTAL REQUIREMENTS.

STRUCTURE:

1. DO NOT PENETRATE STRUCTURAL MEMBERS. ALL EQUIPMENT SUPPORTS SHALL BE ATTACHED TO THE LOAD BEARING MEMBERS OF STRUCTURAL ELEMENTS. DO NOT OVER-STRESS ANY STRUCTURAL MEMBERS. CONTACT STRUCTURAL ENGINEER FOR ALLOWABLE LOADS FOR SPECIFIC MEMBERS.

2. DO NOT UTILIZE POWDER DRIVEN ANCHORS FOR ANY LOCATIONS WHICH REQUIRE THE LOAD TO BE HELD IN TENSION. SEE STRUCTURAL DIVISION FOR ADDITIONAL RESTRICTIONS.

3. SEE ALSO STRUCTURAL DIVISION FOR ACCEPTABLE ANCHORING AND SUPPORT MEANS, METHODS, AND LOCATIONS.

FIRE STOPPING:

1. FIRE STOPPING REQUIREMENT: PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM-E-814. ACCEPTANCE MATERIALS INCLUDE: DOW CORNING RTS FIRE STOP FOAM FOR BARE PIPE, METAL CONDUIT, AND ELECTRICAL CABLE; 3M FIRE DAM 150 CAULK FOR BARE PIPE, METAL CONDUIT, AND BUILDING CONSTRUCTION; GAPS 3M FS-195 INTUMESCENT STRIPS FOR INSULATED PIPES, PLASTIC PIPE OR CONDUIT, AND ELECTRICAL CABLE. FIRE STOPPING SHALL ADHERE TO SECTION 714 OF THE IBC.

SCOPE CLARIFICATION NOTES:

1. THESE DOCUMENTS SERVE TO DEFINE THE NATURE OF THE SYSTEMS, LEVEL OF CONTROL AND FINISH, RELATIONSHIPS WITH OTHER BUILDING SYSTEMS, AND GENERAL DESIGN INTENT OF THIS DIVISION'S WORK. THE CONTRACTOR SHALL EXAMINE THE DOCUMENTS OF ALL TRADES TO COMPLETELY FAMILIARIZE HIM/HERSELF WITH THE VARIOUS CONCEPTS PRESENTED BY OTHER TRADES AND ADAPT THIS WORK AND ANY ASSOCIATED PRICING ACCORDING. WHERE CONFLICTS EXIST BETWEEN THESE DOCUMENTS AND THOSE OF OTHER DIVISIONS, THE MORE STRINGENT (AS DETERMINED BY THE ENGINEER) SHALL TAKE PRECEDENCE. IN PARTICULAR, WHERE ARCHITECTURAL BACKGROUNDS INDICATE PROGRAMMATIC DIFFERENCES IN ROOM LOCATIONS, ROOM FUNCTIONS, PLUMBING FIXTURE COUNTS, CEILING TYPES, RATED CONSTRUCTION, CLEARANCES, OR ROOM RELATIONSHIPS, THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE AND THIS CONTRACTOR SHALL ADAPT HIS/HER WORK ACCORDINGLY WHILE MAINTAINING THE DESIGN INTENT REPRESENTED BY THE DOCUMENTS OF THIS DIVISION.

2. PROVIDE FIRE STOPPING ON ALL PIPES, DEVICES, ETC. PENETRATING ALL FIRE RATED CONSTRUCTION ASSEMBLIES.

3. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED IN DUCTWORK, PIPING, SUPPORTS, ETC. TO COMPLETE HIS/HER WORK IN A CLEAN, FUNCTIONAL INSTALLATION.

4. THIS CONTRACTOR IS RESPONSIBLE FOR ALL SLEEVES FOR PENETRATIONS THROUGH SLABS AND BEAMS REQUIRED BY THE INTENT OF THE SCOPE OF WORK INDICATED ON THE DRAWINGS. COORDINATION OF QUANTITY AND LOCATIONS OF ALL PENETRATIONS SHALL BE DONE BY THIS CONTRACTOR DURING THE SHOP DRAWINGS PROCESS FOR REVIEW BY THE STRUCTURAL ENGINEER.

PHASING AND PREMIUM TIME:

1. ALL CONTRACTORS SHALL REVIEW DRAWINGS FOR PHASING PLAN. UNIT REPLACEMENTS SHALL OCCUR ON A ONE BY ONE BASIS, EACH UNIT REPLACEMENT IDENTIFIES A DIFFERENT PHASE OF THIS PROJECT.

2. WORK IN THE PRIMARY WORK AREA (FIRST FLOOR DINING AREAS) SHALL BE COMPLETED ON STRAIGHT TIME, UNLESS NOTED OTHERWISE, WITH THE EXCEPTION OF WORK THAT IMPACTS THE OPERATION OF EXISTING FUNCTIONING MEP SYSTEMS.

3. WORK REQUIRING SHUTDOWN OF EXISTING SYSTEMS SHALL BE ARRANGED FOR CONTINUOUS PERFORMANCE, WITH MULTIPLE CREWS, TO LIMIT THE DURATION OF THE SHUTDOWN TO THE MINIMUM POSSIBLE PERIOD. ALL PREP-WORK SHALL BE COMPLETED PRIOR TO SYSTEM SHUT-DOWN, ALL MATERIALS SHALL BE ON SITE PRIOR TO THE START OF WORK REQUIRING A SHUT-DOWN OR CLOSING OF A SPACE OUTSIDE THE PRIMARY WORK AREA. ALL WORK REQUIRING A SHUTDOWN SHALL BE COORDINATED WITH THE FACILITY AT LEAST ONE WEEK IN ADVANCE.

4. ALL WORK OUTSIDE OF THE PRIMARY WORK AREA ASSOCIATED WITH DEMOLITION AND RESTORATION OF WALLS, CEILINGS, AND FINISHES, REMOVAL AND REPLACEMENT OF CEILING TILE, CLEAN-UP, DEBRIS REMOVAL, SAFETY ISOLATION OF WORK AREA, ETC. SHALL BE THE RESPONSIBILITY OF EACH TRADE CONTRACTOR

FIRE PROTECTION NOTES RELATING TO CONSTRUCTION

1. CONTRACTOR SHALL INCLUDE DRAWINGS, SPECIFICATIONS, AND CALCULATIONS FOR TEMPORARY SPRINKLER COVER TO INSURE FIRE SAFETY DURING CONSTRUCTION TO COMPLY WITH THE CURRENT CODES AND DOB, FIRE DEPARTMENT (FD), AND OSHA.

2. BIDDERS SHALL INCLUDE LINE-ITEM COST FOR FD AND DOB COMPLIANT FIRE PROTECTION SYSTEMS. THIS SHALL INCLUDE ALL REQUIRED TEMPORARY SYSTEMS AS WELL AS MAINTANENCE, ALTERATION AND RELOCATION OF THESE SYSTEMS AS REQUIRED TO ADAPT TO ONGOING CONSTRUCTION.

3. OWNER SHALL SUBMIT A LETTER TO THE FD REQUESTING APPROVAL OF FIRE PROTECTION METHOD DURING CONSTRUCTION. THE LETTER SHALL ADDRESS:

   A. SCOPE OF WORK
   B. METHOD OF INSTALLATION
   C. IMPAIRMENT PROCEDURE, INCLUDING:
      1) SYSTEM OPERATION
      2) SHUT-DOWN AND CUT-IN
      3) DAILY RETURN OF SERVICE
      4) FD NOTIFICATIONS
      5) FIRE-GUARD AND LOG OF INSPECTIONS
      6) CONTINUOUS STANDPIPE SERVICE
      7) MAINTENANCE OF ACCESSIBILITY OF HOSE STATIONS
      8) TENANT ELEVATOR BYPASS
      9) OPERATION OF MANUAL PULL STATIONS
      10) VISIBILITY AND MARKING OF EXITS
      11) PROTECTION OF ELEVATORS AND STAIRWAYS
      12) PROVISION OF PORTABLE FIRE EXTINGUISHERS
      13) REMOVAL OF COMBUSTIBLE WASTE ON A DAILY BASIS
      14) ENFORCEMENT OF "NO SMOKING" POLICY

4. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED APPROVALS AND SIGN-OFFS AT COMPLETION OF CONSTRUCTION AND SHALL SUBMIT ALL REQUIRED DOCUMENTS AND CALCULATIONS IN ORDER TO DO SO.

HYDRAULIC SPRINKLER SIZING CRITERIA

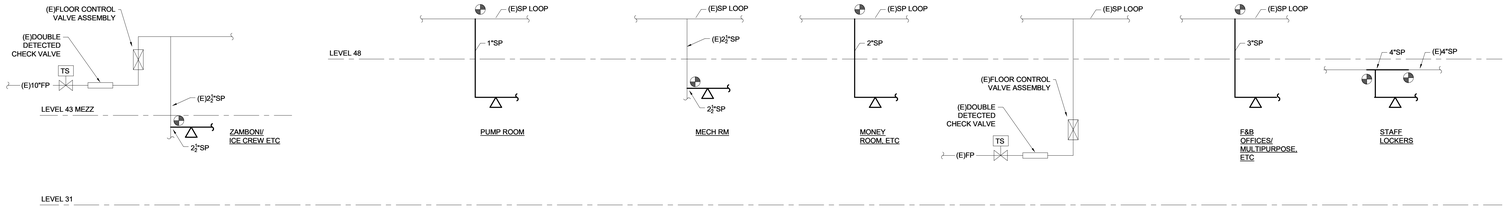
SHALL BE AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION BUT SHALL NOT BE SMALLER THAN THE FOLLOWING:

1. OCCUPANCY CLASSIFICATION = LIGHT HAZARD
2. DENSITY = 0.10 GPM/SQUARE FEET
3. AREA OF APPLICATION = 1500 SQUARE FEET
4. COVERAGE/SPRINKLER = 225 SQUARE FEET/HEAD MAXIMUM

* 5. STORAGE SPACES SHALL BE CONSIDERED ORDINARY HAZARD, GROUP 1 AND THE COVERAGE PER SPRINKLER SHALL BE 130 SQUARE FEET OR LESS

THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE HYDRAULIC CALCULATIONS AND OBTAIN APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION OVER THE SPRINKLER WORK, INCLUDING THE BUILDING DEPARTMENT, THE OWNERS INSURANCE CO., OBTAIN AGENCY APPROVALS FOR HYDRAULICS PRIOR TO INSTALLATION OF NEW WORK. HYDRAULIC CALCULATIONS SHALL BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER RETAINED BY THE SPRINKLER CONTRACTOR. SPRINKLER CONTRACTOR SHALL PREPARE ALL DOCUMENTS REQUIRED FOR ANY SUBSEQUENT FILING WITH AUTHORITIES HAVING JURISDICTION

NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING



SPRINKLER RISER DIAGRAM

N.T.S.

FIRE PROTECTION DRAWING LIST - ENABLING	
Sheet Number	Sheet Name
FP-000.E	FIRE PROTECTION LEGEND & NOTES - ENABLING
FP-101.E	LEVEL 31 - FIRE PROTECTION DEMOLITION ENABLING
FP-101B.E	LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT B - ENABLING
FP-101C.E	LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT C - ENABLING
FP-101D.E	LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT D - ENABLING
FP-201.E	LEVEL 31 - FIRE PROTECTION CONSTRUCTION - ENABLING
FP-201B.E	LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT B - ENABLING
FP-201C.E	LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT C - ENABLING
FP-201D.E	LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT D - ENABLING
FP-202.E	LEVEL 48 - FIRE PROTECTION CONSTRUCTION - ENABLING
FP-202B.E	LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT B - ENABLING
FP-202C.E	LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT C - ENABLING
FP-202D.E	LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT D - ENABLING
FP-700.E	FIRE PROTECTION DETAILS I - ENABLING

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-5770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	IE - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

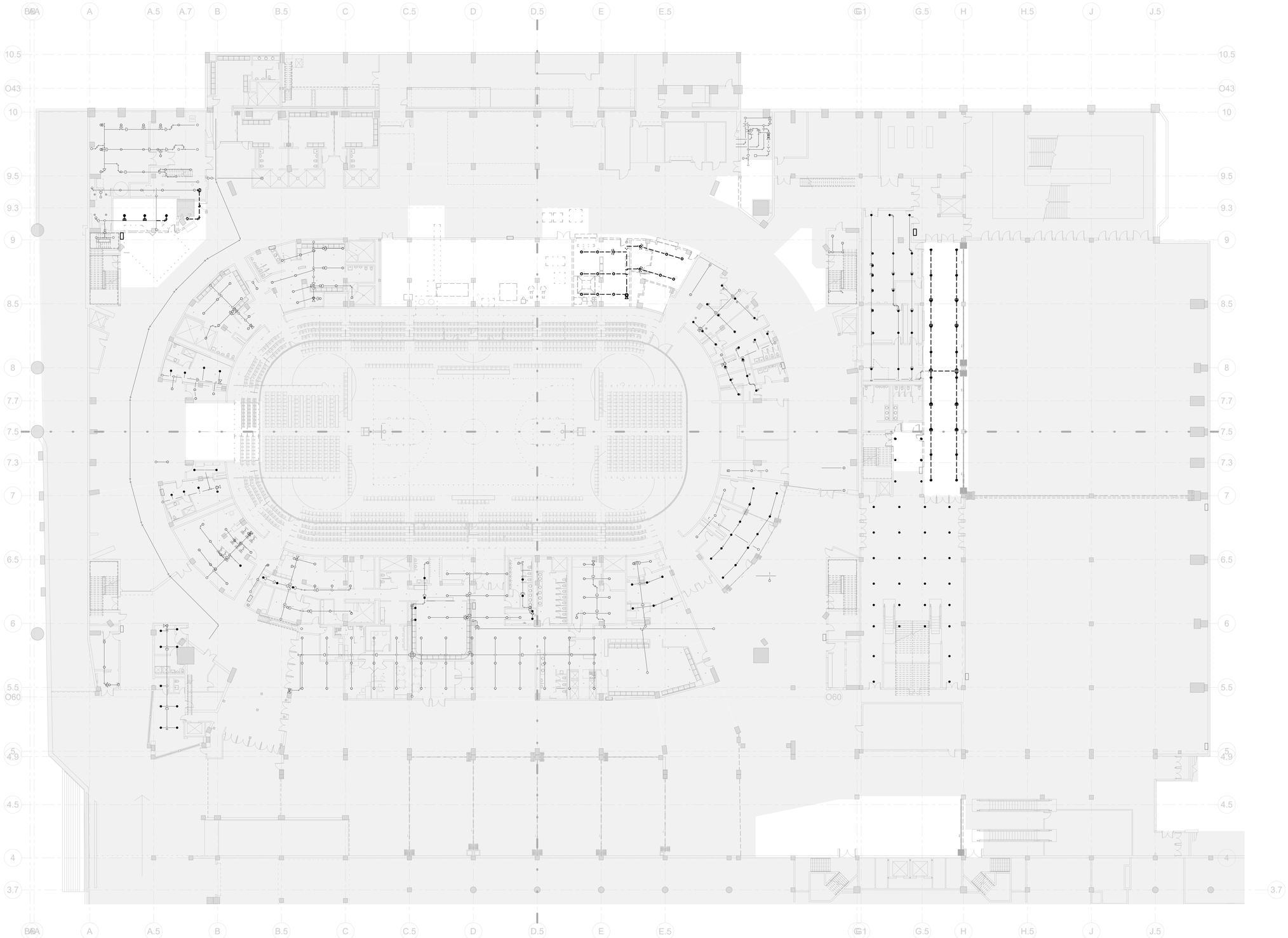
DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 10:27:51 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
FIRE PROTECTION LEGEND & NOTES - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-000.E



GENERAL NOTES:

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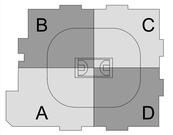
KEYNOTES



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NO.	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE CONSTRUCTION. THIS WORK DO NOT SCALE THE DRAWINGS

SEAL

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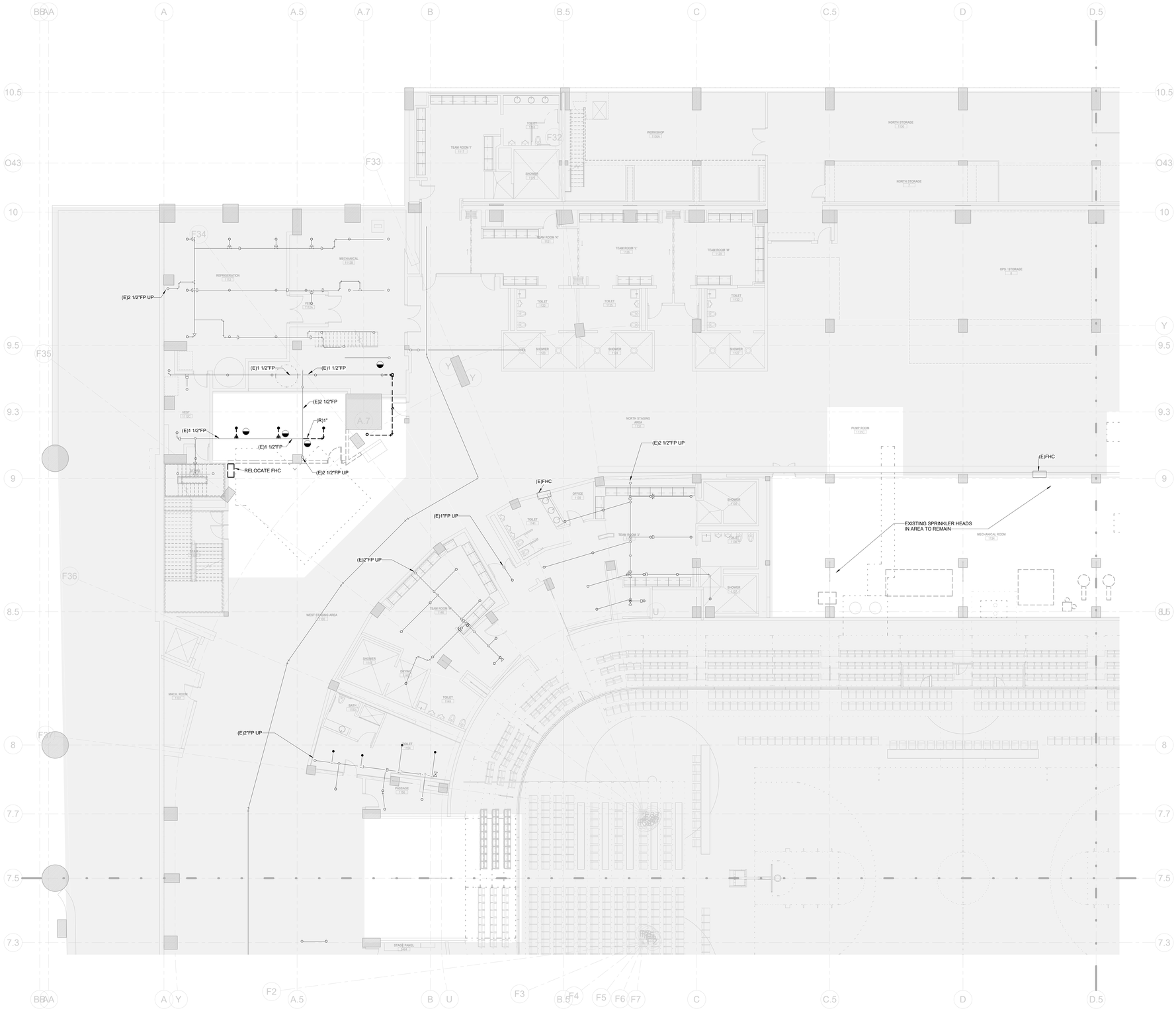
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION DEMOLITION ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-101.E



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KEYNOTES

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT B - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-101B.E

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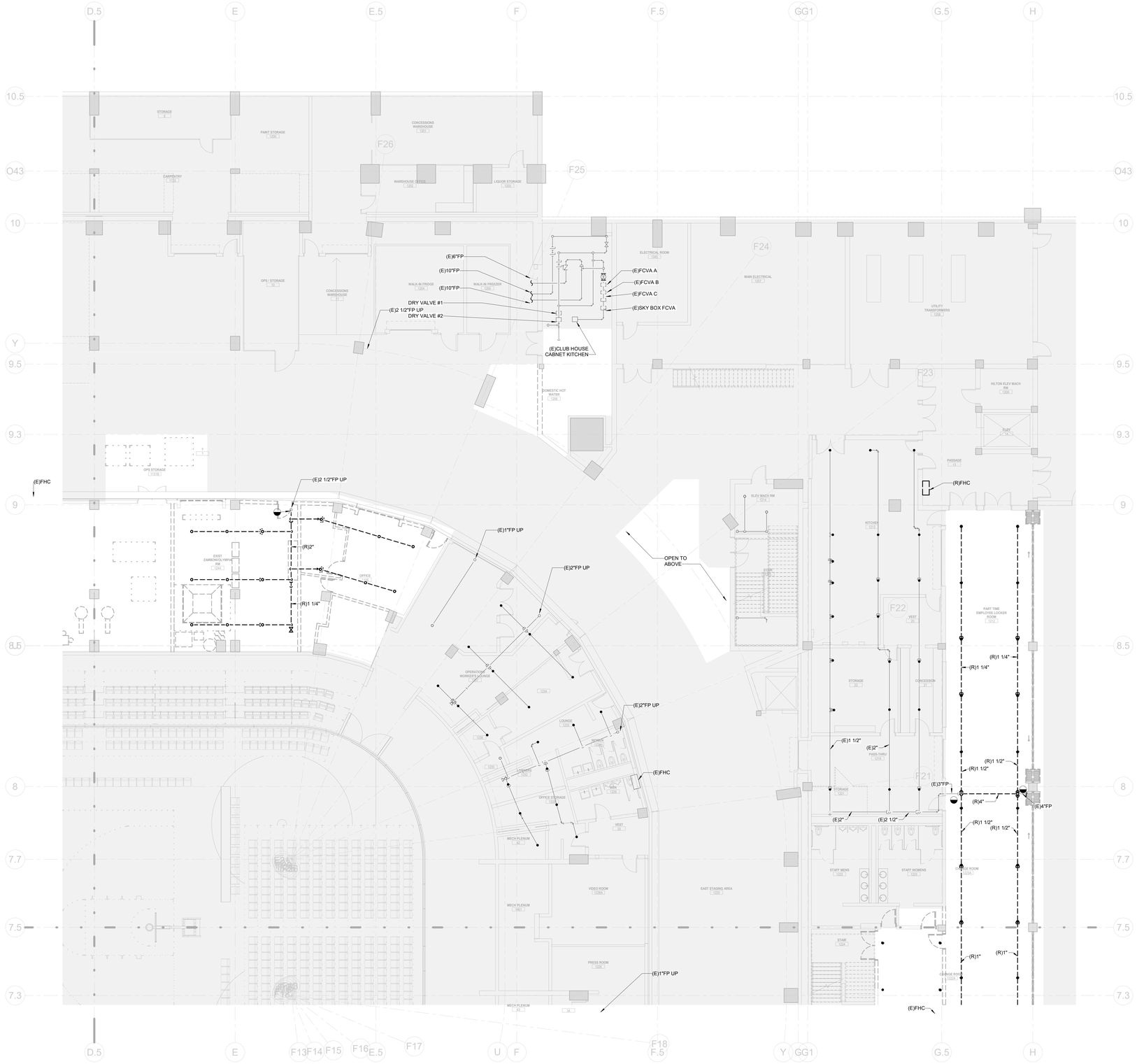

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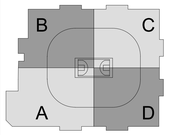

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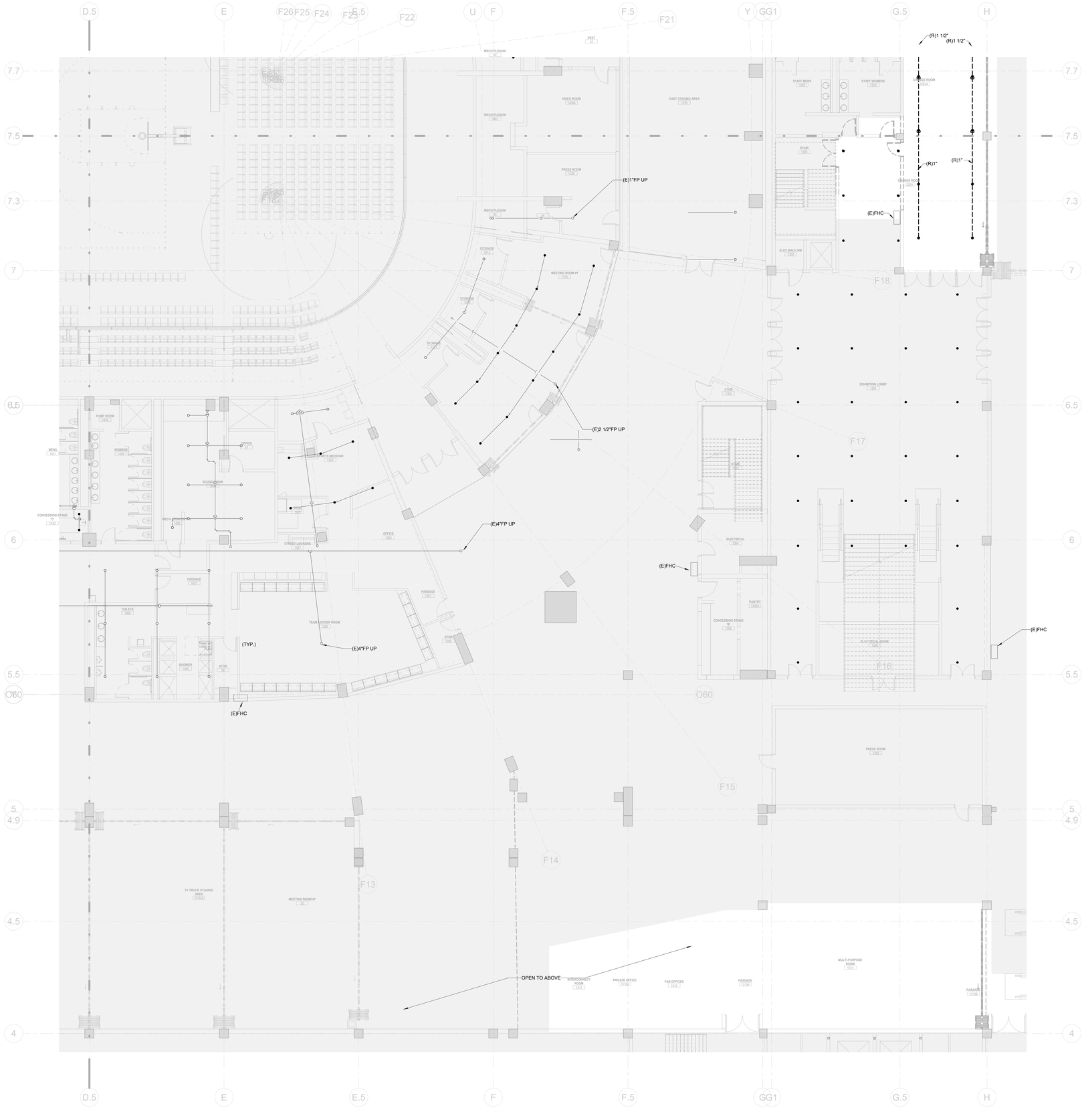
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT C - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-101C.E



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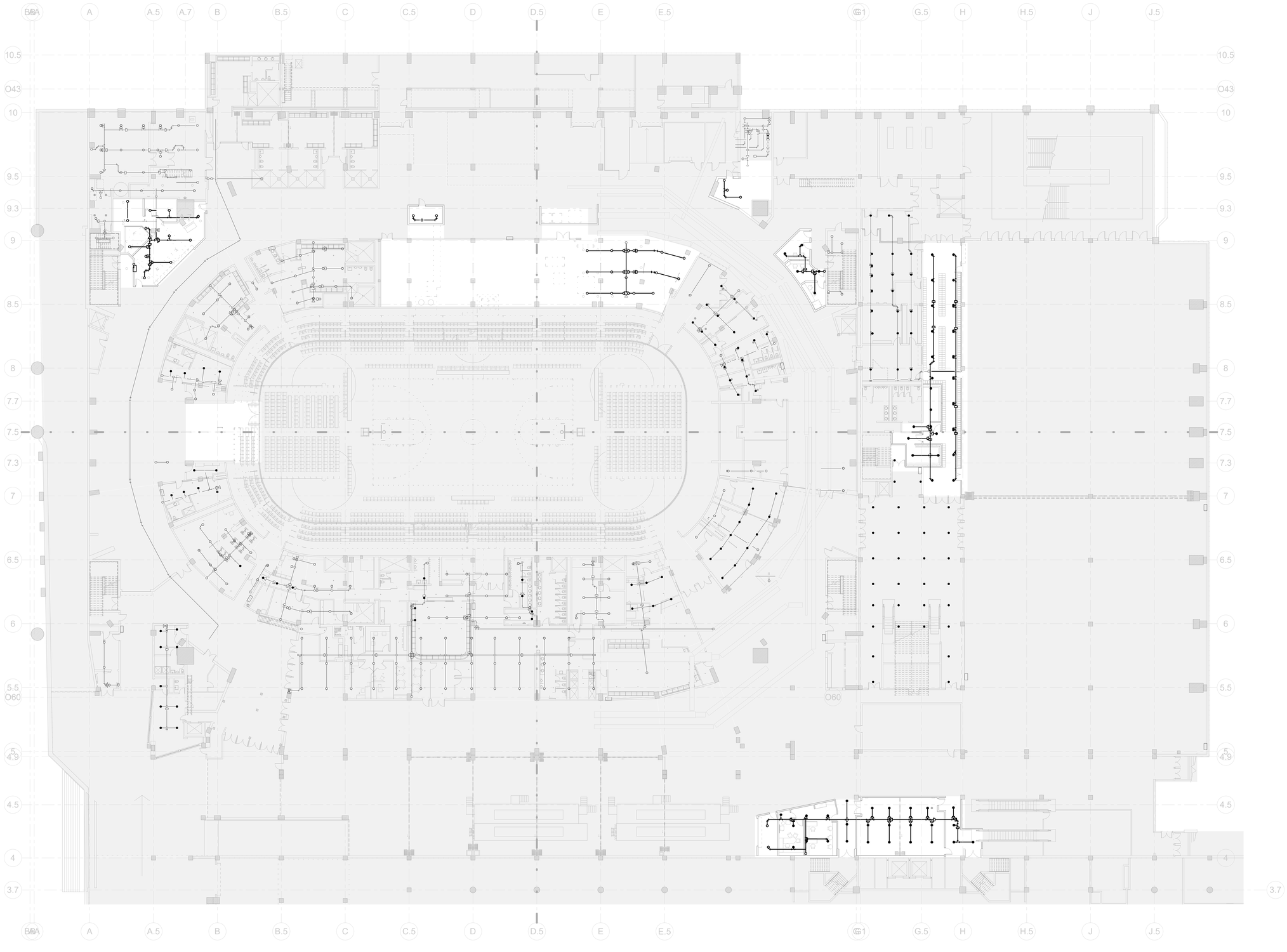
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION DEMOLITION QUADRANT D - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. FP-101D.E



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BRANCH SIZING CRITERIA
(.10 GPM/S.F.)

DIAMETER OF BRANCH	MAX. NUMBER OF HEADS
1"	2
1-1/4"	3
1-1/2"	5
2"	10
2-1/2"	30
3"	60
4"	>100

BRANCH SIZING CRITERIA
(.15GPM/S.F.)

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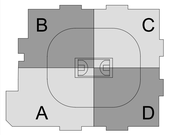
KEYNOTES



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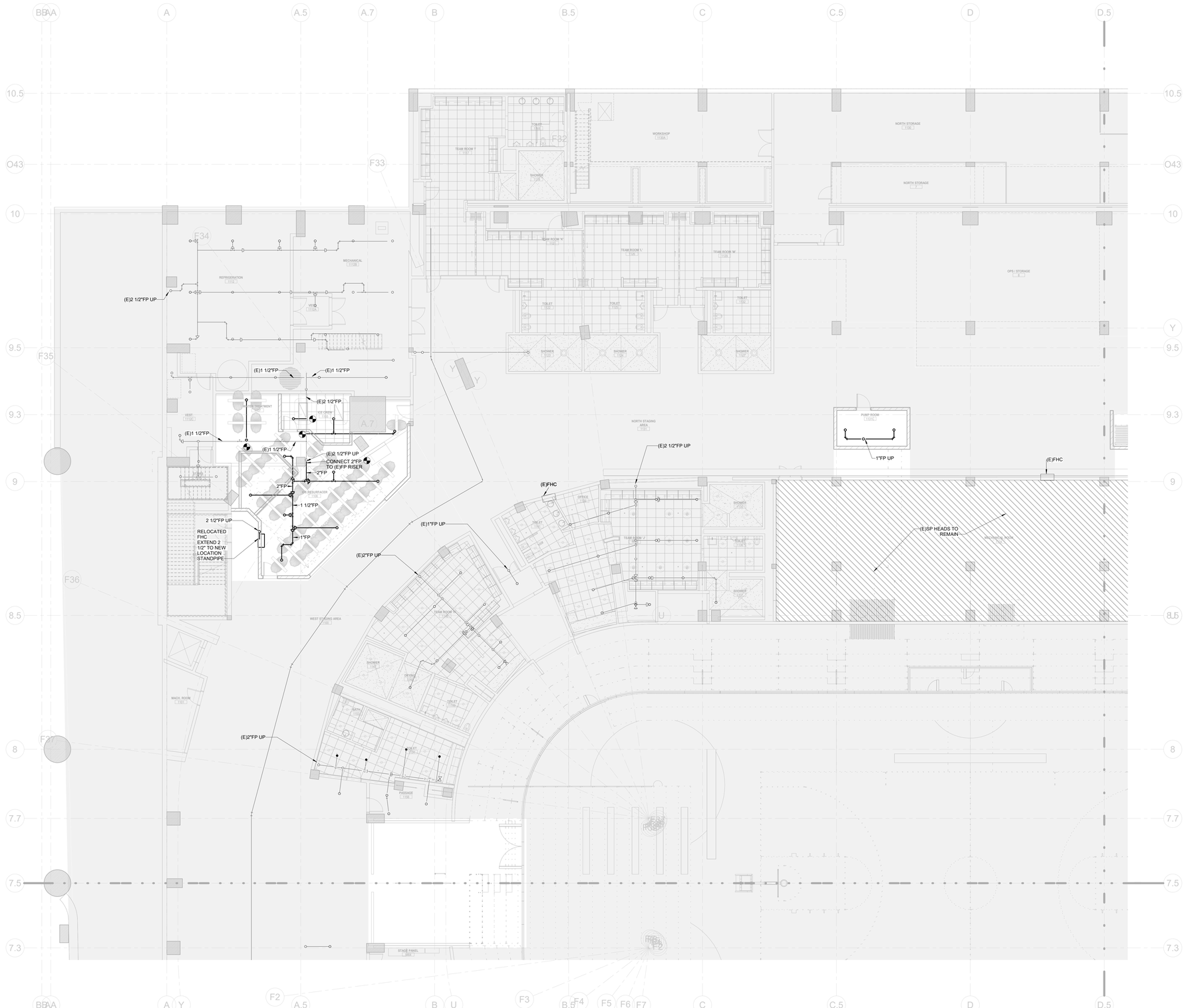
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION CONSTRUCTION - ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-201.E



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KEYNOTES

B C A D

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REVISIONS/ ISSUES

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HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT B - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
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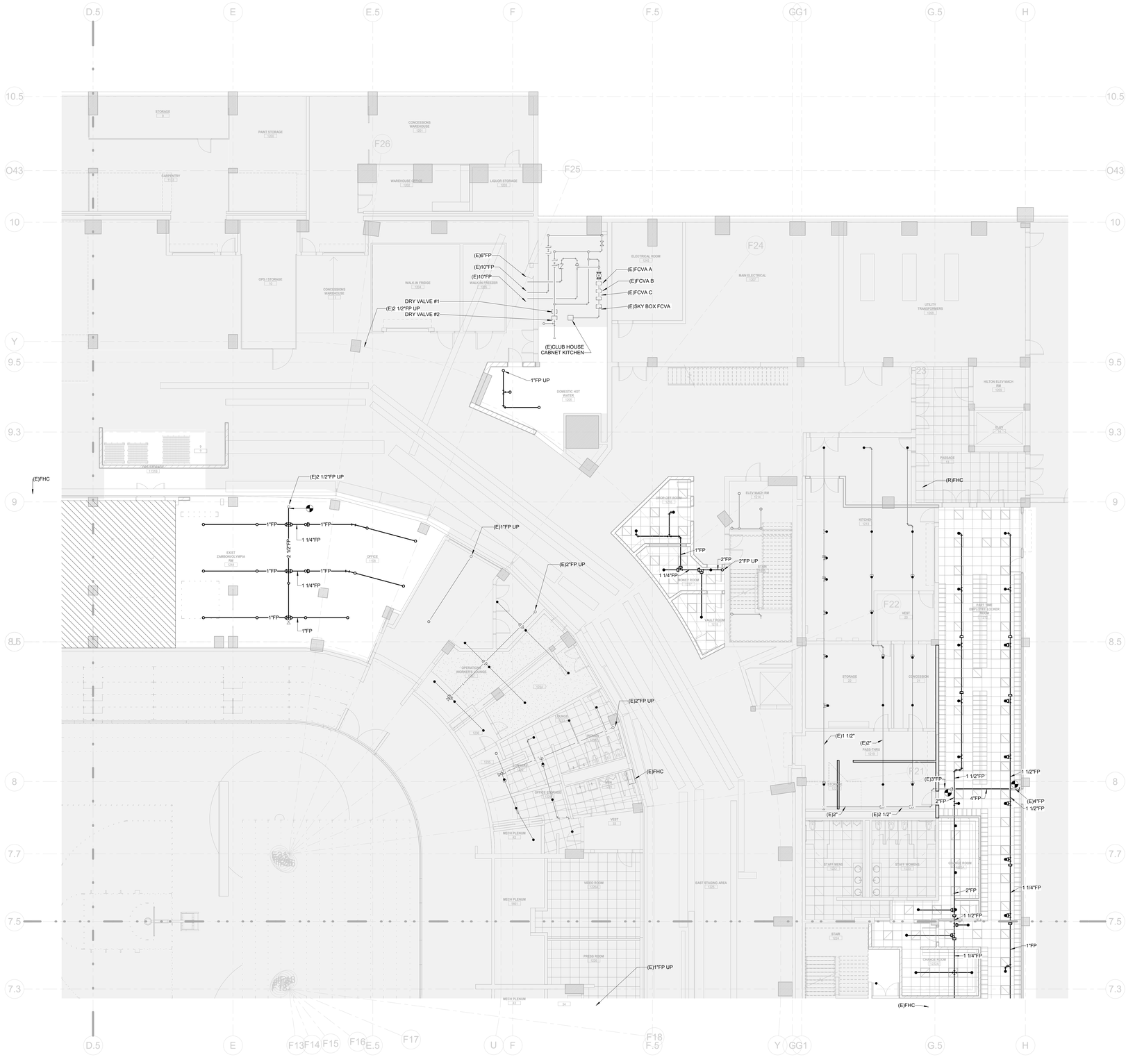

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DWG. TITLE
LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT C - ENABLING

SCALE 1/8" = 1'-0"
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(.10 GPM/S.F.)

DIAMETER OF BRANCH	MAX. NUMBER OF HEADS
1"	2
1-1/4"	3
1-1/2"	5
2"	10
2-1/2"	30
3"	60
4"	>100

BRANCH SIZING CRITERIA
(.15GPM/S.F.)

DIAMETER OF BRANCH	MAX. NUMBER OF HEADS
1"	2
1-1/4"	3
1-1/2"	5
2"	10
2-1/2"	20
3"	40
4"	100

KEYNOTES

B C D E A

XL CENTER
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S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
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(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-5770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

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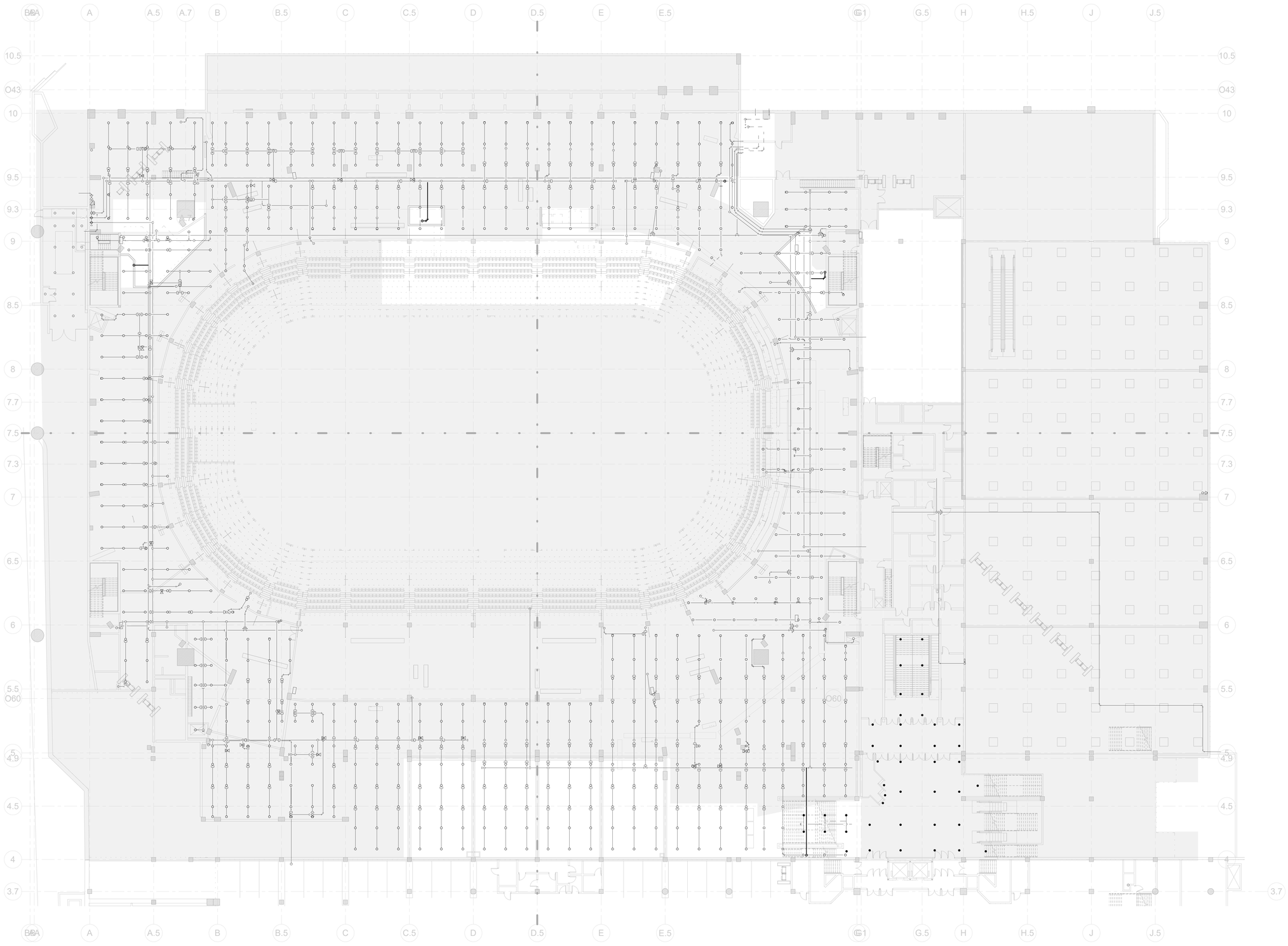
DATE PLOTTED: 12/18/2020 10:28:47 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 31 - FIRE PROTECTION CONSTRUCTION QUADRANT D - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-201D.E



GENERAL NOTES:

1. EXISTING SYSTEMS INFORMATION IS SHOWN FOR REFERENCE ONLY TO CLARIFY SCOPE. CONTRACTOR SHALL FIELD VERIFY THESE EXISTING CONDITION TO CONFIRM THE PRECISE TIE-IN LOCATION FOR NEW WORK. REFER TO DEMOLITION PLANS FOR ADDITIONAL INFORMATION REGARDING EXISTING SYSTEMS. EXISTING SYSTEMS NOTES ARE NOT SHOWN ON CONSTRUCTION PLANS FOR CLARITY OF THE DRAWINGS.
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3. ANY WORK OUTSIDE OF SCOPE WORK SHALL BE COMPLETED DURING PREMIUM TIME. SEE PREMIUM TIME NOTE ON SAME PAGE.
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7. ALL WORK AFFECTING BUILDING SYSTEM OPERATION SHALL BE COORDINATED WITH BUILDING ENGINEERING.
8. MINIMUM PIPE SIZE FOR ALL SPRINKLER BRANCH TO SPRINKLER HEADS SHALL BE 1".
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BRANCH SIZING CRITERIA
(.15GPM/S.F.)

DIAMETER OF BRANCH	MAX. NUMBER OF HEADS
1"	2
1-1/4"	3
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KEYNOTES

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REVISIONS/ ISSUES

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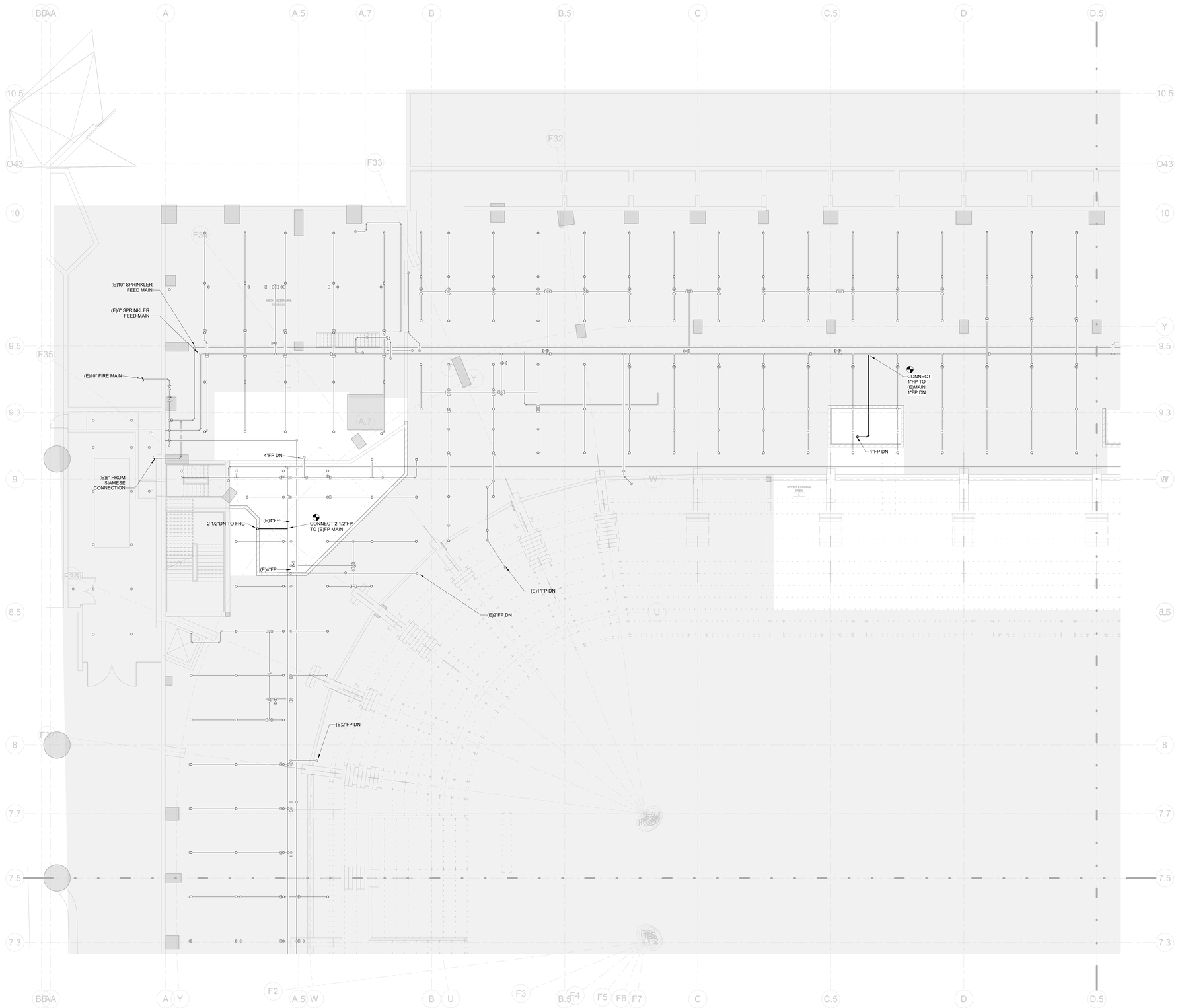
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
LEVEL 48 - FIRE PROTECTION CONSTRUCTION - ENABLING

SCALE 1/16" = 1'-0"
PROJ. NO. 1605
DWG. NO. FP-202.E



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HARTFORD, CT

DWG. TITLE
LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT B - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. FP-202B.E

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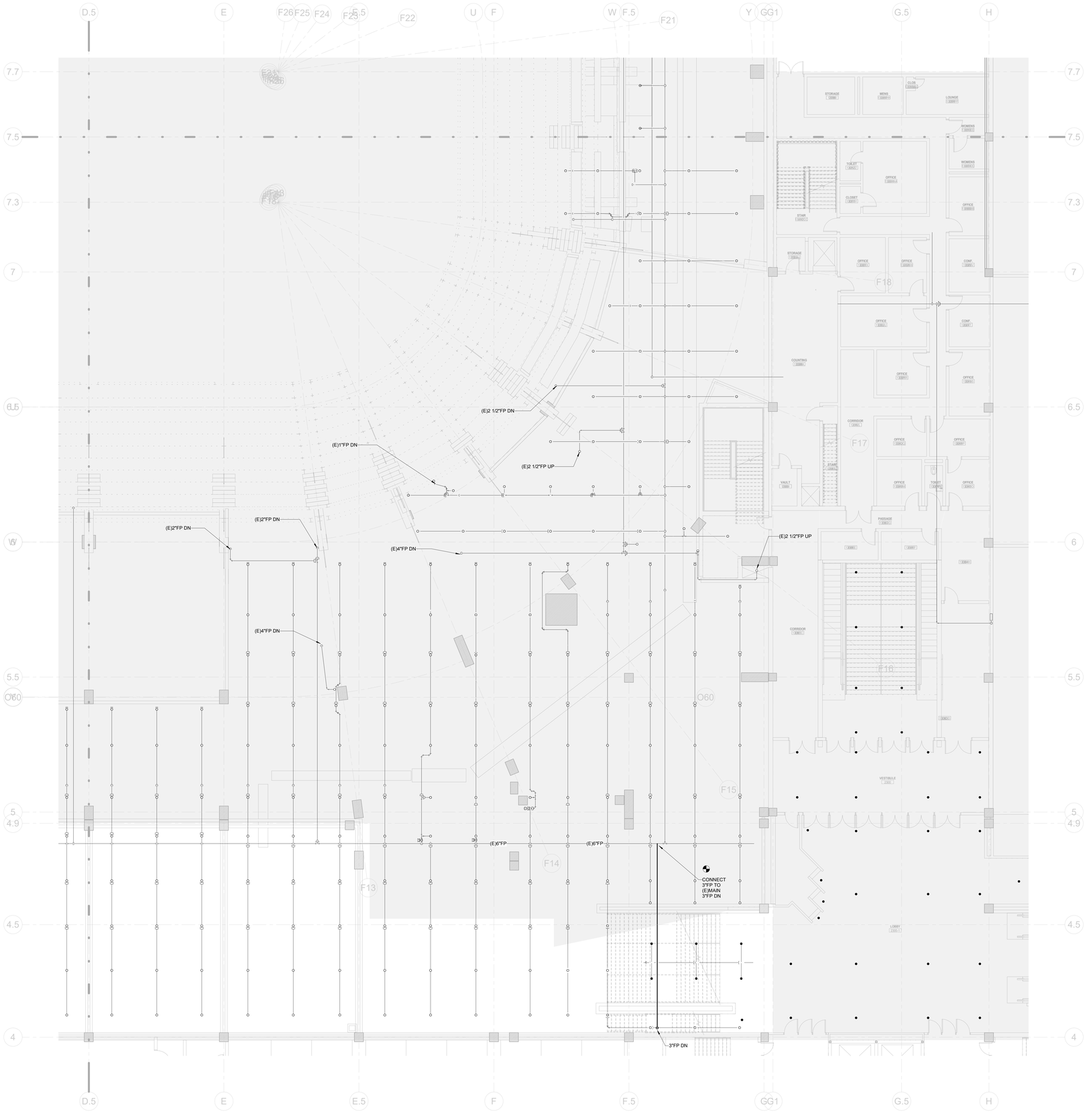
DWG. TITLE
LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT C - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. FP-202C.E



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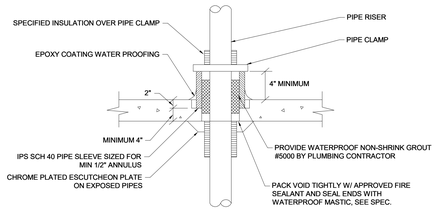
HARTFORD, CT

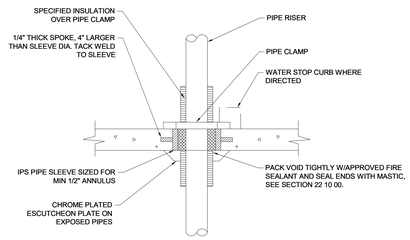
DWG. TITLE
LEVEL 48 - FIRE PROTECTION CONSTRUCTION QUADRANT D - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. FP-202D.E



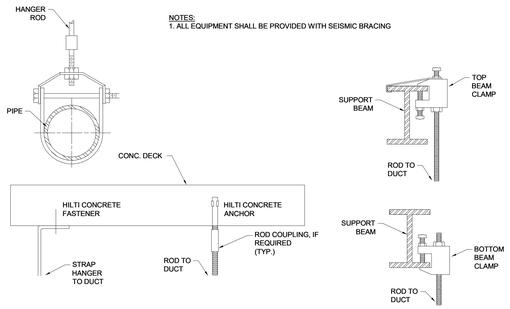
A DETAIL OF PIPE THRU EXISTING FLOOR SLAB

NO SCALE



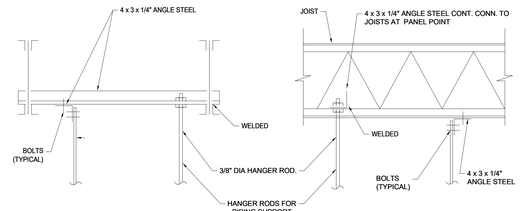
B PIPE THRU FLOOR SLAB DETAIL

NO SCALE



C CLEVIS HANGER, PIPE 1 1/2" DIA. AND LESS, TOP BEAM CLAMP HANGER

NO SCALE



PIPE PARALLEL TO JOISTS

NOTES:

1. PROVIDE RUBBER INSULATORS OR COPPER PLATED TRAPEZE WHERE COPPER PIPE IS IN CONTACT WITH TRAPEZE.

2. PROVIDE VIBRATION ISOLATORS IN PIPE HANGERS WITHIN 10 FEET OF ROTATING EQUIPMENT.

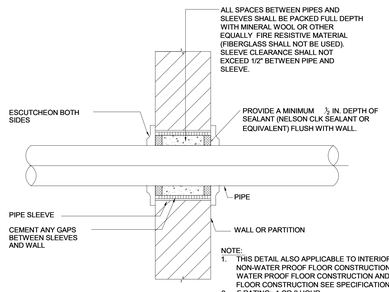
PIPE PERPENDICULAR TO JOISTS

NOTES:

1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

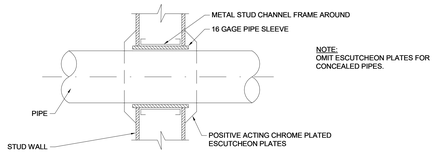
D METHODS OF PIPE SUPPORT

NO SCALE



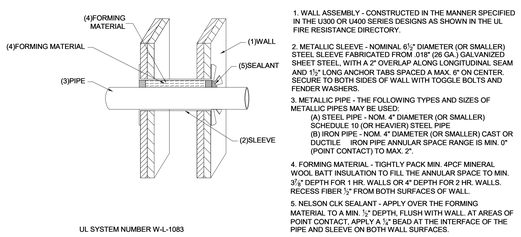
E DETAIL OF PIPING PIERCING REQUIRED FIRE RATED PARTITIONS AND WALL

NO SCALE



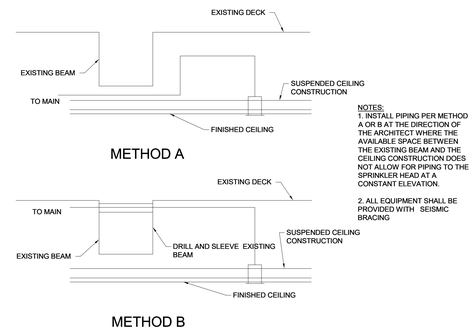
F PIPE THRU STUD WALL DETAIL

NO SCALE



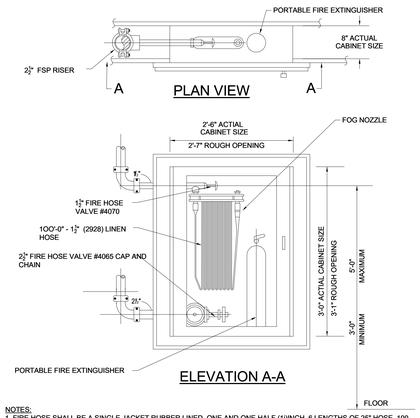
G GYPSUM WALL UNINSULATED METALLIC PIPE FIRE STOPPING DETAIL

NO SCALE



H LOW BEAM CROSSING DETAIL

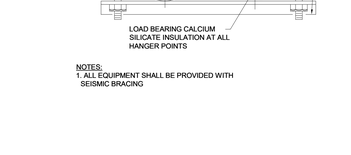
NO SCALE



NOTES:
1. FIRE HOSE SHALL BE A SINGLE JACKET RUBBER LINED, ONE AND ONE HALF (1I)INCH, 6 LENGTHS OF 25" HOSE, 100 PERCENT SYNTHETIC JACKET WITH DACRON FILLER. HOSE SHALL BE TOTALLY IMMUNE TO MILDEW AND ROT. NST THREAD.
2. FIRE HOSE NOZZLE ONE AND ONE HALF(1I) INCH CAST BRASS "ALL FOG" NOZZLE WITH RUBBER BUMPER FOR CLASS A, B, OR C FIRED. NO STRAIGHT STREAM ADJUSTMENT. NST THREAD.
3. FIRE HOSE VALVE SHALL BE 2 1/2" HOSE VALVE WITH 2 1/2" X 1 1/2" REDUCER WITH PIN LUG CAP AND CHAIN, POLISHED BRASS FINISH EQUAL TO POTTER-ROEMER 4065-B.
4. PROVIDE PRESSURE REDUCING HOSE VALVE WHERE SYSTEM PRESSURE AT HOSE VALVE EXCEEDS 100 PSI.
5. FIRE HOSE CABINET SHALL BE RECESSED 20 GAUGE, WHITE, BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONTINUOUS STEEL HINGE (BRASS PIN), DOOR AND FRAME FINISHED WITH A BAKED-ON ENAMEL IN COLOR SELECTED BY ARCHITECT.
6. FIRE HOSE CABINET INSTALLATION REQUIRES THAT BRANCH PIPING TO VALVES MUST HAVE RIGID BRACING INDEPENDENT OF THE FIRE HOSE CABINET.
7. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

I DETAIL OF FIRE HOSE CABINET

NO SCALE



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J TRAPEZE HANGER

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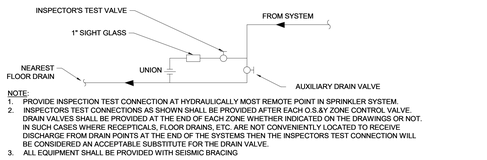
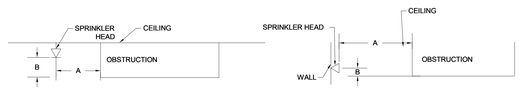


NOTE:
1. PROVIDE INSPECTION TEST CONNECTION AT HYDRAULICALLY MOST REMOTE POINT IN SPRINKLER SYSTEM.
2. INSPECTORS TEST CONNECTIONS AS SHOWN SHALL BE PROVIDED AFTER EACH O.S.&Y ZONE CONTROL VALVE. DRAIN VALVES SHALL BE PROVIDED AT THE END OF EACH ZONE WHETHER INDICATED ON THE DRAWINGS OR NOT. IN SUCH CASES WHERE RECEPTICALS, FLOOR DRAINS, ETC. ARE NOT CONVENIENTLY LOCATED TO RECEIVE DISCHARGE FROM DRAIN POINTS AT THE END OF THE SYSTEMS THEN THE INSPECTORS TEST CONNECTION WILL BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR THE DRAIN VALVE.
3. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

K INSPECTOR'S TEST CONN. ASSEMBLY

NO SCALE



DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (B)
LESS THAN 1'	0"
1" TO LESS THAN 1'-6"	2 1/2"
1'-6" TO LESS THAN 2'	3 1/2"
2' TO LESS THAN 2'-6"	5 1/2"
2'-6" TO LESS THAN 3'	7 1/2"
3' TO LESS THAN 3'-6"	9 1/2"
3'-6" TO LESS THAN 4'	12
4' TO LESS THAN 4'-6"	14
4'-6" TO LESS THAN 5'	16 1/2"
5' AND GREATER	18

PENDANT SPRINKLERS

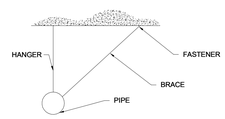
DISTANCE FROM SIDEWALL SPRINKLER TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (B)
LESS THAN 4'	0"
4' TO LESS THAN 5'	1"
5' TO LESS THAN 5'-6"	2"
5'-6" TO LESS THAN 6'-6"	3"
6' TO LESS THAN 6'-6"	4"
6' TO LESS THAN 7'	6"
7' TO LESS THAN 7'-6"	7"
7'-6" TO LESS THAN 8'	9"
8' TO LESS THAN 8'-6"	11"
8'-6" AND GREATER	14"

SIDEWALL SPRINKLERS

NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING
2. FROM NFPA 13 APPLIES TO ALL OBSTRUCTIONS, INCLUDING SURFACE MOUNTED LIGHTS, PIPES, DUCTS, ETC. PROVIDE EXTENDED MOUNT TO COMPLY.

L POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTIONS TO DISCHARGE

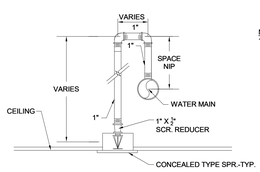
NO SCALE



NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

M SEISMIC BRACING DETAIL

NO SCALE



NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

N RETURN - BEND DETAIL

NO SCALE

HYDRAULIC SPRINKLER SIZING CRITERIA

SHALL BE AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION BUT SHALL NOT BE SMALLER THAN THE FOLLOWING:

1. OCCUPANCY CLASSIFICATION = LIGHT HAZARD/ORDINARY HAZARD
2. DENSITY = 0.10/0.15 GPM/SQUARE FEET
3. AREA OF APPLICATION = 1500 SQUARE FEET
4. COVERAGE/SPRINKLER = 225 SQUARE FEET/HEAD MAXIMUM FOR LIGHT HAZARD, 130 SQUARE FEET/HEAD MAXIMUM FOR ORDINARY HAZARD
5. STORAGE SPACES SHALL BE CONSIDERED ORDINARY HAZARD, GROUP 1 AND THE COVERAGE PER SPRINKLER SHALL BE 130 SQUARE FEET OR LESS

THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE HYDRAULIC CALCULATIONS AND OBTAIN APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION OVER THE SPRINKLER WORK, INCLUDING THE BUILDING DEPARTMENT, THE OWNERS INSURANCE CO., OBTAIN AGENCY APPROVALS FOR HYDRAULICS PRIOR TO INSTALLATION OF NEW WORK. HYDRAULIC CALCULATIONS SHALL BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER RETAINED BY THE SPRINKLER CONTRACTOR. SPRINKLER CONTRACTOR SHALL PREPARE ALL DOCUMENTS REQUIRED FOR ANY SUBSEQUENT FILING WITH AUTHORITIES HAVING JURISDICTION

NOTES:
1. ALL EQUIPMENT SHALL BE PROVIDED WITH SEISMIC BRACING

O HYDRAULIC SPRINKLER SIZING CRITERIA

NO SCALE

FIRE PROTECTION NOTES RELATING TO CONSTRUCTION

1. CONTRACTOR SHALL INCLUDE DRAWINGS, SPECIFICATIONS, AND CALCULATIONS FOR TEMPORARY SPRINKLER COVER, FIRE-WATCH, OR OTHER MEASURES TO INSURE FIRE SAFETY DURING CONSTRUCTION TO COMPLY WITH THE CURRENT CODES AND DOB, AND OSHA.

2. BIDDERS SHALL INCLUDE LINE-ITEM COST FOR FIRE CODE AND DOB COMPLIANT FIRE PROTECTION SYSTEMS. THIS SHALL INCLUDE ALL REQUIRED TEMPORARY SYSTEMS AS WELL AS MAINTENANCE, ALTERATION AND RELOCATION OF THESE SYSTEMS AS REQUIRED TO ADAPT TO ONGOING CONSTRUCTION.

3. CONTRACTOR SHALL SUBMIT A LETTER TO THE FIRE DEPARTMENT REQUESTING APPROVAL OF FIRE PROTECTION METHOD DURING CONSTRUCTION. THE LETTER SHALL ADDRESS:

   A. SCOPE OF WORK
   B. METHOD OF INSTALLATION
   C. IMPAIRMENT PROCEDURE, INCLUDING:
      1) SYSTEM OPERATION
      2) SHUT-DOWN AND CUT-IN
      3) DAILY RETURN OF SERVICE
      4) FDNY NOTIFICATIONS
      5) FIRE-GUARD AND LOG OF INSPECTIONS
      6) CONTINUOUS STANDPIPE SERVICE
      7) MAINTENANCE OF ACCESSIBILITY OF HOSE STATIONS
      8) TENANT ELEVATOR BYPASS
      9) OPERATION OF MANUAL PULL STATIONS
      10) VISIBILITY AND MARKING OF EXITS
      11) PROTECTION OF ELEVATORS AND STAIRWAAYS
      12) PROVISION OF PORTABLE FIRE EXTINGUISHERS
      13) REMOVAL OF COMBUSTIBLE WASTE ON A DAILY BASIS
      14) ENFORCEMENT OF "NO SMOKING" POLICY

4. CONTRACTOR SHALL IDENTIFY "FIRE PREVENTION PROGRAM SUPERINTENDANT" TO ADMINISTRATOR FIRE CODE REQUIREMENTS UNDER FIRE CODE #1408.1.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED APPROVALS AND SIGN-OFFS AT COMPLETION OF CONSTRUCTION AND SHALL SUBMIT ALL REQUIRED DOCUMENTS AND CALCULATIONS IN ORDER TO DO SO.

P FIRE PROTECTION NOTES RELATING TO CONSTRUCTION IN CT

NO SCALE

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE
1	E - ISSUED FOR 75% CD	12/18/20

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 10:29:20 PM

XL CENTER

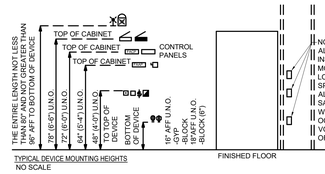
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
FIRE PROTECTION DETAILS I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FP-700.E

NOTES:

1. ALL EXPOSED RACEWAYS ARE TO BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS OR STRUCTURAL MEMBERS SUCH THAT THEY FOLLOW STRUCTURAL SURFACE CONTOURS AND SHALL BE INSTALLED SUCH THAT THEY DO NOT OBSTRUCT PASSAGEWAYS OR ACCESS TO EQUIPMENT. MULTIPLE RACEWAYS SHOULD BE INSTALLED GROUPED TOGETHER. THE LOCATION OF PUBLICLY VISIBLE RACEWAYS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION. (EXTRA TIME SHOULD BE ALLOWED FOR THIS REVIEW AND APPROVAL.)
2. THE DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT SHALL BE ACCESSIBLE AND HAVE THE CLEARANCE IN FRONT AS REQUIRED BY NEC AMENDMENTS.
3. ALL CEILING ATTACHED OBJECTS AND FLOOR ATTACHED EQUIPMENT INCLUDING BUT NOT LIMITED TO PENDANT LIGHTING FIXTURES, GENERAL LIGHTING, MULTIPLE RACEWAYS, GENERATOR, TRANSFORMER ELECTRICAL SWITCHGEAR, AND SWITCHBOARDS SHALL BE INSTALLED IN ACCORDANCE WITH SUPPORTING OBJECTS FOR SEISMIC ZONE AS REQUIRED BY STATE AND LOCAL CODES.
4. ALL SWITCHGEAR, SWITCHBOARDS AND TRANSFORMERS SHALL HAVE A 4 INCH HOUSE KEEPING PAD. UNDER NO CONDITION SHALL THE HIGHEST SWITCH OR BREAKER EXCEED 6'-6" AFF.
5. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO ACTUAL CONDITIONS AT THE BUILDINGS. THE DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHALL NOT BE SCALED. HOWEVER THIS DOES NOT RELIEVE ANY SUB-CONTRACTOR FROM COORDINATING HIS WORK WITH ALL OTHER TRADES AND FROM ADJUSTING HIS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING COSTS TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT.
6. COORDINATE AND ADJUST ALL WORK BETWEEN TRADES AND EXISTING CONDITIONS IN ORDER TO ACCOMPLISH A NEAT, INTEGRATED AND EFFICIENT INSTALLATION WHICH INCLUDE BUT ARE NOT LIMITED TO:
   a. EXAMINE THE CONTRACT DOCUMENTS OF ALL TRADES (IE. THE ARCHITECTURAL REFLECTED CEILING PLAN, MECHANICAL HVAC DRAWINGS, ELECTRICAL LIGHTING PLAN, FIRE PROTECTION PLAN, ETC.).
   b. COORDINATE NECESSARY EQUIPMENT, FIXTURES, ETC. SO THAT THE FINAL INSTALLATION IS COMPATIBLE WITH THE MATERIALS AND EQUIPMENT OF THE OTHER TRADES.
   c. THIS CONTRACTOR SHALL ASSIST THE DIVISION 23 CONTRACTOR IN PREPARING SHOP DRAWINGS FOR COORDINATING INSTALLATION OF ALL WORK (IE. LOCATING ALL LIGHTING FIXTURES IN CEILING WITH CEILING CLEARANCES, RACEWAYS, PIPING, EQUIPMENT FOR CLEARANCE THROUGHOUT).
   d. THE ELECTRICAL DRAWINGS INDICATE THE ELECTRICAL REQUIREMENTS FOR A SIGNIFICANT PORTION OF THE MECHANICAL AND PLUMBING SYSTEMS. ADDITIONAL MECHANICAL AND PLUMBING EQUIPMENT IS INDICATED ON THE DIVISION 21E DRAWINGS. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE COMPLETE WIRING AND FUSIBLE DISCONNECTING MEANS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT.
7. DEFINITIONS:
   a. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.
   b. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".
   c. "PROVIDE" MEANS TO "FURNISH AND INSTALL".
   d. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE DETERMINED BY THE ENGINEER.
   e. "RE: DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION OR SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS, AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT.
8. "FIRESTOPPING" REQUIREMENT. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASSES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM-E-814. ALL PENETRATIONS SHALL MEET F AND T RATINGS AS REQUIRED BY THE BUILDING CODE.
9. WHERE DISCONNECTS ARE INDICATED ON DRAWINGS CONTRACTOR SHALL PROVIDE FINAL CONNECTION TO EQUIPMENT BEING SERVED BY DISCONNECT.
10. CONTRACTOR PROVIDE ALL MISCELLANEOUS SUPPORTS AS REQUIRED FOR A COMPLETE OPERABLE ELECTRICAL INSTALLATION INCLUDING MISCELLANEOUS STEEL, UNI-STRUT, ALL-THREAD, AIRCRAFT CABLE, ETC.



TYPICAL DEVICE MOUNTING HEIGHTS
NO SCALE

NOTES:

1. MOUNTING HEIGHTS SHOWN ON ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER THOSE SHOWN ABOVE.
2. CONTRACTOR SHALL ENSURE THAT ALL MOUNTING HEIGHTS COMPLY WITH CURRENT ADA REQUIREMENTS.
3. WHERE EVER DEVICES ARE INDICATED TO BE ABOVE DOORS, DEVICE SHALL BE CENTERED BETWEEN TOP OF DOOR TRIM AND CEILING LINE.
4. ALL ABOVE COUNTER (DESIGNATED BY "AC") SHALL BE MOUNTED 8" ABOVE COUNTER OR MAXIMUM HEIGHT OF 44" TO TOP OF DEVICE. VERIFY HEIGHTS WITH ARCHITECT.
5. FOR CEILINGS BELOW 7'-4", FIRE ALARM STROBE OR HORN/STROBES SHALL BE WALL MOUNTED 6" BELOW FINISHED CEILING.
6. HEIGHTS SHOWN ARE TYPICAL TO CENTERLINE OF BOX UNLESS NOTED OTHERWISE. ALL DUPLEX RECEPTACLES SHALL BE MOUNTED VERTICALLY.
7. REFER TO ARCHITECTURAL DRAWINGS FOR RECEPTACLE MOUNTING HEIGHTS. STANDARD CONVENIENCE RECEPTACLES SHALL BE MOUNTED AT HEIGHT INDICATED ABOVE WHERE MOUNTING HEIGHT IS NOT SHOWN ON ARCHITECTURAL DOCUMENTS.
8. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS DIMENSIONS WHERE AVAILABLE. WHERE DEVICES ARE MOUNTED IN CASEWORK OR MILLWORK, CONTRACTOR SHALL VERIFY EXACT DIMENSIONS PRIOR TO INSTALLATION.

RECEPTACLE MODIFIER TAGS

TAG	OUTLET RATING	NEMA/CAT NO	FEEDER (NOTE 1)	WIRING NOTES
A	NON-LOCKING, 20A, 125V, 1PH	5-20R	2#12,#12G,3/4"C (50FT)	DEDICATED, SINGLE OUTLET
B	NON-LOCKING, 30A, 125V, 1PH	5-30R	2#10,#10G,3/4"C (60FT)	HOT-NEUT-GND
C	NON-LOCKING, 20A, 250V, 1PH	6-20R	2#12,#12G,3/4"C (100FT)	HOT-HOT-GND
D	NON-LOCKING, 30A, 250V, 1PH	6-30R	2#10,#10G,3/4"C (120FT)	HOT-HOT-GND
E	NON-LOCKING, 50A, 250V, 1PH	6-50R	2#6,#10G,3/4"C (150FT)	HOT-HOT-GND
F	TBD	-	-	-
G	NON-LOCKING, 20A, 125/250V, 1PH	14-20R	3#12,#12G,3/4"C (100FT)	HOT-HOT-NEUT-GND
H	TBD	-	-	-
I	NOT USED	-	-	-
J	LOCKING, 20A, 125V, 1PH	L5-20R	2#12,#12G,3/4"C (50FT)	HOT-NEUT-GND
K	LOCKING, 30A, 125V, 1PH	L5-30R	2#10,#10G,3/4"C (60FT)	HOT-NEUT-GND
L	LOCKING, 20A, 250V, 1PH	L6-20R	2#12,#12G,3/4"C (100FT)	HOT-HOT-GND
M	LOCKING, 30A, 250V, 1PH	L6-30R	2#10,#10G,3/4"C (120FT)	HOT-HOT-GND
N	TBD	-	-	-
O	NOT USED	-	-	-
P	LOCKING, 20A, 125/250V, 1PH	L14-20R	3#12,#12G,3/4"C (100FT)	HOT-HOT-NEUT-GND
Q	LOCKING, 30A, 125/250V, 1PH	L14-30R	3#10,#10G,3/4"C (120FT)	HOT-HOT-NEUT-GND
R	TBD	-	-	-
S	LOCKING, 20A, 208Y/120V, 3PH	L21-20R	4#12,#12G,3/4"C (120FT)	HOT-HOT-HOT-NEUT-GND
T	LOCKING, 30A, 208Y/120V, 3PH	L21-30R	4#10,#10G,3/4"C (130FT)	HOT-HOT-HOT-NEUT-GND
U	LOCKING, 50A, 250V, 3PH	HBL CS8365C	3#6,#10G,1"C (175FT)	HOT-HOT-HOT-GND
V	NOT USED	-	-	-
W	PIN&SLEEVE, 60A, 208Y/120V, 3PH	HBL 560R9W	4#4,#10G,1-1/4"C (200FT)	HOT-HOT-HOT-NEUT-GND
X	PIN&SLEEVE, 100A, 208Y/120V, 3PH	HBL 5100R9W	4#1,#8G,1-1/2"C (250FT)	HOT-HOT-HOT-NEUT-GND
Y	TBD	-	-	-
Z	TBD	-	-	-

NOTE1: DISTANCE NOTED IS MAXIMUM RUN LENGTH FOR WIRE SIZE. INCREASE PER NEC. GROUND, FOR LONGER RUNS OR FOR DERATING FACTORS (AMB TEMP, EXTERIOR, ETC.) INCLUDING

ABBREVIATIONS

A,AMP	AMPERE
AC	ABOVE COUNTER
AF	AMPERE FUSE/FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AM	AMMETER
ANN	ANNUNCIATOR
ANT	ANTENNA
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BFC	BELOW FINISHED CEILING
BFG	BELOW FINISHED GRADE
BKR	BREAKER
C	CONDUIT
CAB	CABINET
CAM	CAMERA
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CO	CONDUIT ONLY
COMB	COMBINATION
COND	CONDUCTOR
CT	CURRENT TRANSFORMER
CU	COPPER
dB	DECIBEL
DGP	DIGITAL GATHERING PANEL
DISC	DISCONNECT
DL	DAMP LISTED
DWG	DRAWING
DVR	DIGITAL VIDEO RECORDER
E	EXISTING
EA	EACH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EHC	ELECTRIC HEATING COIL
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EOL	F/A END OF LINE RESISTOR
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXH	EXHAUST
F	FUSE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FC	FOOTCANDLES
FDR	FEEDER
FLEX	FLEXIBLE
FLR	FLOOR
FLUOR	FLUORESCENT
FO	FIBER OPTIC
G	GROUND
GALV	GALVANIZED
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HD	HEAVY DUTY
HH	HAND HOLE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HT	HEIGHT
HTR	HEATER
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IMC	INTERMEDIATE GRADE METALLIC CONDUIT
INCAND	INCANDESCENT
J-BOX	JUNCTION BOX
KCMIL	THOUSAND OF CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LA	LIGHTNING ARRESTOR
LFC	LIQUIDTIGHT FLEXIBLE CONDUIT
LTG	LIGHTING
LV	LOW VOLTAGE
MA	MILLIAMPERE

ABBREVIATIONS

MAX	MAXIMUM
MB	MAIN BREAKER
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MFR	MANUFACTURER
MG	MOTOR GENERATOR
MH	MANHOLE OR METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MS	MOTOR STARTER
MV	MEDIUM VOLTAGE
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OA	OUTSIDE DIAMETER
P	POLE
PA	PUBLIC ADDRESS
PB	PUSH BUTTON
PE	PHOTOELECTRIC
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
QR	QUARTZ RESTRIKE
R	EXISTING TO BE RELOCATED
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SCP	SECURITY CONTROL PANEL
SEC	SECONDARY/SECOND
SEC	SECTION
SHT	SHEET
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SQ.FT	SQUARE FEET
ST	SHUNT TRIP
STD	STANDARD
SW	SWITCH
SWBD	SWITCHBOARD
TC	TIME CLOCK
TEL	TELEPHONE
TEMP	TEMPERATURE
TELECOM	TELECOMMUNICATIONS
TGB	TELECOMMUNICATIONS GROUND BUS
TL	TWIST LOCK
TMGB	TELECOMMUNICATIONS MAIN GROUND BUS
TR	TELECOMMUNICATIONS ROOM
UC	UNDER COUNTER
U/G	UNDER GROUND
UH	UNIT HEATER
UL	UNDERWRITER LABORATORIES
UNF	UNFUSED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
W	WATT
W/	WITH
WH	WATT HOUR
WLAN	WIRELESS LOCAL AREA NETWORK
WP	WEATHERPROOF (IN-USE TYPE REQUIRED)
WPL	WEATHERPROOF LOCKABLE ENCLOSURE.
WT	WATERTIGHT
XMFR	TRANSFORMER
XP	EXPLOSION PROOF

MECHANICAL/PLUMBING COORDINATION REQUIREMENTS

THE ELECTRICAL DRAWINGS INDICATE THE ELECTRICAL REQUIREMENTS FOR A SIGNIFICANT PORTION OF THE MECHANICAL AND PLUMBING SYSTEMS. ADDITIONAL MECHANICAL AND PLUMBING EQUIPMENT IS INDICATED ON THE DIVISION 21, 22 AND 23 DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE COSTS IN THE DIVISION 26 PRICING TO CONNECT ALL MECHANICAL AND PLUMBING EQUIPMENT INDICATED ON THE ELECTRICAL DRAWINGS AND ON THE MECHANICAL AND PLUMBING DRAWINGS. PROVIDE COMPLETE WIRING, STARTERS, AND DISCONNECTING MEANS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT.

LIGHTING

- STRIP LIGHT
- WALL MOUNTED LINEAR
- RECESSED OR SURFACE MOUNTED 2'X4'
- RECESSED OR SURFACE MOUNTED 1'X4'
- RECESSED OR SURFACE MOUNTED 2'X2'
- WALL MOUNTED FLOODLIGHT
- WALL MOUNTED SCONCE
- DOWNLIGHT
- TRACK WITH TRACK HEADS
- EXIT SIGN. MOUNTING, FACES AND DIRECTIONAL ARROWS (CHEVRONS) PER PLANS
- EMERGENCY LIGHTING UNIT
- VACANCY SENSOR - CEILING MOUNTED
- VACANCY SENSOR - WALL MOUNTED
- OS — OCCUPANCY SENSOR - CEILING MOUNTED
- OS — OCCUPANCY SENSOR - WALL MOUNTED
- OCCUPANCY SENSOR - COMBINATION WALL SWITCH
- VACANCY SENSOR - COMBINATION WALL SWITCH
- MASTER SWITCH
- LIGHT SWITCH, REFER TO CONTROL DETAILS AND SCHEDULES FOR TYPE
- CEILING MOUNTED DAYLIGHT SENSOR
- SWITCH WITH PILOT LIGHT
- DOOR JAMB SWITCH
- ELCO — UL924 EMERGENCY AUTOMATIC TRANSFER DEVICE
- LIGHTING CONTROL KEYPAD
- DIMMER SWITCH

LOWER CASE LETTERS AT LIGHT SWITCHES AND SENSORS DENOTE SWITCHING ZONE

LOWER CASE LETTERS AT LIGHT SWITCHES, FIXTURES, AND SENSORS INSIDE PARENTHESIS, ex. '(x)', DENOTES DAYLIGHT ZONE

OCCUPANCY SENSOR - AUTO ON/OFF
VACANCY SENSOR - AUTO OFF, MANUAL ON

ALL LIGHT SWITCHES ARE LOW VOLTAGE, UNO.

CEILING SENSORS SHALL HAVE 360 DEGREE RANGE WITH MIN 1500 SF COVERAGE.

SENSORS TECHNOLOGY SHALL BE PER CONTROL SCHEDULE OR AS NOTED. WHERE NOT NOTED, ASSUME SENSOR TO BE MULTI-TECHNOLOGY TYPE.

COMMUNICATIONS

- W — WALL MTD MODULAR TELEPHONE OUTLET.
- WALL MTD TELEPHONE OUTLET.
- 2 — 2-PORT DATA WALL OUTLET.
- 2/1 — 3-PORT TEL/DATA WALL OUTLET.
- 4 — 4-PORT TEL/DATA WALL OUTLET.
- H — WALL MTD HDMI OUTLET.
- C — WALL MTD COAX OUTLET.
- WLAN — WIRELESS LOCAL AREA NETWORK CEILING OUTLET MTD OR AS NOTED ON PLAN DRAWINGS.
- 2 — DATA CEILING OUTLET MTD OR AS NOTED ON PLAN DRAWINGS.
- COMMUNICATIONS FURNITURE FEED MTD ON WALL AT 18" AFF.
- COMMUNICATIONS FURNITURE FEED FLOOR BOX.
- FLOOR MTD DATA OUTLET.
- SP — SPEAKER
- COMBINATION TV/RECEPTACLE OUTLET
- TGB — TELECOMMUNICATIONS GROUND BUS.
- I-TGB — INTERCONNECTING TELECOMMUNICATIONS GROUND BUS.
- TMGB — TELECOMMUNICATIONS MAIN GROUND BUS.

GENERAL NOTES:

1. TECHNOLOGY DEVICES SHOWN FOR REFERENCE ONLY. UNO. PROVIDE BACKBOXES AND 1" CONDUIT WITH DRAG WIRE STUBBED UP TO 6" ABOVE FINISHED CEILING, UNO.

EQUIPMENT

- MOTOR
- MOTOR STARTER
- UN-FUSED DISCONNECT
- FUSED DISCONNECT
- CIRCUIT BREAKER
- BRANCH CIRCUIT OR POWER PANEL
- LIGHTING CONTROL PANEL
- M — METER
- CURRENT TRANSFORMER
- GROUND
- DELTA/WYE WITH GROUND
- T — POWER TRANSFORMER
- FUSE & SWITCH
- CIRCUIT BREAKER
- DRAWOUT CIRCUIT BREAKER
- 51 — INVERSE TIME/OVERCURRENT RELAY (SOLID STATE WITH COMMUNICATION)
- 52 — DRAWOUT 15 KV BREAKER
- K — KIRK-KEY INTERLOCK
- GROUND FAULT INTERRUPTER BREAKER
- D — CIRCUIT MONITORING DEVICE
- MECHANICAL EQUIPMENT IDENTIFICATION TAG
- SPD — SURGE PROTECTIVE DEVICE
- TO — THERMAL OVERLOAD
- TO — MOTOR AND THERMAL OVERLOAD
- AUTOMATIC TRANSFER SWITCH

RACEWAY LEGEND

- A-2-4 — BRANCH CIRCUIT HOMERUN TO PANELBOARD. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS, NUMERAL INDICATES CIRCUIT NUMBER.
- A-2-4 (A) — BRANCH CIRCUIT HOMERUN CONTROLLED BY LIGHTING CONTROL SYSTEM. FIRST HEXAGON LETTER CORRESPONDS TO FIRST CIRCUIT NUMBER. (ie. CIRCUIT #2 IS ON ZONE A)
- UNDERGROUND FEEDER
- UNDERGROUND BRANCH CIRCUIT HOMERUN
- CONDUIT UP
- CONDUIT DOWN
- CONDUIT RUNS UNDERFLOOR OR BELOW GRADE
- CONDUIT RUN CONCEALED IN WALLS OR CEILING, OR EXPOSED WHEN CEILINGS ARE NOT PRESENT.
- MOTOR CONNECTION

SECURITY

- HID PROXIMITY CARD READER
- MAGNETIC LOCK
- REQUEST TO EXIT PNEUMATIC BUTTON
- KEY LOCK
- IRIS SCANNER
- DOOR RELEASE PUSH PLATE
- REMOTE DOOR RELEASE
- DURESS ALARM
- BREAK GLASS EMERGENCY DOOR RELEASE
- ELECTRIC STRIKE
- DOOR REQUEST TO EXIT PIR SENSOR
- SCP — SECURITY CONTROL PANEL
- KEYPAD
- DOOR STATUS MONITOR
- ELECTRIFIED LOCKS
- FIXED TYPE SECURITY CAMERA
- PAN-TILT-ZOOM (PTZ) TYPE SECURITY CAMERA

NOTES:

1. DEVICES SHOWN FOR REFERENCE ONLY. PROVIDE BACKBOXES AND CONDUIT AS REQUIRED.

POWER DEVICES

- SINGLE WALL RECEPTACLE
- WALL DUPLEX RECEPTACLE
- WALL DUPLEX RECEPTACLE (EMERGENCY)
- USB — WALL DUPLEX RECEPTACLE WITH (2) USB PORTS
- WALL FOURPLEX RECEPTACLE
- WALL FOURPLEX RECEPTACLE (EMERGENCY)
- X — WALL SPECIAL RECEPTACLE (FOR "X" SEE TABLE BELOW)
- WALL COMBINATION TV/POWER OUTLET
- WALL CLOCK RECEPTACLE
- WALL JUNCTION BOX
- WALL FURNITURE FEED
- FLOOR DUPLEX RECEPTACLE
- FLOOR FOURPLEX RECEPTACLE (POWER/DATA/AV COMBO DEVICE. REFER TO TECHNOLOGY DRAWINGS)
- FLOOR JUNCTION BOX
- FLOOR FURNITURE FEED
- CEILING RECEPTACLE
- CEILING DUPLEX RECEPTACLE
- CEILING FOURPLEX RECEPTACLE
- X — CEILING/FLOOR SPECIAL RECEPTACLE (FOR "X" SEE TABLE BELOW)
- CEILING JUNCTION BOX
- CEILING TV OUTLET
- POWER POLE
- SINGLE TOGGLE SWITCH
- PLUGMOLD
- SINGLE PUSH BUTTON
- DUPLEX PUSH BUTTON
- WALL BUZZER
- EPO — EMERGENCY POWER OFF

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTIONS FOR SPECIFIC FLOOR PRODUCT INFORMATION.
2. REFER TO TECHNOLOGY LEGEND AND FLOOR PLANS TO CONFIRM ALL LOCATIONS THAT HAVE DATA OR DATA/AV REQUIREMENTS COMBINED WITH POWER IN FLOOR BOXES.
3. REFER TO TECHNOLOGY (AND/OR AV) DRAWINGS FOR DEDICATED LOW VOLTAGE CONDUIT AND FLOOR BOX DEVICE MOUNTING PLATE REQUIREMENTS. LOW VOLTAGE CONDUIT REQUIREMENTS ARE NOT DOCUMENTED ON POWER DRAWINGS.

FIRE ALARM

- SMOKE DETECTOR
- ER — SMOKE DETECTOR WITH ELEVATOR RECALL
- HEAT DETECTOR
- DUCT DETECTOR
- WALL MOUNTED HORN OR SPEAKER
- CEILING MTD HORN OR SPEAKER
- X — WALL MTD HORN (OR SPEAKER) / STROBE
- X — CEILING MTD HORN (OR SPEAKER) / STROBE
- H — FIRE SERVICE PHONE / WARDEN PHONE
- J — FIREMAN'S PHONE JACK
- MANUAL PULL STATION WITH VANDAL COVER
- MAGNETIC DOOR HOLD OPEN DEVICE (ALARM BELL)
- TAMPER SWITCH
- FLOW SWITCH
- RTS — WALL MTD REMOTE INDICATOR LIGHT
- RTS — CEILING MTD REMOTE INDICATOR LIGHT
- X — WALL MOUNTED ADA STROBE
- X — CEILING MOUNTED ADA STROBE
- FA — FIRE ALARM RELAY
- FIRE SMOKE DAMPER WITH DUCT DETECTOR
- FIRE SMOKE DAMPER WITH SMOKE DETECTOR
- CO — CARBON MONOXIDE DETECTOR
- FACP — FIRE ALARM ANNUNCIATOR PANEL
- FACP — FIRE ALARM CONTROL PANEL
- DGP — DATA GATHERING PANEL
- EPO — EMERGENCY POWER OFF

NOTES:

1. "X" DENOTES CANDELLA RATING OF STROBE.
2. "E" DENOTES EXISTING DEVICE.
3. "R" DENOTES RELOCATED DEVICE.
4. "TYP" DENOTES TYPICAL FOR SIMILAR DEVICES OR INSTALLATIONS.

ELECTRICAL DRAWING LIST - ENABLING

Sheet Number	Sheet Name
E-000.E	ELECTRICAL LEGEND, DETAILS & NOTES
E-010.E	ELECTRICAL SCHEDULES I - ENABLING
E-011.E	ELECTRICAL SCHEDULES II - ENABLING
E-012.E	ELECTRICAL SCHEDULES III - ENABLING
E-013.E	ELECTRICAL SCHEDULES IV - ENABLING
E-014.E	ELECTRICAL SCHEDULES V - ENABLING
E-101.E	ELECTRICAL DEMO PLAN - LEVEL 31 - ENABLING
E-102.E	ELECTRICAL DEMO PLAN - LEVEL 48 - ENABLING
E-201.E	ELECTRICAL PLAN - LEVEL 31 - ENABLING
E-202.E	ELECTRICAL PLAN - LEVEL 48 - ENABLING
E-301.E	ELECTRICAL LIGHTING PLAN - LEVEL 31 - ENABLING
E-302.E	ELECTRICAL LIGHTING PLAN - LEVEL 48 - ENABLING
E-600.E	ELECTRICAL ONE-LINES I - ENABLING
E-700.E	ELECTRICAL DETAILS I - ENABLING

FIRE ALARM DRAWING LIST - ENABLING

Sheet Number	Sheet Name
FA-201.E	FIRE ALARM PLAN - LEVEL 31 - ENABLING
FA-202.E	FIRE ALARM PLAN - LEVEL 48 - ENABLING
FA-600.E	FIRE ALARM ONE-LINES I - ENABLING

B C D E A

XL CENTER

CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 6:57:39 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE: ELECTRICAL LEGEND, DETAILS & NOTES

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-000.E

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	EHNW31
480Y/277	BUS: 200 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 200 AMP MAIN BKR	LOCATION:	
			EXISTING
NOTES:	OPTIONS:	DATE:	10/28/20
		FED FROM :	
		MOUNTING :	
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	X	EXISTING LOAD		1	20	1	A	2	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	3	B	4	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	5	C	6	20	1		EXISTING LOAD	X	
	P	--SPARE--		1	20	7	A	8	20	1		--SPARE--	P	
	P	--SPARE--		1	20	9	B	10	20	1		--SPARE--	P	
	P	--SPARE--		1	20	11	C	12	20	1		--SPARE--	P	
	P	--SPARE--		1	20	13	A	14	20	1		--SPARE--	P	
	P	--SPARE--		1	20	15	B	16	20	1		--SPARE--	P	
	P	--SPARE--		1	20	17	C	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	A	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	LB-5 (LP-5)
208Y/120	BUS: 225 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 200 AMP MAIN BKR	LOCATION:	LEVEL 31
NOTES: PANEL REPLACED EXISITNG	OPTIONS:	DATE:	12/17/20
EXISITNG PANEL TO BE RETURNED TO OWNER		FED FROM :	
		MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	X	RECEPT WEST ARENA (SB CONTROL)		1	20	1	A	2	30	3		LIGHTING CATWALK WEST	X	
	X	LIGHTS CAT WALK WEST		1	20	3	B	4		>		-----	X	
	X	ICE MACH MECH RM RECEPT		1	20	5	C	6		>		-----	X	
	X	RECEPT MECH ROOM		1	20	7	A	8	20	1		HOT WATER RECIRC PUMP	X	
	X	TO STARS DRESS RM AREA "F"		1	20	9	B	10	20	1		LTG CATWALK WEST ELEV	X	
	X	RECEPT WEST ARENA 31 RINK WALL		1	20	11	C	12	20	1		RECEPT COL "C" & "D"	X	
	X	RECEPT WEST DRINKING FOUNTAIN		1	20	13	A	14	20	1		LTG BRINE TUN, CKT FOR CHILLER	X	
	X	RECEPT ENGINEERING OFFICE		1	20	15	B	16	20	1		LTG & RECEPT VISIT LOCER RM	X	
	X	RECEPT KARENS WIREMOLD		1	20	17	C	18	20	1		LTG AND RECPT STARS DRESS RM	X	
	X	RECEPT HTFD RM CARLS OFFCIE		1	20	19	A	20	20	1		LTG&RECEPT STAR DRESS RM	X	
	X	LTG, RECEPT VISTOR LOCK RM		1	20	21	B	22	20	1		LTG,RECEPT STAR DRESS RM AREA	X	
	X	LTG, RECEPT VISTOR LOCK RM		1	20	23	C	24	20	1		LTG DWYER UNIT	X	
	X	LTG, RECEPT VIST LOCK RM EAST		1	20	25	A	26	20	1		EXISTING LOAD	X	
	X	RECEPT EAST ARENA NW		1	20	27	B	28	20	1		EXISTING LOAD	X	
	X	RECEPT EAST ARENA NW		1	20	29	C	30	20	2		ZAMBON SUBMERSIBLE PUMP	X	
	X	RECEPT, DF STOR, DRINK FOUNTAIN		1	20	31	A	32		>		-----	X	
	X	LTG, RECEPT VISTOR LOCK RM		1	20	33	B	34	20	1		SUMP PMP BRINE PIPE TUNNEL	X	
	X	SMOKE DETECTOR TO DGP PNL		1	20	35	C	36	30	3		WEST ELEV DOR CONTROL	X	
	X	LTG SHOP AND KARLS OFFCE		1	20	37	A	38		>		-----	X	
	X	OPEN 60A		2	60	39	B	40		>		-----	X	
	X	-----		<		41	C	42		1		NW SPACE HEATER (CEILING)	X	
	R	RECEPTACLE	1080	1	20	43	A	44	20	1		--SPARE--	P	
	R	COMPUTER	1080	1	20	45	B	46	20	1		--SPARE--	P	
	R	COMPUTER	1080	1	20	47	C	48	20	1		--SPARE--	P	
	R	RECEPTACLE	1080	1	20	49	A	50	20	1		--SPARE--	P	
	P	--SPARE--		1	20	51	B	52	20	1		--SPARE--	P	
	P	--SPARE--		1	20	53	C	54	20	1		--SPARE--	P	
	P	--SPARE--		1	20	55	A	56	20	1		--SPARE--	P	
	P	--SPARE--		1	20	57	B	58	20	1		--SPARE--	P	
	P	--SPARE--		1	20	59	C	60	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	RED PANEL
480Y/277	BUS: Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS:	LOCATION:	
			EXISTING
NOTES:	OPTIONS:	DATE:	10/28/20
		FED FROM :	
		MOUNTING :	
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	X	EXISTING LOAD		1	20	1	A	2	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	3	B	4	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	5	C	6	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	7	A	8	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	9	B	10	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	11	C	12	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	13	A	14	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	15	B	16	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	17	C	18	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	19	A	20	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	21	B	22	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	23	C	24	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	25	A	26	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	27	B	28	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	29	C	30	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	31	A	32	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	33	B	34	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	35	C	36	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	37	A	38	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	39	B	40	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	41	C	42	20	1		EXISTING LOAD	X	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	HNW31
480Y/277	BUS: 200 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 200 AMP MAIN BKR	LOCATION:	
			EXISTING
NOTES:	OPTIONS:	DATE:	10/28/20
		FED FROM :	
		MOUNTING :	
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	X	EXISTING LOAD		1	20	1	A	2	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	3	B	4	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		3	20	5	C	6	20	3		EXISTING LOAD	X	
	X	-----		<		7	A	8		>		-----	X	
	X	-----		<		9	B	10		>		-----	X	
	P	--SPARE--		1	20	11	C	12	20	3		EXISTING LOAD	X	
	X	EXISTING LOAD		3	20	13	A	14		>		-----	X	
	X	-----		<		15	B	16		>		-----	X	
	X	-----		<		17	C	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	A	20	20	3		EXISTING LOAD	X	
	P	--SPARE--		1	20	21	B	22		>		-----	X	
	P	--SPARE--		1	20	23	C	24		>		-----	X	
	P	--SPARE--		1	20	25	A	26	20	1		LNW31	S	
	P	--SPARE--		1	20	27	B	28	20	1		--SPARE--	P	
	P	--SPARE--		1	20	29	C	30	20	1		--SPARE--	P	
	P	--SPARE--		1	20	31	A	32	20	1		--SPARE--	P	
	P	--SPARE--		1	20	33	B	34	20	1		--SPARE--	P	
	P	--SPARE--		1	20	35	C	36	20	1		--SPARE--	P	
	P	--SPARE--		1	20	37	A	38	20	1		--SPARE--	P	
	P	--SPARE--		1	20	39	B	40	20	1		--SPARE--	P	
	P	--SPARE--		1	20	41	C	42	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	LNW31
208Y/120	BUS: 100 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 100 AMP MAIN BKR	LOCATION:	
			EXISTING
NOTES:	OPTIONS:	DATE:	10/28/20
		FED FROM :	
		MOUNTING :	
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	X	EXISTING LOAD		1	20	1	A	2	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	3	B	4	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	5	C	6	60	3		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	7	A	8		>		-----	X	
	X	EXISTING LOAD		1	20	9	B	10		>		-----	X	
	X	EXISTING LOAD		1	20	11	C	12	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	13	A	14	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	15	B	16	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	17	C	18	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	19	A	20	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	25	A	26	20	1		--SPARE--	P	
	P	--SPARE--		1	20	27	B	28	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	29	C	30	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	31	A	32	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	33	B	34	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	35	C	36	20	1		EXISTING LOAD	X	
	X	EXISTING LOAD		1	20	37	A	38	20	1		--SPARE--	P	
	P	--SPARE--		1	20	39	B	40	20	1		--SPARE--	P	
	X	EXISTING LOAD		1	20	41	C	42	20	1		EXISTING LOAD	X	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	AP-31SE
208Y/120	BUS: 225 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 200 AMP MAIN BKR	LOCATION:	LEVEL 31 SOUTH EAST
NOTES:	OPTIONS:	DATE:	12/18/20
	BOLT IN BRANCH BKRS	FED FROM :	DP-31SE
	LAMINATED NAMEPLATE	MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	R	RECEPTACLES	900	1	20	1	A	2	20	1		--SPARE--	P	
	R	RECEPTACLES	900	1	20	3	B	4	20	1		--SPARE--	P	
	R	TVS	400	1	20	5	C	6	20	1		--SPARE--	P	
	R	RECEPTACLES	1260	1	20	7	A	8	20	1		--SPARE--	P	
	R	COMPUTERS	1080	1	20	9	B	10	20	1		--SPARE--	P	
	R	COMPUTERS	1080	1	20	11	C	12	20	1		--SPARE--	P	
	R	COMPUTERS	360	1	20	13	A	14	20	1		--SPARE--	P	
	P	--SPARE--		1	20	15	B	16	20	1		--SPARE--	P	
	P	--SPARE--		1	20	17	C	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	A	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	
	P	--SPARE--		1	20	25	A	26	20	1		--SPARE--	P	
	P	--SPARE--		1	20	27	B	28	20	1		--SPARE--	P	
	P	--SPARE--		1	20	29	C	30	20	1		--SPARE--	P	
	P	--SPARE--		1	20	31	A	32	20	1		--SPARE--	P	
	P	--SPARE--		1	20	33	B	34	20	1		--SPARE--	P	
	P	--SPARE--		1	20	35	C	36	20	1		--SPARE--	P	
	P	--SPARE--		1	20	37	A	38	20	1		--SPARE--	P	
	P	--SPARE--		1	20	39	B	40	20	1		--SPARE--	P	
	P	--SPARE--		1	20	41	C	42	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	AP-31Z
208/120	BUS: 100 Amps Copper	SECTION:	1 OF 1
1PHASE,3WIRE+GND	MAINS: 100 AMP MAIN BKR	LOCATION:	ZAMBONI ROOM
NOTES:	OPTIONS:	DATE:	12/18/20
	BOLT IN BRANCH BKRS	FED FROM :	PP-31Z
	LAMINATED NAMEPLATE	MOUNTING :	SURFACE
		ISSUE:	

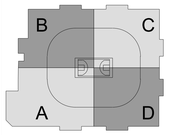
N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	R	RECEPTACLES	900	1	20	1	A	2	20	2	864	OH DOOR	M	
	R	RECEPTACLES	360	1	20	3	B	4		>	864	-----	M	
	R	FILTRATION CONTROLS		1	20	5	A	6	20	1		--SPARE--	P	
	P	--SPARE--		1	20	7	B	8	20	1		--SPARE--	P	
	P	--SPARE--		1	20	9	A	10	20	1		--SPARE--	P	
	P	--SPARE--		1	20	11	B	12	20	1		--SPARE--	P	
	P	--SPARE--		1	20	13	A	14	20	1		--SPARE--	P	
	P	--SPARE--		1	20	15	B	16	20	1		--SPARE--	P	
	P	--SPARE--		1	20	17	A	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	B	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	A	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	B	24	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	PP-31Z
480Y/277	BUS: 100 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 100 AMP MAIN BKR	LOCATION:	ZAMBONI OFFICE
NOTES:	OPTIONS:	DATE:	12/18/20
	BOLT IN BRANCH BKRS	FED FROM :	DP31-MECH_1
	LAMINATED NAMEPLATE	MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	M	FCU-31	942	3	20	1	A	2	20	3	943	SMP-1	M	
	M	-----	942	<		3	B	4		>	943	-----	M	
	M	-----	942	<		5	C	6		>	943	-----	M	
	L	LIGHTING		1	20	7	A	8	20	3	943	SMP-2	M	
	P	--SPARE--		1	20	9	B	10		>	943	-----	M	
	P	--SPARE--		1	20	11	C	12		>	943	-----	M	
	P	--SPARE--		1	20	13	A	14	70	3		45 KV XFMR	S	
	P	--SPARE--		1	20	15	B	16		>		--CONNECTED LOAD--	S	
	P	--SPARE--		1	20	17	C	18		>		-------	S	
	P	--SPARE--		1	20	19	A	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	
	P	--SPARE--		1	20	25	A	26	20	1		--SPARE--	P	
	P	--SPARE--		1	20	27	B	28	20	1		--SPARE--	P	
	P	--SPARE--		1	20	29	C	30	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls



XL CENTER

CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 6:57:40 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL SCHEDULES I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-010.E

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	DP31-MECH
480Y/277	BUS: 800 Amps Copper	SECTION:	1 OF 2
3PHASE,4WIRE+GND	MAINS: M.L.O.	LOCATION:	LEVEL 31
		NEW PANEL	
NOTES: NEW PANEL TO FEED MCC LOADS	OPTIONS: BOLT IN BRANCH BKRS LAMINATED NAMEPLATE FEED THRU LUGS	DATE:	12/18/20
		FED FROM :	MS-1
		MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	M	SUPPLY FAN S-15	11080	3	100	1	A	2	100	3	11080	SUPPLY FAN S-17	M	3
	M	-----	11080	<		3	B	4		>	11080	-----	M	
	M	-----	11080	<		5	C	6		>	11080	-----	M	
	M	RETURN FAN R-15	5817	3	50	7	A	8	50	3	7479	RETURN FAN R-17	M	3
	M	-----	5817	<		9	B	10		>	7479	-----	M	
	M	-----	5817	<		11	C	12		>	7479	-----	M	
	M	SUPPLY FAN S-9	9418	3	70	13	A	14	50	3	5817	SUPPLY FAN S-13	M	3
	M	-----	9418	<		15	B	16		>	5817	-----	M	
	M	-----	9418	<		17	C	18		>	5817	-----	M	
	M	RETURN FAN R-9	3878	3	40	19	A	20	20	3	2105	RETURN FAN R-13	M	3
	M	-----	3878	<		21	B	22		>	2105	-----	M	
	M	-----	3878	<		23	C	24		>	2105	-----	M	
	M	SUPPLY FAN S-16	11080	3	100	25	A	26	70	3	9418	SUPPLY FAN S-10	M	
	M	-----	11080	<		27	B	28		>	9418	-----	M	
	M	-----	11080	<		29	C	30		>	9418	-----	M	
	M	RETURN FAN R-16	7479	3	50	31	A	32	40	3	3878	RETURN FAN R-10	M	
	M	-----	7479	<		33	B	34		>	3878	-----	M	
	M	-----	7479	<		35	C	36		>	3878	-----	M	
	M	SUPPLY FAN V-2	3047	3	30	37	A	38	15	3	942	DUPLEX COND PUMP#1	M	
	M	-----	3047	<		39	B	40		>	942	-----	M	
	M	-----	3047	<		41	C	42		>	942	-----	M	
	M	RELIEF FAN E-2	3878	3	40	43	A	44	20	3	2105	TRASH COMPACTOR	M	
	M	-----	3878	<		45	B	46		>	2105	-----	M	
	M	-----	3878	<		47	C	48		>	2105	-----	M	
	M	AIR COMPRESSOR	3878	3	60	49	A	50	30	3	3047	TOILET EXHAUST E-9	M	
	M	-----	3878	<		51	B	52		>	3047	-----	M	
	M	-----	3878	<		53	C	54		>	3047	-----	M	
	M	ANIMAL STORAGE EX FAN E-1A	5817	3	30	55	A	56	100	3		PANEL LOCKER	S	
	M	-----	5817	<		57	B	58		>		--CONNECTED LOAD--	S	
	M	-----	5817	<		59	C	60		>		-------	S	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	DP31-MECH
480Y/277	BUS: 800 Amps Copper	SECTION:	2 OF 2
3PHASE,4WIRE+GND	MAINS: M.L.O.	LOCATION:	LEVEL 31
		NEW PANEL	
NOTES: NEW PANEL TO FEED MCC LOADS	OPTIONS: BOLT IN BRANCH BKRS LAMINATED NAMEPLATE	DATE:	12/18/20
		FED FROM :	
		MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	M	OH DOOR COLUMN A 5.5	1662	3	20	61	A	62	20	3	1662	OH DOOR B.5-5	M	
	M	-----	1662	<		63	B	64		>	1662	-----	M	
	M	-----	1662	<		65	C	66		>	1662	-----	M	
	M	OH DOOR COLUMN A B-4	1662	3	20	67	A	68	20	3	1662	OH DOOR VOMITORY	M	
	M	-----	1662	<		69	B	70		>	1662	-----	M	
	M	-----	1662	<		71	C	72		>	1662	-----	M	
	X	PP-31Z	11080	3	100	73	A	74	20	3	715	DUPLEX COND PUMP #2	M	
	X	-----	1080	<		75	B	76		>	715	-----	M	
	X	-----	11080	<		77	C	78		>	715	-----	M	
	P	--SPARE--		1	20	79	A	80	20	1		--SPARE--	P	
	P	--SPARE--		1	20	81	B	82	20	1		--SPARE--	P	
	P	--SPARE--		1	20	83	C	84	20	1		--SPARE--	P	
	C	SPACE				85	A	86				SPACE	C	
	C	SPACE				87	B	88				SPACE	C	
	C	SPACE				89	C	90				SPACE	C	
	C	SPACE				91	A	92				SPACE	C	
	C	SPACE				93	B	94				SPACE	C	
	C	SPACE				95	C	96				SPACE	C	
	C	SPACE				97	A	98				SPACE	C	
	C	SPACE				99	B	100				SPACE	C	
	C	SPACE				101	C	102				SPACE	C	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	AP-31SE
208Y/120	BUS: 225 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 200 AMP MAIN BKR	LOCATION:	LEVEL 31 SOUTH EAST
NOTES:	OPTIONS: BOLT IN BRANCH BKRS LAMINATED NAMEPLATE	DATE:	12/18/20
		FED FROM :	DP-31SE
		MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	R	RECEPTACLES	900	1	20	1	A	2	20	1		--SPARE--	P	
	R	RECEPTACLES	900	1	20	3	B	4	20	1		--SPARE--	P	
	R	TVS	400	1	20	5	C	6	20	1		--SPARE--	P	
	R	RECEPTACLES	1260	1	20	7	A	8	20	1		--SPARE--	P	
	R	COMPUTERS	1080	1	20	9	B	10	20	1		--SPARE--	P	
	R	COMPUTERS	1080	1	20	11	C	12	20	1		--SPARE--	P	
	R	COMPUTERS	360	1	20	13	A	14	20	1		--SPARE--	P	
	P	--SPARE--		1	20	15	B	16	20	1		--SPARE--	P	
	P	--SPARE--		1	20	17	C	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	A	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	
	P	--SPARE--		1	20	25	A	26	20	1		--SPARE--	P	
	P	--SPARE--		1	20	27	B	28	20	1		--SPARE--	P	
	P	--SPARE--		1	20	29	C	30	20	1		--SPARE--	P	
	P	--SPARE--		1	20	31	A	32	20	1		--SPARE--	P	
	P	--SPARE--		1	20	33	B	34	20	1		--SPARE--	P	
	P	--SPARE--		1	20	35	C	36	20	1		--SPARE--	P	
	P	--SPARE--		1	20	37	A	38	20	1		--SPARE--	P	
	P	--SPARE--		1	20	39	B	40	20	1		--SPARE--	P	
	P	--SPARE--		1	20	41	C	42	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	PP-31Z
480Y/277	BUS: 100 Amps Copper	SECTION:	1 OF 1
3PHASE,4WIRE+GND	MAINS: 100 AMP MAIN BKR	LOCATION:	ZAMBONI OFFICE
NOTES:	OPTIONS: BOLT IN BRANCH BKRS LAMINATED NAMEPLATE	DATE:	12/18/20
		FED FROM :	DP31-MECH_1
		MOUNTING :	SURFACE
		ISSUE:	

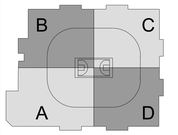
N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	M	FCU-31	942	3	20	1	A	2	20	3	943	SMP-1	M	
	M	-----	942	<		3	B	4		>	943	-----	M	
	M	-----	942	<		5	C	6		>	943	-----	M	
	L	LIGHTING		1	20	7	A	8	20	3	943	SMP-2	M	
	P	--SPARE--		1	20	9	B	10		>	943	-----	M	
	P	--SPARE--		1	20	11	C	12		>	943	-----	M	
	P	--SPARE--		1	20	13	A	14	70	3		45 KV XFMR	S	
	P	--SPARE--		1	20	15	B	16		>		--CONNECTED LOAD--	S	
	P	--SPARE--		1	20	17	C	18		>		-------	S	
	P	--SPARE--		1	20	19	A	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	B	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	C	24	20	1		--SPARE--	P	
	P	--SPARE--		1	20	25	A	26	20	1		--SPARE--	P	
	P	--SPARE--		1	20	27	B	28	20	1		--SPARE--	P	
	P	--SPARE--		1	20	29	C	30	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls

XL CENTER RENOVATION_NY20014	ME Engineers Inc.	PANEL:	AP-31Z
208/120	BUS: 100 Amps Copper	SECTION:	1 OF 1
1PHASE,3WIRE+GND	MAINS: 100 AMP MAIN BKR	LOCATION:	ZAMBONI ROOM
NOTES:	OPTIONS: BOLT IN BRANCH BKRS LAMINATED NAMEPLATE	DATE:	12/18/20
		FED FROM :	PP-31Z
		MOUNTING :	SURFACE
		ISSUE:	

N	ID	DESCRIPTION	V-A	P	BKR	CKT	PH	CKT	BKR	P	V-A	DESCRIPTION	ID	N
	R	RECEPTACLES	900	1	20	1	A	2	20	2	864	OH DOOR	M	
	R	RECEPTACLES	360	1	20	3	B	4		>	864	-----	M	
	R	FILTRATION CONTROLS		1	20	5	A	6	20	1		--SPARE--	P	
	P	--SPARE--		1	20	7	B	8	20	1		--SPARE--	P	
	P	--SPARE--		1	20	9	A	10	20	1		--SPARE--	P	
	P	--SPARE--		1	20	11	B	12	20	1		--SPARE--	P	
	P	--SPARE--		1	20	13	A	14	20	1		--SPARE--	P	
	P	--SPARE--		1	20	15	B	16	20	1		--SPARE--	P	
	P	--SPARE--		1	20	17	A	18	20	1		--SPARE--	P	
	P	--SPARE--		1	20	19	B	20	20	1		--SPARE--	P	
	P	--SPARE--		1	20	21	A	22	20	1		--SPARE--	P	
	P	--SPARE--		1	20	23	B	24	20	1		--SPARE--	P	

XL CENTER RENOVATION_NY20014.xls



XL CENTER

CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK
DO NOT SCALE THE DRAWINGS

SEAL

DRAWN MEE
DATE 12/18/20
CHECKED MEE
DATE PLOTTED 12/18/2020 6:57:41 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL SCHEDULES II - ENABLING

SCALE 1/8" = 1'-0"
PROJ. NO. 1605
DWG. NO. E-011.E

Equipment Utility Schedule Press Dining

No.	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA\PConfig	Electrical Height		
A1	1	Hand Sink				1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P		A1	
A2	1	Touchless Soap Dispenser																			A2	Battery operated.
A3	1	Touchless Paper Towel Dispenser																			A3	Battery operated.
A4	1	Smartstone Carving Station										208	1		60.0			X	14-50P	FLOOR	A4	EC - 208V/60.0amp power management system that includes five (5) 120V outlets.
A5	1	Portable Sneeze Guard																			A5	
A6	1	Carving Station										120	1		4.2	0.5		X	5-20P	18"	A6	
A7	1	Portable Sneeze Guard																			A7	
A8	1	Smartstone Carving Station										208	1		60.0			X	14-50P	FLOOR	A8	EC - 208V/60.0amp power management system that includes five (5) 120V outlets.
A9	1	Portable Sneeze Guard																			A9	
A10	1	Carving Station										120	1		4.2	0.5		X	5-20P	18"	A10	
A11	1	Spare Number																			A11	
A12	1	Spare Number																			A12	
A13	1	Spare Number																			A13	
A14	1	Portable Sneeze Guard																			A14	
A15	1	Hand Sink				1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P		A15	
A16	1	Touchless Soap Dispenser																			A16	Battery operated.
A17	1	Touchless Paper Towel Dispenser																			A17	Battery operated.
A18	1	Bussing Station							2"												A18	
A19	1	Smartstone Serving Table										(2) 120	1		(2) 20.0			X	5-15P	18"	A19	
A20	1	Portable Sneeze Guard																			A20	
A21	1	Spare Number																			A21	
A22	1	Spare Number																			A22	
A23	1	Spare Number																			A23	
A24	1	Portable Sneeze Guard																			A24	
A25	1	Portable Sneeze Guard																			A25	
A26	1	Dual Space Saver Urn Brewing System					3/8"					120	1		72.0	15.0	X			18"	A26	
A27	1	Ice Machine					3/8"		3/4"			208-230	1		11.0			X	6-15P	18"	A27	
A28	1	Ice/Water Dispenser					3/8"		(2) 3/4"			115	1		2.4			X	5-15P	18"	A28	

Equipment Utility Schedule Pantry

vv	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA\PConfig	Electrical Height		
B1	1	Hand Sink				1/2"	1/2"	1-1/2"													B1	
B2	1	Touchless Soap Dispenser																			B2	Battery operated.
B3	1	Touchless Paper Towel Dispenser																			B3	Battery operated.
B4	1	6-Burner Range w/ Oven										208	3		54.1	17.0	X	X		18"	B4	
B5	1	Double Convection Oven, Electric										(2)208	1		(2) 31.0	11	X			10" & 42"	B5	
B6	1	Ventless Exhaust Hood	3000									208/240	1	1.5	8.0	1.664	X			VFY	B6	
B7	1	Reach-In Refrigerator										115	1	1/4	3.8			X	5-15P	82"	B7	
B8	1	Prep Table w/ Sinks										(3) 120	1		(3) 20.0			X	5-15P	48"	B8	EC - Provide three (3) wall mounted convenience outlets.
B9	1	Undercounter Freezer										115	1	1/4	2.3			X	5-15P	18"	B9	
B10	1	Undercounter Dishmachine					3/4"		1-1/2"			208-230	3		33.9		X			18"	B10	
B11	1	Spare Number																			B11	
B12	1	Spare Number																			B12	
B13	1	Spare Number																			B13	
B14	1	Disposer/Controls					1/2"	3"				208	3	3.0	6.0		X			18"	B14	
B15	1	Reach-In Refrigerator										115	1	1/4	3.8			X	5-15P	82"	B15	
B16	1	Hand Sink				1/2"	1/2"	1-1/2"													B16	
B17	1	Touchless Soap Dispenser																			B17	Battery operated.
B18	1	Touchless Paper Towel Dispenser																			B18	Battery operated.
B19	1	Dry Storage Shelving																			B19	
B20	1	Dry Storage Shelving																			B20	
B21	1	Spare Number																			B21	
B22	1	Spare Number																			B22	
B23	1	Spare Number																			B23	

Equipment Utility Schedule South Bar

vv	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA\PConfig	Electrical Height		
C1	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	C1	
C2	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	C2	
C3	1	Back Bar Dry Cabinet																			C3	
C4	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	C4	
C5	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	C5	
C6	1	Soda Gun Assembly																			C6	
C7	1	Service Station Ice Chest							1/2"												C7	
C8	1	Back Bar Counter																			C8	
C9	1	Bar																			C9	
C10	1	P.O.S. System										120	1		6.0			X	5-15P	18"	C10	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
C11	1	Spare Number																			C11	
C12	1	Spare Number																			C12	
C13	1	Spare Number																			C13	
C14	1	12" Liquor Rack																			C14	
C15	1	Soda Gun Assembly																			C15	
C16	1	Ice Bin							1/2"												C16	
C17	1	Draft Beer Dispensing Tower																			C17	
C18	1	Speed Rail/ Rack																			C18	
C19	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	C19	
C20	1	Underbar Trash Bin																			C20	
C21	1	Spare Number																			C21	
C22	1	Spare Number																			C22	
C23	1	Spare Number																			C23	
C24	1	12" Liquor Rack																			C24	
C25	1	P.O.S. System										120	1		6.0			X	5-15P	18"	C25	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
C26	1	Soda Gun Assembly																			C26	
C27	1	Ice Bin							1/2"												C27	
C28	1	Draft Beer Dispensing Tower																			C28	
C29	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	C29	
C30	1	Underbar Trash Bin																			C30	
C31	1	Spare Number																			C31	
C32	1	Spare Number																			C32	
C33	1	Spare Number																			C33	
C34	1	12" Liquor Rack																			C34	
C35	1	Soda Gun Assembly																			C35	
C36	1	Ice Bin							1/2"												C36	
C37	1	Speed Rail/ Rack																			C37	
C38	1	P.O.S. System										120	1		6.0			X	5-15P	18"	C38	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
C39	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	C39	
C40	1	Underbar Trash Bin																			C40	
C41	1	Spare Number																			C41	
C42	1	Spare Number																			C42	
C43	1	Spare Number																			C43	
C44	1	Draft Beer Dispensing Tower																			C44	
C45	1	12" Liquor Rack																			C45	
C46	1	Soda Gun Assembly																			C46	
C47	1	Ice Bin							1/2"												C47	
C48	1	Speed Rail/ Rack																			C48	
C49	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	C49	
C50	1	P.O.S. System										120	1		6.0			X	5-15P	18"	C50	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
C51	1	Spare Number																			C51	
C52	1	Spare Number																			C52	
C53	1	Spare Number																			C53	
C54	1	Glasswasher				1/2"			1"			115	1		16.0		X			18"	C54	
C55	1	Drainboard							1-1/2"												C55	
C56	1	Draft Beer Dispensing Tower																			C56	
C57	1	Underbar Trash Bin																			C57	
C58	1	12" Liquor Rack																			C58	
C59	1	Soda Gun Assembly																			C59	
C60	1	Ice Bin							1/2"												C60	
C61	1	Spare Number																			C61	
C62	1	Spare Number																			C62	
C63	1	Spare Number																			C63	
C64	1	Speed Rail/ Rack																			C64	
C65	1	P.O.S. System										120	1		6.0			X	5-15P	18"	C65	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
C66	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	C66	
C67	1	Draft Beer Dispensing Tower																			C67	

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S C I ARCHITECTS
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(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

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NO.	DESCRIPTION	DATE

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XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL SCHEDULES III - ENABLING

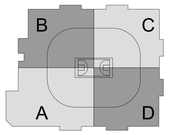
SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-012.E

Equipment Utility Schedule Banquet Dining

vv	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA|PConfig	Electrical Height		
D1	1	Smartstone Table - Private Dining										(2) 120	1		(2) 20.0			X	5-15P	18"	D1	
D2	1	Portable Sneeze Guard																			D2	
D3	1	Glass Door Wine Refrigerator										120	1		1.6			X	5-15P	18"	D3	
D4	1	Coffee Counter																			D4	
D5	1	Dual Space Saver Urn Brewing System					3/8"					120	1		72.0	15.0	X			18"	D5	
D6	1	Coffee Counter																			D6	
D7	1	Dual Space Saver Urn Brewing System					3/8"					120	1		72.0	15.0	X			18"	D7	
D8	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	D8	
D9	1	Portable Sneeze Guard																			D9	
D10	1	Portable Sneeze Guard																			D10	
D11	1	Spare Number																			D11	
D12	1	Spare Number																			D12	
D13	1	Spare Number																			D13	
D14	1	Reach-in Glass Door Refrigerator										115	1	1/48	3.8			X	5-15P	48"	D14	
D15	1	Smart Stone Soda-Ice Counter																			D15	
D16	1	Soda/Ice Dispenser							3/4" & 1"			115	1		4.4			X	5-15P	18"	D16	
D17	1	Ice Machine					3/8"		3/4"			208-230	1		11.0			X	6-15P	48"	D17	
D18	1	Reach-in Glass Door Refrigerator										115	1	1/48	3.8			X	5-15P	48"	D18	
D19	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	D19	
D20	1	Portable Sneeze Guard																			D20	
D21	1	Spare Number																			D21	
D22	1	Spare Number																			D22	
D23	1	Spare Number																			D23	
D24	1	Portable Sneeze Guard																			D24	
D25	1	Bussing Station							2"												D25	
D26	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	D26	
D27	1	Portable Sneeze Guard																			D27	
D28	1	Portable Sneeze Guard																			D28	
D29	1	Smartstone Frost Top Dessert Counter										(2) 120	1		(2) 20.0			X	5-20P	18"	D29	EC - 120V/20.0amp power outlet strip.
D30	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	D30	
D31	1	Spare Number																			D31	
D32	1	Spare Number																			D32	
D33	1	Spare Number																			D33	
D34	1	Portable Sneeze Guard																			D34	
D35	1	Portable Sneeze Guard																			D35	
D36	1	Exhaust Hood			0.148"							120	1		15.0		X			VFY	D36	EC - Interconnect Lights with Power & Switch
D37	1	Bussing Station							2"												D37	
D38	1	Fire Suppression System										120	1		15.0		X			108"	D38	Connect to Building Alarm System.

Equipment Utility Schedule North Bar

vv	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA|PConfig	Electrical Height		
E1	1	Bar																			E1	
E2	1	Back Bar Counter																			E2	
E3	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	E3	
E4	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	E4	
E5	1	Remote Back Bar 4-Door Refrigerator																		16"	E5	
E6	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	E6	
E7	1	Back Bar Refrigerator										120	1	1/4	4.2			X	5-15P	18"	E7	
E8	1	Service Station Ice Chest							1/2"												E8	
E9	1	Soda Gun Assembly																			E9	
E10	1	Underbar Trash Bin																			E10	
E11	1	Spare Number																			E11	
E12	1	Spare Number																			E12	
E13	1	Spare Number																			E13	
E14	1	P.O.S. System										120	1		6.0			X	5-15P	18"	E14	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
E15	1	12" Liquor Rack																			E15	
E16	1	Soda Gun Assembly																			E16	
E17	1	Speed Rail/ Rack																			E17	
E18	1	Ice Bin							1/2"												E18	
E19	1	Draft Beer Dispensing Tower																			E19	
E20	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	E20	
E21	1	Spare Number																			E21	
E22	1	Spare Number																			E22	
E23	1	Spare Number																			E23	
E24	1	Underbar Trash Bin																			E24	
E25	1	12" Liquor Rack																			E25	
E26	1	Soda Gun Assembly																			E26	
E27	1	P.O.S. System										120	1		6.0			X	5-15P	18"	E27	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
E28	1	Ice Bin							1/2"												E28	
E29	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	E29	
E30	1	Underbar Trash Bin																			E30	
E31	1	Speed Rail/ Rack																			E31	
E32	1	Spare Number																			E32	
E33	1	Spare Number																			E33	
E34	1	12" Liquor Rack																			E34	
E35	1	P.O.S. System										120	1		6.0			X	5-15P	18"	E35	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
E36	1	Soda Gun Assembly																			E36	
E38	1	Ice Bin							1/2"												E38	
E39	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	E39	
E40	1	Underbar Trash Bin																			E40	
E41	1	Speed Rail/ Rack																			E41	
E42	1	Spare Number																			E42	
E43	1	Spare Number																			E43	
E44	1	Draft Beer Dispensing Tower																			E44	
E45	1	12" Liquor Rack																			E45	
E46	1	Soda Gun Assembly																			E46	
E47	1	Ice Bin							1/2"												E47	
E48	1	Speed Rail/ Rack																			E48	
E49	1	P.O.S. System										120	1		6.0			X	5-15P	18"	E49	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
E50	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	E50	
E51	1	Spare Number																			E51	
E52	1	Spare Number																			E52	
E53	1	Spare Number																			E53	
E54	1	Glasswasher				1/2"			1"			115	1		16.0		X			18"	E54	
E55	1	Draft Beer Dispensing Tower																			E55	
E56	1	Drainboard							1-1/2"												E56	
E57	1	Underbar Trash Bin																			E57	
E58	1	12" Liquor Rack																			E58	
E59	1	Soda Gun Assembly																			E59	
E60	1	P.O.S. System										120	1		6.0			X	5-15P	18"	E60	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
E61	1	Spare Number																			E61	
E62	1	Spare Number																			E62	
E63	1	Speed Rail/ Rack																			E63	
E64	1	Ice Bin							1/2"												E64	
E65	1	Underbar Storage with Handsink				3/8"	3/8"		1-1/2"			120	1		2.0			X	5-15P	18"	E65	
E66	1	Draft Beer Dispensing Tower																			E66	



XL CENTER

CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

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NO.	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE CONSTRUCTION OR FABRICATION.
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XL CENTER

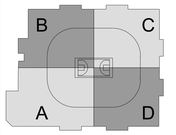
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL SCHEDULES IV - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-013.E

Equipment Utility Schedule Lounges

vv	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA\PConfig	Electrical Height		
H1	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H1	
H2	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H2	
H3	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H3	
H4	1	Portable Sneeze Guard																			H4	
H5	1	Portable Sneeze Guard																			H5	
H6	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H6	
H7	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H7	
H8	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H8	
H9	1	Portable Sneeze Guard																			H9	
H10	1	Portable Sneeze Guard																			H10	
H11	1	Spare Number																			H11	
H12	1	Spare Number																			H12	
H13	1	Spare Number																			H13	
H14	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H14	
H15	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H15	
H16	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H16	
H17	1	Portable Sneeze Guard																			H17	
H18	1	Portable Sneeze Guard																			H18	
H19	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H19	
H20	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H20	
H21	1	Spare Number																			H21	
H22	1	Spare Number																			H22	
H23	1	Spare Number																			H23	
H24	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H24	
H25	1	Portable Sneeze Guard																			H25	
H26	1	Portable Sneeze Guard																			H26	
H27	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H27	
H28	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H28	
H29	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H29	
H30	1	Portable Sneeze Guard																			H30	
H31	1	Spare Number																			H31	
H32	1	Spare Number																			H32	
H33	1	Spare Number																			H33	
H34	1	Portable Sneeze Guard																			H34	
H35	1	Refrigerator - Overlay Ready										115	1		2.3			X	5-15P	8"	H35	
H36	1	Dual Temp Wine Refrigerator										115	1	1/6	2.6			X	5-15P	8"	H36	
H37	1	Smartstone Buffet Table										(2) 120	1		(2) 20.0			X	5-15P	18"	H37	
H38	1	Portable Sneeze Guard																			H38	
H39	1	Portable Sneeze Guard																			H39	



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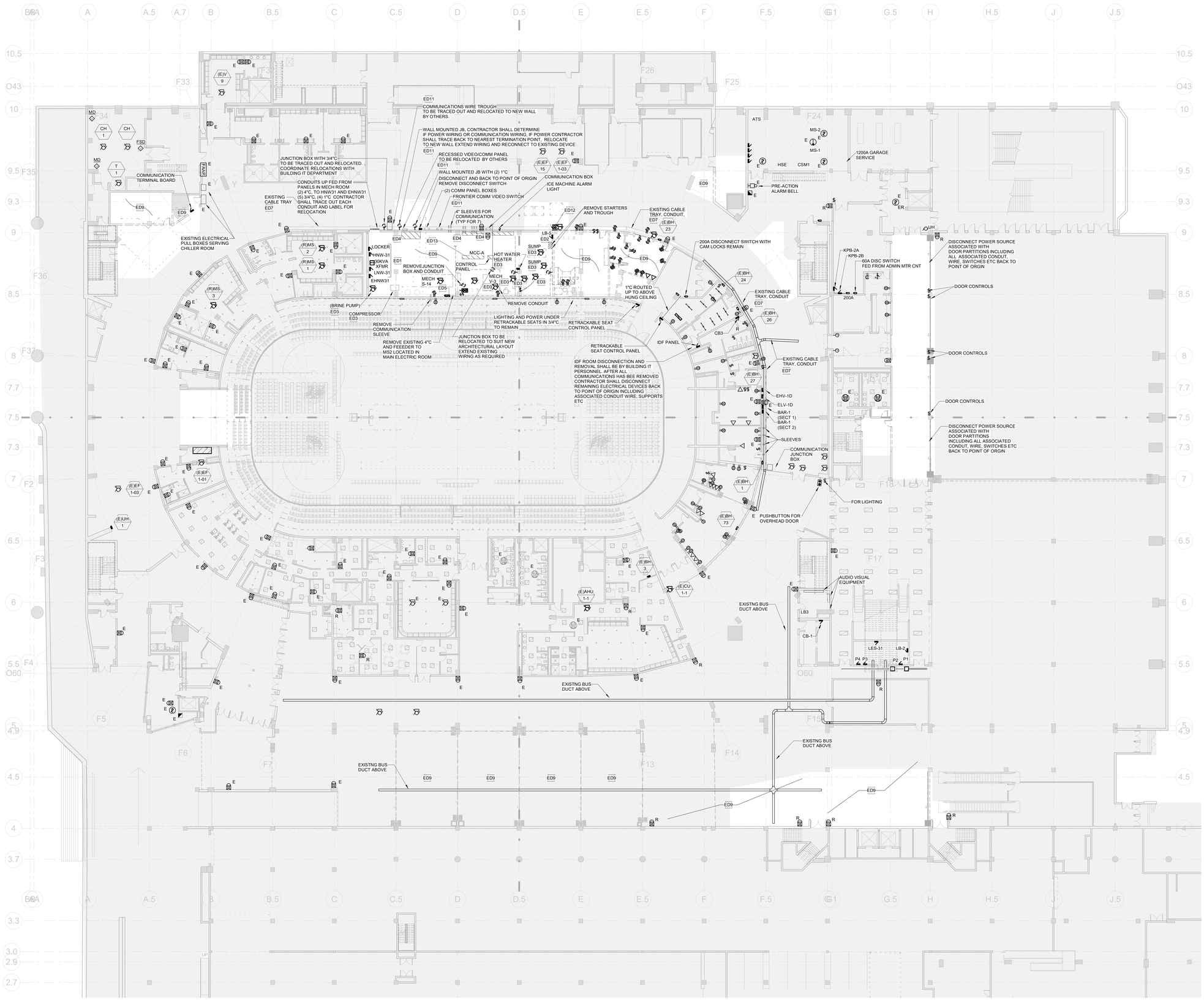
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL SCHEDULES V - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-014.E



1 ELECTRICAL DEMO PLAN - LEVEL 31 - ENABLING
1/16" = 1'-0"

GENERAL NOTES:

1. PRIOR TO BID, CONTRACTOR SHALL VERIFY ALL WORK ASSOCIATED WITH EXISTING CONDITIONS TO DETERMINE NECESSARY WORK. ANY DISCREPANCIES OBSERVED ON SITE SHALL BE BROUGHT UP TO ARCHITECT'S AND ENGINEER'S ATTENTION PRIOR TO BID.
2. MAINTAIN CONTINUITY OF CIRCUITRY. FOR ALL EQUIPMENT THAT IS TO REMAIN PROVIDE ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION.
3. ALL DEVICES, FIXTURES, AND EQUIPMENT INDICATED TO BE RELOCATED SHALL INCLUDE ALL ASSOCIATED CONDUIT WIRE ETC.
4. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION INFORMATION INCLUDING AREAS TO BE DEMOLISHED.
5. REFER TO MECHANICAL, PLUMBING, AND SPRINKLER DRAWINGS FOR ADDITIONAL INFORMATION ON MECHANICAL EQUIPMENT TO BE REMOVED.
6. ALL EXISTING SMOKE DETECTORS SHALL REMAIN OPERATIONAL DURING DEMOLITION AND CONSTRUCTION. REMOVE SMOKE DETECTORS FROM CEILING AND PROVIDE TEMPORARY SUPPORTS AND ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION. DISCONNECT AND REMOVE DETECTORS ONCE NEW DETECTORS ARE READY FOR INSTALLATION.
7. ALL WORK AFFECTING BUILDING SYSTEM OPERATION SHALL BE COORDINATED WITH BUILDING ENGINEERING.
8. PROVIDE REMOVAL AND REINSTALLATION OF EXISTING CEILINGS FOR THE REQUIRED WORK. REPLACE ALL DAMAGED TILES AND PROVIDE PATCHING AND PAINTING AS REQUIRED.
9. PROJECT SHALL BE COMPLETED IN PHASES, PER ARCHITECTURAL PHASING PLAN. COORDINATE ALL DEMOLITION WITH THE PHASING PLANS AND PROVIDE TEMPORARY LIGHTING, SWITCHING, EXIT SIGNS, CIRCUITING, ETC. AS REQUIRED.
10. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
11. MODIFY FEEDER TO ALL MECHANICAL EQUIPMENT RECEIVING NEW LOCAL STARTER, TO INTERPOSE STARTER INTO FEEDER CIRCUIT. LOCATE STARTER IN SIGHT OF MOTOR, OR AT MOTOR.

KEYNOTES

ED1	EXISTING PANELS AND TRANSFORMER TO BE DISCONNECTED FROM POWER SOURCE AND RELOCATED. PRIOR TO DISCONNECTION CONTRACTOR SHALL LABEL ALL BRANCH CIRCUIT WIRING SO AS TO RECONNECT TO SAME BRANCH CIRCUIT NUMBER PRIOR TO DISCONNECTION MAINTAIN AND PROTECT FEEDERS AND BRANCH CIRCUITRY FOR RECONNECTION. REFER TO CONSTRUCTION PLAN FOR NEW LOCATION.
ED2	EXISTING PANEL SHALL BE RELOCATED AND REPLACED WITH NEW, EXISTING PANEL SHAL BE RETURNED TO OWNER. PRIOR TO REMOVAL CONTRACTOR SHALL TRACE OUT ALL BRANCH CIRCUIT WIRING SO AS TO RECONNECT TO SAME BRANCH CIRCUIT NUMBER IN NEW PANEL. DISCONNECT AND REMOVE ASSOCIATED CONDUIT AND FEEDER FROM OVERCURRENT DEVICE IN SWITCHBOARD MS-2 LOCATED IN MAIN ELECTRIC ROOM. CUT BACK CONDUIT AND WIRE 2" BELOW FINISHED FLOOR AND REPAIR AS REQUIRED TO MATCH EXISTING FLOOR FINISH.
ED3	DISCONNECT AND REMOVE ELECTRICAL POWER SOURCE SERVING MECHANICAL EQUIPMENT INCLUDING ALL ASSOCIATED STARTERS, CONTROLS, CONDUIT, WIRE SUPPORTS ETC BACK TO POINT OF ORIGIN. COORDINATE REMOVALS AND DISCONNECTION WITH MECHANICAL/PLUMBING CONTRACTOR
ED4	EXISTING COMMUNICATIONS EQUIPMENT TO BE REMOVED BY OTHERS. AFTER ALL EQUIPMENT IS REMOVED CONTRACTOR SHALL DISCONNECT POWER SOURCE AND REMOVE BACK TO POINT OF ORIGIN INCLUDING ALL ASSOCIATED CONDUIT, WIRE, SUPPORTS ETC.
ED5	DISCONNECT AND REMOVE POWER SOURCE TO 600A SHOW POWER SWITCH, REMOVALS SHALL INCLUDE ALL ASSOCIATED CONDUIT, WIRE, SUPPORTS ETC CUT FEEDER BACK TO MAIN CONCOURSE AND PROVIDE NEW SPLICE BOX AT CELING LEVEL. PROVIDE NEW SPLICE TO EXISTING FEERDER AND ROUTE TO NEW SHOW POWER SWITCH LOCATED IN ROOM 1156. ROUTING SALL BE COORDINATED IN FIELD PROVIDE ADEQUATE PROTECTION AS REQUIRED.
ED7	SUPPORTING DEVICES FOR EXISTING CONDUITS, WIRE, RACEWAYS AND CABLE TRAYS ROUTED ALONG EXISTING WALL SHALL BE REMOVED FROM WALL SUPPORT AND BE RE-SUPPORTED FROM STRUCTURE ABOVE. (APPROXIMATELY (6) 4"C (6) 3"C (8) 1"C, (8) 3/4"C DATA/COMMUNICATION, SECURITY AND AUDIO/VISUAL WIRING) COORDINATE SUPPORTS FOR ALL SYSTEMS WITH STRUCTURAL ENGINEER.
ED9	DISCONNECT AND REMOVE THE FOLLOWING IN AREA OF WORK, INCLUDING CONDUIT AND WIRING BACK TO POINT OF ORIGIN, UNLESS OTHERWISE NOTED. ALL DEVICES SHALL BE REMOVED ON EXISTING TO REMAIN WALLS INDICATED IN DEMOLITION SCOPE, UNO. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL EXISTING BRANCH CIRCUITS TO REMAIN AFFECTED BY REMOVALS: 1. RECEPTACLES, JUNCTION BOXES, LOW VOLTAGE AND POWER DEVICES, UNLESS OTHERWISE NOTED. 2. LIGHT FIXTURES AND ASSOCIATED SWITCHING AND/OR CONTROLS. PRIOR TO REMOVALS CONTRACTOR SHALL TRACE OUT NORMAL AND EMERGENCY LIGHTING BRANCH CIRCUIT AND LABEL FOR REUSE. PROTECT AND MAINTAIN EXISTING EMERGENCY CIRCUITS SERVING AREA NOT IS SCOPE OF WORK. 3. EXIT SIGNS. PROTECT AND MAINTAIN (1) EXISTING EMERGENCY CIRCUIT SERVING FLOOR FOR REUSE DURING CONSTRUCTION. 4. FIRE ALARM DEVICES 5. DUCT DETECTORS AND REMOTE LEDS FOR UNITS AND DUCTWORK BEING DEMOLISHED.
ED11	EXISTING VIDEO/COMMUNICATION DEVICE. CONTRACTOR SHALL TRACE CUT POWER SOURCE POINT OF ORIGIN AND LABEL. DISCONNECT AND RELOCATE TO NEW WALL. ANY ASSOCIATED COMMUNICATIONS WIRING SHALL BE RELOCATED BY BUILDING IT PERSONEL.
ED12	DISCONNECT AND REMOVE SECURITY, ELECTRICAL DEVICES, OH DOOR CONTROLS AND POWER SOURCE TO OH DOOR. REMOVALS SHALL INCLUDE ALL ASSOCIATED CONDUIT, WIRE ETC BACK TO POINT OF ORIGIN. FOR ADDITIONAL REMOVAL INFORMATION REFER TO ARCHITECTURAL DRAWINGS.
ED13	EXISTING MOTOR CONTROL CENTER TO BE DEMOLISHED. ALL WIRING ROUTED IN FLOOR SHALL BE CUT BACK TO 2" BELOW FINISHED FLOOR AND CAPPED. REPAIR FLOOR AS REQUIRED TO BE AT SAME LEVEL AS EXISTING AND FLOOR FINISH MATCHES EXISTING.

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REVISIONS/ ISSUES

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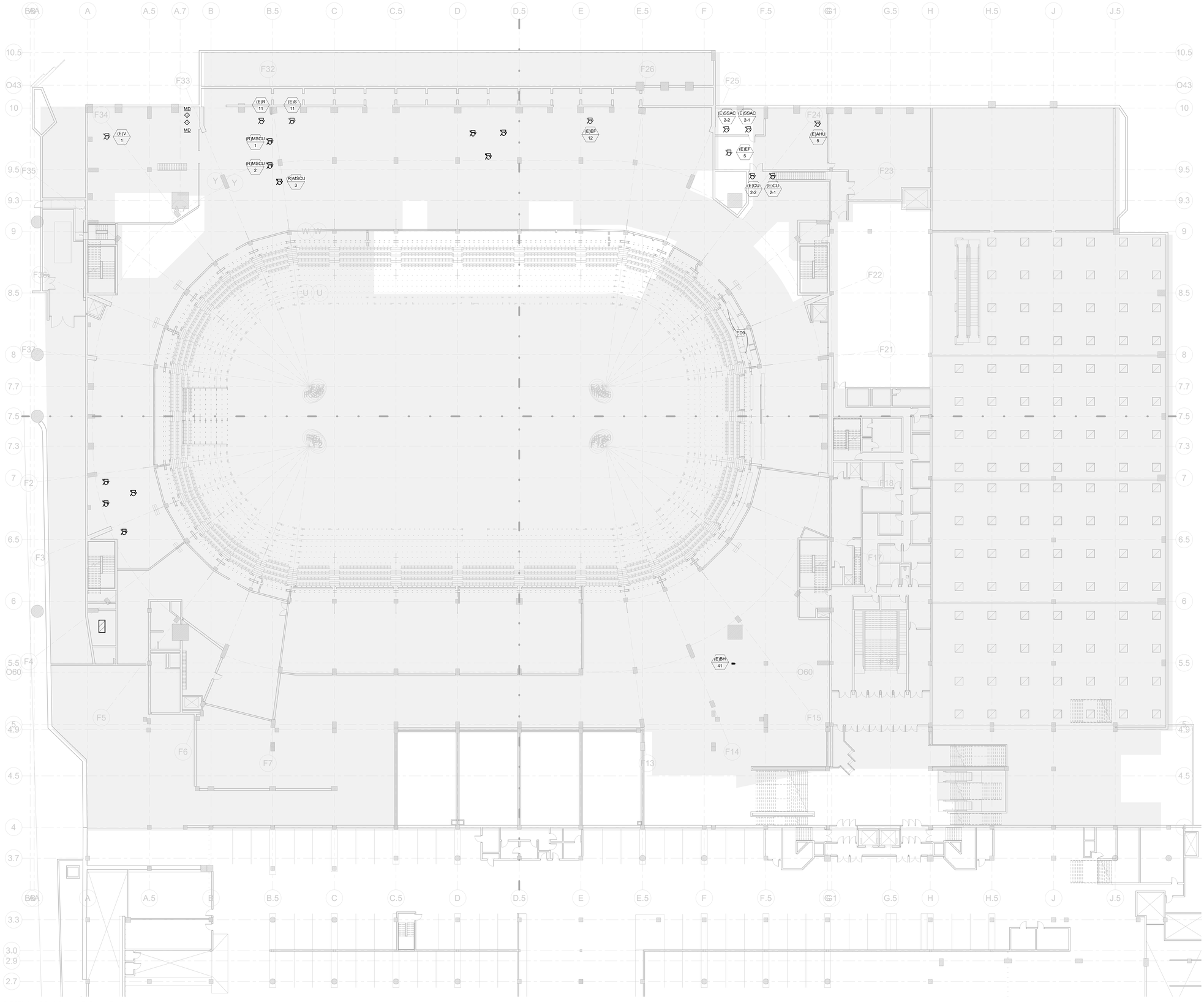
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL DEMO PLAN - LEVEL 31 - ENABLING

SCALE 1/16" = 1'-0"
PROJ. NO. 1605
DWG. NO. E-101.E



1 ELECTRICAL DEMO PLAN - LEVEL 48 - ENABLING
1/16" = 1'-0"

GENERAL NOTES:

1. PRIOR TO BID, CONTRACTOR SHALL VERIFY ALL WORK ASSOCIATED WITH EXISTING CONDITIONS TO DETERMINE NECESSARY WORK. ANY DISCREPANCIES OBSERVED ON SITE SHALL BE BROUGHT UP TO ARCHITECT'S AND ENGINEER'S ATTENTION PRIOR TO BID.
2. MAINTAIN CONTINUITY OF CIRCUITRY. FOR ALL EQUIPMENT THAT IS TO REMAIN PROVIDE ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION.
3. ALL DEVICES, FIXTURES, AND EQUIPMENT INDICATED TO BE RELOCATED SHALL INCLUDE ALL ASSOCIATED CONDUIT WIRE ETC.
4. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION INFORMATION INCLUDING AREAS TO BE DEMOLISHED.
5. REFER TO MECHANICAL, PLUMBING, AND SPRINKLER DRAWINGS FOR ADDITIONAL INFORMATION ON MECHANICAL EQUIPMENT TO BE REMOVED.
6. ALL EXISTING SMOKE DETECTORS SHALL REMAIN OPERATIONAL DURING DEMOLITION AND CONSTRUCTION. REMOVE SMOKE DETECTORS FROM CEILING AND PROVIDE TEMPORARY SUPPORTS AND ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION. DISCONNECT AND REMOVE DETECTORS ONCE NEW DETECTORS ARE READY FOR INSTALLATION.
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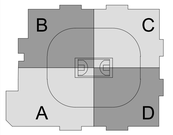
KEYNOTES



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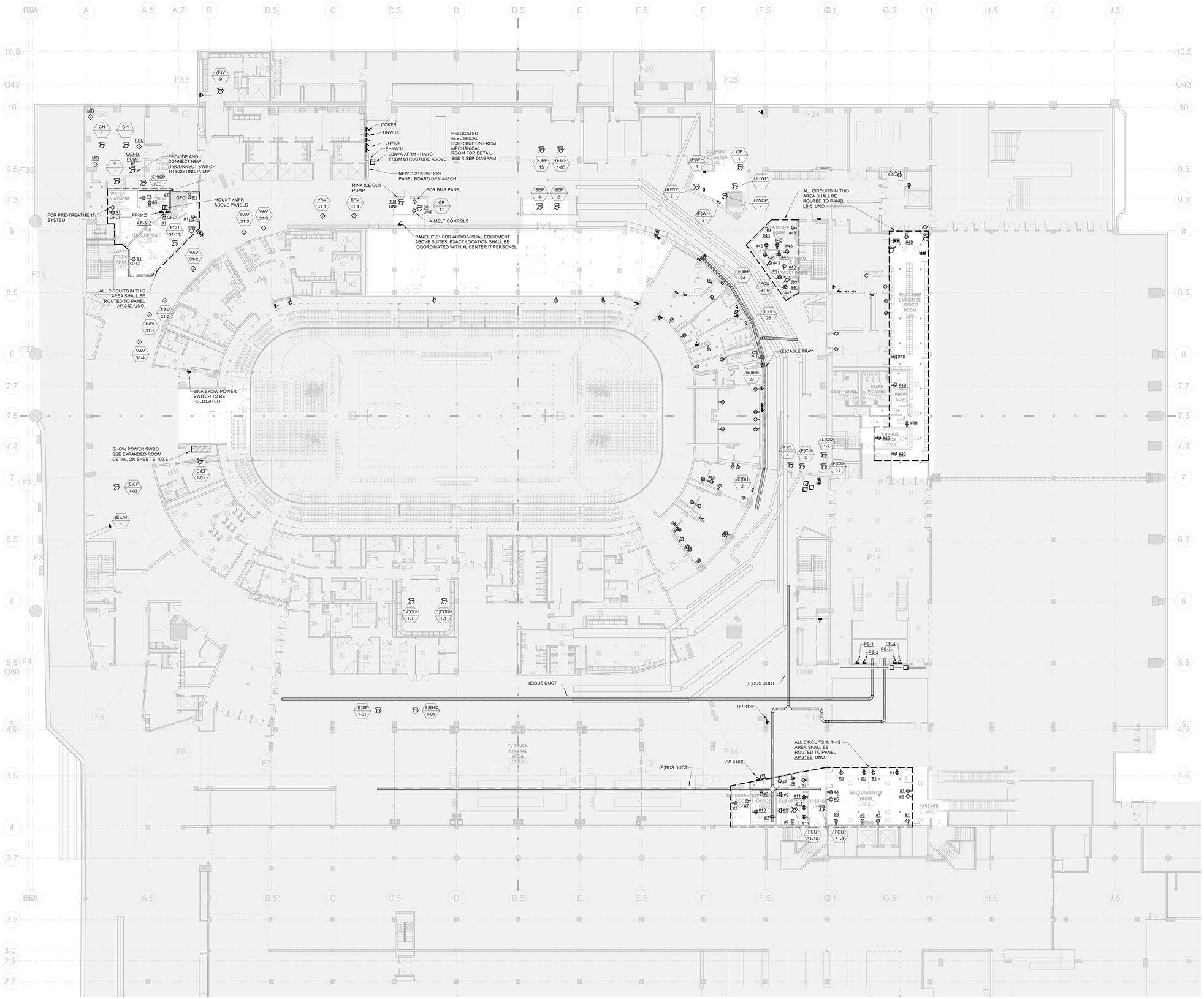
DWG. TITLE
ELECTRICAL DEMO PLAN - LEVEL 48 - ENABLING

SCALE 1/16" = 1'-0"
PROJ. NO. 1605
DWG. NO. E-102.E



GENERAL NOTES:

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3. ALL DEVICES AND EQUIPMENT INDICATED WITH 'R' OR 'RELOCATE' ARE EXISTING TO BE RELOCATED.
4. THE WORDS "REPLACE" AND "REPLACEMENT" INDICATE A REQUIREMENT TO DEMOLISH OLD AND REPLACE WITH NEW.
5. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES REFER TO ARCHITECTURAL DRAWINGS.
6. REFER TO ARCHITECTURAL DRAWINGS FOR EQUIPMENT LOCATIONS AND ADDITIONAL INFORMATION.
7. PROVIDE (1) NEUTRAL FOR EACH HOT AND (1) COMMON GROUND FOR EACH HOMERUN.
8. UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WIRING FOR BRANCH CIRCUITS SHALL BE A MINIMUM NO. 12 AWG IN 3/4" CONDUIT. PROTECTED BY 20 AMPERES CIRCUIT BREAKERS. IF DISTANCE FROM PANEL TO FIRST OUTLET IS 75 FEET OR GREATER FOR 120-VOLT CIRCUITS, AND 125 FEET OR GREATER FOR 277-VOLT CIRCUITS, NO. 10 AWG SHALL BE INSTALLED THROUGHOUT THE CIRCUIT, UNLESS NOTED OTHERWISE. SIZE WIRE AS REQUIRED TO MAINTAIN EQUIVALENT VOLTAGE DROP FOR OTHER VOLTAGES AND PHASES AND FOR LONGER CIRCUIT LENGTHS.
9. ALL MECHANICAL/PLUMBING EQUIPMENT IS SHOWN FOR ELECTRICAL CIRCUITING INFORMATION ONLY. EXACT LOCATIONS AND QUANTITIES OF MECHANICAL/PLUMBING EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL/PLUMBING DRAWINGS.
10. EXACT LOCATIONS AND QUANTITIES OF FIRE/SMOKE DAMPERS SHALL BE COORDINATED WITH MECHANICAL DRAWINGS.
11. ALL EXISTING POWER RECEPTACLES AND DATA OUTLETS SHALL BE PROVIDED WITH NEW COVERPLATES TO MATCH NEW OUTLETS.
12. ALL EXPOSED CONDUIT SHALL BE ROUTED PERPENDICULAR, PARALLEL, AND TIGHT TO COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH ENGINEER AND ARCHITECT PRIOR TO INSTALLATION. NO ADDITIONAL COST TO OWNER WILL BE ALLOWED FOR RELOCATING CONDUIT DUE TO THE LACK OF COORDINATION WITH ARCHITECT.
13. ALL BACK BOXES SHALL BE FLUSH MOUNTED UNLESS NOTED OTHERWISE. ALL VERTICAL SECTIONS OF CONDUIT SHALL BE CONCEALED. CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND BACK BOXES IN CONCRETE, MASONRY AND GYP. WALLS.
14. CIRCUIT NUMBERS FOR CIRCUITS ORIGINATING FROM EXISTING PANELS ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY SPARE BREAKERS IN THE FIELD.
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19. REFER TO POWER ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
20. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
21. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
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KEYNOTES

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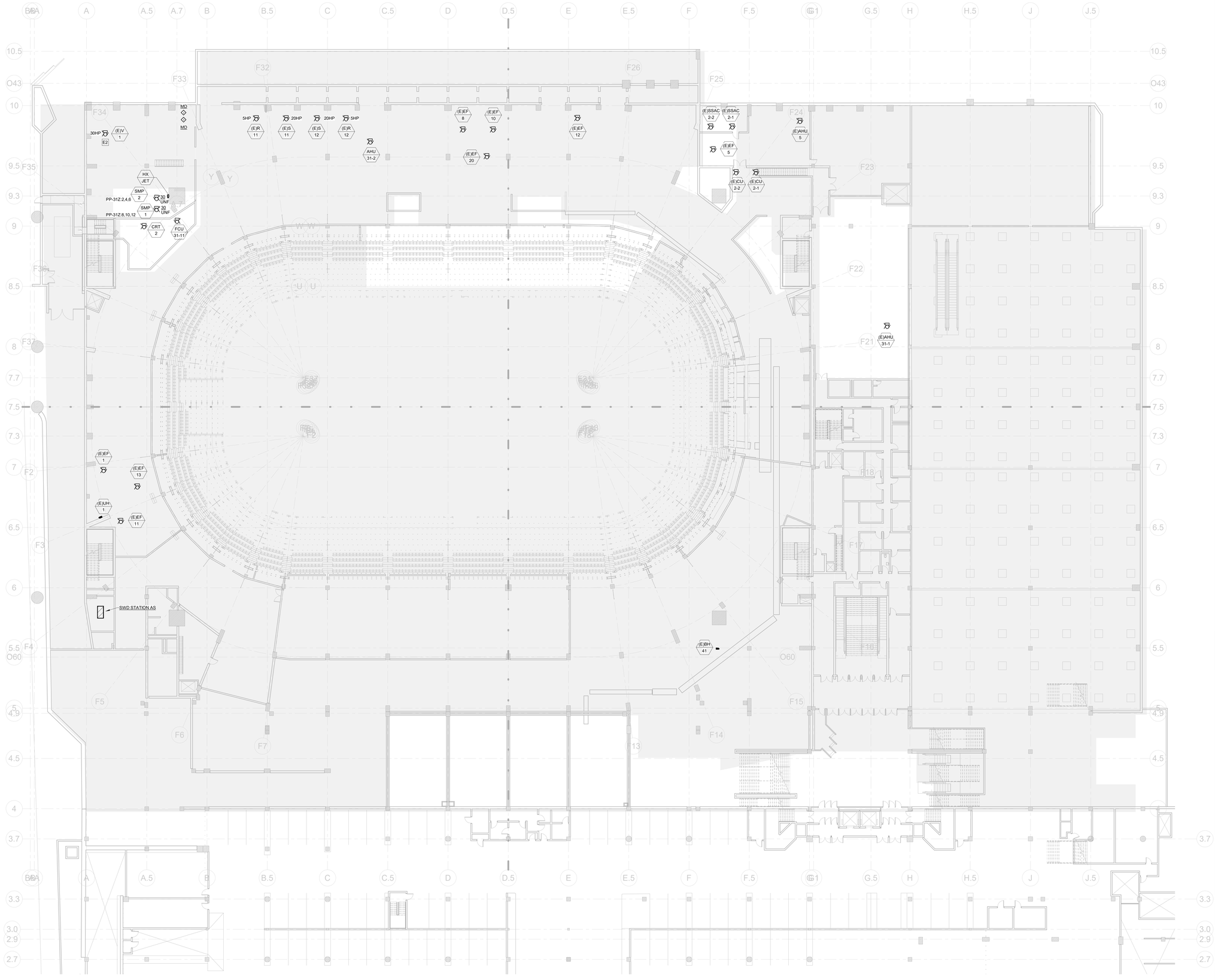
DWG. TITLE
ELECTRICAL PLAN - LEVEL 31 - ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-201.E



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9. ALL MECHANICAL/PLUMBING EQUIPMENT IS SHOWN FOR ELECTRICAL CIRCUITING INFORMATION ONLY. EXACT LOCATIONS AND QUANTITIES OF MECHANICAL/PLUMBING EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL/PLUMBING DRAWINGS.
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KEYNOTES

E2	PROVIDE AND CONNECT NEW VFD TO EXISTING MOTOR. REFER TO MECHANICAL DRAWINGS FOR INFORMATION ASSOCIATED WITH BMS SYSTEM CONNECTIONS.

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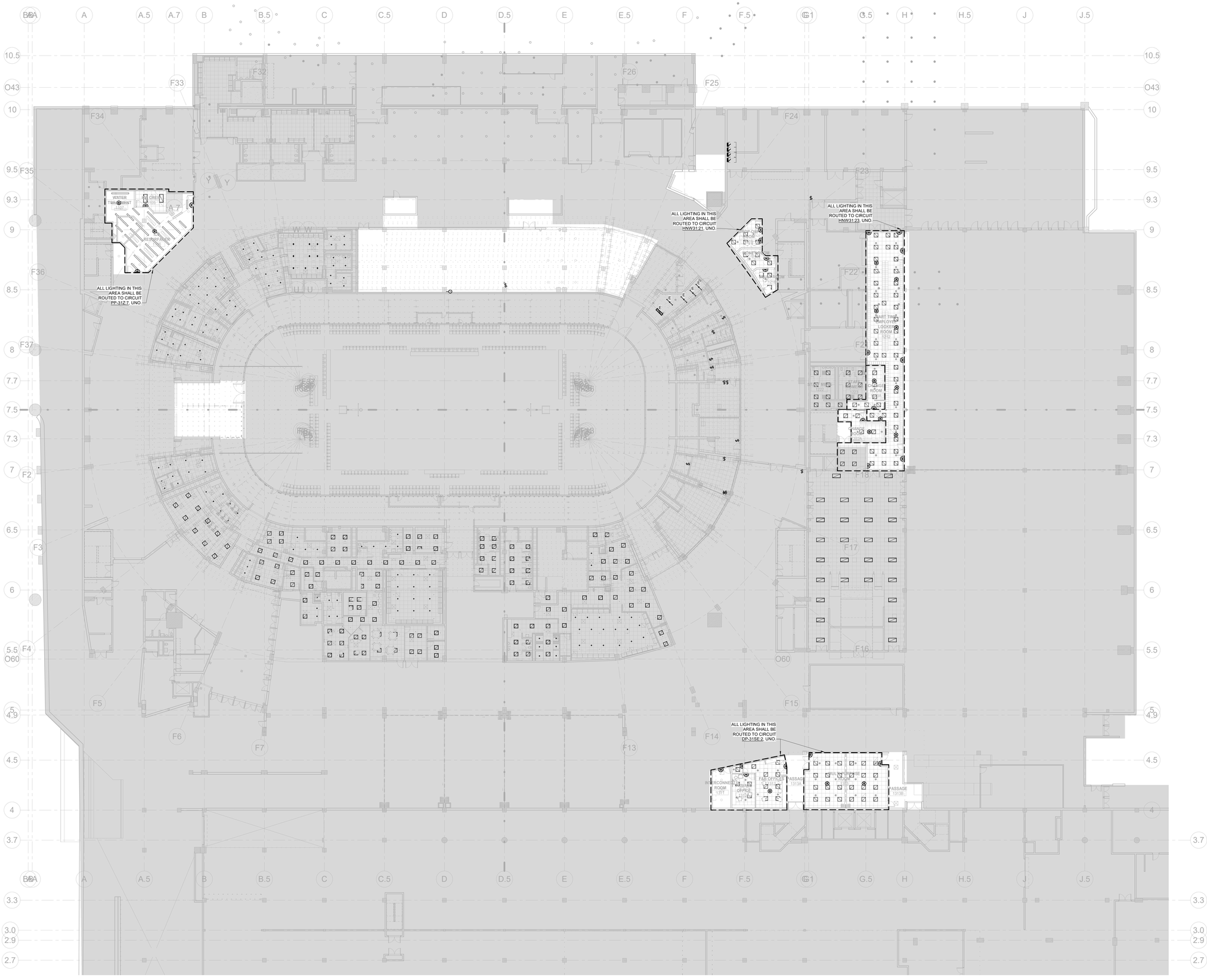
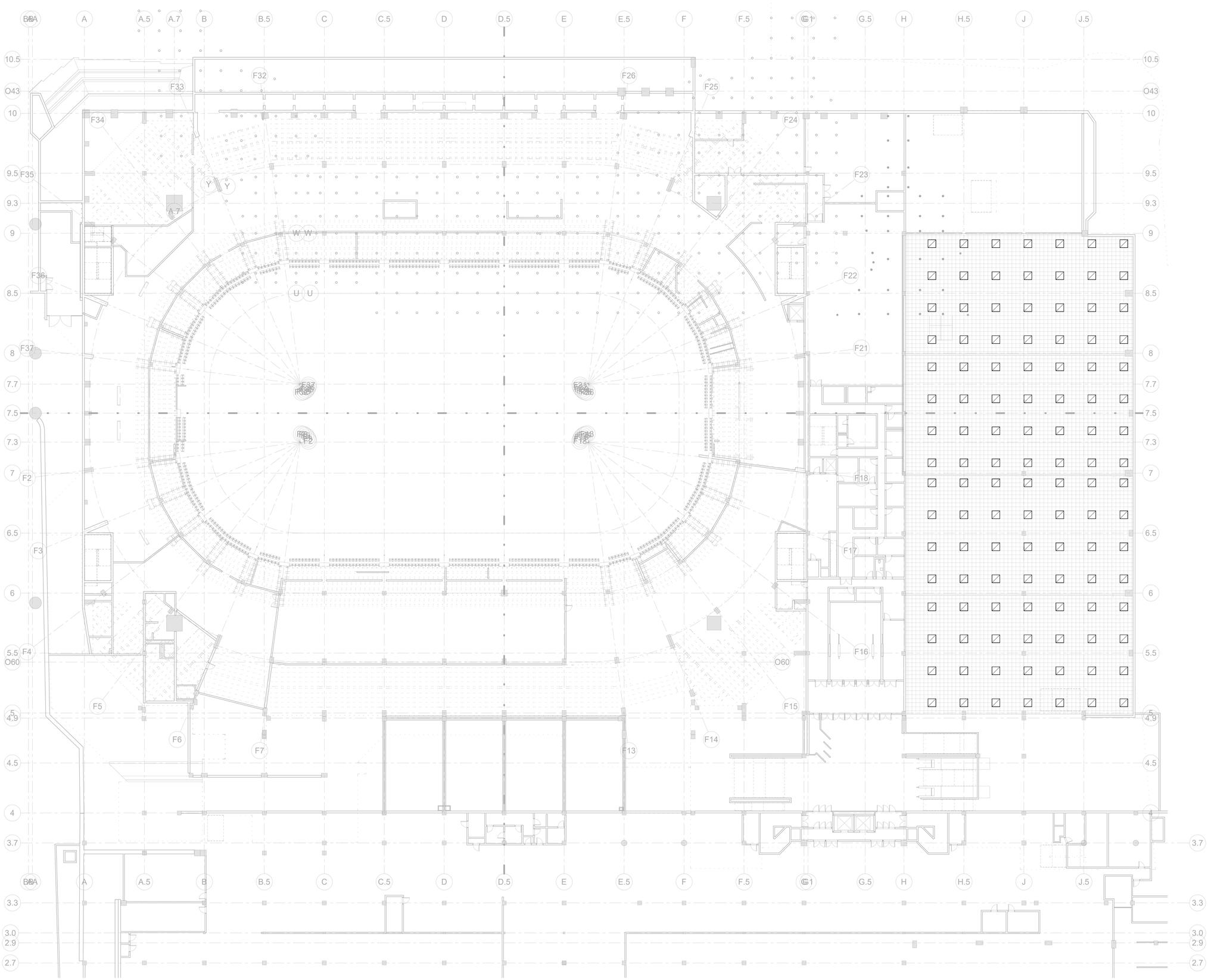
DWG. TITLE
ELECTRICAL PLAN - LEVEL 48 - ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-202.E


ALL LIGHTING IN THIS AREA SHALL BE ROUTED TO CIRCUIT DP-317-7, UNO.
ALL LIGHTING IN THIS AREA SHALL BE ROUTED TO CIRCUIT HNW31-21, UNO.
ALL LIGHTING IN THIS AREA SHALL BE ROUTED TO CIRCUIT HNW31-23, UNO.
ALL LIGHTING IN THIS AREA SHALL BE ROUTED TO CIRCUIT DP-31SE-2, UNO.
WATER TREATMENT 1407
A.7
RESTROOM
INTERCONNECTION ROOM 1311
FAR OFFICE 1313A
PASSAGE 1313C
PASSAGE 1313B
LOCKER ROOM
LOCKER ROOM
LOCKER ROOM



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4. REFER TO LIGHT FIXTURE SCHEDULE FOR LIGHT FIXTURE INFORMATION.
5. REFER TO ARCHITECTURAL DRAWINGS FOR LIGHT FIXTURE SCHEDULE.
6. CONTRACTOR SHALL COORDINATE VOLTAGES FOR ALL LIGHT FIXTURES PRIOR TO INSTALLATION AND PROVIDE FOR ALL LOW VOLTAGE TRANSFORMERS AS REQUIRED.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR ALL FIXTURE LOCATIONS WITHIN A CEILING OR CEILING GRID. FOR AREAS WITHOUT CEILINGS, FIXTURE LOCATIONS ARE DIAGRAMMATIC. THE INTENT IS TO ALIGN, CENTER, OR SPACE FIXTURES BETWEEN ARCHITECTURAL AND STRUCTURAL ELEMENTS.
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9. CONNECT SWITCHES TO LIGHTING FIXTURES. PROVIDE CONTROL OF FIXTURES AS INDICATED BY SWITCHING LETTERS.
10. ALL FLUORESCENT FIXTURES TO HAVE HIGH FREQUENCY ELECTRONIC BALLASTS OR FIXTURES SHALL BE TANDEM WIRED.
11. ALL EXISTING FIXTURES SHALL BE CLEANED, RELAMPED, AND OR REPAIRED AS REQUIRED FOR PROPER OPERATION.
12. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR PLACEMENT OF FIXTURES IN MECHANICAL ROOMS TO PROVIDE UNIFORM LIGHT LEVELS. PROVIDE 40% OF ALL FIXTURES ON EMERGENCY POWER. PROVIDE MOUNTING HARDWARE AS REQUIRED.
13. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXACT FIXTURE LENGTHS FOR ALL CONTINUOUS LINEAR FIXTURES. FOR COVES, PROVIDE CONTINUOUS ILLUMINATION WITH 6" MAXIMUM DISTANCE BETWEEN END FIXTURE AND WALL.
14. ALL EXPOSED CONDUIT SHALL BE ROUTED PERPENDICULAR, PARALLEL, AND TIGHT TO COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH ENGINEER AND ARCHITECT PRIOR TO INSTALLATION. NO ADDITIONAL COST TO OWNER WILL BE ALLOWED FOR RELOCATING CONDUIT DUE TO THE LACK OF COORDINATION WITH ARCHITECT.
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19. REFER TO E-200.E SERIES FOR PANEL LOCATIONS.
20. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
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DATE	12/18/20
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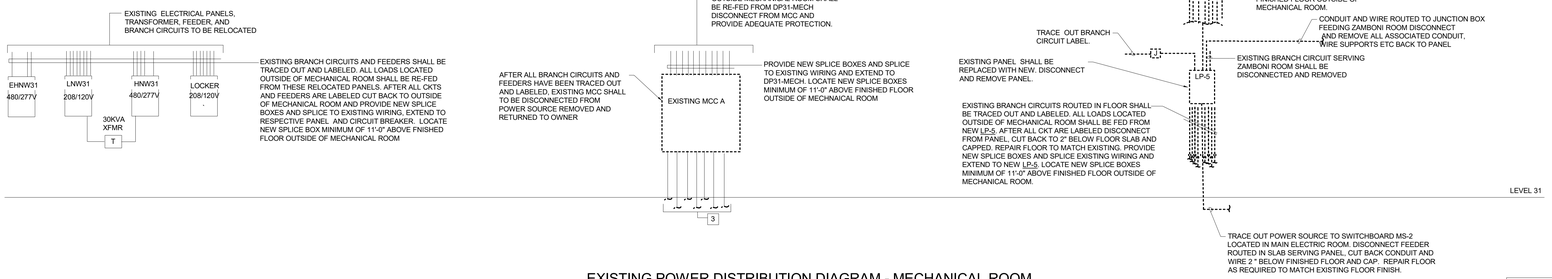
DATE PLOTTED	12/18/2020 6:58:41 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL LIGHTING PLAN - LEVEL 48 - ENABLING

SCALE	1/16" = 1'-0"
PROJ. NO.	1605
DWG. NO.	E-302.E



ALL NEW CONDUIT SHALL BE ROUTED APPROXIMATELY AT 48 LEVEL OR HIGHER. NO CONDUIT SHALL BE ROUTED ANY LOWER THAN THE MAJORITY OF EXISTING CONDUIT.

FEEDER TABLE - CONDUCTORS

			COPPER	ALUMINUM			COPPER	ALUMINUM
Bkr/OCPD	TAG	Sets	PIPE	FDR/PIPE [3W]	TAG	Sets	PIPE	FDR/PIPE [4 W]	FDR/PIPE [4 W]
20	F1	1	3/4"	3#12,#12G	-	-	-	-	-
30	F2	1	3/4"	3#10,#10G	-	-	FA1	1	3/4"	4#12,#12G	-
40	F3	1	3/4"	3#8,#10G	-	-	FA3	1	1"	4#8,#10G	-
50	F4	1	1"	3#6,#10G	-	-	FA4	1	1"	4#6,#10G	-
50	-	-	-	-	-	-	FA4A	1	1-1/4"	4#6,#8G	-
60	F5	1	1-1/4"	3#4,#8G	-	-	FA5	1	1-1/4"	4#4,#8G	-
70	F5	1	1-1/4"	3#4,#8G	-	-	FA6	1	1-1/4"	4#4,#8G	-
80	F6	1	1-1/4"	3#3,#8G	-	-	FA8	1	1-1/4"	4#3,#8G	-
90	F7	1	1-1/4"	3#2,#8G	-	-	FA7	1	1-1/2"	4#2,#8G	-
100	F8	1	1-1/2"	3#1,#8G	-	-	FA8	1	2"	4#1,#8G	-
100	-	-	-	-	-	-	FA8A	1	2"	4#1,#8G	-
110	F8A	1	1-1/2"	3#1,#8G	-	-	-	-	-	-	-
125	F9	1	1-1/2"	3#1/0,#8G	-	-	FA9	1	2"	4#1/0,#8G	-
150	F9	1	1-1/2"	3#1/0,#8G	-	-	FA9	1	2"	4#1/0,#8G	-
175	F10	1	2"	3#2/0,#8G	-	-	FA10	1	2"	4#2/0,#8G	-
200	F11	1	2"	3#3/0,#8G	-	-	FA11	1	2-1/2"	4#3/0,#8G	-
225	F12	1	2-1/2"	3#4/0,#4G	3#500,#4G		FA12	1	2-1/2"	4#4/0,#4G	4#500,#4G
250	F13	1	2-1/2"	3#250,#4G	3#350,#4G		FA13	1	3"	4#250,#4G	4#350,#4G
250	-	-	-	-	-	-	FA13A	1	3	4#250,#2G	4#350,#2G
300	F14	1	3"	3#350,#4G	3#500,#4G		FA14	1	3"	4#350,#4G	4#600,#4G
350	F15	1	3"	3#500,#3G	3#700,#3G		FA15	1	3-1/2"	4#500,#3G	4#700,#3G
400	F16	2	2"	3#3/0,#3G	3#250,#2G		FA16	2	2-1/2"	4#3/0,#3G	4#250,#3G
400	-	-	-	-	-	-	FA16A	2	2-1/2"	4#3/0,#1/0G	4#250,#1/0G
400	F16B	1	3"	3#500,#3G	-		FA16B	1	3-1/2"	4#500,#3G	-
400	-	-	-	-	-	-	FA16C	1	4"	4#600,#3G	-
400	-	-	-	-	-	-	FA16D	1	4"	4#600,#1/0G	-
450	F17	2	2-1/2"	3#4/0,#2G	3#500,#2G		FA17	2	2-1/2"	4#4/0,#2G	4#600,#2G
500	F18	2	2-1/2"	3#250,#2G	3#350,#2G		FA18	2	3"	4#250,#2G	4#350,#2G
500	-	-	-	-	-	-	FA18A	2	3"	4#250,#1/0G	4#350,#1/0G
600	F19	2	3"	3#350,#1G	3#500,#1G		FA19	2	3"	4#350,#1G	4#500,#1G
700	F20	2	3"	3#500,#1/0G	3#700,#1/0G		FA20	2	3-1/2"	4#500,#1/0G	4#700,#1/0G
750	F20	3	3"	3#500,#1/0G	3#700,#1/0G		-	-	-	-	-
800	F21	3	3"	3#500,#1/0G	3#600,#1/0G		FA21	3	3"	4#300,#1/0G	4#400,#1/0G
800	-	-	-	-	-	-	FA21A	3	3"	4#300,#2/0G	4#400,#2/0G
800	F21C	2	3-1/2"	3#500,#1/0G	-	-	FA21C	2	4"	4#600,#1/0G	-
1000	F22	3	3"	3#400,#2/0G	3#600,#2/0G		FA22	3	3-1/2"	4#400,#2/0G	4#600,#2/0G
1000	-	-	-	-	-	-	FA22A	3	3-1/2"	4#400,#2/0G	4#600,#2/0G
1200	F23	4	3"	3#350,#3/0G	3#500,#3/0G		FA23	4	3"	4#350,#3/0G	4#500,3/0G
1200	F23C	3	3-1/2"	3#500,#3/0G	-	-	FA23C	3	4"	4#600,#3/0G	-
1600	F24	5	3"	3#400,#4/0G	3#600,#4/0G		FA24	5	3-1/2"	4#400,#4/0G	4#600,#4/0G
1600	-	-	-	-	-	-	FA24A	5	3-1/2"	4#400,#2/0G	4#600,#250G
1600	F24C	4	3-1/2"	3#600,#4/0G	-	-	FA24C	4	4"	4#600,#4/0G	-
2000	F25	6	4"	3#600,#250G	3#600,#250G		FA25	6	3-1/2"	4#600,#250G	4#600,#250G
2000	F25C	5	4"	3#600,#250G	-	-	FA25C	5	4"	4#600,#250G	-
2500	F26	7	3-1/2"	3#500,#350G	3#700,#350G		FA26	7	3-1/2"	4#500,#350G	4#700,#350G
2500	-	-	-	-	-	-	FA26A	7	4"	4#500,#350G	4#700,#350G
2500	F26C	6	4"	3#600,#350G	-	-	FA26C	6	4"	4#600,#350G	-
3000	F27	8	3-1/2"	3#500,#400G	3#700,#400G		FA27	8	4"	4#500,#400G	4#700,#400G
3500	F28	10	3-1/2"	3#500,#500G	3#700,#500G		FA28	10	4"	4#500,#500G	3#700,#500G
3500	F28C	9	4"	3#500,#500G	-	-	FA28C	9	4"	4#600,#500G	-
4000	F29	11	4"	3#500,#500G	3#700,#500G		FA29	11	4"	4#500,#500G	4#700,#500G
4000	F29C	10	4"	3#600,#500G	-	-	FA29C	10	4"	4#600,#500G	-

ALUMINUM FEEDERS SHALL ONLY BE USED WITH NON ROTARY EQUIPMENT (i.e. PANELBOARDS, DIST. BOARDS, ETC.)
ALUMINUM FEEDERS ARE NOT PERMITED TO BE USED WITH MOTORIZED EQUIPMENT.
ALUMINUM FEEDERS SHALL ONLY BE USED WITH OCPDs THAT ARE 225A OR GREATER
ONLY HIGH GRADE ALUMINUM CABLES W/ILL BE ACCEPTED, COMPACT ALUMINUM TYPE SE WITH COMPRESSION FITTINGS.
ALL CONDUCTORS ARE WITH THWN/THWN-WIRE WITH 600EG TERMINATIONS
UP TO #1AWG AND 75DEG FOR LARGER SIZES
ALL ALUMINUM FEEDERS SHALL INCLUDE COPPER EQUIPMENT GROUND CONDUCTORS

EXISTING POWER DISTRIBUTION DIAGRAM - MECHANICAL ROOM

N.T.S.

NOTES:

1. EXISTING ELECTRICAL DISTRIBUTION TO BE RELOCATED. PRIOR TO RELOCATION CONTRACTOR SHALL TRACE OUT EACH BRANCH CIRCUIT AND LABEL FOR REUSE.
2. INTERCEPT EACH CONDUIT/BRANCH CIRCUIT, PROVIDE NEW JUNCTION BOX AND SPLICE NEW AND EXISTING WIRING AND EXTEND AND CONNECT TO NEW RELOCATED PANEL LOCATION. WIRE SIZES SHALL MATCH EXISTING.
3. EXISTING MCC-A TO BE DEMOLISHED. CONTRACTOR SHALL TRACE OUT UNDER GROUND FEEDER BACK TO MAIN ELECTRICAL ROOM AND DISCONNECT FROM POWER SOURCE AND LABEL FOR REUSE. FEEDER ROUTED IN SLAB SHALL BE CUT BACK 2" BELOW FINISHED FLOOR AND CAPPED. REPAIR FLOOR AS REQUIRED TO MATCH EXISTING
4. NOT ALL RISER OFFSETS OR PULL/SPLICE BOXES ARE SHOWN. CONTRACTOR SHALL PROVIDE OFFSETS AND PULL/SPLICE BOXES AS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR DETERMINING FIELD CONDITIONS AND INCLUDING ALL NECESSARY OFFSET COSTS IN THE BID PRICE.
5. CONTRACTOR SHALL ENSURE THAT ALL WALL AND SLAB PENETRATIONS ARE FIRE STOPPED IN ORDER TO MAINTAIN AS A MINIMUM THE FIRE RATING OF THE WALL OR SLAB. REFERENCE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL INFORMATION.
6. ALL FEEDERS SHALL BE COPPER .
7. CONTRACTOR TO NOTE FEEDER SIZES AND MODIFY LUGS AS REQUIRED FOR TERMINATION FOR ALL EXISTING EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL WORK ASSOCIATED WITH EXISTING PANELS TO DETERMINE NECESSARY WORK.
9. PRIOR TO DISCONNECTING AND REMOVING EXISTING CONDUIT, CONTRACTOR SHALL TRACE ASSOCIATED WIRING TO CIRCUIT BREAKER IN PANEL AND LABEL. DISCONNECT WIRE FROM CIRCUIT BREAKER AND CUT BACK ALL ASSOCIATED CONDUIT AND WIRE TO 2" BELOW FLOOR. REPAIR FLOOR TO MATCH EXISTING FINISHED FLOOR.
10. PRIOR TO DISCONNECTING BRANCH CIRCUITS FROM PANEL CONTRACTOR SHALL TRACE OUT EACH CIRCUIT AND LABEL.

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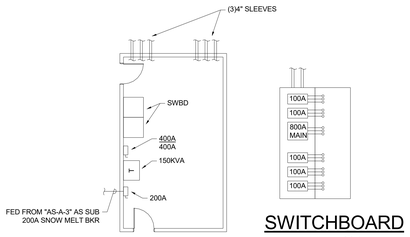
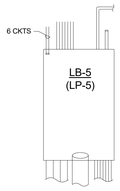


SWITCHBOARD ELEVATION

FOR REFERENCE



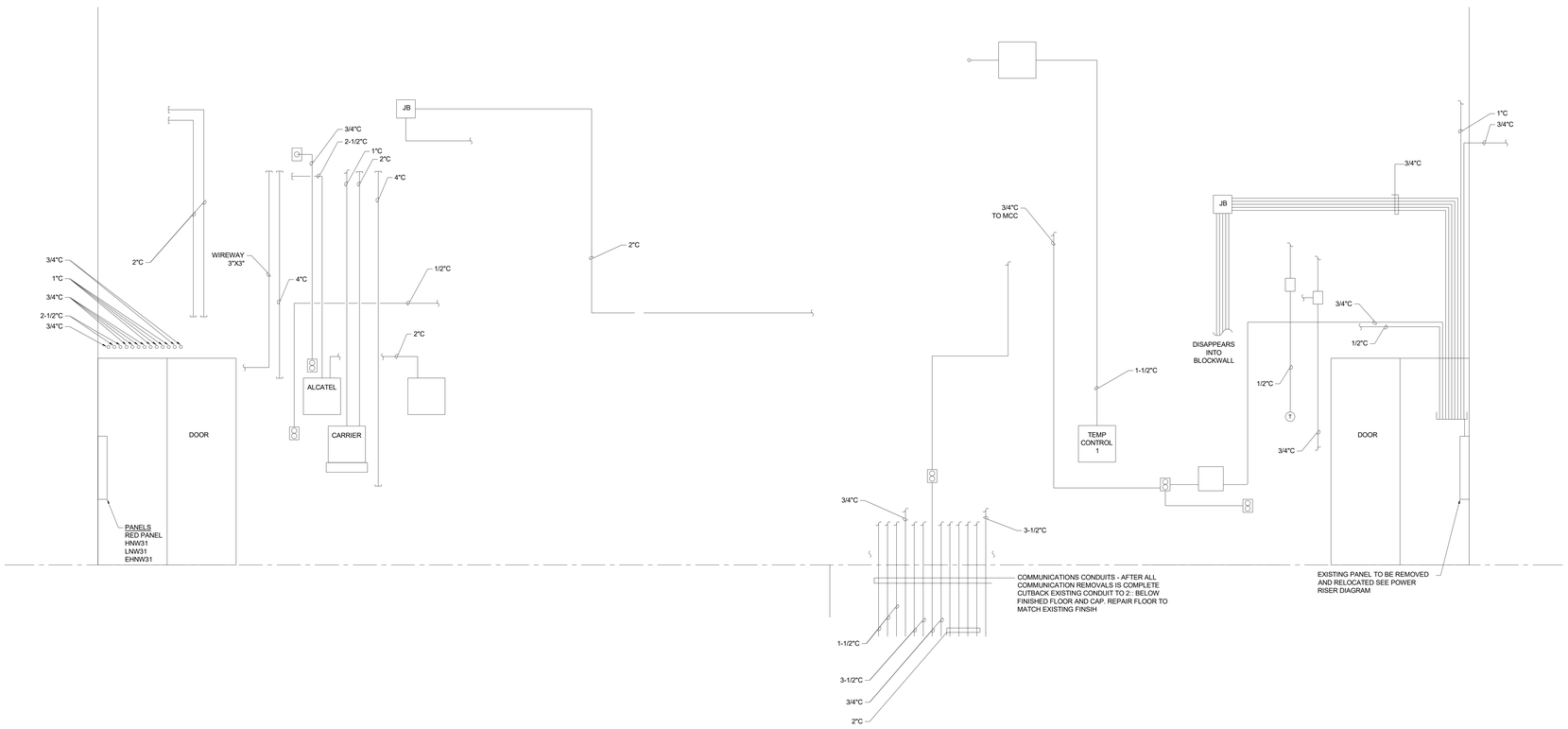
LB-5 (LP-5) ELEVATION

DUPLEX SEWAGE EJECTOR	VISIT. TEAM ELEC HTRS	BRINE PUMP #1	ICE MET PUMP ELEC HEATER	SUPPLY FAN (V-3)	TOILET EX FAN (E-8)
				SUPPLY FAN (F-14)	GEN EX FAN (E-10)
OH-W	OH-DRY	BRINE PUMP #2	SUPPLY FAN (S-11)	RELIEF FAN (E-3)	PANTRY EX FAN (E-12)
DUPLEX COND PUMP (GP-4)	DUPLEX COND PUMP (GP-3)		SUPPLY FAN (S-12)	BRINE TRANSFER PUMP	FREIGHT SUMP (SP-1)
BLANK		SUPPLY FAN (V-1)	EXHAUST (E-1)	RETURN FAN (R-12)	UNIT HEATER EX FAN (E-19)
			BRINE MIXING PUMP	RETURN FAN (R-11)	EVAP COND

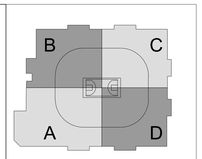
MCC-A ELEVATION

FOR REFERENCE

A	WEST SHOW POWER ELECTRIC ROOM DETAIL	B	ELEVATION - MECHANICAL ROOM ELECTRICAL
	NO SCALE		NO SCALE



C	CHILLER ROOM ELEVATION
	NO SCALE



XL CENTER

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S C I ARCHITECTS
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me engineers
29 W 38th STREET, 5th FLOOR
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(212) 447-6770

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

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DATE PLOTTED: 12/18/2020 6:58:44 PM

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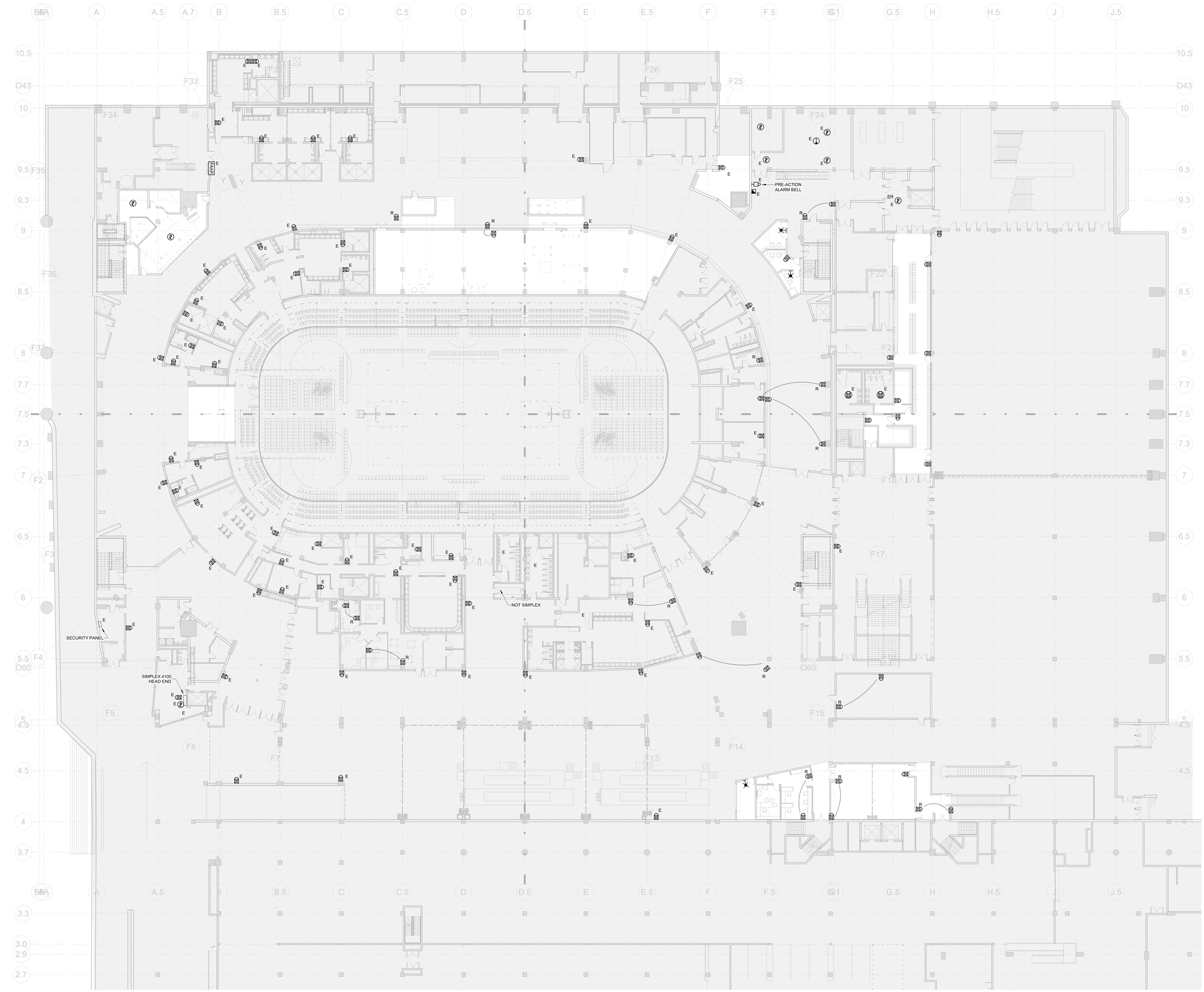
1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
ELECTRICAL DETAILS I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: E-700.E



1 FIRE ALARM PLAN - LEVEL 31
1/16" = 1'-0"

GENERAL NOTES:

1. ALL DEVICES INDICATED WITH 'E' OR 'EXISTING' SHALL REMAIN. MAINTAIN CONTINUITY OF CIRCUITRY. PROVIDE ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION.
2. ALL DEVICES INDICATED WITH 'R' OR 'RELOCATE' ARE EXISTING TO BE RELOCATED.
3. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES REFER TO ARCHITECTURAL DRAWINGS.
4. ALL EXISTING SMOKE DETECTORS SHALL REMAIN OPERATIONAL DURING DEMOLITION AND CONSTRUCTION. REMOVE SMOKE DETECTORS FROM CEILING AND PROVIDE TEMPORARY SUPPORTS AND ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION. DISCONNECT AND REMOVE DETECTORS ONCE NEW DETECTORS ARE READY FOR INSTALLATION.
5. REFER TO MECHANICAL DRAWINGS FOR DUCT TYPE SMOKE DETECTORS QUANTITIES AND LOCATIONS. PROVIDE (1) DUCT TYPE SMOKE DETECTORS FOR EACH AIR HANDLING UNIT AND RETURN FAN OF 2,000 CFM AND GREATER. FOR EACH DUCT DETECTOR, PROVIDE FIRE ALARM RELAY TO SHUT DOWN ASSOCIATED MECHANICAL UNIT EXCEPT THOSE EXEMPTED FROM THIS REQUIREMENT. EXEMPTIONS INCLUDE FANS THAT DO NOT MOVE AIR BEYOND THE ROOM THEY ARE INSTALLED.
6. PROVIDE A REMOTE TEST SWITCH AND LED INDICATOR LIGHT FOR ALL DUCT DETECTORS THAT ARE NOT READILY ACCESSIBLE. LOCATE REMOTE TEST SWITCH AT NEAREST ACCESSIBLE CEILING OR MEP ROOM.
7. REFER TO FIRE PROTECTION DRAWINGS FOR WATER FLOW AND TAMPER QUANTITIES AND LOCATIONS. PROVIDE COMPLETE INTEGRATION INTO FIRE ALARM SYSTEM.
8. REFER TO MECHANICAL DRAWINGS FOR FIRE/SMOKE DAMPER QUANTITIES AND LOCATIONS. PROVIDE COMPLETE INTEGRATION INTO FIRE ALARM SYSTEM.
9. COORDINATE EXACT LOCATIONS OF FIRE ALARM DEVICES WITH LOCATIONS OF MECHANICAL EQUIPMENT AND LIGHTING.
10. PROVIDE #14 AWG MINIMUM WIRING FOR ALL SIGNAL AND INITIATION DEVICES.
11. PROVIDE CONNECTION OF FA SYSTEMS TO ALL MAGNETIC DOOR HOLD-OPEN DEVICES TO AUTOMATICALLY CLOSE DOORS DURING ALARM CONDITIONS.
12. ALL EXPOSED WIRING SHALL BE ROUTED IN CONDUIT AND SHALL BE ROUTED PERPENDICULAR AND PARALLEL TO COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH OWNER'S REP. PRIOR TO INSTALLATION. NO ADDITIONAL COST TO THE OWNER WILL BE ALLOWED FOR RELOCATING CONDUIT DUE TO LACK OF COORDINATION WITH THE OWNER'S REP.
13. ALL BACK BOXES SHALL BE FLUSH MOUNTED UNLESS OTHERWISE NOTED. CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND BACK BOXES IN POURED CONCRETE, PRE-CAST CONCRETE, MASONRY AND GYP. WALLS.
14. ALL WORK AFFECTING BUILDING SYSTEM OPERATION SHALL BE COORDINATED WITH BUILDING ENGINEERING.
15. PROVIDE REMOVAL AND REINSTALLATION OF EXISTING CEILINGS FOR THE REQUIRED WORK. REPLACE ALL DAMAGED TILES AND PROVIDE PATCHING AND PAINTING AS REQUIRED.
16. ANY WORK OUTSIDE OF PRIMARY AREAS OF WORK SHALL BE COMPLETED DURING PREMIUM TIME.
17. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
18. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
19. ALL NEW CONDUIT SHALL BE ROUTED APPROXIMATELY AT 48 LEVEL OR HIGHER. NO CONDUIT SHALL BE ROUTED ANY LOWER THAN THE MAJORITY OF EXISTING CONDUIT.

KEYNOTES

B C A D

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NO.	DESCRIPTION	DATE

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SEAL

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DATE: 12/18/20
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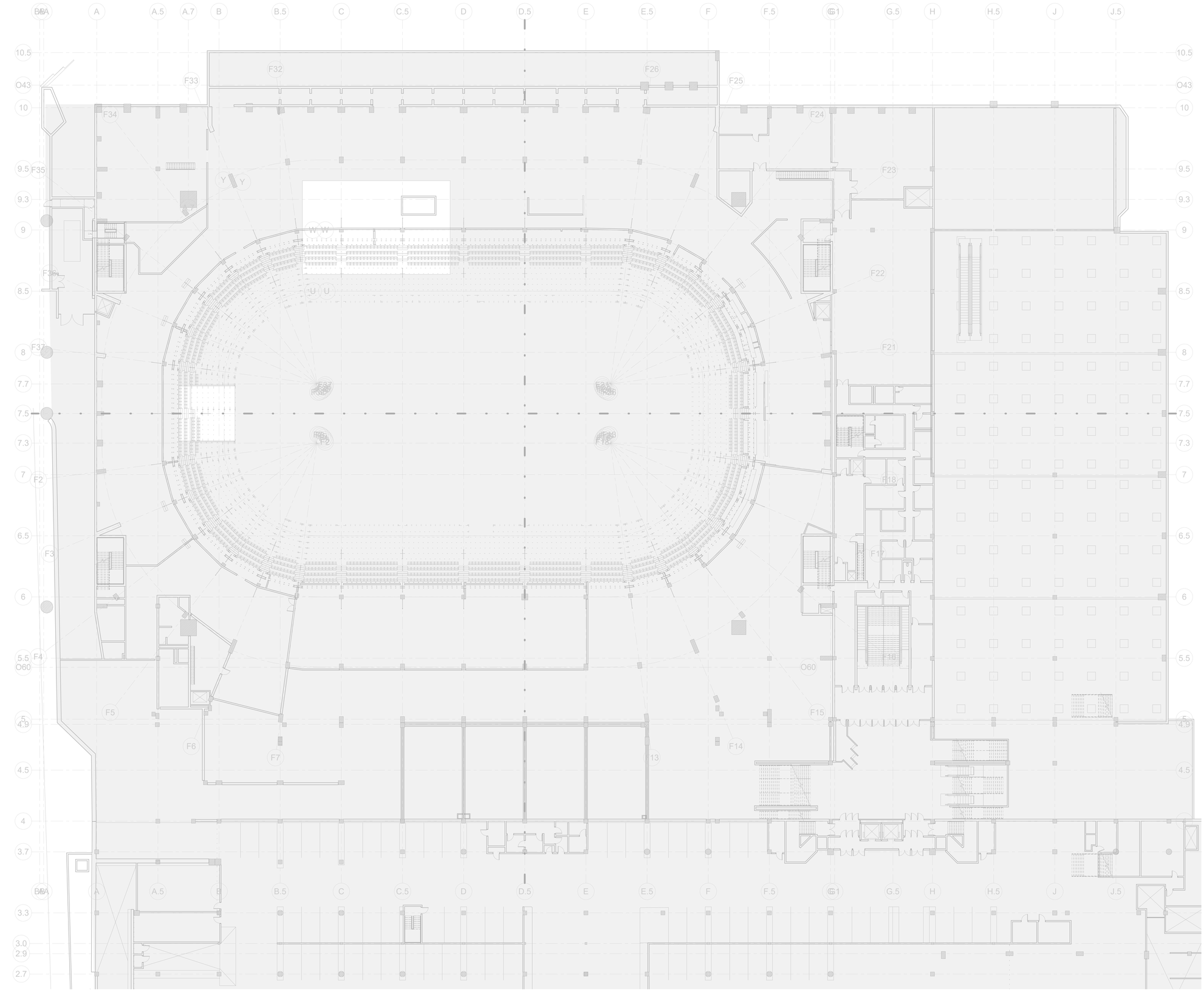
XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE
FIRE ALARM PLAN - LEVEL 31 - ENABLING

SCALE: 1/16" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FA-201.E



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1/16" = 1'-0"

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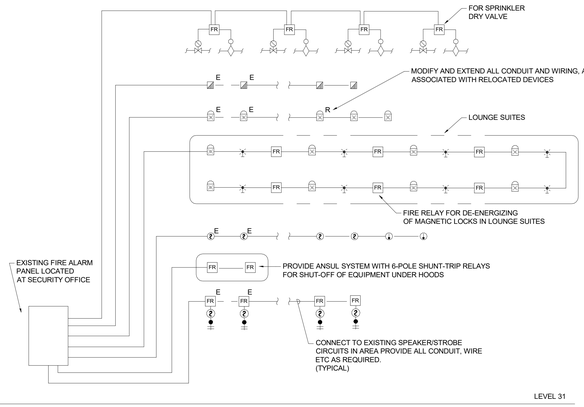

FIRE ALARM RISER DIAGRAM

N.T.S.

NOTES

1. ALL NEW FIRE ALARM DEVICES SHALL BE TESTED IN ACCORDANCE WITH NFPA 72 AND WITNESSED BY OSFM

SEQUENCE OF OPERATION

	SYSTEM TROUBLE AT FACP	SYSTEM TROUBLE AT FAAP	INITIATE AUDIBLE & VISIBLE ALARM SIGNAL AT FACP	INITIATE AUDIBLE & VISIBLE ALARM SIGNAL AT FAAP	INITIATE AUDIBLE & VISIBLE SUPERVISORY SIGNAL AT FACP	INITIATE AUDIBLE & VISIBLE SUPERVISORY SIGNAL AT FAAP	ACTIVATE ALL NOTIFICATION DEVICES	SEND SIGNAL TO DEVICES CENTRAL MONITORING STATION	CLOSE ALL DOORS TO PRIMARY LEVEL	RECALL ELEVATOR TO PRIMARY LEVEL	SHUNT TRIP ELEVATOR CONTROLLER	ACTIVATE FIREMAN'S HAT	SHUT DOWN AIR DISTRIBUTION SYSTEM	CLOSE ALL DOORS FIRE SMOKE DAMPERS	RELEASE DOOR HOLDERS	TERMINATE POWER TO ACCESS CONTROL DOOR LOCKS	ACTIVATE REFRIGERANT HORN/STROBE DEVICE	SHUT DOWN CHILLER	INITIATE BUILDING BMS
SYSTEM TROUBLE	○	○						○											
WATER FLOW			○	○			○	○								○			
TAMPER					○	○		○											
PULL STATION			○	○			○	○								○			
DUCT SMOKE DETECTOR					○	○		○				○	○						
SMOKE DETECTOR			○	○			○	○							○	○			
ELEVATOR LOBBY SMOKE DETECTOR EXIT LEVEL			○	○			○	○		○						○			
ELEVATOR LOBBY SMOKE DETECTOR OTHER THAN EXIT LEVEL			○	○			○	○	○							○			
ELEVATOR EQUIPMENT ROOM SMOKE DETECTOR			○	○			○	○		○		○				○			
ELEVATOR TOP SHAFT SMOKE DETECTOR			○	○			○	○	○				○			○			
ELEVATOR EQUIPMENT ROOM HEAT DETECTOR			○	○			○	○			○					○			
HIGH LEVEL REFRIGERANT LEVEL				○	○			○									○	○	○
REFRIGERANT MONITORING SYSTEM MALFUNCTION				○	○			○									○	○	○

NOTE:
SOME DEVICES SHOWN MAY NOT APPLY TO THIS PROJECT.

GENERAL NOTES

1. REFER TO PLAN DRAWINGS FOR DEVICE LOCATIONS.
2. ALL DEVICES INDICATED WITH 'E' OR 'EXISTING' SHALL REMAIN. MAINTAIN CONTINUITY OF CIRCUITRY. PROVIDE ADEQUATE PROTECTION DURING DEMOLITION AND CONSTRUCTION.
3. ALL DEVICES INDICATED WITH 'R' OR 'RELOCATE' ARE EXISTING TO BE RELOCATED.
4. DIVISION 26 SHALL BE RESPONSIBLE FOR FILING AND OBTAINING APPROVAL OF ALL APPROPRIATE AUTHORITIES FOR SYSTEM, INCLUDING PAYING ALL ASSOCIATED FEES, INCLUDING OBTAINING SERVICES OF A CONNECTICUT STATE LICENSED PROFESSIONAL ENGINEER. WORK SHALL NOT BE CONSIDERED COMPLETE UNLESS ALL NECESSARY FILING, TESTS, AND INSPECTIONS ARE COMPLETED AND APPROVED.
5. ALL NEW FIRE ALARM DEVICES SHALL BE FULLY COMPATIBLE WITH THE EXISTING SYSTEM AND SHALL BE INSTALLED UNDER DIRECT SUPERVISION OF EXISTING SYSTEM SUPPLIER (JCI CHRIS LETT 860-602-3179) WHO SHALL WARRANTY ALL WORK FOR (1) YEAR.
6. ALL WIRING SHALL BE TEFLON INSULATED AND JACKETED, 2HR RATED. CABLE SHALL BE RATED 600 VOLT AND SHALL BE BSA APPROVED. PROVIDE #14 AWG MINIMUM WIRING FOR ALL SIGNAL AND INITIATION DEVICES. ROUTE ALL WIRING IN CONDUIT.
7. EXACT ROUTING OF FIRE ALARM WIRING TO BE COORDINATED IN FIELD.
8. QUANTITY OF DEVICES ON ONE LOOP SHALL BE PER MANUFACTURER'S RECOMMENDATION.
9. LOCATE ALL STROBES 6'-8" TO BOTTOM ABOVE FINISHED FLOOR OR 6" TO CENTER BELOW FINISHED CEILING, WHICHEVER IS LOWEST.
10. PROVIDE SEPARATE NOTIFICATION CIRCUITS FOR SPEAKER AND STROBE DEVICES. ALL NOTIFICATION CIRCUITS SHALL BE TWO HOUR PROTECTIVE CIRCUIT OR IN CONDUIT PER NFPA 72.
11. STROBE SHALL DELIVER A MINIMUM U.L. 1971 LISTED EFFECTIVE INTENSITY OF 75 CANDELA (AND SHALL BE COMPATIBLE WITH BASE BLDG. FIRE ALARM SYSTEM) WITH NO MORE THAN A 225MA DRAW. 15 CANDELA U.L. 1971 LISTED/75 CANDELA NEAR AXIS STROBES (115MA DRAW) SHALL BE UTILIZED FOR SPACE WITH NO DIMENSION GREATER THAN 20 FEET.
12. PROVIDE MONITORING MODULES, CONTROL MODULES, END SWITCHES, LED STATUS LIGHTS, SELECTOR SWITCHES, PRINTED CIRCUIT CARDS, PROGRAMMING, AND ALL APPURTENANCES AS REQUIRED.
13. COORDINATE EXACT LOCATION AND QUANTITY OF ALL DUCT TYPE SMOKE DETECTORS WITH DIVISION 23. DIVISION 26 SHALL HARD WIRE TO RELAY STARTER.
14. COORDINATE EXACT LOCATION AND QUANTITY OF ALL FIRE SMOKE DAMPERS WITH DIVISION 23.
15. FIRE ALARM CONTRACTOR TO PROVIDE INTERFACE TO ELECTRICALLY UNLOCK ALL ELECTRICALLY HELD DOORS WITH CARD READER ACCESS.
16. ALL VISUAL DEVICES SHALL BE SYNCHRONIZED.
17. PROVIDE END-OF-LINE DEVICES AS REQUIRED.
17. DIVISION 26 SHALL FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS AND SLABS.
18. RUN RIGID CONDUIT WHERE NOT CONCEALED IN CEILINGS AND WHERE REQUIRED BY ALL APPLICABLE CODES, ALL WIRING SHALL BE COLOR CODED AND IDENTIFIED AT THE FACP.
19. ALL CONDUITS SHALL BE GROUNDED BY MEANS CONFORMING WITH THE NATIONAL ELECTRICAL CODE WITH A GROUND CONDUCTOR EQUAL IN SIZE TO THE LARGEST CONDUCTOR USED IN THE SYSTEM; BUT IN NO CASE SHALL THE GROUND CONDUCTOR BE SMALLER THEN #10 AWG. ALL CONDUITS SHALL BE RIGID STEEL CONDUIT. ALL CONDUITS AND JUNCTION BOXES SHALL BE PAINTED RED.
20. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
21. ALL ANNUNCIATING DEVICES SHALL BE COORDINATED WITH ARCHITECT.
22. TESTING AND FINAL CONNECTION OF CONTROL PANELS AND PROGRAMMING OF THE FIRE ALARM SYSTEM SHALL BE MADE BY THE BUILDING FIRE ALARM VENDOR.
23. CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS FOR THE SYSTEM, INCLUDING WIRING DIAGRAMS, CATALOG CUTS OF ALL DEVICES, SYSTEM RISER DIAGRAM, AND SEQUENCE OF OPERATION.

NOTES

1. TESTING AND FINAL CONNECTION OF CONTROL PANEL SHALL BE MADE BY THE BASE BUILDING FIRE ALARM VENDOR IN COORDINATION WITH THIS CONTRACTOR.
2. CHECK-OUT AND PROGRAMMING OF THE FIRE ALARM SYSTEM SHALL BE MADE BY FIRE ALARM VENDOR (JCI CHRIS LETT 860-602-3179)
3. FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT WHERE FINISHED CEILINGS ARE NOT PRESENT. ALL FIRE ALARM WIRING ABOVE FINISHED CEILINGS SHALL BE TEFLON COATED (PLENUM RATED).
4. COORDINATE INSTALLATION OF FIRE ALARM EQUIPMENT WITH BASE BUILDING FIRE ALARM VENDOR
5. CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS FOR THE SYSTEM, INCLUDING WIRING DIAGRAMS, CATALOG CUTS OF ALL DEVICES, AND SYSTEM RISER DIAGRAM AND SEQUENCE OF OPERATION.
6. PROVIDE END-OF-LINE DEVICES AS REQUIRED.
7. ALL CONDUITS SHALL BE GROUNDED BY MEANS CONFORMING WITH THE NATIONAL ELECTRICAL CODE WITH A GROUND CONDUCTOR EQUAL IN SIZE TO THE LARGEST CONDUCTOR USED IN THE SYSTEM; BUT IN NO CASE SHALL THE GROUND CONDUCTOR BE SMALLER THEN #10 AWG. ALL CONDUITS SHALL BE RIGID STEEL CONDUIT. ALL CONDUITS AND JUNCTION BOXES SHALL BE PAINTED RED.
8. ALL FIRE ALARM SYSTEM WIRING SHALL BE TWISTED PAIR #14 AWG MINIMUM, SOLID COPPER, 200 DEG. C, 600V, INSULATED CONDUCTORS, BS & E OR APPROVED AND COLORED RED.
9. RUN RIGID CONDUIT WHERE NOT CONCEALED IN CEILINGS AND WHERE REQUIRED BY ALL APPLICABLE CODES, ALL WIRING SHALL BE COLOR CODED AND IDENTIFIED AT THE FACP. ALL FIRE ALARM CABLES SHALL BE APPROVED FOR USE IN FIRE ALARM SYSTEMS IN THE CITY HARTFORD CT .
10. ELECTRICAL CONTRACTOR SHALL PERFORM ALL NECESSARY FIRE DEPARTMENT FILING. WORK SHALL NOT BE CONSIDERED COMPLETE UNLESS ALL NECESSARY FILING, TESTS, AND INSPECTIONS ARE COMPLETED AND APPROVED.
11. ELECTRICAL CONTRACTOR SHALL FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS AND SLABS.
12. ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID ONE (1) DAY FOR WALK-THRUS AND ALL PRE-TESTING, PRIOR TO FIRE DEPARTMENT INSPECTION AND TESTING.
13. VISUAL ALARM FLASHING STROBE LIGHT SHALL BE MINIMUM 75 CANDELAS AND WILL BE MOUNTED @ 80" A.F.F. PER "A.D.A." REQUIREMENTS STROBE LIGHTS MUST BE ALTERNATELY WIRED ON A & B CIRCUITS AS REQUIRED BY CODE.
14. COORDINATE COLOR AND LOCATION OF ALL DEVICES AND CONDUIT ROUTING WITH ARCHITECT PRIOR TO ANY WORK AND INSTALLATION.
15. REFER TO FLOOR PLAN FOR EXACT QUANTITY OF DEVICES.
16. ALL DEVICES SHALL BE PROVIDED BY THIS CONTRACTOR.
17. PRIOR TO SUBMITTING HIS BID, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO AVAILABILITY OF CIRCUITS/ZONES ETC., AND INFORM THE ENGINEER/ARCHITECT OF ANY DISCREPANCY AND INCLUDE IN HIS BID TO INCLUDE THE SAME AS DIRECTED. CLIENT IS NOT RESPONSIBLE FOR ANY ADDITIONAL COSTS RESULTING FROM VERIFIABLE EXISTING CONDITIONS DISCOVERED AFTER CONTRACT HAS BEEN AWARDED.
18. PROVIDE A FIRE ALARM CONTROL RELAY FOR CONTROL OF DAMPER MOTOR POWER FOR ALL FIRE SMOKE DAMPERS. ROUTE POWER VIA FIRE ALARM RELAY.
19. ALL FIRE ALARM INSTALLATIONS SHALL BE COORDINATED WITH BUILDING ENGINEER PRIOR TO INSTALLATION.

FIRE ALARM

	SMOKE DETECTOR
ER	SMOKE DETECTOR WITH ELEVATOR RECALL
	HEAT DETECTOR
	DUCT DETECTOR
	WALL MOUNTED HORN OR SPEAKER
	CEILING MTD HORN OR SPEAKER
X	WALL MTD HORN (OR SPEAKER) / STROBE
X	CEILING MTD HORN (OR SPEAKER) / STROBE
H	FIRE SERVICE PHONE / WARDEN PHONE
J	FIREMAN'S PHONE JACK
	MANUAL PULL STATION WITH VANDAL COVER
DH	MAGNETIC DOOR HOLD OPEN DEVICE (ALARM BELL)
	TAMPER SWITCH
	FLOW SWITCH
RTS	WALL MTD REMOTE INDICATOR LIGHT
RTS	CEILING MTD REMOTE INDICATOR LIGHT
X	WALL MOUNTED ADA STROBE
X	CEILING MOUNTED ADA STROBE
FR	FIRE ALARM RELAY
	FIRE SMOKE DAMPER WITH DUCT DETECTOR
	FIRE SMOKE DAMPER WITH SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
EPO	EMERGENCY POWER OFF

NOTES:
1. 'X' DENOTES CANDELLA RATING OF STROBE.
2. 'E' DENOTES EXISTING DEVICE.
3. 'R' DENOTES RELOCATED DEVICE.
4. 'TYP' DENOTES TYPICAL FOR SIMILAR DEVICES OR INSTALLATIONS.

FIRE ALARM DRAWING LIST - ENABLING	
Sheet Number	Sheet Name
FA-201.E	FIRE ALARM PLAN - LEVEL 31 - ENABLING
FA-202.E	FIRE ALARM PLAN - LEVEL 48 - ENABLING
FA-600.E	FIRE ALARM ONE-LINES I - ENABLING

XL CENTER
CAPITAL REGION DEVELOPMENT AUTHORITY

S C I ARCHITECTS
469 SEVENTH AVE, SUITE 900
NEW YORK, NY 10018
(646) 658-7410

me engineers
29 W 38th STREET, 5th FLOOR
NEW YORK, NY 10018
(212) 447-6770

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE

REVISIONS/ ISSUES

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS

SEAL

DRAWN: MEE
DATE: 12/18/20
CHECKED: MEE
DATE PLOTTED: 12/18/2020 6:59:02 PM

XL CENTER

1 CIVIC CENTER PLAZA
HARTFORD, CT

DWG. TITLE: FIRE ALARM ONE-LINES I - ENABLING

SCALE: 1/8" = 1'-0"
PROJ. NO.: 1605
DWG. NO.: FA-600.E