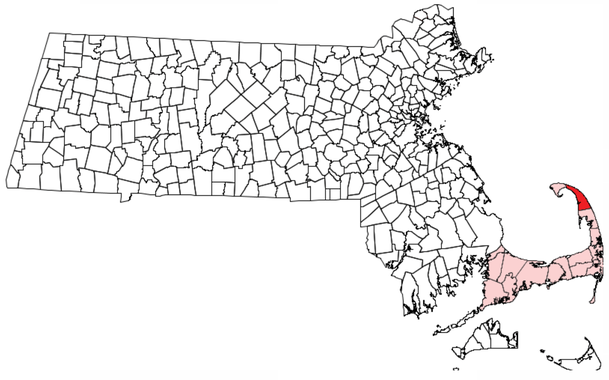
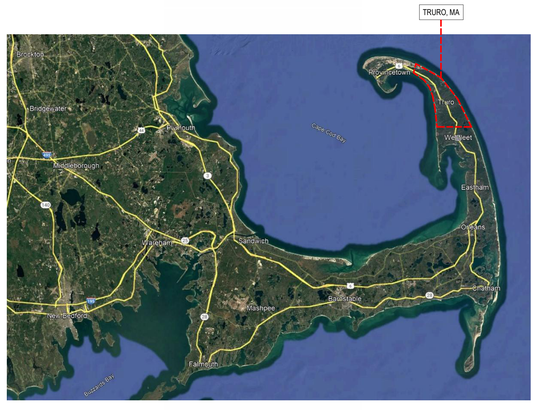
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MASSACHUSETTS MUNICIPAL MAP N.T.S.



SITE LOCUS MAP N.T.S.



SITE OVERVIEW N.T.S.

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DRAWING LIST

	GENERAL	
	G101	CODE SUMMARY I
	G102	CODE SUMMARY II
	CIVIL	
	C100	EXISTING CONDITION PLAN I
	C101	EXISTING CONDITIONS PLAN II
	C201	SITE PREPARATION AND EROSION CONTROL PLAN & DEMOLITION PLAN
	C301	SITE LAYOUT & MATERIALS PLAN
	C401	GRADING & DRAINAGE PLAN
	C501	UTILITY PLAN
GT100 GT101 →	STRUCTURAL	
	S001	GENERAL NOTES I
	S002	STRUCTURAL LOADING CRITERIA AND ABBREVIATIONS
	S003	TYPICAL DETAILS I
	S004	TYPICAL DETAILS II
	S005	TYPICAL DETAILS III
	S101	OVERALL FOUNDATION PLAN - BASE BID
	S101A	OVERALL FOUNDATION PLAN - BID ALT 1
	S110	OVERALL SLAB PLAN - BASE BID
	S110A	OVERALL SLAB PLAN - BID ALT 1
	S120	OVERALL MEZZANINE FRAMING PLAN - BASE BID
	S130	OVERALL ROOF FRAMING PLAN - BASE BID
	S130A	OVERALL ROOF FRAMING PLAN - BID ALT 1
	S140	CANOPY PLANS - BID ALT 2
	S141	CANOPY SECTIONS
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	S151	SALT SHED DETAILS
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	S901	3D VIEWS I
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	ARCHITECTURAL	
	A011	ABBREVIATIONS, SYMBOLS, LEGEND & GENERAL NOTES
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	A031	PARTITION TYPES & EXTERIOR WALL ASSEMBLIES
	A101	OVERALL FLOOR PLAN - BASE
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	A102	OVERALL MEZZANINE PLAN - BASE
	A103	OVERALL REFLECTED CEILING PLAN - BELOW MEZZANINE - BASE
	A104	OVERALL REFLECTED CEILING PLAN - ABOVE MEZZANINE - BASE
	A104A	OVERALL REFLECTED CEILING PLAN - ABOVE MEZZANINE - BID ALT 1
	A105	OVERALL ROOF PLAN - BASE
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	A106	BID ALT #2 - STORAGE BUILDING PLANS & ELEVATIONS
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	A201A	EXTERIOR ELEVATIONS - BID ALT 1
	A231	EXTERIOR 3D VIEWS - BASE
	A231A	EXTERIOR 3D VIEWS - BID ALT 1
	A232	INTERIOR 3D VIEWS - BASE
	A232A	INTERIOR 3D VIEWS - STORAGE GARAGES
	A301	BUILDING SECTIONS - BASE
	A302	BUILDING SECTIONS - ALT 1
	A401	WALL SECTIONS I
	A402	WALL SECTIONS II
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	A411	ENTRANCE CANOPY PLANS, ELEVATIONS, SECTION & DETAILS
	A501	LARGE SCALE STAIR PLANS / SECTIONS
	A502	LARGE SCALE STAIR PLANS / SECTIONS AND DETAILS
	A611	SECTION DETAILS
	A612	SECTION DETAILS
	A613	SECTION DETAILS
	A621	ROOF DETAILS
	A622	ROOF DETAILS
	A625	ROOF DETAILS
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	A701	LARGE SCALE FLOOR PLAN / INTERIOR ELEVATIONS
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	A921	FURNITURE LAYOUT
	A931	SIGN SCHEDULE & TYPES
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	EQ102	DETAILS
	EQ103	INDUSTRIAL WASTE WATER HOLDING TANK DETAILS
	EQ104	DETAILS
	EQ201	FIRST FLOOR AND MEZZANINE EQUIPMENT PIPING PLANS
	EQ202	ROOF EQUIPMENT PIPING PLAN AND ENLARGED PLANS
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	FP000	FIRE PROTECTION LEGENDS, NOTES AND ABBREVIATIONS
	FP101	FIRST FLOOR FIRE PROTECTION PLAN - BASE BID
	FP102	FIRST FLOOR FIRE PROTECTION PLAN - BID ALT 1
	FP104	MEZZANINE FLOOR FIRE PROTECTION PLAN - BASE BID
	FP105	MEZZANINE FLOOR FIRE PROTECTION PLAN - BID ALT 1
	FP501	FIRE PROTECTION DETAILS
	FP502	FIRE PROTECTION DETAILS

DRAWING LIST

	PLUMBING	
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	P100	UNDERGROUND PLAN - BASE BID
	P100A	UNDERGROUND PLAN - BID ALT 1
	P101	FIRST FLOOR PIPING PLAN - BASE BID
	P101A	FIRST FLOOR PIPING PLAN - BID ALT 1
	P102	MEZZANINE PIPING PLAN - BASE BID
	P102A	MEZZANINE PIPING PLAN - BID ALT 1
	P103	ROOF PLAN - BASE BID
	P103A	ROOF PLAN - BID ALT 1
	P401	ENLARGED PLANS
	P501	DETAILS
	P502	DETAILS
	P001	SCHEDULES
	P701	DOMESTIC WATER RISER DIAGRAM
	P702	WASTE AND VENT RISER DIAGRAM
	HVAC	
	H001	LEGENDS, NOTES, AND ABBREVIATIONS
	H101	FIRST FLOOR DUCT PLAN - BASE BID
	H101A	FIRST FLOOR DUCT PLAN - BID ALT 1
	H102	MEZZANINE DUCT PLAN - BASE BID
	H102A	MEZZANINE DUCT PLAN - BID ALT 1
	H103	ROOF PLAN - BASE BID
	H103A	ROOF PLAN - BID ALT 1
	H200	FIRST FLOOR RADIANT PIPING PLAN
	H201	FIRST FLOOR PIPING PLAN - BASE BID
	H201A	FIRST FLOOR PIPING PLAN - BID ALT 1
	H202	MEZZANINE PIPING PLAN - BASE BID
	H202A	MEZZANINE PIPING PLAN - BID ALT 1
	H401	ENLARGED FLOOR PLANS
	H501	DETAILS
	H502	DETAILS
	H503	DETAILS
	H601	SCHEDULES
	H602	SCHEDULES
	H603	SCHEDULES
	H701	AUTOMATIC TEMPERATURE CONTROLS
	H702	AUTOMATIC TEMPERATURE CONTROLS
	H703	AUTOMATIC TEMPERATURE CONTROLS
	H704	AUTOMATIC TEMPERATURE CONTROLS
	H801	AIRFLOW DIAGRAMS
	H802	AIRFLOW DIAGRAMS
	ELECTRICAL	
	E001	ELECTRICAL SYMBOL LIST
	E002	LIGHTING FIXTURE SCHDULE
	E002A	LIGHTING CONTROLS DETAILS
	E003	ELECTRICAL SITE PLAN
	E004	ELECTRICAL SITE DETAILS
	E005	ELECTRICAL SITE DETAILS
	E101	OVERALL FLOOR PLAN - BASE - LIGHTING
	E101A	OVERALL FLOOR PLAN - BID ALT 1 - LIGHTING
	E102	OVERALL MEZZANINE PLAN - BASE - LIGHTING
	E102B	OVERALL MEZZANINE PLAN - BID ALT 1 - LIGHTING
	E103	STORAGE BUILDING FLOOR PLAN - LIGHTING
	E201	OVERALL FLOOR PLAN - BASE - POWER
	E201A	OVERALL FLOOR PLAN - BID ALT 1 - POWER
	E202	OVERALL MEZZANINE PLAN - BASE - POWER
	E202A	OVERALL MEZZANINE PLAN - BID ALT 1 - POWER
	E203	OVERALL ROOF PLAN - BASE
	E203A	OVERALL ROOF PLAN - BID ALT 1
	E204	EQUIPMENT FLOOR PLAN AND SCHEDULES
	E205	STORAGE BUILDING FLOOR PLAN - POWER (BID ALTERNATE #2)
	E300	ONE-LINE RISER DIAGRAM
	E301	ELECTRICAL SCHEDULES
	E302	MECHANICAL SCHEDULE AND DETAILS
	E303	PLUMBING SCHEDULE AND DETAILS
	E304	GROUNDING AND BDA RISER DIAGRAM
	E305	LIGHTNING PROTECTION DETAILS
	E306	ELECTRICAL DETAILS
	E400	FIRE ALARM RISER DIAGRAM
	E401	OVERALL FLOOR PLAN - BASE - FIRE ALARM
	E401A	OVERALL FLOOR PLAN - BID ALT 1 - FIRE ALARM
	E402	OVERALL MEZZANINE PLAN - BASE - FIRE ALARM
	E402A	OVERALL MEZZANINE PLAN - BID ALT 1 - FIRE ALARM
	E500	SECURITY SYMBOL LIST AND DETAILS
	E501	OVERALL FLOOR PLAN - BASE - SECURITY
	E501A	OVERALL FLOOR PLAN - BID ALT 1 - SECURITY
	E502	OVERALL MEZZANINE PLAN - BASE - SECURITY
	E502A	OVERALL MEZZANINE PLAN - BID ALT 1 - SECURITY
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	T001	TECHNOLOGY SYMBOL LIST AND DETAILS
	T101	OVERALL FLOOR PLAN - BASE - TECHNOLOGY
	T101A	OVERALL FLOOR PLAN - BID ALT 1 - TECHNOLOGY
	T102	OVERALL MEZZANINE FLOOR PLAN - BASE - TECHNOLOGY
	T102A	OVERALL MEZZANINE FLOOR PLAN - BID ALT 1 - TECHNOLOGY
	T200	TECHNOLOGY RISER DIAGRAM
	T201	TECHNOLOGY DETAILS

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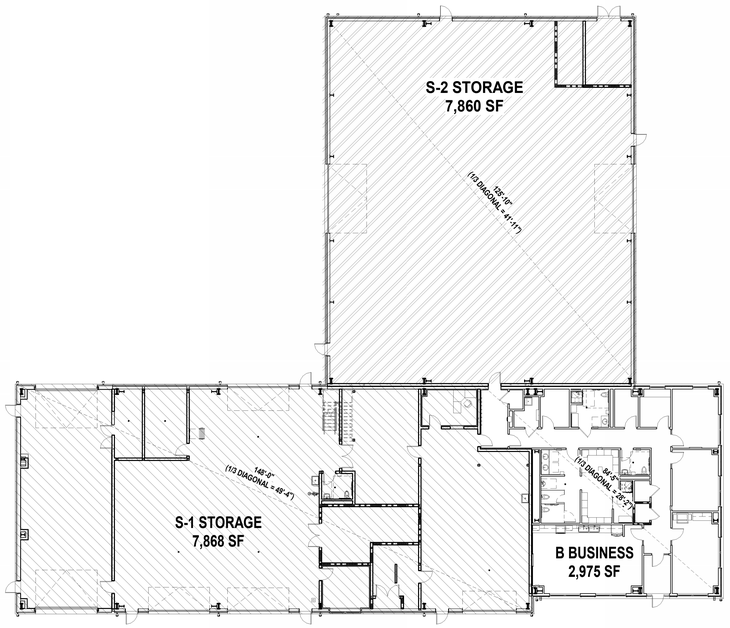
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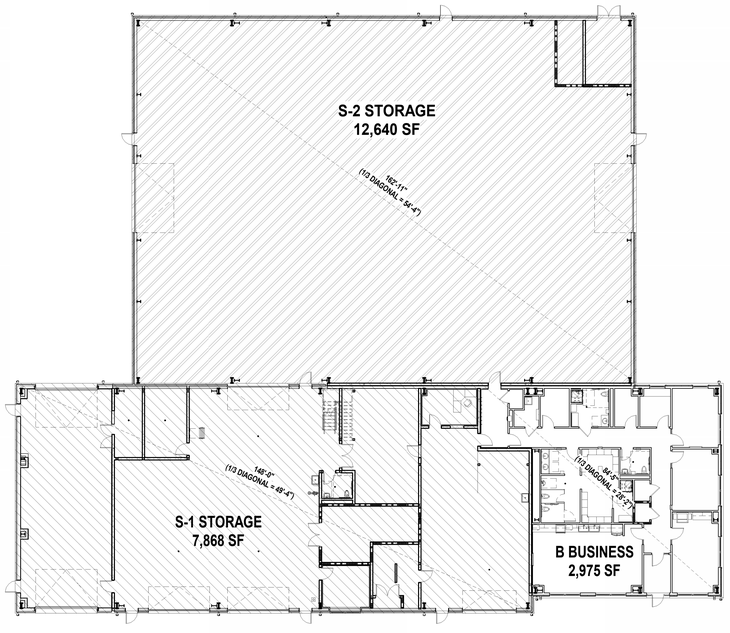
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2 FIRST FLOOR - CODE PLAN - BASE
1/16" = 1'-0" 4/ A106



1 FIRST FLOOR - CODE PLAN - BID ALT 1
1/16" = 1'-0" 4/ A106

USE GROUP LEGEND

USE GROUP: B BUSINESS

USE GROUP: S-1 STORAGE

USE GROUP: S-2 STORAGE

CODE PLAN NOTES

NEW CONSTRUCTION

A. NEW AND EXISTING SMOKE PARTITIONS, INCLUDING STORAGE ROOMS OVER 100 SQUARE FEET, SHALL HAVE PENETRATIONS AND VOIDS FIRESTOPPED IN ACCORDANCE WITH DIVISION 07 SPECIFICATION SECTION "JOINT FIRESTOPPING". ALL HEAD-OF-WALL JOINTS AND FLOOR-TO-WALL JOINTS AT NEW AND EXISTING SMOKE RESISTANT PARTITIONS SHALL BE SEALED IN ACCORDANCE WITH DIVISION 07 SPECIFICATION SECTION " JOINT FIRESTOPPING".

B. NEW AND EXISTING FIRE-RESISTANCE RATED WALLS SHALL HAVE PENETRATIONS AND VOIDS FIRESTOPPED IN ACCORDANCE WITH DIVISION 07 SPECIFICATION SECTION "JOINT FIRESTOPPING". ALL HEAD-OF-WALL JOINTS AND FLOOR-TO-WALL JOINTS AT NEW AND EXISTING FIRE-RATED WALLS SHALL BE SEALED IN ACCORDANCE WITH DIVISION 07 SPECIFICATION SECTION "JOINT FIRESTOPPING".

C. ALL PENETRATIONS THROUGH FLOORS, INCLUDING FLOOR OF DUCTWORK ENCLOSURES, SHALL BE FIRESTOPPED IN ACCORDANCE WITH DIVISION 07 SECTION "JOINT FIRESTOPPING". PENETRATIONS THROUGH FLOORS OF RATED ROOMS OR FLOOR SYSTEMS SHALL BE FIRESTOPPED TO MEET RATING OF ROOM OR FLOOR SYSTEM.

D. ALL SPACES, FACILITIES AND PROGRAMS REQUIRED BY CODE TO BE ACCESSIBLE TO PHYSICALLY DISABLED PERSONS SHALL BE ACCESSIBLE.

- WHERE A WORKSTATION IS PROVIDED, AN ACCESSIBLE WORKSTATION IS REQUIRED.
- WHERE A SINK IS PROVIDED, AN ACCESSIBLE SINK WITH PIPE PROTECTION IS REQUIRED.
- ALL SHOPS SHALL HAVE AN ACCESSIBLE EYE AND BODY WASH.
- ALL ACCESSORIES SHALL MEET REACH RANGES FOR FRONT OR SIDE APPROACH.
- ALL ACCESSIBLE ROUTES THROUGH BUILDING SHALL PROVIDE A MINIMUM 32 INCHES CLEARANCE (DOORWAYS IN PARTICULAR).
- ALL ACCESSIBLE SPACES, FURNISHING FIXTURES AND EQUIPMENT, AND ALL OPERATIONAL AND ACCESSIBLE ROUTE CLEARANCES SHALL MEET REQUIREMENTS OF SECTION 504, REHABILITATION ACT 1973 INCLUDING UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) AND 504 REGULATIONS, ICC/ANSI A117.1 - 2003, AND THE AMERICANS WITH DISABILITIES ACT, TITLE II, INCLUDING THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) AND ADA REGULATIONS.
- REFER TO A021FOR MOUNTING HEIGHTS FOR ACCESSIBLE FIXTURES.

ADDRESS IDENTIFICATION SIGNAGE: IBC 502.1

17 (to)

APPLICABILITY:
- VERIFY SPECIFIC REQUIREMENTS WITH LOCAL FIRE CODE OFFICIAL
- CHARACTER HEIGHT - 6" MINIMUM W/ 1/2" STROKE MINIMUM
- COLOR - EASILY IDENTIFIABLE COLOR, CONTRASTING WITH BACKGROUND

EXTERIOR SIGNAGE - ADDRESS
1 1/2" = 1'-0"

WARNING: THROUGH-PENETRATION FIRESTOP SYSTEM - DO NOT DISTURB

NOTIFY FACILITY MANAGER / OWNER OF ANY DAMAGE

- *CONTRACTOR'S NAME, ADDRESS, PHONE NUMBER*
- *THROUGH-PENETRATION FIRESTOP SYSTEMS DESIGNATION OF APPLICABLE TESTING AND INSPECTION AGENCY*
- *DATE OF INSTALLATION*
- *THROUGH-PENETRATION FIRESTOP SYSTEMS MANUFACTURER'S NAME*
- *INSTALLER'S NAME*

PRESSURE-SENSITIVE, SELF ADHESIVE PRE-PRINTED VINYL LABELS

FOR ALL RATED WALL ASSEMBLIES, BOTH SIDES
- REFER TO "FIRESTOPPING" SPECIFICATION FOR ADDITIONAL INFORMATION

RATED WALL LABEL
1 1/2" = 1'-0"

CODE SUMMARY:

THE PROPOSED TRURO DEPARTMENT OF PUBLIC WORKS FACILITY CONSISTS OF A NON-SEPARATED "MIXED-USE" BUILDING PROGRAM, INCLUDING THREE (3) MAIN OPERATIONAL COMPONENTS, AS FOLLOWS:

1. **USE GROUP "B", BUSINESS**: A ONE-STORY ADMINISTRATION WING, CONSISTING OF EMPLOYEE SUPPORT SPACES (i.e. LUNCH/TRAINING ROOM, LOCKER ROOM, ETC.), OFFICES, AND SUPPORT SPACES.

2. **USE GROUP "S-1" MODERATE HAZARD USE**: SINGLE-STORY, DOUBLE-HEIGHT VEHICLE MAINTENANCE. MAINTENANCE AREA HAS ASSOCIATED OPEN MEZZANINE SPACE.

3. **USE GROUP "S-2" MODERATE HAZARD USE (EXISTING):** SINGLE-STORY, MINIMALLY HEATED UTILITY AND ELECTRICAL SUPPLY AND STORAGE AREA

THE EXISTING AND PROPOSED BUILDINGS ARE STEEL-FRAMED WITH CONCRETE SLAB FLOORS AND MEZZANINE LEVEL STEEL DECK AND CONCRETE SLAB. THE BUILDING ENCLOSURE CONSISTS OF A INSULATED STANDING SEAM METAL ROOF SYSTEM, FACTORY FOAMED IN PLACE INDUSTRIAL METAL PANEL WALL SYSTEM ON METAL STUD BACKUP WALL WITH AN INSULATED CMU BASE WALL. TRIPLE-GLAZED WINDOWS ARE PROVIDED AT THE ADMINISTRATION WING AND TRANSLUCENT PANEL DAYLIGHT SYSTEMS ARE INCORPORATED INTO THE WALL PANEL SYSTEM AT THE INDUSTRIAL SHOP AREAS.

SPECIFIC ASPECTS OF THIS BUILDING TO NOTE ARE AS FOLLOWS:

1. A 2-HOUR FIRE-RESISTANCE RATED FLUID STORAGE ROOM IS PROVIDED TO STORE FLAMMABLE / HAZARDOUS FLUIDS USED FOR THE MAINTENANCE & REPAIR OF VEHICLES.
2. A STANDBY GENERATOR IS LOCATED OFF THE NORTH OF THE BUILDING ADDITION AND IS SIZED TO PROVIDE FULL OPERATIONAL POWER TO THE FACILITY.
3. THE BUILDING IS FULLY SPRINKLED PER NFPA 13 REQUIREMENTS, AND WILL HAVE AN EMERGENCY VOICE / ALARM COMMUNICATION SYSTEM.
4. WITH EXCEPTIONS OF MEZZANINES, THE BUILDING AND FACILITY ARE FULLY ACCESSIBLE AND MEET ADA AND CMR 521 MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS.

GENERAL BUILDING INFORMATION:
ALL AREAS ARE SHOWN IN GROSS SQUARE FEET (GSF).

BUILDING FOOTPRINT AREA (NOT INCLUDING VEHICLE CANOPY):
BASE BID 18,703 GSF
BID ALT 1 23,483 GSF

1. USE GROUP "B", BUSINESS (ADMINISTRATION / STAFF WING): **2,975 GSF**
2. USE GROUP "S-1", MODERATE HAZARD STORAGE (VEHICLE MAINTENANCE / WASH / WORKSHOPS): **7,868 GSF**
3. USE GROUP "S-2", LOW HAZARD STORAGE (VEHICLE & EQUIPMENT STORAGE GARAGE, BASE BID): **7,860 GSF**
3. USE GROUP "S-2", LOW HAZARD STORAGE (VEHICLE & EQUIPMENT STORAGE GARAGE, BID ALT 1): **12,640 GSF**

BUILDING HEIGHT (TO ROOF RIDGE AT VEHICLE MAINTENANCE AREA): **33' - 6"**

APPLICABLE CODES AND STANDARDS:

- MASSACHUSETTS STATE BUILDING CODE & APPROPRIATE AMENDMENTS:
  - 780 CMR TENTH EDITION
  - IBC 2021
- 2021 INTERNATIONAL MECHANICAL CODE (IMC)
- 248 CMR 10.00 UNIFORM STATE PLUMBING CODE (USPC)
- 2023 NATIONAL ELECTRICAL CODE
- 2023 MASSACHUSETTS ENERGY CODE
  - 2021 IECC W/ MA AMENDMENTS
  - 225 CMR 23.00 - MA COMMERCIAL STRETCH ENERGY CODE
  - APPENDIX CC - MA MUNICIPAL OPT-IN SPECIALIZED ENERGY CODE
- 2019 MASSACHUSETTS COMPREHENSIVE FIRE CODE
  - 527 CMR, BOARD OF FIRE PREVENTION REGULATIONS
  - NFPA 1 FIRE CODE, 2015 EDITION
- 271 CMR: BOARD OF EXAMINERS OF SHEET METAL WORKERS
- 521 CMR ARCHITECTURAL ACCESS BOARD REGULATIONS

BUILDING CODE ANALYSIS:

CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION

(SECT. 304) USE GROUP B (BUSINESS): **2,975 GSF**

(SECT. 311.2) USE GROUP S-1 (MODERATE-HAZARD STORAGE): **7,868 GSF**

(SECT. 311.3) USE GROUP S-2 (LOW-HAZARD STORAGE): (BASE BID) **7,860 GSF**

(SECT. 311.3) USE GROUP S-2 (LOW-HAZARD STORAGE): (BID ALT 1) **12,640 GSF**

TOTAL BUILDING (BASE BID): 18,703 GSF
TOTAL BUILDING (BID ALT): 23,483 GSF

CHAPTER 5- GENERAL BUILDING HEIGHTS AND AREAS

(SECT. 504.3) ALLOWABLE BUILDING HEIGHT
TYPE IIB CONSTRUCTION
"B" AND "S" OCCUPANCY, SPRINKLED
ALLOWABLE HEIGHT: **75' - 0"**
PROPOSED HEIGHT ***(COMPLIANT)***: **33' - 6"**

(SECT. 504.4) ALLOWABLE NUMBER OF STORIES
"S-1" OCCUPANCY (MOST RESTRICTIVE)
ALLOWABLE STORIES: **4 STORIES**
PROPOSED STORIES ***(COMPLIANT)***: **1 STORY**

(SECT. 506.2) ALLOWABLE BUILDING AREA
GROUP "S-1" (MOST RESTRICTIVE): **70,000 SF**
(FOR 1-STORY STRUCTURE OF TYPE IIB CONSTRUCTION, W/ SPRINKLER SYSTEM)
PROPOSED AREA FOR TOTAL BUILDING (BASE BID, ***COMPLIANT***): **18,703 GSF**
PROPOSED AREA FOR TOTAL BUILDING (BID ALT, ***COMPLIANT***): **23,483 GSF**
PROPOSED HEIGHT FOR TOTAL BUILDING ***(COMPLIANT)***: **1 STORY**

(SECT. 505.2.1; EXCEPTION 1) MEZZANINE AREA LIMITATION
FLEET MAINTENANCE AREA: = 2,849 SF
ALLOWABLE MEZZANINE AREA: = 2,849 x 2/3 = 1,899 SF
ACTUAL MEZZANINE AREA ***(COMPLIANT)*** = 1,520 SF
MEZZANINE AREA: = 1,144 SF
EQUIPMENT PLATFORM = 376 SF

(SECT. 508.3.2) MIXED USE AND OCCUPANCY, NON-SEPARATED OCCUPANCIES
GROUP "S-1" (MOST RESTRICTIVE OCCUPANCY)
ALLOWABLE HEIGHT FOR USE GROUP S: **1 STORY, SPRINKLED**
ALLOWABLE AREA FOR USE GROUP S: **70,000 SF**

CHAPTER 6 - TYPES OF CONSTRUCTION

(TABLE 601) FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

CONSTRUCTION TYPE IIB - BUILDING ELEMENTS
STRUCTURAL FRAME (INC. COLUMNS, GIRDERS AND TRUSSES): 0 HRS
BEARING WALLS - EXTERIOR: 0 HRS
BEARING WALLS - INTERIOR: 0 HRS
NON BEARING WALLS AND PARTITIONS - EXTERIOR: 0 HRS
NON BEARING WALLS AND PARTITIONS - INTERIOR: 0 HRS
FLOOR CONSTRUCTION: 0 HRS
ROOF CONSTRUCTION: 0 HRS

(TABLE 602) FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

CONSTRUCTION TYPE IIB
FIRE SEPARATION DISTANCE = X
SEPARATION DISTANCE TO FUELING FACILITY: X > 30
OCCUPANCY USE GROUP S-1: 0 HRS
OCCUPANCY USE GROUP S-2: 0 HRS

(SECT. 602.2) CONSTRUCTION TYPE IIB, NONCOMBUSTIBLE, FULLY SPRINKLED

CHAPTER 9 - FIRE PROTECTION SYSTEMS

(SECT. 903.2.9) USE GROUP S-1
REQUIRE AUTOMATIC SPRINKLER SYSTEMS WHERE FIRE AREAS EXCEED 12,000 SF, OR WHERE FIRE AREAS USED FOR THE STORAGE OR REPAIR OF COMMERCIAL MOTOR VEHICLES EXCEED 5,000 SF.

(SECT. 903.3.1.1) ALTERNATIVE PROTECTION
AN NFPA-13 COMPLIANT AUTOMATIC SPRINKLER SYSTEM WILL BE PROVIDED AT ALL INTERIOR BUILDING AREAS. SHOP AND VEHICLE STORAGE AREA WILL HAVE DRY-PIPE ZONES.

(SECT. 907.5.2.2) EMERGENCY VOICE / ALARM COMMUNICATION SYSTEM
AS REQUIRED UNDER SECTION 505.2.1, EXCEPTION #2, AN NFPA-72 COMPLIANT EMERGENCY VOICE / ALARM COMMUNICATION SYSTEM WILL BE PROVIDED.

CHAPTER 10 - MEANS OF EGRESS

(TABLE 1004.1.2) MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT

VEHICLE MAINTENANCE AREA S-1 = 300 GSF / OCC
VEHICLE STORAGE AREA S-2 = 300 GSF / OCC
BUSINESS / OFFICE AREA B = 150 GSF / OCC
MEZZANINES (S-1) = 300 GSF / OCC

(SECT. 1004) OCCUPANT LOAD

VEHICLE MAINTENACE S-1: 2,849 (+ 300 SF/OCC) = 10 OCCUPANTS
MEZZANINE 201: 1,520 SF (+ 300 SF/OCC) = 6 OCCUPANTS
MECHANICAL ROOMS: 753 SF (+ 300 SF/OCC) = 3 OCCUPANTS

WORKSHOP S-1: 1,261 (+ 300 SF/OCC) = 5 OCCUPANTS

VEHICLE STORAGE AREA S-2:
BASE BID: 7,860 (+ 300 SF/OCC) = 27 OCCUPANTS
BID ALT 1: 12,640 (+ 300 SF/OCC) = 43 OCCUPANTS

BUSINESS AREA B: 2,975 (+ 150 SF/OCC) = 20 OCCUPANTS
MUSTER ROOM: *(UNDER 750 SF, CONSIDERED PART OF BUSINESS)*
LOCKER AREA: *(UNDER 750 SF, CONSIDERED PART OF BUSINESS)*

TOTAL (BASE BID): = 71 OCCUPANTS
TOTAL (BID ALT 1): = 87 OCCUPANTS

(SECT. 1005) MEANS OF EGRESS SIZING

VEHICLE MAINTENACE S-1 (INCLUDING MEZZANINE):
DOORWAY WIDTH REQUIRED MIN. 19 OCC @ 0.2 IN PER OCC = 4 IN
DOORWAY WIDTH PROVIDED (BASE) 32" (x 2 DOORS) = 64 IN
DOORWAY WIDTH PROVIDED (BID) 32" (x 3 DOORS) = 96 IN

WORKSHOP S-1:
DOORWAY WIDTH REQUIRED MIN. 5 OCC @ 0.2 IN PER OCC = 1 IN
DOORWAY WIDTH PROVIDED 32" (x 1 DOOR) = 32 IN

VEHICLE STORAGE AREA S-2 (BASE BID):
DOORWAY WIDTH REQUIRED MIN. 27 OCC @ 0.2 IN. PER OCC = 6 IN
DOORWAY WIDTH PROVIDED 32" (x 3 DOORS) = 96 IN

VEHICLE STORAGE AREA S-2 (BID ALT 1):
DOORWAY WIDTH REQUIRED MIN. 43 OCC @ 0.2 IN. PER OCC = 9 IN
DOORWAY WIDTH PROVIDED 32" (x 3 DOORS) = 96 IN

BUSINESS AREA B:
DOORWAY WIDTH REQUIRED MIN. 20 OCC @ 0.2 IN. PER OCC = 4 IN
DOORWAY WIDTH PROVIDED 32" (x 1 DOOR) = 32 IN

(SECT. 1006) NUMBER OF EXISTS AND EXIT ACCESS DOORWAYS

(TABLE 1006.2.1) MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (FT)
B AND **S** OCCUPANCIES, WITH SPRINKLER SYSTEM = 100 FT
MAXIMUM PROVIDED =

(TABLE 1006.3.1) MINIMUM NUMBER OF EXITS PER STORY
REQUIRED FOR 1-500 OCCUPANTS = 2
PROVIDED (BASE BID) = 10
PROVIDED (BID ALT) = 9

(SECT. 1007) EXIT AND EXIT ACCESS DOORWAY CONFIGURATION
1007.1.1 EXCEPTION #2: WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE OF THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSIONS OF THE AREA SERVED.

(SECT. 1016.2) EGRESS THROUGH INTERVENING SPACES
1016.2.2 EXCEPTION - MEANS OF EGRESS ARE PERMITTED THROUGH ADJOINING OR INTERVENING ROOMS OR SPACES WHEN THE ADJOINING OR INTERVENING ROOMS OR SPACES ARE THE SAME OR LESSER HAZARD OCCUPANCY GROUP.

(SECT. 1017) EXIT ACCESS TRAVEL DISTANCE
EXITS SHALL BE SO LOCATED ON EACH STORY THAT THE MAXIMUM LENGTH OF EXIT ACCESS TRAVEL, MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY ALONG THE NATURAL AND UNOBSTRUCTED PATH OF EGRESS TRAVEL TO THE EXTERIOR EXIT DOOR AT THE LEVEL OF EXIT DISCHARGE SHALL NOT EXCEED THE DISTANCE GIVEN IN TABLE 1017.2:

(TABLE 1017.2) EXIT ACCESS TRAVEL DISTANCE (WITH SPRINKLER SYSTEM)
USE GROUP S-1 ALLOWABLE (MOST RESTRICTIVE): = 250 FT MAX
MAXIMUM PROVIDED: =

(TABLE 1020.1) CORRIDORS FIRE-RESISTANCE RATING
OCCUPANCY B AND S, OCCUPANT LOAD > 30 WITH SPRINKLER SYSTEM = 0 HR

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:

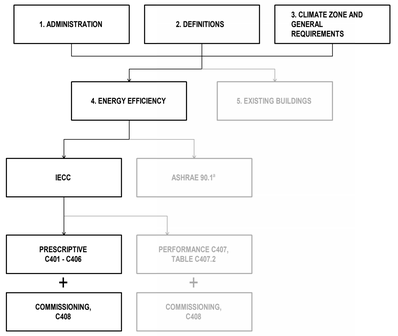
Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	-
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
CODE SUMMARY I

Sheet Number:
G101

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ENERGY COMPLIANCE PATH C103.2



* ANSI/ASHRAE/IES Standard 90. 1-2019

CODE PLAN LEGEND

EXIT CAPACITY

XX / XX — ACTUAL EGRESS OF DOOR OR STAIR / MAXIMUM ALLOWABLE EGRESS CAPACITY OF DOOR OR STAIR

ROOM NAME
101 — ROOM NUMBER

150 50SF/P | 3P — MAXIMUM NUMBER OF ALLOWABLE OCCUPANTS / AREA IN NET SQUARE FEET (GROSS SQUARE FEET) / OCCUPANCY LOAD FACTOR

115' — PATH OF MAXIMUM TRAVEL DISTANCE TO EXIT

15 — DIRECTION OF TRAVEL TO EXIT

FIRE EXTINGUISHERS:

FE = FIRE EXTINGUISHER, BRACKET MOUNTED

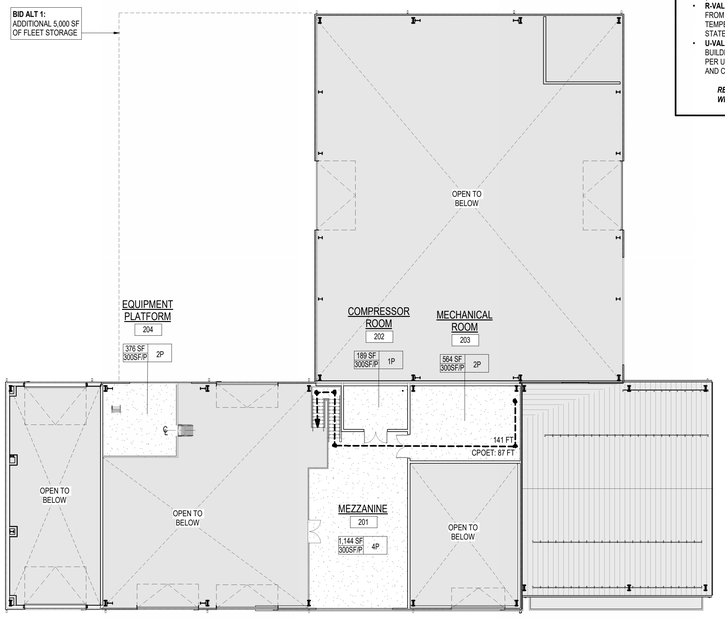
FEC = FIRE EXTINGUISHER, CABINET MOUNTED (SEMI-RECESSED)

SEPARATIONS ARE DESIGNATED AS FOLLOWS:

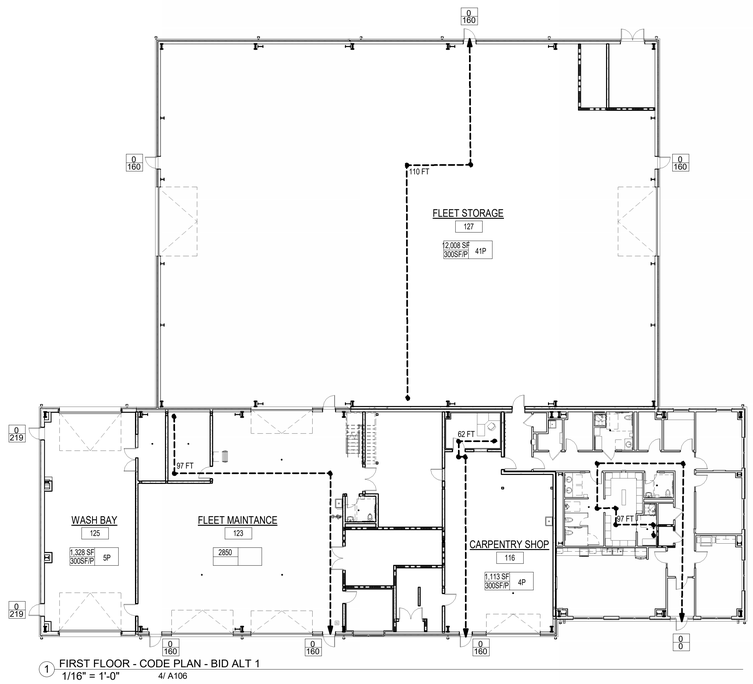
2 HOUR FIRE-RESISTANCE RATED FIRE BARRIER

1 HOUR FIRE-RESISTANCE RATED FIRE BARRIER

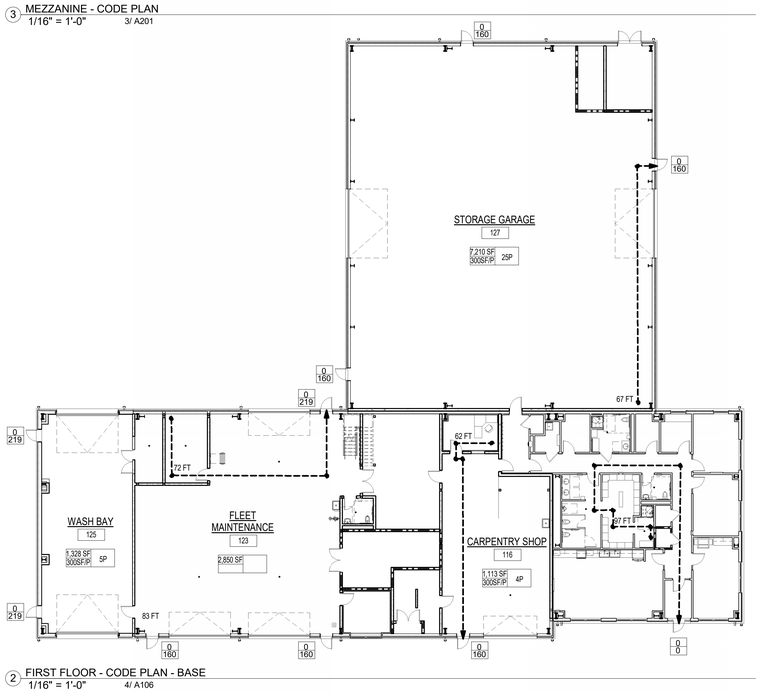
SMOKE RESISTANT SEPARATION



3 MEZZANINE - CODE PLAN
1/16" = 1'-0" 3/ A201



1 FIRST FLOOR - CODE PLAN - BID ALT 1
1/16" = 1'-0" 4/ A106



2 FIRST FLOOR - CODE PLAN - BASE
1/16" = 1'-0" 4/ A106

INTERNATIONAL ENERGY CONSERVATION CODE 2021 (IECC)
225 CMR 23 WITH APPRENDIX CC - ZONE 5A - BARNSTABLE COUNTY (TABLE C301.1)

ENERGY COMPLIANCE & SUSTAINABILITY

THE PROJECT IS DESIGNED AS AN ALL-ELECTRIC BUILDING. GEOTHERMAL GROUND SOURCE HEAT PUMPS ARE THE PRIMARY SOURCE FOR CONDITIONING, HEATING AND COOKING, SERVED BY HIGH-EFFICIENCY ELECTRIC EQUIPMENT. THE ONLY ON-SITE FOSSIL FUEL COMBUSTION EQUIPMENT IS A DIESEL EMERGENCY GENERATOR.

THE BUILDING IS ALSO DESIGNED TO ACCOMMODATE THE FOLLOWING FEATURES:

- SUB-METERING OF ELECTRIC SERVICE FOR MONITORING ENERGY USE.
- ELECTRIC VEHICLE-READY PARKING SPACES
  1. 20% OF ON-SITE PARKING PER 225 CMR 23 C405.13
- SOLAR-READY ROOF ZONE AREA
  1. >40% OF THE ROOF AREA PER 2021 IECC SECTION CB103.3

FURTHERMORE, PER 225 CMR 23 C401.2.4 MIXED USE BUILDINGS, THE BUILDING'S ENERGY CODE COMPLIANCE PATH WILL BE C401.2.1 PRESCRIPTIVE AND PERFORMANCE COMPLIANCE PATH WITH EACH USE TYPE EVALUATED SEPARATELY IF NEEDED. AS SUCH THE FOLLOWING SPACES WILL COMPLY WITH THE FOLLOWING CODE SECTIONS:

- **225 CMR 23 C.401.2.1.1 PRESCRIPTIVE COMPLIANCE.** THE STAFF FACILITIES, VEHICLE MAINTENANCE, CARPENTRY SHOP, AND VEHICLE STORAGE PORTIONS ARE EACH LESS THAN 20,000 SF AND WILL COMPLY WITH 225 CMR 23 C.401.2.1.1 PRESCRIPTIVE COMPLIANCE.

C402.1.5.1 LOW GLAZED WALL SYSTEM BUILDINGS. BUILDINGS IN WHICH LESS THAN OR EQUAL TO 50% OF THE TOTAL ABOVE-GRADE WALL AREA OF THE BUILDING THERMAL ENVELOPE IS A GLAZED WALL SYSTEM SHALL COMPLY WITH EQUATION 4-2A AND VISION GLASS USED IN THE GLAZED WALL SYSTEM SHALL HAVE A MAXIMUM WHOLE ASSEMBLY U FACTOR OF U-0.25. *AREA-WEIGHTED U PROPOSED <= 0.1285 (EQUATION 4-2A)*

- THE BUILDING IS CONSIDERED A LOW GLAZED WALL SYSTEM BUILDINGS AS INDICATED IN C402.1.5.1.

DEFINITIONS:

- **CI** = CONTINUOUS INSULATION
- **LS** = LINER SYSTEM
- **C-FACTOR** = THE COEFFICIENT OF HEAT TRANSMISSION (SURFACE TO SURFACE) THROUGH A BUILDING COMPONENT OR ASSEMBLY, EQUAL TO THE TIME RATE OF HEAT FLOW PER UNIT AREA AND THE UNIT TEMPERATURE DIFFERENCE BETWEEN THE WARM SIDE AND COLD SIDE SURFACES (BTU/H × FT² × °F) [W/(M²× K)].
- **F-FACTOR** = THE PERIMETER HEAT LOSS FACTOR FOR SLAB-ON-GRADE FLOORS (BTU/H × FT × °F) [W/(M × K)].
- **R-VALUE** = THE INVERSE OF THE TIME RATE OF HEAT FLOW THROUGH A BODY FROM ONE OF ITS BOUNDING SURFACES TO THE OTHER SURFACE FOR A UNIT TEMPERATURE DIFFERENCE BETWEEN THE TWO SURFACES, UNDER STEADY STATE CONDITIONS, PER UNIT AREA (H × FT²× °F/BTU) [(M²× K)/W].
- **U-VALUE** = THE COEFFICIENT OF HEAT TRANSMISSION (AIR TO AIR) THROUGH A BUILDING COMPONENT OR ASSEMBLY, EQUAL TO THE TIME RATE OF HEAT FLOW PER UNIT AREA AND UNIT TEMPERATURE DIFFERENCE BETWEEN THE WARM SIDE AND COLD SIDE AIR FILMS (BTU/H × FT²× °F) [W/(M²× K)].

REFER TO TABLE C402.1.4, MA STRETCH ENERGY CODE, IECC 2021, WITH MA AMENDMENTS FOR ADDITIONAL INFORMATION.

ENERGY CODE: ROOF TYPE VALUES
TABLE C402.1.4 - IECC 2021

STANDING SEAM METAL ROOF W/ THERMAL BLOCKS & LINER SYSTEM

MATERIAL	DEPTH	R-VALUE	U-VALUE
STANDING SEAM METAL ROOF PANEL	N / A	0	0.000
THERMAL BLOCKS (UPPER INSULATION LAYER)	4"	13	0.077
BATT INSULATION (STRUCTURE LAYER)	8"	25	0.040
FABRIC LINER SYSTEM	N / A	0	0.000
TOTAL VALUES PROVIDED	**12"**	**38**	**0.026**

REQUIRED U-VALUE = 0.035 FOR METAL BUILDINGS
COMPLIANT

ENERGY CODE: WALL ABOVE GRADE VALUES
TABLE C402.1.4 - IECC 2021

INSULATED METAL WALL PANEL ON GIRTS

MATERIAL	DEPTH	R-VALUE	U-VALUE
INSULATED METAL WALL PANEL	4.00"	30	0.033
GIRTS	8.00"	0	0
TOTAL VALUES PROVIDED	**12.00"**	**30**	**0.033**

REQUIRED U-VALUE = 0.050 FOR METAL BUILDING WALL
C402.7.2.1.3 CLADDING SYSTEMS W/ QUALIFYING THERMAL BREAKS WITH A DERATING FACTOR OF 0.80.
COMPLIANT

CMU VENEER ON CONC BACK-UP WALL

MATERIAL	DEPTH	R-VALUE	U-VALUE
CMU VENEER	3.625*	0.40	2.500
CAVITY / AIR SPACE **	1.75*	1.67	0.598
CONT. RIGID INSULATION	3.00*	15.00	0.066
VAPOR RETARDER	N / A	0.12	8.333
CONC BACK-UP WALL *	8.00*	0.80	1.250
TOTAL VALUES PROVIDED	**16.375**	**17.99**	**0.055**

REQUIRED U-VALUE = 0.090 FOR MASS WALL
C402.7.2.1.3 CLADDING SYSTEMS W/ QUALIFYING THERMAL BREAKS WITH A DERATING FACTOR OF 0.80.
* BASED ON 1450.52 LB/FT3 DENSITY CONCRETE
** UTILIZING 0.50 EFFECTIVE EMITTANCE AS BASIS FOR VALUE.
COMPLIANT

FIBER CEMENT SIDING ON METAL STUD

MATERIAL	DEPTH	R-VALUE	U-VALUE
FIBER CEMENT SIDING	0.25*	N / A	N / A
WEATHER BARRIER	N / A	N / A	N / A
EXTERIOR SHEATHING	0.50*	0.63	1.587
CONT. RIGID INSULATION	3.00*	15.00	0.066
SUBTOTAL OF VALUES	**3.75***	**15.63**	**0.063**
VAPOR RETARDER	N / A	N / A	N / A
EXTERIOR SHEATHING	0.50*	0.63	1.587
MTL FRAMING w/ BATT INSULATION	6.00*	21.00	
*Table C402.1.4.2. states an effective R-Value of 7.35 based on 16" o.c. framing		7.35	0.136
VAPOR RETARDER	N / A	N / A	N / A
GYPSUM BOARD, PAINTED	0.625*	0.56	1.785
SUBTOTAL OF VALUES		**8.54**	**0.041**
TOTAL VALUES PROVIDED	**3.75" + 7.125" = 10.875"**	**24.17**	**0.041**

REQUIRED U-VALUE = 0.055 FOR A METAL FRAMED
* *C402.7.2.1.3 CLADDING SYSTEMS W/ QUALIFYING THERMAL BREAKS WITH A DERATING FACTOR OF 0.80.*
** UTILIZING 0.50 EFFECTIVE EMITTANCE AS BASIS FOR VALUE.
COMPLIANT

CMU VENEER ON METAL STUD BACK-UP WALL

MATERIAL	DEPTH	R-VALUE	U-VALUE
CMU VENEER	3.625*	0.40	2.500
CAVITY / AIR SPACE **	1.75*	1.67	0.598
CONT. RIGID INSULATION	3.00*	15.00	0.066
SUBTOTAL OF VALUES	**8.375***	**17.07**	**0.058**
VAPOR RETARDER	N / A	N / A	N / A
EXTERIOR SHEATHING	0.50*	0.63	1.587
MTL FRAMING w/ BATT INSULATION	6.00*	21.00	
*Table C402.1.4.2. states an effective R-Value of 7.35 based on 16" o.c. framing		7.35	0.136
VAPOR RETARDER	N / A	N / A	N / A
GYPSUM BOARD, PAINTED	0.625*	0.56	1.785
SUBTOTAL OF VALUES	**7.125"**	**8.54**	**0.045**
TOTAL VALUES PROVIDED	**8.375" + 7.125" = 15.5"**	**25.61**	**0.039**

REQUIRED U-VALUE = 0.055 FOR A METAL FRAMED
* *C402.7.2.1.3 CLADDING SYSTEMS W/ QUALIFYING THERMAL BREAKS WITH A DERATING FACTOR OF 0.80.*
** UTILIZING 0.50 EFFECTIVE EMITTANCE AS BASIS FOR VALUE.
COMPLIANT

ENERGY CODE: FLOOR TYPE VALUES
TABLE C402.1.4 - IECC 2021

SLAB ON GRADE - UNHEATED

MATERIAL	DEPTH	R-VALUE	U-VALUE
CONCRETE SLAB (MIN DEPTH USED)	6.00"	0.50	2.00
20 MIL VAPOR RETARDER	N / A	0	N / A
CONT. RIGID INSULATION	2.00"	10.00	0.10
TOTAL VALUES PROVIDED	**8.00"**	**10.50**	**0.09**

REQUIRED F-FACTOR = 0.52 FOR UNHEATED SLABS

SLAB ON GRADE - HEATED

MATERIAL	DEPTH	R-VALUE	U-VALUE
CONCRETE SLAB (MIN DEPTH USED)	8.00"	0.64	1.56
20 MIL VAPOR RETARDER	N / A	0	0
CONT. RIGID INSULATION	2.00"	10.00	0.2
TOTAL VALUES PROVIDED	**10.00"**	**10.64**	**0.09**

REQUIRED F-FACTOR = 0.62 FOR HEATED SLABS

ENERGY CODE: WALL BELOW GRADE VALUES
TABLE C402.1.4 - IECC 2021

WALL BELOW GRADE

MATERIAL	DEPTH	R-VALUE	U-VALUE
CONT. RIGID INSULATION	3.00"	15.00	0.06
C-FACTOR		**15.00**	

REQUIRED C-FACTOR = 0.119 FOR BELOW GRADE WALLS
COMPLIANT

ENERGY CODE: FENESTRATION VALUES
TABLE C402.4 - IECC 2021

BUILDING ENVELOPE FENESTRATION - U-FACTORS

MATERIAL	SPECIFIED U-VALUE	MAX ALLOWED U-VALUE
FIXED FENESTRATION ***COMPLIANT***	0.180	0.300
OPERABLE FENESTRATION ***COMPLIANT***	0.240	0.320
ENTRANCE DOORS (PERSONNEL) ***COMPLIANT***	0.250	0.630
GARAGE DOOR < 14% GLAZING ***COMPLIANT***	0.057	0.310

0' 6" 1' 2' — SCALE: 1 1/2" = 1'-0"
0' 4' 8' 16' — SCALE: 1/8" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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TRURO, MA 02666

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Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS
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Approved By:	-
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
CODE SUMMARY II

Sheet Number:
G102

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GENERAL NOTES

1. THE INFORMATION SHOWN HEREON IS BASED ON AN ON-THE-GROUND SURVEY PERFORMED BETWEEN BETWEEN SEPTEMBER 26 & DECEMBER 4, 2024, BY ALPHA SURVEY GROUP, LLC. THE HORIZONTAL DATUM FOR THIS PROJECT IS THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83). THE VERTICAL DATUM FOR THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. LOCATIONS OF ANY UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF SUCH UTILITIES, PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS, (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO PROJECT REPRESENTATIVE PRIOR TO EXCAVATION WORK.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE EXTENT OF EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE SITE IMPROVEMENTS.
6. ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE PROCEEDING. ITEMS ENCOUNTERED IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER.
7. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS-BUILT" DRAWINGS.
8. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT LIMITS, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.
9. ALL WORK SHOWN ON THE PLANS AS BOLD SHALL REPRESENT PROPOSED WORK. THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)", OR REMOVE, RELOCATE, RESET, (R,R&R).
10. ALL KNOWN EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND ARE INDICATED ON THE PLANS.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.
12. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.
13. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER.
14. EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. NO STOCKPILING OF MATERIAL, EQUIPMENT OR VEHICULAR TRAFFIC SHALL BE ALLOWED WITHIN THE DRIP LINE OF TREES TO REMAIN. NO GUYS SHALL BE ATTACHED TO ANY TREE TO REMAIN. WHEN NECESSARY OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS FOR THE PROTECTION OF EXISTING TREES DURING CONSTRUCTION.
15. TREES AND SHRUBS WITHIN THE LIMITS OF WORK SHALL BE REMOVED ONLY UPON THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.
16. NO FILLING SHALL OCCUR AROUND EXISTING TREES TO REMAIN WITHOUT THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.
17. THE CONTRACTOR SHALL REMOVE ALL SURFACE VEGETATION PRIOR TO GRADING THE SITE. TEMPORARY EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS (INCLUDING SILT FENCE AND COMPOSITE FILTER TUBES) SHALL BE INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE PROJECT WHICH COST SHALL BE INCIDENTAL TO THE PROJECT.
18. ALL SURPLUS AND/OR UNSUITABLE MATERIAL FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH SPECIFICATION 02 61 00.16 - HANDLING, TRANSPORTATION, REUSE AND OFF-SITE DISPOSAL OF EXCAVATED MATERIAL. SUITABLE SOIL EXCAVATION AS PART OF THE PROJECT MUST MEET ONE OR MORE OF THE MATERIAL REQUIREMENTS SPECIFIED IN 31 00 00 - EARTHWORK. ON-SITE FILL MATERIALS, WHICH DO NOT CONFORM TO SECTION 31 00 00, SHALL NOT BE USED BELOW ANY STRUCTURES. IF THE CONTRACTOR PROPOSES TO USE THE EXISTING FILL ON SITE BELOW PAVEMENT AREAS, OR FOR THE EARTHEN BERM, IT MUST BE DEMONSTRATED THAT THE FILL MEETS THE REQUIREMENTS PER 31 00 00. ALL EXCAVATED FILL MATERIAL WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH SECTION 02 61 00.16.
19. CONTRACTOR IS RESPONSIBLE FOR STAKING CONSTRUCTION BASELINES IN FIELD. NO CONSTRUCTION WILL BE PERFORMED WITHOUT THE PROPOSED BASELINES AND LAYOUTS APPROVED BY THE ENGINEER.
20. NO FILL SHALL CONTAIN HAZARDOUS MATERIALS.
21. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AROUND PERIMETER OF WORK AREA (LIMIT OF WORK). FENCE SHALL NOT IMPEDE TRAVEL WAYS.
22. ANY QUANTITIES SHOWN ON PLANS ARE FOR COMPARATIVE BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE PROJECT SITE TO VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO SUBMITTING BID.
23. ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL, SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES, INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF CONSTRUCTION.
24. CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE AND IN AREAS APPROVED BY OWNER. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.
25. THE CONTRACTOR SHALL KEEP ALL STREETS, PARKING LOTS AND SIDEWALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOM CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.
26. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER.
27. CONTRACTOR SHALL DEWATER AS NECESSARY TO PERFORM THE PROPOSED WORK. SEE SPECIFICATION SECTION 00 31 32 SUBSURFACE DATA).
28. THE LIMIT OF WORK SHALL BE DELINEATED IN THE FIELD PRIOR TO THE START OF SITE CLEARING OR CONSTRUCTION.
29. DEEP SUMP CATCH BASINS AND STORMWATER BASIN SHALL BE CLEANED FOLLOWING CONSTRUCTION AND SHALL FOLLOW THE OPERATION AND MAINTENANCE PLAN THEREAFTER.
30. HAULING OF EARTH MATERIALS TO AND FROM THE SITE SHALL BE RESTRICTED TO THE HOURS OF 7 AM TO 4 PM MONDAY THROUGH FRIDAY.
31. ANY BOULDERS 3 CY OR SMALLER SHALL BE CONSIDERED UNDOCUMENTED FILL AND SHALL BE DISPOSED OF AT NO ADDITIONAL COST TO THE TOWN.
32. WORK ON SATURDAYS SHALL ONLY BE CONDUCTED IF PRIOR WRITTEN PERMISSION IS PROVIDED BY THE OWNER.
33. THE TERM "AS DIRECTED" AS USED IN THE CONTRACT DRAWINGS SHALL BE REPLACED WITH "AS REQUIRED".

EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO BEGINNING ANY CONSTRUCTION OR DEMOLITION. REFER TO PLAN FOR APPROXIMATE LOCATION OF EROSION AND SEDIMENT CONTROL. REFER TO SPECS AND DETAILS FOR TYPE OF EROSION AND SEDIMENT CONTROL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUAL MAINTENANCE OF ALL CONTROL DEVICES THROUGHOUT THE DURATION OF THE PROJECT.
3. CONTRACTOR SHALL MEET ALL OF THE STATE OF MASSACHUSETTS D.E.P. AND THE TOWN OF TRURO WETLANDS PROTECTION REGULATIONS FOR SEDIMENT AND EROSION CONTROL.
4. EXCAVATED MATERIAL STOCKPILED ON THE SITE SHALL BE SURROUNDED BY A RING OF UNBROKEN SEDIMENT AND EROSION CONTROL FENCE. THE LIMITS OF ALL GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMIT OF CONTRACT SHALL REMAIN TOTALLY UNDISTURBED UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
5. ALL CATCH BASINS, DRAIN GRATES, AND CURB INLETS WITHIN OR ADJACENT TO THE PROJECT LIMITS SHALL BE PROTECTED WITH INLET SEDIMENT CONTROL DURING THE ENTIRE DURATION OF CONSTRUCTION.
6. SEDIMENT CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE PLANS, NOTES, DETAILS AND SPECIFICATIONS.
7. ANY AREA OUTSIDE THE PROJECT LIMIT THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
8. THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY OWNER.
9. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC/PRIVATE ROADS.

GRADING, UTILITIES & DRAINAGE NOTES

1. ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF WATER, DRAINAGE AND/OR SEWER SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE TOWN OF TRURO.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
3. ALL GRADING IS TO BE SMOOTH AND CONTINUOUS WHERE PROPOSED GRAVEL SURFACE MEETS EXISTING SURFACE, BLEND THE TWO PAVEMENTS AND ELIMINATE ROUGH SPOTS AND ABRUPT GRADE CHANGES AND MEET LINE AND GRADE OF EXISTING CONDITIONS WITH NEW IMPROVEMENTS.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE (1.5% MINIMUM) AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
5. CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
6. ALL NEW WALKWAYS / ACCESS PATHS MUST CONFORM TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN ONE AND A HALF PERCENT (1.5%) AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) BETWEEN 1% MIN. AND 5% MAX.
7. MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.
8. ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
9. THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
10. EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
11. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
12. WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
13. RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SEED (L&S) UNLESS OTHERWISE NOTED.
14. SEE EARTHWORK SECTION OF SPECIFICATIONS FOR SPECIFIC EXCAVATION AND FILLING PROCEDURES.
15. FOR STRUCTURE REMODELING (REMOD), CONSTRUCTION METHODS SHALL FOLLOW MASSACHUSETTS DOT STANDARD SPEC. LATEST EDITION (SECTION 220).

DEMOLITION & SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION, DEMOLITION AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE IMPROVEMENTS.
2. THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL AND TO RETAIN OWNERSHIP OF SUCH MATERIALS. IF THE OWNER RETAINS ANY MATERIAL THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE MATERIALS REMOVED OFF SITE AT NO ADDITIONAL COST.
3. UNLESS SPECIFICALLY NOTED TO BE SAVED / STOCKPILED (R&S) OR REUSED / RELOCATED (R&R), ALL SITE FEATURES CALLED FOR REMOVAL (REM) SHALL BE REMOVED WITH THEIR FOOTINGS, ATTACHMENTS, BASE MATERIAL, ETC, TRANSPORTED FROM THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE AND AT NO COST TO THE OWNER.
4. ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
5. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
6. IT SHALL BE THE CONTRACTOR'S OPTION, WITH CONCURRENCE OF THE OWNER, TO REUSE EXISTING GRAVEL OR CRUSHED AND PROCESSED ROCK IF IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR GRAVEL BORROW. RE-USE OF ON-SITE MATERIALS SHALL BE EVALUATED ON A CASE-BY-CASE BASIS BY THE GEOTECHNICAL ENGINEER.
7. ALL ITEMS CALLED FOR REMOVAL SHALL BE REMOVED TO FULL DEPTH INCLUDING ALL FOOTINGS, FOUNDATIONS, AND OTHER APPURTENANCES, EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
8. 'CLEAR AND GRUB VEGETATION' SHALL INCLUDE REMOVAL OF GRASS, SHRUBS, AND UNDERBRUSH, REMOVAL OF ROOTS, ROUGH GRADING, INSTALLATION OF LOAM (IF APPLICABLE), FINE GRADING, SEEDING AND TURF ESTABLISHMENT BY THE CONTRACTOR.
9. TREES DESIGNATED FOR REMOVAL SHALL BE TAGGED BY CONTRACTOR AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
10. THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. STRIP & STORE EXISTING TOPSOIL FOR LATER REUSE WHERE APPROPRIATE, AND AS NOTED ON PLAN, WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS.
12. THE CONTRACTOR SHALL PROTECT EXISTING TREES TO REMAIN, CONTRACTOR SHALL INSTALL TREE PROTECTION BARRIER AFTER CLEARING UNDERBRUSH AND TAKE DUE CARE TO PREVENT INJURY TO TREES DURING CLEARING OPERATIONS.

LAYOUT & MATERIALS NOTES

1. REFER TO EXISTING CONDITIONS PLANS FOR SURVEY INFORMATION (SHEETS C100 & C101).
2. COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
3. ALL WORK SHALL BE PERFORMED BY CONTRACTOR UNLESS SPECIFICALLY INDICATED THAT THE WORK WILL BE PERFORMED "BY OWNER".
4. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
5. THE LAYOUT OF ALL NEW PATHWAYS / WALKWAYS AND THE GRADING OF ALL SLOPES AND CROSS SLOPES SHALL CONFORM TO THE COMMONWEALTH OF MASSACHUSETTS RULES AND REGULATIONS FOR HANDICAP ACCESS CMR 521, AND THE AMERICANS WITH DISABILITIES ACT (ADA), TITLE 3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE REQUIRED.
6. ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
7. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION. ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER.
8. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES AND SHALL BE TREATED WITH AN RS-1 TACK COAT AT POINT OF CONNECTION. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.
9. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENT OF ALL PROPOSED FENCES AND GATES.
11. THE DEPTH OF LOAM BORROW FOR ALL PROPOSED LAWN AREAS SHALL BE 6" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED
12. ALL REFERENCES TO LOAM AND SEED (L&S) REFER TO LOAM BORROW AND HYDROMULCH SEEDED LAWN.
13. REFER TO DETAIL DRAWINGS FOR CONSTRUCTION DETAILS.

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
CB	CB	CATCH BASIN
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		WETLAND
WG	WG	WATER GATE
PM	PM	PARKING METER
	OH	OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
	D	UNDERGROUND DRAIN PIPE
	E	UNDERGROUND ELECTRIC DUCT
	G	UNDERGROUND GAS MAIN
	S	UNDERGROUND SEWER MAIN
	T T	UNDERGROUND TELEPHONE DUCT
	W	UNDERGROUND WATER MAIN
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
	X X X	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
DHV	DESIGN HOURLY VOLUME
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

Project:
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GENERAL NOTES & LEGEND

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NOTES:

1) THE INFORMATION SHOWN HEREON IS BASED ON AN ON-THE-GROUND SURVEY PERFORMED BETWEEN BETWEEN SEPTEMBER 26 & DECEMBER 4, 2024, BY ALPHA SURVEY GROUP, LLC.

2) THE HORIZONTAL DATUM FOR THIS PROJECT IS THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), CORS ADJUSTMENT (NAD83 (2011)/GEOID18) AS DETERMINED BY REDUNDANT GPS OBSERVATIONS MADE BETWEEN SEPTEMBER 26 & OCTOBER 4, 2024. UTILIZING MACORS REAL TIME NETWORK.

3) THE VERTICAL DATUM FOR THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), CORS ADJUSTMENT (NAD83 (2011)/GEOID18) AS DETERMINED BY REDUNDANT GPS OBSERVATIONS MADE BETWEEN SEPTEMBER 26 & OCTOBER 4, 2024. UTILIZING MACORS REAL TIME NETWORK. DIFFERENTIAL LEVELING WAS PERFORMED BETWEEN THE BENCHMARKS SHOWN HERON AND SELECT ALPHA SURVEY CONTROL POINTS UTILIZING A SOKKIA DIGITAL LEVEL & BAR-CODED ROD.

5) THE SUBJECT PREMISES DOES NOT LIE WITHIN A FEMA FLOOD ZONE BASED UPON FLOOD INSURANCE RATE MAP NUMBERS 25001C0231J WITH AN EFFECTIVE DATE OF 7/16/2014.

6) THE PROPERTY LINES SHOWN HEREON ARE BASED ON CITED PLANS AND DEEDS AND AN ON-THE-GROUND SURVEY. THE BOUNDARIES WERE ESTABLISHED UTILIZING PRIMACODE'S TRANSFORM PROGRAM TO OBTAIN A "BEST FIT" TO MONUMENTS LOCATED IN THE FIELD.

7) THIS PLAN AND THE ACCOMPANYING CERTIFICATIONS DO NOT CONSTITUTE A CERTIFICATION OF TITLE TO THE PROPERTY DISPLAYED HEREON. THE OWNER OF LOCUS AND ABUTTING PROPERTIES ARE SHOWN ACCORDING TO THE CURRENT TOWN ASSESSOR'S RECORDS. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE ABSTRACT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.

8) TOPOGRAPHICAL CONTOURS SHOWN ON 22 & 24 MEETING HOUSE RD. TAKEN FROM 2021 USGS LIDAR: CENTRAL EASTERN MASSACHUSETTS.

9) ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.

PLAN REFERENCES:

PB 174 PG 83
PB 174 PG 85
PB 213 PG 45
PB 215 PG 69
PB 316 PG 60
PB 368 PG 100
PB 378 PG 19
PB 551 PG 12

DRAWING LEGEND

WATER SHUT OFF	WSO
ELECTRIC METER	E
UTILITY POLE	
GUY WIRE ANCHOR	GUY
SEWER MANHOLE	S
CATCH BASIN	
HAND HOLE	HH
HYDRANT	
BOLLARD	
LIGHT POLE	
FLOODLIGHT	
TREE (SIZE INCHES)	
MONITORING WELL	MW#
GAS LINE	G
TELEPHONE LINE	T
DRAIN LINE	D
SEWER LINE	S
ELECTRIC LINE	E
WATER LINE	W
OVERHEAD ELECTRIC	OHW
CHAIN LINK FENCE	X X
TREELINE	
RETAINING	RET.
CONCRETE	CONC.
BITUMINOUS	BIT.
SPOT GRADE	X 100.00
FOUND	~F
RECORD	(R)
STONE BOUND	SB
CONCRETE BOUND	CB
DRILL HOLE	DH
IRON PIPE	IP
IRON ROD	IR
PARKER-KALON NAIL	PK
MAG NAIL	MAG
BENCHMARK	
TRAVERSE (CONTROL) POINT	
SIGN	
REFLECTIVE ROAD MARKER	MRK
SPLICE BOX	SBOX
EMERGENCY FUEL SHUT OFF	EFSO
FUEL SERVICE PUMP	FS
FLAG POLE	FP



SUBSURFACE INVESTIGATION LEGEND

B-1 - B-6	4/15/2025 - 4/16/2025 BORINGS COMPLETED BY DESMOND WELL DRILLING, INC., OBSERVED & LOCATED BY WESTON & SAMPSON (WSE)
TH-1 - TH-6	4/15/2025 STORMWATER TEST PITS (FIELD NOTES COMPLETED BY TRURO BOH)
TP-1 - TP-4 TP-100 - TP-102	10/02/2025 - TEST PITS COMPLETED BY TOWN OF TRURO DPW, OBSERVED & LOCATED BY WESTON & SAMPSON (WSE)
P-1	10/02/2025 - PERC TEST HOLE COMPLETED BY TOWN OF TRURO DPW, OBSERVED & LOCATED BY WESTON & SAMPSON (WSE) & TRURO BOH

0 30 60 100
SCALE: 1" = 30'

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SITE NOTES

1. ALL EXISTING PIPES TO BE ABANDONED SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION SECTION 02 41 13.29 "ABANDONMENT OF SEWER AND DRAINS."
2. ALL EXISTING UTILITIES, PIPES, STRUCTURES, OBSERVATION WELLS, ETC. SHALL BE ABANDONED AS REQUIRED TO COMPLETE THE WORK AS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL COORDINATE REMOVAL OF MATERIAL STOCKPILES WITH THE TRURO DPW. TOWN SHALL REMOVE MATERIAL STOCKPILES IN ADVANCE OF THE WORK.
4. ALL UTILITIES AND DRAINAGE STRUCTURES BELOW PROPOSED FOOTPRINT OF BUILDINGS MUST BE REMOVED IN THEIR ENTIRETY.
5. REMOVAL OF CONCRETE WALLS SHALL INCLUDE ALL ASSOCIATED FOUNDATIONS.
6. UTILITIES FOR SITE AMENITIES INCLUDING LIGHT POLES AND BUILDINGS SCHEDULED TO BE DEMOLISHED SHALL BE DISCONNECTED AND MADE SAFE AT THE POWER SOURCE BY THE ELECTRICAL FILED SUB-BIDDER. SITE CONTRACTOR TO REMOVE AMENITIES INCLUDING THE DISCONNECTED UTILITIES FEEDING THE AMENITIES.
7. ALL VOIDS CREATED BY REMOVAL OF EXISTING ELEMENTS SHALL BE BACKFILLED WITH GRAVEL BORROW IN ACCORDANCE WITH 31 00 00 EARTHWORK.
8. CONTRACTOR SHALL BE AWARE THAT THE EXISTING LIMIT OF BITUMINOUS CONCRETE IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY LIMITS PRIOR TO BIDDING. ALL EXISTING BITUMINOUS CONCRETE SHALL BE REMOVED TO COMPLETE THE PROPOSED WORK WITHOUT ADJUSTMENT TO COMPENSATION.
9. SEDIMENTATION CONTROL DEVICES WITHIN THE TOWN'S RIGHT OF WAY, MUST BE MAINTAINED, INSPECTED, CLEANED AND REPLACED AS NECESSARY TO PREVENT POSSIBLE FLOODING ISSUES DURING RAIN EVENTS. ONCE ALL WORK IS DONE, ANY SEDIMENTATION CONTROL DEVICES MUST BE REMOVED BY THE CONTRACTOR AS SOON AS POSSIBLE.
10. CONTRACTOR SHALL CORDON OFF THE INFILTRATION POND AREA TO PREVENT CONSTRUCTION EQUIPMENT AND STOCKPILES MATERIALS FROM COMPACTING THE SUBGRADE SOILS. SEE PLAN C401 GRADING & DRAINAGE PLAN FOR POND LOCATION.
11. CONTRACTOR SHALL MAINTAIN CONTINUOUS ACCESS TO ENSURE CONTINUOUS OPERATION OF THE EXISTING FUEL ISLAND AND COORDINATE ANY CONSTRUCTION ACTIVITIES THAT MIGHT TEMPORARILY INTERFERE WITH OPERATION WITH THE TOWN.

SITE PREPARATION LEGEND

- STABILIZED CONST ENTRANCE
- STRUCTURES TO BE DEMOLISHED AND REMOVED FROM SITE
- GRAVEL SURFACE TO BE REMOVED
- PAVEMENT TO BE REMOVED
- LIMITS OF TREE CLEARING
- TEMPORARY CONSTRUCTION FENCE
- SILT FENCE
- COMPOST FILTER TUBING
- LIMIT OF WORK
- TREE REMOVAL
- INLET PROTECTION
- REMOVE STRUCTURE
- REMOVE UTILITY LINE OR SURFACE FEATURE



0 20 50 100

SCALE: 1" = 20'

Project:

TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
TRURO, MA 02666

Weston & Sampson

Weston & Sampson Engineers, Inc.
100 Foxborough Boulevard, Suite 250
Foxborough, MA 02035
978.532.1900 800.SAMPSON

www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

COA:

Seal:

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DESIGN DEVELOPMENT NOT RELEASED FOR CONSTRUCTION

Scale: AS NOTED

Date:	OCTOBER 31, 2025
Drawn By:	AKA
Reviewed By:	AP
Approved By:	AP
W&S Project No.:	ENG24 - 1552
W&S File No.:	-

Drawing Title:

SITE PREPARATION AND EROSION CONTROL PLAN & DEMOLITION PLAN

Sheet Number:

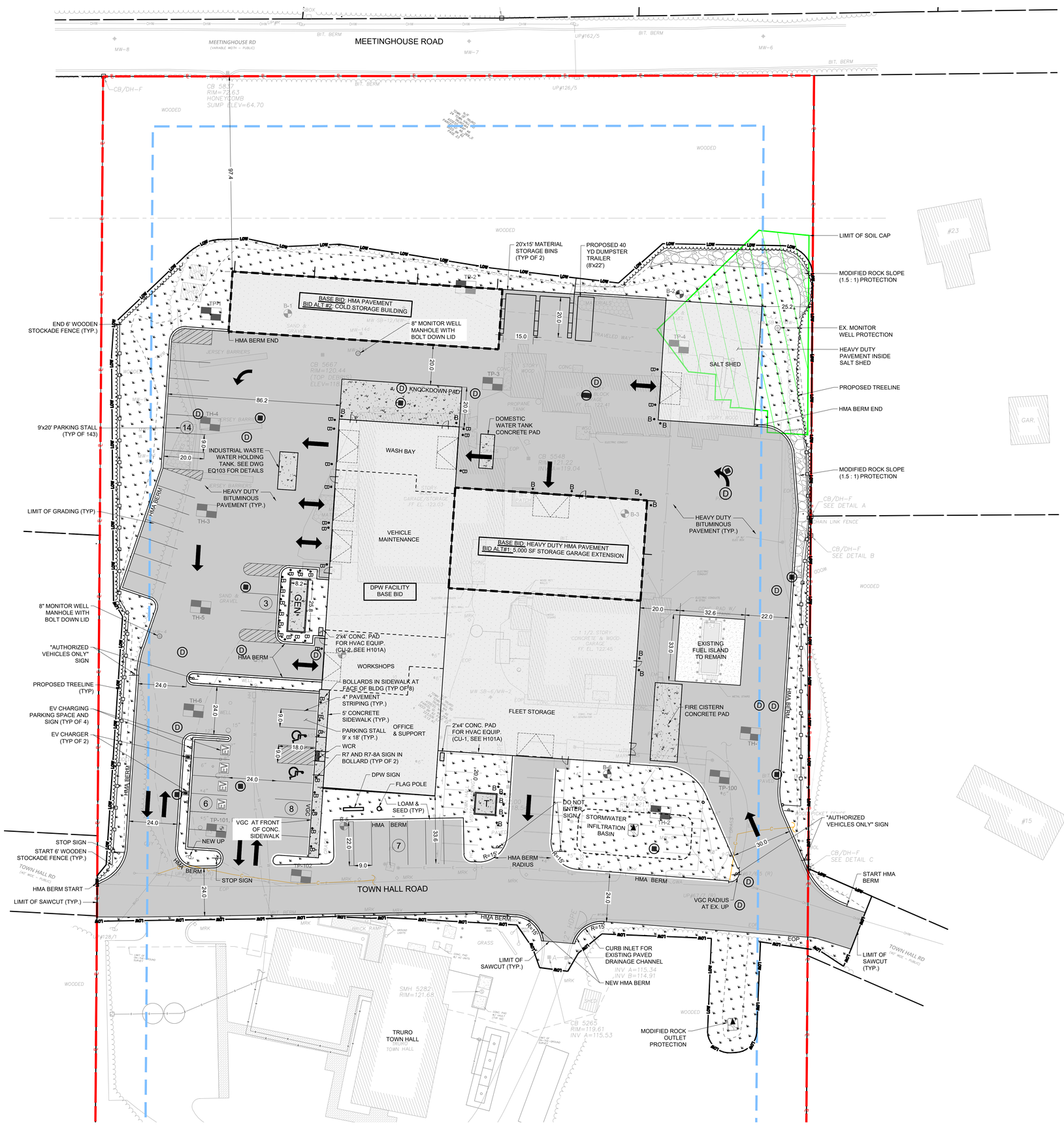
C201

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NOTE:
1. THE CONTRACTOR SHALL GIVE TWENTY-FOUR (24) HOUR NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK IN THE FIELD.
2. DIRECTIONAL ARROWS ARE SHOWN FOR INFORMATION ONLY TO SHOW THE DIRECTION OF TRAFFIC ON SITE. THEY DO NOT INDICATE PAVEMENT MARKINGS.
3. GRANITE CURB SHALL BE TYPE VA-4 UNLESS OTHERWISE IDENTIFIED.
4. PROVIDE NEW HOT MIX ASPHALT PAVEMENT BETWEEN ALL PROPOSED CURB LINES & BUILDINGS, (INCLUDING UP TO SAWCUT LIMITS) AND BETWEEN PROPOSED RETAINING WALLS, CURB LINES & BUILDING.
5. CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION SIGNAGE AS REQUIRED FOR CONTROL OF TRAFFIC AND PEDESTRIANS.
6. CONTRACTOR SHALL PATCH EXISTING PAVED AREAS WITH HMA FOLLOWING UTILITY INSTALLATION.
7. ALL BACKFILL MATERIAL BELOW PROPOSED BUILDINGS SHALL CONSIST OF STRUCTURAL AGGREGATE BACKFILL OR PROCESSED GRAVEL PER SPECIFICATION SECTION 31 00 00-EARTHWORK.

LEGEND

- BITUMINOUS PAVEMENT
- CONCRETE
- LOAM & SEED/PLANTINGS (SEE LANDSCAPE PLAN)
- MODIFIED ROCKFILL
- LOW — LIMIT OF WORK



0 20 50 100
SCALE: 1" = 20'

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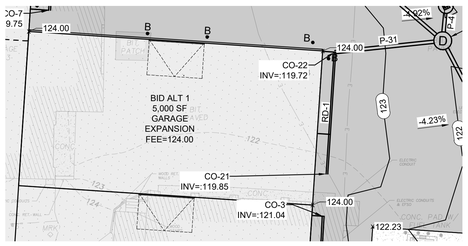
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W&S File No.: -

Drawing Title:
SITE LAYOUT & MATERIALS PLAN

Sheet Number:
C301

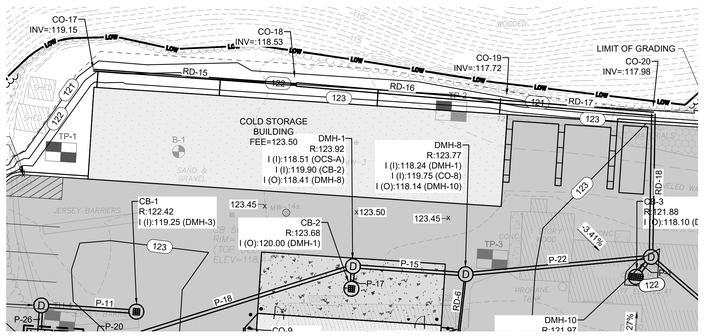
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INSERT 1



BID ALT -1 - GARAGE EXTENSION
SCALE 1"=20'
NOTE: DELETE CB-10 AND P-30
ADD: RD-1, CO-21, CO-22, AND P-31

INSERT 2



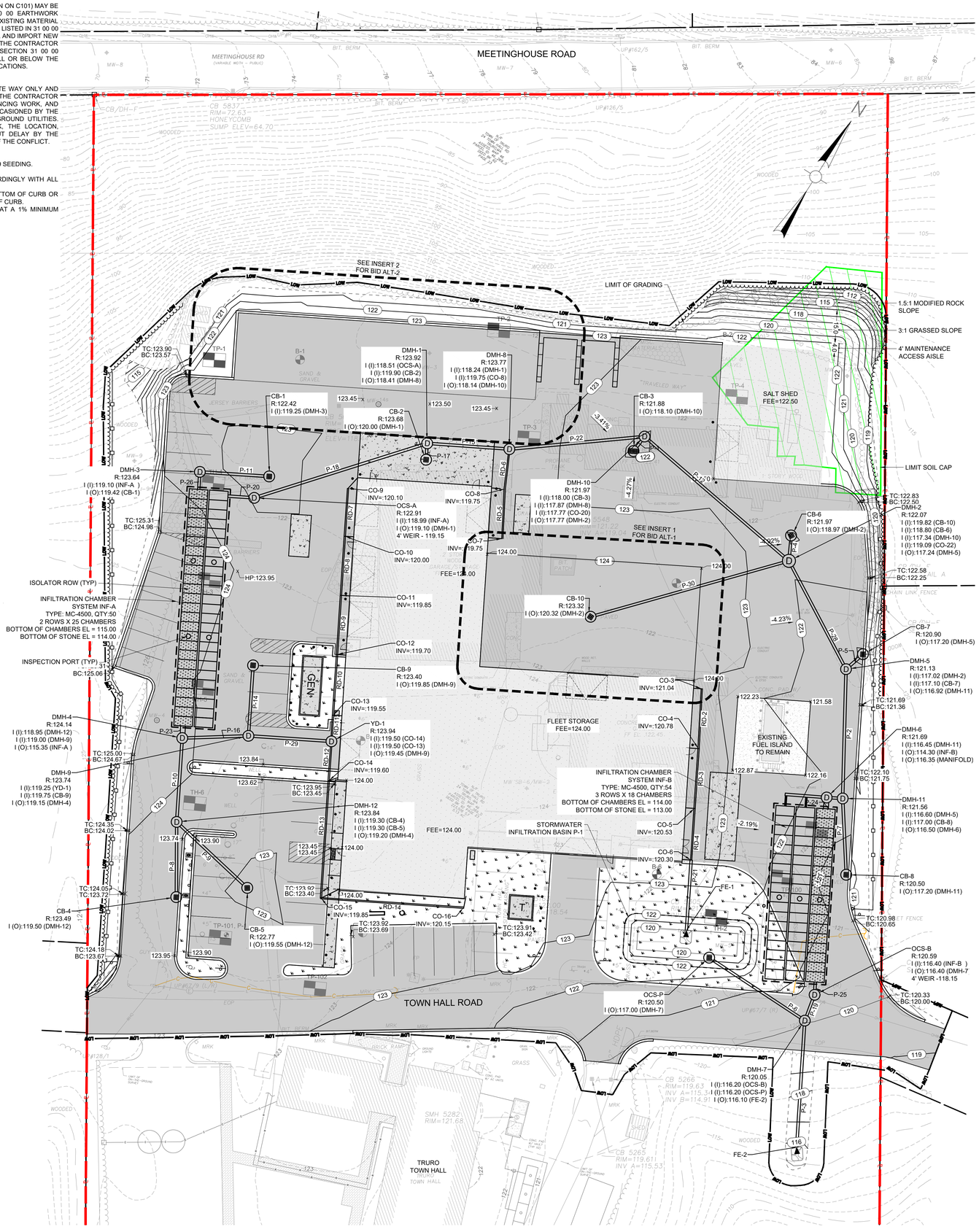
BID ALT -2 - COLD STORAGE BUILDING
SCALE 1"=20'
ADD: STRUCTURES CO-17 THROUGH CO-20
PIPES RD-15 THROUGH RD-18

PIPE TABLE					
PIPE	SIZE & TYPE	LENGTH	SLOPE	INV IN	INV OUT
MANIFOLD	12" HDPE	17-LF	0.006	116.35	116.25
P-1	12" HDPE	4-LF	0.012	118.10	118.00
P-2	12" HDPE	54-LF	0.006	116.92	116.60
P-3	12" HDPE	53-LF	0.006	116.10	115.75
P-4	12" HDPE	7-LF	0.018	118.97	118.80
P-5	12" HDPE	6-LF	0.010	117.20	117.10
P-6	12" HDPE	47-LF	0.016	117.00	116.20
P-7	12" HDPE	30-LF	0.006	117.20	117.00
P-8	12" HDPE	30-LF	0.006	119.50	119.30
P-9	12" HDPE	39-LF	0.006	119.55	119.30
P-10	12" HDPE	34-LF	0.007	119.20	118.95
P-11	12" HDPE	27-LF	0.005	119.42	119.25
P-12	12" HDPE	81-LF	0.005	117.77	117.34
P-14	12" HDPE	28-LF	0.003	119.85	119.75
P-15	12" HDPE	33-LF	0.005	118.41	118.24
P-16	12" HDPE	26-LF	0.005	119.15	119.00
P-17	12" HDPE	3-LF	0.014	120.00	119.90
P-18	12" HDPE	77-LF	0.007	119.10	118.51
P-19	12" HDPE	8-LF	0.016	116.40	116.20
P-20	12" HDPE	8-LF	0.009	119.10	118.99
P-21	12" HDPE	30-LF	0.010	120.30	120.00
P-22	12" HDPE	57-LF	0.004	118.14	117.87
P-23	24" HDPE	1-LF	0.028	115.35	115.20
P-24	24" HDPE	1-LF	0.020	114.30	114.20
P-25	12" HDPE	2-LF	0.000	116.40	116.40
P-26	12" HDPE	4-LF	0.006	119.15	119.10
P-27	12" HDPE	3-LF	0.007	116.50	116.45
P-28	12" HDPE	50-LF	0.004	117.24	117.02
P-29	12" HDPE	33-LF	0.005	119.45	119.25
P-30	12" HDPE	88-LF	0.005	120.32	119.82

PIPE TABLE					
PIPE	SIZE & TYPE	LENGTH	SLOPE	INV IN	INV OUT
P-31	12" HDPE	31-LF	0.018	119.72	119.09
RD-1	6" HDPE	36-LF	0.001	119.85	119.80
RD-2	6" HDPE	23-LF	0.010	121.04	120.78
RD-3	6" HDPE	23-LF	0.009	120.78	120.53
RD-4	6" HDPE	19-LF	0.010	120.53	120.30
RD-5	6" HDPE	18-LF	0.000	119.75	119.75
RD-6	6" HDPE	14-LF	0.000	119.75	119.75
RD-7	6" HDPE	17-LF	0.005	120.10	120.00
RD-8	6" HDPE	23-LF	0.006	120.00	119.85
RD-9	6" HDPE	23-LF	0.006	119.85	119.70
RD-10	6" HDPE	23-LF	0.006	119.70	119.55
RD-11	6" HDPE	8-LF	0.004	119.55	119.50
RD-12	6" HDPE	14-LF	0.006	119.60	119.50
RD-13	6" HDPE	49-LF	0.005	119.85	119.60
RD-14	6" HDPE	60-LF	0.005	120.15	119.85
RD-15	6" HDPE	66-LF	0.009	119.15	118.53
RD-16	12" HDPE	69-LF	0.005	118.53	118.20
RD-17	12" HDPE	48-LF	-0.010	117.72	118.20
RD-18	12" HDPE	45-LF	0.005	117.98	117.77

NOTES:

1. ALL EXISTING EARTHWORK MATERIALS, (EXCEPT FOR STOCKPILED FILL MATERIALS SHOWN ON C101) MAY BE INCORPORATED IN THE WORK AND USED FOR BACKFILL IF MATERIALS MEET 31 00 00 EARTHWORK SPECIFICATION REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR TESTING OF EXISTING MATERIAL FOR POTENTIAL REUSE ON SITE. IF MATERIAL DOES NOT MEET MATERIAL REQUIREMENTS LISTED IN 31 00 00 FOR REUSE ON SITE, THEN THE CONTRACTOR SHALL REMOVE AND DISPOSE OF MATERIAL AND IMPORT NEW MATERIAL AS NEEDED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE TOWN. THE CONTRACTOR SHALL PROVIDE ADDITIONAL BACKFILL MATERIALS AS NEEDED AND AS SPECIFIED IN SECTION 31 00 00 EARTHWORK. NO ON-SITE BACKFILL MATERIAL MAY BE USED AS PIPE TRENCH BACKFILL OR BELOW THE BUILDING SLAB AND FOUNDATION, UNLESS IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, ALL DRAIN MANHOLES SHALL BE 4' DIAMETER.
3. ALL RIM ELEVATIONS SHALL BE FLUSH WITH FINISH GRADE.
4. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
5. DUMPSTER PADS SHALL SLOPE AT A MINIMUM 2% INTO THE PAVED AREA.
6. ALL CATCH BASINS SHALL BE SET FLUSH AGAINST THE GRANITE CURBING.
7. EROSION CONTROL FABRIC SHALL BE USED FOR ALL SLOPES 3:1 OR STEEPER PER 32 91 19 SEEDING.
8. REFER TO EXISTING CONDITIONS PLAN FOR BENCHMARK LOCATIONS.
9. REFER TO UTILITY PLAN FOR PROPOSED UTILITY LOCATIONS AND COORDINATE ACCORDINGLY WITH ALL GRADING AND DRAINAGE WORK.
10. UNLESS NOTED AS TOP OF CURB (TOC), ALL SPOT ELEVATIONS ARE SHOWN AS THE BOTTOM OF CURB OR BOTTOM OF WALL ELEVATION. TOP OF CURB ELEVATIONS ARE 6" HIGHER THAN BOTTOM OF CURB.
11. GRASSED AREAS ADJOINING THE BUILDING SHALL SLOPE AWAY FROM THE BUILDING AT A 1% MINIMUM SLOPE.



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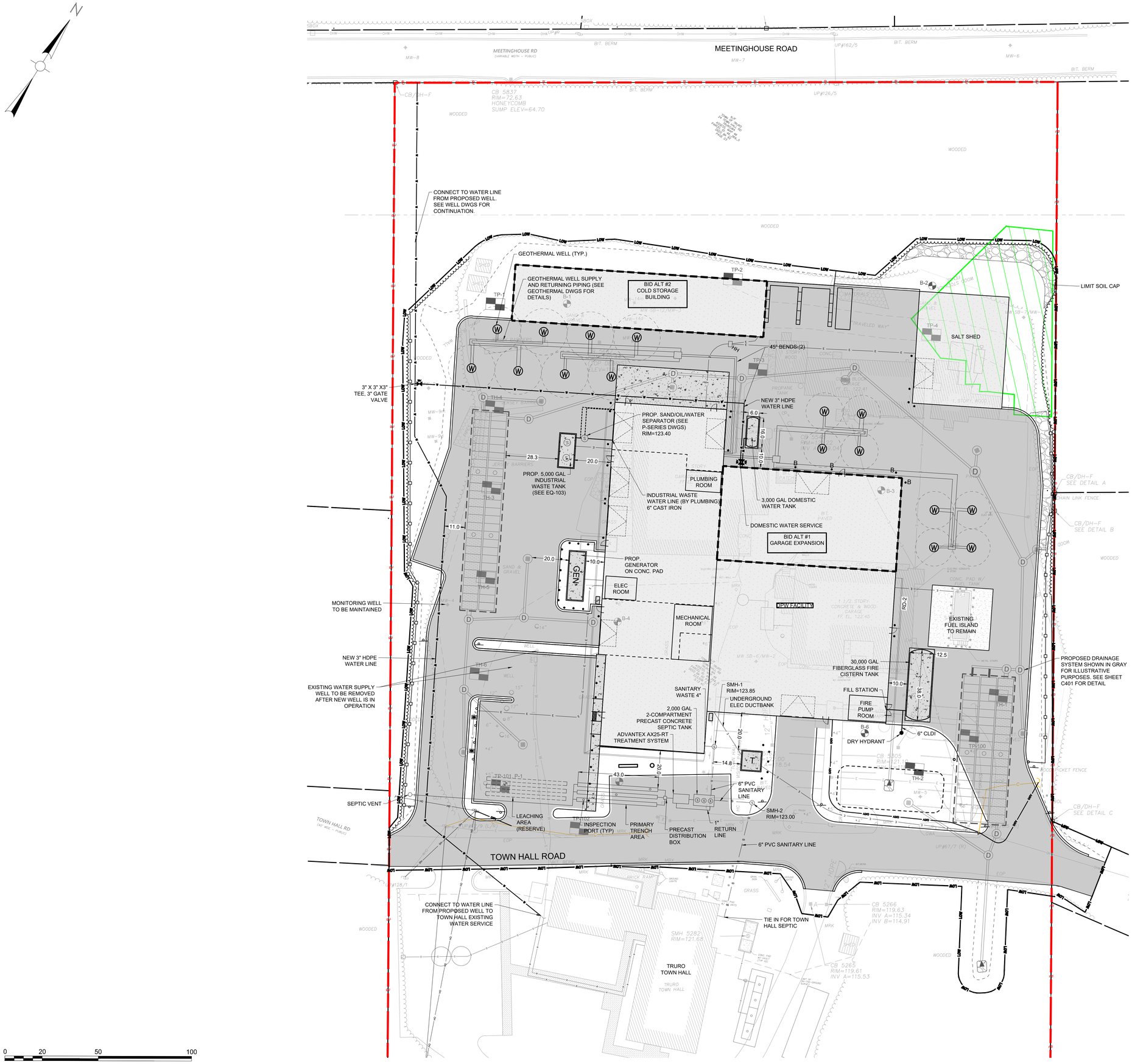
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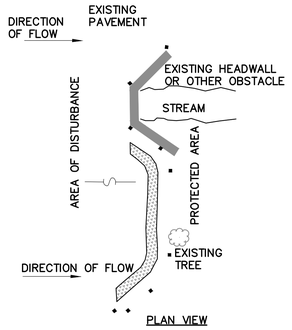
GRADING & DRAINAGE PLAN

Sheet Number:

C401

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MEETINGHOUSE ROAD
MEETINGHOUSE RD
(VARIABLE WIDTH – PUBLIC)
TOWN HALL ROAD
(40' WIDE – PUBLIC)
CONNECT TO WATER LINE FROM PROPOSED WELL. SEE WELL DWGS FOR CONTINUATION.
GEOTHERMAL WELL (TYP.)
GEOTHERMAL WELL SUPPLY AND RETURNING PIPING (SEE GEOTHERMAL DWGS FOR DETAILS)
BID ALT #2 COLD STORAGE BUILDING
LIMIT SOIL CAP
SALT SHED
45° BENDS-(2)
3" X 3" X3" TEE, 3" GATE VALVE
NEW 3" HDPE WATER LINE
PROP. SAND/OIL/WATER SEPARATOR (SEE P-SERIES DWGS) RIM=123.40
PROP. 5,000 GAL INDUSTRIAL WASTE TANK (SEE EQ-103)
PLUMBING ROOM
INDUSTRIAL WASTE WATER LINE (BY PLUMBING) 6" CAST IRON
3,000 GAL DOMESTIC WATER TANK
DOMESTIC WATER SERVICE
BID ALT #1 GARAGE EXPANSION
PROP. GENERATOR ON CONC. PAD
ELEC ROOM
MECHANICAL ROOM
DPW FACILITY
MONITORING WELL TO BE MAINTAINED
NEW 3" HDPE WATER LINE
EXISTING WATER SUPPLY WELL TO BE REMOVED AFTER NEW WELL IS IN OPERATION
EXISTING FUEL ISLAND TO REMAIN
30,000 GAL FIBERGLASS FIRE CISTERN TANK
PROPOSED DRAINAGE SYSTEM SHOWN IN GRAY FOR ILLUSTRATIVE PURPOSES. SEE SHEET C401 FOR DETAIL
SANITARY WASTE 4"
SMH-1 RIM=123.85
UNDERGROUND ELEC DUCTBANK
FILL STATION
FIRE PUMP ROOM
2,000 GAL 2-COMPARTMENT PRECAST CONCRETE SEPTIC TANK
ADVANTEX AX25-RT TREATMENT SYSTEM
DRY HYDRANT
6" CLDI
6" PVC SANITARY LINE
SMH-2 RIM=123.00
SEPTIC VENT
LEACHING AREA (RESERVE)
INSPECTION PORT (TYP)
PRIMARY TRENCH AREA
PRECAST DISTRIBUTION BOX
1" RETURN LINE
6" PVC SANITARY LINE
CONNECT TO WATER LINE FROM PROPOSED WELL TO TOWN HALL EXISTING WATER SERVICE
TIE IN FOR TOWN HALL SEPTIC
TRURO TOWN HALL
CB/DH-F SEE DETAIL A
CB/DH-F SEE DETAIL B
CB/DH-F SEE DETAIL C
CHAIN LINK FENCE
PICKET FENCE
CB 5266 RIM=119.63 INV A=115.34 INV B=114.91
CB 5265 RIM=119.61 INV A=115.53
SMH 5282 RIM=121.68
CB 5205 RIM=121.11
CB 5279 (L) RIM=122.79
CB 5280 RIM=122.41
CB 5281 RIM=122.54
CB 5278 RIM=122.79
CB 5277 RIM=122.79
CB 5276 RIM=122.79
CB 5275 RIM=122.79
CB 5274 RIM=122.79
CB 5273 RIM=122.79
CB 5272 RIM=122.79
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CB

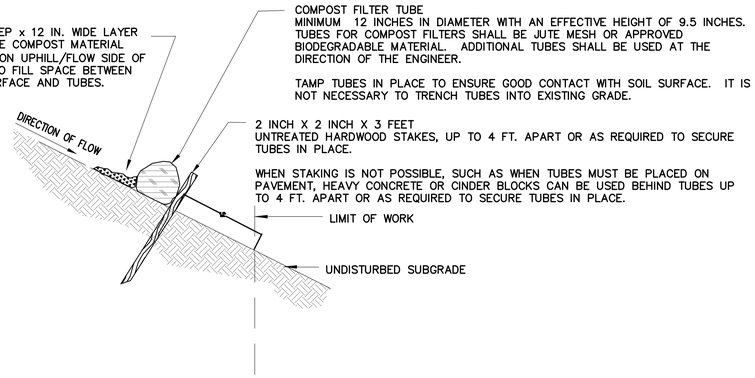


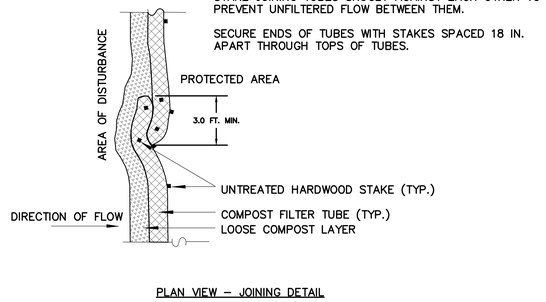
PLACING TUBES AGAINST THE UPHILL SIDE OF WELL– ANCHORED, STATIONARY FEATURES SUCH AS EXISTING TREES CAN PROVIDE ADDITIONAL BRACING.

CURVE ENDS UPHILL TO PREVENT DIVERSION OF UNFILTERED RUN–OFF.

GENERAL NOTES:

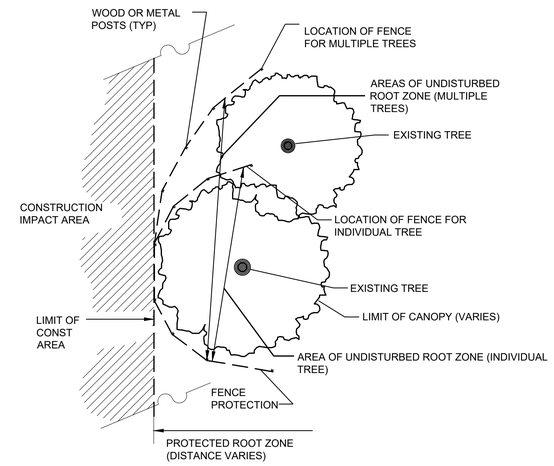
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN–OFF.
5. MULCH MATERIAL FOR THE FILTER TUBES SHALL BE WEED–FREE STRAW, WOOD EXCELSIOR, OR WOOD CHIPS, OR COIR. STRAW SHALL BE WEED FREE AND DERIVED FROM THRESHING OF GRAIN CROP.



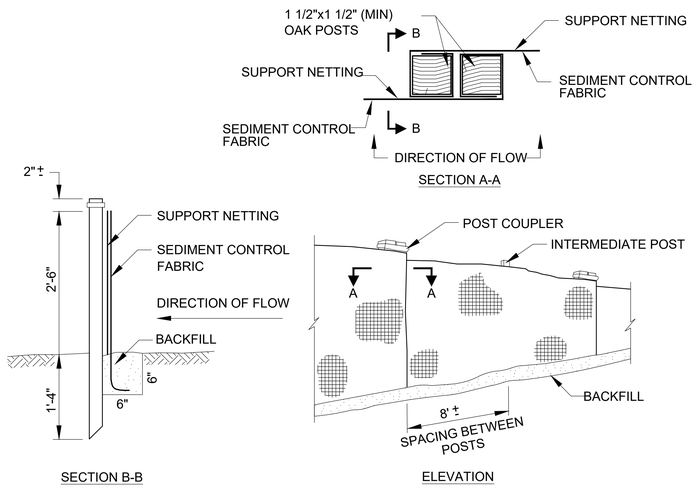


PLAN VIEW – JOINING DETAIL

1 EROSION CONTROL MEASURE: SINGLE COMPOST FILTER TUBE DETAIL
SCALE: N.T.S.



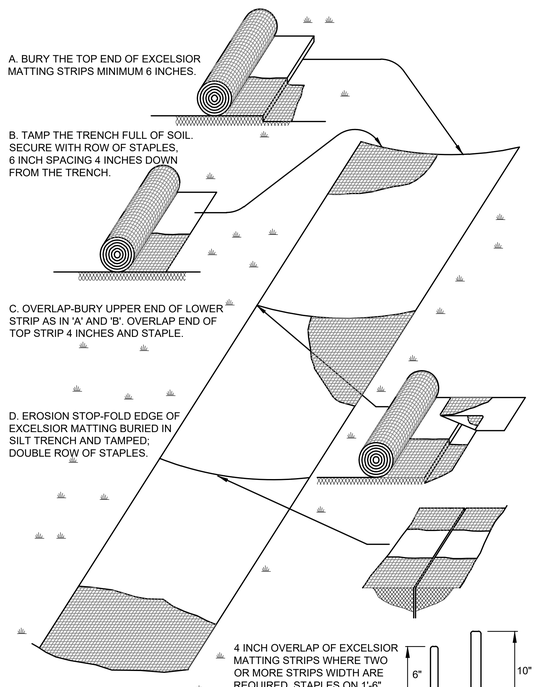
PLAN VIEW



SECTION B-B ELEVATION

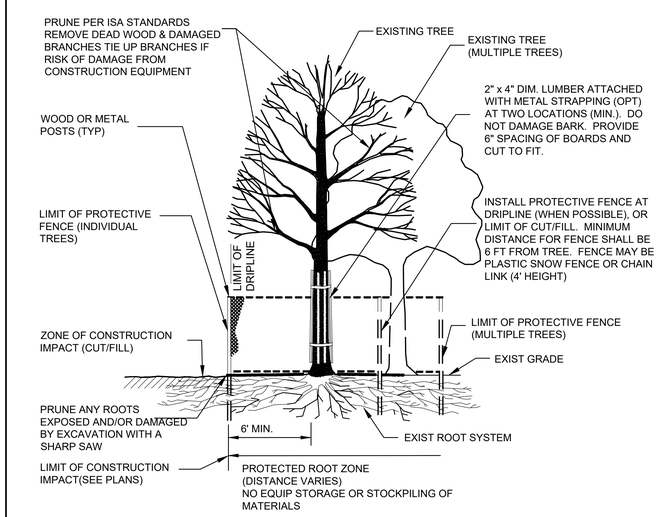
2 SILT FENCE DETAIL
SCALE: N.T.S.

1. EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.
2. AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
3. IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE, SWALES AND DITCHES, ROUGH AND FINISH GRADING, AND STOCKPILING OF EARTH.
4. DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF SILT FENCE ACTIVITIES.
5. TEMPORARY SILT CONTROLS SHALL BE PLACED AS SHOWN ON THE PLAN. PERMANENTLY STABILIZE EACH COMPLETED SEGMENT OF CONSTRUCTION.
6. THE CONTRACTOR SHALL REMOVE TEMPORARY SILT CONTROLS AND ALL ACCUMULATED SILT AND DEBRIS AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
7. SILT CONTROLS SHALL BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL SILT AND DEBRIS FROM EACH DRAINAGE STRUCTURE UPON COMPLETION OF THE PROJECT.
9. OBJECTS AND/OR AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
10. ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING GRADE. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS NEEDED.
11. SILT CONTROLS SHALL BE REMOVED UPON THE SATISFACTORY COMPLETION OF ALL WORK SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
12. SITE PERIMETER SHALL HAVE COMPOST FILTER TUBES INSTALLED AS SHOWN ON C201.

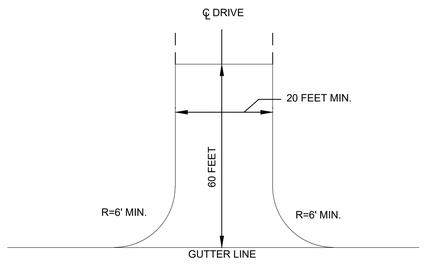


3 EROSION CONTROL BLANKET
SCALE: N.T.S.

NOTE:
JUTE NETTING TO BE USED ON ALL SLOPES GREATER THAN 4H:1V AS INDICATED ON GRADING PLANS



4 EXISTING TREE PROTECTION
SCALE: N.T.S.

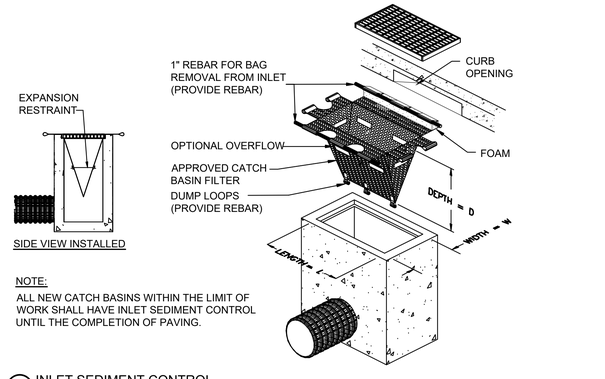


PLAN

NOTES:

1. AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE PLACED AT EACH ENTRANCE TO THE SITE, THROUGHOUT CONSTRUCTION ACTIVITIES.
2. THE LOCATION OF THE CONSTRUCTION ENTRANCE(S) SHALL BE APPROVED BY THE OWNER PRIOR TO PLACEMENT.
3. CONSTRUCTION ENTRANCE(S) SHALL CONSIST OF 2" CRUSHED STONE PLACED AT A DEPTH OF A MINIMUM 8 INCHES PLACED OVER GEOTEXTILE FABRIC.
4. CONTRACTOR IS RESPONSIBLE FOR DAILY INSPECTION AND ALL NECESSARY MAINTENANCE OF ALL ENTRANCES.
5. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SEDIMENTS OR ANY OTHER MATERIALS TRACKED ONTO THE STREET, AS WELL MAINTENANCE OF EROSION CONTROL MEASURES.

5 STABILIZED TEMPORARY CONSTRUCTION ENTRANCE
SCALE: N.T.S.



NOTE:
ALL NEW CATCH BASINS WITHIN THE LIMIT OF WORK SHALL HAVE INLET SEDIMENT CONTROL UNTIL THE COMPLETION OF PAVING.

6 INLET SEDIMENT CONTROL
SCALE: N.T.S.

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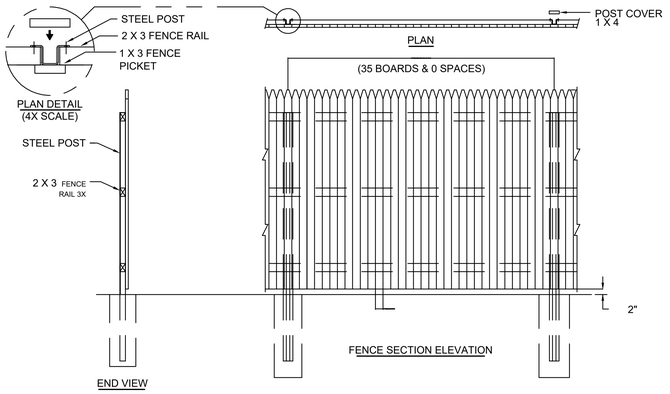
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Date: OCTOBER 31, 2025
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Reviewed By: AP
Approved By: AP
W&S Project No.:ENG24 - 1552
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SITE DETAILS I

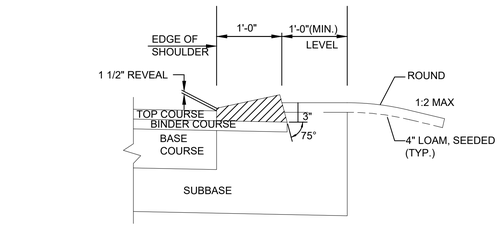
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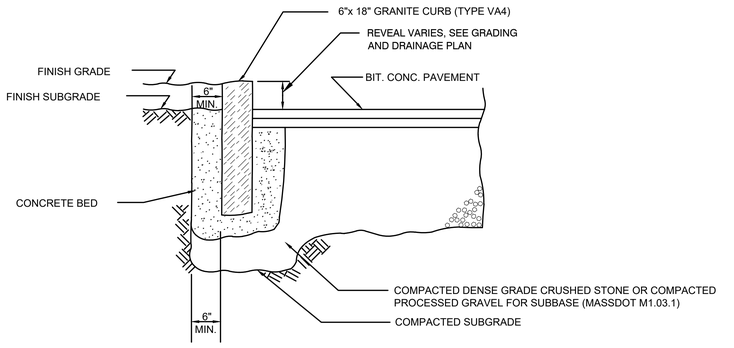


NOTES:
1. FOOTING WIDTH TO BE 10" [254MM]. MINIMUM DEPTH 30" [762MM].
2. DIMENSIONS SHOWN ARE NOMINAL FOR WOOD.

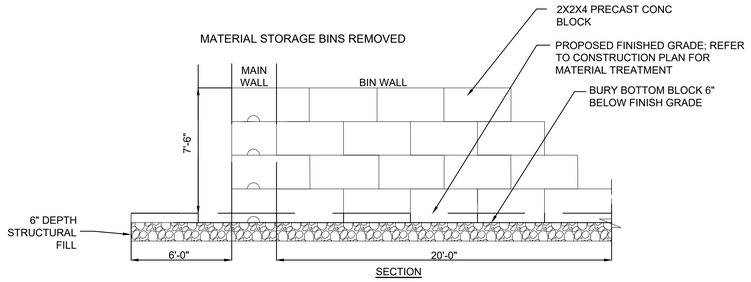
1 WOOD STOCKADE DETAIL
SCALE: N.T.S.



2 HMA BERM
SCALE: N.T.S.



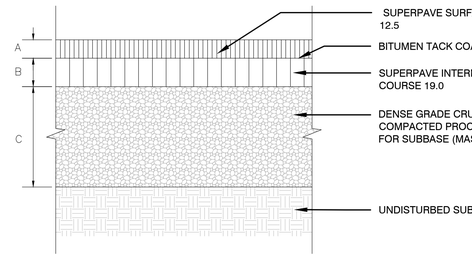
3 GRANITE CURB DETAIL
SCALE: N.T.S.



NOTES:

1. PRECAST BLOCKS SHALL BE INTERLOCKING AT ALL INTERSECTING WALLS.
2. PAINTING CONTRACTOR SHALL PAINT A 4" MARKER AT 6' ABOVE FINISHED GRADE ALONG THE INTERIOR PERIMETER OF EACH BULK MATERIAL STORAGE BIN.
3. CONTRACTOR SHALL PROVIDE A SIGN IN ACCORDANCE WITH MASSDOT STANDARD SPECIFICATION SECTION 828. THE SIGN SHALL BE 8 INCHES TALL AND HAVE LETTERING SIMILAR TO STREET NAME SIGN TYPE D3, AS DESCRIBED IN THE MUTCD (LATEST EDITION). THE SIGN SHALL STATE "MAXIMUM FILL HEIGHT 6 FEET" FOR EACH STORAGE BIN.
4. 2"Wx8"Lx1/2" THICK GALVAN. STEEL PLATE BOLTED TO EACH BLOCK AT VERTICAL JOINT. (TYP) PLATE PROVIDED AND INSTALLED BY G.C. PROVIDE PRE-DRILLED HOLES FOR SELF TAPPING CONCRETE SCREWS.
5. THE CONTRACTOR SHALL SUBMIT WALL DESIGN STAMPED BY A MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER. THE SUBMITTAL MUST BE APPROVED BY THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

4 PRECAST CONCRETE BLOCK STORAGE BIN WALL DETAIL
SCALE: N.T.S.

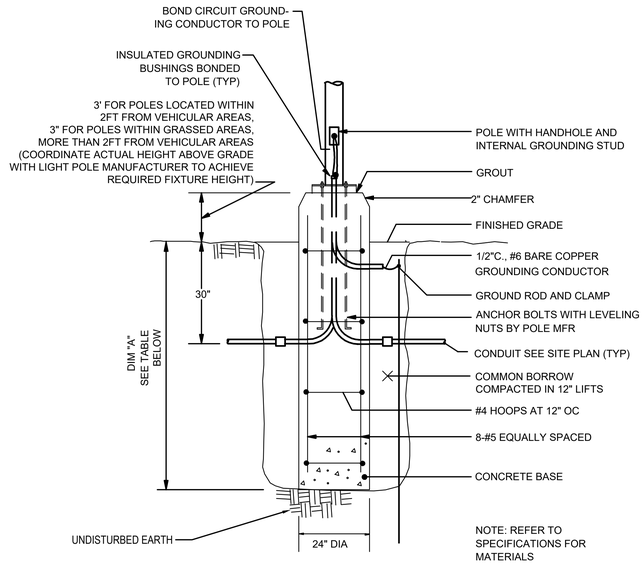


PAVEMENT DEPTH SCHEDULE

	TOP (A)	BINDER (B)	BASE COURSE (C)
HEAVY DUTY	2.0"	3.0"	16"

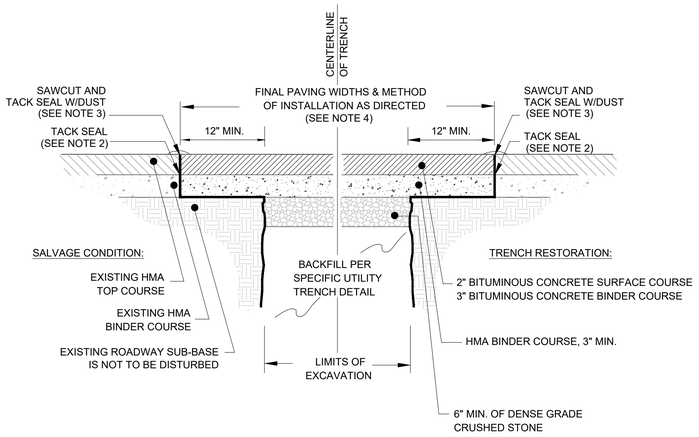
5 TYPICAL PAVEMENT SECTION DETAIL
SCALE: N.T.S.

NOTES:
1. CONTRACTOR TO PROVIDE SMOOTH TRANSITION WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENT, TYP.



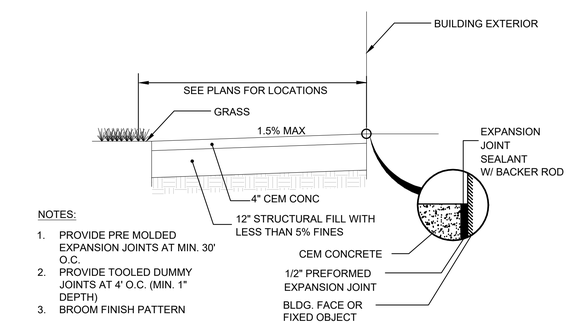
POLE HEIGHT	DIMENSION "A"
10' TO 20'	4'-6"
20' TO 30'	5'-6"
30' TO 40'	6'-6"

6 LIGHT POLE FOUNDATION DETAIL
SCALE: N.T.S.



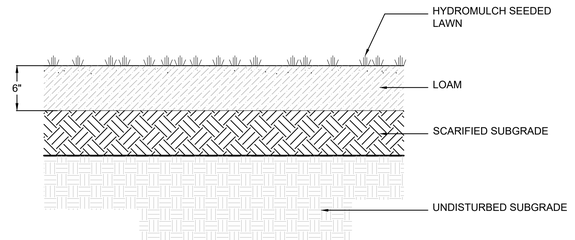
1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
2. ALL EXPOSED HMA IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH TACK AND STONE DUST.
4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE PLACED BY MACHINE/BOX SPREADER WHEN & AS DIRECTED BY THE TOWN.

7 TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL
SCALE: N.T.S.



NOTES:
1. PROVIDE PRE MOLDED EXPANSION JOINTS AT MIN. 30' O.C.
2. PROVIDE TOOLED DUMMY JOINTS AT 4' O.C. (MIN. 1" DEPTH)
3. BROOM FINISH PATTERN

8 CEMENT CONCRETE WALK
SCALE: N.T.S.



9 LOAM & SEED
SCALE: N.T.S.

NOTES:
1. REFER TO THE LAYOUT AND MATERIALS PLAN FOR LOCATION OF LOAM AND SEED AREAS.

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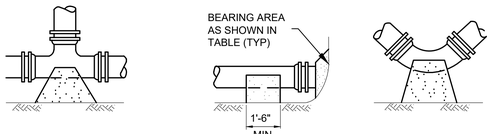
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Drawing Title:
SITE DETAILS II

Sheet Number:
C602

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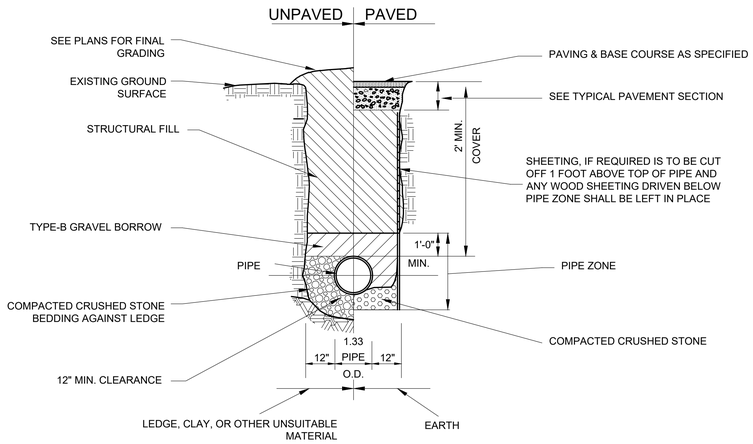


TEE DETAIL (PLAN VIEW) | CAP DETAIL (PLUG SIMILAR) (SECTION VIEW) | BEND DETAIL (PLAN VIEW)

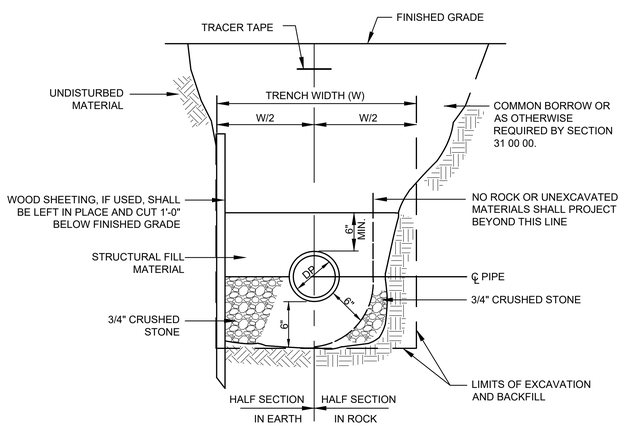
TABLE OF CONCRETE THRUST RESTRAINT MINIMUM BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS				
SIZE OF MAIN	90° BENDS, TEES, CAPS AND PLUGS	45° BENDS AND WYES	22-1/2° BENDS	11-1/4° BENDS
6", 8"	5	4	2	2
10", 12"	12	9	5	2
16"	20	15	8	4
20"	36	24	13	7

NOTES: 1. ALL WATER MAIN FITTINGS SHALL HAVE CONCRETE BACKING FOR
2. CONTRACTOR SHALL USE CARE TO AVOID PLACEMENT OF

1 CONCRETE THRUST RESTRAINT FOR FITTINGS
SCALE: N.T.S.

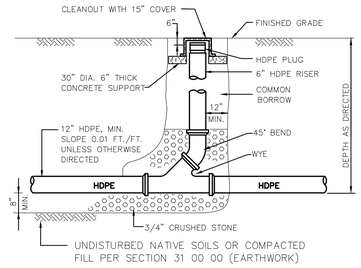


4 TYPICAL STORM DRAIN TRENCH DETAIL
SCALE: N.T.S.



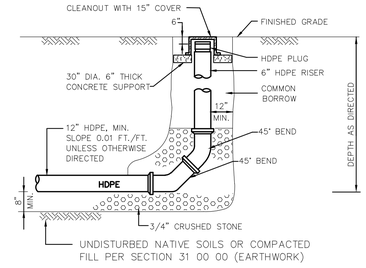
DEPTH TO INVERT	DIAMETER OF PIPE (DP)	MAX. TRENCH WIDTH BELOW LINE OF NARROW TRENCH LIMIT (SHEETED OR UNSHEETED) (W)
0-12'	TO 4"	5'-0"

8 SEWER TRENCH DETAIL
SCALE: N.T.S.



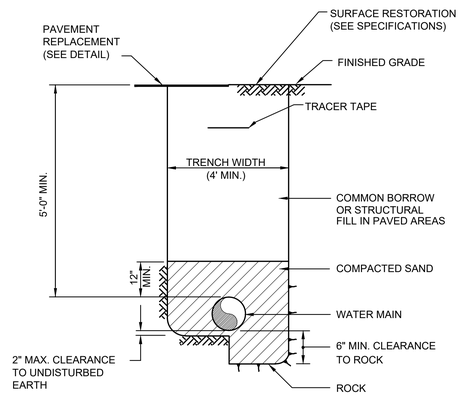
2 WYE CLEANOUT
SCALE: N.T.S.

NOTES:
1. REFER TO PLAN FOR PIPE DIAMETER.
2. CLEANOUTS LOCATED IN PAVED AREAS SHALL BE H-20 WHEEL LOAD RATED

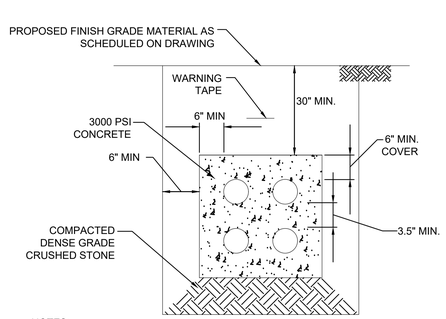


3 END CLEANOUT
SCALE: N.T.S.

NOTES:
1. REFER TO PLAN FOR PIPE DIAMETER.
2. CLEANOUTS LOCATED IN PAVED AREAS SHALL BE H-20 WHEEL LOAD RATED



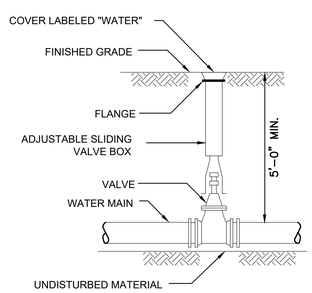
5 WATER MAIN TRENCH DETAIL
SCALE: N.T.S.



NOTES:

1. G.C. IS RESPONSIBLE FOR EXCAVATION, CONCRETE ENCASEMENT, REINFORCEMENT AND BACKFILL. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING THE CONDUITS & SPACERS. SEE E-SERIES DRAWINGS FOR DUCTBANK REINFORCEMENT REQUIREMENTS.
2. PROVIDE REINFORCEMENT PER LOCAL UTILITY COMPANY REQUIREMENTS.
3. QUANTITY & SIZE OF CONDUITS VARY. DUCTBANK SIZE SHALL BE ADJUSTED BASED ON CONDUIT TYPES & SIZES IDENTIFIED ON THE E-SERIES DRAWINGS.
4. CONTRACTOR SHALL COORDINATE DEPTH OF PROPOSED DUCTBANK WITH PROPOSED UTILITY & DRAINAGE SYSTEMS TO AVOID CONFLICTS.
5. BACKFILL AROUND DUCTBANK WITH GRAVEL BORROW BACKFILL MATERIAL.

7 ELECTRIC/COMMUNICATION DUCTBANK DETAIL
SCALE: N.T.S.



NOTES:
1. GATE VALVE TO BE LOCATED WITHIN ROADWAY PAVEMENT WHERE POSSIBLE.
2. PROPER SIZE VALVE BOX SHALL BE INSTALLED WHERE GATE VALVES ARE SHOWN ON PLANS.
3. REINFORCED CONCRETE COLLAR REQUIRED WHEN INSTALLED IN PAVED SURFACE.

9 VALVE AND BOX DETAIL
SCALE: N.T.S.

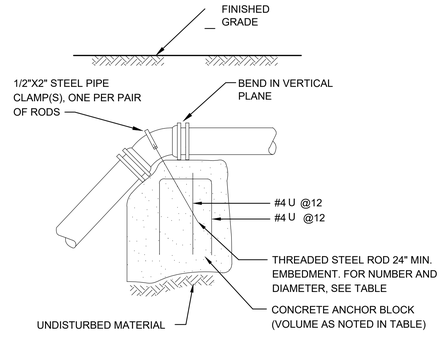


TABLE OF DIMENSIONS FOR ANCHOR BLOCKS		NO. AND SIZE OF THREADED RODS	
BEND SIZE	Volume	NO.	DIAM.
6"-22.5°	0.6 C.Y.	2	1/2"
6"-45°	1.0 C.Y.	2	1/2"
8"-22.5°	1.0 C.Y.	2	1/2"
8"-45°	1.8 C.Y.	2	3/4"
12"-22.5°	2.5 C.Y.	2	3/4"
12" 45°	4.0 C.Y.	4	3/4"

6 ANCHOR BLOCK DETAIL
SCALE: N.T.S.

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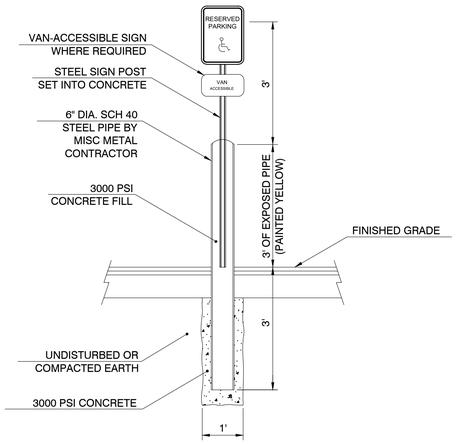
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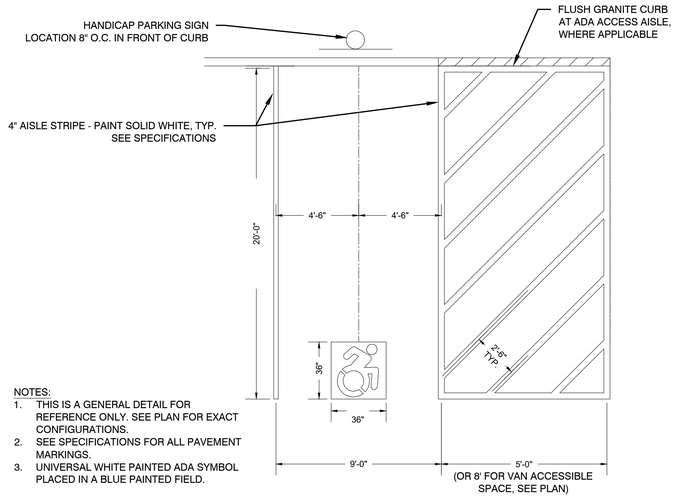
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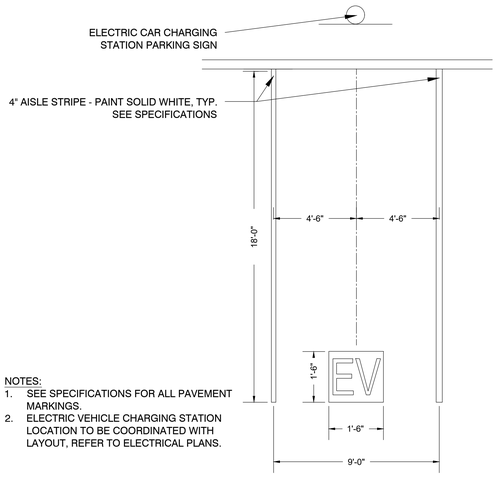
NOTE:
1. LOCATE CENTER OF 6" STEEL PIPE 1' FROM EDGE OF PARKING.
2. ALL SIGNS TO BE CENTERED ON PARKING SPACE.

1 ACCESSIBLE SIGN IN BOLLARD
SCALE: N.T.S.



NOTES:
1. THIS IS A GENERAL DETAIL FOR REFERENCE ONLY. SEE PLAN FOR EXACT CONFIGURATIONS.
2. SEE SPECIFICATIONS FOR ALL PAVEMENT MARKINGS.
3. UNIVERSAL WHITE PAINTED ADA SYMBOL PLACED IN A BLUE PAINTED FIELD.

2 HANDICAP PARKING SPACE MARKING
SCALE: N.T.S.

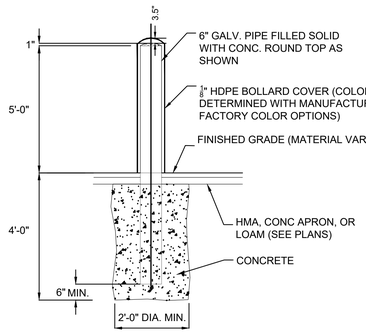


NOTES:
1. SEE SPECIFICATIONS FOR ALL PAVEMENT MARKINGS.
2. ELECTRIC VEHICLE CHARGING STATION LOCATION TO BE COORDINATED WITH LAYOUT, REFER TO ELECTRICAL PLANS.

3 EV CHARGING PARKING SPACE MARKING
SCALE: N.T.S.

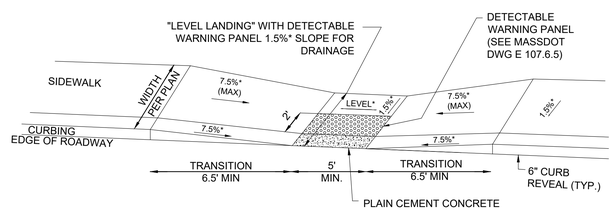
NOTES:
1. FULL EXCAVATION DEPTH EQUALS LENGTH OF FOUNDATION TUBE PLUS. 1'-0".
2. CONFIRM LOCATION OF FLAGPOLE IN FIELD.
3. DETAIL PROVIDED FOR ILLUSTRATION ONLY. CONTRACTOR SHALL SUBMIT ENGINEERED DESIGN TO MEET PROJECT SOIL CONDITIONS.

4 FLAGPOLE DETAIL
SCALE: N.T.S.



NOTES:
1. SEE C103 SERIES FOR BOLLARD LOCATIONS.
2. BOLLARD FOUNDATION CONCRETE TO BE 3000 PSI MIN.
3. EXACT LOCATION TO BE DETERMINED IN THE FIELD AND APPROVED BY TOWN BEFORE INSTALLATION.
4. 6" GALVANIZED PIPE PROVIDED BY MISC. METALS CONTRACTOR. INSTALLATION AND CONCRETE BY GENERAL CONTRACTOR.
5. HDPE BOLLARD SLEEVE WITH 6 1/8" DIAMETER TO BE INSTALLED OVER STEEL BOLLARD USING TWO FOAM EXPANSION STRIPS.

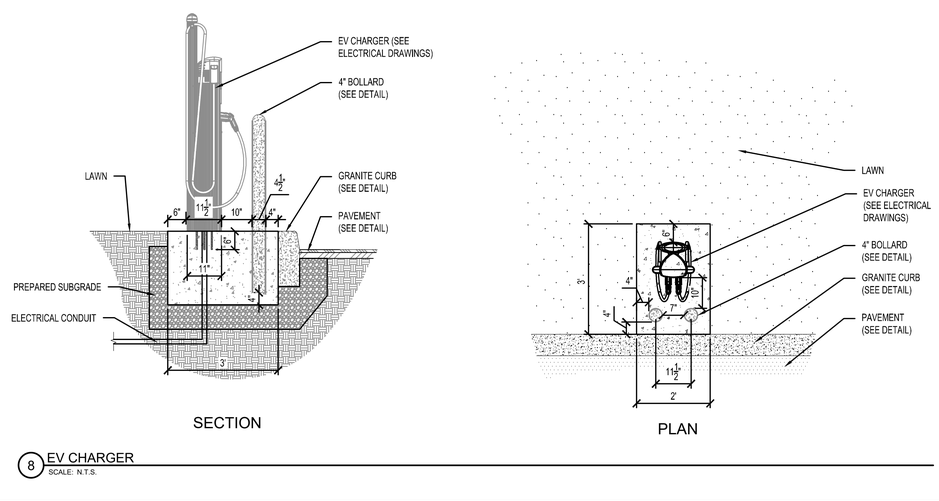
5 EXTERIOR STEEL PIPE BOLLARD
SCALE: N.T.S.



6 WHEEL CHAIR RAMP (TYPE B)
SCALE: N.T.S.

IDENTIFICATION NUMBER	TEXT	PANEL SIZE: WIDTH	PANEL SIZE: HEIGHT	PANEL SIZE: CORNER RADII	PANEL SIZE: BORDER WIDTH	PANEL SIZE: MARGIN WIDTH	NUMERALS & LETTERS: NUM. IN.	NUMERALS & LETTERS: UPPER CASE	NUMERALS & LETTERS: LOWER CASE	NUMERALS & LETTERS: SERIES	COLOR COMB.	NUMBER OF SIGNS REQUIRED	TOTAL AREA SQ. FT.	POST SIZE AND NUMBER REQUIRED
R1-1	STOP	30"	30"	SEE MUTCD, INCLUDING STANDARD HIGHWAY SIGNS, LATEST EDITION							WHITE ON RED	2	5.16	P5-1 2
R7-8MA	HANDICAPPED PARKING MASS GENERAL LAWS CHAPTER 90 SECTION 2	12"	18"								WHITE ON BLUE	1	1.50	P5-1 1
R7-8b	VAN ACCESSIBLE	12"	6"								WHITE ON BLUE	1	0.50	P5-1 0
R5-11	AUTHORIZED VEHICLES ONLY	24"	18"								BLACK ON WHITE	1	3.00	P5-1 1
CUSTOM	CHARGING STATION ELECTRIC VEHICLE PARKING ONLY CHARGING	12"	18"								WHITE ON GREEN	4	6.0	P5-1 4

7 PERMANENT TRAFFIC SIGN SUMMARY
SCALE: N.T.S.



8 EV CHARGER
SCALE: N.T.S.

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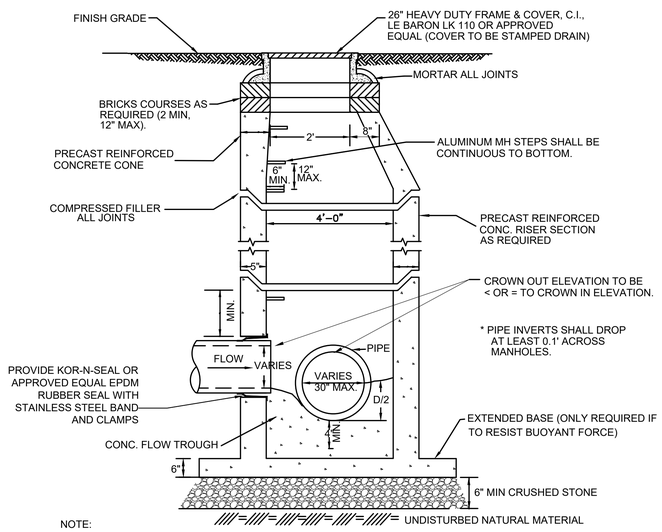
Date: OCTOBER 31, 2025
Drawn By: AKA
Reviewed By: AP
Approved By: AP

W&S Project No.:ENG24 - 1552
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Drawing Title:
SITE DETAILS IV

Sheet Number:
C604

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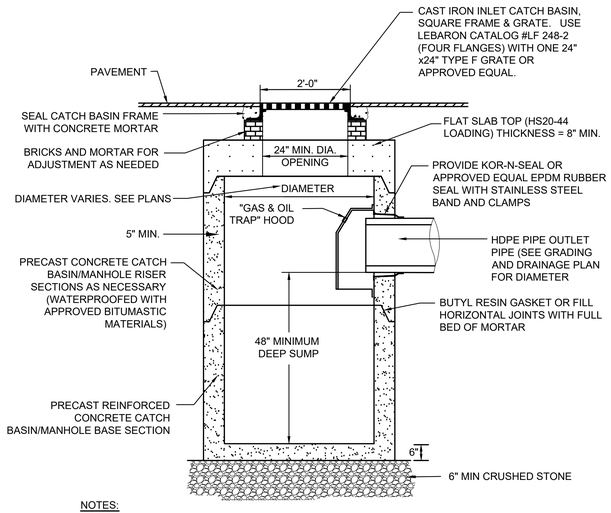


NOTE:

1. THE DRAIN MANHOLE SHALL BE DESIGNED TO RESIST BUOYANCY. ASSUMING GROUNDWATER IS AT GRADE, MANUFACTURER SHALL PROVIDE BUOYANCY CALCULATIONS, STAMPED BY A MASSACHUSETTS P.E.

2. MANHOLE FRAME AND COVER SHALL BE H-20 WHEEL LOAD RATED.

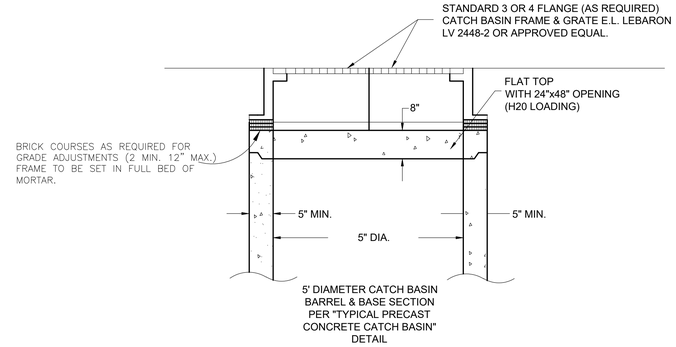
1 TYPICAL PRECAST CONCRETE MANHOLE
SCALE: N.T.S.



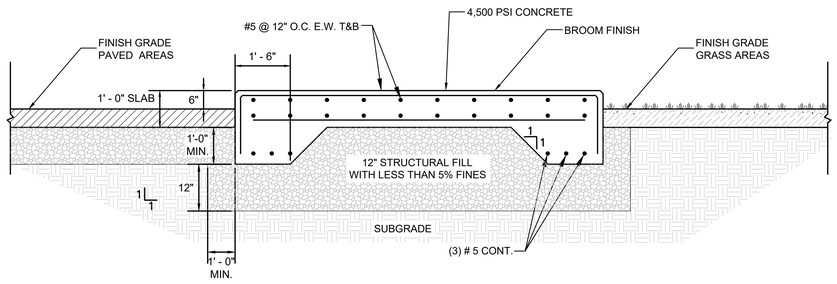
NOTES:

1. FOR DOUBLE CATCH BASINS, STRUCTURE SHALL BE 5' IN DIAMETER.
2. THE CATCH BASIN SHALL BE DESIGNED TO RESIST BUOYANCY. ASSUMING GROUNDWATER IS AT GRADE, MANUFACTURER SHALL PROVIDE BUOYANCY CALCULATIONS, STAMPED BY A MASSACHUSETTS P.E.
3. MANHOLE FRAME AND COVER SHALL BE H-20 WHEEL LOAD RATED.

2 STANDARD CATCH BASIN
SCALE: N.T.S.



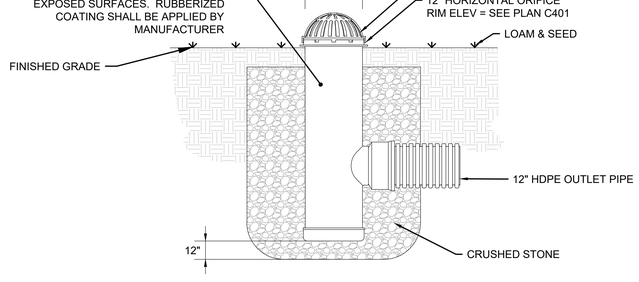
3 DOUBLE GRATE CATCH BASIN
SCALE: N.T.S.



NOTES:

1. GENERAL CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF ALL CONCRETE PADS.
2. SEE LAYOUT AND GRADING PLANS FOR FINISH GRADE
3. COORDINATE WITH ALL CONTRACTORS AND ADJUST PAD LOCATIONS AND DIMENSIONS IN FIELD
4. SLABS 8" OR LESS IN THICKNESS SHALL HAVE ONE LAYER OF REINFORCING PLACED IN THE TOP ONE THIRD OF THE SLAB.
5. THE EXACT SIZE, SHAPE AND LOCATION OF EQUIPMENT (HOUSEKEEPING) PAD(S) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR EQUIPMENT. ANCHOR BOLTS, WHERE REQUIRED, SHALL BE SIZED AND LOCATED ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE CAULK WITH POLYSULFIDE SEALANT AND PREFORMED JOINT FILLER WHERE EQUIPMENT PADS ADJOIN THE BUILDING.
7. EQUIPMENT PAD DETAIL SHALL BE USE FOR, BUT NOT LIMITED TO, THE ELECTRICAL TRANSFORMER PAD, EMERGENCY GENERATOR PAD, GAS METER PADS, AND CONEX STORAGE PAD.
8. CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR CONDUIT PENETRATIONS IN EQUIPMENT PADS

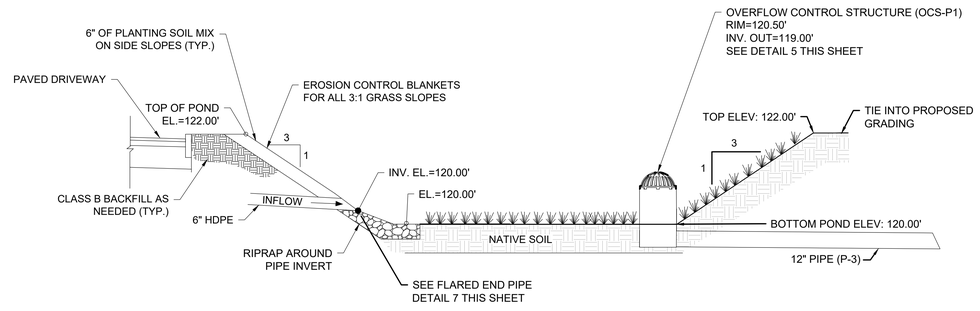
4 TYPICAL EQUIPMENT PAD DETAIL
SCALE: N.T.S.



5 OVERFLOW CONTROL STRUCTURE (OCS-P1)
SCALE: N.T.S.

NOTES:

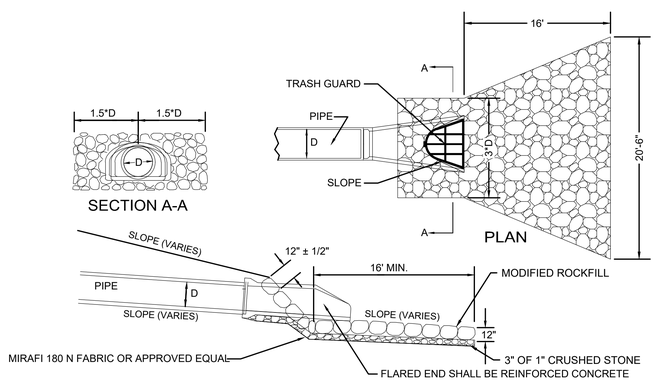
1. OUTLET CONTROL STRUCTURE SHALL BE AS MANUFACTURED BY NYLOPLAST OR APPROVED EQUAL.
2. OUTLET CONTROL STRUCTURE SHALL HAVE 2' DEEP SUMPS.



NOTES:

1. CROSS SECTION IS SCHEMATIC ONLY AND IS MEANT TO DISPLAY THE PATH OF TRAVEL FOR WATER.
2. SEE LANDSCAPE PLAN FOR PLANTING REQUIREMENTS.
3. ALL UNDOCUMENTED FILL SHALL BE REMOVED FROM BENEATH INFILTRATION BASIN DOWN TO NATIVE SOILS.

6 INFILTRATION BASIN P-1 SCHEMATIC DETAIL
SCALE: N.T.S.



SIDE ELEVATION

7 FLARED END PIPE DETAIL
SCALE: N.T.S.

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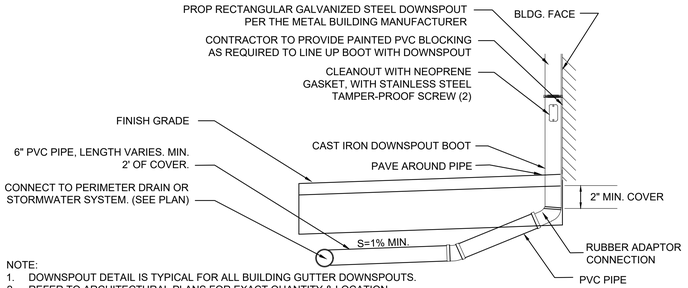
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SITE DETAILS V

Sheet Number:

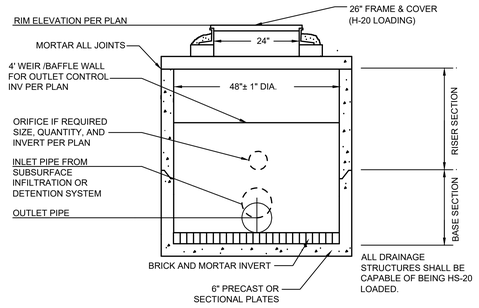
C605

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NOTE:
1. DOWNSPOUT DETAIL IS TYPICAL FOR ALL BUILDING GUTTER DOWNSPOUTS.
2. REFER TO ARCHITECTURAL PLANS FOR EXACT QUANTITY & LOCATION.
3. COORDINATE WITH CIVIL SITE PLANS FOR CONNECTIONS TO STORM SYSTEM.
4. PROVIDE A DOWNSPOUT BOOT AT EACH DOWNSPOUT TO ALLOW THE RECTANGULAR DOWNSPOUT TO TRANSITION TO THE ROUND CAST IRON RECEPTOR PIPE.
5. PAINT DOWNSPOUT ADAPTER BY PAINTING SUBCONTRACTOR. COLOR AS SELECTED BY THE ARCHITECT (CONFIRMED BY OWNER).
6. DOWNSPOUT ADAPTER SHALL BE MANUFACTURED BY J.R. HOE AND SONS, NEENAH FOUNDRY, PIEDMONT MANUFACTURING OR APPROVED EQUAL.

1 GUTTER DOWNSPOUT CONNECTION DETAIL (EXTERNAL)
SCALE: N.T.S.



2 OCS FOR INFILTRATION SYSTEMS INF-A, AND INF-B
SCALE: N.T.S.

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

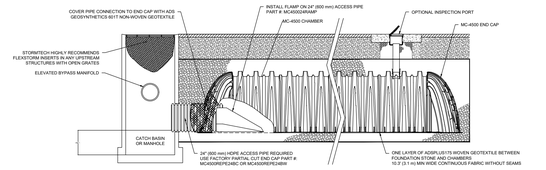
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

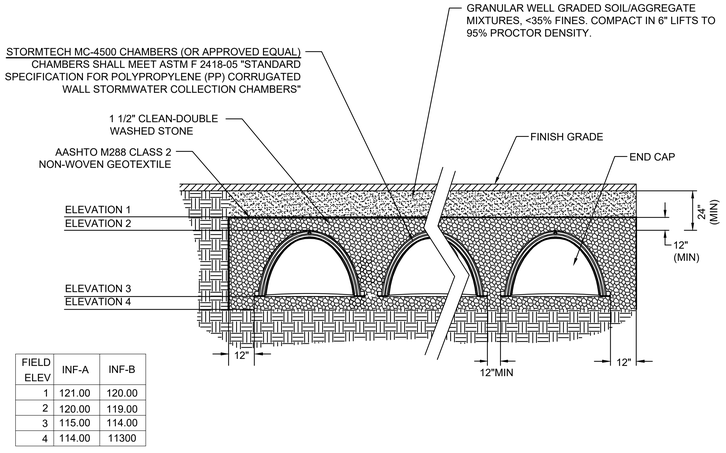
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



3 ISOLATOR ROW
SCALE: N.T.S.

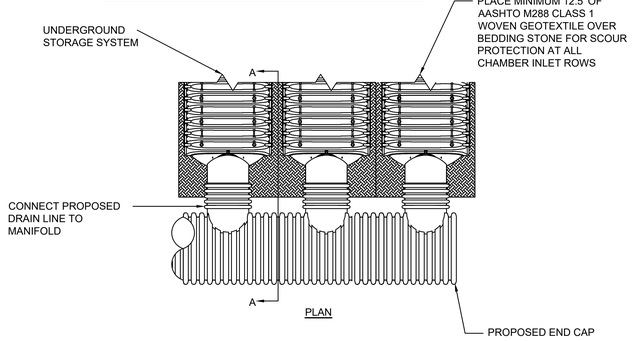
Table 5 - Standard Distances From Base of Chamber to Invert of Inlet and Outlet Manifolds on StormTech MC-4500 End Caps

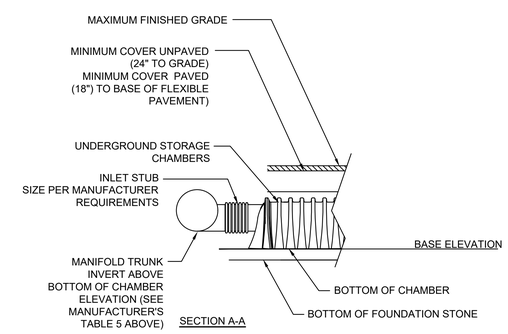
	Pipe Diameter	Inv. (IN)	Inv. (MM)
TOP	12" (300 mm)	35.69	907
	15" (375 mm)	32.72	831
	18" (450 mm)	29.36	746
	24" (600 mm)	23.05	585
BOTTOM	12" (750 mm)	1.55	34
	15" (900 mm)	1.7	43
	18" (1050 mm)	1.97	50
	24" (1200 mm)	2.26	57



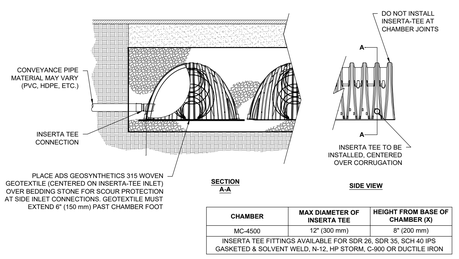
FIELD ELEV	INF-A	INF-B
1	121.00	120.00
2	120.00	119.00
3	115.00	114.00
4	114.00	11300

4 INFILTRATION/RECHARGE CHAMBER - SECTION
SCALE: N.T.S.





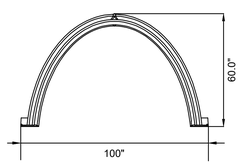
5 INFILTRATION/RECHARGE CHAMBER - MANIFOLD CONNECTION
SCALE: N.T.S.



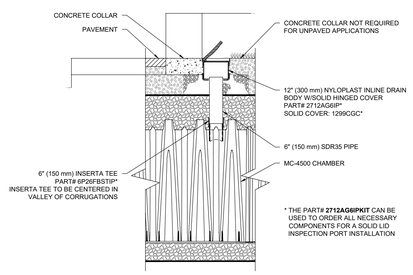
CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS.
CONTACT STORMTECH FOR MORE INFORMATION.

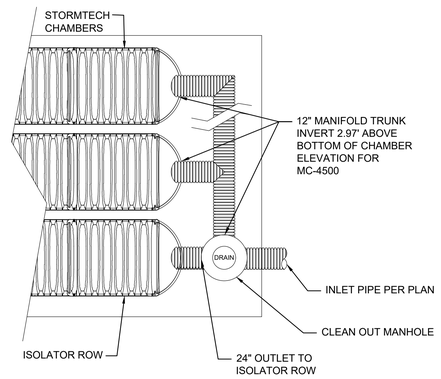
6 INSERTA TEE DETAIL
SCALE: N.T.S.



7 CHAMBER UNIT DETAIL
SCALE: N.T.S.



8 6" PVC INSPECTION PORT DETAIL
SCALE: N.T.S.



9 INFILTRATION CHAMBER CONNECTION TO ISOLATOR ROW AND MANIFOLD
SCALE: N.T.S.

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Drawing Title:

CIVIL DETAILS VI

Sheet Number:

C606

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GEOTHERMAL NOTES

1. THE G.C. IS RESPONSIBLE FOR EXCAVATION AND BACKFILL FOR ALL UNDERGROUND UTILITIES WITHIN THE BUILDING. COORDINATE LOCATIONS, ROUTING, DEPTH, ETC. WITH EACH SUBCONTRACTOR.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE G.C. SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE G.C. FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE G.C. AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
3. THE G.C. SHALL PROVIDE ALL NECESSARY FITTINGS TO ACHIEVE GROUND SOURCE LAYOUT AS SHOWN ON THE DRAWINGS.
4. THE G.C. IS RESPONSIBLE FOR PROVIDING PROPER TRANSITION MATERIAL AND FITTINGS TO PROVIDE A TIGHT TRANSITION FROM DISSIMILAR PIPE MATERIALS FROM PLUMBING & FIRE PROTECTION WORK TO G.C. WORK.
5. THE G.C. SHALL BE RESPONSIBLE FOR THE EXCAVATION, SAND PIPE BEDDING, AND BACKFILL OF THE GROUND SOURCE SUPPLY AND RETURN PIPES.
6. THE G.C. IS RESPONSIBLE FOR EXCAVATION, BACKFILL, CONCRETE ENCASEMENT, AND REINFORCEMENT FOR ALL UNDERGROUND PIPE VAULTS FOR THE GROUND SOURCE PIPING.



1 GEOTHERMAL WELL PIPING PLAN
1" = 10'-0"

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Approved By:	SEH
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W&S File No.:	XXX

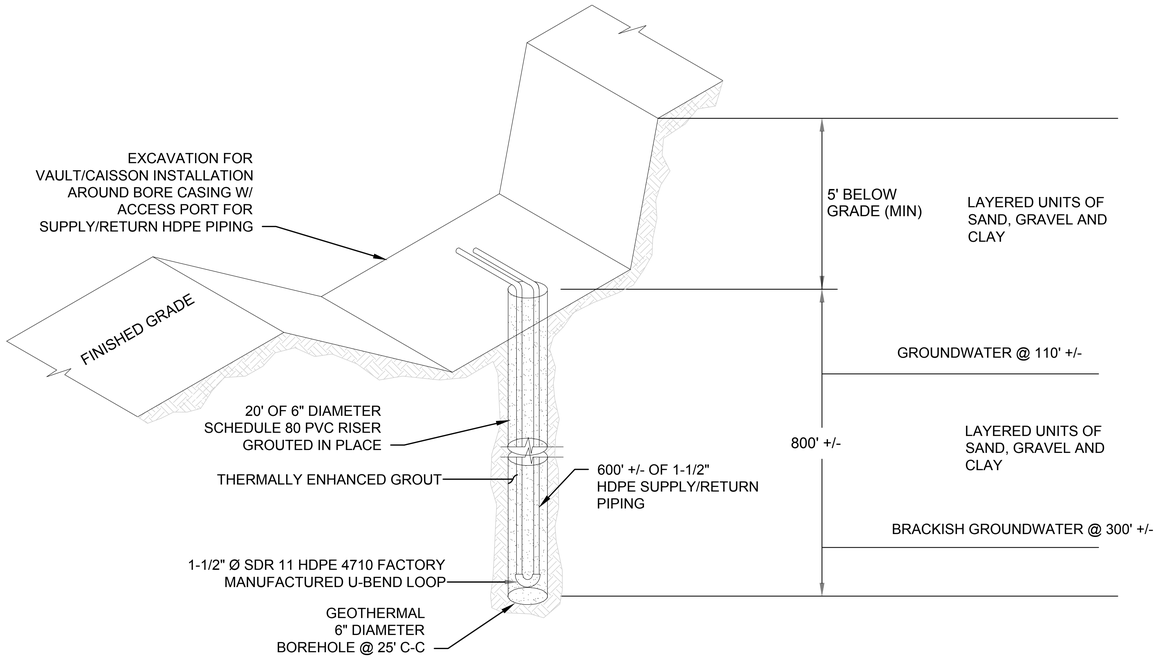
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GEOTHERMAL WELL PIPING PLAN

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NOTES:

1. REFER TO SPECIFICATION SECTION 33 23 13 GEOTHERMAL CLOSED LOOP WELLS FOR ADDITIONAL REQUIREMENTS.

1 CLOSED OUT GEOTHERMAL LOOP DETAIL
SCALE: N.T.S.

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GEOTHERMAL WELL DETAILS

Sheet Number:

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1.0 - GENERAL

1.01 THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND SPECIFICATIONS. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR LOCATION, DIMENSIONS, AND DETAILS OF OPENINGS, SLEEVES, EMBEDMENTS, INSERTS, PADS, CURBS, DEPRESSIONS, ANCHOR BOLTS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

1.02 THE CONTRACTOR IS RESPONSIBLE FOR CHECKING, COORDINATING AND VERIFYING ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DISCREPANCY TO THE ARCHITECT AND ENGINEER AS A REQUEST FOR INFORMATION (RFI) BEFORE PROCEEDING WITH WORK.

1.03 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING IN THE FIELD THE EXISTENCE AND LOCATION OF OVERHEAD, BURIED AND/OR EMBEDDED UTILITIES, AND DETERMINING LOCATIONS OF ALL EMBEDDED MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS AFFECTED BY THE WORK OF THIS CONTRACT.

1.04 ALL WORK IS TO CONFORM WITH THE FOLLOWING CODES AND STANDARDS:

(A) "780 CMR: MASSACHUSETTS AMENDMENTS MASSACHUSETTS STATE BUILDING CODE" - 10TH EDITION (MSBC)
(B) INTERNATIONAL BUILDING CODE, (IBC 2021)
(C) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" - AMERICAN CONCRETE INSTITUTE (ACI 318)
(D) "MANUAL OF STEEL CONSTRUCTION" - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC 360)
(E) "STRUCTURAL WELDING CODE - STEEL" - AMERICAN WELDING SOCIETY (AWS D1.1)
(F) "SEISMIC PROVISION FOR STRUCTURAL STEEL BUILDINGS" -AMERICAN INSTITUTE OF STEEL CONSTRUCTION, (AISC)
(G) "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" - AMERICAN SOCIETY OF CIVIL ENGINEERS, (ASCE 7-16)

FOR ADDITIONAL CODES AND STANDARDS REFER TO SPECIFICATIONS.

1.05 THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER OF UNFORESEEN CONDITIONS THAT MAY BE UNCOVERED DURING DEMOLITION AND CONSTRUCTION AS A REQUEST FOR INFORMATION (RFI) BEFORE PROCEEDING WITH WORK.

1.06 PERMANENT STRUCTURAL ELEMENTS TO BE DESIGNED IN ACCORDANCE WITH PERFORMANCE SPECIFICATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

(A) PRE-ENGINEERED METAL BUILDING
(B) MISC. ARCH COMPONENT SEISMIC SUPPORTS
(C) MISC. MECHANICAL AND ELECTRICAL COMPONENT AND SYSTEM SEISMIC SUPPORTS
(D) LIGHT GAUGE COLD FORMED STEEL FRAMING

FOR PERFORMANCE DESIGN REQUIREMENTS OF ELEMENTS LISTED ABOVE, REFER TO ADDITIONAL NOTES ON THESE SHEETS AND IN THE TECHNICAL SPECIFICATIONS. ALL DESIGN SUBMITTAL DRAWINGS AND CALCULATIONS SHALL BE CERTIFIED, SIGNED AND SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF MASSACHUSETTS.

1.07 STRUCTURAL REQUIREMENTS TO ACCOMMODATE FIXED EQUIPMENT, INCLUDING BUT NOT LIMITED TO ROOF TOP UNITS ARE INCIDENTAL TO THE REQUIREMENTS OF A SPECIFIC EQUIPMENT MANUFACTURER. ALL WORK SHALL CONFORM TO APPROVED EQUIPMENT MANUFACTURER'S SHOP DRAWINGS AND INSTALLATION INSTRUCTIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY REQUIRED MODIFICATIONS TO ACCOMMODATE APPROVED EQUIPMENT DRAWINGS. SUCH MODIFICATIONS SHALL BE MADE AT NO COST TO THE OWNER.

1.08 DETAILS AND NOTES SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE STRUCTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE BY CONTRACT DOCUMENTS. CONDITIONS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR LIKE CONDITIONS AS DETERMINED BY THE ENGINEER.

1.09 IN ACCORDANCE WITH SPECIFICATION SECTION 01 45 23, TESTING AND INSPECTION OF STRUCTURAL WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COSTS FOR TESTING AND INSPECTIONS WILL BE PAID BY THE CONTRACTOR. PROVIDE TEST RESULTS TO THE ENGINEER IN A TIMELY MANNER.

1.10 THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL REQUIRED SHORING AND TEMPORARY BRACING TO RESIST FORCES ON THE STRUCTURE THROUGHOUT THE CONSTRUCTION PERIOD.

2.0 - FOUNDATIONS

2.01 THE SUBSURFACE CONDITIONS DESCRIBED IN THE DRAWINGS, SPECIFICATIONS, TEST BORINGS AND TEST PITS ARE INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY AT THESE SPECIFIC LOCATIONS AT THE TIME THEY ARE MADE.

2.02 THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL TEMPORARY EARTH SUPPORT, SHORING AND BRACING REQUIRED TO PERFORM THE WORK IN ACCORDANCE WITH OSHA, STATE AND LOCAL REQUIREMENTS.

2.03 THE CONTRACTOR SHALL DESIGN AND PROVIDE SHEETING, SHORING, BRACING, AND/OR UNDERPINNING IN ORDER TO PROTECT EXISTING UTILITIES FROM EXCESSIVE MOVEMENTS DURING THE CONSTRUCTION PERIOD, IN ACCORDANCE WITH OSHA, STATE & LOCAL REQUIREMENTS.

2.04 THE CONTRACTOR SHALL CARRY OUT CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER. DEWATER ANY AREAS REQUIRING EXCAVATION IN ADVANCE OF PERFORMING EXCAVATION. MAINTAIN GROUNDWATER LEVELS AT LEAST 2 FEET BELOW PLANNED SUBGRADES.

2.05 ALL SUBGRADES TO RECEIVE FILL MATERIALS, FOUNDATIONS, SLABS OR OTHER CONSTRUCTION SHALL BE FREE OF RUNNING OR STANDING WATER PRIOR TO PLACEMENT.

2.06 SPREAD FOOTINGS AND PIERS AS SHOWN ARE DESIGNED FOR ESTIMATED METAL BUILDING REACTIONS AND ARE APPROXIMATE IN SIZE. THESE ELEMENTS ARE SUBJECT TO CHANGE IN DIMENSION (IF REQUIRED) WITH THE APPROVED METAL BUILDING SUBMITTAL. ANY CHANGES SHALL COME AT NO ADDITIONAL COST TO THE OWNER.

2.07 FOUNDATIONS SHALL BE INSTALLED IN THE GEOMETRY SHOWN IN THE PLANS, ANY ROCK ENCOUNTERED DURING EXCAVATION SHALL BE REMOVED TO CLEAR THE REQUIRED FOUNDATION GEOMETRY.

2.08 SPREAD FOOTING BEARING SURFACES SHALL BE EXCAVATED BY EQUIPMENT WITH A SMOOTH, TOOTHLESS CUTTING EDGE.

2.09 REFER TO THE GEOTECHNICAL REPORT PREPARED BY WESTON & SAMPSON DATED 05/30/2025 FOR ADDITIONAL INFORMATION. THE MAXIMUM ALLOWABLE BEARING CAPACITY IS 2000 PSF.

3.0 - CAST IN PLACE CONCRETE

3.01 CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).

3.02 CONCRETE SHALL BE CONTROLLED CONCRETE, PROPORTIONED, MIXED AND PLACED IN THE PRESENCE OF A REPRESENTATIVE OF AN APPROVED TESTING AGENCY.

3.03 UNLESS NOTED OTHERWISE, CONCRETE SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:

(A) FOUNDATIONS: 4500 PSI
(B) INTERIOR SLABS-ON-GRADE, KNEEWALLS, CURBS, AND EQUIPMENT PADS: 4500 PSI
(C) SUSPENDED SLABS: 4000 PSI
(D) EXTERIOR SLABS AND WALKWAYS: 5000 PSI

3.04 ALL PERMANENTLY EXPOSED VERTICAL AND HORIZONTAL CONCRETE SURFACES SHALL BE TREATED OR SEALED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

3.05 CONCRETE WORK SHALL BE COORDINATED WITH ALL METAL BUILDINGS, ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL WORK, AND ALL EQUIPMENT. THE CONTRACTOR SHALL VERIFY INSTALLATION AND LOCATIONS OF ALL EMBEDDED ITEMS INCLUDING BUT NOT LIMITED TO INSERTS, ANCHOR BOLTS, DOWELS, BLOCKOUTS, SLEEVES, EMBEDDED PIPING, AND EMBEDDED CONDUIT PRIOR TO CONCRETE PLACEMENT.

3.06 FOR STRUCTURAL ELEMENTS, THE LOCATIONS AND MAXIMUM SPACING OF VERTICAL JOINTS SHALL BE AS FOLLOWS:

ELEMENT	JOINT TYPE	SPACING, FT.
FOUNDATION WALL	CONTRACTION	30
FOUNDATION WALL	CONSTRUCTION	60

3.07 FOR SLABS-ON-GRADE, LOCATE CONSTRUCTION OR CONTROL JOINTS ALONG COLUMN LINES OR AS SHOWN. PROVIDE JOINTS AT 20FT. MAX. SPACING. SUBMIT JOINT LOCATIONS AND DETAILS FOR APPROVAL.

3.08 SEALANT FOR CONTROL/CONTRACTION JOINTS AND SAW CUT JOINTS SHALL BE SIKADUR 51 MANUFACTURED BY SIKA OR AN APPROVED EQUAL.

3.09 CONCRETE EXPOSED TO WEATHER (FREEZE-THAW CONDITIONS) IN THE FINISHED PROJECT SHALL BE AIR ENTRAINED PER SPECIFICATIONS REQUIREMENTS.

3.10 A MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.

3.11 CONCRETE SLABS SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.

3.12 PROVIDE A 3/4" CHAMFER ON ALL VERTICAL AND HORIZONTAL CORNERS EXPOSED TO VIEW UNLESS NOTED OTHERWISE.

3.13 ALL CONCRETE SHALL BE WATER CURED UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

3.14 NON-SHRINK, NON-METALLIC, GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 7,500 PSI (ASTM C942) AND A MINIMUM BOND STRENGTH OF 2,000 PSI AT 28-DAYS (ASTM C882). GROUT MAY BE EXTENDED WITH COARSE AGGREGATE PER THE MANUFACTURERS RECOMMENDATIONS.

3.15 WHEN NEW CONCRETE IS CAST AGAINST EXISTING CONCRETE SURFACES, UNLESS NOTED OTHERWISE, THE EXISTING CONCRETE SHALL BE ROUGHENED TO 1/4" AMPLITUDE, THOROUGHLY CLEANED BY POWER WASHING OR OTHER MEANS, AND BE A SATURATED SURFACE DRY CONDITION IMMEDIATELY PRIOR TO PLACING CONCRETE.

4.0 - CAST IN PLACE CONCRETE REINFORCEMENT

4.01 REINFORCEMENT DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO "ACI DETAILING MANUAL" - SP-66, "CRSI MANUAL OF STANDARD PRACTICE".

4.02 STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:

(A) BARS, TIES, AND STIRRUPS___ASTM A615 GRADE 60
(B) WELDED WIRE FABRIC___ASTM A185, FLAT SHEETS

4.03 REINFORCING STEEL SHALL BE UNCOATED AND DEFORMED.

4.04 MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT, UNLESS REQUIRED FOR FIRE PROTECTION OR NOTED OTHERWISE, SHALL BE AS FOLLOWS:

(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:____3"
(B) CONCRETE EXPOSED TO EARTH OR WEATHER:
  (1) NO. 6 THRU NO. 18 BARS____2"
  (2) NO. 5 BAR, W31 OR D31 WIRE AND SMALLER____2"
(C) SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
  (1) SLABS, WALLS, JOISTS:
    (a) NO. 14 AND NO 18 BARS____2"
    (b) NO. 11 BARS AND SMALLER____2"
  (2) BEAMS, COLUMNS:
    (a) PRIMARY REINFORCEMENT____2-1/2"
    (b) TIES, STIRRUPS, SPIRALS____2"

4.05 REINFORCING STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS, CORNERS, AND INTERSECTIONS UNLESS OTHERWISE NOTED. REINFORCING SHALL BE LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS, UNLESS OTHERWISE NOTED.

4.06 FOR REINFORCING STEEL SPLICE LAP LENGTHS REFER TO THE TABLE PROVIDED UNLESS OTHERWISE INDICATED.

4.07 MECHANICAL SPLICES SHALL BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER. MECHANICAL SPLICES SHALL DEVELOP AT LEAST 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE BAR. NO WELDED CONNECTIONS ARE PERMITTED.

4.08 WELDED WIRE FABRIC SHALL BE LAPPED (1) SQUARE PLUS (2) INCHES WHERE REQUIRED AND SHALL BE WIRED TOGETHER AT ALL LAPS. WWF SHALL BE SUPPORTED BY CHAIRS AND/OR CARRYING BARS PRIOR TO CONCRETE PLACEMENT.

4.09 REINFORCEMENT SHALL NOT BE TACK WELDED.

4.10 NOTIFY THE TESTING LAB AND ENGINEER A MINIMUM OF 48 HOURS PRIOR TO SCHEDULED CONCRETE PLACEMENT IN ORDER TO ACCOMMODATE INSPECTION OF REINFORCEMENT AND CONCRETE TESTING. NO CONCRETE SHALL BE PLACED WITHIN 48 HOURS OF SUCH NOTIFICATION.

4.11 WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE DETAILS AS DETERMINED BY THE ARCHITECT AND ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE CODES, NOR LESS THAN THE FOLLOWING:

(A) BEAM STIRRUPS: #3 @ 12"
(B) BEAM STIRRUP SUPPORTS: 1-#5 AT EACH STIRRUP BEND
(C) FACE REINFORCEMENT IN BEAMS OR PORTIONS OF BEAMS #4 @ 12" E.F.
(D) STRUCTURAL SLABS: 0.0020 X GROSS CONCRETE AREA IN EACH DIRECTION
(E) CONCRETE WALLS: 0.0025 X GROSS CONCRETE AREA IN EACH DIRECTION

4.12 WHERE REINFORCEMENT IS REQUIRED IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTIONS APPLIES.

4.13 WHERE THERE IS CONFLICT BETWEEN LOCATIONS OF COLUMN VERTICAL BARS AND BEAM HORIZONTAL BARS, THE COLUMN BARS SHALL REMAIN IN THEIR DESIGNATED POSITIONS AND BEAM BAR LOCATIONS SHALL BE ADJUSTED.

4.14 DOWELS SHALL MATCH BAR SIZE, NUMBER AND SPACING, UNLESS NOTED OTHERWISE.

5.0 - MASONRY CONSTRUCTION

5.01 CLAY (BRICK) AND CONCRETE MASONRY (CMU) CONSTRUCTION SHALL CONFORM TO 'BUILDING CODE REQUIREMENTS AND SPECFICATIONS FOR MASONRY STRUCTURES' (TMS402 / 406 - 16).

5.02 MATERIALS STRENGTH SHALL BE AS FOLLOWS:

(A) CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90.
(B) MORTAR SHALL CONFORM TO ASTM C270, TYPE M OR S.
(C) GROUT SHALL CONFORM TO ASTM C476 FINE OR COARSE.

5.03 MASONRY SHALL HAVE f'm = 2,000 PSI. f'm IS THE COMPRESSIVE STRENGTH OF THE MASONRY AT 28 DAYS AS DETERMINED BY PRISM TESTS, (SEE SPECIFICATIONS SECTION 04 20 00)

5.04 PRIOR TO GROUTING CELLS, BARS AND CELLS MUST BE INSPECTED BY THE TESTING AGENCY.

5.05 THE DESIGN OF REINFORCED MASONRY CONSTRUCTIONS REQUIRES THAT QUALIFIED MASONRY INSPECTION TAKE PLACE ON A CONTINUOUS BASIS WHENEVER MASONRY IS BEING PLACED.

5.06 REINFORCED MASONRY WALLS SHALL HAVE BOND BEAMS AT THE TOP OF EACH WALL AND SHALL BE CONTINUOUS WITH ALL INTERSECTING BOND BEAMS.

5.07 BONDING METHODS, TIES, LINTELS AND ACCESSORIES SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER. ANCHORS SHALL ONLY BE INSTALLED IN FULLY GROUTED CELLS OF CONCRETE MASONRY.

5.08 MASONRY OPENINGS FOR UTILITIES ARE TO BE CLOSED UP WITH NEW MASONRY WORK AROUND THE UTILITY AND PROPERLY FIRESTOPPED WITH MATERIAL SPECIFIED BY ARCHITECT'S DRAWINGS AND SPECIFICATIONS.

5.09 PROVIDE 1-#5 VERTICAL REINFORCING AT 32" O.C. AT ALL MASONRY WALLS UNLESS NOTED OTHERWISE. THIS REINFORCING SHALL BE CONTINUOUS FULL HEIGHT AND SPLICED 2'-0" ABOVE EACH FLOOR LEVEL.

5.10 PROVIDE W1.7 (9 GAUGE) LADDER TYPE WIRE JOINT REINFORCING AT 16 INCHES VERTICAL SPACING UNLESS NOTED OTHERWISE.

5.11 MASONRY BLOCK CELLS CONTAINING VERTICAL REINFORCING SHALL BE GROUTED SOLID. FILLING CELLS WITH MORTAR IS UNACCEPTABLE. THE COMPRESSIVE STRENGTH OF GROUT AT THE END OF 28 DAYS SHALL BE 3,000 PSI MINIMUM.

5.12 GROUT PLACEMENT SHALL FOLLOW LOW-LIFT GROUTING PROCEDURES. HIGH-LIFT GROUTING MAY BE USED UPON APPROVAL BY THE ENGINEER. SUBMIT HIGH LIFT GROUTING PROCEDURE TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BEGINNING MASONRY CONSTRUCTION.

5.13 PROVIDE 2-#5 CONTINUOUS HORIZONTAL BARS IN THE TOP COURSE OF WALLS (BOND BEAM) AND AT 4' - 0" O.C. VERT.

5.14 PROVIDE CONTROL JOINTS WITH MAXIMUM SPACING OF THE LESSER OF A LENGTH TO HEIGHT RATIO OF 1.5:1 OR 25 FEET, U.N.O. ON THE STRUCTURAL DRAWINGS. CONTROL JOINTS MUST BE LOCATED TO AVOID INTERFERING WITH LINTEL BEARING. SUBMIT CONTROL JOINT LOCATIONS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BEGINNING CONCRETE CONSTRUCTION.

6.0 - STRUCTURAL STEEL

6.01 STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "MANUAL OF STEEL CONSTRUCTION", "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND BRIDGES" (ANSI/AISC 360-10), AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (ANSI/AISC 303-10).

6.02 STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING:

(A) WIDE FLANGE SHAPES:_____ASTM A992, MINIMUM YIELD STRENGTH 50 KSI
(B) ANGLES, PLATES AND BRACES:_____ASTM A36, MINIMUM YIELD STRENGTH 36 KSI
(C) HOLLOW STRUCTURAL SECTIONS:_____ASTM A500 GRADE B., MINIMUM YIELD STRENGTH 46 KSI
(D) HEADED STUDS:_____ASTM A108 GRADE 1010 COLD-FINISHED CARBON STEEL
(E) ROOF STEEL JOISTS:_____ASTM A572 OR A529, MINIMUM YIELD STRENGTH 50 KSI

6.03 ALL WELDED CONNECTIONS SHALL BE MADE BY APPROVED CERTIFIED WELDERS AND SHALL CONFORM TO A.W.S. SPECIFICATIONS AMENDED TO DATE. ELECTRODES SHALL BE E70XX.

6.04 BOLTS SHALL CONFORM TO ASTM A325 AND BE INSTALLED SNUG-TIGHT UNLESS NOTED OTHERWISE

6.05 STRUCTURAL STEEL FRAMING SHALL BE WITHIN TOLERANCE BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED.

6.06 FIELD CUTTING OF STRUCTURAL STEEL OR ANY FIELD MODIFICATIONS OF STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER FOR EACH SPECIFIC USE.

6.07 STRUCTURAL STEEL SHAPES AND PLATES EXPOSED TO WEATHER AND AT CANOPIES SHALL BE HOT-DIPPED GALVANIZED PER ASTM A123 U.N.O. FASTENERS SHALL BE HOT-DIPPED GALVANIZED PER ASTM A153 U.N.O. HOT-DIPPED GALVANIZING SHALL ALSO CONFORM TO ASTM A385. THE GALVANIZER SHALL SUBMIT A CERTIFICATE OF CONFORMANCE FOR RECORD.

6.08 PROVIDE FIELD TOUCH-UP AND REPAIR OF GALVANIZING AS REQUIRED PER ASTM A780 USING AN INORGANIC ZINC-RICH PRIMER.

6.09 WHEN DISSIMILAR METALS ARE IN CONTACT (E.G. STAINLESS STEEL IN CONTACT WITH GALVANIZED STEEL), COAT SURFACE WITH EPOXY OR PROVIDE OTHER APPROVED MEANS TO PROVIDE A BARRIER.

6.10 WELDS SHALL BE 1/4" FILLET WELDS MINIMUM UNLESS NOTED OTHERWISE ON THE DRAWINGS.

6.11 PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING HAS BEEN INSTALLED.

6.12 SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR APPROVAL PRIOR TO FABRICATION.

7.0 - PRE-ENGINEERED METAL BUILDING

7.01 THE PRE-ENGINEERED METAL BUILDING STRUCTURAL SYSTEMS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PRIMARY, SECONDARY, AND SUPPLEMENTAL FRAMING.

7.02 FOR FRAMED OPENINGS AND OTHER INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS, REFER TO ARCHITECTURAL, EQUIPMENT, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS.

7.03 FOR ROOF-SUSPENDED AND WALL HUNG HVAC UNITS AND OTHER SUSPENDED MECHANICAL EQUIPMENT, REFER TO MECHANICAL AND EQUIPMENT DRAWINGS.

7.04 THE METAL BUILDING SYSTEMS SHALL INCLUDE ROOF CURBS, SUPPLEMENTAL FRAMING AND/OR SPECIAL PURLIN AND GIRT DESIGNS TO ACCOMMODATE LOCATIONS, DETAILS, AND CONCENTRATED DEAD LOADS OF ALL ROOF-TOP, ROOF-SUSPENDED, LIGHTING AND WALL HUNG EQUIPMENT AND SYSTEMS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS, ATTACHMENT REQUIREMENTS, AND ACTUAL WEIGHTS WITH THE METAL BUILDING MANUFACTURER. THE CONTRACTOR (OR THE INSTALLING SUBCONTRACTOR) SHALL PROVIDE ALL HANGERS AND SUPPORTS FOR EQUIPMENT AND SYSTEMS INSTALLATION. HANGERS AND SUPPORTS SHALL COMPLY WITH THE PRE-ENGINEERED METAL BUILDING MANUFACTURERS RECOMMENDATIONS AND SUGGESTED DETAILS. IF THE ROOF PURLINS CANNOT SUPPORT THE WEIGHT OF THE BUILDING SYSTEMS AND EQUIPMENT SHOWN IN THESE CONTRACT DOCUMENTS, THEN THE METAL BUILDING MANUFACTURER SHALL PROVIDE SUPPLEMENTAL FRAMING TO SUPPORT THE REQUIRED BUILDING SYSTEMS AND EQUIPMENT LOADS AT NO ADDITIONAL COST TO THE OWNER.

7.05 THE PRE-ENGINEERED METAL BUILDING SHALL BE ERECTED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S ERECTION DRAWINGS AND INSTALLATION INSTRUCTIONS .

7.06 THE PRE-ENGINEERED METAL BUILDING MANUFACTURER, PRIOR TO SUBMITTING FOUNDATION REINFORCING SHOP DRAWINGS, SHALL SUBMIT ANCHOR BOLT PLANS, COLUMN BASE PLATE DETAILS, AND FOUNDATION REACTIONS TO THE ENGINEER FOR APPROVAL. FOUNDATIONS FOR THE PRE-ENGINEERED METAL BUILDING SHALL NOT BE CONSTRUCTED UNTIL THE ANCHOR BOLT PLANS, COLUMN BASE PLATE DETAILS, AND FOUNDATION REACTIONS SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER.

7.07 THE CONTRACTOR SHALL FURNISH ALL ANCHOR BOLTS FOR THE PRE-ENGINEERED METAL BUILDING. THE ANCHOR BOLT LAYOUT, QUANTITY, SIZE, AND PROJECTION SHALL BE IN ACCORDANCE WITH THE PRE-ENGINEERED METAL BUILDING MANUFACTURER'S APPROVED ANCHOR BOLT PLANS. THE ANCHOR BOLT DETAILS AND EMBEDMENT LENGTH SHALL BE IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS.

7.08 ALL WORK SHALL CONFORM WITH THE APPROVED SHOP DRAWINGS. NO MODIFICATIONS TO THE PRE-ENGINEERED METAL BUILDING SHALL BE MADE WITHOUT AUTHORIZATION BY THE PRE-ENGINEERED METAL BUILDING MANUFACTURER AND APPROVAL OF THE ARCHITECT AND ENGINEER.

7.09 THE PRE-ENGINEERED METAL BUILDING FOUNDATIONS HAVE BEEN DESIGNED AND DETAILED TO ACCOMMODATE THE TYPICAL REQUIREMENTS OF A PRE-ENGINEERED METAL BUILDING. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY REQUIRED MODIFICATIONS TO ACCOMMODATE ANY SPECIFIC REQUIREMENTS OF THE APPROVED PRE-ENGINEERED METAL BUILDING MANUFACTURER. THE COSTS OF SUCH MODIFICATION SHALL BE BORNE BY THE CONTRACTOR.

7.10 ALL PRIMARY, SECONDARY, AND SUPPLEMENTAL FRAMING EXPOSED TO THE WEATHER OR CORROSIVE CONDITIONS (WITHIN LIMITS OF THE WASH BAY AND CANOPIES REGARDLESS OF EXPOSURE) SHALL BE HOT-DIPPED GALVANIZED. THIS INCLUDES BUT IS NOT LIMITED TO SECONDARY FRAMING FOR OVERHEAD DOORS, PERSONNEL DOORS, WINDOWS, AND TRANSLUCENT PANELS AND ALL FASTENERS. ALL OTHER STEEL FRAMING SHALL BE SHOP PRIMED GRAY.

7.11 PROTECT PRE-ENGINEERED METAL BUILDING COMPONENTS FROM WEATHER. REPAIR DAMAGED COATINGS AND AREAS OF RUST.

7.12 METAL BUILDING DESIGN DRIFT LIMITS FOR FRAMING SUPPORTING MEZZANINES SHALL BE LIMITED TO H/200 FOR A 10 YEAR WIND.

7.13 BUILDING DEFLECTION LIMITS SHALL CONFORM TO THE REQUIREMENTS LISTED IN THE MASSACHUSETTS STATE BUILDING CODE, AND THE TABLE ON THIS SHEET, WHICHEVER IS MORE STRINGENT.

7.14 THE METAL BUILDING DESIGNER SHALL PROVIDE SUPPLEMENTAL FRAMING TO BRACE PARTITION WALLS. BRACING SHALL BE PROVIDED AT UNDERSIDE OF THE ROOF LEVEL. ANCHORAGE SHALL PROVIDE OUT-OF-PLANE LATERAL SUPPORT FOR INTERIOR PARTITIONS PER THE MINIMUM SEISMIC REQUIREMENTS OF ASCE 7 OR A LATERAL LOAD OF 5 PSF ON THE TRIBUTARY AREA OF THE ANCHOR, WHICHEVER IS GREATER. MAXIMUM ANCHOR SPACING IS 4'-0". BRACING DETAILS SHALL BE SUBMITTED FOR APPROVAL AND COORDINATION.

8.0 - POST INSTALLED CONCRETE ANCHORS AND REINFORCING DOWELS

8.01 ADHESIVE ANCHORS AND REINFORCING DOWELS SHALL BE HILTI HIT-HY-200 ADHESIVE ANCHORING SYSTEM OR APPROVED EQUAL.

8.02 EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ EXPANSION ANCHORS OR APPROVED EQUAL.

8.03 INSTALL ANCHORS IN STRICT CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS.

8.04 HOLES SHALL BE THOROUGHLY CLEANED AND DRY PRIOR TO INSTALLING ANCHORS.

8.05 DO NOT DAMAGE EXISTING REINFORCING. LOCATE REINFORCING WITH PROFOMETER OR OTHER MEANS PRIOR TO DRILLING CONCRETE.

8.06 ANCHORS INSTALLED OVERHEAD SHALL BE PROOF TESTED BY THE MANUFACTURER'S FIELD ENGINEER OR OTHER APPROVED AGENCY. PROOF TEST A MINIMUM OF 25% OF THE ANCHORS OR (2) TOTAL, WHICHEVER IS GREATER.

8.07 POST INSTALLED ANCHORS SHALL ONLY BE USED WHERE SHOWN IN STRUCTURAL DRAWINGS.

ABBREVIATIONS:

A/E	ARCHITECT/ENGINEER
ADDN'L	ADDITIONAL
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
A.F.F.	ABOVE FINISH FLOOR
ARCH.	ARCHITECT, ARCHITECTURAL
B	BOTTOM
BF	BRACED FRAME
B.L.	BUILDING LINE
B.O.	BOTTOM OF
BLDG	BUILDING
C.L.	CENTER LINE
C.J.	CONSTRUCTION JOINT
CMU	CONCRETE MASONRY UNIT
CONC.	CONCRETE
CONT.	CONTINUOUS
CONT'D	CONTINUED
COORD.	COORDINATE
DIM.	DIMENSION
DN	DOWN
DWG	DRAWING
(E)	EPOXY-COATED REBAR
E.F.	EACH FACE
E.W.	EACH WAY
EBC	EXTENDED (JOIST) BOTTOM CHORD
EXP.	EXPANSION
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
E.O.D.	EDGE OF DECK
E.O.S.	EDGE OF SLAB
EXT.	EXTERIOR
FDN	FOUNDATION
FIN.	FINISH
FTG	FOOTING
(G)	HOT-DIPPED GALVANIZED REBAR
GA.	GAUGE
GALV.	GALVANIZED
HCP	HOLLOW-CORE CONCRETE PLANK
H.P.	HIGH POINT
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
I.F.	INSIDE FACE (REINFORCING)
K	KIP, KIPS (1 KIP = 1000 LBS)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LB, LBS	POUND, POUNDS
LFH (TUBES)	LONG FACE HORIZONTAL
LFV	LONG FACE VERTICAL (TUBES)
LLH	LONG LEG HORIZONTAL (L-ANGLES)
LLV	LONG LEG VERTICAL (L-ANGLES)
L.P.	LOW POINT
L.W.	LIGHT-WEIGHT
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
MF	MOMENT FRAME
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.F.	OUTSIDE FACE (REINFORCING)
O.H.	OPPOSITE HAND
OEI	ODEH ENGINEERS, INC.
OPN'G	OPENING
PCP	PRECAST CONCRETE PLANK
P.E.	PROFESSIONAL ENGINEER
PL.	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
P.T.	PRESERVATIVE TREATED (WOOD)
REINF.	REINFORCED, REINFORCEMENT,
ETC.	
REQ'D	REQUIRED
RTU	ROOF TOP UNIT
SIM.	SIMILAR
SIP	STRUCTURAL INSULATED PANEL
SJ	SAWCUT (CONTROL) JOINT
SJI	STEEL JOIST INSTITUTE
SOG	SLAB-ON-GRADE
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
STL	STEEL

9.0 - DESIGN LOADS, DPW BUILDING:

9.01 GENERAL DESIGN REQUIREMENTS _____ (IBC 2021, SECTION 1604)
(A) RISK CATEGORY _____ IV (ASCE 7-16, TABLE 1.5-1)
(B) MUNICIPALITY _____ TRURO, MASSACHUSETTS (780 CMR, TABLE 1604.11)

9.02 DESIGN LOADS TO BE VERIFIED BY PRE-ENGINEERED METAL BUILDING DESIGNER.

9.03 FLOOR DESIGN LOADING CRITERIA LOADS _____ (IBC 2021, SECTION 1606 & 1607)

OCCUPANCY / USE	SUPERIMPOSED DEAD LOAD [a]	LIVE LOADS	
		UNIFORM	CONCENTRATED
OFFICE + PARTITIONS	20 psf	80 psf	2000 lbs
LOBBIES, 1st FLOOR CORRIDORS, CONFERENCE	20 psf	100 psf	2000 lbs
SLABS-ON-GRADE IN VEHICLE STORAGE, VEHICLE MAINTENANCE, AND SHOPS	ACTUAL WEIGHT OF EQUIPMENT	250 psf OR HS-20 [g]	-
ROOF	8 psf [b]	20 psf [c]	-
MEZZANINE	20 psf	250 psf	3000 lbs
MECHANICAL ROOMS	20 psf	150 psf	-
STAIRS AND EXITS	5 psf	100 psf	300 lbs [d]
MAINTENANCE CATWALKS	5 psf	40 psf	300 lbs [d]
HANDRAIL AND GUARDRAIL SYSTEMS	-	50 lb/ft [e]	200 lbs [f]
INTERMEDIATE RAILS & PANEL FILLERS	-	50 lb/ft [e]	-

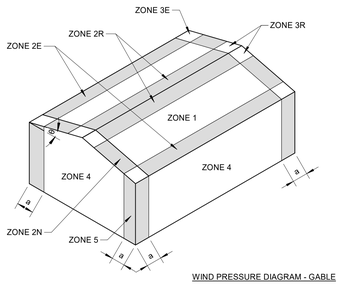
NOTE(S):

(a) SUPERIMPOSED DEAD LOADS ARE APPLIED IN ADDITION TO FRAMING AND SLAB SELF-WEIGHTS.
(b) PRE-ENGINEERED METAL BUILDING COLLATERAL LOAD AND 8PSF ALLOWANCE FOR FUTURE SOLAR PANEL SYSTEM.
(c) ROOF LIVE LOAD. ALSO REFER TO SNOW LOAD REQUIREMENTS IN 9.04.
(d) NOT CONCURRENT WITH THE UNIFORM LOAD. THE CONCENTRATED LOAD ON STAIR TREADS SHALL BE APPLIED ON AN AREA OF 2 INCHES BY 2 INCHES.
(e) APPLIED IN ANY DIRECTION ALONG THE HANDRAIL OR TOP RAIL TO PRODUCE THE MAXIMUM EFFECTS. UNIFORM AND CONCENTRATED LOADS ARE NOT APPLIED CONCURRENTLY.
(f) APPLIED NORMAL TO THE SURFACE ON AN AREA NOT TO EXCEED 12"x12" (NOT CONCURRENT WITH TOP RAIL LOADS).
(g) VEHICLE LOADING PER IBC 2015 1607.7.
(h) FLOOR LIVE LOAD IS NON-REDUCIBLE IF GREATER THAN 100 PSF.

9.04 ROOF SNOW LOAD _____ (IBC 2021, SECTION 1608)
(A) GROUND SNOW LOAD, Pg _____ 25 PSF (780 CMR, TABLE 1604.11)
(B) MINIMUM FLAT ROOF SNOW LOAD, Pf,min _____ 25 PSF (MA, STATE BUILDING CODE CHAPTER 16 (AMENDED)
(C) DESIGN SNOW LOAD, Pf _____ 23.1 (ASCE 7-16)
(D) SNOW EXPOSURE FACTOR, Ce _____ 1.1 (ASCE 7-16, TABLE 7.3-1)
(E) THERMAL FACTOR, Ct _____ 1.0 (ASCE 7-16, TABLE 7.3-2)
(F) SNOW LOAD IMPORTANCE FACTOR, Is _____ 1.2 (ASCE 7-16, TABLE 1.5-2)
(G) ROOF SLOPE FACTOR, Cs _____ 1.0 (ASCE 7-16, FIGURE 7.4-1)
(H) * ADJUST FOR SNOW DRIFT AND UNBALANCED SNOW LOADING _____ (MSBC 780 CMR)

9.05 WIND LOADS _____ (IBC 2021, SECTION 1609)
(A) BASIC WIND SPEED, V (3-SECOND GUST WIND SPEED) _____ 141 MPH (780 CMR, TABLE 1604.11)
(B) BUILDING ENCLOSURE CLASSIFICATION _____ ENCLOSED (ASCE 7-16, SEC. 26.2)
(C) WIND EXPOSURE CATEGORY _____ C (ASCE 7-16, SEC. 26.7.3)
(D) DESIGN BUILDING DIMENSIONS
(E) COMPONENTS AND CLADDING _____ (ASCE 7-16, CHAPTER 30)
(1) ANALYSIS PROCEDURE _____ LOW RISE BUILDINGS (ASCE 7-16, PART 1)
(a) WIND DIRECTIONALITY FACTOR, Kd _____ 0.85 (ASCE 7-16, TABLE 26.6-1)
(b) TOPOGRAPHIC FACTOR, Kzt _____ 1.0 (ASCE 7-16, FIGURE 26.8-1)
(c) VELOCITY PRESSURE COEFFICIENT, Kz _____ 0.94 (ASCE 7-16, TABLE 26.10-1)
(d) INTERNAL PRESSURE COEFFICIENT, GCpi _____ +/-0.18 (ASCE 7-16, TABLE 26.13-1)
(e) PERIMETER ZONE, a _____ VARIES

COMPONENTS AND CLADDING WIND PRESSURE LOADS ON BUILDING



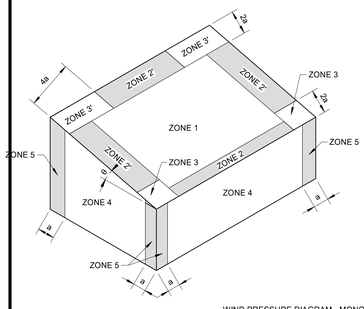
WIND PRESSURE DIAGRAM - GABLE

COMPONENTS AND CLADDING WIND PRESSURE LOADS ON BUILDING - GABLE

EFFECTIVE WIND AREA (SF)	ROOF LOADS (psf)												WALL LOADS (psf)			
	ZONE 1		ZONE 2E		ZONE 2N		ZONE 2R		ZONE 3E		ZONE 3R		ZONE 4		ZONE 5	
	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG
10	28.0	-84.0	28.0	-84.0	28.0	-122.6	28.0	-122.6	28.0	-122.6	28.0	-145.6	46.2	-49.3	46.2	-60.9
50	21.6	-51.1	21.6	-51.1	21.6	-84.0	21.6	-84.0	21.6	-84.0	21.6	-97.3	41.4	-44.6	41.4	-51.3
100	18.7	-26.2	18.7	-26.2	18.7	-67.5	18.7	-67.5	18.7	-67.5	18.7	-76.4	39.3	-42.6	39.3	-47.3
500	18.7	-26.2	18.7	-26.2	18.7	-67.5	18.7	-67.5	18.7	-67.5	18.7	-76.4	39.3	-42.6	39.3	-47.3

NOTES:

1. MINIMUM PRESSURE ON ANY SURFACE SHALL BE 16 PSF.
2. TABLE PRESSURES ARE FOR SQUARE FOOT [SF] TRIBUTARY AREA, FOR OTHER AREAS LINEAR INTERPOLATION BETWEEN AREAS ABOVE.
3. POSITIVE PRESSURES ACT TOWARDS THE BUILDING, NEGATIVE ACT AWAY FROM THE BUILDING.
4. ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE = 1.00
5. a = VARIES
6. DETAIL IS APPLICABLE FOR ROOF SLOPES θ < 7°



WIND PRESSURE DIAGRAM - MONOSLOPE

COMPONENTS AND CLADDING WIND PRESSURE LOADS ON BUILDING - MONOSLOPE

EFFECTIVE WIND AREA (SF)	ROOF LOADS (psf)										WALL LOADS (psf)			
	ZONE 1		ZONE 2		ZONE 2'		ZONE 3		ZONE 3'		ZONE 4		ZONE 5	
	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG	POS	NEG
10														
50														
100														
500														

NOTES:

1. MINIMUM PRESSURE ON ANY SURFACE SHALL BE 16 PSF.
2. TABLE PRESSURES ARE FOR SQUARE FOOT [SF] TRIBUTARY AREA, FOR OTHER AREAS LINEAR INTERPOLATION BETWEEN AREAS ABOVE.
3. POSITIVE PRESSURES ACT TOWARDS THE BUILDING, NEGATIVE ACT AWAY FROM THE BUILDING.
4. ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE = 1.00
5. a = VARIES
6. DETAIL IS APPLICABLE FOR ROOF SLOPES θ < 7°

9.06 EARTHQUAKE LOADS _____ (IBC 2021, SECTION 1613)
(A) SITE CLASS _____ D (GEOTECH REPORT)
(B) SPECTRAL RESPONSE ACCELERATIONS
(1) Ss _____ 0.167 (780 CMR, TABLE 1604.11)
(2) S1 _____ 0.051 (780 CMR, TABLE 1604.11)
(C) SPECTRAL RESPONSE COEFFICIENTS
(1) Sds _____ 0.179 (ASCE 7-16, SEC. 11.4.5)
(2) Sd1 _____ 0.082 (ASCE 7-16, SEC. 11.4.5)
(D) SEISMIC DESIGN CATEGORY _____ C (ASCE 7-16, SEC. 11.6)
(E) SEISMIC IMPORTANCE FACTOR, Ie _____ 1.5 (ASCE 7-16, TABLE 1.5-2)
(F) SEISMIC FORCE RESISTING SYSTEM: _____ (ASCE 7-16, TABLE 12.2-1)
(1) STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
(a) RESPONSE MODIFICATION COEFFICIENT, R _ 3
(b) SYSTEM OVERSTRENGTH PARAMETER,Ωo _ 3
(c) DEFLECTION AMPLIFICATION FACTOR, Cd _ 3
(G) ANALYSIS PROCEDURE _____ EQUIVALENT LATERAL FORCE ANALYSIS (ASCE 7-16, SEC. 12.8)

9.1 - DESIGN LOADS, DETACHED CANOPY:

9.11 GENERAL DESIGN REQUIREMENTS _____ IBC 2021, SECTION 1604)
(A) RISK CATEGORY _____ IV (ASCE 7-16, TABLE 1.5-1)
(B) MUNICIPALITY _____ TRURO, MASSACHUSETTS (780 CMR, TABLE 1604.11)

9.12 DESIGN LOADS TO BE VERIFIED BY PRE-ENGINEERED METAL BUILDING DESIGNER.

9.13 FLOOR DESIGN LOADING CRITERIA LOADS _____ (IBC 2021, SECTION 1606 & 1607)

OCCUPANCY / USE	SUPERIMPOSED DEAD LOAD [a]	LIVE LOADS	
		UNIFORM	CONCENTRATED
OFFICE + PARTITIONS	20 psf	80 psf	2000 lbs
LOBBIES, 1st FLOOR CORRIDORS, CONFERENCE	20 psf	100 psf	2000 lbs
SLABS-ON-GRADE IN VEHICLE STORAGE, VEHICLE MAINTENANCE, AND SHOPS	ACTUAL WEIGHT OF EQUIPMENT	250 psf OR HS-20 [g]	-
ROOF	8 psf [b]	20 psf [c]	-
MEZZANINE	20 psf	250 psf	3000 lbs
MECHANICAL ROOMS	20 psf	150 psf	-
STAIRS AND EXITS	5 psf	100 psf	300 lbs [d]
MAINTENANCE CATWALKS	5 psf	40 psf	300 lbs [d]
HANDRAIL AND GUARDRAIL SYSTEMS	-	50 lb/ft [e]	200 lbs [f]
INTERMEDIATE RAILS & PANEL FILLERS	-	50 lb/ft [e]	-

NOTE(S):

(a) SUPERIMPOSED DEAD LOADS ARE APPLIED IN ADDITION TO FRAMING AND SLAB SELF-WEIGHTS.
(b) PRE-ENGINEERED METAL BUILDING COLLATERAL LOAD AND 8PSF ALLOWANCE FOR FUTURE SOLAR PANEL SYSTEM.
(c) ROOF LIVE LOAD. ALSO REFER TO SNOW LOAD REQUIREMENTS IN 9.04.
(d) NOT CONCURRENT WITH THE UNIFORM LOAD. THE CONCENTRATED LOAD ON STAIR TREADS SHALL BE APPLIED ON AN AREA OF 2 INCHES BY 2 INCHES.
(e) APPLIED IN ANY DIRECTION ALONG THE HANDRAIL OR TOP RAIL TO PRODUCE THE MAXIMUM EFFECTS. UNIFORM AND CONCENTRATED LOADS ARE NOT APPLIED CONCURRENTLY.
(f) APPLIED NORMAL TO THE SURFACE ON AN AREA NOT TO EXCEED 12"x12" (NOT CONCURRENT WITH TOP RAIL LOADS).
(g) VEHICLE LOADING PER IBC 2015 1607.7.
(h) FLOOR LIVE LOAD IS NON-REDUCIBLE IF GREATER THAN 100 PSF.

9.14 ROOF SNOW LOAD _____ (IBC 2021, SECTION 1608)
(A) GROUND SNOW LOAD, Pg _____ 25 PSF (780 CMR, TABLE 1604.11)
(B) MINIMUM FLAT ROOF SNOW LOAD, Pf,min _____ 25 PSF (MA, STATE BUILDING CODE CHAPTER 16 (AMENDED)
(C) DESIGN SNOW LOAD, Pf _____ 27.7 (ASCE 7-16)
(D) SNOW EXPOSURE FACTOR, Ce _____ 1.1 (ASCE 7-16, TABLE 7.3-1)
(E) THERMAL FACTOR, Ct _____ 1.2 (ASCE 7-16, TABLE 7.3-2)
(F) SNOW LOAD IMPORTANCE FACTOR, Is _____ 1.2 (ASCE 7-16, TABLE 1.5-2)
(G) ROOF SLOPE FACTOR, Cs _____ 1.0 (ASCE 7-16, FIGURE 7.4-1)
(H) * ADJUST FOR SNOW DRIFT AND UNBALANCED SNOW LOADING _____ (MSBC 780 CMR)

9.15 WIND LOADS _____ (IBC 2021, SECTION 1609)
(A) BASIC WIND SPEED, V (3-SECOND GUST WIND SPEED) _____ 141 MPH (780 CMR, TABLE 1604.11)
(B) BUILDING ENCLOSURE CLASSIFICATION _____ ENCLOSED (ASCE 7-16, SEC. 26.2)
(C) WIND EXPOSURE CATEGORY _____ C (ASCE 7-16, SEC. 26.7.3)
(D) DESIGN BUILDING DIMENSIONS
(E) COMPONENTS AND CLADDING _____ (ASCE 7-16, CHAPTER 30)
(1) ANALYSIS PROCEDURE _____ LOW RISE BUILDINGS (ASCE 7-16, PART 1)
(a) WIND DIRECTIONALITY FACTOR, Kd _____ 0.85 (ASCE 7-16, TABLE 26.6-1)
(b) TOPOGRAPHIC FACTOR, Kzt _____ 1.0 (ASCE 7-16, FIGURE 26.8-1)
(c) VELOCITY PRESSURE COEFFICIENT, Kz _____ 0.94 (ASCE 7-16, TABLE 26.10-1)
(d) INTERNAL PRESSURE COEFFICIENT, GCpi _____ +/-0.18 (ASCE 7-16, TABLE 26.13-1)
(e) PERIMETER ZONE, a _____ VARIES

9.16 EARTHQUAKE LOADS _____ (IBC 2021, SECTION 1613)
(A) SITE CLASS _____ D (GEOTECH REPORT)
(B) SPECTRAL RESPONSE ACCELERATIONS
(1) Ss _____ 0.167 (780 CMR, TABLE 1604.11)
(2) S1 _____ 0.051 (780 CMR, TABLE 1604.11)
(C) SPECTRAL RESPONSE COEFFICIENTS
(1) Sds _____ 0.179 (ASCE 7-16, SEC. 11.4.5)
(2) Sd1 _____ 0.082 (ASCE 7-16, SEC. 11.4.5)
(D) SEISMIC DESIGN CATEGORY _____ C (ASCE 7-16, SEC. 11.6)
(E) SEISMIC IMPORTANCE FACTOR, Ie _____ 1.0 (ASCE 7-16, TABLE 1.5-2)
(F) SEISMIC FORCE RESISTING SYSTEM: _____ (ASCE 7-16, TABLE 12.2-1)
(1) STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
(a) RESPONSE MODIFICATION COEFFICIENT, R _ 3
(b) SYSTEM OVERSTRENGTH PARAMETER,Ωo _ 3
(c) DEFLECTION AMPLIFICATION FACTOR, Cd _ 3
(G) ANALYSIS PROCEDURE _____ EQUIVALENT LATERAL FORCE ANALYSIS (ASCE 7-16, SEC. 12.8)

9.2 - DESIGN LOADS, SALT SHED:

9.21 GENERAL DESIGN REQUIREMENTS _____ (IBC 2021, SECTION 1604)
(A) RISK CATEGORY _____ I (ASCE 7-16, TABLE 1.5-1)
(B) MUNICIPALITY _____ TRURO, MASSACHUSETTS (780 CMR, TABLE 1604.11)

9.22 DESIGN LOADS TO BE VERIFIED BY PRE-ENGINEERED SALT SHED DESIGNER.

9.23 FLOOR DESIGN LOADING CRITERIA LOADS _____ (IBC 2021, SECTION 1606 & 1607)

OCCUPANCY / USE	SUPERIMPOSED DEAD LOAD [a]	LIVE LOADS	
		UNIFORM	CONCENTRATED
SLABS-ON-GRADE IN VEHICLE STORAGE, VEHICLE MAINTENANCE, AND SHOPS	ACTUAL WEIGHT OF EQUIPMENT	250 psf OR HS-20 [g]	-
ROOF	ACTUAL WEIGHT OF STRUCTURE & SUSPENDED EQUIPMENT	12 psf [c]	-

NOTE(S):

(a) SUPERIMPOSED DEAD LOADS ARE APPLIED IN ADDITION TO FRAMING AND SLAB SELF-WEIGHTS.
(b) ROOF LIVE LOAD. ALSO REFER TO SNOW LOAD REQUIREMENTS IN 9.04.
(c) VEHICLE LOADING PER IBC 2015 1607.7.
(d) FLOOR LIVE LOAD IS NON-REDUCIBLE IF GREATER THAN 100 PSF.

9.24 ROOF SNOW LOAD _____ (IBC 2021, SECTION 1608)
(A) GROUND SNOW LOAD, Pg _____ 25 PSF (780 CMR, TABLE 1604.11)
(B) MINIMUM FLAT ROOF SNOW LOAD, Pf,min _____ 25 PSF (MA, STATE BUILDING CODE CHAPTER 16 (AMENDED)
(C) DESIGN SNOW LOAD, Pf _____ 21.0 (ASCE 7-16)
(D) SNOW EXPOSURE FACTOR, Ce _____ 1.0 (ASCE 7-16, TABLE 7.3-1)
(E) THERMAL FACTOR, Ct _____ 1.2 (ASCE 7-16, TABLE 7.3-2)
(F) SNOW LOAD IMPORTANCE FACTOR, Is _____ 1.0 (ASCE 7-16, TABLE 1.5-2)
(G) ROOF SLOPE FACTOR, Cs _____ 1.0 (ASCE 7-16, FIGURE 7.4-1)
(H) * ADJUST FOR SNOW DRIFT AND UNBALANCED SNOW LOADING _____ (MSBC 780 CMR)

9.25 WIND LOADS _____ (IBC 2021, SECTION 1609)
(A) BASIC WIND SPEED, V (3-SECOND GUST WIND SPEED) _____ 119 MPH (780 CMR, TABLE 1604.11)
(B) BUILDING ENCLOSURE CLASSIFICATION _____ ENCLOSED (ASCE 7-16, SEC. 26.2)
(C) WIND EXPOSURE CATEGORY _____ C (ASCE 7-16, SEC. 26.7.3)
(D) DESIGN BUILDING DIMENSIONS
(E) COMPONENTS AND CLADDING _____ (ASCE 7-16, CHAPTER 30)
(1) ANALYSIS PROCEDURE _____ LOW RISE BUILDINGS (ASCE 7-16, PART 1)
(a) WIND DIRECTIONALITY FACTOR, Kd _____ 0.85 (ASCE 7-16, TABLE 26.6-1)
(b) TOPOGRAPHIC FACTOR, Kzt _____ 1.0 (ASCE 7-16, FIGURE 26.8-1)
(c) VELOCITY PRESSURE COEFFICIENT, Kz _____ 0.94 (ASCE 7-16, TABLE 26.10-1)
(d) INTERNAL PRESSURE COEFFICIENT, GCpi _____ +/-0.18 (ASCE 7-16, TABLE 26.13-1)
(e) PERIMETER ZONE, a _____ VARIES

9.26 EARTHQUAKE LOADS _____ (IBC 2021, SECTION 1613)
(A) SITE CLASS _____ D (GEOTECH REPORT)
(B) SPECTRAL RESPONSE ACCELERATIONS
(1) Ss _____ 0.167 (780 CMR, TABLE 1604.11)
(2) S1 _____ 0.051 (780 CMR, TABLE 1604.11)
(C) SPECTRAL RESPONSE COEFFICIENTS
(1) Sds _____ 0.179 (ASCE 7-16, SEC. 11.4.5)
(2) Sd1 _____ 0.082 (ASCE 7-16, SEC. 11.4.5)
(D) SEISMIC DESIGN CATEGORY _____ C (ASCE 7-16, SEC. 11.6)
(E) SEISMIC IMPORTANCE FACTOR, Ie _____ 1.0 (ASCE 7-16, TABLE 1.5-2)
(F) SEISMIC FORCE RESISTING SYSTEM: _____ (ASCE 7-16, TABLE 12.2-1)
(1) STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
(a) RESPONSE MODIFICATION COEFFICIENT, R _ 3
(b) SYSTEM OVERSTRENGTH PARAMETER,Ωo _ 3
(c) DEFLECTION AMPLIFICATION FACTOR, Cd _ 3
(G) ANALYSIS PROCEDURE _____ EQUIVALENT LATERAL FORCE ANALYSIS (ASCE 7-16, SEC. 12.8)

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale:

Key Plan:

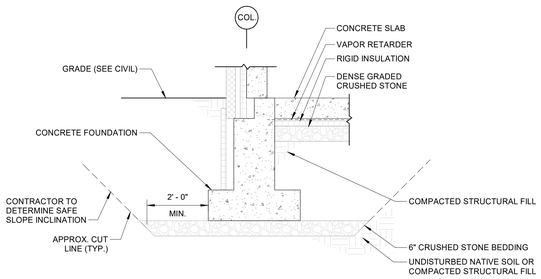
Date:	OCTOBER 31, 2025
Drawn By:	GMB
Reviewed By:	AC
Approved By:	NMS
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
STRUCTURAL LOADING CRITERIA

Sheet Number:
S002

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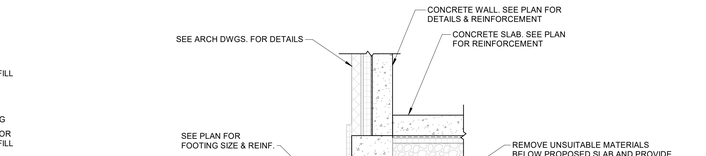
FOUNDATION NOTE(S):

1. UNDOCUMENTED FILL AND LOOSE OR DISTURBED SOILS SHALL BE REMOVED FROM ALL FOUNDATION AREAS. THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO FOUNDATION CONSTRUCTION TO OBSERVE ALL FOUNDATION SUBGRADES. REFER TO EARTHWORK SPECIFICATION FOR LIMITS OF UNSUITABLE SOILS REMOVAL AND BACKFILL REQUIREMENTS BELOW FOUNDATIONS AND SLABS.
2. 6-INCHES OF CRUSHED STONE SHALL BE PLACED AND COMPACTED AT THE BASE OF FOOTING EXCAVATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR SUBGRADE PROTECTION.
4. SUBGRADES SHALL BE PROOF ROLLED USING A FULLY LOADED 10-WHEELED DUMP TRUCK. REFER TO GEOTECHNICAL REPORT FOR OTHER PROOF ROLLING REQUIREMENTS.

SLAB NOTE(S):

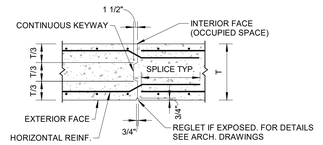
1. A MINIMUM OF 12-INCHES OF DENSE GRADED CRUSHED STONE SHALL BE PLACED BELOW SLABS. REFER TO EARTHWORK SPECIFICATION FOR PLACEMENT AND COMPACTION REQUIREMENTS. THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PLACEMENT TO EVALUATION SUBGRADE CONDITIONS.
2. REFER TO EARTHWORK SPECIFICATION FOR LIMITS OF UNSUITABLE SOILS REMOVAL AND BACKFILL REQUIREMENTS BELOW FOUNDATIONS AND SLABS.
3. IF UNDERSLAB STONE IS TRAPPING WATER, THE WATER SHALL BE REMOVED PRIOR TO SLAB PLACEMENT.
4. SUBGRADES SHALL BE PROOF ROLLED USING A FULLY LOADED 10-WHEELED DUMP TRUCK. REFER TO GEOTECHNICAL REPORT FOR OTHER PROOF ROLLING REQUIREMENTS.

1 TYPICAL CUT/FILL DETAIL
N.T.S.

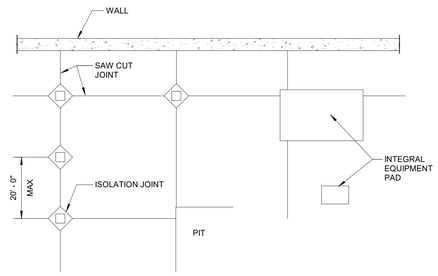


NOTES:
1. REFER TO EARTHWORK SPECIFICATION FOR DESCRIPTION OF UNSUITABLE MATERIALS AND SUITABLE BEARING MATERIAL.

2 TYPICAL REMOVAL OF UNSUITABLE MATERIALS
N.T.S.

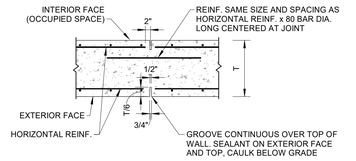


3 VERTICAL CONSTRUCTION JOINT
N.T.S.

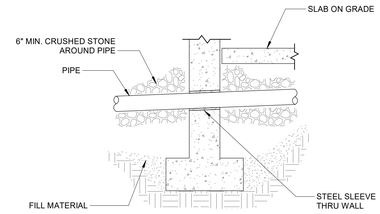


NOTE:
PROVIDE SHOP DRAWINGS INDICATING PROPOSED JOINT LAYOUTS.

4 HORIZONTAL CONCRETE JOINTS DIAGRAM
N.T.S.



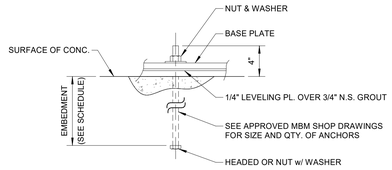
5 VERTICAL CONTROL JOINT
N.T.S.



NOTE(S):
1. PIPE SHALL NOT PASS UNDER OR THRU WALL FOOTING. LOWER FOOTING BY STEPPING TO AVOID INTERFERENCE.

6 PIPE THROUGH FOUNDATION WALL
N.T.S.

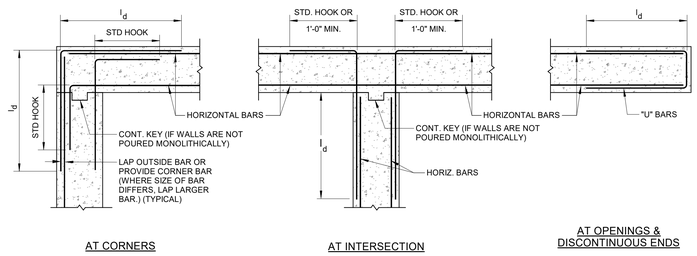
ANCHOR BOLT SCHEDULE	
DIAMETER (IN.)	EMBEDMENT (IN.)
3/4	16
1	20
1 1/4	24



NOTE(S):

1. ANCHORS SHALL BE AS SPECIFIED BY THE MBM, PROVIDED AND INSTALLED BY CONTRACTOR.
2. ANCHORS SHALL CONFORM TO ASTM F1554 GRADE 55 STEEL. ANCHOR BOLTS SHALL BE WELDABLE, CONFORMING TO SUPPLEMENTARY REQUIREMENT S1.
3. ANCHORS BOLTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

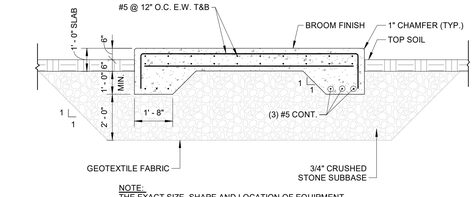
7 ANCHOR BOLT DETAIL
N.T.S.



NOTE(S):

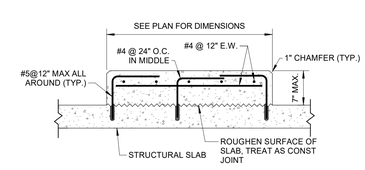
1. VERTICAL BARS NOT SHOWN FOR CLARITY. (TYP.)
2. FOR LENGTH OF ld, REFER TO SPLICE AND DEVELOPMENT LENGTH TABLE.

8 HORIZONTAL WALL REINFORCING PLAN
N.T.S.



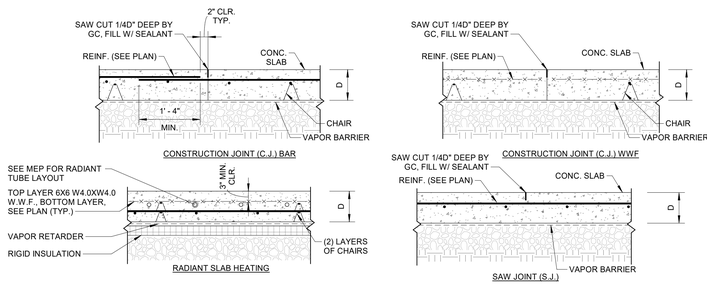
NOTE:
THE EXACT SIZE, SHAPE AND LOCATION OF EQUIPMENT (HOUSEKEEPING) PAD(S) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR EQUIPMENT. ANCHOR BOLTS, WHERE REQUIRED, SHALL BE SIZED AND LOCATED ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.

9 EXTERIOR CONCRETE EQUIPMENT PAD
N.T.S.



NOTE:
THE EXACT SIZE, SHAPE AND LOCATION OF EQUIPMENT (HOUSEKEEPING) PAD(S) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR EQUIPMENT. ANCHOR BOLTS WHERE REQUIRED SHALL BE SIZED AND LOCATED ACCORDING TO MANUFACTURER'S REQUIREMENTS.

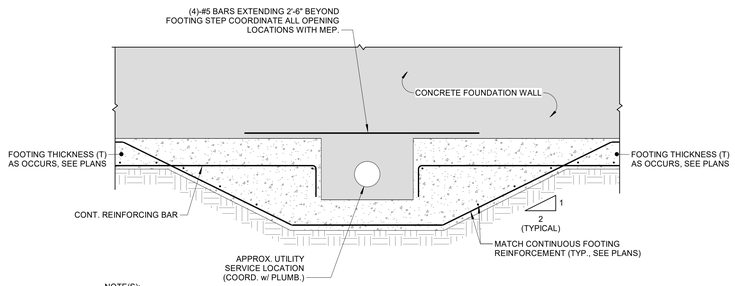
10 CONCRETE EQUIPMENT PAD
N.T.S.



NOTE(S):

1. PUNCTURES IN THE VAPOR BARRIER MUST BE SEALED. ENGINEER SHALL INSPECT THE CONDITION OF THE VAPOR BARRIER BEFORE PLACING CONCRETE.
2. STOP REINFORCING 2" FROM EACH SIDE OF CONSTRUCTION/CONTROL JOINT.
3. REINFORCING SHOULD BE PLACED 3" OR D/3 FROM TOP OF FINISH FLOOR WHERE RADIANT TUBE HEATING IS USED. A SECOND LAYER OF REINFORCING SHALL BE PLACED BELOW TUBES. TUBES SHALL RECEIVE A MINIMUM OF 3 INCHES CONCRETE COVER. TUBES SHALL BE FASTENED TO UNDERSIDE OF TOP LAYER OF REINFORCING.

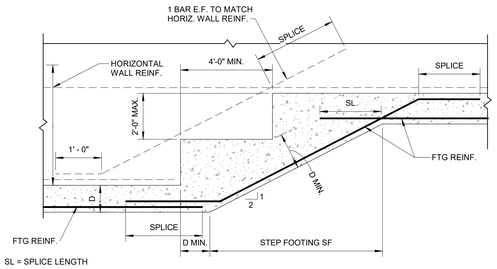
11 TYPICAL SLAB ON GRADE REINFORCING DETAIL
N.T.S.



NOTE(S):

1. REFER TO ARCH./CIVIL/GEOTECHNICAL DETAILS FOR ADDITIONAL UNDER SLAB & FOUNDATION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS. REQUIREMENTS MAY INCLUDE BUT ARE NOT LIMITED TO: PERIMETER DRAINS, INSULATION, WEEP HOLES, & SITE PREPARATION. REPORT ANY DISCREPANCIES BETWEEN DISCIPLINES TO A/E FOR CLARIFICATION PRIOR TO PROCEEDING WITH WORK.

12 UTILITY OPENING
N.T.S.



13 STEP FOOTING DETAIL
N.T.S.

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
17 TOWN HALL ROAD
TRURO, MA 02666

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100 Foxborough Boulevard, Suite 250
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978.532.1900 800.SAMPSON
www.westonandsampson.com

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370 Dutton Corner Road, Suite D
Dartmouth, MA 02747
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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:

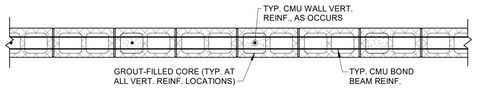
Date:	OCTOBER 31, 2025
Drawn By:	GMB
Reviewed By:	AC
Approved By:	NMS
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
TYPICAL DETAILS I

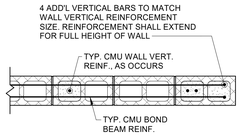
Sheet Number:
S003

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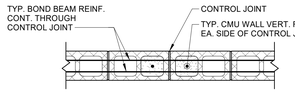
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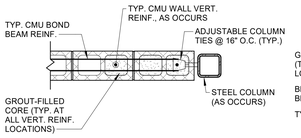
TYPICAL CONTINUOUS WALL REINFORCEMENT DETAIL



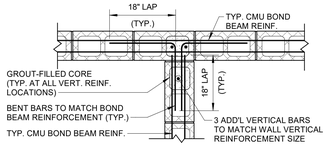
TYPICAL OPEN END WALL REINFORCEMENT DETAIL



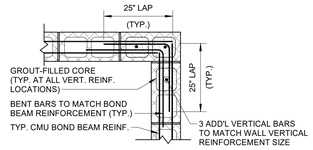
TYPICAL REINFORCEMENT AT CONTROL JOINT



TYPICAL STEEL COLUMN/ CMU WALL INTERFACE



TYPICAL WALL INTERSECTION REINFORCEMENT DETAIL



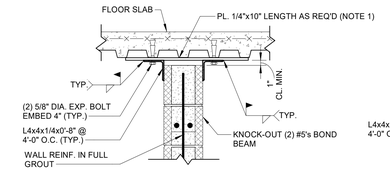
TYPICAL WALL CORNER REINFORCEMENT DETAIL

NOTE(S):

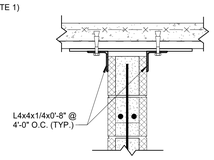
1. ALL CMU VERTICAL REINFORCED CORES AND HORIZONTAL REINFORCED COURSES (BOND BEAMS) SHALL BE GROUTED SOLID. GROUTING OF HORIZONTAL REINFORCEMENT NOT SHOWN ON THIS DETAIL FOR CLARITY.

1 TYPICAL MASONRY REINFORCING DETAILS

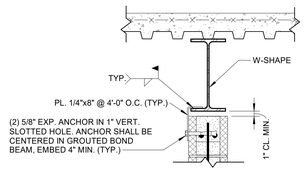
N.T.S.



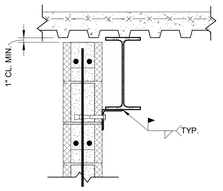
WHERE WALL ABUTS OPEN CELLS



ALTERNATE CONDITION #1



ALTERNATE CONDITION #2



ALTERNATE CONDITION #3

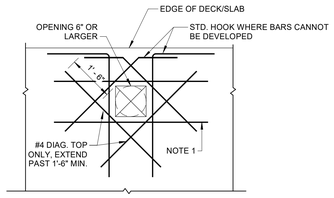
NOTE(S):

1. WHERE RIBS ARE IN FULL CONTACT WITH RESTRAINING ANGLES THE PLATE MAY BE OMITTED.
2. STEEL CLIP ASSEMBLY PROVIDED AND INSTALLED BY MISC. METALS CONTRACTOR.

2 MASONRY PARTITION BRACING DETAILS

N.T.S.

LABEL	CLEAR SPAN L	REINFORCING IN LINTEL				END BEARING	DEPTH (FULLY GROUTED)
		6" WALL	8" WALL	10" WALL	12" WALL		
L-4	UP TO 4'-0"	1-#5	2-#5	2-#5	2-#6	8"	8"
L-5	TO 5'-0"	1-#5	2-#5	2-#5	2-#6	8"	16"
L-6	TO 6'-0"	2-#5	2-#5	2-#5	2-#6	8"	16"
L-7	TO 7'-0"	2-#5	2-#6	2-#6	2-#6	8"	16"
L-8	TO 8'-0"	2-#5	2-#7	2-#7	3-#6	8"	16"
L-9	TO 9'-0"	2-#6	2-#8	2-#8	2-#8	8"	24"
L-12	TO 12'-0"	-	-	-	2-#8	8"	24"

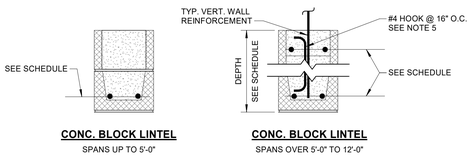


NOTE(S):

1. #5 ADDL EACH FACE MIN; BUT NOT LESS THAN 50% OF INTERRUPTED WALL REINF EACH SIDE OF OPENING. SPACE BARS AT 3" OC, EACH FACE. PROVIDE AT TOP AND BOTTOM MAT AS APPLICABLE. LENGTH OF ADDL REINF = L OR H+(2XSPLICE LENGTH).
2. SEE TABLE FOR MINIMUM SPLICE LENGTH.

3 SUPPLEMENTAL SLAB REINFORCING

N.T.S.



CONC. BLOCK LINTEL
SPANS UP TO 5'-0"

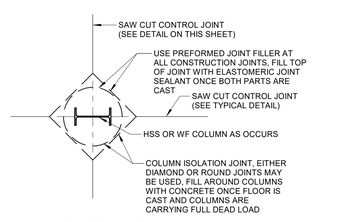
CONC. BLOCK LINTEL
SPANS OVER 5'-0" TO 12'-0"

NOTE(S):

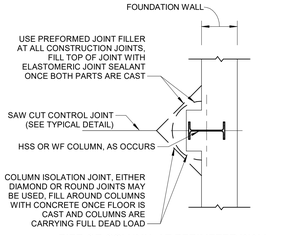
1. GROUT f'c = 5000 PSI
2. MASONRY LOCATED AT MEZZANINES (LOAD BEARING LINTELS) SHALL ALL BE GROUTED SOLID TO THE TOP OF WALL.
3. REINFORCING SHALL EXTEND A MIN. OF 40 BAR DIAMETERS PAST THE OPENING (BUT NOT LESS THAN 24") IN FULL GROUT.
4. CMU f'm = 2,750 PSI (MIN.)
5. PROVIDE #4 SHEAR REINF. IN ADDITION TO TYP. VERT. REINFORCEMENT. CONTINUE SHEAR REINF. 24" PAST THE OPENING.

4 MASONRY LINTEL SCHEDULE

N.T.S.



HSS INTERIOR COLUMN



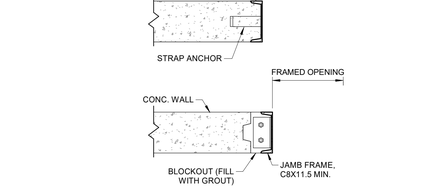
PIER OR COLUMN AT PERIMETER WALL

NOTE(S):

1. THESE DETAILS SHALL BE USED AT ALL COLUMN LOCATIONS.

5 TYPICAL SLAB ON GRADE ISOLATION JOINT DETAIL

N.T.S.

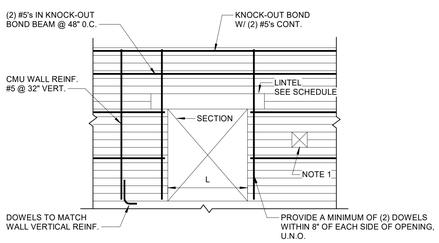


NOTE(S):

1. JAMB FRAMING AND BASE CONNECTION DESIGNED BY METAL BUILDING MANUFACTURER.
2. COORDINATE INSTALLATION OF DOOR JAMB WITH PLACEMENT OF CONCRETE WALLS
3. WALL REINF. NOT SHOWN FOR CLARITY.
4. ALL STEEL SHOWN IS HOT-DIP GALVANIZED.
5. DOOR JAMBS TO BE SET ON TOP OF FOUNDATION WALL. DO NOT SET JAMBS ON TOP OF CONCRETE KNEE WALLS. CONTRACTOR TO COORDINATE.

6 DOOR JAMB DETAIL (CONCRETE)

N.T.S.



NOTE(S):

1. REINFORCEMENT ADJACENT TO OPENINGS NEED NOT BE PROVIDED FOR OPENINGS SMALLER THAT 16-INCHES IN EITHER HORIZONTAL OR VERTICAL DIRECTION, UNLESS DISTRIBUTED REINFORCING IS INTERRUPTED BY SUCH OPENINGS.
2. FOR WINDOWS AND SIMILAR OPENINGS THAT DO NOT EXTEND TO THE FLOOR, PROVIDE (2) #5 HORIZONTAL BARS AT BOTTOM OF OPENING, EXTEND PAST OPENING 24" EACH SIDE.

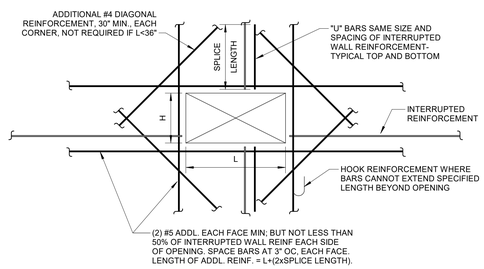
7 MASONRY PARTITION REINFORCING

N.T.S.

TENSION DEVELOPMENT & SPLICE LENGTHS FOR BARS				
	F'c = 4,000 PSI		F'c = 5,000 PSI	
BAR SIZE	TOP BARS (IN.)	OTHER BARS (IN.)	TOP BARS (IN.)	OTHER BARS (IN.)
#3	24	19	22	17
#4	32	25	29	22
#5	40	31	36	28
#6	48	37	43	33
#7	70	54	63	49
#8	80	62	72	55
#9	91	70	81	63
#10	102	79	91	70
#11	113	87	101	78

8 MINIMUM SPLICE DEVELOPMENT LENGTHS

N.T.S.

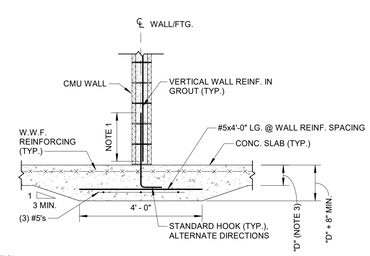


NOTES:

1. WALL OPENINGS SHALL BE COORDINATED AND DETAILED ON THE REINFORCEMENT SHOP DRAWINGS.

9 REINFORCMENT AT OPENINGS IN REINFORCED CONCRETE WALLS

N.T.S.



NOTE(S):

1. SPLICE LAP BARS AS REQUIRED FOR BAR SIZE, FOR WALLS 4-FEET OR LESS ABOVE FINISH FLOOR, HOOKED BAR MAY CONTINUE TO THE TOP OF WALL.
2. THIS DETAIL SHALL BE USED AT ALL INTERIOR MASONRY WALLS. COORDINATE WITH ARCHITECT FOR WALL LOCATIONS.
3. "D" INDICATES OVERALL SLAB THICKNESS, REFER TO PLANS.

10 MASONRY PARTITION FOUNDATION

N.T.S.

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
TRURO, MA 02666

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	GMB
Reviewed By:	AC
Approved By:	NMS
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

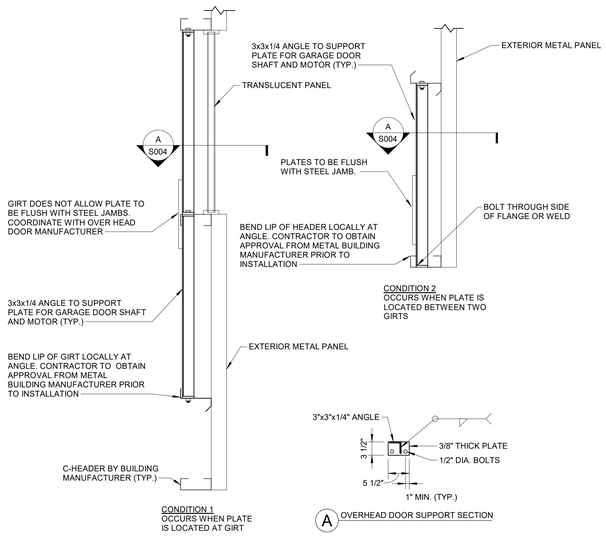
TYPICAL DETAILS II

Sheet Number:

S004

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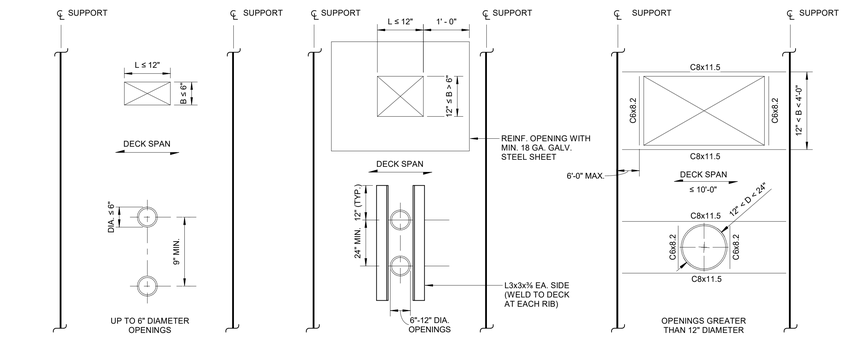
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NOTE(S):

1. METAL BUILDING DESIGNER SHALL DESIGN GIRTS AND JAMBS TO SUPPORT OVERHEAD DOORS AND SUPPLEMENTAL FRAMING. COORDINATE WITH APPROVED OVERHEAD DOOR SUBMITTALS.

1 OVERHEAD DOOR SUPPORT DETAIL
N.T.S.

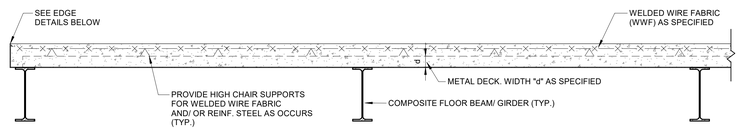


NO REINF. REQUIRED FOR OPENINGS. (METAL DECK CONTRACTOR SHALL PROVIDE DECK CLOSURE @ ALL PIPE CHASES.)

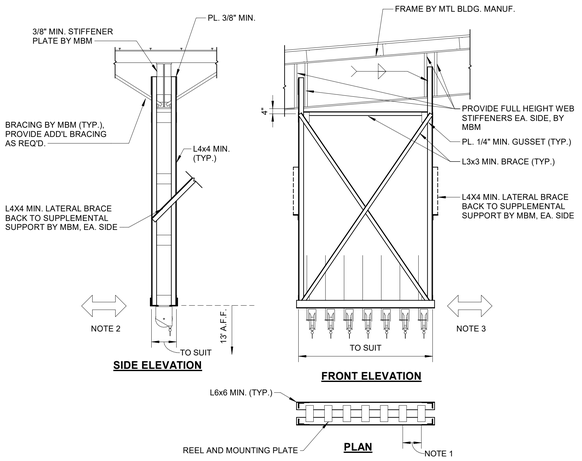
REINF. OPENING WITH MIN. 18 GA. GALV STEEL SHEET 12" OR GREATER ON ALL SIDES OF OPENING.
OR:
REINF. OPENING WITH L3x3x¼ EA. SIDE OF OPENING PERPENDICULAR TO DECK SPAN AND EXTENDING 12" BEYOND OPENING EA. END.

NOTE: OPENINGS OUTSIDE THE LIMITS ABOVE SHALL BE FRAMED WITH STRUCTURAL STEEL. OPENING SIZES AND LOCATIONS TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.

2 TYPICAL FRAMING DETAILS AT COMPOSITE DECK OPENINGS
N.T.S.



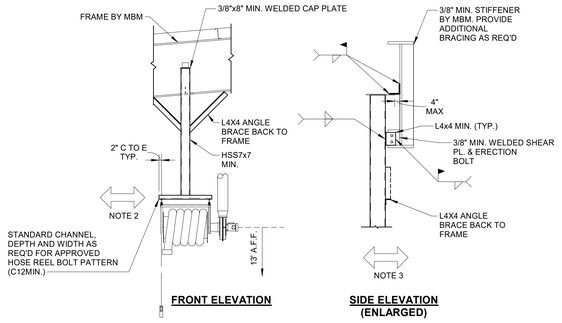
TYPICAL COMPOSITE SLAB SECTION



NOTE(S):

1. HOSE REEL SUPPORT BY MISC METAL FSB AND SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS.
2. COORDINATE SIZE AND LOCATION OF REELS WITH METAL BUILDING MANUFACTURER.
3. CONNECTION AT FRAMES SHALL BE DESIGNED BY BUILDING MANUFACTURER AND MISC METALS DESIGNER TO SAFELY SUPPORT FRAME AND REEL DEAD LOAD IN ADDITION TO 200 LB IN ANY DIRECTION AT LOCATIONS SHOWN ABOVE, MAXIMUM ALLOWABLE LATERAL DEFLECTION SHALL BE L/360 AT BASE OF SUPPORT.
4. COORDINATE HEIGHT REQUIREMENTS WITH EQUIPMENT (EQ) DRAWINGS.

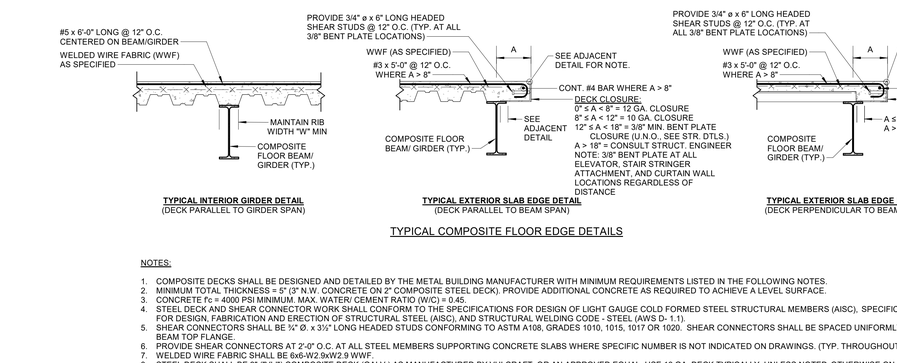
3 HOSE REEL SUPPORT
N.T.S.



NOTE(S):

1. EXHAUST REEL SUPPORT BY MISC METALS FSB AND SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS.
2. COORDINATE SIZE AND LOCATION OF REELS WITH METAL BUILDING MANUFACTURER.
3. CONNECTION AT FRAMES SHALL BE DESIGNED BY BUILDING MANUFACTURER AND MISC METALS DESIGNER TO SAFELY SUPPORT FRAME AND REEL DEAD LOAD IN ADDITION TO 200 LB IN ANY DIRECTION AT LOCATIONS SHOWN ABOVE, MAXIMUM ALLOWABLE LATERAL DEFLECTION SHALL BE L/360 AT BASE OF SUPPORT.
4. COORDINATE HEIGHT REQUIREMENTS WITH HVAC, REFER TO H102.

4 EXHAUST REEL SUPPORT
N.T.S.



TYPICAL COMPOSITE FLOOR EDGE DETAILS

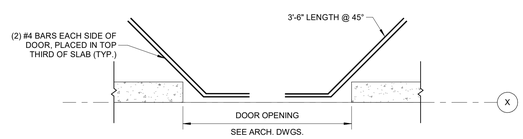
NOTES:

1. COMPOSITE DECKS SHALL BE DESIGNED AND DETAILED BY THE METAL BUILDING MANUFACTURER WITH MINIMUM REQUIREMENTS LISTED IN THE FOLLOWING NOTES.
2. MINIMUM TOTAL THICKNESS = 5" (3" N.W. CONCRETE ON 2" COMPOSITE STEEL DECK). PROVIDE ADDITIONAL CONCRETE AS REQUIRED TO ACHIEVE A LEVEL SURFACE.
3. CONCRETE f'c = 4000 PSI MINIMUM. MAX. WATER/ CEMENT RATIO (W/C) = 0.45.
4. STEEL DECK AND SHEAR CONNECTOR WORK SHALL CONFORM TO THE SPECIFICATIONS FOR DESIGN OF LIGHT GAUGE COLD FORMED STEEL STRUCTURAL MEMBERS (AISC). SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL (AISC), AND STRUCTURAL WELDING CODE - STEEL (AWS D- 1.1).
5. SHEAR CONNECTORS SHALL BE ¾" Ø. x 3½" LONG HEADED STUDS CONFORMING TO ASTM A108, GRADES 1010, 1015, 1017 OR 1020. SHEAR CONNECTORS SHALL BE SPACED UNIFORMLY ALONG BEAM TOP FLANGE.
6. PROVIDE SHEAR CONNECTORS AT 2'-0" O.C. AT ALL STEEL MEMBERS SUPPORTING CONCRETE SLABS WHERE SPECIFIC NUMBER IS NOT INDICATED ON DRAWINGS. (TYP. THROUGHOUT).
7. WELDED WIRE FABRIC SHALL BE 6x6-W2.9xW2.9 WWF.
8. STEEL DECK SHALL BE 2" ("VLI") COMPOSITE DECK (GALV.) AS MANUFACTURED BY VULCRAFT, OR AN APPROVED EQUAL. USE 18 GA. DECK TYPICALLY, UNLESS NOTED OTHERWISE ON PLANS.
9. ALL COMPOSITE STEEL BEAM'S END CONNECTIONS SHALL BE DESIGNED FOR THE FOLLOWING:

   BEAM DEPTHS > 21" - (1.5) x REACTION DUE TO UNIFORM LOAD CAPACITY OF NON-COMPOSITE BEAM PER PART 2 OF THE AISC MANUAL OF STEEL CONSTRUCTION, LRFD
   BEAM DEPTHS ≤ 21" - (2.0) x REACTION DUE TO UNIFORM LOAD CAPACITY OF NON-COMPOSITE BEAM PER PART 2 OF THE AISC MANUAL OF STEEL CONSTRUCTION, LRFD

   ADD TO THESE REACTIONS ANY POINT LOADS OR BRACE REACTIONS FROM MEMBERS THAT FRAME INTO CONNECTION.
10. COORDINATE ALL EDGE OF SLAB DIMENSIONS AND SLAB OPENING LOCATIONS, AND EXTENTS WITH ARCHITECTURAL AND MEP DRAWINGS.
11. ALL COMPOSITE SLABS SHALL BE INSTALLED IN THE "TRIPLE-SPAN" CONDITION, UNLESS NOTED OTHERWISE. WHERE TRIPLE SPAN CANNOT BE USED, DECK SUPPLIER SHALL CHECK THE MAXIMUM UNSHORED SPAN FOR THE DECK ASSUMING 1" ADDITIONAL THICKNESS OF CONCRETE. IF THE ACTUAL SPAN EXCEEDS THIS LIMIT, THEN THE CONTRACTOR MUST SHORE THE SPAN DURING THE CONCRETE POUR.

5 TYPICAL COMPOSITE DECK DETAIL
N.T.S.



6 TYPICAL SLAB REINFORCING @ DOOR OPENINGS
N.T.S.

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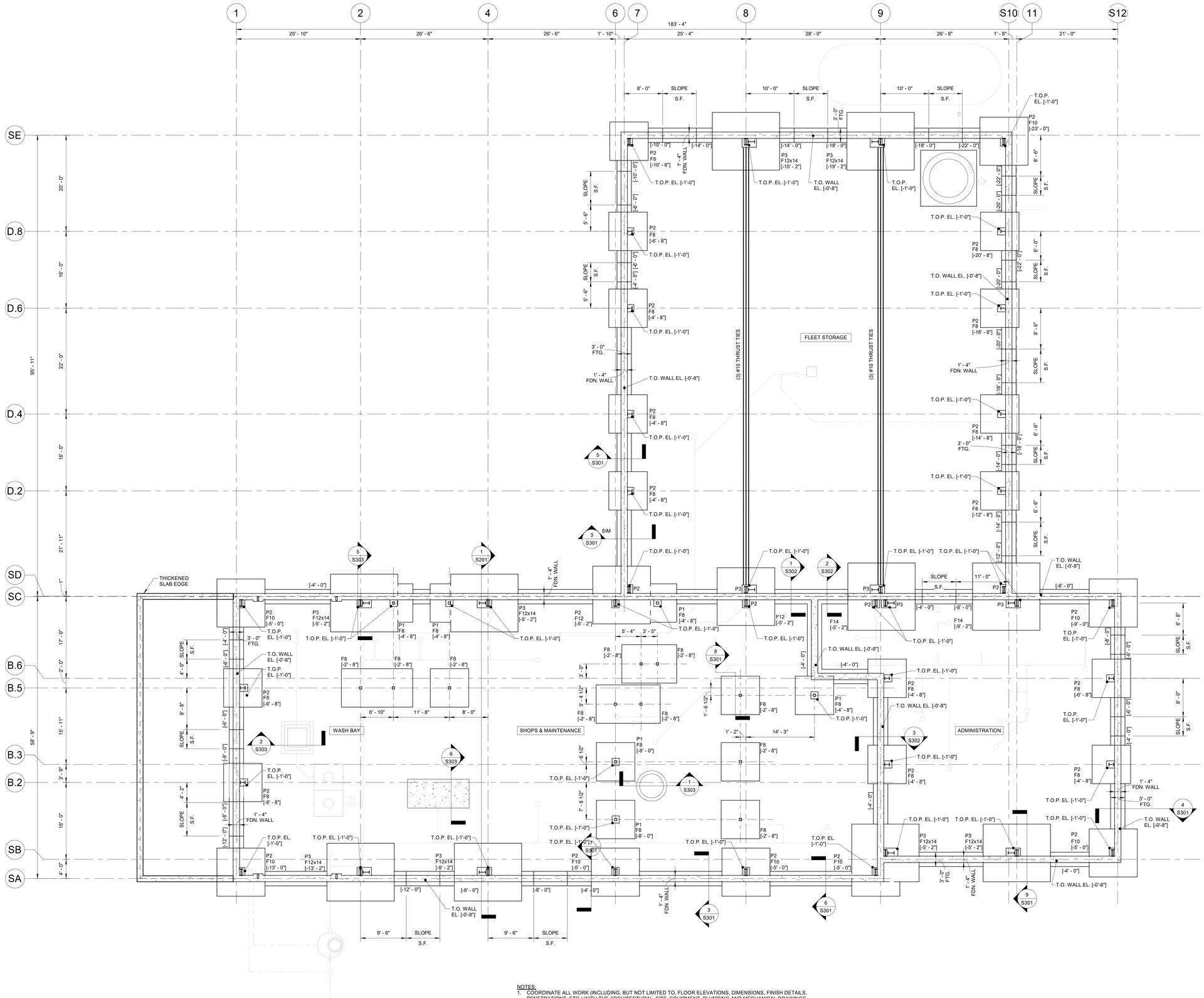
TYPICAL DETAILS III

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NOTES:
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2. [XX'-XX"] INDICATES BOTTOM OF FOOTING ELEVATION. ALL EXTERIOR FOOTINGS SHALL BE LOCATED A MINIMUM OF 4'-0" BELOW FINISHED GRADE.
3. F# - INDICATES CONCRETE SPREAD FOOTING TYPE. SEE FOOTING SCHEDULE ON S301 FOR DIMENSIONS AND REINFORCING DETAILS.
4. P# - INDICATES CONCRETE PIER TYPE. SEE SHEET S301 FOR PIER DIMENSIONS AND REINFORCING DETAILS.
5. T.O. WALL EL. [XXX'] INDICATES TOP OF FOUNDATION WALL ELEVATION.
6. FINAL PIER SIZE AND LOCATIONS NEED TO BE COORDINATED WITH APPROVED METAL BUILDING SHOP DRAWINGS. REFER TO PIER AND FOOTING SCHEDULES FOR LAYOUT INFORMATION.
7. A RELATIVE ELEVATION OF [0'-0"] CORRELATES WITH A PROJECT ELEVATION OF 124'-0".

1 OVERALL FOUNDATION PLAN - BASE BID
SCALE: 1/8" = 1'-0"

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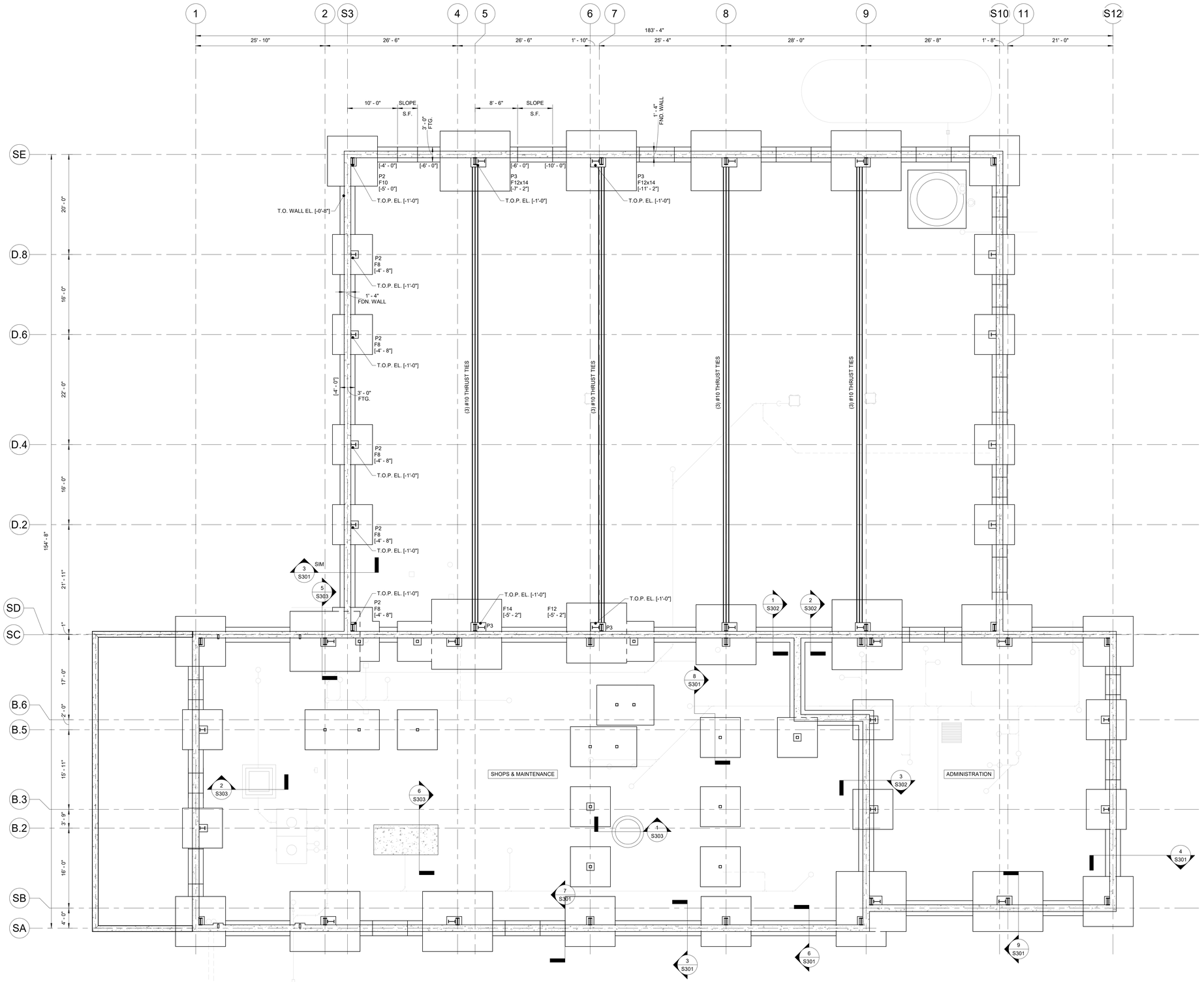
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4. P# - INDICATES CONCRETE PIER TYPE. SEE SHEET S301 FOR PIER DIMENSIONS AND REINFORCING DETAILS.
5. T.O. WALL EL. [XX'] INDICATES TOP OF FOUNDATION WALL ELEVATION.
6. FINAL PIER SIZE AND LOCATIONS NEED TO BE COORDINATED WITH APPROVED METAL BUILDING SHOP DRAWINGS. REFER TO PIER AND FOOTING SCHEDULES FOR LAYOUT INFORMATION.
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1 OVERALL FOUNDATION PLAN - BID ALT 1
SCALE: 1/8" = 1'-0"

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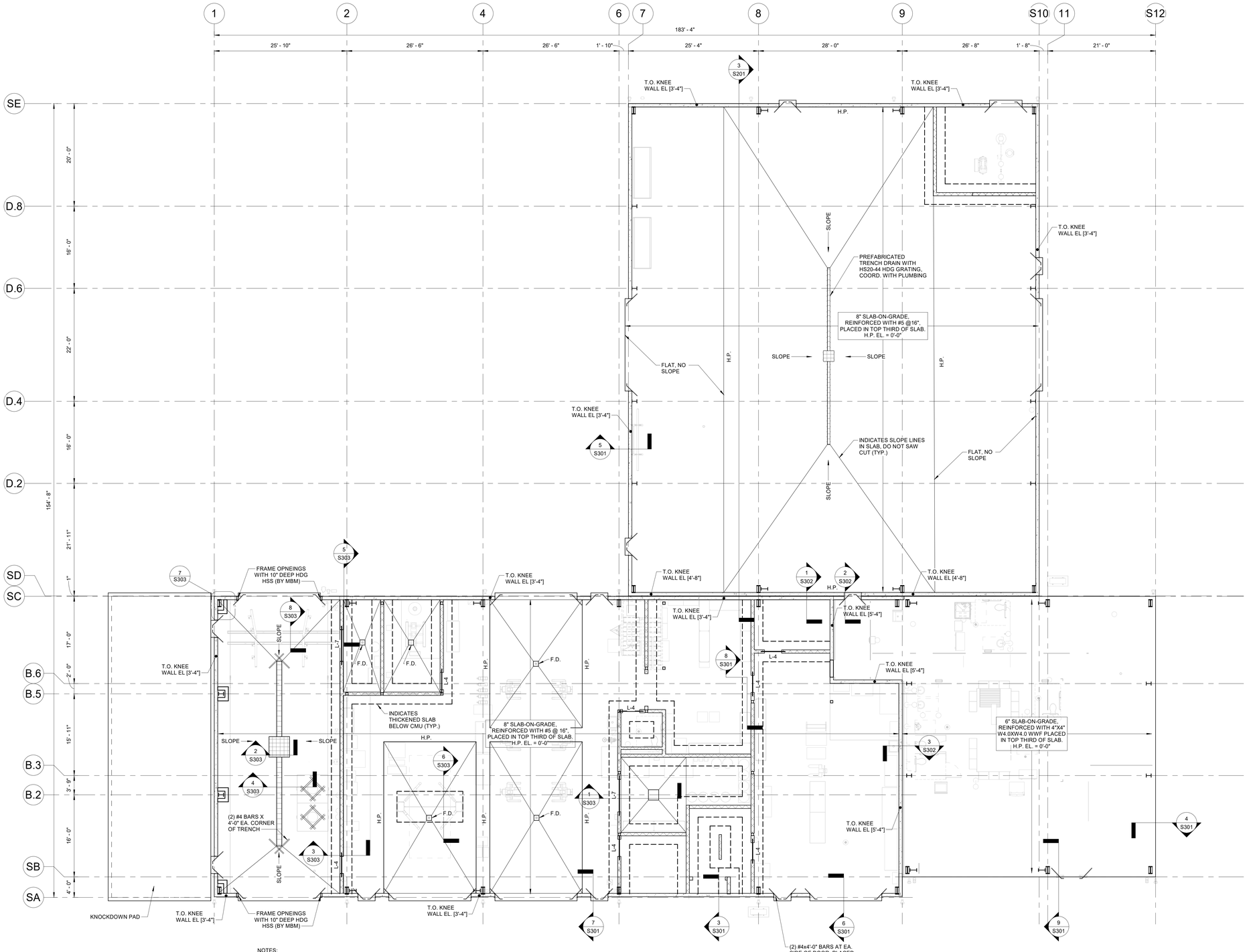
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OVERALL FOUNDATION PLAN - BID ALT 1

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2. F.D. INDICATES FLOOR DRAIN LOCATIONS, COORDINATE WITH PLUMBING. LOCALLY PITCH SLAB 1% WITHIN A 30" DIAMETER AROUND ALL FLOOR DRAINS UNLESS NOTED OTHERWISE (TYP.) ENSURE PROPER PLACEMENT OF FLOOR DRAINS TO AVOID MOUND IN SLAB.
3. H.P. DESIGNATES HIGH POINTS IN SLAB AT ELEVATION AS NOTED ON PLANS. SLOPE SLAB FROM H.P. TO DRAINS. MAXIMUM SLOPE TO DRAIN IN VEHICLE MAINTENANCE AND SHOP BAYS SHALL BE 1/8" PER FOOT.
4. COORDINATE MASONRY WALL LOCATIONS AND WALL OPENINGS (DOORS, VENTS, WINDOWS, ETC.) WITH ARCHITECTURE AND MEP DRAWINGS.
5. LOCATIONS OF CONSTRUCTION JOINTS AND SAW JOINTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. REFER TO GENERAL NOTES FOR SPACING REQUIREMENTS. SUBMIT JOINT LOCATIONS TO THE ENGINEER FOR APPROVAL. REFER TO S002 FOR TYPICAL DETAILS.
6. COORDINATE NON-STRUCTURAL WALLS WITH ARCHITECTURE FOR WALL TYPES AND LOCATIONS.
7. L-# INDICATES CONCRETE MASONRY UNIT (CMU) LINTEL TYPE. REFER TO CMU LINTEL SCHEDULE ON S003 FOR LINTEL INFORMATION. STEEL LINTELS SHALL NOT BE USED ON INTERIOR CONCRETE MASONRY WALLS, UNLESS NOTED OTHERWISE ON THE PLANS.

1 OVERALL SLAB PLAN - BASE BID

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

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OVERALL SLAB PLAN - BASE BID

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2. F.D. INDICATES FLOOR DRAIN LOCATIONS. COORDINATE WITH PLUMBING. LOCALLY PITCH SLAB 1% WITHIN A 30" DIAMETER AROUND ALL FLOOR DRAINS UNLESS NOTED OTHERWISE (TYP.) ENSURE PROPER PLACEMENT OF FLOOR DRAINS TO AVOID MOUND IN SLAB.
3. H.P. DESIGNATES HIGH POINTS IN SLAB AT ELEVATION AS NOTED ON PLANS. SLOPE SLAB FROM H.P. TO DRAINS. MAXIMUM SLOPE TO DRAIN IN VEHICLE MAINTENANCE AND SHOP BAYS SHALL BE 1/8" PER FOOT.
4. COORDINATE MASONRY WALL LOCATIONS AND WALL OPENINGS (DOORS, VENTS, WINDOWS, ETC.) WITH ARCHITECTURE AND MEP DRAWINGS.
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1 OVERALL SLAB PLAN - BID ALT 1
SCALE: 1/8" = 1'-0"

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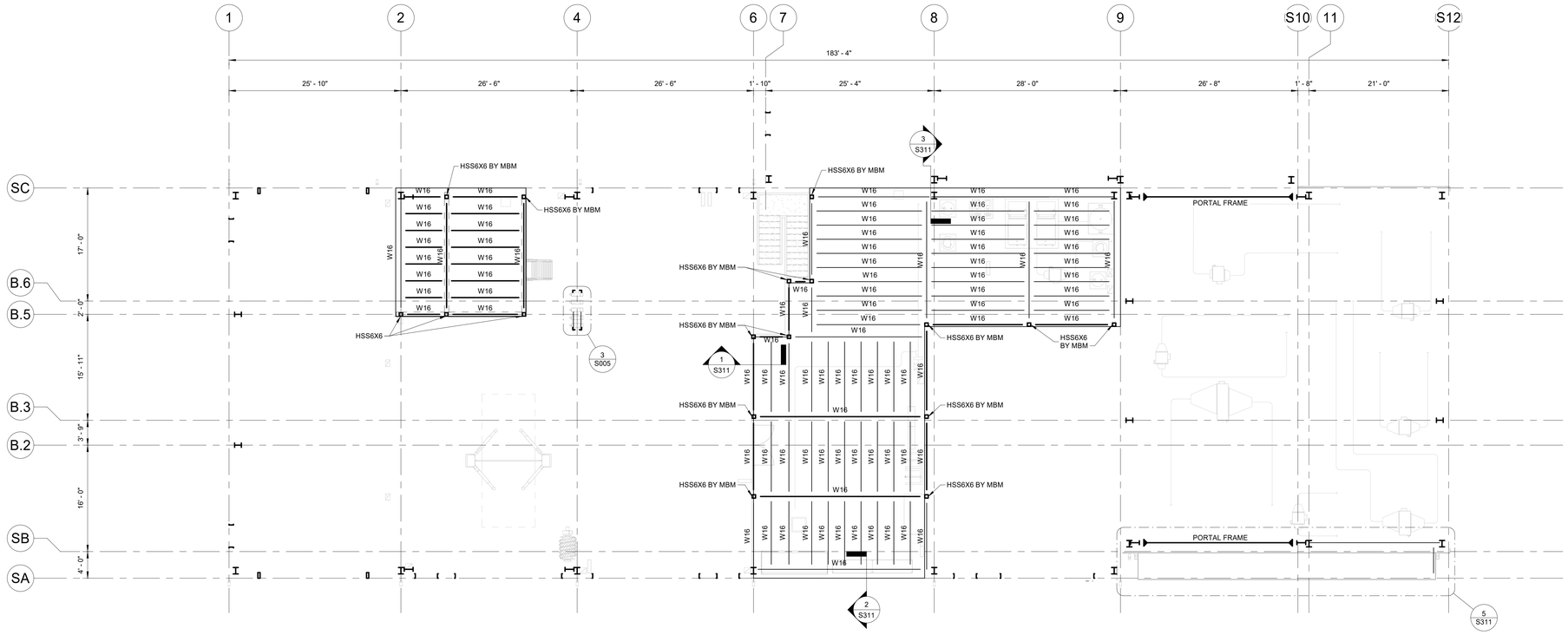
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OVERALL SLAB PLAN - BID ALT 1

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NOTES:
1. ⟶ INDICATES SPAN DIRECTION OF 3" N.W. CONCRETE ON 2" COMPOSITE STEEL DECK (TOTAL THICKNESS 5") MIN. 20 GA. THICKNESS.
2. SEE S001 FOR DESIGN LOADS.
3. GUARDRAILS NOT SHOWN FOR CLARITY. REFER TO ARCHITECTURAL DRAWINGS.
4. STEEL DECK POUR STOPS SHALL BE 3/8" BENT PLATE AT GUARDRAILS AND STAIR INTERFACES UNLESS NOTED OTHERWISE.
5. STEEL MEZZANINE FRAMING SHOWN SCHEMATICALLY FOR BIDDING PURPOSES. MEZZANINE FRAMING SHALL BE HOT ROLLED WIDE FLANGE AND HSS SECTIONS DESIGNED, FABRICATED, AND INSTALLED BY THE METAL BUILDING MANUFACTURER (MBM).
6. CONSIDER NOMINAL BEAM DEPTHS SHOWN (E.G. W12 = 12") TO BE MAXIMUM DEPTHS. VARY WEIGHTS AS REQUIRED BY DESIGN. COORDINATE WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND EQUIPMENT DRAWINGS.
7. COLUMNS ARE HSS8X8, UNLESS NOTED OTHERWISE, WITH WALL THICKNESS AS REQUIRED BY DESIGN (1/4" MINIMUM).
8. METAL BUILDING MANUFACTURER TO FINALIZE BRACING LOCATIONS AND SUBMIT TO ARCHITECT/ENGINEER FOR REVIEW.
9. COORDINATE/PROVIDE OPENINGS IN MEZZANINE SLAB-ON-DECK FOR MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND COMMUNICATION. REFER TO DETAIL 1 ON S004.

1 OVERALL MEZZANINE PLAN - BASE BID

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

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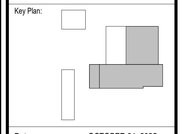
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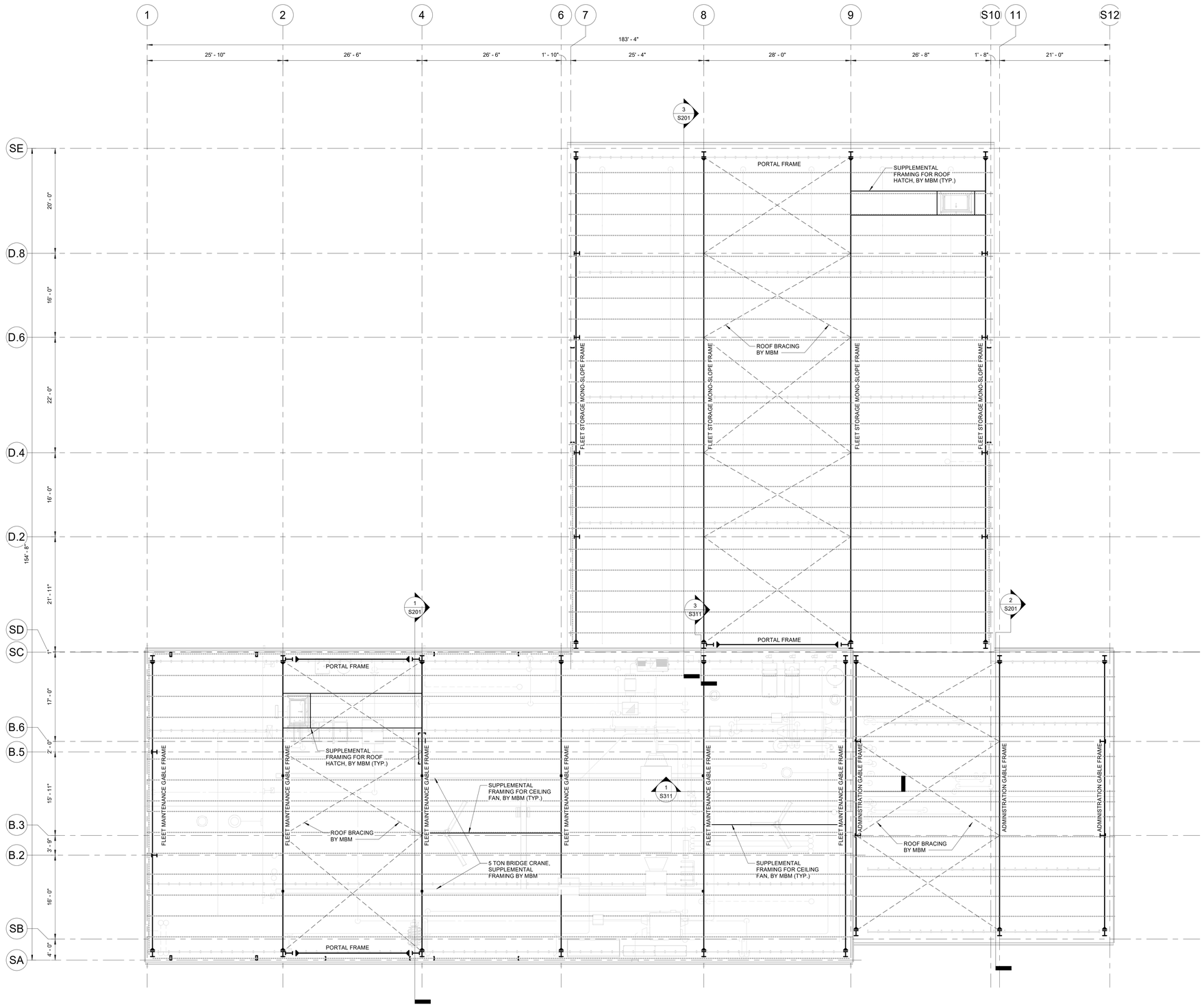
OVERALL MEZZANINE FRAMING PLAN - BASE BID

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2. MBM TO PROVIDE ALL SUPPLEMENTAL SUPPORTS/FRAMING FOR ROOF OPENINGS, ROOFTOP EQUIPMENT, ROOF SUSPENDED EQUIPMENT, AND ROOF PENETRATIONS AS REQUIRED. NOT ALL SUPPLEMENTAL SUPPORT/FRAMING SHOWN ON DRAWINGS. COORDINATE QUANTITIES, WEIGHTS, AND LOCATIONS WITH ARCHITECTURAL, HVAC, PLUMBING, MECHANICAL, ELECTRICAL AND EQUIPMENT DRAWINGS.
3. ROOF PURLINS ARE SHOWN SCHEMATICALLY ONLY. QUANTITY, SPACING, LOCATIONS, AND DIMENSIONS OF ROOF PURLINS SHALL BE DESIGNED AND FURNISHED BY METAL BUILDING MANUFACTURER.
4. ALL STEEL HARDWARE LOCATED IN CANOPY(S) AND WASH BAY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM 125, ASTM 153 AND ASTM A663 G185 (AS APPLICABLE).
5. MBM TO PROVIDE FRAMING MEMBERS TO SUPPORT EXTERIOR COLD-FORMED METAL FRAMING.
6. PORTAL FRAMES AND OTHER LATERAL BRACING SYSTEMS SHALL ACCOMMODATE DOOR OPENINGS - HORIZONTAL MEMBERS SHOULD BE LOCATED AT THE EAVE TO ACCOMMODATE DOOR LIFT SYSTEMS.

1 OVERALL ROOF FRAMING PLAN - FLEET STORAGE - BASE BID
SCALE: 1/8" = 1'-0"

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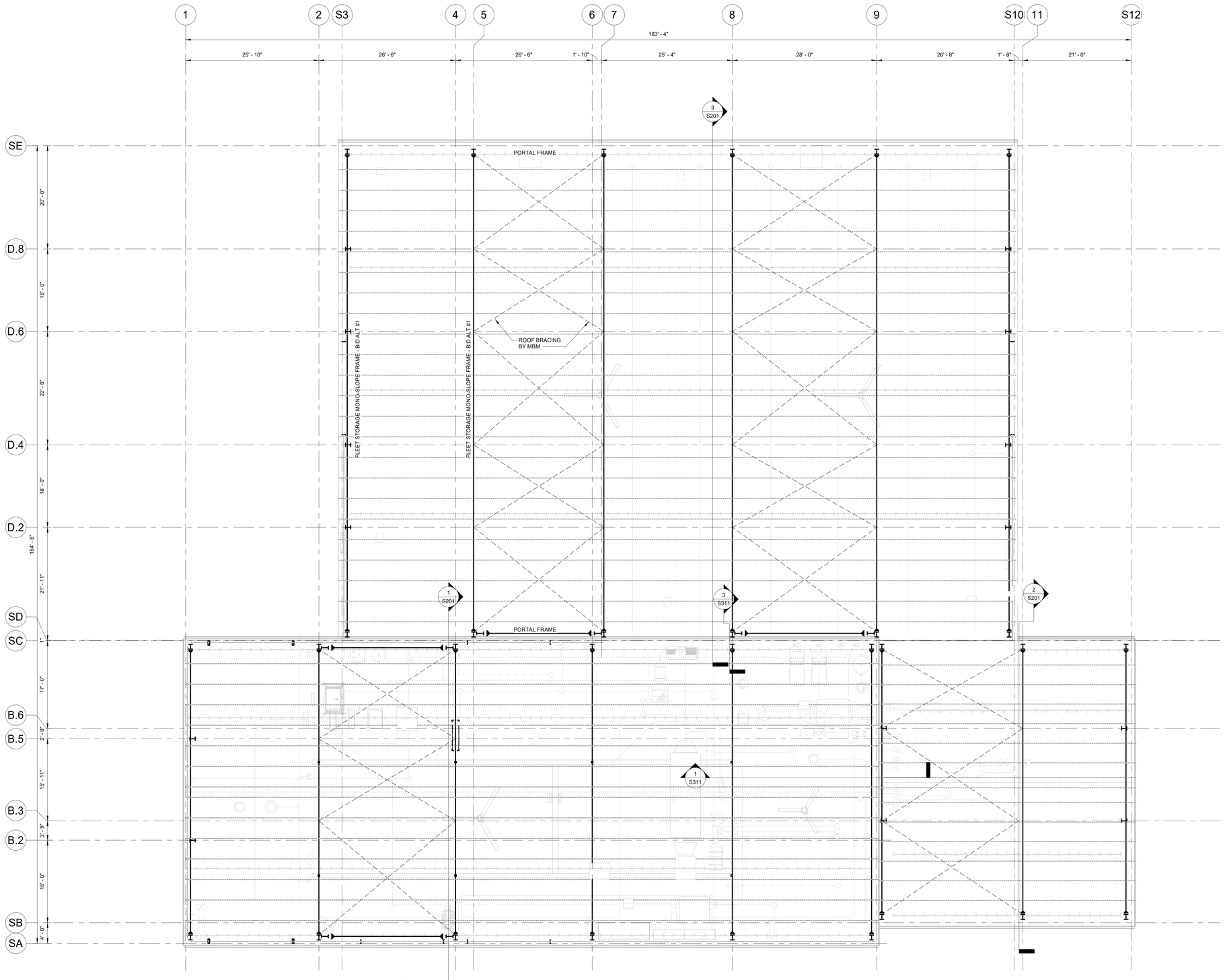
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OVERALL ROOF FRAMING PLAN - BASE BID

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4. ALL STEEL HARDWARE LOCATED IN CANOPY(S) AND WASH BAY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM 125, ASTM 153 AND ASTM A663 G185 (AS APPLICABLE).
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6. PORTAL FRAMES AND OTHER LATERAL BRACING SYSTEMS SHALL ACCOMMODATE DOOR OPENINGS - HORIZONTAL MEMBERS SHOULD BE LOCATED AT THE EAVE TO ACCOMMODATE DOOR LIFT SYSTEMS.

1 OVERALL ROOF FRAMING PLAN - FLEET STORAGE - BID ALT 1
SCALE: 1/8" = 1'-0"

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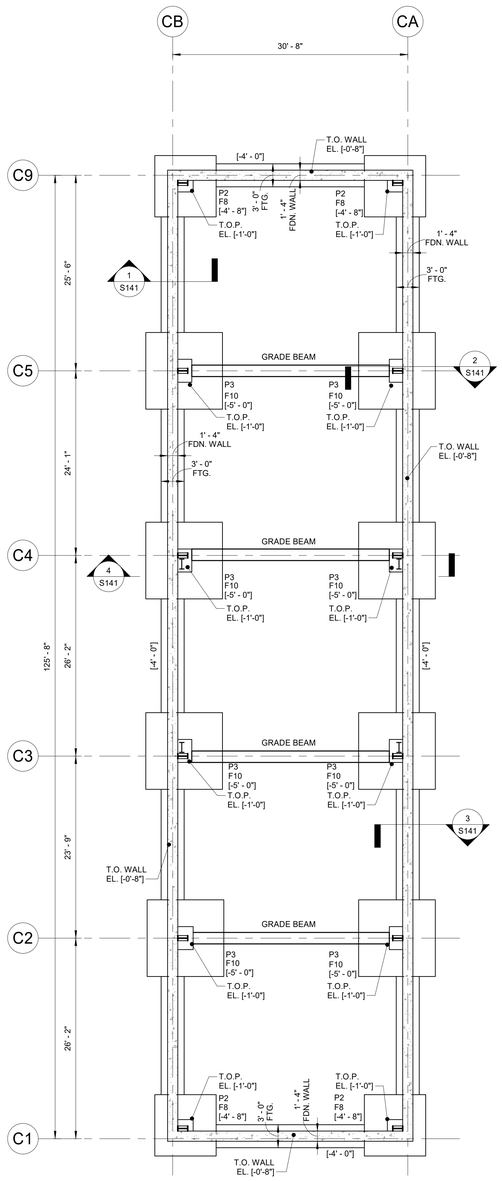
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OVERALL ROOF FRAMING PLAN - BID ALT 1

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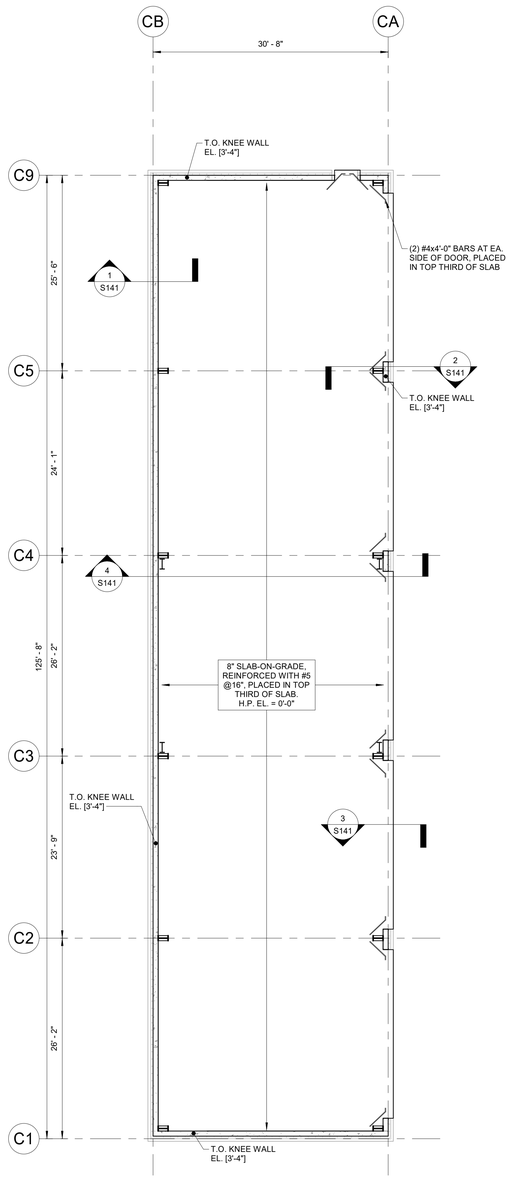
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NOTES:
1. COORDINATE ALL WORK (INCLUDING, BUT NOT LIMITED TO, FLOOR ELEVATIONS, DIMENSIONS, FINISH DETAILS, PENETRATIONS, ETC.) WITH THE ARCHITECTURAL, SITE, EQUIPMENT, PLUMBING AND MECHANICAL DRAWINGS.
2. [XX'-XX"] INDICATES BOTTOM OF FOOTING ELEVATION. ALL EXTERIOR FOOTINGS SHALL BE LOCATED A MINIMUM OF 4'-0" BELOW FINISHED GRADE.
3. F# - INDICATES CONCRETE SPREAD FOOTING TYPE. SEE FOOTING SCHEDULE ON S301 FOR DIMENSIONS AND REINFORCING DETAILS.
4. P# - INDICATES CONCRETE PIER TYPE. SEE SHEET S301 FOR PIER DIMENSIONS AND REINFORCING DETAILS.
5. T.O. WALL EL. [XXX'] INDICATES TOP OF FOUNDATION WALL ELEVATION.
6. FINAL PIER SIZE AND LOCATIONS NEED TO BE COORDINATED WITH APPROVED METAL BUILDING SHOP DRAWINGS. REFER TO PIER AND FOOTING SCHEDULES FOR LAYOUT INFORMATION.
7. A RELATIVE ELEVATION OF [0'-0"] CORRELATES WITH A PROJECT ELEVATION OF 124'-0".

1 OVERALL FOUNDATION PLAN - BID ALT 2

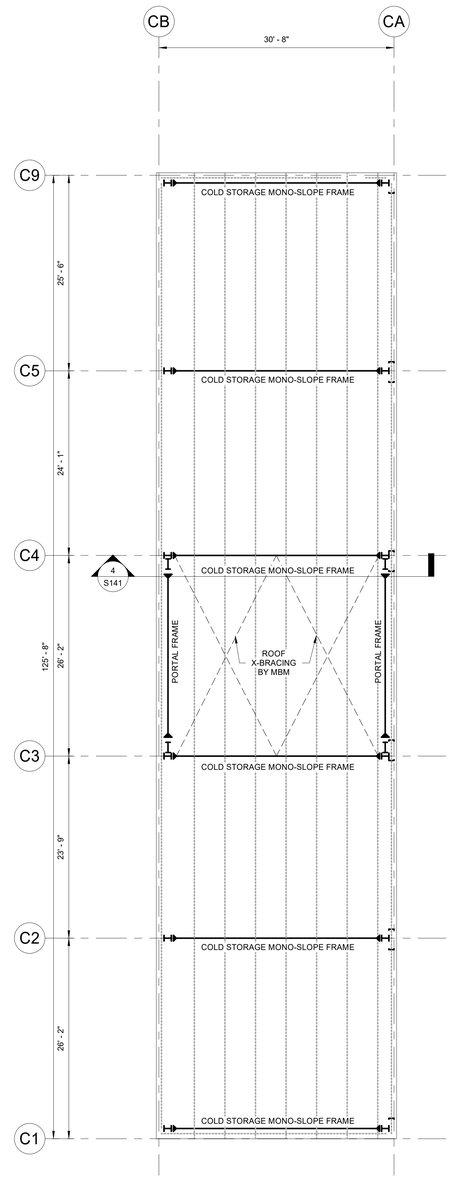
SCALE: 1/8" = 1'-0"



NOTES:
1. COORDINATE ALL WORK (INCLUDING FLOOR ELEVATIONS, DIMENSIONS, FINISH DETAILS, PENETRATIONS, ETC.) WITH ARCHITECTURAL, CIVIL/SITE, HVAC, FIRE PROTECTION, EQUIPMENT, AND PLUMBING DRAWINGS.
2. LOCATIONS OF CONSTRUCTION JOINTS AND SAW JOINTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. REFER TO GENERAL NOTES FOR SPACING REQUIREMENTS. SUBMIT JOINT LOCATIONS TO THE ENGINEER FOR APPROVAL. REFER TO S002 FOR TYPICAL DETAILS.
3. COORDINATE NON-STRUCTURAL WALLS WITH ARCHITECTURE FOR WALL TYPES AND LOCATIONS.

2 OVERALL SLAB PLAN - BID ALT 2

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



NOTES:
1. ⊃ ⊂ INDICATES PROPOSED BRACING LOCATIONS. MBM TO SUBMIT FINAL BRACING LOCATIONS TO ENGINEER FOR REVIEW.
2. MBM TO PROVIDE ALL SUPPLEMENTAL SUPPORTS/FRAMING FOR ROOF OPENINGS, ROOFTOP EQUIPMENT, ROOF SUSPENDED EQUIPMENT, AND ROOF PENETRATIONS AS REQUIRED. NOT ALL SUPPLEMENTAL SUPPORT/FRAMING SHOWN ON DRAWINGS. COORDINATE QUANTITIES, WEIGHTS, AND LOCATIONS WITH ARCHITECTURAL, HVAC, PLUMBING, MECHANICAL, ELECTRICAL AND EQUIPMENT DRAWINGS.
3. ROOF PURLINS ARE SHOWN SCHEMATICALLY ONLY. QUANTITY, SPACING, LOCATIONS, AND DIMENSIONS OF ROOF PURLINS SHALL BE DESIGNED AND FURNISHED BY METAL BUILDING MANUFACTURER.
4. MBM TO PROVIDE FRAMING MEMBERS TO SUPPORT EXTERIOR COLD-FORMED METAL FRAMING.
5. PORTAL FRAMES AND OTHER LATERAL BRACING SYSTEMS SHALL ACCOMMODATE DOOR OPENINGS - HORIZONTAL MEMBERS SHOULD BE LOCATED AT THE EAVE TO ACCOMMODATE DOOR LIFT SYSTEMS.

3 OVERALL ROOF FRAMING PLAN - BID ALT 2

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

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

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

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	GMB
Reviewed By:	AC
Approved By:	NMS
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

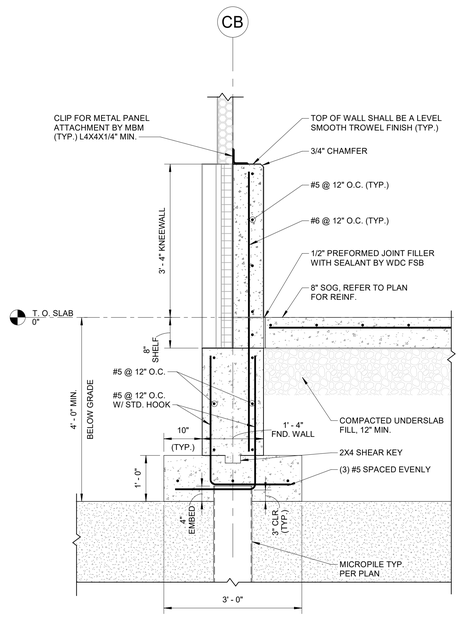
CANOPY PLANS - BID ALT 2

Sheet Number:

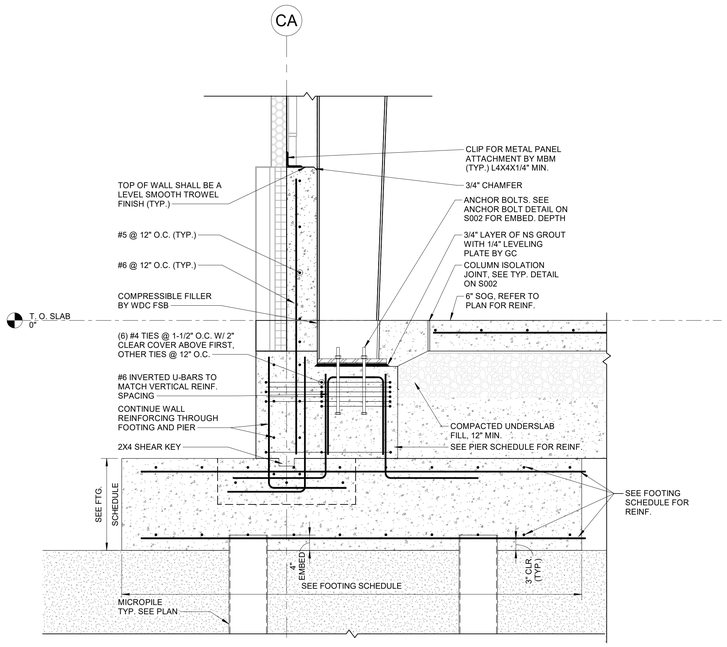
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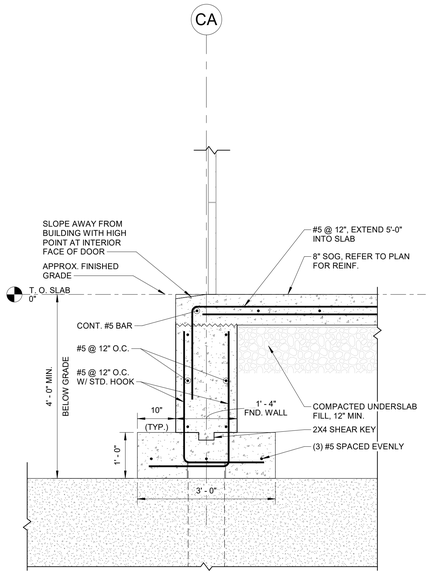
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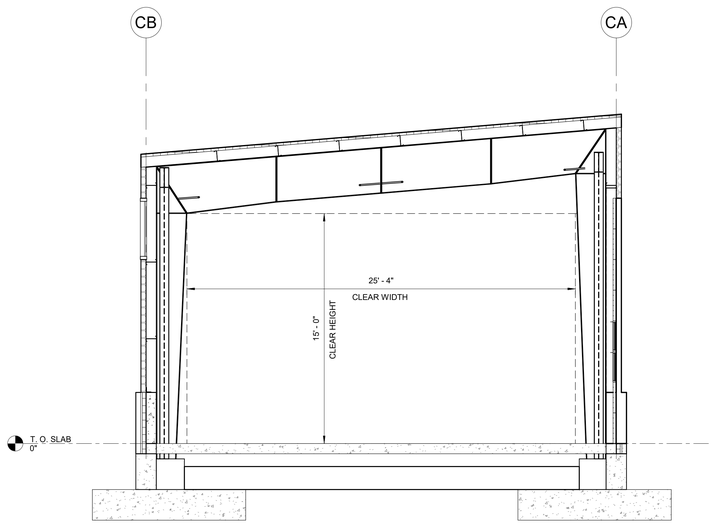
1 TYPICAL FOUNDATION SECTION - BID ALT #2
SCALE: 3/4" = 1'-0"



2 TYPICAL PIER SECTION - BID ALT #2
SCALE: 3/4" = 1'-0"



3 SECTION @ OVERHEAD DOOR - BID ALT #2
SCALE: 3/4" = 1'-0"



4 TYPICAL FRAME ELEVATION - BID ALT #2
SCALE: 1/4" = 1'-0"

C:\~Revit\Projects\2024\24-1552_Truro DPW_Struct_v24_Bradish.Grace.rvt
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Project:
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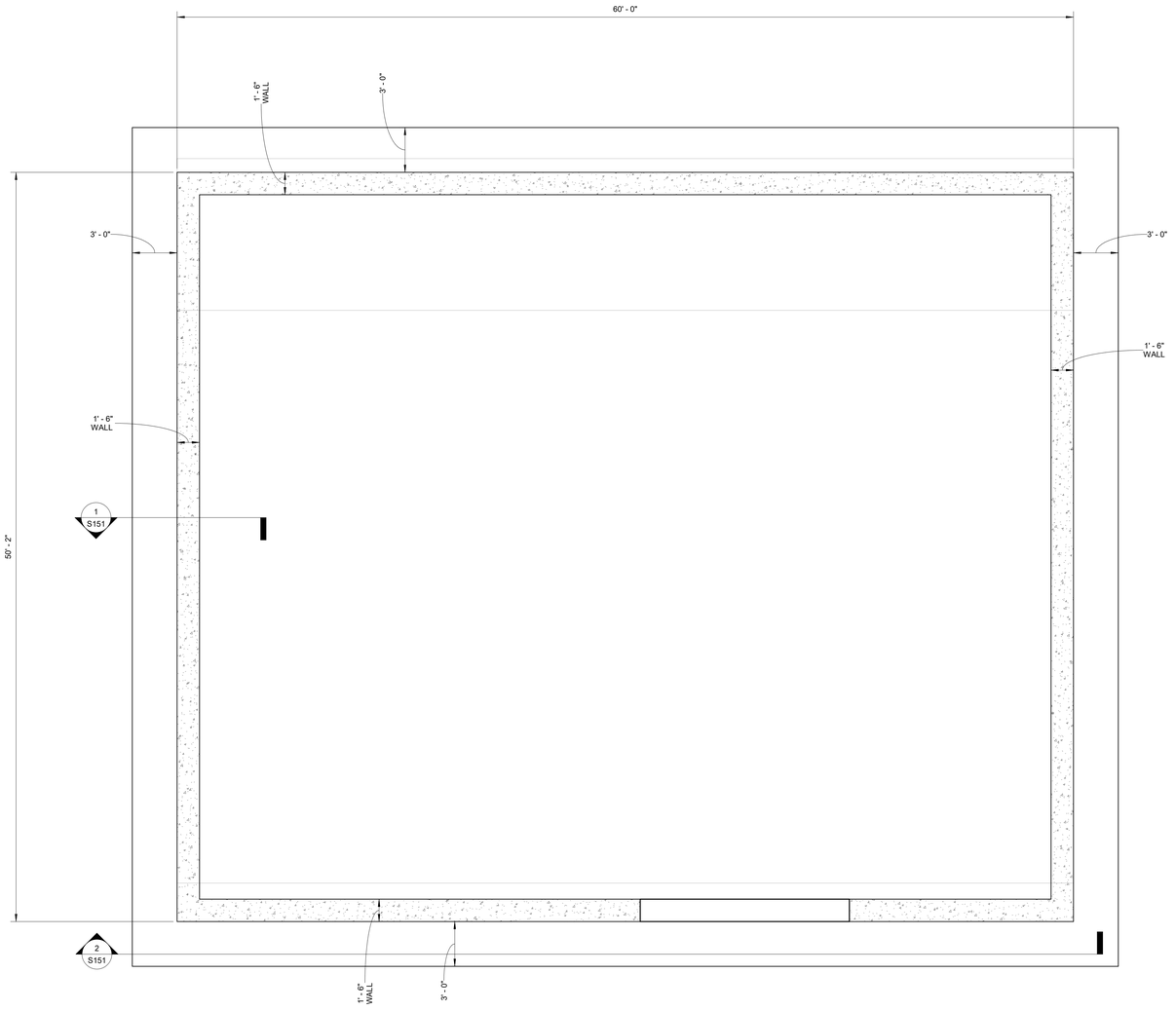
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	GMB
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W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
CANOPY SECTIONS

Sheet Number:
S141

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1 T.O. FOUNDATION - SALT SHED

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

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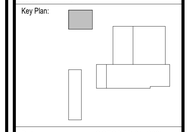
Seal:

Issued For:

DESIGN DEVELOPMENT

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

Key Plan:



Date:	OCTOBER 31, 2025
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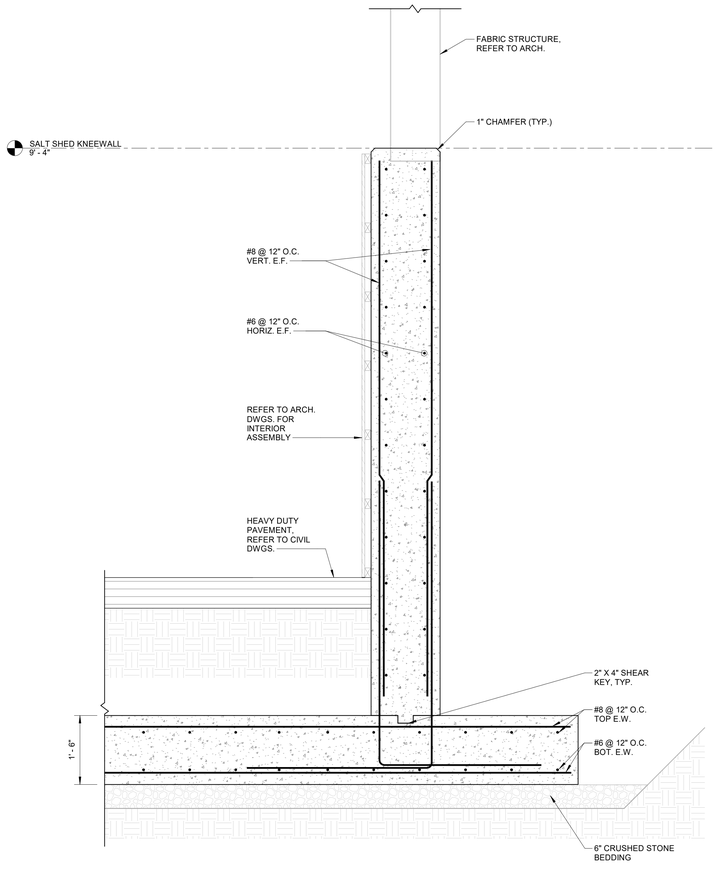
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SALT SHED PLAN & DETAILS

Sheet Number:

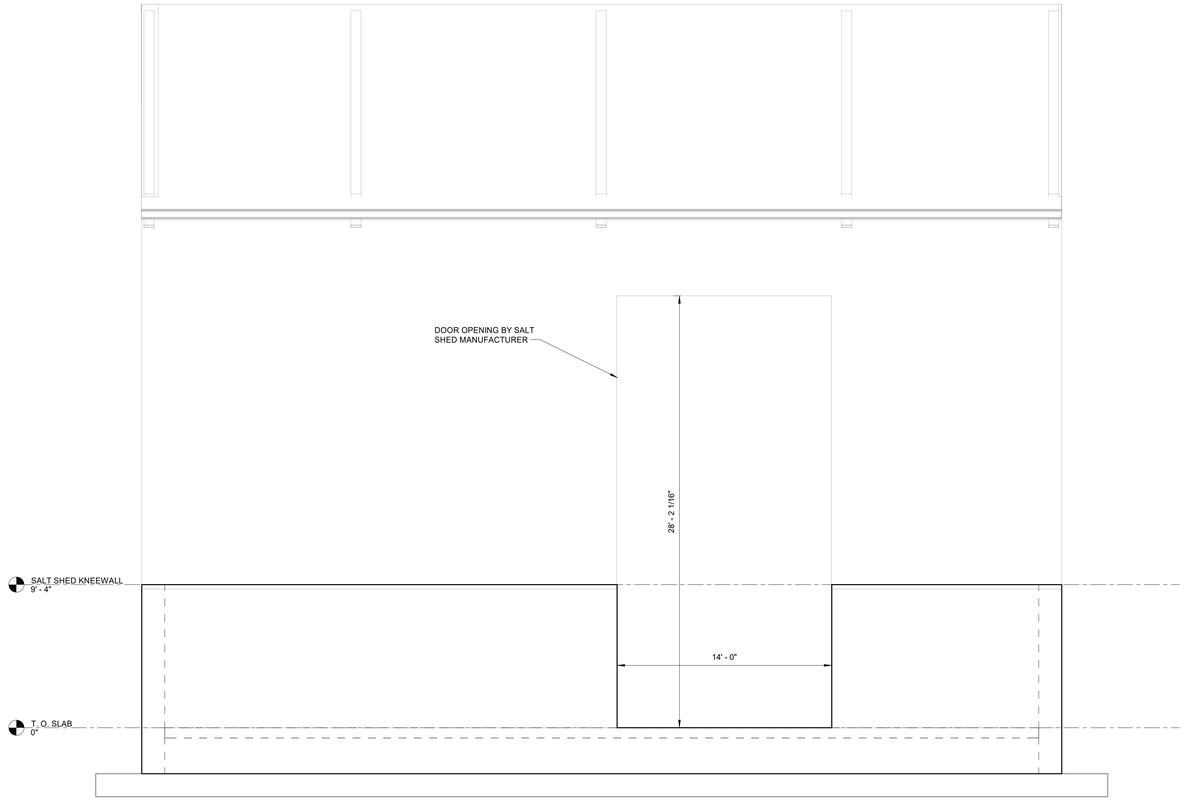
S150

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1 TYPICAL SECTION @ SALT SHED

SCALE: 3/4" = 1'-0"



2 SALT SHED SECTION @ DOOR OPENING

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

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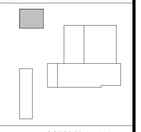
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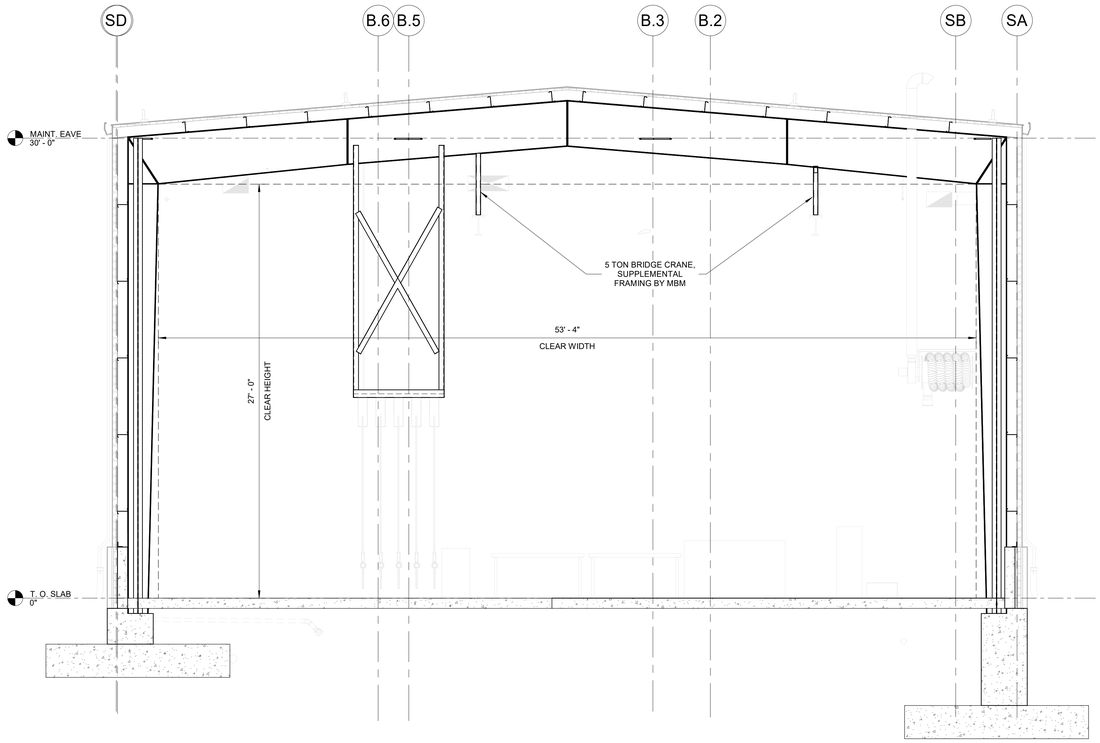
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SALT SHED DETAILS

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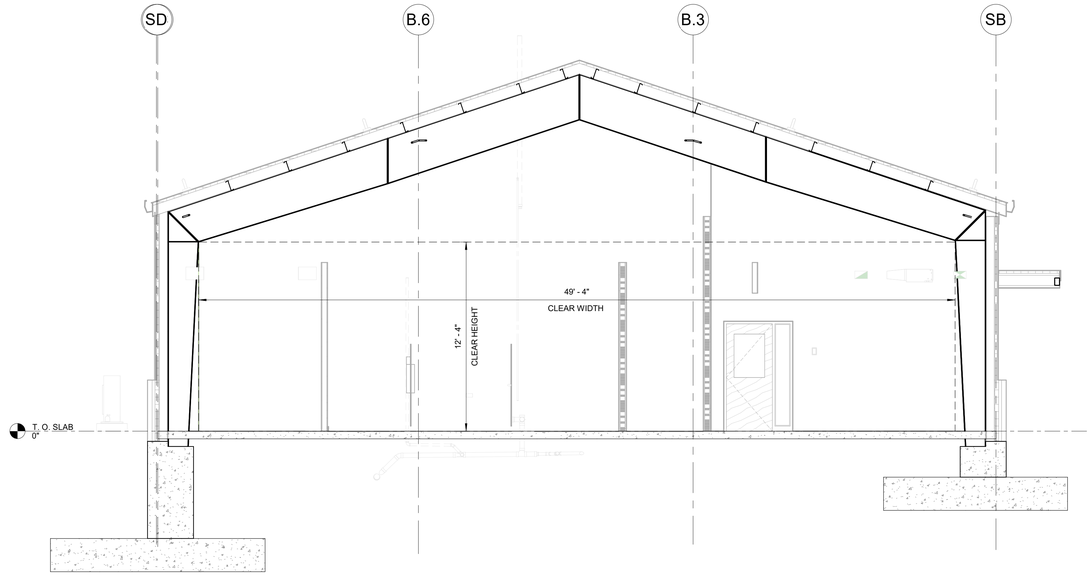
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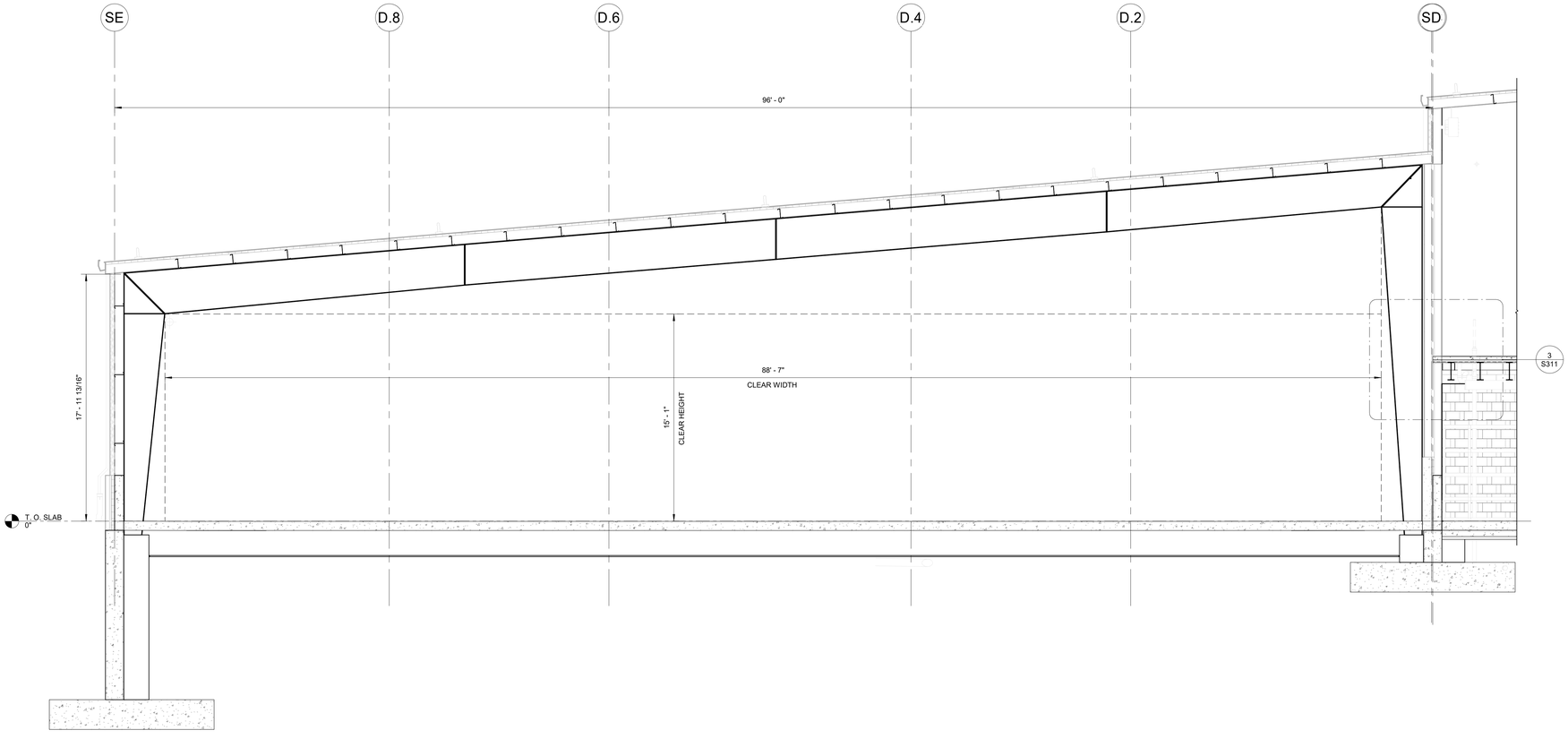
1 TYPICAL INTERIOR FRAME ELEVATION @ FLEET MAINTENANCE

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



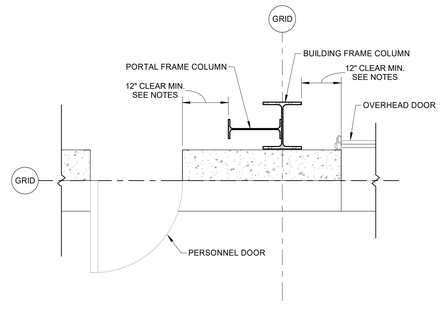
2 TYPICAL INTERIOR FRAME ELEVATIONS @ ADMINISTRATION

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



3 TYPICAL INTERIOR FRAME ELEVATION @ FLEET STORAGE

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



NOTES:
1. PROVIDE MINIMUM CLEARANCES AS SHOWN AT OVERHEAD AND PERSONNEL DOORS. CLEARANCES MAY BE REDUCED TO 6 INCHES ADJACENT TO WINDOWS AND TRANSLUCENT PANELS.
2. COORDINATE CLEARANCES WITH ARCHITECTURAL AND EQUIPMENT DRAWINGS.

4 TYPICAL FRAME CLEARANCES

SCALE: 3/4" = 1'-0"

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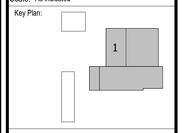
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DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:



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W&S File No.:	XXX

Drawing Title:

FRAME ELEVATIONS I

Sheet Number:

S201

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Revisions:

No.	Date	Description

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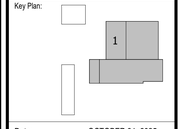
Seal:

Issued For:

DESIGN DEVELOPMENT

Scale:

Key Plan:



Date:	OCTOBER 31, 2025
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W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

FRAME ELEVATIONS II

Sheet Number:

S202

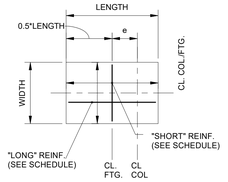
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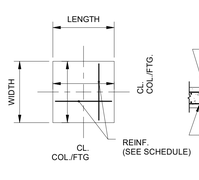
FOOTING SCHEDULE							
MARK	DIMENSIONS				REINFORCEMENT		TOP REINFORCEMENT
	WIDTH [FT.]	LENGTH [FT.]	THICKNESS [IN.]	ECC. [IN.]	LONG WAY	SHORT WAY	
F8	8.0	8.0	20	0	(9) #7	(9) #7	#6 @ 12" O.C.
F10	10.0	10.0	24	0	(11) #8	(11) #8	#6 @ 12" O.C.
F12	12.0	12.0	26	0	(13) #8	(13) #8	#6 @ 12" O.C.
F12x14	12.0	14.0	26	0	(13) #8	(13) #8	#6 @ 12" O.C.
F14	14.0	14.0	26	0	(15) #8	(15) #8	#6 @ 12" O.C.

FOOTING NOTE(S):

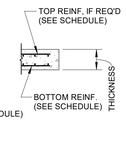
1. SQUARE FOOTINGS SHALL BE CENTERED BELOW COLUMNS U.N.O.
2. RECTANGULAR FOOTINGS SHALL BE ORIENTED AS SHOWN IN PLAN, U.N.O.
3. FOOTINGS SIZES ARE FOR BID PURPOSES ONLY, SIZES WILL BE VERIFIED UPON APPROVAL OF METAL BUILDING SHOP DRAWINGS. FOOTINGS SHALL NOT BE CAST UNTIL METAL BUILDING SHOP DRAWINGS ARE APPROVED AND FOOTINGS SIZES ARE VERIFIED BY THE ENGINEER.
4. WHERE FOOTING INTERSECT IN PLAN, FOOTING SHALL BE CAST INTEGRAL WITH THE REINFORCING AS SPECIFIED IN THE TABLE ABOVE.



F-"X"x"Y"



F-"X"

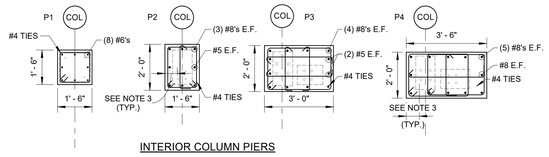


SECTION

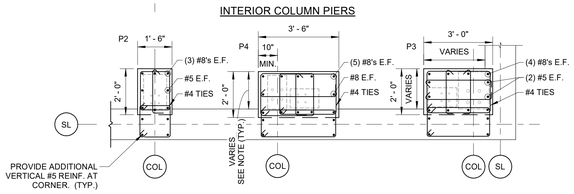
PIER SCHEDULE						
MARK	DIMENSIONS		T.O. PIER ELEVATION	REINFORCEMENT		COMMENTS
	WIDTH [IN.]	LENGTH [IN.]		VERTICAL	TIES	
P1	18	18	-1' - 0"	(8) #8'S	#4 @ 12" O.C.	(6) #4 TIES IN TOP 12"
P2	18	24	-1' - 0"	(6) #8'S, (2) #5'S	#4 @ 12" O.C.	(6) #4 TIES IN TOP 12"
P3	24	36	-1' - 0"	(8) #8'S, (4) #5'S	#4 @ 12" O.C.	(6) #4 TIES IN TOP 12"

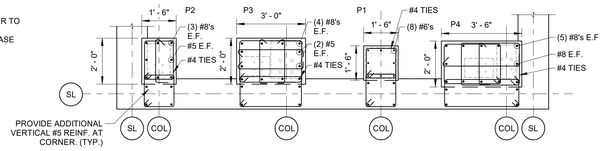
NOTE(S):

1. FINAL LOCATIONS OF PIERS SHALL BE COORDINATED WITH APPROVED METAL BUILDING SHOP DRAWINGS. PIERS SHALL BE CENTERED BELOW COLUMN SECTION AT THE BASE PLATE LEVEL.
2. METAL BUILDING BASE PLATES SHALL BE DESIGNED TO FIT ON AND WITHIN PIER DIMENSIONS SHOWN ABOVE. ANY PIER MODIFICATIONS WILL BE AT COST OF THE CONTRACTOR. THE CONTRACTOR SHALL IDENTIFY ANY PIERS REQUIRING MODIFICATIONS AND SUBMIT TO THE ENGINEER FOR REVIEW.
3. ANCHOR RODS SHALL RESIDE WITHIN REINFORCING TIES AND SHALL BE A MINIMUM OF 7xBOLT DIAMETER FROM EDGE OF PILASTER / FOUNDATION. FINAL ANCHOR BOLT LAYOUT BY METAL BUILDING MANUFACTURER. SEE ANCHOR BOLT SCHEDULE FOR REQUIRED EMBEDMENT DEPTHS. CONTRACTOR/MBM SHALL IDENTIFY PIERS WHERE THIS CRITERIA IS NOT MET.
4. PROVIDE INVERTED #6 U-BARS TO MATCH VERTICAL REINFORCING. VERTICAL LEG TO BE 36" LONG OR FULL DEPTH OF PIER, WHICHEVER IS LESS.
5. WALL REINFORCING SHALL PASS CONTINUOUSLY THROUGH THE PIER.
6. TIES SHALL BE #4 @ 12" VERTICALLY WITH 6 TIES LOCATED WITHIN THE TOP 12" ON THE PIER, UNLESS OTHERWISE NOTED.
7. PIERS SUPPORTING PORTAL FRAMES ARE TURNED 90 DEGREES IN PLAN, SEE PLAN FOR REQUIRED ORIENTATIONS.
8. MEZZANINE COLUMNS MAY BE OFFSET FROM THE FOUNDATION WALL AS APPROVED BY THE ENGINEER TO ACCOMMODATE FRAMING REQUIREMENTS.
9. CENTER PIER BENEATH BASE PLATE. PIER OVERLAP WITH FOUNDATION WALL MAY VARY BASED ON BASE PLATE LOCATION. PIER REINFORCING MUST BE CENTERED UNDER BASE PLATE AND MEET COVER REQUIREMENTS ON S001.
10. BASE PLATES SHOWN IN PLAN ARE SCHEMATIC ONLY. COORDINATE FINAL BASE PLATE SIZES AND LOCATIONS WITH APPROVED ANCHOR ROD DRAWINGS BY METAL BUILDING MANUFACTURER.



INTERIOR COLUMN PIERS





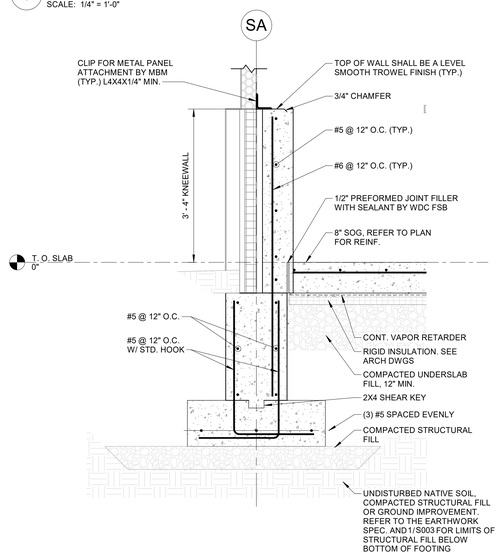
EXTERIOR COLUMN PIERS/PEDESTALS

1 FOOTING SCHEDULE

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

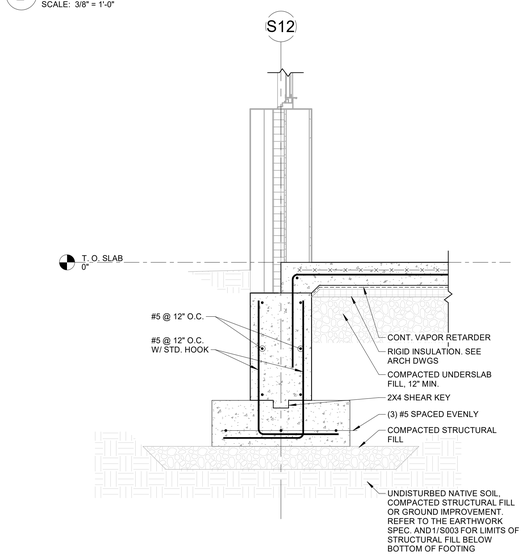
2 PIER DETAIL

SCALE: 3/8" = 1'-0"



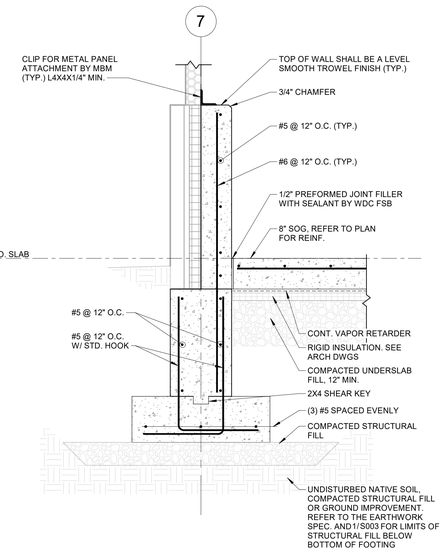
3 TYPICAL FOUNDATION SECTION @ MAINTENANCE

SCALE: 3/4" = 1'-0"



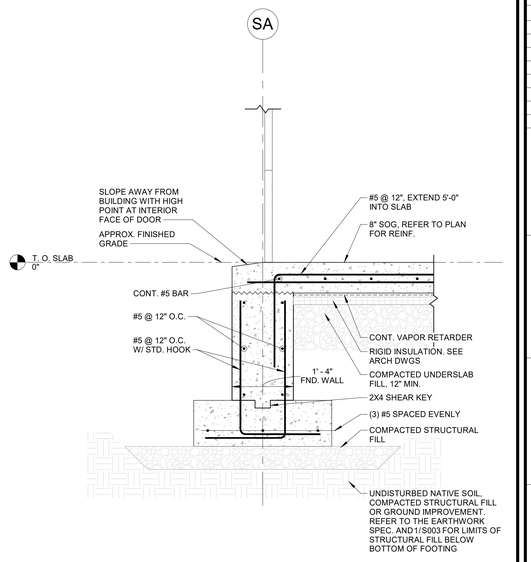
4 TYPICAL FOUNDATION SECTION @ ADMINISTRATION

SCALE: 3/4" = 1'-0"



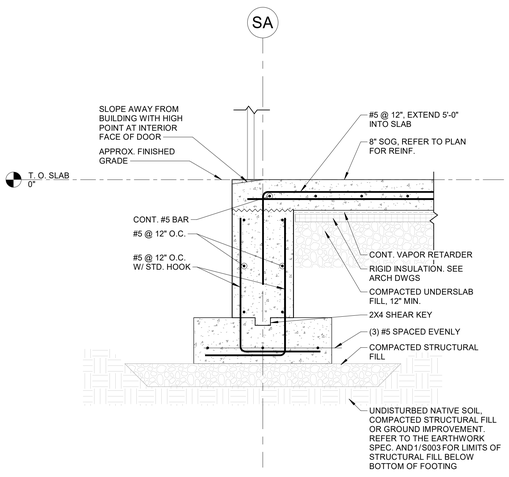
5 TYPICAL FOUNDATION SECTION @ FLEET STORAGE

SCALE: 3/4" = 1'-0"



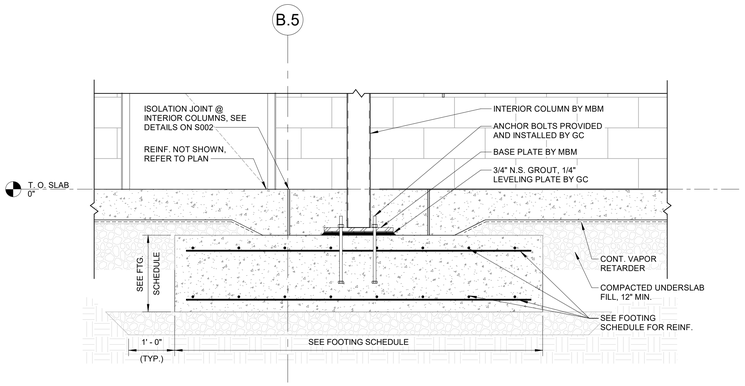
6 TYPICAL FOUNDATION SECTION @ OVERHEAD DOOR

SCALE: 3/4" = 1'-0"



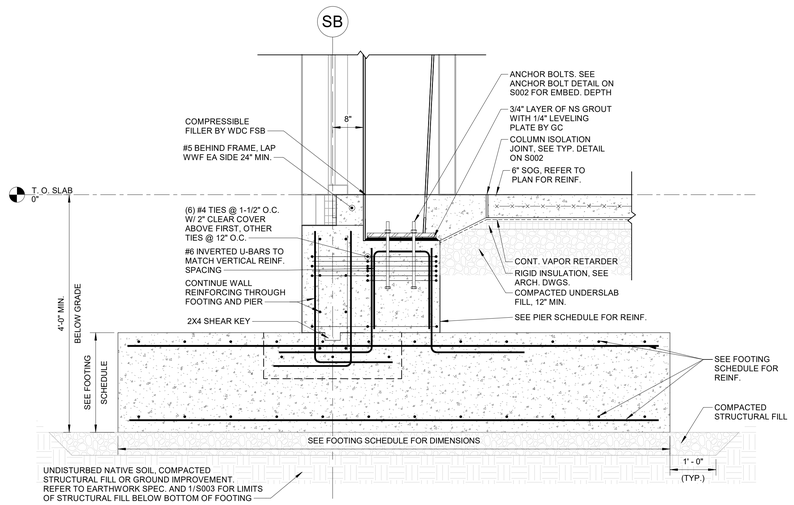
7 TYPICAL FOUNDATION SECTION @ PERSONNEL DOOR

SCALE: 3/4" = 1'-0"



8 TYPICAL INTERIOR FOUNDATION WALL

SCALE: 3/4" = 1'-0"



9 TYPICAL PIER SECTION @ ADMINISTRATION

SCALE: 3/4" = 1'-0"

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Drawing Title:

FOUNDATION SECTIONS & DETAILS I

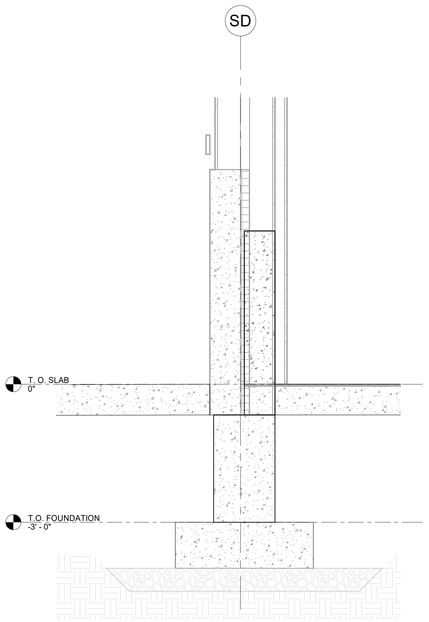
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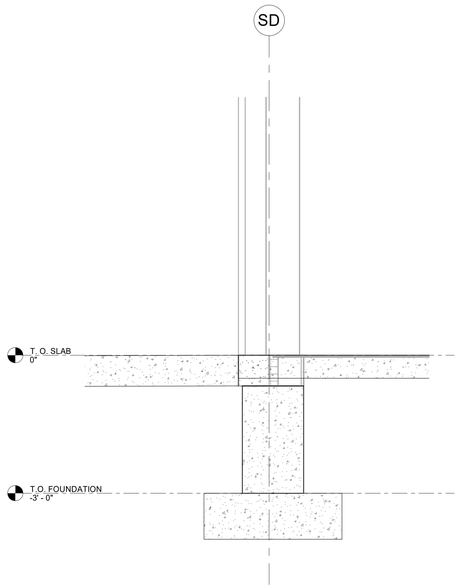
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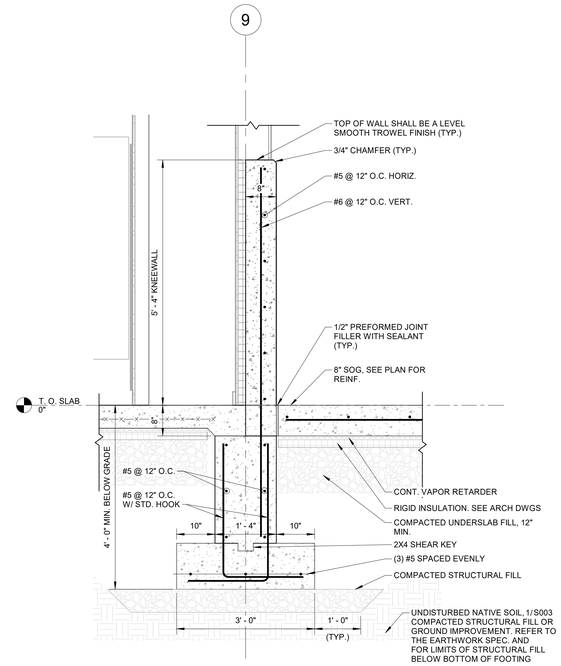
1 TYPICAL SECTION BETWEEN MAINT. & FLEET STORAGE

SCALE: 3/4" = 1'-0"



2 TYPICAL SECTION BETWEEN ADMIN. & FLEET STORAGE

SCALE: 3/4" = 1'-0"



3 TYPICAL SECTION BETWEEN ADMIN. & MAINTENCE

SCALE: 3/4" = 1'-0"

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Drawing Title:

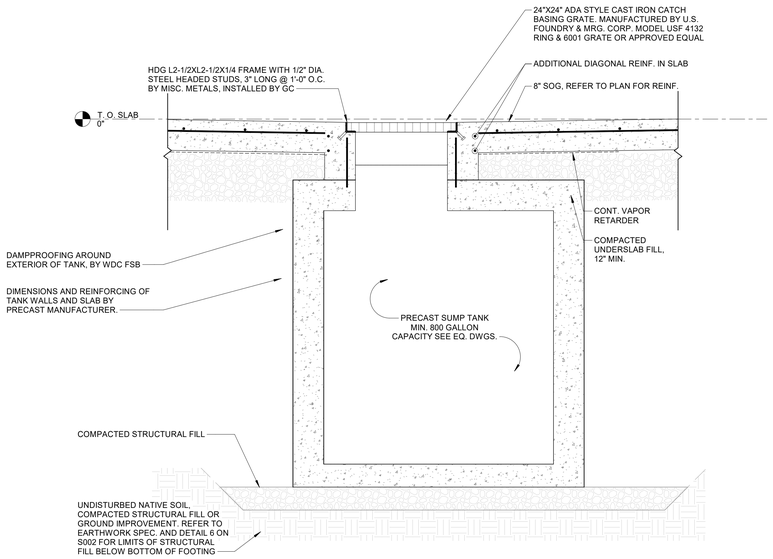
FOUNDATION SECTIONS & DETAILS II

Sheet Number:

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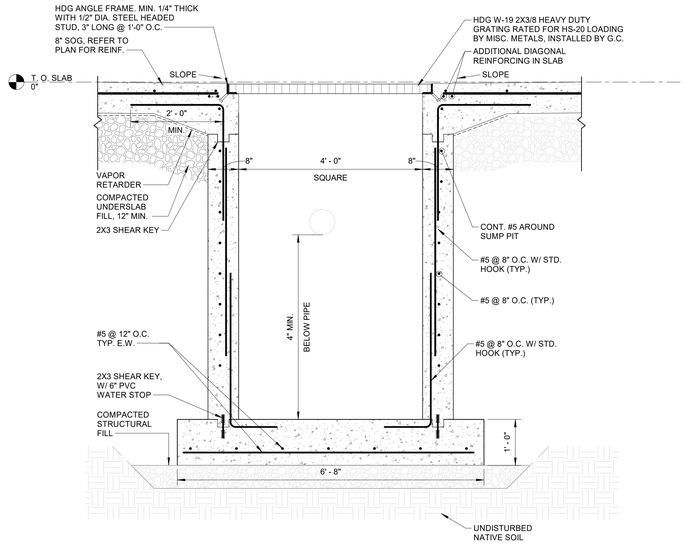
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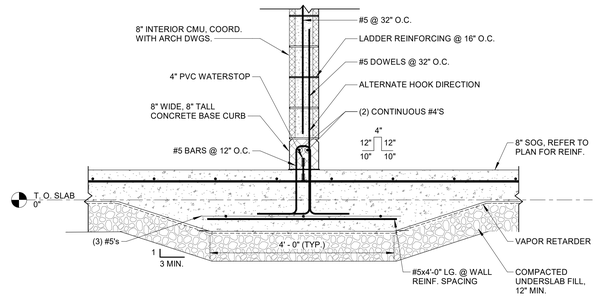


NOTE(S):
1. 775 GALLON (MIN.) WATER-TIGHT PRECAST CONCRETE TANK TO BE DESIGNED AND MANUFACTURED BY THE PRECAST MANUFACTURER. SUBMIT CALCULATIONS TO EOR FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. TANK SHALL BE MINIMUM HS-20 LOAD-RATED.
2. PRECAST TANK TO BE PROVIDED AND INSTALLED BY GC. MINIMUM LOADING, CONCRETE AND REINFORCEMENT REQUIREMENTS SHALL BE IN ACCORDANCE WITH REQUIREMENTS INCLUDED IN PRECAST MANHOLES AND CATCHBASINS SPEC.

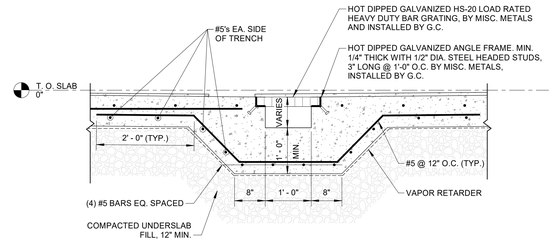
1 SECTION @ FLUIDS ROOM SUMP
SCALE: 3/4" = 1'-0"



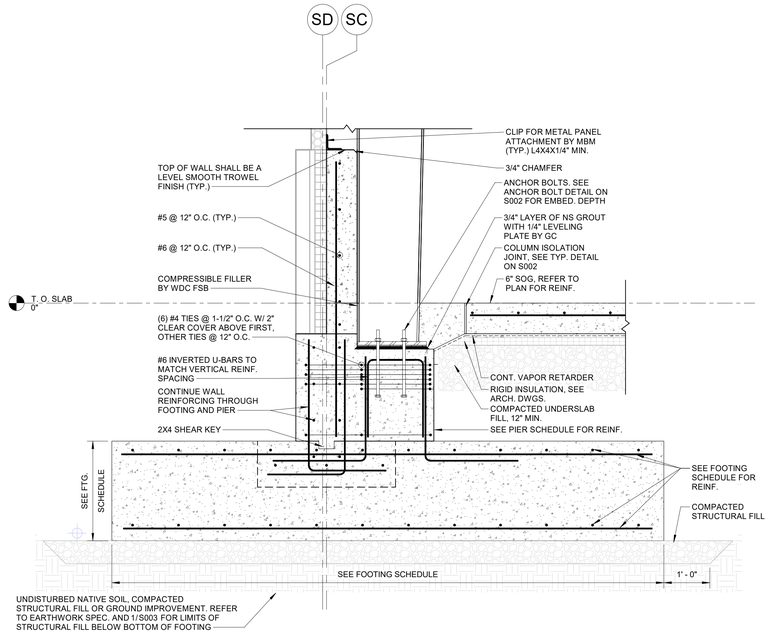
2 SECTION @ WASH BAY SUMP
SCALE: 3/4" = 1'-0"



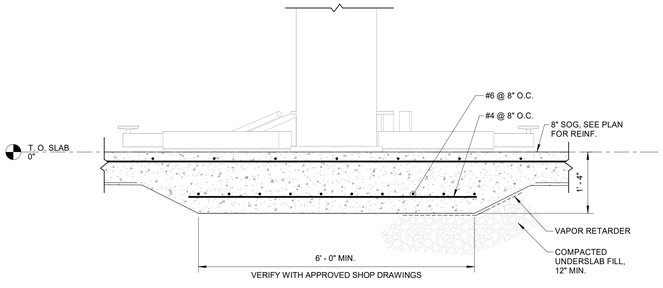
3 SECTION @ WASH BAY CMU WALL
SCALE: 3/4" = 1'-0"



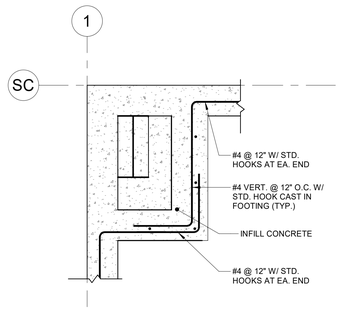
4 SECTION @ WASH BAY TRENCH
SCALE: 3/4" = 1'-0"



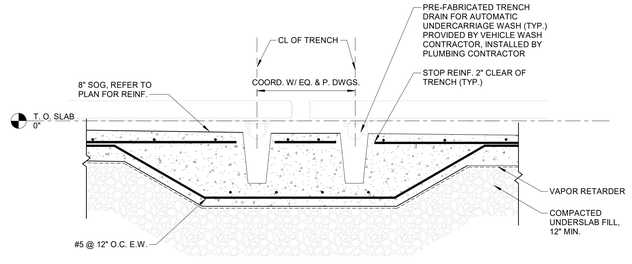
5 TYPICAL PIER SECTION @ MAINTENANCE/FLEET STORAGE
SCALE: 3/4" = 1'-0"



6 SECTION @ TWO POST LIFT
SCALE: 3/4" = 1'-0"



7 ENLARGED PLAN @ WASH BAY CURBS (TYP.)
SCALE: 3/4" = 1'-0"



NOTE:
1. COORDINATE TRENCH LOCATION AND DIMENSIONS WITH EQ. DWGS AND APPROVED SHOP DRAWINGS.

8 SECTION @ UNDERCARRIAGE WASH TRENCH
SCALE: 3/4" = 1'-0"

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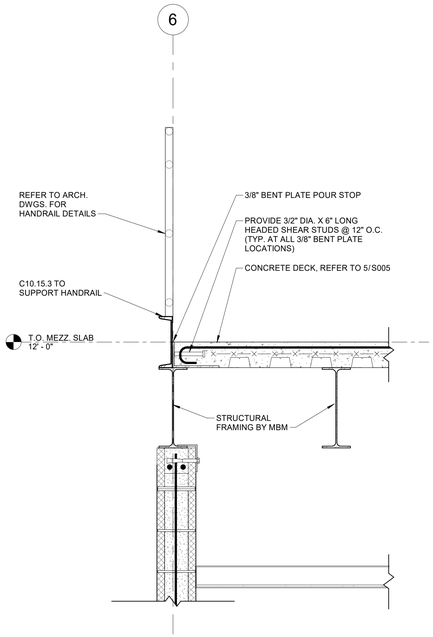
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Drawing Title:
FOUNDATION SECTIONS & DETAILS III

Sheet Number:
S303

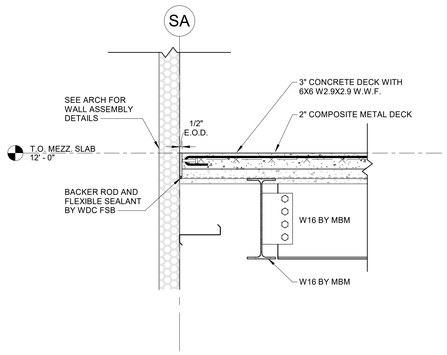
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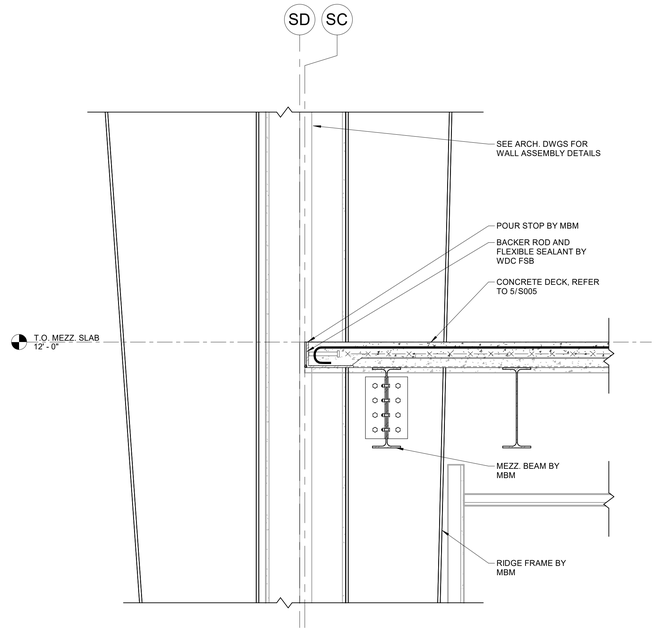
1 TYPICAL SECTION @ MEZZANINE

SCALE: 1" = 1'-0"



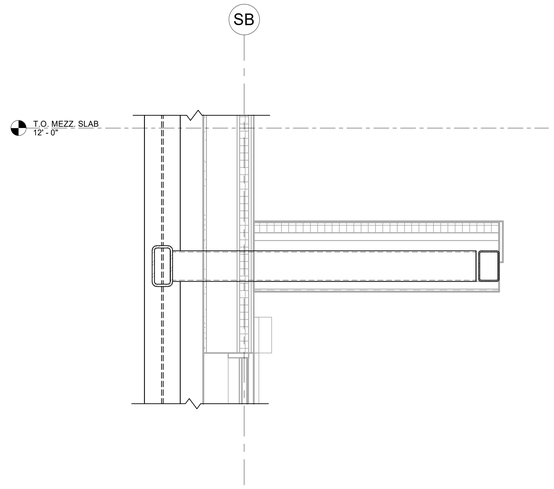
2 TYP. MEZZANINE SECTION & EXTERIOR WALL

SCALE: 1" = 1'-0"



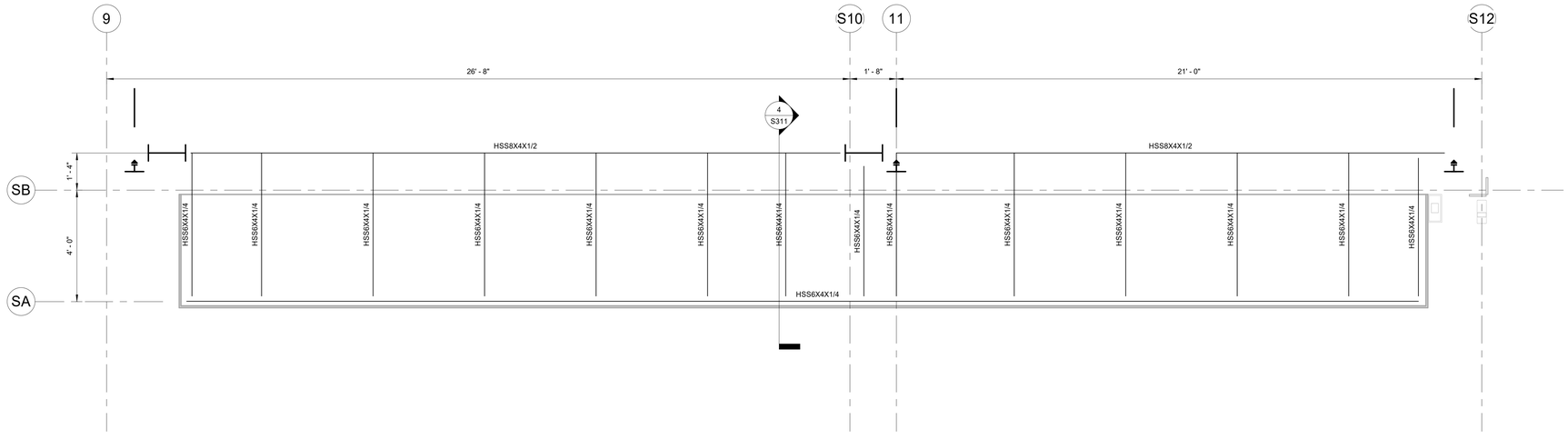
3 SECTION BETWEEN MAINTENANCE AND STORAGE

SCALE: 1" = 1'-0"



4 ADMIN ENTRANCE CANOPY SECTION

SCALE: 1" = 1'-0"



5 ADMIN ENTRANCE CAOPY FRAMING PLAN

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

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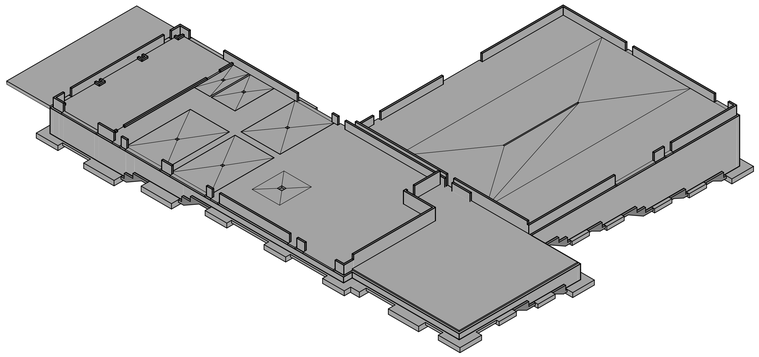
STEEL SECTIONS & DETAILS

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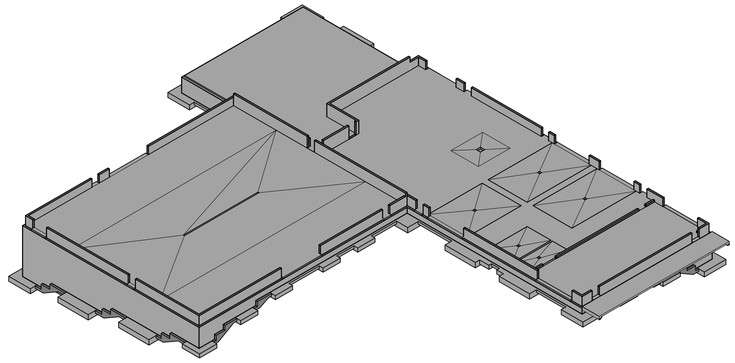
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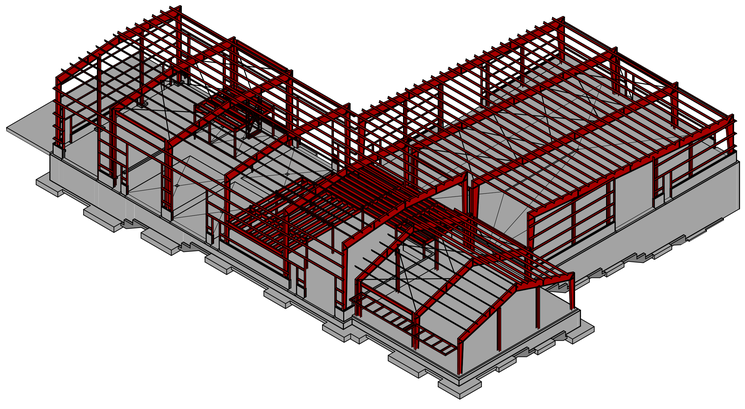


3 3D VIEW - CONCRETE WORK - LOOKING NW
SCALE:

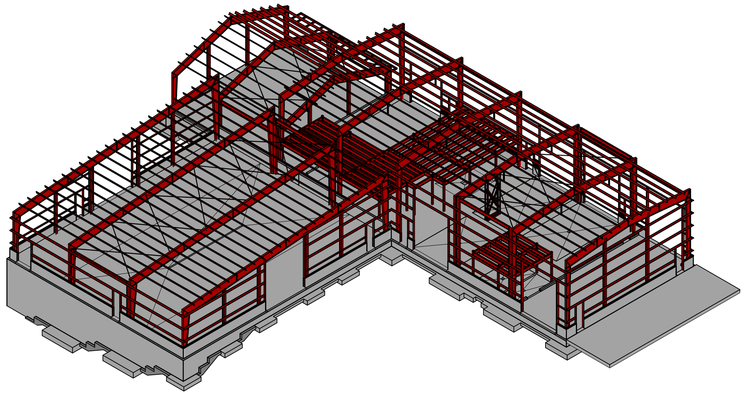


4 3D VIEW - CONCRETE WORK - LOOKING SE
SCALE:

NOTE: 3D GROUPS ARE FOR REFERENCE ONLY.



1 3D VIEW - STEEL WORK - LOOKING NW
SCALE:



2 3D VIEW - STEEL WORK - LOOKING SE
SCALE:

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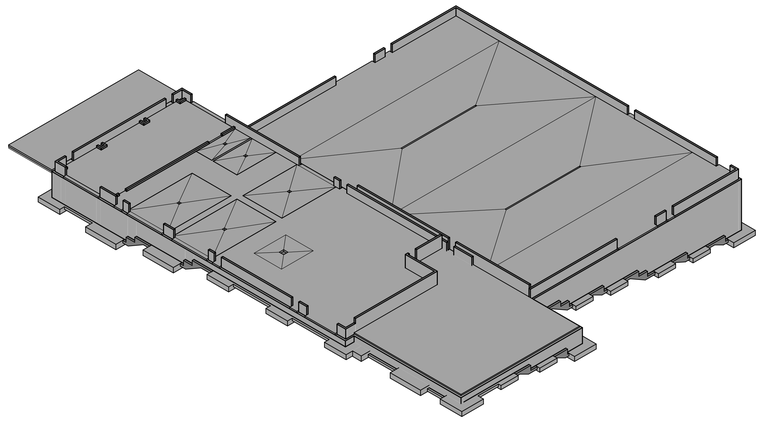
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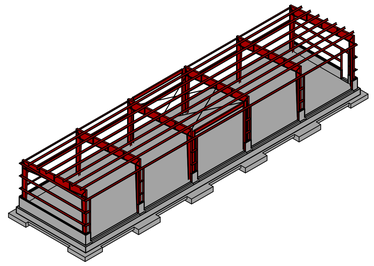
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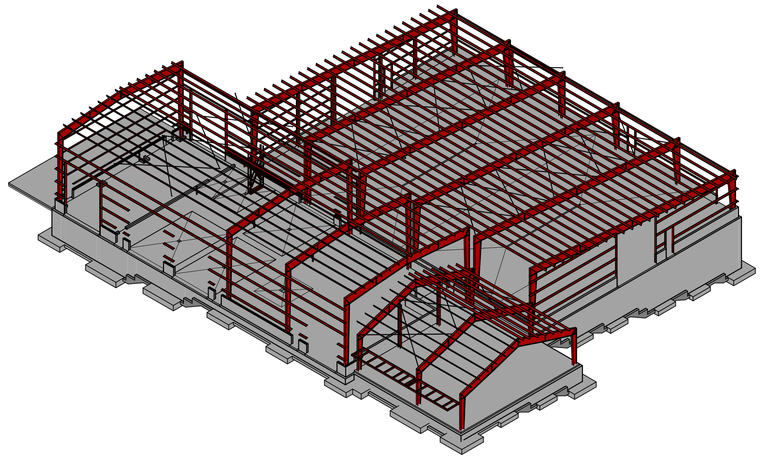


1 3D VIEW - CONCRETE WORK BID ALT #1 - LOOKING NW
SCALE:

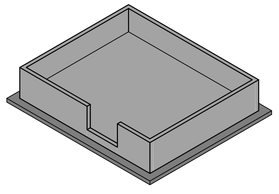


3 3D VIEW - STEEL WORK - BID ALT #2 - LOOKING NW
SCALE:

NOTE: 3D GROUPS ARE FOR REFERENCE ONLY.



2 3D VIEW - STEEL WORK BID ALT #1 - LOOKING NW
SCALE:



4 3D VIEW - CONCRETE WORK - SALT SHED - LOOKING NW
SCALE:

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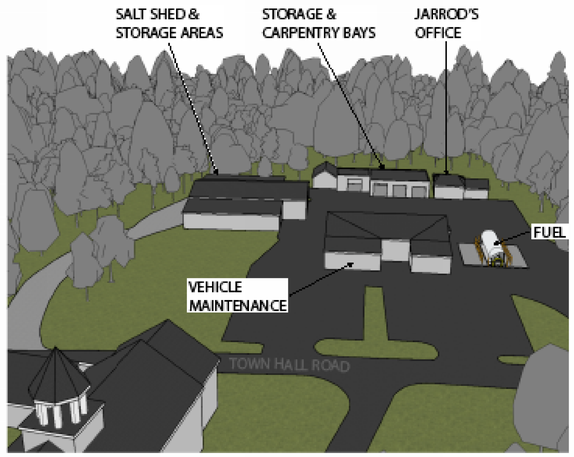
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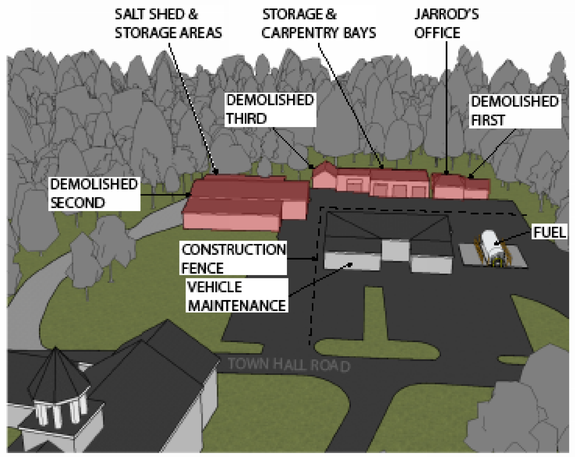
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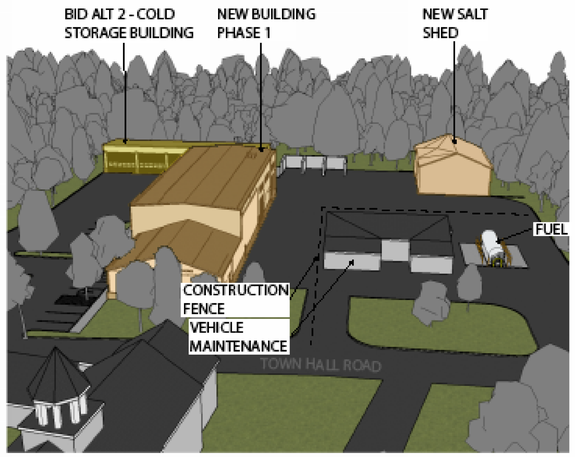
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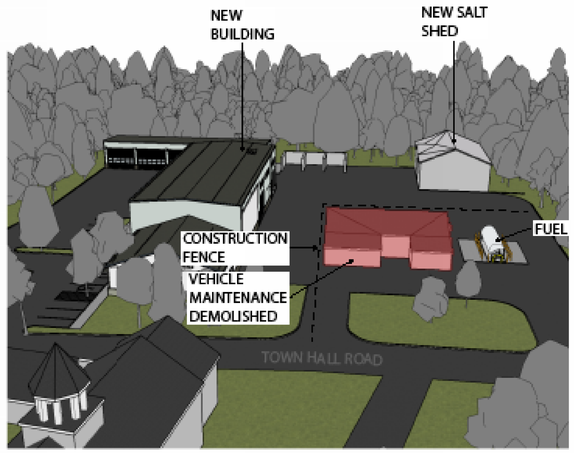
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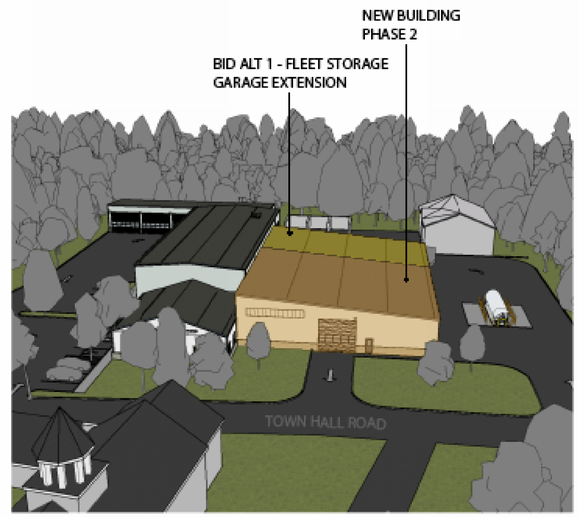
DEMO ROUND 1



NEW ROUND 1



DEMO ROUND 2



NEW ROUND 2
& BID ALT 1 EXT.

Weston & Sampson

GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VISIT THE SITE TO VERIFY AND BE FULLY AWARE OF EXISTING CONDITIONS PRIOR TO START OF WORK. CONTRACTOR SHALL IDENTIFY ALL EXISTING ITEMS OF WORK SCHEDULED TO REMAIN OR SALVAGED FOR REUSE.
2. ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED DEMOLITION PERMITS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS.
3. COORDINATE ALL DEMOLITION OPERATIONS WITH OWNER FOR SHUTDOWN PERIODS AND SEQUENCE OF WORK. ARRANGE WITH OWNER AND/OR APPROPRIATE UTILITIES FOR SERVICE SHUTOFFS BEFORE BEGINNING DEMOLITION OPERATIONS. PROVIDE TEMPORARY DUST PARTITIONS, BARRICADES AND PROTECTIVE ENCLOSURES REQUIRED TO PROPERLY SECURE, ISOLATE AND WEATHERPROOF AREAS OF WORK AND EXISTING AREAS AND ELEMENTS TO REMAIN. THE CONTRACTOR SHALL PERFORM THE WORK OF THIS CONTRACT IN A MANNER THAT CAUSES NO DISRUPTION TO THE CONTINUOUS OCCUPATION OF THE BUILDING AND SITE FOR THEIR INTENDED PURPOSE.
4. REMOVE ALL DEMOLISHED MATERIALS IN ACCORDANCE WITH LOCAL REGULATIONS.
5. IT IS NOT THE INTENT TO SHOW EVERY PIECE OR ITEM TO BE REMOVED IN DEMOLITION WORK. PLUMBING, ELECTRICAL AND OTHER WORK RELATED TO A WALL, OR AREA SCHEDULED FOR DEMOLITION AND REMOVAL, SHALL BE PERFORMED WHETHER NOTED OR NOT.
6. THE EXTENT OF ALL SPECIFIC DEMOLITION WORK SHALL BE COORDINATED WITH CONTRACT DOCUMENTS.
7. CONTRACTOR TO PATCH/REPAIR/REFINISH, AS REQUIRED, ALL SURFACES EXPOSED BY DEMOLITION WORK WITH MATERIALS AND METHODS TO MATCH FINISH AND MAKE FLUSH WITH EXISTING ADJACENT SURFACES. WORK SHALL INCLUDE ALL LABOR AND MATERIALS ON ALL SURFACES REQUIRED TO RENDER SUBSTRATES ACCEPTABLE TO RECEIVE NEW FINISHES SPECIFIED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
8. TERMINATE, CAP, AND REMOVE ALL ABANDONED ELECTRICAL, PLUMBING, MECHANICAL AND FIRE PROTECTION ITEMS BACK TO ITS SOURCE. REFER TO MEP DRAWINGS FOR ADDITIONAL INFORMATION.
9. WHERE EXISTING FINISHES ARE INDICATED TO REMAIN AS BASE MATERIAL SURFACES FOR INSTALLATION OF NEW FINISHES, REMOVE ALL PROJECTIONS AND VOIDS AND SECURE OR REMOVE AND REPLACE ANY EXISTING LOOSE OR OTHERWISE UNSUITABLE SUBSTRATE MATERIAL.
10. REFER TO VARIOUS DISCIPLINE DEMOLITION PLANS FOR ADDITIONAL INFORMATION.
11. CONTRACTOR TO PROTECT ALL ITEMS TO REMAIN DURING DEMOLITION. ALL ITEMS DAMAGED DURING DEMOLITION ARE TO BE REPLACED AT NO EXPENSE TO THE OWNER.
12. CONTRACTOR IS RESPONSIBLE FOR MEANS & METHODS IN A SAFE MANNER FOR ALL DEMOLITION WORK.
13. ASBESTOS CONTAINING MATERIALS ARE PRESENT AND ARE TO BE DEMOLISHED UNDER THIS PROJECT. REFER TO SPECIFICATION, DIV 2, FOR HAZARDOUS MATERIALS AND QUANTITIES.
14. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL WALK THE SITE WITH THE ARCHITECT TO GAIN A THOROUGH UNDERSTANDING OF THE PROJECT, INCLUDING ANY SPECIAL CONDITIONS AND CONSTRAINTS.
15. SITE PREPARATION AND DEMOLITION SHALL INCLUDE THOSE AREAS WITHIN THE LIMIT OF WORK LINE AS SHOWN ON THIS CONTRACT.
16. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82, SECTION 40A, AS AMENDED, WHICH STATES THAT NO ONE MAY EXCAVATE IN THE COMMONWEALTH OF MASSACHUSETTS EXCEPT IN AN EMERGENCY WITHOUT 72 HOURS NOTICE, EXCLUSIVE OF SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, TO NATURAL GAS PIPELINE COMPANIES, AND MUNICIPAL UTILITY DEPARTMENTS THAT SUPPLY GAS, ELECTRICITY, TELEPHONE, OR CABLE TELEVISION SERVICE IN OR TO THE CITY OR TOWN WHERE THE EXCAVATION IS TO BE MADE. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-DIG-SAFE.
17. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL CONDITIONS IN THE FIELD AND REPORT DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER OR OWNER'S REPRESENTATION IMMEDIATELY.
18. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON CIVIL PLANS AND SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
19. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
20. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS.
21. REMOVE AND STOCKPILE ALL EXISTING SITE LIGHTS, BENCHES, TRASH RECEPTACLES, TRAFFIC SINGES, GRANITE CURBS, AND OTHER SITE IMPROVEMENTS WITHIN LIMIT OF WORK LINE UNLESS OTHERWISE NOTED.
22. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
23. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING DEMOLITION. CONTRACTOR SHALL PERFORM HAZARDOUS BUILDING MATERIALS ABATEMENT AS REQUIRED BY THE SPECIFICATIONS PRIOR TO THE START OF ANY DEMOLITION.
24. CONTRACTOR SHALL SUPPLY AND MAINTAIN FOR THE DURATION OF DEMOLITION ALL NECESSARY DEVICES FOR EROSION, SEDIMENTATION AND DUST CONTROL, ETC.
25. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH TO INCLUDE BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS APPLICABLE, AND LEGALLY DISPOSED OF OFF-SITE BY CONTRACTOR.
26. TREE AND SHRUB PROTECTION SHALL BE PER SPECIFICATIONS.
27. BEFORE ANY TREES OR SHRUBS ARE REMOVED, THE CONTRACTOR SHALL ARRANGE A CONFERENCE ON THE SITE WITH THE OWNER OR OWNER'S REPRESENTATIVE TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE REMOVED, AS WELL AS THOSE WHICH ARE TO BE PROTECTED. DO NO CLEARING WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED.

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
17 TOWN HALL ROAD
TRURO, MA 02666

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

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

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
DEMOLITION DIAGRAMS

Sheet Number:
AD101

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GENERAL NOTES:

1. COORDINATE THE ARCHITECTURAL DRAWINGS WITH STRUCTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL, AND ELECTRICAL / FIRE ALARM DRAWINGS FOR THE VERIFICATION OF ALL PROJECT REQUIREMENTS.
2. FINISH FIRST FLOOR SLAB ELEVATION HIGH POINT IS 124'-0" FOR THIS PROJECT.
3. ALL INTERIOR DIMENSIONS ARE TAKEN FROM FACE OF STUD / FACE OF MASONRY / CENTERLINE OF COLUMN TO FACE OF STUD / FACE OF MASONRY / CENTERLINED OF COLUMN UNLESS SPECIFICALLY NOTED OTHERWISE. DO NOT SCALE DRAWINGS, REFER TO ENLARGED PLANS AND DETAILS FOR FURTHER DIMENSIONING INFORMATION. ALL WORK LINES AND LEVELS SHALL BE LAID OUT BY WRITTEN DIMENSIONS. ANY DEVIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER. ALL DEVIATIONS AND DISCREPANCIES SHALL BE CORRECTED BY THE CONTRACTOR BEFORE HE BEGINS HIS PORTION OF THE WORK.
4. FIRE EXTINGUISHER AND CABINET QUANTITIES AND LOCATIONS TO BE COORDINATED WITH THE TOWN FIRE DEPARTMENT PRIOR TO ORDERING AND INSTALLATION. CONFORM TO THE STATE FIRE REGS AND NFPA.
5. COORDINATE MASTER BOX, KNOX BOX, AND BEACON LOCATIONS WITH THE ELECTRICAL / FIRE ALARM DRAWINGS AND THE TOWN FIRE DEPARTMENT REQUIREMENTS. ELECTRICAL CONTRACTOR TO PROVIDE KNOX BOX THAT MEET THE TOWN FIRE DEPARTMENT REQUIREMENTS.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS & CONDITIONS PRIOR TO THE WORK AND SHALL NOTIFY THE DESIGNER REGARDING ANY DISCREPANCIES.
7. THE CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS, SAMPLES, CATALOG CUTS ETC., INCLUDING COLOR CHARTS FOR PAINTS, FOR ALL INTERIOR FINISHES, TO THE DESIGNER FOR SELECTION, REVIEW AND APPROVAL WITH THE OWNER PRIOR TO FABRICATION OR INSTALLATION. THE COLORS MUST BE SUBMITTED IN A TIMELY MANNER AND TOGETHER FOR REVIEW AND COLOR BOARDS. FAILURE TO DO SO IN A TIMELY MANNER WILL FALL ON THE CONTRACTOR'S RESPONSIBILITY AND NOT ON THE OWNER. REFER TO EACH INDIVIDUAL SPECIFICATIONS FOR SIZE, QUANTITY AND TYPE OF COLOR SELECTION.
8. PERFORM ALL WORK IN ACCORDANCE WITH THE STATE BUILDING CODE, AS WELL AS LOCAL CODES AND ORDINANCES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, BACKCHARGES AND FEES AS REQUIRED BY THE TOWN.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY REMOVAL AND LEGAL DISPOSAL OF ALL DEBRIS OFF SITE.
11. THE CONTRACTOR SHALL SEAL ALL THROUGH-WALL & FLOOR PENETRATIONS WITH 3M BARRIER CAULK (O.A.E.) AND SEALANT ON USG SAFING 2600 PSI GROUT U.N.O. INSTALL ANY REQUIRED FIRE RATED PARTITIONS TO UNDERSIDE OF FLOOR AND ROOF DECK, INCLUDING DEFLECTION HEAD FIRE SAFING.
12. INSTALL A CONTINUOUS SEALANT BEAD ON BACKER ROD AT ALL JUNCTURES OF DISSIMILAR MATERIALS (E.G.: METAL TO CMU, STEEL TO ALUMINUM) AND ALL MATERIAL JOINTS AS REQUIRED BY THE MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS, INDUSTRY STANDARDS AND GOOD PRACTICE.
13. PROVIDE CONTINUOUS GALVANIZED METAL EDGE TRIM AT ALL GWB WORK.
14. THE CONTRACTOR SHALL INSTALL ALL INTERIOR FINISHES AT ALL SURFACES INDICATED ON THE DRAWINGS IN CONFORMANCE TO STATE BUILDING CODE. ALL DOORS SHALL HAVE LEVER HARDWARE TO CONFORM TO 521 CMR.
15. INSTALL USG .093 (OR APPROVED EQUAL) CONTROL JOINTS AT 30'-0" O.C. MAX. OR AS PER MANUFACTURER'S SUGGESTED DETAILS AND SPECIFICATIONS.
16. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A GAP FILLING SYSTEM OR OTHER SYSTEM WHICH SPANS ANY GAP IN THE EXTERIOR WALL SYSTEM WHICH DOES NOT MEET THE MAXIMUM SPAN OF THE APPROVED AIR BARRIER MEMBRANE SYSTEM. THIS SYSTEM SHALL BE PROVIDED TO ALLOW FOR A COMPLETE AIR BARRIER MEMBRANE INSTALLATION. THE SYSTEM SHALL BE COMPATIBLE WITH THE APPROVED AIR BARRIER PRODUCT AND SHALL BE APPROVED BY THE DESIGNER PRIOR TO INSTALLATION.
17. THE ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES, STARTERS AND ALL LINE VOLTAGE WIRING AND CONDUIT TO OH DOOR OPERATORS. THE HAND-OFF-AUTO SWITCH, PUSH BUTTON CONTROL STATION (MOMENTARY UP-STOP-DOWN) AND CONTROLLER IS FURNISHED BY THE OVERHEAD DOOR MANUFACTURER AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR IS TO PROVIDE CONDUIT AND WIRING BETWEEN THE HAND-OFF-AUTO SWITCH, THE PUSH BUTTON CONTROL STATION AND CONTROLLER PER OVERHEAD DOOR MANUFACTURER REQUIREMENTS. FURNISHING AND INSTALLATION OF THE MOTOR UNIT, OPTICAL SENSORS, PNEUMATIC DOOR SAFETY BOTTOM, LOW VOLTAGE WIRING AND ALL OTHER ACCESSORIES ASSOCIATED WITH THE OVERHEAD DOORS SHALL BE THE RESPONSIBILITY OF THE OVERHEAD DOOR CONTRACTOR.
18. ALL STRUCTURAL ELEMENTS WHICH PASS IN FRONT OF WINDOWS / CLERESTORES SHALL BE BACK PAINTED.
19. ALL STRUCTURAL ELEMENTS SHOWN ON THE ARCHITECTURAL DRAWINGS ARE FOR INFORMATION ONLY. REFER TO STRUCTURAL DRAWINGS FOR EXACT SIZES AND LOCATION OF STRUCTURAL ELEMENTS.
20. THE CONTRACTOR SHALL PROVIDE SUPPLEMENTAL FRAMING AND OR BLOCKING AS NECESSARY TO SUPPORT ALL EXTERIOR WALL MOUNTED ELEMENTS.
21. ALL OPENINGS IN EXTERIOR WALLS FOR PLUMBING, FIRE PROTECTION, MECHANICAL, AND ELECTRICAL / FIRE ALARM SYSTEMS SHALL BE SEALED WEATHER-TIGHT BY THE CONTRACTOR. CONTRACTOR TO PROVIDE FIRE RATED SEALANTS AS REQUIRED AT FIRE RATED WALL, FLOOR, CEILING, AND ROOF ASSEMBLIES.
22. THE CONTRACTOR IS TO FIELD MEASURE OH DOOR OPENINGS TO ENSURE PROPER FIT OF OH DOORS.
23. ALL EXPOSED SURFACES (INCLUDING, BUT NOT LIMITED TO: WALLS, UNDERSIDE OF EXPOSED ROOF AND FLOOR DECK, STRUCTURAL STEEL, MISCELLANEOUS METALS, DOORS/FRAMES, DUCTWORK, CONDUIT, AND PIPING) SHALL BE PRIMED AND PAINTED.
24. BLOCKING SHALL BE PROVIDED FOR ALL WALL MOUNTED EQUIPMENT (INCLUDING, BUT NOT LIMITED TO: PLUMBING FIXTURES, TOILET ACCESSORIES, UTILITY SINKS, FIRE EXTINGUISHER CABINETS, SHELVING, COUNTERS, CASEWORK, CABINETS, MEDIA EQUIPMENT, AND WINDOW TREATMENTS). PROVIDE ADDITIONAL METAL STUD FRAMING AS REQUIRED TO SUPPORT BLOCKING.
26. THE AIR BARRIER MEMBRANE (ABM) SHALL BE CONTINUOUS THROUGH THE BUILDING ENVELOPE AND BETWEEN THE WALL AND ROOF SYSTEMS INSTALLED ON THE WINTER WARM SIDE OF THE INSULATION. OPENINGS AND PENETRATIONS IN THE BUILDING ENVELOPE SHALL BE SEALED WITH SEALANT MATERIALS OR CLOSED WITH GASKETING SYSTEMS WHICH IS COMPATIBLE WITH THE ABM SYSTEM AND MEETS THE PERFORMANCE REQUIREMENTS IN THE SPEC. SYSTEM SHALL BE COMPATIBLE WITH THE CONSTRUCTION MATERIALS AND LOCATION. JOINTS AND SEAMS SHALL BE SEALED IN THE SAME MANNER OR TAPED OR COVERED WITH A MOISTURE VAPOR-PERMEABLE WRAPPING MATERIAL. SEALING MATERIALS SPANNING JOINTS BETWEEN CONSTRUCTION MATERIALS SHALL ALLOW FOR EXPANSION AND CONTRACTION OF THE CONSTRUCTION MATERIALS. AT ALL OH DOOR JAMBS AND HEADERS, THE ABM SHALL TERMINATE AT THE STEEL FACE WHERE THE INSULATION ABUTS STEEL FRAMED OPENINGS. TERMINATE ABM ON THE INSIDE FACE OF EXTERIOR WALL SYSTEM AT DOORS, WINDOWS, LOUVERS, AND CLERESTORIES. THE TERMS VAPOR RETARDER, AND AIR MOISTURE BARRIER ARE SYNONYMOUS WITH ABM.
27. METAL BUILDING SYSTEM SHALL BE A SINGLE SOURCE MANUFACTURED SYSTEM. ALL ACCESSORIES, NOT LIMITED TO, PRIMARY FRAMING, WALLS, ROOF INSULATION, EXTRUSIONS, TRIMS, FASTENERS, GASKETS, SUBGIRT FRAMING, ETC SHALL BE PROVIDED BY THE METAL BUILDING SYSTEM MANUFACTURER. METAL WALL PANEL COLOR TO BE SELECTED BY THE DESIGNER FROM THE MANUFACTURES STANDARD COLOR SELECTION WITH FINISH PROTECTIONS AS SPECIFIED.
28. ALL WALL/PARAPET FLASHING SHALL TERMINATE WITH A MINIMUM 8" VERTICAL LEG TO ALLOW FOR PROPER INTERFACE WITH THE ABM. ABM SHALL BE INSTALLED BEHIND FLASHING AND THE FLASHING SHALL BE INTEGRATED INTO THE ABM SYSTEM USING A SELF-ADHERED MEMBRANE FLASHING WITH MINIMUM OVERLAP REQUIREMENTS PER MANUFACTURER.
29. ALL EXTERIOR AND INTERIOR MATERIAL SURFACE COLOR AND TEXTURES SHALL BE SELECTED BY THE DESIGNER FROM THE MANUFACTURES STANDARD & PREMIUM FINISH / COLOR SELECTIONS. ONCE ALL COLORS HAVE BEEN SUBMITTED, THE OWNER WILL REVIEW AND PROVIDE GUIDANCE ON COLORS FOR INCLUSION IN THE MOCK-UP REFERENCED IN DIVISION 1 OF THE SPECIFICATIONS.
30. DETAILS AND NOTES SHOWN ON THE ARCHITECTURAL DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE ARCHITECTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE BY THE CONTRACT DOCUMENTS. CONDITIONS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR LIKE CONDITIONS AS DETERMINED BY THE DESIGNER.
31. PROVIDE ALL ACCESSIBLE FIXTURES, CONTROLS & ACCESSORIES, AND APPROPRIATE CLEARANCES, AS REQUIRED FOR COMPLIANCE W/ STATE BUILDING CODE W/ ALL AMENDMENTS, TYP.
32. SEALANT DEPTH AT ALL EXTERIOR OPENINGS SHALL BE EQUAL TO THE WIDTH OF THE JOINT.
33. THE CONTRACTOR TO PROVIDE CANE PROTECTION AT ALL PANELS IN EGRESS PATHS (AS DETERMINED BY THE DESIGNER) WHICH EXTEND 4" OR MORE FROM FACE OF WALL AND ARE GREATER THAN 27" ABOVE FINISHED FLOOR.
34. FOR SITE LEGEND REFER TO DRAWING SERIES C100.
35. FOR STRUCTURAL LEGEND REFER TO DRAWING SERIES SX00.
36. FOR WALL TYPES REFER TO DRAWING SERIES A000.
37. FOR CEILING LEGEND AND SOFFIT DETAILS REFER TO DRAWING SERIES A100.
38. FOR LARGE SCALE STAIR PLANS REFER TO DRAWING SERIES A500.
39. FOR ROOF DETAILS REFER TO DRAWING SERIES A600.
40. FOR LARGE SCALE TOILET PLANS REFER TO DRAWING SERIES A700.
41. FOR INTERIOR ELEVATIONS, REFER TO DRAWING SERIES A700.
42. FOR DOOR NUMBERS AND DETAILS REFER TO DRAWING SERIES A800.
43. FOR FINISH SCHEDULE REFER TO DRAWING SERIES A900.
44. FOR CASEWORK ELEVATIONS REFER TO DRAWING SERIES A900.
45. FOR FIRE PROTECTION LEGEND REFER TO DRAWING SERIES FPX00.
46. FOR PLUMBING LEGEND REFER TO DRAWING SERIES PX00.
47. FOR MECHANICAL LEGEND REFER TO DRAWING SERIES MX00.
48. FOR ELECTRICAL LEGEND REFER TO DRAWING SERIES EX00.
49. ALL NOTES AND DIMENSIONS DESIGNATED "TYPICAL" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
50. SIGNAGE TO BE MOUNTED ON THE WALL, ADJACENT TO THE LEVER SIDE OF THE DOOR, AT A HEIGHT OF FIVE (5) FEET A.F.F. REFER TO THE FLOOR PLANS FOR LOCATIONS OF DIRECTIONAL SIGNAGE.
51. CONTRACTOR(S) TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK AND BE RESPONSIBLE FOR COORDINATION OF THE SAME. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK.
52. GENERAL CONTRACTOR TO PROVIDE EXCAVATION & TRENCHING AT ALL UNDERGROUND UTILITIES IN EXISTING AND NEW BUILDINGS AS REQUIRED FOR MEP/FP UTILITIES AND COORDINATION. REFER TO MEP / FP DRAWINGS FOR OVERALL REQUIREMENTS. GENERAL CONTRACTOR TO COORDINATE INVERTS AND COMPACT ALL MATERIALS FOR PLACEMENT OF CONCRETE SLAB INFILL IN ACCORDANCE WITH ASTM D1557. GC TO PROVIDE SOIL COMPACTION, DOWELS, WWF MESH, VAPOR RETARDER AND TIE-INS. CONCRETE PLACEMENT AND ALL REQUIREMENTS TO CLOSE UP TRENCH ONCE MEP/FP SUB-TRADE WORK IS COMPLETE.
53. PROVIDE AN ACCENT WALL AT ALL ROOMS. ARCHITECT / ENGINEER TO PROVIDE LOCATION DURING CONSTRUCTION FOR ACCENT WALL IF NOT IDENTIFIED ON PROJECT PLANS.

ABBREVIATIONS:

A	
A/C	AIR CONDITION
AC	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ANC BLT	ANCHOR BOLT
ANOD	ANODIZED
APPROX.	APPROXIMATE
ARCH	ARCHITECT
ARGB	ABUSE RESISTANT GYPSUM BOARD
ASPH	ASPHALT
AVB	AIR VAPOR BARRIER
B	
BC	BASE CABINET
BD	BOARD
BF	BRACE FRAME
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BENCH MARK
BOF	BOTTOM OF FOOTING
BOS	BOTTOM OF STEEL
BOTT	BOTTOM
BPL	BEARING PLATE
BRG	BEARING
BRK	BRICK
BS	BRICK SHELF
BSMT	BASEMENT
BVL	BEVELED
C	
CAB	CABINET
CB	CEMENT BOARD / CATCH BASIN
CDM	CAVITY DRAINAGE MATERIAL
CF	CUBIC FEET
CH	CEILING HEIGHT
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE / COLUMN LINE
CL	CLOSET / CHAIN LINK
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CASED OPENING
COL	COLUMN
COMP	COMPOSITION
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTC	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPET	COMMON PATH OF EGRESS TRAVEL
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
CW	COLD WATER
CWT	CERAMIC WALL TILE
CY	CUBIC YARD
D	
D	DRYER
D-PART	DEMOUNTABLE PARTITION
DBL	DOUBLE
DEMO	DEMOLITION
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DI	DRAIN INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DL	DRAIN LEADER
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
E	
EA	EACH
EF	EACH FACE
EIFS	EXTERIOR INSULATED FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
EOC	EDGE OF CONCRETE
EP	ELECTRICAL PANEL
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXISTING TO REMAIN
ES	EXPOSED STRUCTURE
EW	EACH WAY
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F	
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAK	FIRST AID KIT
FB	FIRE BLANKET
FC	FILE CABINET
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FIBERGLASS
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR
FLUOR	FLUORESCENT
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOUND	FOUNDATION
FP	FIREPROOF(ING)
FR	FIRE RETARDANT
FRP	FIBERGLASS REINFORCED WALL PANEL
FRTW	FIRE RETARDANT TREATED WOOD
FSB	FILED SUB BID
FT	FEET
FTG	FOOTING
FUR	FURRING
G	
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GDRL	GUARD RAIL
GL	GLASS
GLAZ	GLAZED BLOCK
GLB	GLASS BLOCK
GN	GOOSENECK
GRT	GROUT
GWB	GYPSUM WALL BOARD
H	
HB	HOSE BIB
HC	HANDICAP
HD	HEAVY DUTY
HDWR	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HTR	HEATER
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HW	HOT WATER
I	
ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDED
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
IRGWB	IMPACT-RESISTANT GWB
J	
JAN	JANITOR
JST	JOIST
JT	JOINT
K	
KD	KNOCK-DOWN
KIP	1,000 LBS
KO	KNOCKOUT
KPLT	KICKPLATE
L	
L	LENGTH
LAM	LAMINATE
LAV	LAVATORY
LBL	LABEL
LC	LEAD COATED
LCC	LEAD COATED COPPER
LGMF	LIGHT-GAUGE METAL FRAMING
LIN	LINOLEUM
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
LSC	LIFE SAFETY CODE
LT	LIGHT
M	
M	METER
MANUF	MANUFACTURER
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MOISTURE BARRIER
MBL	MARBLE
MBM	METAL BUILDING MANUFACTURER
MBR	MEMBER
MC	MEDICINE CABINET
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
ML	MATCH LINE
MLDG	MOULDING
MO	MASONRY OPENING
MOD	MODULAR
MR	MOISTURE RESISTANT
MRGB	MOISTURE RESISTANT GYPSUM BOARD
MS	METAL STUD
MTD	MOUNTED
MTL	METAL
MTP	METAL TOILET PARTITION
N	
N/A	NOT APPLICABLE
NAT	NATURAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
NUM	NUMBER
NW	NEW
O	
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD DOOR
OPNG	OPENING
OPP	OPPOSITE
OPPHAND	OPPOSITE HAND
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
OW	OPERABLE WALL
OZ	OUNCE
P	
PART BD	PARTICLE BOARD
PAV	PAVING
PCP	PRECAST CONCRETE PLANK
PERIM	PERIMETER
PL	PROPERTY LINE / PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTIC
PLY	PLYWOOD
PMLF	PRE-MOLDED JOINT FILLER
PNT	PAINT
PR	PAIR
PREFIN	PREFINISHED
PRFB	POURED RESIN FLOOR BASE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
Q	
QT	QUARRY TILE
R	
R	RISER
R & D	REMOVE & DISPOSE
R & R	REMOVE AND REPLACE
R & S	REMOVE AND SALVAGE
RAD	RADIUS
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFRIGERATOR
REFURB	REFURBISH
REINF	REINFORCEMENT
RELOC	RELOCATED
REM	REMOTE
REQD	REQUIRED
RES	RESILIENT
REV	REVISION
RFG	ROOFING
RFI	RIGID FOAM INSULATION
RFS	RESINOUS FLOOR SYSTEM
RH	RIGHT HAND
RL	ROOF LADDER
RM	RUBBER MAT
RM	ROOM
RO	ROUGH OPENING
RT	RUBBER TILE
RTU	ROOF TOP UNIT
RUB	RUBBER
S	
S	SEALANT
S.L.	STRUCTURAL LINE
SACI	SPRAY-APPLIED CELLULOSE INSULATION
SACP	SECURITY ALARM CONTROL PANEL
SAFI	SPRAY-APPLIED FOAM INSULATION
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SCW	SOLID CORE WOOD
SD	SOAP DISPENSER
SECT	SECTION
SF	SQUARE FEET
SH	SINGLE HUNG
SHR	SHOWER
SIM	SIMILAR
SND	SANITARY NAPKIN DISPENSER
SNV	SANITARY NAPKIN VENDOR
SOLSUR	SOLID SURFACE (COUNTER)
SPC	SPECIAL
SPEC	SPECIFICATION
SQ	SQUARE
SR	SHEET RUBBER
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURE or STRUCTURAL
SUSP	SUSPENDED or SUSPENSION
SV	SHEET VINYL
SYS	SYSTEM(S)
T	
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
TB	TRASH BARREL
TBA	TO BE ABANDONED
TBB	TILE BACKER BOARD
TBD	TO BE DETERMINED
TBOC	TOP BACK OF CURB
TEL	TELEPHONE
TEMP	TEMPORARY
THK	THICK(NESS)
THRESH	THRESHOLD
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOL	TOP OF LANDING
TOP	TOP OF PLATE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TRANSLUCENT PANEL
TR	TREAD
TS	TUBULAR STEEL
TTD	TOILET TISSUE DISPENSER
TW	TO WEATHER
TYP	TYPICAL
U	
UC	UNDERCUT
UG	UNDERGROUND
UND	UNDERSIDE (OF DECK)
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR
V	
VB	VINYL BASE / VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VPD	VENEER PLASTER BASE
VS	VENT STACK
VT	VINYL TREAD
VTS	VINYL TRANSITION STRIP
VWB	VINYL WALL BASE
VWC	VINYL WALL COVERING
W	
W	WASHER
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WALL CABINET
WD	WOOD
WDC	WATERPROOFING, DAMPPROOFING, & CAULKING CONTRACTOR
WF	WIRE FABRIC
WG	WIRE GLASS
WH	WALL HUNG
WIN	WINDOW
WP	WATER PROTECTION
WPG	WATERPROOF(ING)
WR	WATER RESISTANT
WS	WATER STOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SYMBOLS:

- EXTERIOR ELEVATION (X, AX.XX)
- INTERIOR ELEVATION (1, A1.01)
- BUILDING SECTION (X, AX.XX)
- WALL SECTION (X, AX.XX)
- DETAIL (X, AX.XX)
- PARTITION TYPE (X)
- EXTERIOR WALL ASSEMBLY (XX)
- DOOR TYPE or VISION PANEL (VP) (X)
- WINDOW TYPE (X)
- ROOF TYPE (X)
- SPECIFIC DEMOLITION NOTE (X)
- SPECIFIC CONSTRUCTION NOTE (X)
- CHANGE IN PLANE (X)
- LEADER
- DIMENSION (3'-0")
- CHANGE IN ELEVATION
- CONTROL JOINT (C | J)
- ELEVATION or WORK POINT (WP)
- COLUMN GRID (A, 1)
- EXISTING COLUMN GRID (A, 1)
- ALIGN SURFACES (ALIGN)
- REVISION MARKER (X)
- ROOM TAG (ADMINISTRATION, 100)
- DRAWING TITLE (1 View Name, 1/8" = 1'-0", 1/A201 ORIGINAL TAG REFERENCE LOCATED NEXT TO SCALE)

LEGEND:

- RIGID/SEMI-RIGID INSULATION
- CONCRETE
- SAND / P.C. CONCRETE
- PARTICLE BOARD / MDF
- PLYWOOD/MDO
- FINISH WOOD
- ALUMINUM
- STEEL
- PVC
- FIBER CEMENT
- CONCRETE MASONRY UNIT
- BRICK
- MORTAR
- GROUT
- TERRA COTTA
- EARTH
- GRAVEL
- SPRAY FOAM
- INSULATED METAL PANEL
- WOOD STUDS/FRAMING (DIMENSIONAL LUMBER)
- WOOD BLOCKING
- BATT INSULATION / SOUND ATTENUATION BLANKET
- MATCHLINE

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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No.	Date	Description

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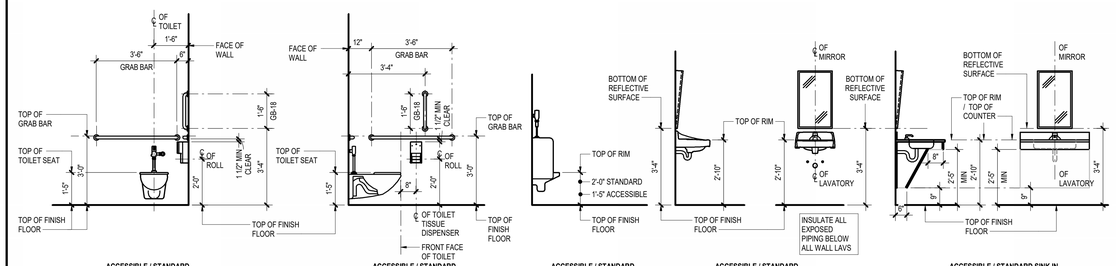
Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

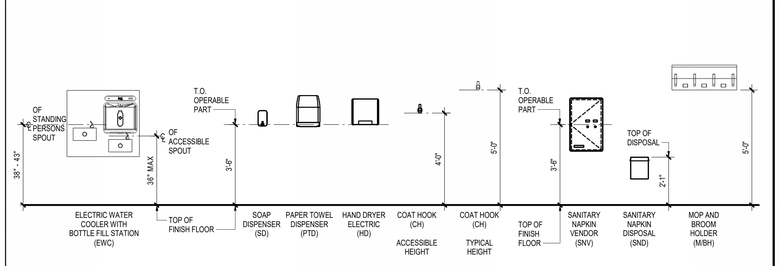
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ABBREVIATIONS, SYMBOLS, LEGEND & GENERAL NOTES

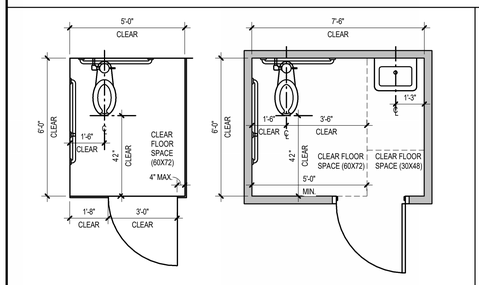
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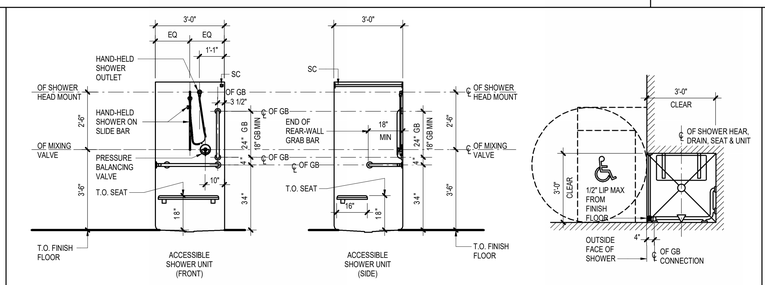
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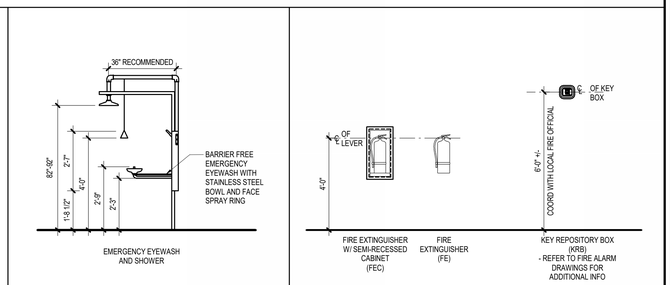
PLUMBING FIXTURE SCHEDULE / MOUNTING HEIGHTS: 3/8" = 1'-0"











MEZZANINE GENERAL NOTES:

1. AT EACH MEZZANINE SWING GATE LOCATION, PROVIDE 4" H (RED) LETTER SIGNAGE AT MEZZANINE FASCIA TO READ: 200LBS/SF MAXIMUM MEZZANINE LOADING
2. PROVIDE SAFETY CHAIN PER OSHA STANDARDS AT EACH SWING GATE.
3. PROVIDE SAFETY YELLOW PAINT AT MEZZANINE FLOOR AT EACH SWING GATE, AS INDICATED.
4. COORDINATE EXACT LOCATION WITH MECHANICAL, STRUCTURAL AND EQUIPMENT REQUIREMENTS.
5. DO NOT RUN ANY UTILITIES BELOW GATES EXPOSED AND MOUNTED TO WALLS.
6. PROVIDE TIE-OFF POINT FOR OSHA FALL ARREST SYSTEM NEAR MEZZANINE SWING-GATE ON PRIMARY STRUCTURAL ELEMENT.

TYPICAL DEVICE MOUNTING HEIGHTS:

ELECTRICAL EQUIPMENT MOUNTING HEIGHT DIMENSIONS ARE TO CENTER OF DEVICE UNLESS OTHERWISE NOTED:

- RECEPTACLES: 18" A.F.F. AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF RECEPTACLE AT 2" ABOVE BACKSPLASH. AT LOCATIONS BELOW CASEWORK, MOUNT AT 24" A.F.F.
- EXTERIOR RECEPTACLES: 24" A.F.F.
- SWITCHES: 48" A.F.F.
- BOILER EMERGENCY SWITCH: 60" A.F.F.
- DATA/PHONE OUTLETS: 18" A.F.F.
- WALL MOUNTED CLOCKS AND SPEAKERS: COORDINATE LOCATION ABOVE DOOR WITH CEILING HEIGHT. IF THE CLOCK AND SPEAKER DO NOT FIT, PLACE AT 7'-6" A.F.F. NEXT TO DOOR. COORDINATE WITH BLOCK COURSING AS OCCURS. CONSULT DESIGNER IF CONDITIONS DIFFER.
- FIRE ALARM PULL STATIONS: 48" A.F.F.
- AREA OF REFUGE CALL STATION: 48" A.F.F.
- EMERGENCY SHUT-OFF SWITCH/PUSH BUTTON: 48" A.F.F.
- EMERGENCY CALL SWITCH: 36" A.F.F.
- EMERGENCY CALL BELLLIGHT: 7'-6" A.F.F.
- FIRE ALARM VISUAL/AUDIO INDICATING UNITS: 6'-8" TO BOTTOM OF DEVICE.
- WALL MOUNTED EXIT SIGNS: 8" ABOVE DOOR OR 7'-6" A.F.F.

DOOR HARDWARE MOUNTING HEIGHT DIMENSIONS ARE TO CENTER OF HARDWARE:

- PULL: 42"
- PUSH PLATE: 45"

TOILET ACCESSORY SCHEDULE - DIV 10

FURNISHED BY OWNER - INSTALLED BY CONTRACTOR:

MARK	DESCRIPTION	MFR	QTY
SD	SOAP DISPENSER	OWNER REQ'S	PER PLANS
PTD	PAPER TOWEL DISPENSER	OWNER REQ'S	PER PLANS
TTD	TOILET TISSUE DISPENSER	OWNER REQ'S	PER PLANS
TB	TRASH BARREL	OWNER REQ'S	PER PLANS

FURNISHED AND INSTALLED BY CONTRACTOR:

MARK	DESCRIPTION	MFR	QTY
SRWR	SEMI-RECESSED WASTE RECEPTICLE	PER SPEC	PER PLANS
SNV	SANITARY NAPKIN VENDOR	PER SPEC	PER PLANS
SND	SANITARY NAPKIN DISPOSAL	PER SPEC	PER PLANS
CH	COAT / ROBE HOOK	PER SPEC	PER PLANS
GB	GRAB BAR (DIMENSION PER PLANS)	PER SPEC	PER PLANS
MIRR	MIRROR	PER SPEC	PER PLANS
M/BH	MOP/BROOM HOLDER	PER SPEC	PER PLANS
JS	JANITOR'S SHELVING	PER SPEC	PER PLANS
SC	SHOWER CURTAIN	PER SPEC	PER PLANS
CR	CURTAIN ROD FOR SHOWER	PER SPEC	PER PLANS

GENERAL NOTES:

1. PROVIDE BULLNOSE TOP COURSE / MTL EDGE TRIM AND CEMENTITIOUS TILE BACK BOARD / CEMENT BOARD AT ALL CERAMIC TILE LOCATIONS, TYPICAL. INSTALLATION OF CERAMIC TILE OVER GYPSUM BOARD EXCEPT FOR A KITCHENETTE BACKSPLASH IS NOT ACCEPTABLE.
2. PROVIDE CONT. BLOCKING AT SHELVING, ACCESS PANELS, DISPLAY MONITORS, MARKER BOARDS ETC. COORDINATE LOCATION IN FIELD.
3. MOISTURE RESISTANT (MR) GYPSUM BOARD TO BE USED IN ALL TOILET ROOM / RESTROOM FACILITIES.
4. PROVIDE PVC SHIMS AS NECESSARY TO MAKE TOILET ROOM ACCESSORIES SUCH AS PTD'S, MIRRORS, SD'S, TOILET PARTITIONS, ETC.,. FLUSH ON WALL OVER CERAMIC TILE WAINSCOT. SHIMS TO BE PAINTED BY PAINTING FSB. THICKNESS TO MATCH CERAMIC WALL TILE.

FINISH NOTES:

1. FINISH PLANS ARE TO BE READ IN CONJUNCTION WITH THE FINISH SCHEDULE. SHOULD THERE BE ANY DISCREPANCY BETWEEN INFORMATION GIVEN ON THE FINISH/COLOR SCHEDULE AND ANY OTHER DRAWINGS OR SPECIFICATIONS, PROVIDE THE HIGHER QUALITY FINISH.
2. REFER TO REFLECTED CEILING PLANS FOR CEILING TYPES AND HEIGHTS.
3. REFER TO THE FINISH LEGEND AND FINISH FLOOR PLANS FOR DEFINITION, PATTERNS AND EXTENT OF COLORS USED.
4. IN AREAS DESIGNATED WITH NEW CONCRETE FLOORS, PAINT MASONRY WALLS DOWN TO THE FLOOR WHERE NO RUBBER BASE IS PROVIDED. WHERE NO SUSPENDED CEILING IS INSTALLED, WALLS ARE TO BE PAINTED UP TO DECK.
5. PROVIDE THE INTERIOR OF ALL SPACES DESIGNATED "CLOSET" WITH ROD AND SHELF, UNLESS OTHERWISE DESIGNATED TO RECEIVE ADJUSTABLE SHELVES ON STANDARDS SPANNING THE WIDTH OF THE CLOSET.
6. ALL NEW GYPSUM BOARD SOFFITS AND CEILING SHOWN ON REFLECTED CEILING PLANS TO BE PAINTED. REFER TO FINISH NOTES FOR COLOR DESIGNATIONS.
7. ALL NEW HOLLOW METAL FRAMES TO BE PAINTED. REFER TO FINISH NOTES FOR COLOR DESIGNATIONS.
8. ALL NEW STAIR STRINGERS AND RAILINGS TO BE PAINTED. REFER TO FINISH NOTES FOR COLOR DESIGNATIONS.
9. AT ALL WALLS DESIGNATED TO RECEIVE TILED FINISH, TILE BACKING PANELS SHALL BE INSTALLED BEHIND ALL TILED AREAS.
10. ALL EXPOSED TO VIEW CONCRETE ON VERTICAL SURFACES TO RECEIVE SMOOTH FORMED FINISH, CLASS "A".

SCALE: 3/8" = 1'-0"

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Approved By:	JRC
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Drawing Title:
GENERAL NOTES & MOUNTING HEIGHTS

Sheet Number:
A021

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EXTERIOR WALL ASSEMBLIES:

NOTE: SEE DETAILS ON A6 & A7 SERIES FOR ADDITIONAL INFORMATION. "F" USED FOR FUME SEPERATION WALLS.

TYPE A

LOWER WALL ASSEMBLY
(UP TO 3'-4" HT)
(1'-4" TOTAL THICKNESS)

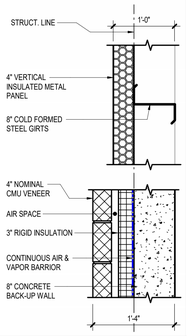
EXTERIOR
- 4" NOMINAL CMU VENEER
- AIR SPACE
- 3" RIGID INSULATION
- CONTINUOUS AIR & VAPOR BARRIER
- 8" CONCRETE BACK-UP WALL

INTERIOR

UPPER WALL ASSEMBLY
(1'-0" TOTAL THICKNESS)

EXTERIOR
- 4" VERTICAL INSULATED METAL PANEL, BREAK METAL TRIM, BY MBM
- 8" COLD FORMED STEEL GIRTS, BY MBM
- STEEL BUILDING FRAME, BY MBM

INTERIOR



TYPE B

LOWER WALL ASSEMBLY
(UP TO 3'-4" HT)
(1'-3 1/2" TOTAL THICKNESS)

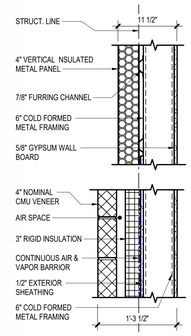
EXTERIOR
- 4" NOMINAL CMU VENEER
- AIR SPACE
- 3" RIGID INSULATION
- CONTINUOUS AIR & VAPOR BARRIER
- 1/2" EXTERIOR SHEATHING
- 6" COLD FORMED METAL FRAMING, AT 16" O.C. MAX.
- 5/8" GYPSUM WALL BOARD

INTERIOR

UPPER WALL ASSEMBLY
(0'-11 1/2" TOTAL THICKNESS)

EXTERIOR
- 4" VERTICAL INSULATED METAL PANEL, BREAK METAL TRIM, BY MBM
- 7/8" FURRING CHANNEL AT 16" O.C., COORDINATE WITH METAL PANEL FASTENER REQUIREMENTS, BY MBM
- 6" COLD FORMED METAL FRAMING, AT 16" O.C. MAX.
- 5/8" GYPSUM WALL BOARD

INTERIOR



TYPE C

LOWER WALL ASSEMBLY
(UP TO 3'-4" HT)
(1'-4" TOTAL THICKNESS)

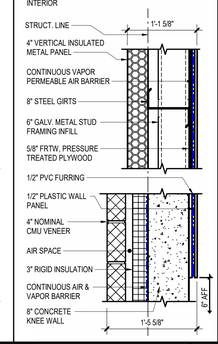
EXTERIOR
- 4" NOMINAL CMU VENEER
- AIR SPACE
- 3" RIGID INSULATION
- CONTINUOUS AIR & VAPOR BARRIER
- 8" CONCRETE BACK-UP WALL (3' - 4" HT)
- CONTINUOUS AIR & VAPOR BARRIER
- 1/2" PVC FURRING SLOPED TO DRAIN, SHIM AS NEEDED
- 1/2" PLASTIC WALL PANEL

INTERIOR

UPPER WALL ASSEMBLY
(1'-1 5/8" TOTAL THICKNESS)

EXTERIOR
- 4" VERTICAL INSULATED METAL PANEL, BREAK METAL TRIM, BY MBM
- 8" COLD FORMED STEEL GIRTS, BY MBM
- 6" GALVANIZED STEEL STUD FRAMING, SPAN BETWEEN HORIZONTAL GIRT FRAMING, TYP
- 5/8" FIRE RETARDENT TREATED, PRESSURE TREATED A-C PLYWOOD SHEATHING AT ALL WASH BAY WALLS, TYP.
- CONTINUOUS VAPOR PERMEABLE AIR BARRIER
- 1/2" PVC FURRING SLOPED TO DRAIN, SHIM AS NEEDED
- 1/2" PLASTIC WALL PANEL

INTERIOR



TYPE D

LOWER WALL ASSEMBLY
(1'-4" TOTAL THICKNESS)

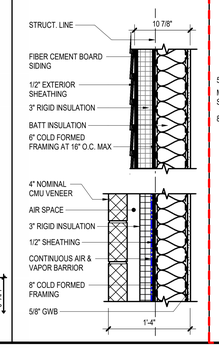
EXTERIOR
- 4" NOMINAL CMU VENEER
- AIR SPACE
- 3" RIGID INSULATION
- CONTINUOUS AIR & VAPOR BARRIER
- 1/2" EXTERIOR SHEATHING
- 6" COLD-FORMED FRAMING W/ BATT INSULATION (R-30 +/-)
- 5/8" GWB

INTERIOR

UPPER WALL ASSEMBLY
(9 3/8" TO OUTSIDE FACE OF SHEATHING)

EXTERIOR
- FIBER CEMENT SIDING
- WEATHER BARRIER
- 1/2" EXTERIOR PLYWOOD SHEATHING
- 3" RIGID INSULATION
- 1/2" EXTERIOR PLYWOOD SHEATHING
- 6" COLD-FORMED FRAMING W/ BATT INSULATION (R-30 +/-)
- 5/8" GWB

INTERIOR



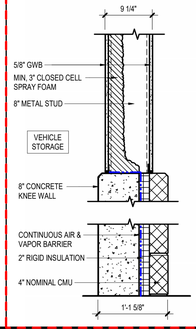
FUME SEPARATION WALL ASSEMBLIES:

TYPE F1

LOWER WALL ASSEMBLY
(1'-4" TOTAL THICKNESS)
(1' - 1 5/8" TOTAL THICKNESS)

- 8" CONC. KNEE WALL
- CONTINUOUS AIR & VAPOR BARRIER
- 2" RIGID INSULATION
- AIR SPACE
- 8" NOMINAL CMU VENEER

UPPER WALL ASSEMBLY
(0" - 9 1/4" TOTAL THICKNESS)
- 5/8" GYPSUM WALL BOARD
- 8" COLD FORMED METAL FRAMING, AT 16" O.C. MAX.
- MIN. 3" CLOSED CELL SPRAY FOAM BETWEEN STUDS
- 5/8" GYPSUM WALL BOARD

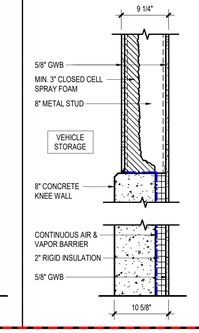


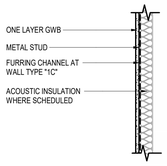
TYPE F2

LOWER WALL ASSEMBLY
(UP TO 3'-4" HT)
(0'-10 5/8" TOTAL THICKNESS)

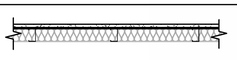
- 8" CONC. KNEE WALL
- CONTINUOUS AIR & VAPOR BARRIER
- 2" RIGID INSULATION & Z-FURRING CHANNEL
- 6" COLD FORMED METAL FRAMING, AT 16" O.C. MAX.
- 5/8" GYPSUM WALL BOARD

UPPER WALL ASSEMBLY
(0'-9 1/4" TOTAL THICKNESS)
- 5/8" GYPSUM WALL BOARD
- 8" COLD FORMED METAL FRAMING, AT 16" O.C. MAX.
- MIN. 3" CLOSED CELL SPRAY FOAM BETWEEN STUDS
- 5/8" GYPSUM WALL BOARD





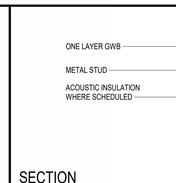
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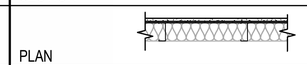
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
1	2 1/2"	5/8"	FULL HEIGHT	3 1/8"	NO	-
1A	2 1/2"	5/8"	FULL HEIGHT	3 1/8"	YES	-
1B	2 1/2"	5/8"	6" ABOVE FINISHED CLG	3 1/8"	NO	-
1C	7/8"	5/8"	6" ABOVE FINISHED CLG	1 1/2"	NO	-

1 2 1/2" METAL STUD



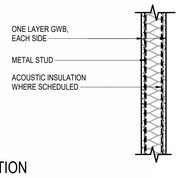
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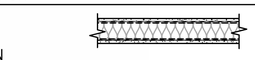
PLAN

MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
2	3 5/8"	5/8"	FULL HEIGHT	4 1/4"	NO	-
2A	3 5/8"	5/8"	FULL HEIGHT	4 1/4"	YES	-
2B	3 5/8"	5/8"	6" ABOVE FINISHED CLG	4 1/4"	NO	-

2 3 5/8" METAL STUD - 1 LAYER GWB - 1 SIDE



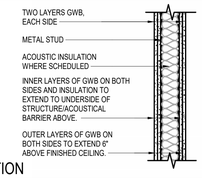
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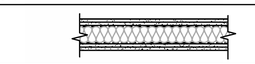
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
3	3 5/8"	5/8"	FULL HEIGHT	4 7/8"	NO	-
3A	3 5/8"	5/8"	FULL HEIGHT	4 7/8"	YES	-
3B	3 5/8"	5/8"	6" ABOVE FINISHED CLG	4 7/8"	NO	-

3 3 5/8" METAL STUD - 1 LAYER GWB - BOTH SIDES



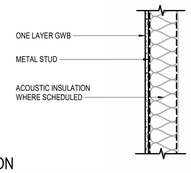
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PLAN

MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
4	3 5/8"	(2) 5/8"	FULL HEIGHT	6 1/8"	NO	-
4A	3 5/8"	(2) 5/8"	6" ABOVE FINISHED CLG	6 1/8"	NO	-
4B - 2H	3 5/8"	(2) 5/8"	FULL HEIGHT	6 1/8"	YES	2 HR PARTITION - U419

4 3 5/8" METAL STUD - 2 LAYER GWB - BOTH SIDES



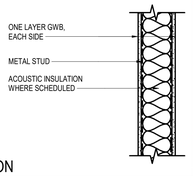
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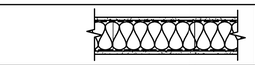
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
5	6"	5/8"	FULL HEIGHT	6 5/8"	NO	-
5A	6"	5/8"	FULL HEIGHT	6 5/8"	YES	-
5B	6"	5/8"	6" ABOVE FINISHED CLG	6 5/8"	NO	-

5 6" METAL STUD - 1 LAYER GWB - 1 SIDE



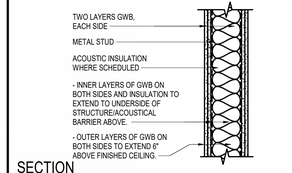
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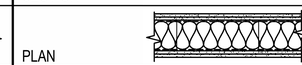
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
6	6"	5/8"	FULL HEIGHT	7 1/4"	NO	-
6A	6"	5/8"	FULL HEIGHT	7 1/4"	YES	-
6B	6"	5/8"	6" ABOVE FINISHED CLG	7 1/4"	NO	-
6C	8"	5/8"	FULL HEIGHT	9 1/4"	NO	-

6 6" METAL STUD - 1 LAYER GWB - BOTH SIDES



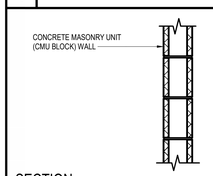
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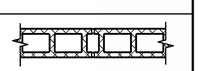
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
7 - 2h	6"	5/8"	FULL HEIGHT	8 1/2"	YES	2 HR PARTITION - U411

7 6" METAL STUD - 2 LAYERS GWB - BOTH SIDES



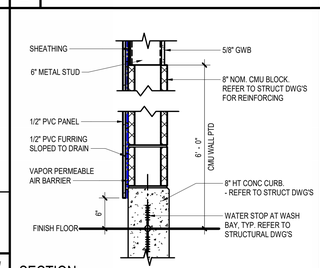
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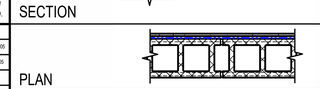
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MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
8A	8" NOM	-	-	7 5/8"	NO	-
8A - 1H	8" NOM	-	-	7 5/8"	NO	1 HR PARTITION - U905
8A - 2H	8" NOM	-	-	7 5/8"	NO	2 HR PARTITION - U905

8 CMU WALLS



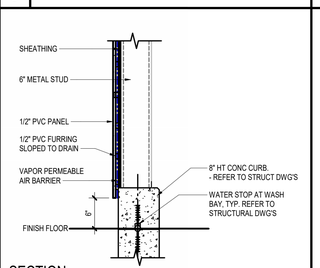
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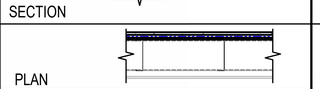
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MARK	ASSEMBLY DESCRIPTION
16	PARTITION CMU WALL

16 VEHICLE WASH BAY WALL ASSEMBLIES



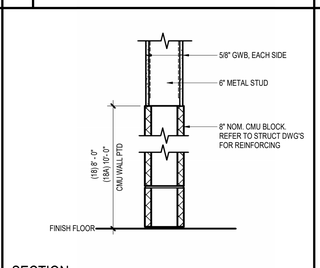
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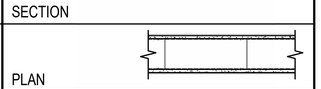
PLAN

MARK	ASSEMBLY DESCRIPTION
16A	PARTITION CMU WALL

16 VEHICLE WASH BAY WALL ASSEMBLIES



SECTION



PLAN

MARK	CORE SIZE	GWB THICK	GWB HEIGHT	TOTAL PARTITION THICK	ACOUSTIC INSUL	FIRE RATING / UL DESIGN NO.
18	VARIES	5/8"	FULL HEIGHT	VARIES	NO	-
18A	VARIES	5/8"	FULL HEIGHT	VARIES	NO	-

18 STACKED PARTITION: 8" CMU / 6" METAL STUD - 1 LAYER GWB - BOTH SIDES

0" 6" 1' 2"
SCALE: 1" = 1'-0"

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

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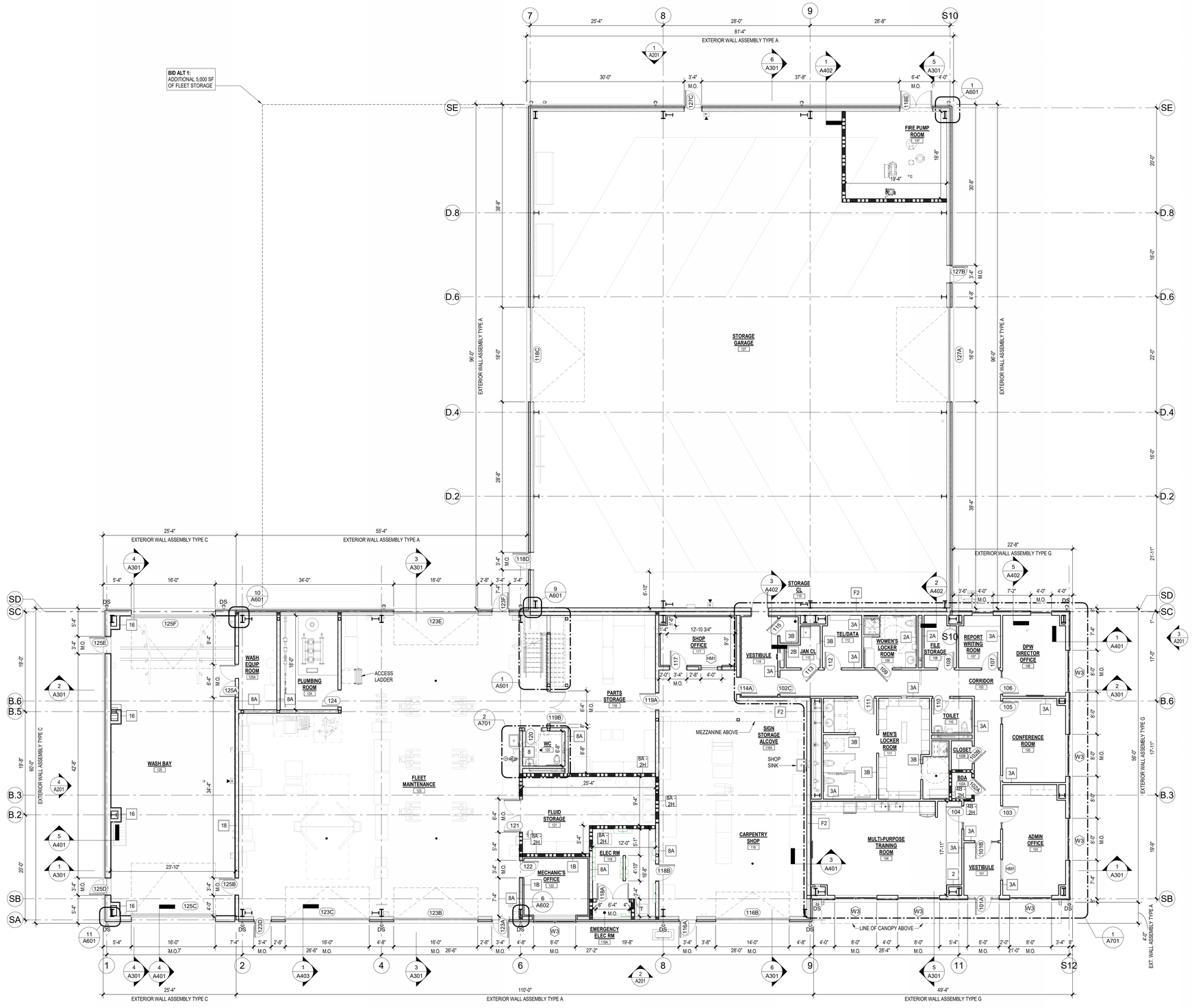
Date: OCTOBER 31, 2025
Drawn By: MMS
Reviewed By: DRD
Approved By: JRC
W&S Project No.: ENG24-1552
W&S File No.: XXX

Drawing Title:
PARTITION TYPES & EXTERIOR WALL ASSEMBLIES

Sheet Number:
A031

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BID ALT 1:
ADDITIONAL 5,000 SF
OF FLEET STORAGE



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

FLOOR PLAN GENERAL NOTES:

1. EQUIPMENT SHOWN FOR REFERENCE ONLY. SEE EQ DRAWINGS FOR MORE INFO.
2. FURNITURE SHOWN FOR INFORMATION ONLY (N.I.C.). SEE FURNITURE PLAN A921 FOR MORE INFO.
3. F.E. = FIRE EXTINGUISHER.
   F.E.C = FIRE EXTINGUISHER CABINET
   - BRACKET MOUNTED
   - CABINET MOUNTED (SEMI-RECESSED)
4. ALL INTERIOR DIMENSIONS ARE TAKEN FROM FACE OF GYPSUM WALL BOARD TO FACE OF GYPSUM WALL BOARD OR FACE OF CMU UNLESS SPECIFICALLY NOTED OTHERWISE.
5. SEE SHEET A012 FOR PLUMBING FIXTURE SCHEDULE / MOUNTING HEIGHTS.
6. BOLLARDS:
   - EB: EXTERIOR BOLLARD, 6" DIAMETER (SEE CIVIL DWGS)
   - IB: INTERIOR BOLLARD, 6" DIAMETER (SEE DETAIL X / AXXX)
7. FUME SEPARATION PARTITION, SEE A031 - FUME SEPARATION ASSEMBLY, TYPE F1 AND F2.
8. BOX-OUT DIMENSIONS AT STRUCTURAL COLUMNS ARE APPROXIMATE. GENERAL CONTRACTOR TO INSTALL TIGHT TO STRUCTURE, TYPICAL.
9. NOT ALL TV / MONITOR LOCATIONS ARE SHOWN. COORDINATE PROPOSED LOCATIONS WITH ELECTRICAL &TELECOMMUNICATIONS DRAWINGS. PROVIDE BLOCKING AT EACH LOCATION ACCORDINGLY.
10. CG — CORNER GUARD, SEE A901 FOR LOCATIONS.

UNDERSLAB RIGID INSULATION LEGEND:

A) ADMINISTRATION RIGID INSULATION
1. R-10 RIGID INSULATION
   - STANDARD COMPRESSIVE STRENGTH - 25 PSI
   - BENEATH SLAB, 4' INWARD FROM FOUNDATION WALL
2. R-15 RIGID INSULATION
   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

B) VEHICLE STORAGE, SHOPS RIGID INSULATION
1. R-10 RIGID INSULATION
   - HIGH COMPRESSIVE STRENGTH - 60 PSI
   - BENEATH SLAB, 4' INWARD FROM FOUNDATION WALL
2. R-15 RIGID INSULATION
   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

C) MAINTENANCE BAY & SHOPS RIGID INSULATION
1. R-10 RIGID INSULATION
   - HIGH COMPRESIVE STRENGTH - 60 PSI
   - BENEATH SLAB, COMPLETELY ACROSS EXTENTS
2. R-15 DOWN TO TOP OF FOOTING
   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

REFER TO 1, 2 & 3 / A612 FOR TYPICAL RADIANT HEATED SLAB VAPOR RETARDER DETAILS



2 UNDERSLAB RIGID INSULATION LOCATIONS
1" = 40'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

Project:
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No.	Date	Description

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Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
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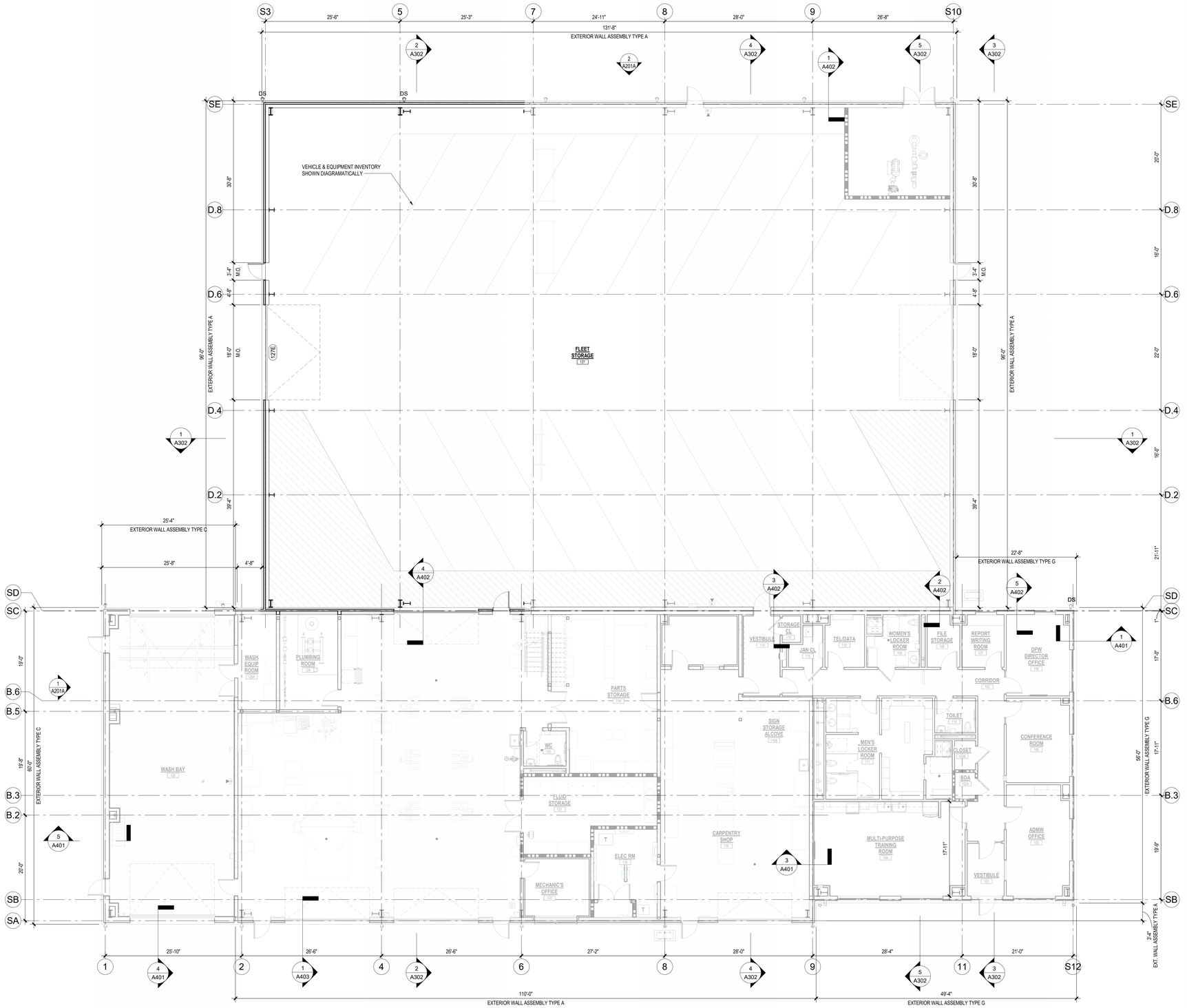
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OVERALL FLOOR PLAN - BASE

Sheet Number:

A101

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1 FIRST FLOOR PLAN - BID ALT 1
1/8" = 1'-0" 4/ A106



2 UNDERSLAB RIGID INSULATION LOCATIONS
1" = 40'-0" 4/ A106

FLOOR PLAN GENERAL NOTES:

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7. FUME SEPARATION PARTITION, SEE A031 - FUME SEPARATION ASSEMBLY, TYPE F1 AND F2.
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UNDERSLAB RIGID INSULATION LEGEND:

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   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

B) VEHICLE STORAGE, SHOPS RIGID INSULATION
1. R-10 RIGID INSULATION
   - HIGH COMPRESSIVE STRENGTH - 60 PSI
   - BENEATH SLAB, 4' INWARD FROM FOUNDATION WALL
2. R-15 RIGID INSULATION
   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

C) MAINTENANCE BAY & SHOPS RIGID INSULATION
1. R-10 RIGID INSULATION
   - HIGH COMPRESIVE STRENGTH - 60 PSI
   - BENEATH SLAB, COMPLETELY ACROSS EXTENTS
2. R-15 DOWN TO TOP OF FOOTING
   - ON EXTERIOR FACE OF FOUNDATION WALL TO TOP OF FOOTING

REFER TO 1, 2 & 3 / A612 FOR TYPICAL RADIANT HEATED SLAB VAPOR RETARDER DETAILS

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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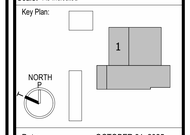
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W&S File No.:	XXX

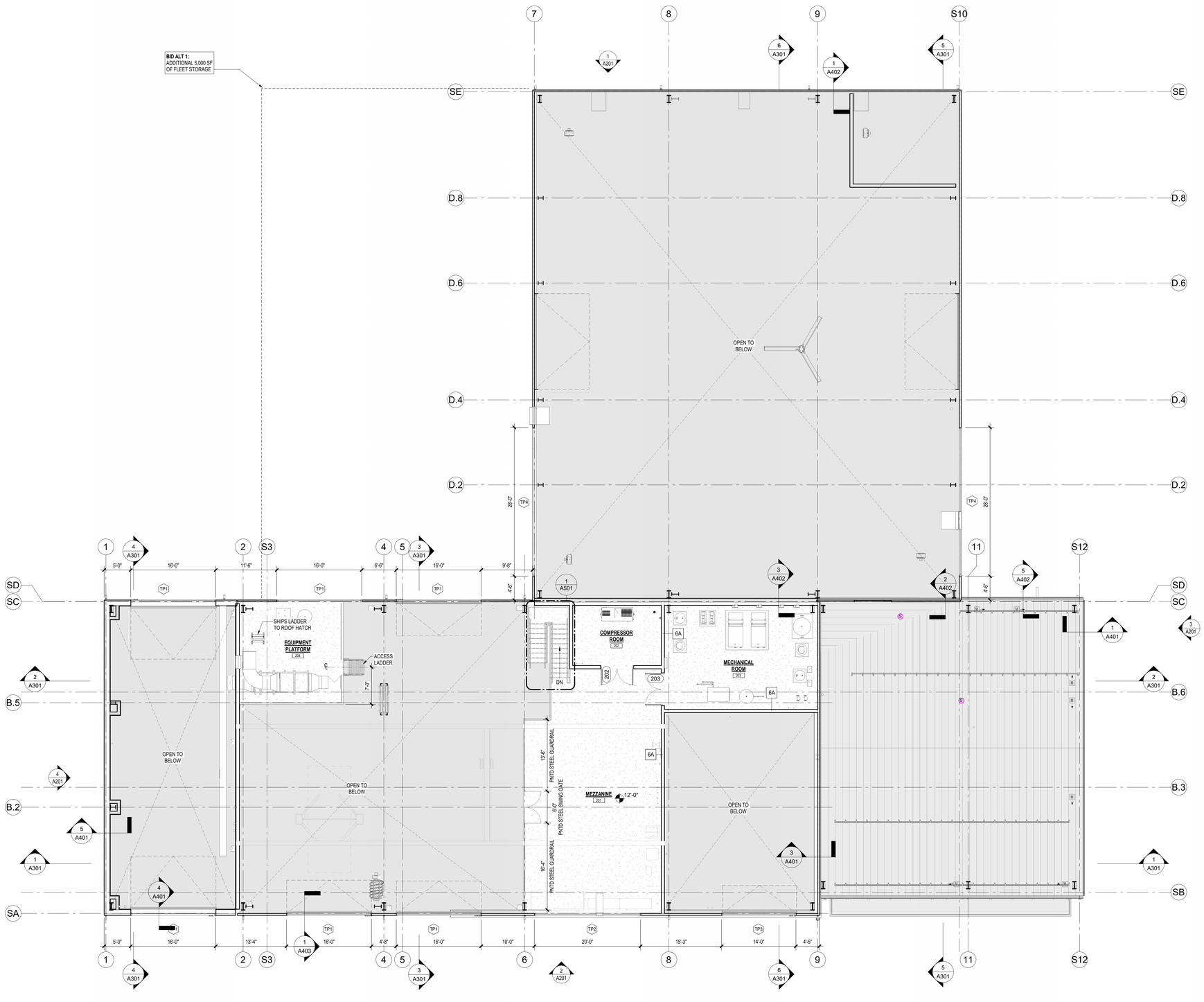
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OVERALL FLOOR PLAN - BID ALT 1

Sheet Number:
A101A

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MEZZANINE GENERAL NOTES:

1. AT EACH MEZZANINE SWING GATE LOCATION, PROVIDE 4" H (RED) LETTER SIGNAGE AT MEZZANINE FASCIA TO READ: 200LBS/SF MAXIMUM MEZZANINE LOADING
2. PROVIDE SAFETY CHAIN PER OSHA STANDARDS AT EACH SWING GATE.
3. PROVIDE SAFETY YELLOW PAINT AT MEZZANINE FLOOR AT EACH SWING GATE, AS INDICATED.
4. COORDINATE EXACT LOCATION WITH MECHANICAL, STRUCTURAL AND EQUIPMENT REQUIREMENTS.
5. DO NOT RUN ANY UTILITIES BELOW GATES EXPOSED AND MOUNTED TO WALLS.
6. PROVIDE TIE-OFF POINT FOR OSHA FALL ARREST SYSTEM NEAR MEZZANINE SWING-GATE ON PRIMARY STRUCTURAL ELEMENT.



1 MEZZANINE PLAN
1/8" = 1'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

OVERALL MEZZANINE PLAN - BASE

Sheet Number:

A102

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

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

1. REFER TO M.E.P / F.P. DRAWINGS FOR LOCATION OF LIGHT FIXTURES, SPRINKLER HEADS, SUPPLIES, RETURNS AND ADDITIONAL CEILING INFORMATION.
2. ALL DIFFUSERS, SPRINKLER HEADS, ETC. AT ACT AREAS TO BE CENTERED ON TILE.
3. SUSPENDED ACT AT 9'-4" AFF UNLESS NOTED OTHERWISE (U.N.O.)
4. ALL GWB CEILINGS AND SOFFITS AT 9'-4" AFF (U.N.O.)
5. COORDINATE QUANTITY AND LOCATION OF LIGHT FIXTURES WITH ELECTRICAL DRAWINGS.
6. LIGHT FIXTURE SYMBOLS ON REFLECTED CEILING PLANS ARE DIAGRAMMATIC FOR REFERENCE ONLY. REFER TO ELECTRICAL DRAWINGS FOR TYPE OF LIGHT FIXTURES. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR QUANTITY OF LIGHT FIXTURES AS INDICATED ON THE ELECTRICAL DRAWINGS.
7. FOR CEILING HEIGHTS AND TYPES, REFER TO REFLECTED CEILING PLAN DRAWINGS.
8. NO SUSPENDED LOADS SHALL BE SUPPORTED BY THE ROOF DECK. THIS INCLUDES PIPING, DUCTWORK, MECHANICAL EQUIPMENT, STAGE RIGGING, CEILING, ETC. ALL STEEL FRAMING MEMBERS PREFERABLY UTILIZING A SYSTEM OF UNISTRUTS, BEAM CLAMPS, AND THREADED RODS. ALL ATTACHMENT DEVICES SHALL BE SUBMITTED FOR REVIEW AND ARE SUBJECT TO APPROVAL OF THE DESIGNER.
9. COORDINATE QUANTITY AND LOCATION FOR EXIT SIGNS WITH ELECTRICAL DRAWINGS.
10. COORDINATE QUANTITY AND LOCATION OF SPRINKLERS WITH FIRE PROTECTION DRAWINGS.

REFLECTED CEILING PLAN LEGEND:

CEILING TYPES:

- **TYPE A1**: 2' x 2' SUSPENDED ACOUSTICAL PANEL
- **TYPE A2**: 2' x 2' SUSPENDED ACOUSTICAL PANEL - MOISTURE RESISTANT
- **TYPE G1**: GYPSUM BOARD CEILING
- **TYPE G2**: GYPSUM BOARD CEILING - MOISTURE RESISTANT
- **TYPE G3**: 2-HR FIRE RATED CEILING UL DESIGN NO. U415

- XX — SOFFIT DETAIL - REFER TO CEILING SERIES
- TYPE / A / X'-X" / HEIGHT — CEILING TAG
- LIGHT FIXTURES
- SURFACE MTD. LIGHT FIXTURE
- TRACK LIGHTING
- SUPPLY DIFFUSER - REF: MECH DWGS
- RETURN VENT - REF: MECH DWGS
- EXHAUST VENT - REF: MECH DWGS
- CLG. MTD. / EXTERIOR SECURITY CAMERA
- R.H. — RADIANT HEATER
- C.U.H. — CABINET UNIT HEATER
- U.H. — UNIT HEATER
- EXIT SIGN
- MOTION DETECTOR
- SD — SMOKE DETECTOR
- OS — OCCUPANCY SENSOR
- PS — CEILING PHOTO SENSOR
- S — CEILING FLUSH MOUNTED SPEAKER
- F — FIRE ALARM SPEAKER / VISUAL SIGNAL
- F CLG — CEILING MOUNTED FIRE ALARM SPEAKER / VISUAL SIGNAL
- F — FIRE ALARM VISUAL SIGNAL
- CEILING MOUNTED SPRINKLER
- WALL MOUNTED SPRINKLER

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No.	Date	Description

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DESIGN DEVELOPMENT

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

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

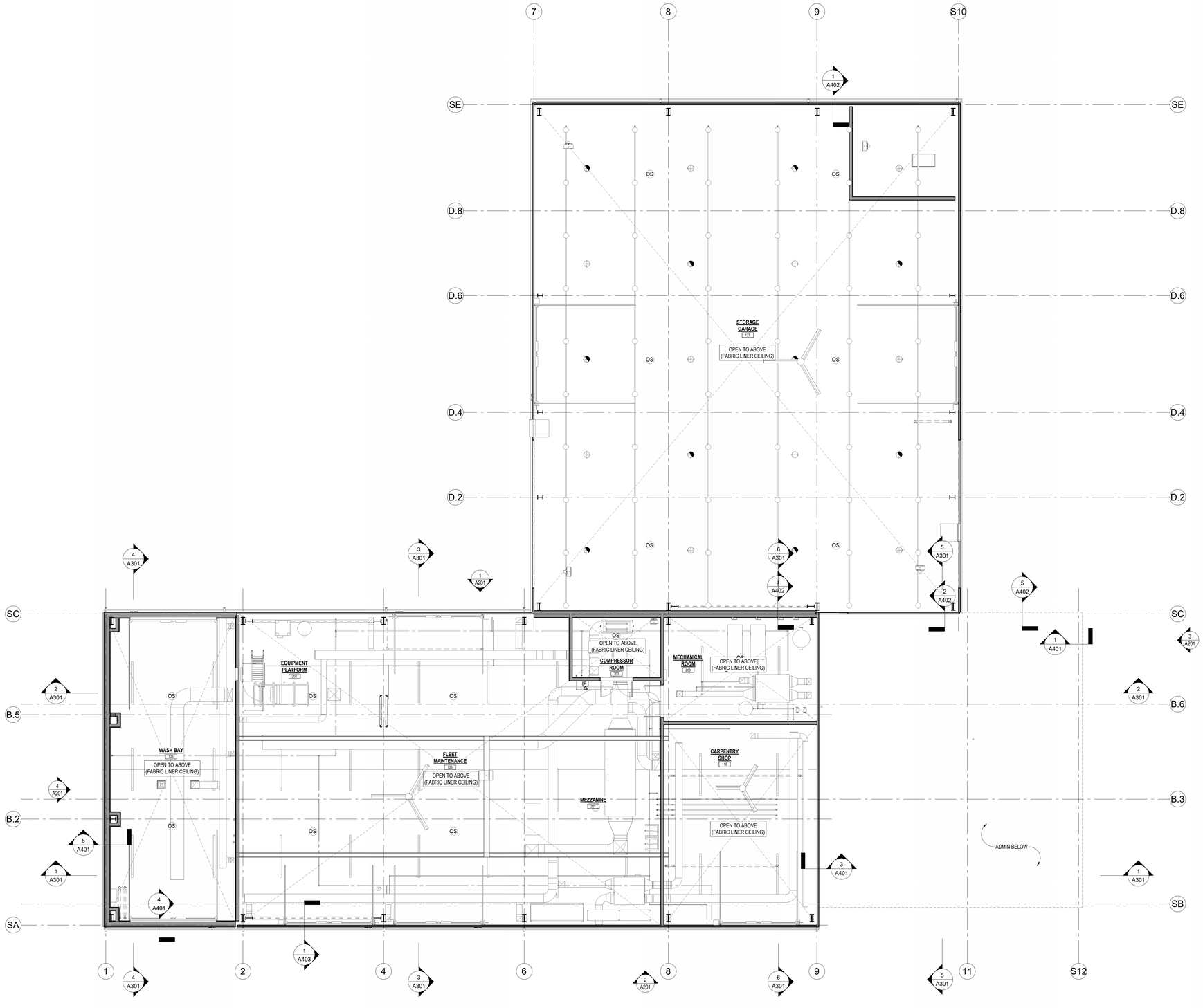
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OVERALL REFLECTED CEILING PLAN - BELOW MEZZANINE - BASE

Sheet Number:

A103

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1 MEZZANINE RCP
1/8" = 1'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

1. REFER TO M.E.P / F.P. DRAWINGS FOR LOCATION OF LIGHT FIXTURES, SPRINKLER HEADS, SUPPLIES, RETURNS AND ADDITIONAL CEILING INFORMATION.
2. ALL DIFFUSERS, SPRINKLER HEADS, ETC. AT ACT AREAS TO BE CENTERED ON TILE.
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7. FOR CEILING HEIGHTS AND TYPES, REFER TO REFLECTED CEILING PLAN DRAWINGS.
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9. COORDINATE QUANTITY AND LOCATION FOR EXIT SIGNS WITH ELECTRICAL DRAWINGS.
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REFLECTED CEILING PLAN LEGEND:

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- **TYPE G3**: 2-HR FIRE RATED CEILING UL DESIGN NO. U415

- XX — SOFFIT DETAIL - REFER TO CEILING SERIES
- TYPE — A | X'-X" — HEIGHT: CEILING TAG
- LIGHT FIXTURES
- SURFACE MTD. LIGHT FIXTURE
- TRACK LIGHTING
- SUPPLY DIFFUSER - REF: MECH DWGS
- RETURN VENT - REF: MECH DWGS
- EXHAUST VENT - REF: MECH DWGS
- CLG. MTD. / EXTERIOR SECURITY CAMERA
- R.H. — RADIANT HEATER
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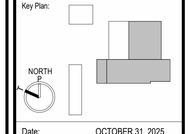
Seal:

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DESIGN DEVELOPMENT

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

Key Plan:



Date:	OCTOBER 31, 2025
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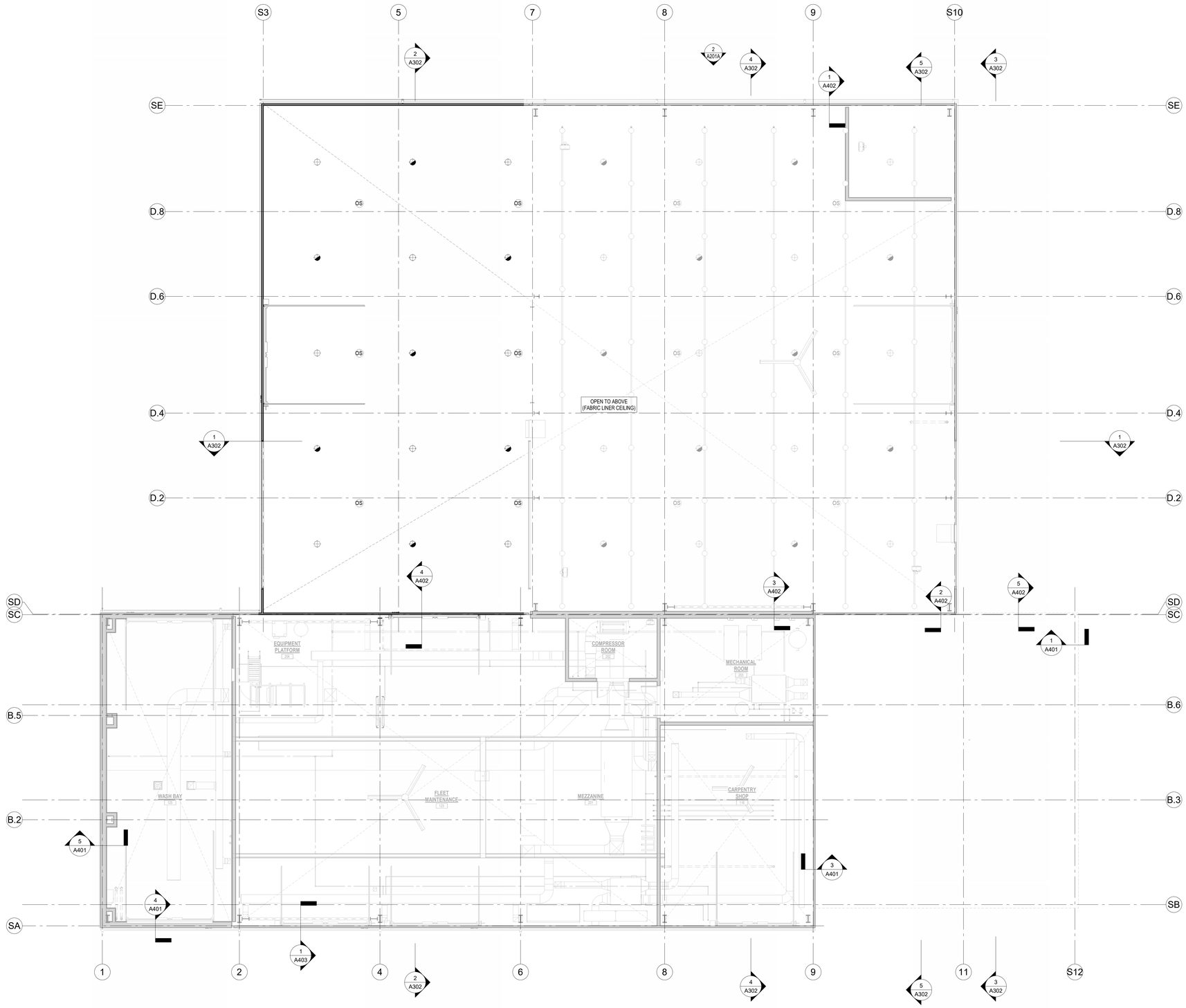
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OVERALL REFLECTED CEILING PLAN - ABOVE MEZZANINE - BASE

Sheet Number:

A104

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1 MEZZANINE RCP - BID ALT 1
1/8" = 1'-0" 3/ A201

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

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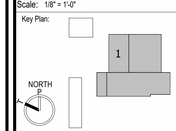
Seal:

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DESIGN DEVELOPMENT

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

Key Plan:



Date:	OCTOBER 31, 2025
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W&S File No.:	XXX

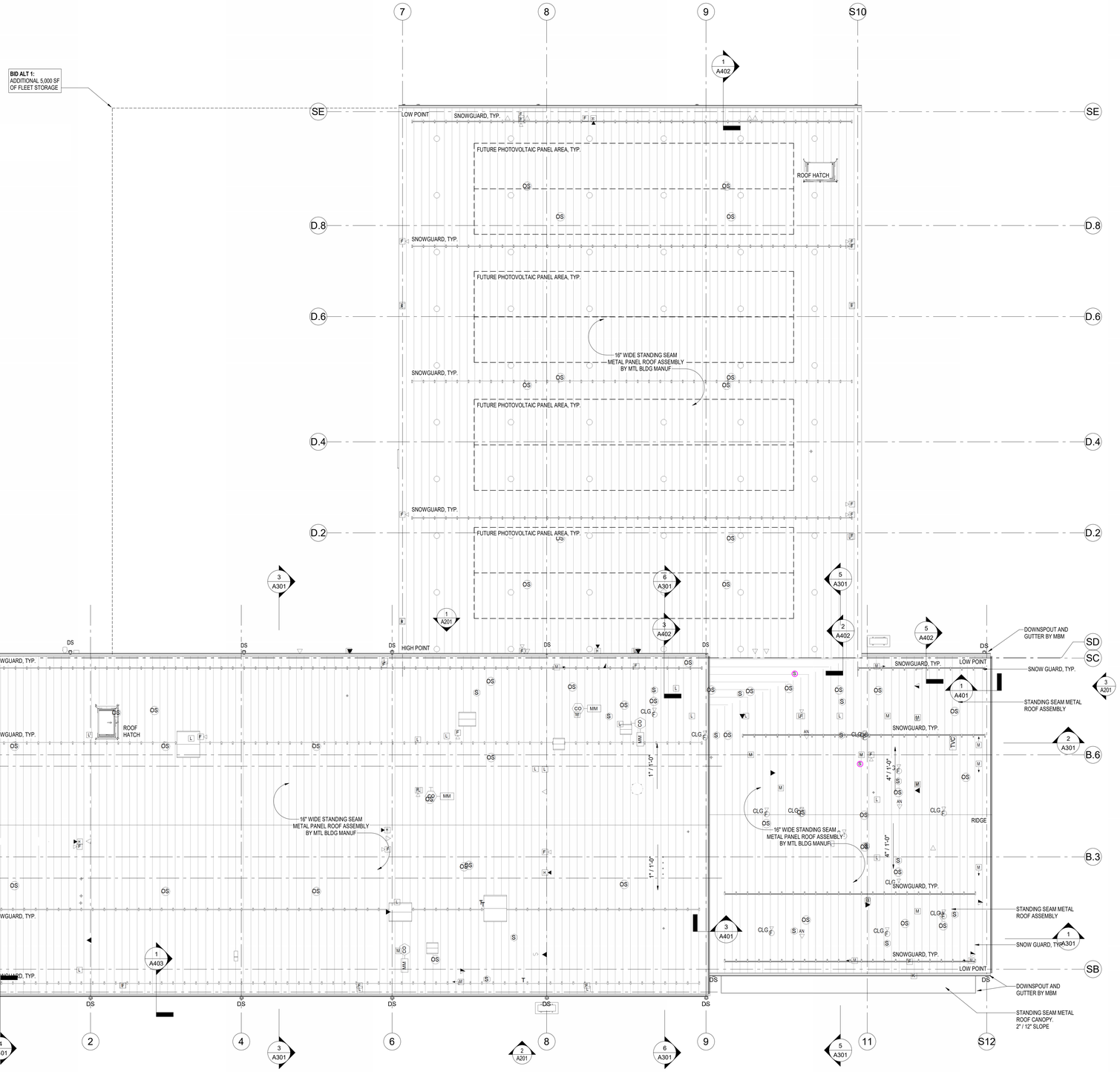
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OVERALL REFLECTED CEILING PLAN - ABOVE MEZZANINE - BID ALT 1

Sheet Number:

A104A

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1 OVERALL ROOF PLAN - BASE
1/8" = 1'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

GENERAL ROOF NOTES - METAL BUILDINGS

1. REFER TO EQUIPMENT, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL ROOF PENETRATIONS AND EQUIPMENT NOT SHOWN. ANY DISCREPANCIES REGARDING LOCATION OF EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION IN FIELD.
2. ROOF SLOPE VARIES
3. SEE GENERAL NOTES ON A012
4. ALL GUTTERS TO PITCH TOWARDS DOWNSPOUTS AT A MINIMUM 1/16" PER FOOT AND SUPPORTED AS PER METAL BUILDING MANUFACTURER.
5. ROOF PENETRATIONS TO BE CUT AND FLASHED BY METAL BUILDING MANUFACTURER.
6. PROVIDE ROOF FLASHING AT ALL PENETRATIONS INCLUDING BUT NOT LIMITED TO VENT STACKS, FLUES, AND EXHAUST FANS. REVIEW PLUMBING, EQUIPMENT, MECHANICAL, AND ELECTRICAL DRAWINGS FOR CONSTRUCTION NOT INDICATED ON THIS DRAWING.
7. PROVIDE CRICKETS AT ALL ROOFTOP EQUIPMENT AND PENETRATIONS TO CREATE ADEQUATE ROOF DRAINAGE.
8. SUPPLEMENTAL FRAMING AND CURBS FOR ALL ROOFTOP EQUIPMENT SHALL BE PROVIDED AND INSTALLED BY THE METAL BUILDING MANUFACTURER.

STANDING SEAM METAL ROOF ASSEMBLY BY MBM

- STANDING SEAM METAL ROOF PANEL
- R-5 THERMAL BLOCKS AT PURLINS W/ UNFACED BATT INSULATION BETWEEN THERMAL BLOCKS (UPPER INSULATION LAYER)
- UNFACED BATT INSULATION LAYER BETWEEN PURLINS (STRUCTURE INSULATION LAYER)
- FABRIC LINER / VAPOR RETARDER, TAPE AND SEAL
- ALL PENETRATIONS AND EDGES
- MINIMUM R-VALUE OF 38

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Date:	OCTOBER 31, 2025
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Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
OVERALL ROOF PLAN - BASE

Sheet Number:
A105

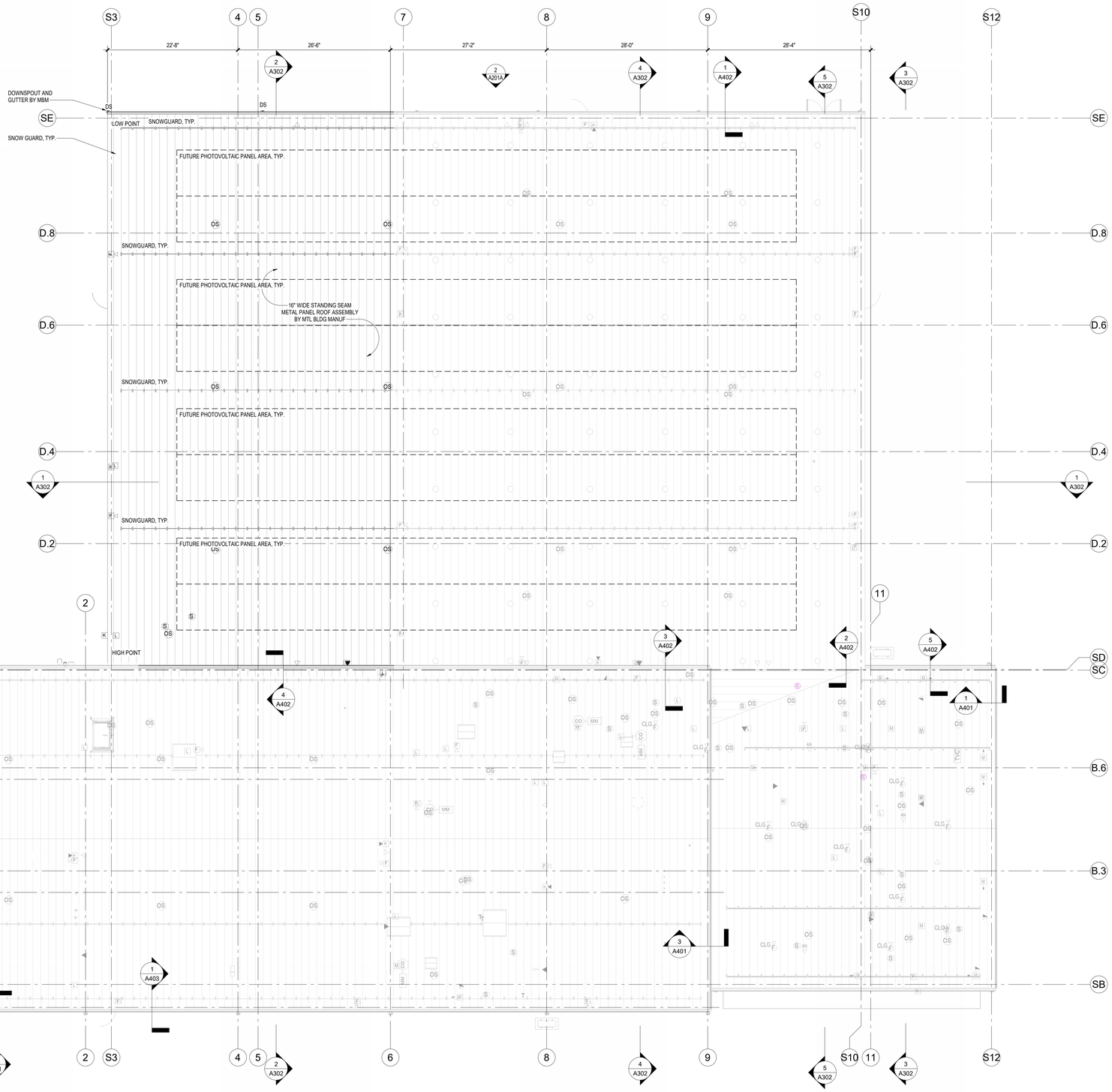
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GENERAL ROOF NOTES - METAL BUILDINGS

1. REFER TO EQUIPMENT, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL ROOF PENETRATIONS AND EQUIPMENT NOT SHOWN. ANY DISCREPANCIES REGARDING LOCATION OF EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION IN FIELD.
2. ROOF SLOPE VARIES
3. SEE GENERAL NOTES ON A012
4. ALL GUTTERS TO PITCH TOWARDS DOWNSPOUTS AT A MINIMUM 1/16" PER FOOT AND SUPPORTED AS PER METAL BUILDING MANUFACTURER.
5. ROOF PENETRATIONS TO BE CUT AND FLASHED BY METAL BUILDING MANUFACTURER.
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STANDING SEAM METAL ROOF ASSEMBLY BY MBM

- STANDING SEAM METAL ROOF PANEL
- R-5 THERMAL BLOCKS AT PURLINS W/ UNFACED BATT INSULATION BETWEEN THERMAL BLOCKS (UPPER INSULATION LAYER)
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- ALL PENETRATIONS AND EDGES
- MINIMUM R-VALUE OF 38



1 OVERALL ROOF PLAN - BID ALT 1
1/8" = 1'-0" 3/ A201

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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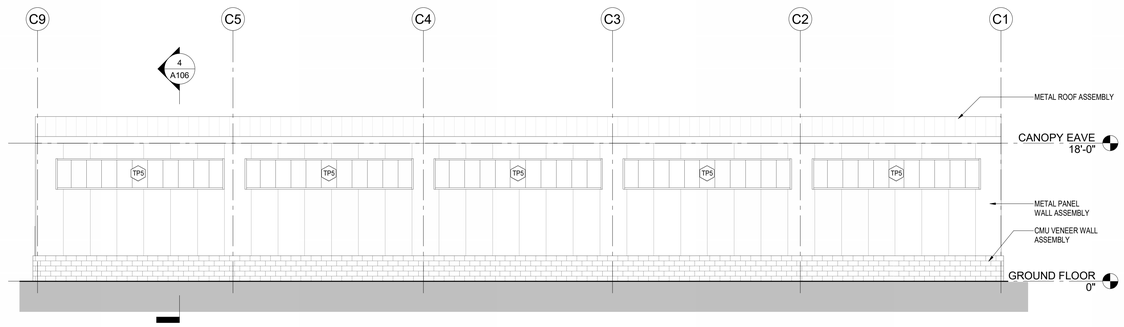
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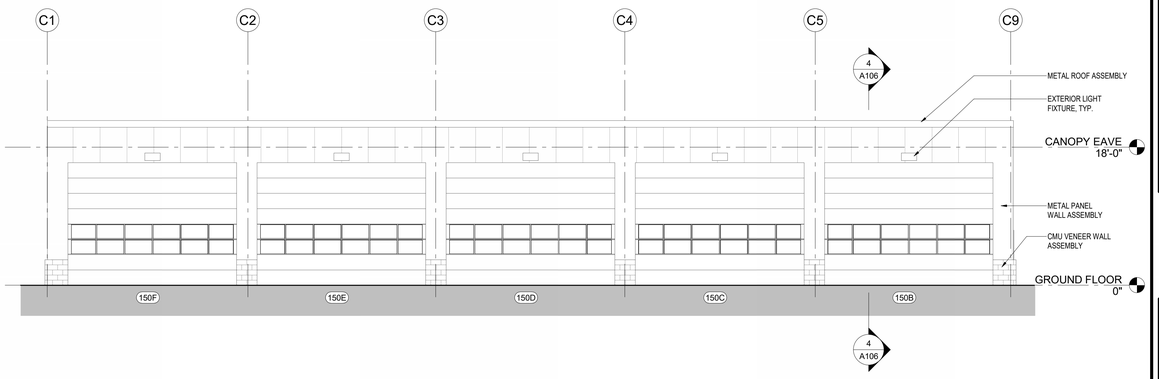
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OVERALL ROOF PLAN - BID ALT 1

Sheet Number:
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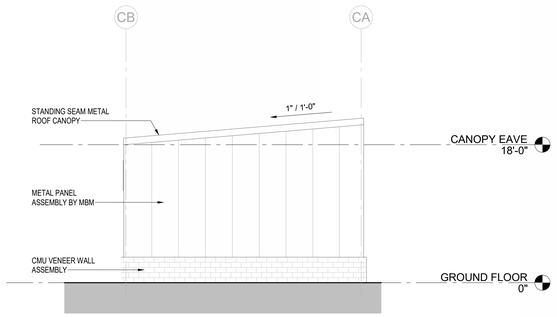
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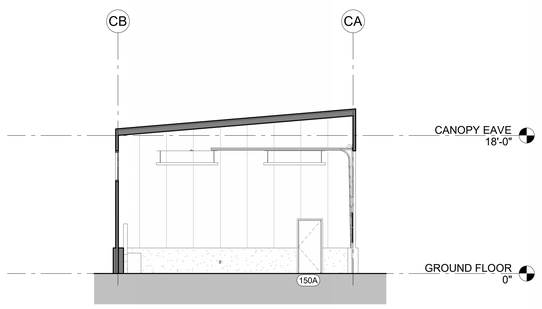
6 NORTH ELEVATION - SECONDARY STORAGE BUILDING
1/8" = 1'-0" 1/ A106



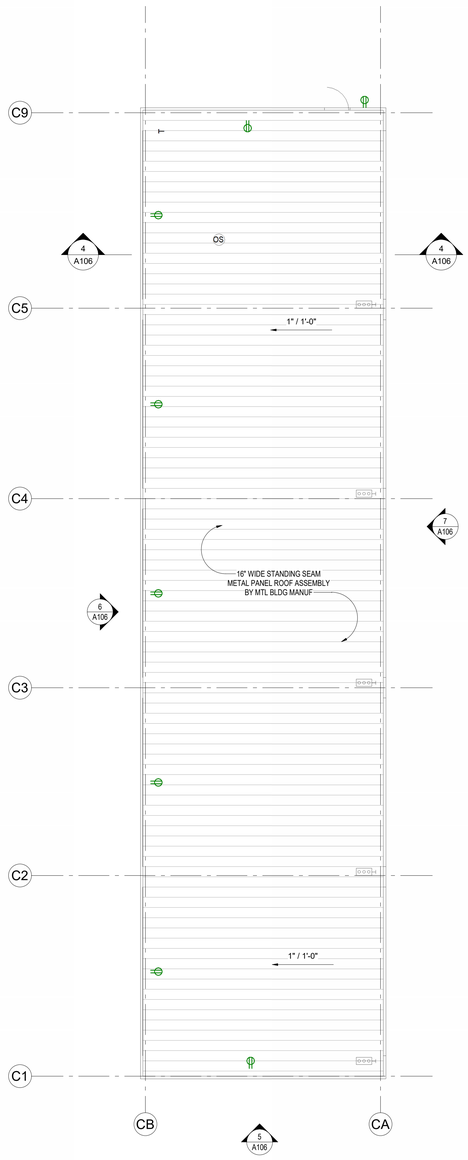
7 SOUTH ELEVATION - SECONDARY STORAGE BUILDING
1/8" = 1'-0" 1/ A106



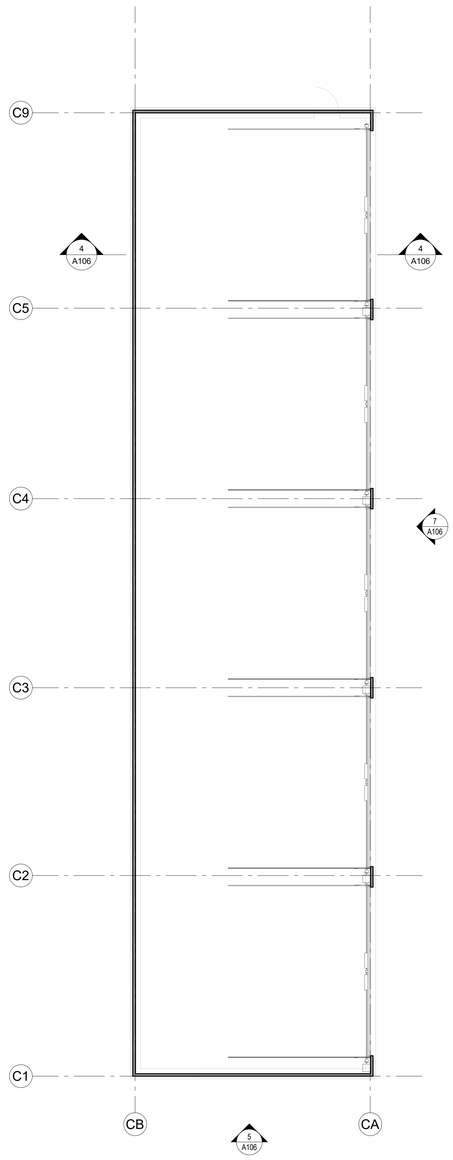
5 WEST ELEVATION - STORAGE CANOPY
1/8" = 1'-0"



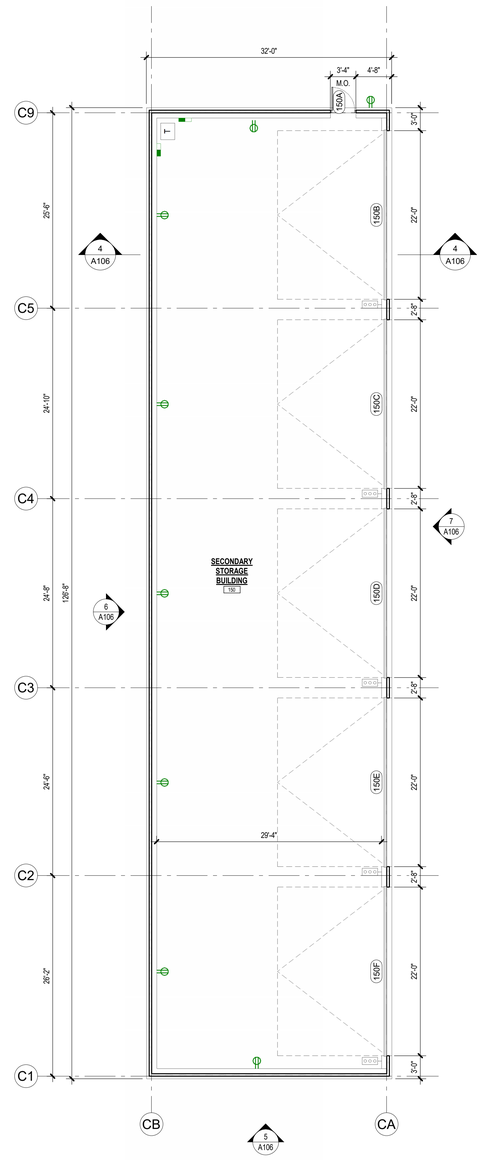
4 BUILDING SECTION - STORAGE CANOPY
1/8" = 1'-0"



3 ROOF PLAN - STORAGE CANOPY
1/8" = 1'-0"



2 RCP - STORAGE CANOPY
1/8" = 1'-0"



1 FLOOR PLAN - STORAGE CANOPY
1/8" = 1'-0"

0' 4' 8' 16'
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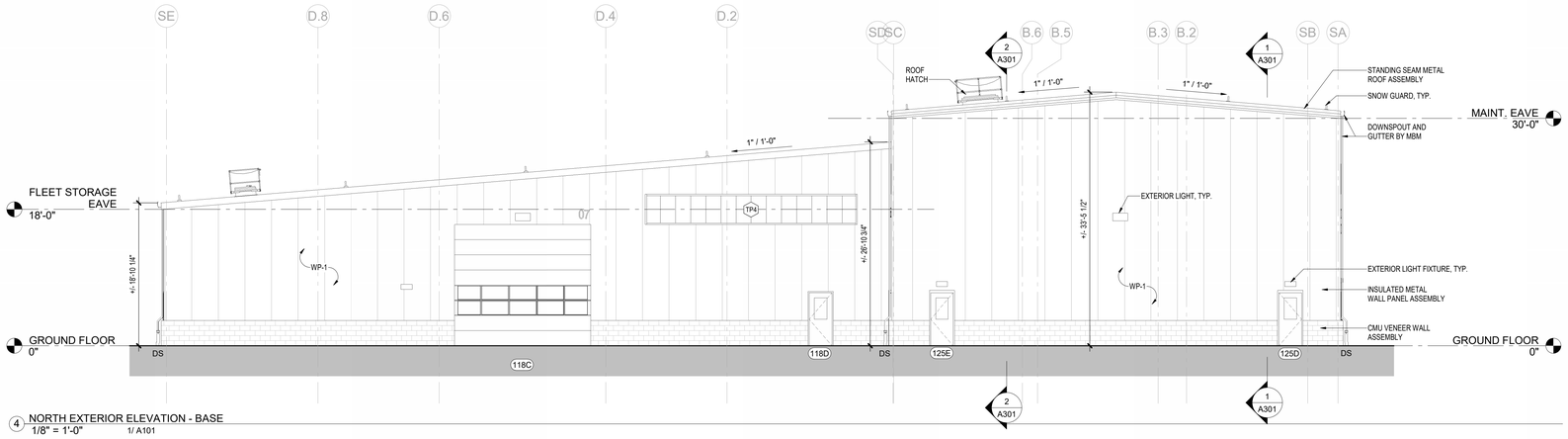
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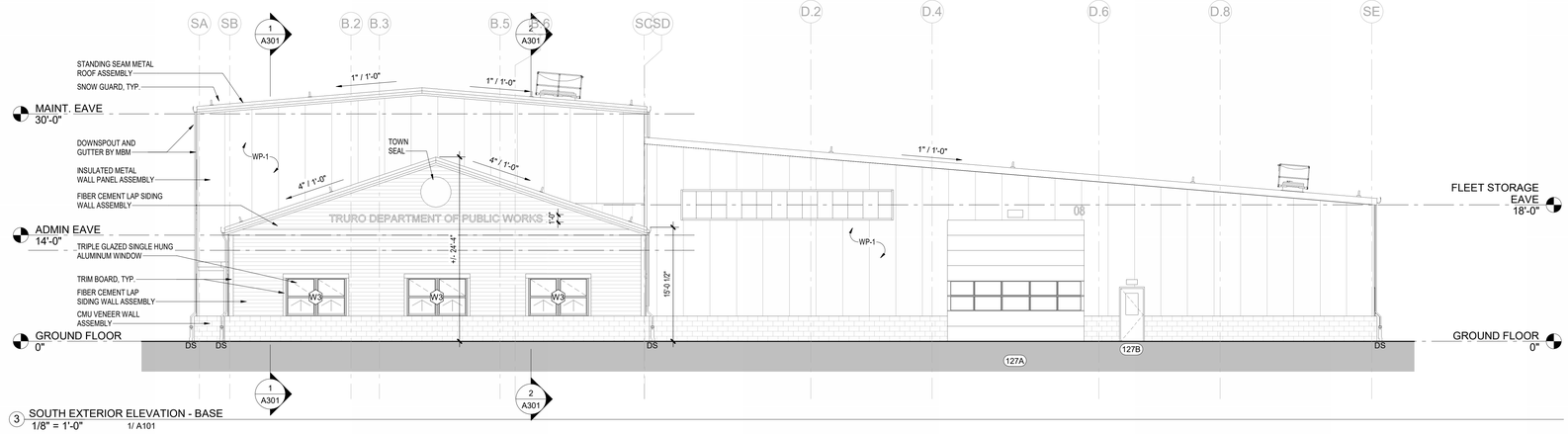
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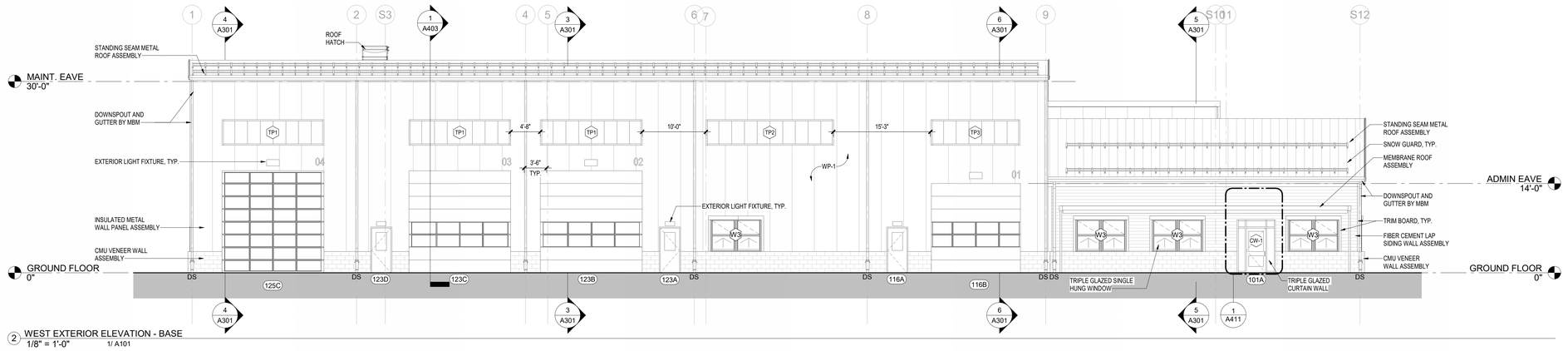
Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

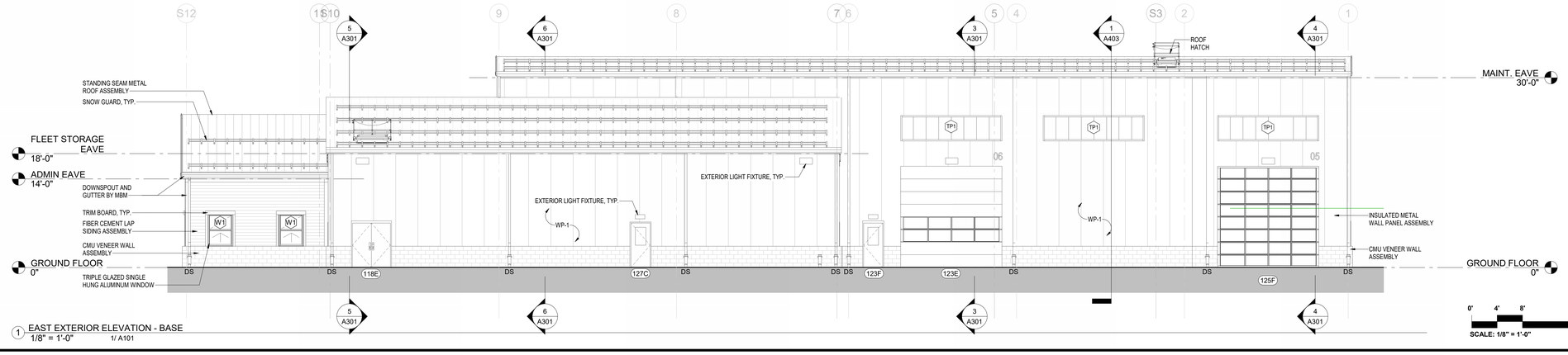
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BID ALT #2 - STORAGE BUILDING PLANS & ELEVATIONS

Sheet Number:
A106









WALL PANEL TYPES LEGEND:

EXTENTS OF WALL PANEL - WP-1, INSULATED METAL WALL PANELS

CMU VENEER LEGEND:

CONTROL JOINT LOCATION - REFER TO X / AXXX FOR ADDITIONAL INFO

TYPE 1 - STANDARD GROUND FACE MASONRY BLOCK: 8" X 16"

MINERAL FIBER CEMENT SIDING LEGEND:

FIBER CEMENT SHINGLE / SHAKE WALL PANEL SIDING

FIBER CEMENT LAP SIDING

NOTES:
1. COORDINATE OPENINGS NOT SHOWN WITH EQUIPMENT AND MEP/FP DRAWINGS.
2. FOR MOCK-UP REQUIREMENTS, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

Project:
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www.westonandsampson.com

Consultants:

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Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

EXTERIOR ELEVATIONS - BASE BID

Sheet Number:

A201

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WALL PANEL TYPES LEGEND:

EXTENTS OF WALL PANEL - WP-1,
INSULATED METAL WALL PANELS

CMU VENEER LEGEND:

CONTROL JOINT LOCATION
- REFER TO X / AXXX FOR ADDITIONAL INFO

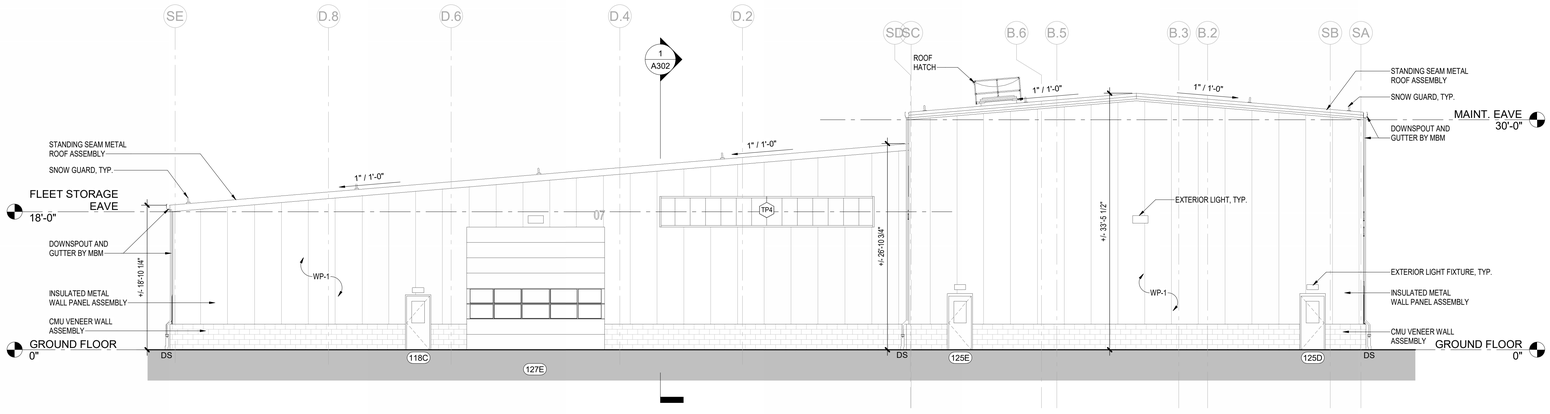
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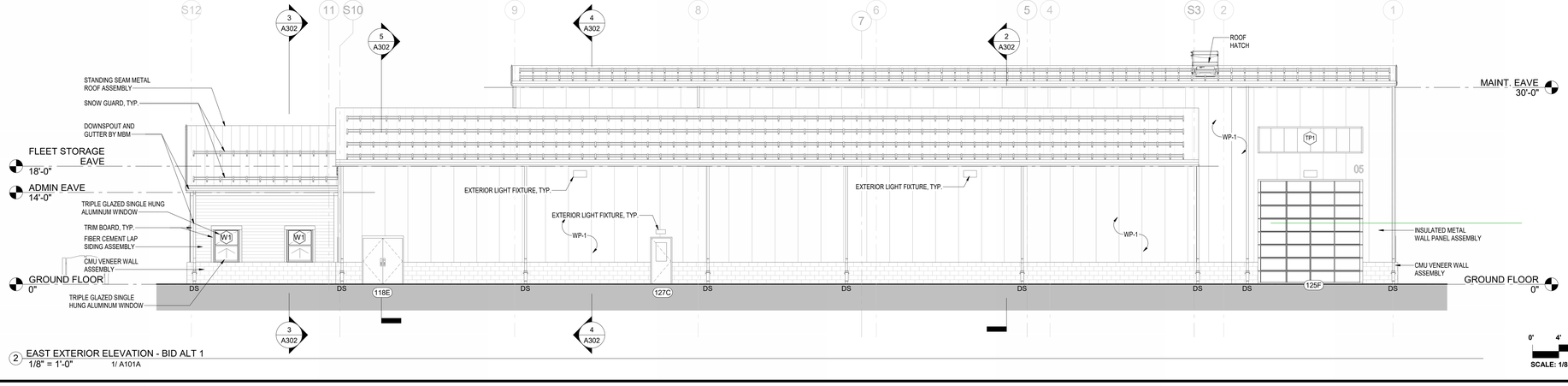
FIBER CEMENT SHINGLE /
SHAKE WALL PANEL SIDING

FIBER CEMENT LAP SIDING

NOTES:
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1 NORTH EXTERIOR ELEVATION - BID ALT 1
1/8" = 1'-0"



2 EAST EXTERIOR ELEVATION - BID ALT 1
1/8" = 1'-0" 1/ A101A

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

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Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

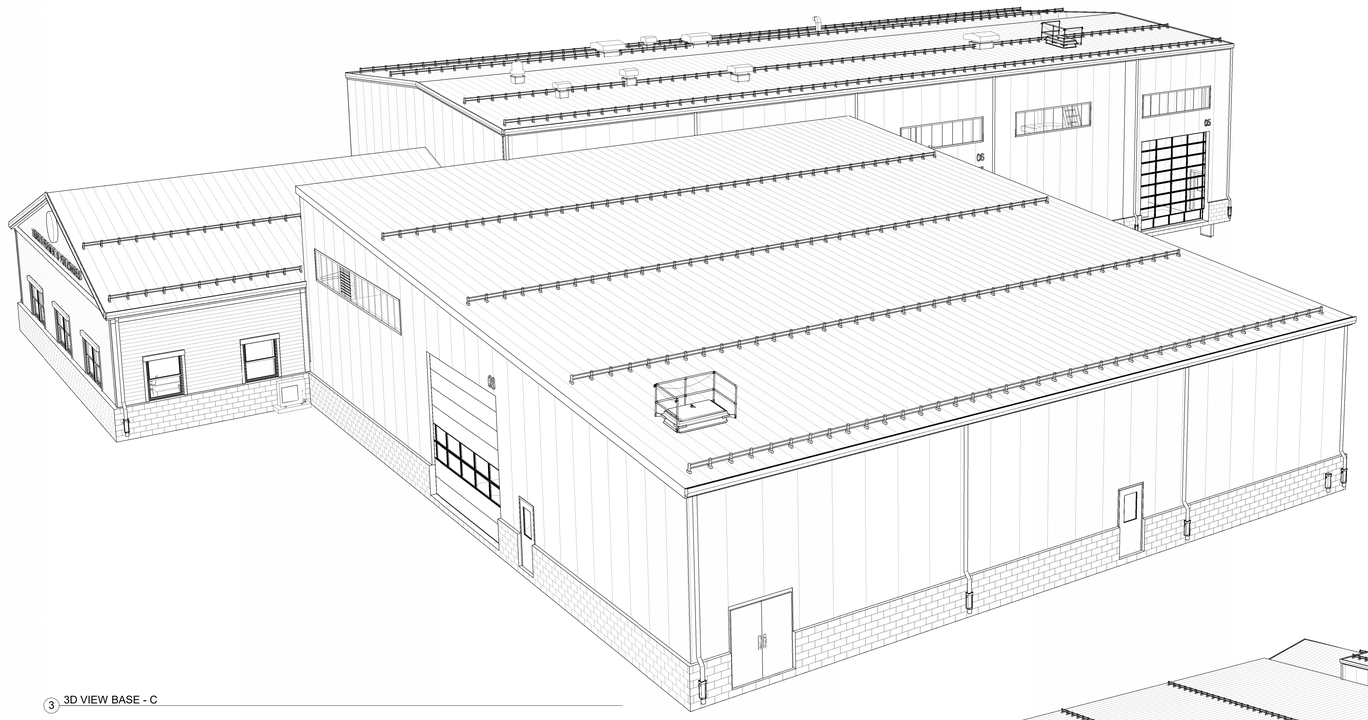
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EXTERIOR ELEVATIONS - BID ALT 1

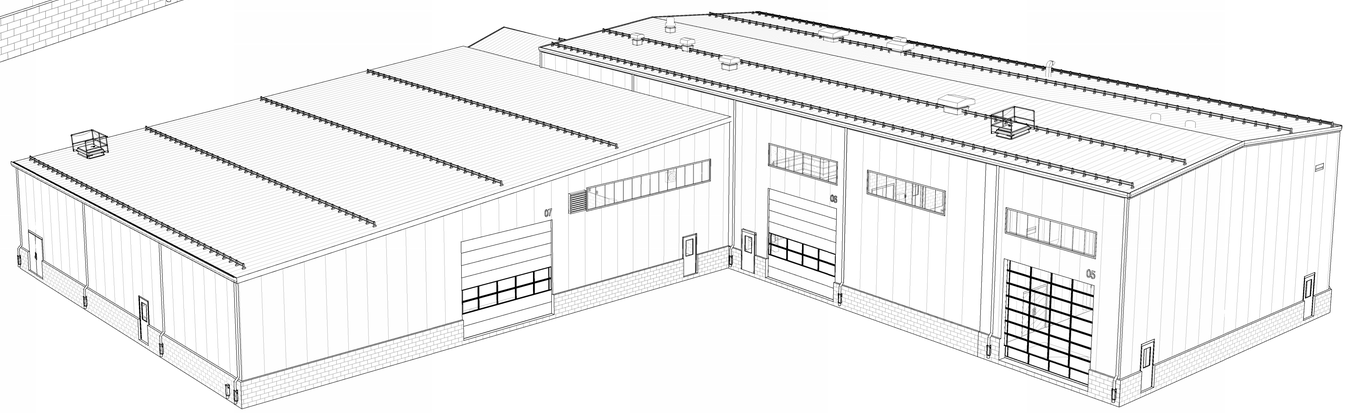
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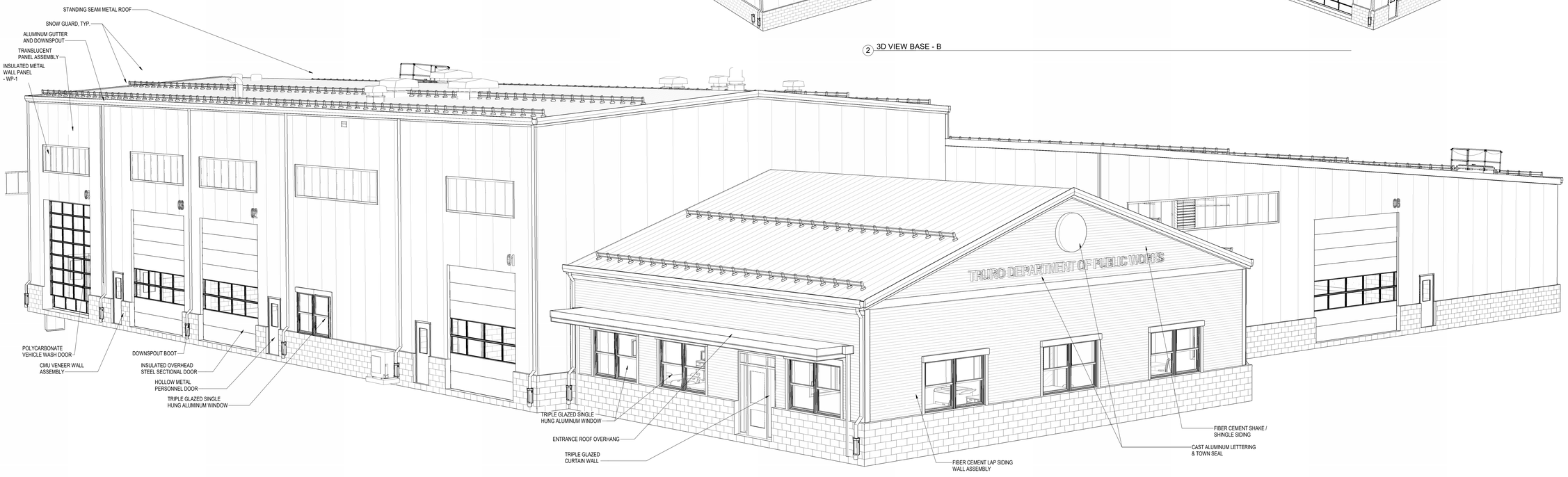
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10/30/2025 5:47:00 PM



3 3D VIEW BASE - C



2 3D VIEW BASE - B



1 3D VIEW BASE - A

NOTE: 3D VIEWS ARE PROVIDED FOR REFERENCE ONLY. REFER TO PLANS, ELEVATIONS, SECTIONS, DETAILS AND SCHEDULES FOR BUILDING REQUIREMENTS.

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Key Plan:

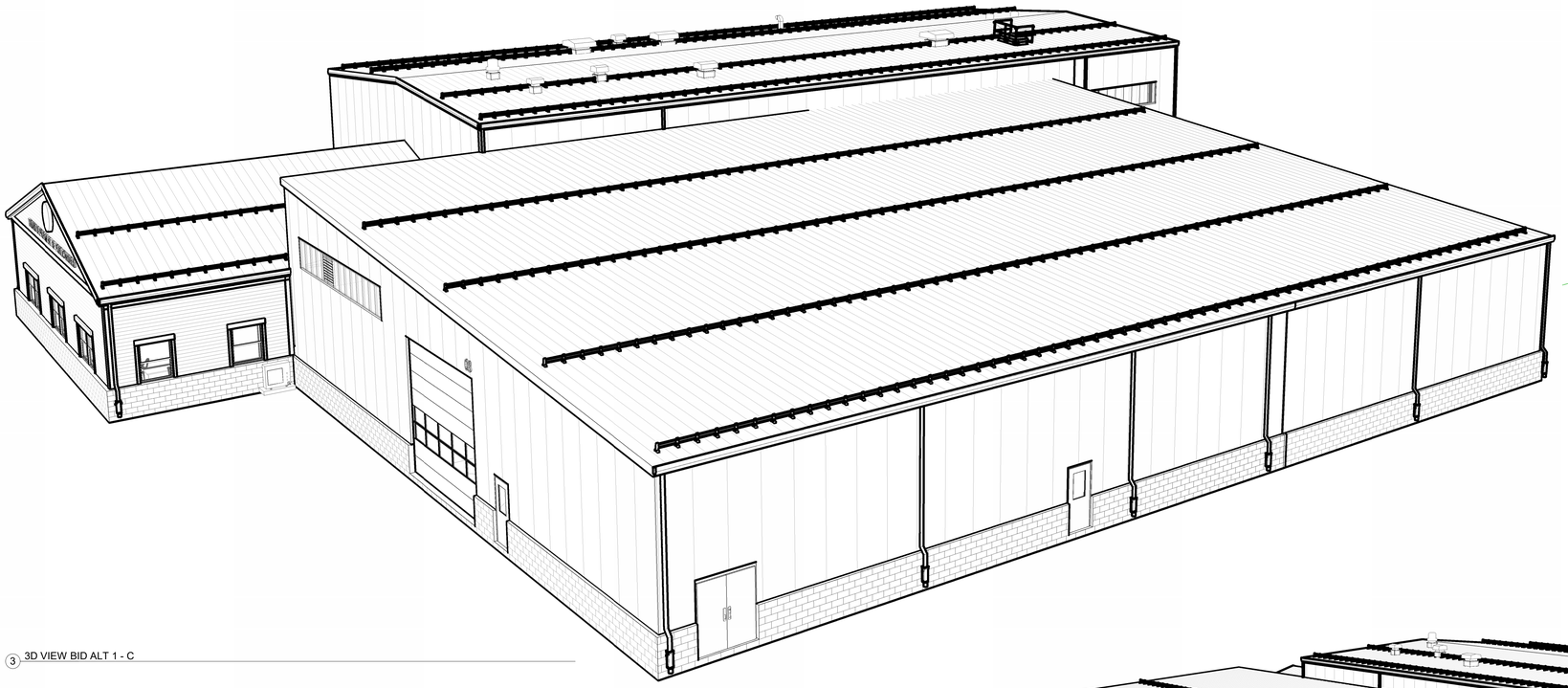
Date:	OCTOBER 31, 2025
Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

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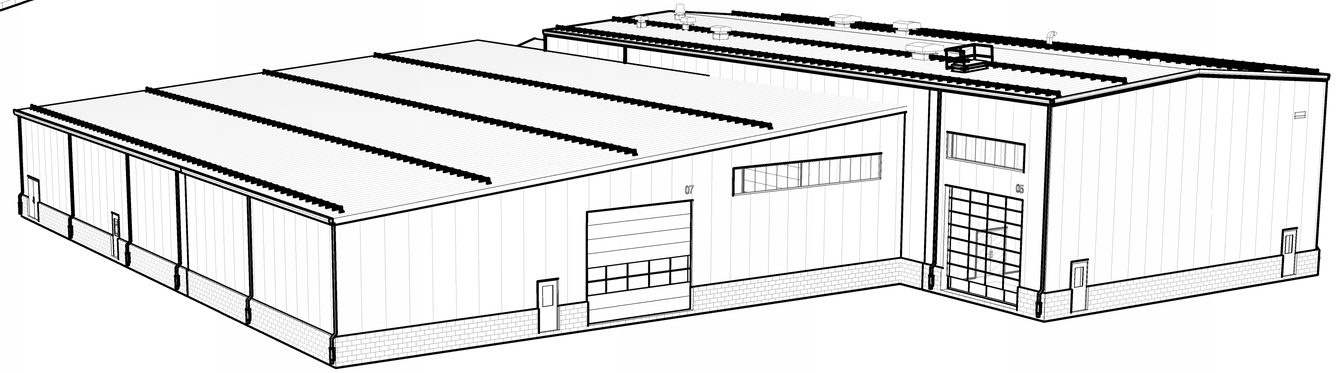
EXTERIOR 3D VIEWS - BASE

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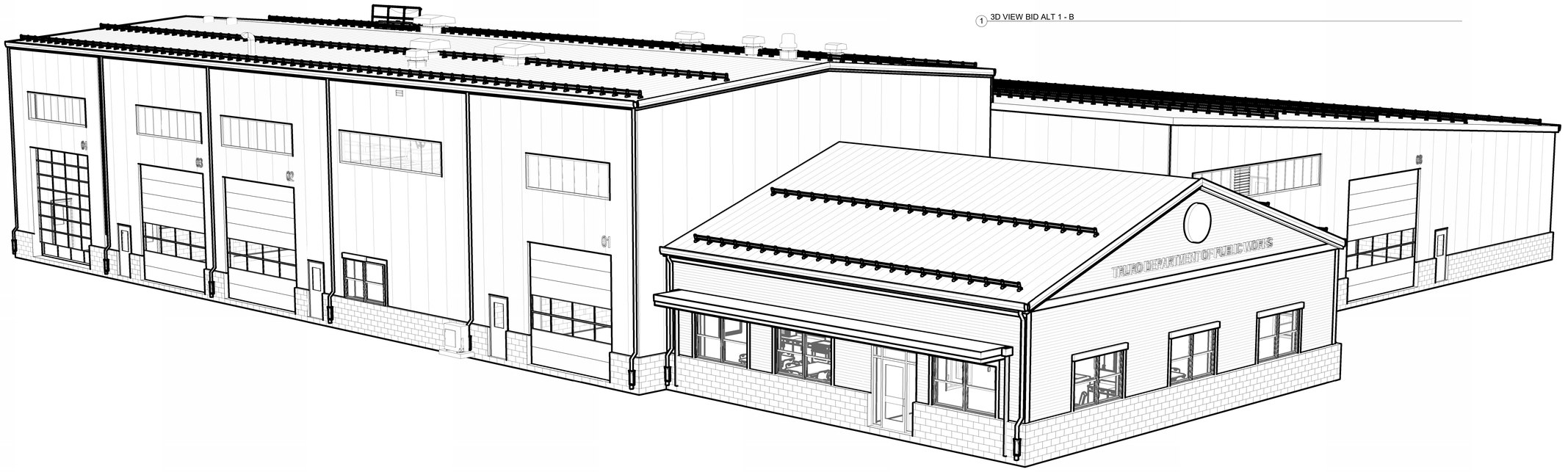
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3 3D VIEW BID ALT 1 - C



1 3D VIEW BID ALT 1 - B



2 3D VIEW BID ALT 1 - A

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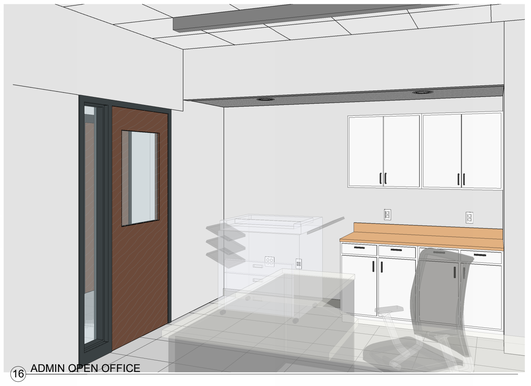
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Sheet Number:

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16 ADMIN OPEN OFFICE



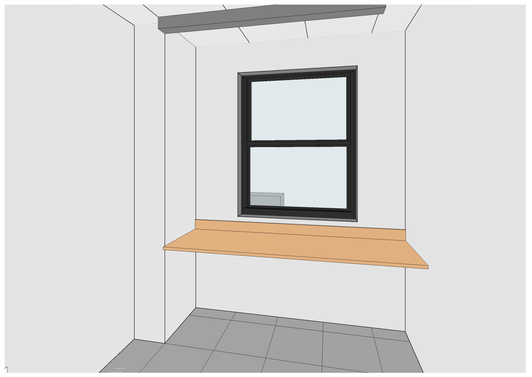
12 MULTI-PURPOSE TRAINING ROOM



8 CONFERENCE ROOM



4 DPW DIRECTOR OFFICE



15 REPORT WRITING ROOM



11 TOILET



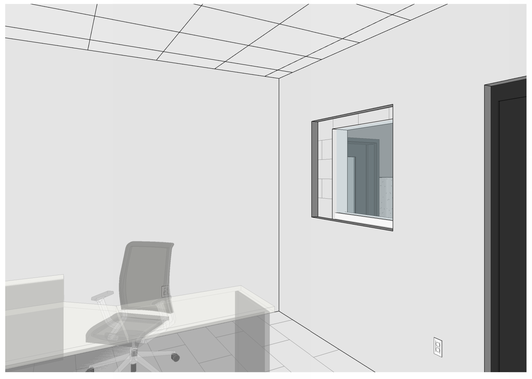
7 WOMAN'S LOCKER ROOM



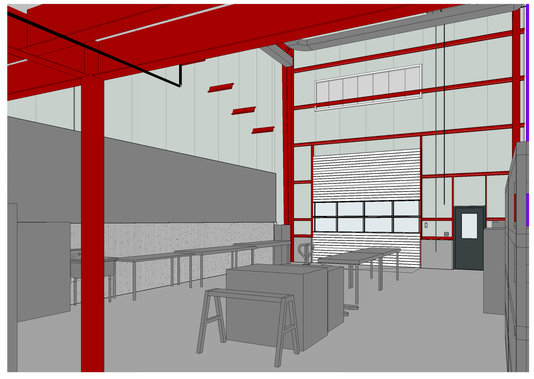
3 MEN'S LOCKER ROOM I



14 MEN'S LOCKER ROOM II



10 SHOP OFFICE



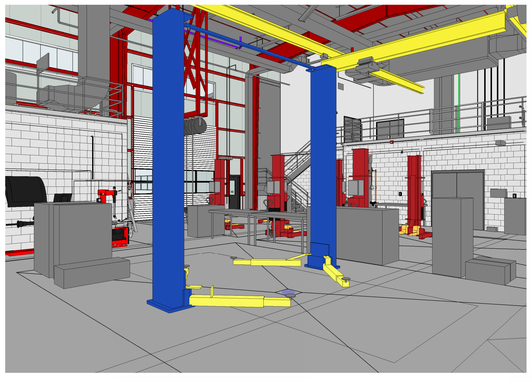
6 CARPENTRY SHOP



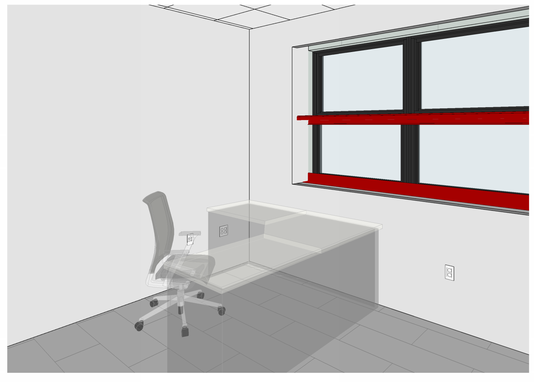
2 PARTS STORAGE



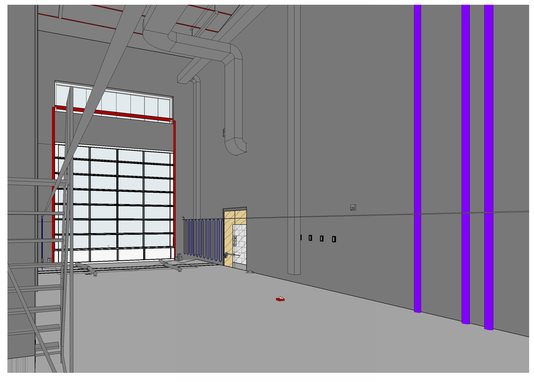
13 SHOP WATER CLOSET



9 VEHICLE MAINTENANCE



5 MECHANICS OFFICE



1 WASH BAY

NOTE: 3D VIEWS ARE PROVIDED FOR REFERENCE ONLY. REFER TO PLANS, ELEVATIONS, SECTIONS, DETAILS AND SCHEDULES FOR BUILDING REQUIREMENTS.

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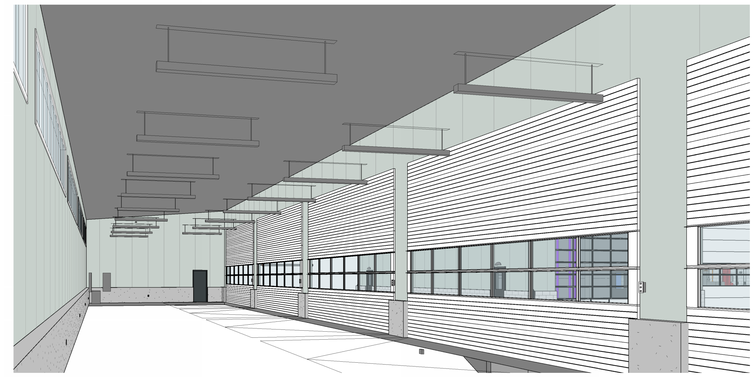
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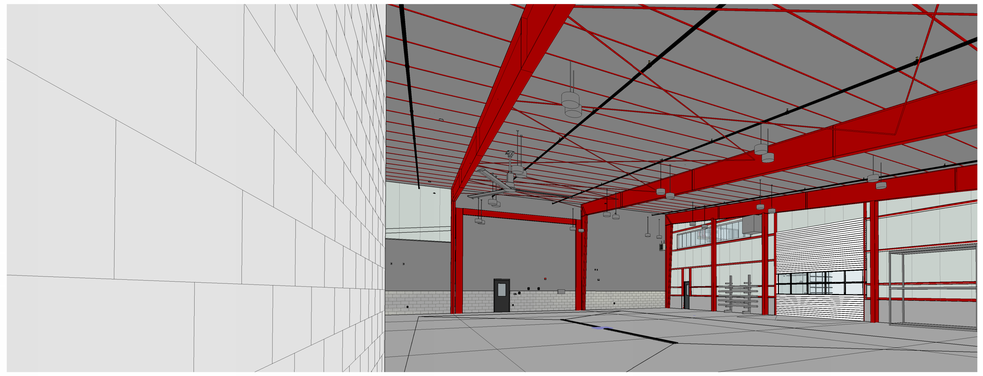
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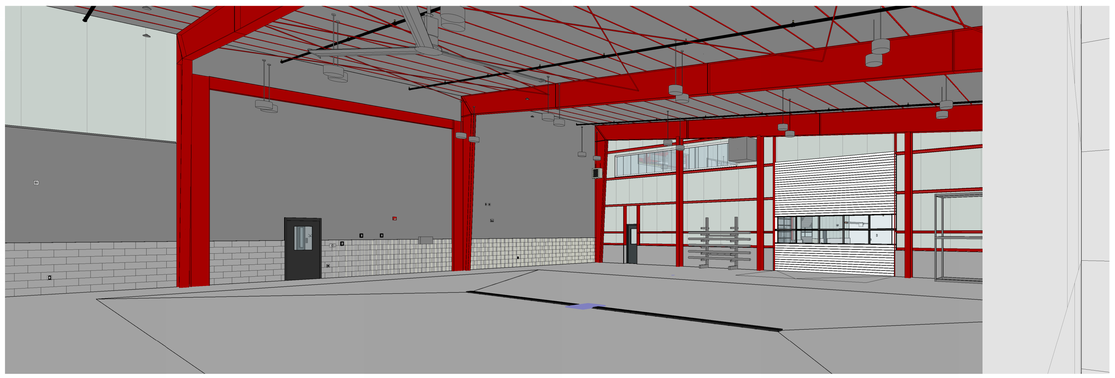
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3 VEHICLE STORAGE CANOPY BID ALT 2



2 VEHICLE STORAGE BASE



1 VEHICLE STORAGE BID ALT 1

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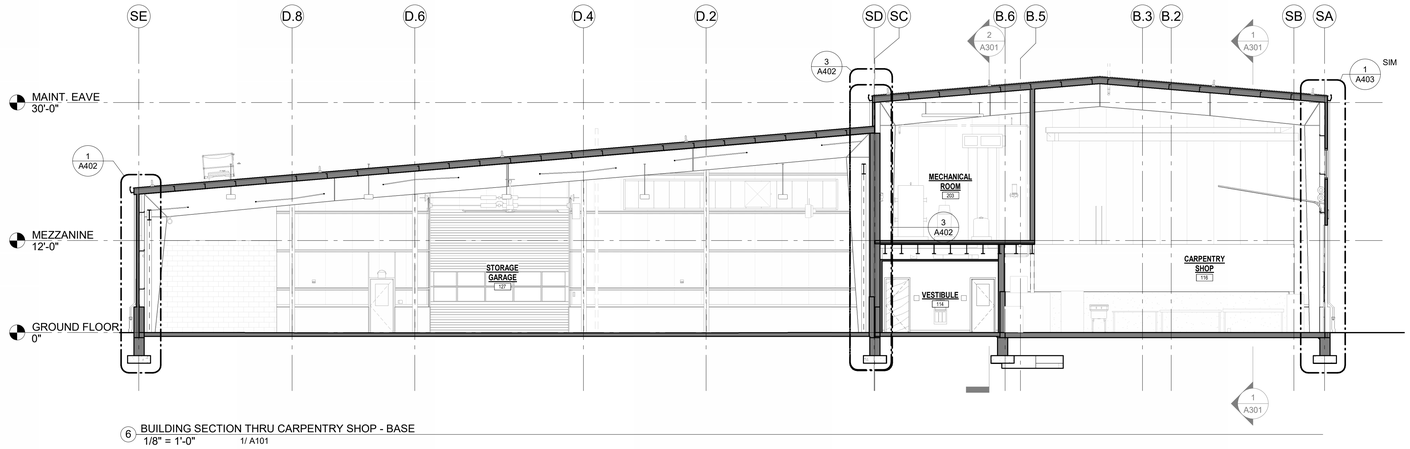
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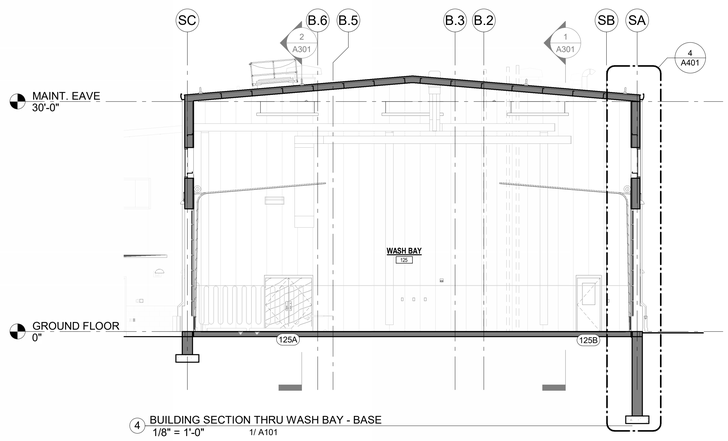
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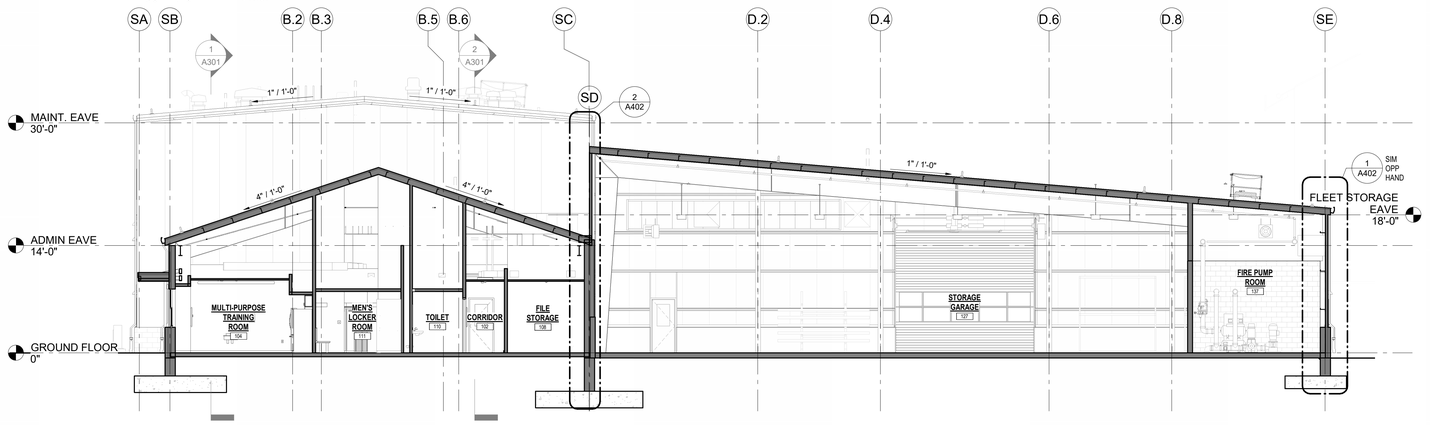
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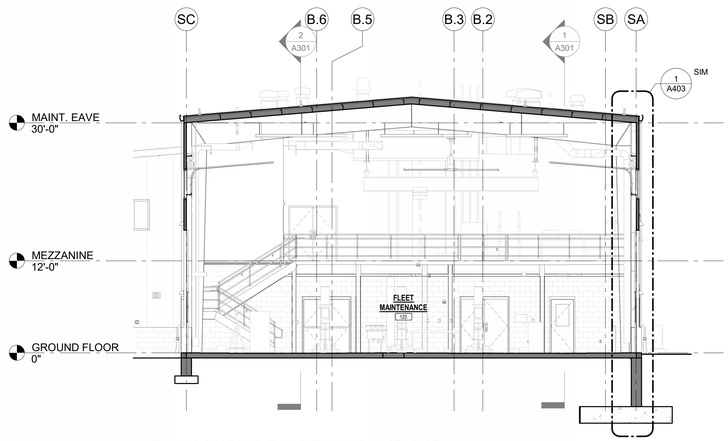
6 BUILDING SECTION THRU CARPENTRY SHOP - BASE
1/8" = 1'-0" 1/ A101



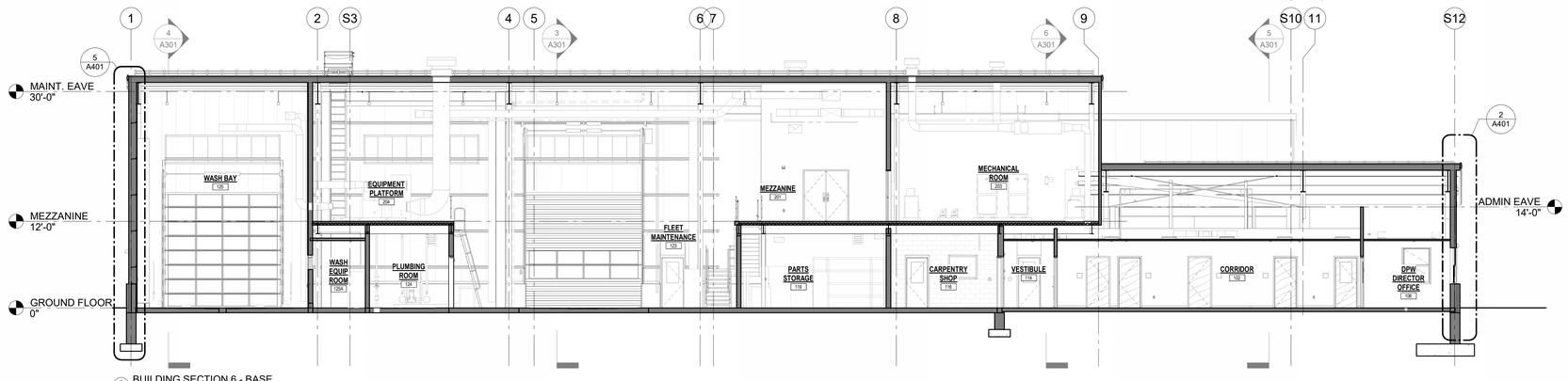
4 BUILDING SECTION THRU WASH BAY - BASE
1/8" = 1'-0" 1/ A101



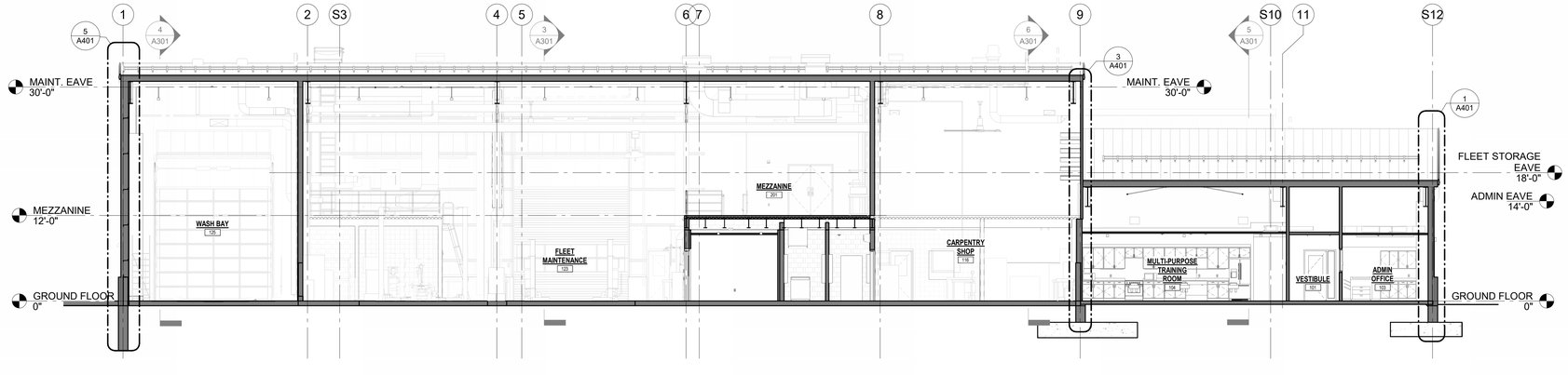
5 BUILDING SECTION THRU ADMIN CORRIDOR - BASE
1/8" = 1'-0" 1/ A101



3 BUILDING SECTION THRU FLEET MAINTENANCE - BASE
1/8" = 1'-0" 1/ A101



2 BUILDING SECTION 6 - BASE
1/8" = 1'-0" 1/ A101



1 BUILDING SECTION 7
1/8" = 1'-0" 1/ A101

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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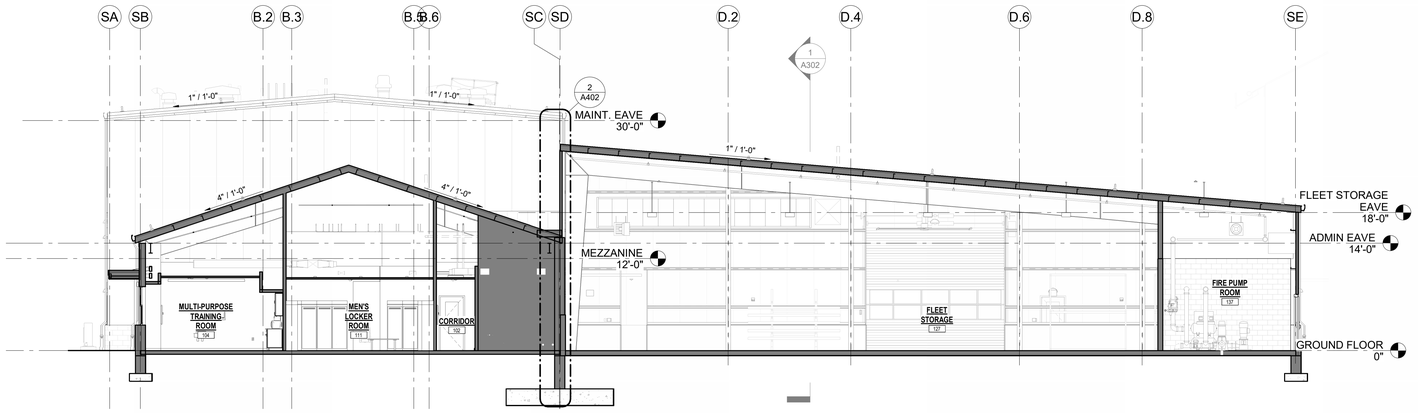
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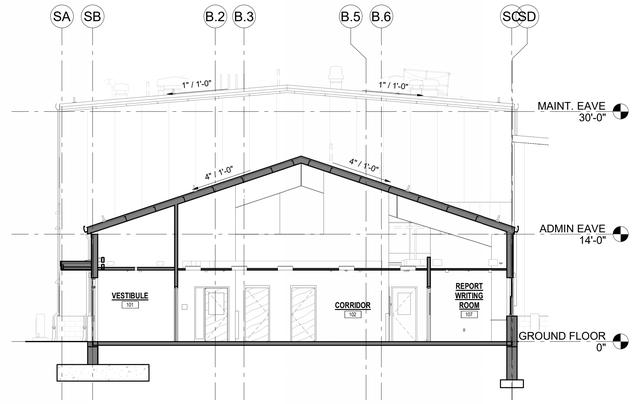
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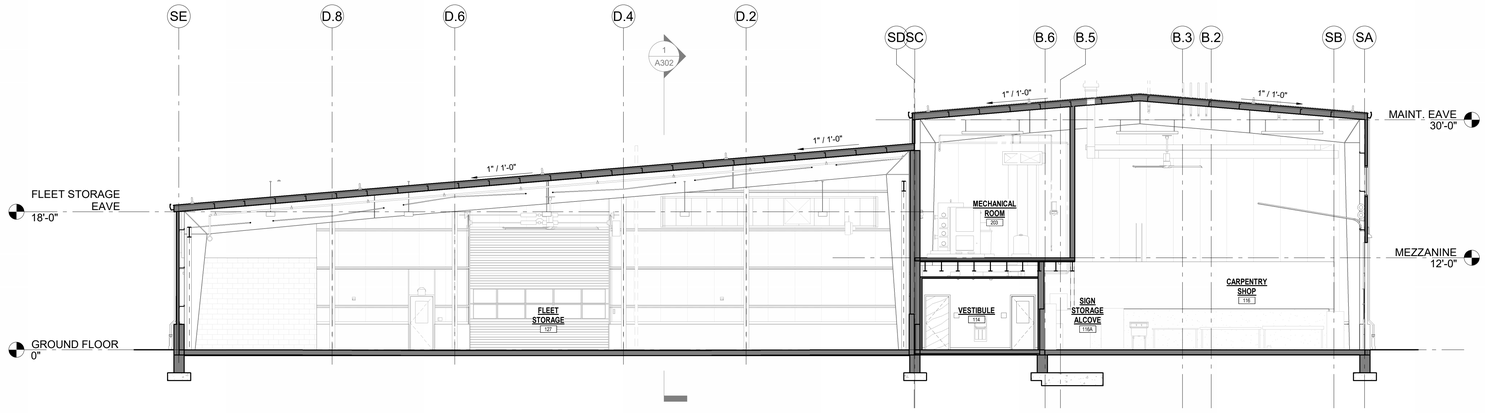
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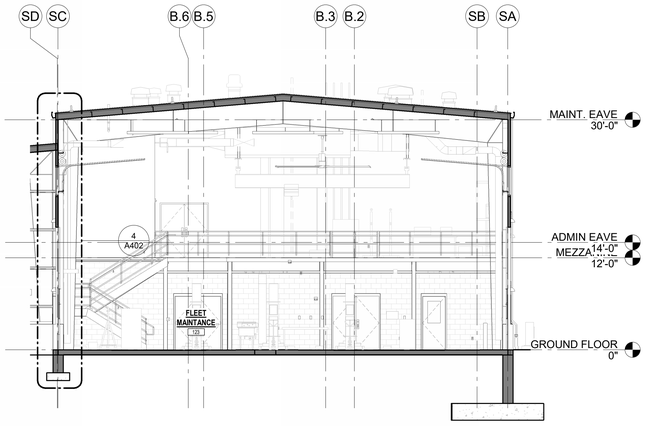
5 BUILDING SECTION 1 - BID ALT 4
1/8" = 1'-0" 1/ A101A



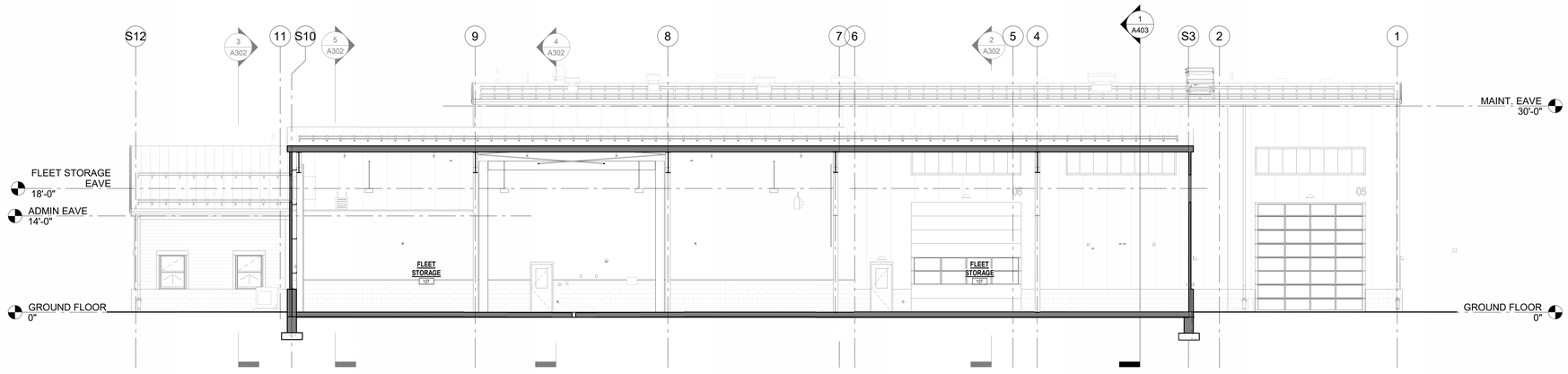
3 BUILDING SECTION THRU ADMIN
1/8" = 1'-0" 1/ A101A



4 BUILDING SECTION THROUGH CARPENTRY SHOP & STORAGE - BASE
1/8" = 1'-0" 1/ A101A



2 BUILDING SECTION 2
1/8" = 1'-0" 1/ A101A



1 BUILDING SECTION THRU STORAGE GARAGE - BID ALT 1
1/8" = 1'-0" 1/ A101A

0" 4' 8' 16'
SCALE: 1/8" = 1'-0"

Project:
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Revisions:

No.	Date	Description

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

Key Plan:

Date: OCTOBER 31, 2025
Drawn By: MMS, FS
Reviewed By: DRD
Approved By: JRC
W&S Project No.: ENG24-1552
W&S File No.: XXX

Drawing Title:

BUILDING SECTIONS - ALT 1

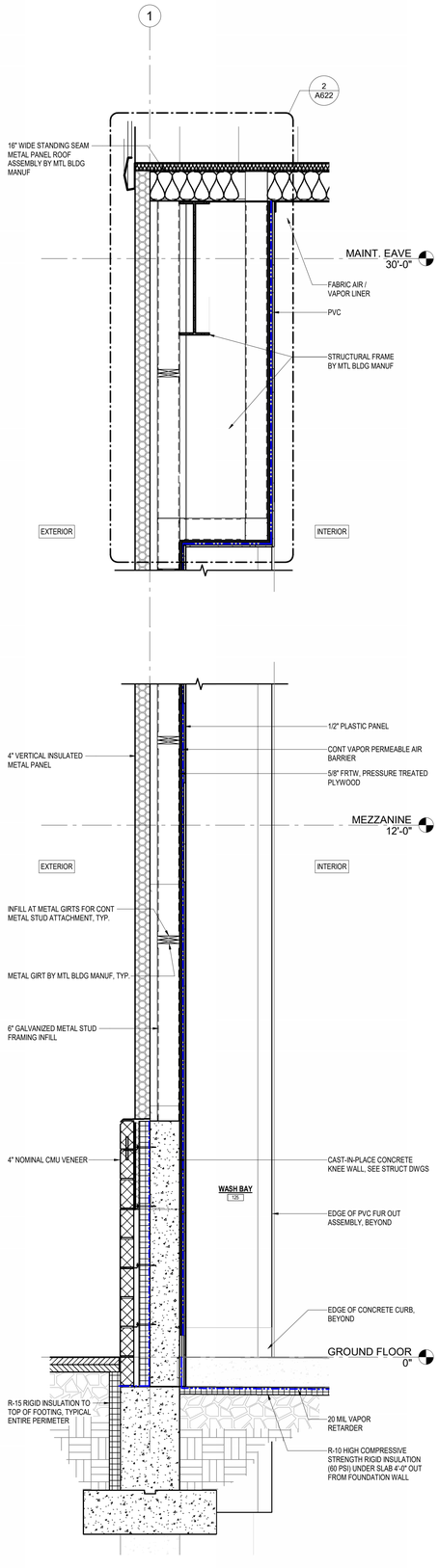
Sheet Number:

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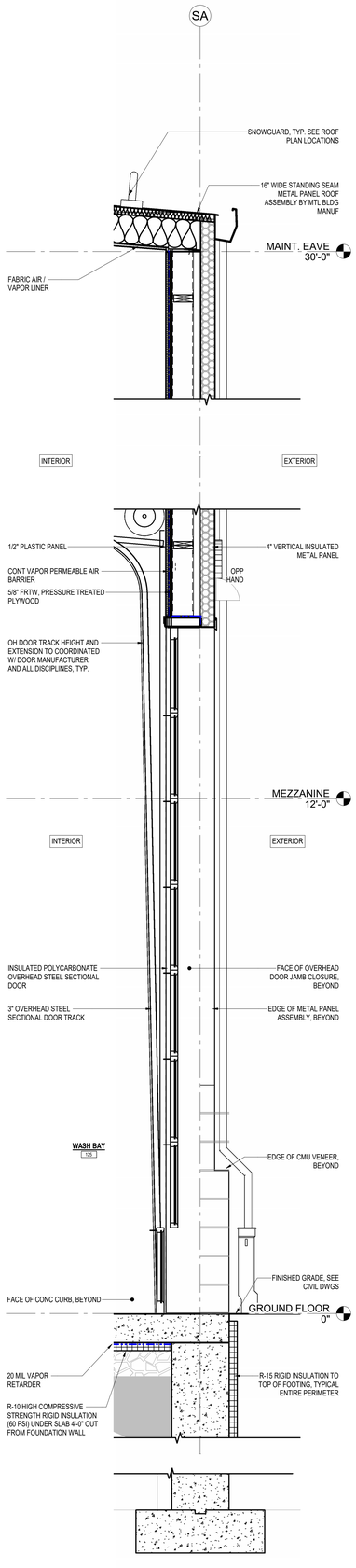
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TYPICAL WALL SECTION NOTES

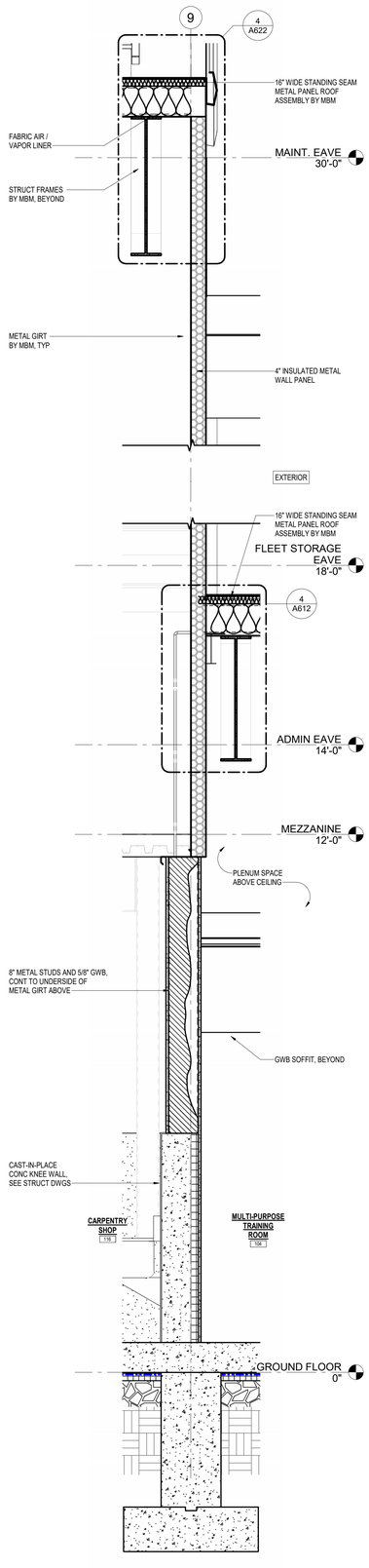
- GIRT SPACING IS SHOWN DIAGRAMATICALLY ONLY, ACTUAL SPACING WILL BE BY MBM.
- AVB SHALL BE SEALED TO ALL ROOF FABRIC AND ANY STRUCTURE OR SYSTEMS WHICH PASSES THRU THE PLANE OF THE AVB TO FORM A CONTINUOUS AIR VAPOR BARRIER BETWEEN SPACES, TYP.
- SEE A031 FOR WALL AND ROOF ASSEMBLY TYPES



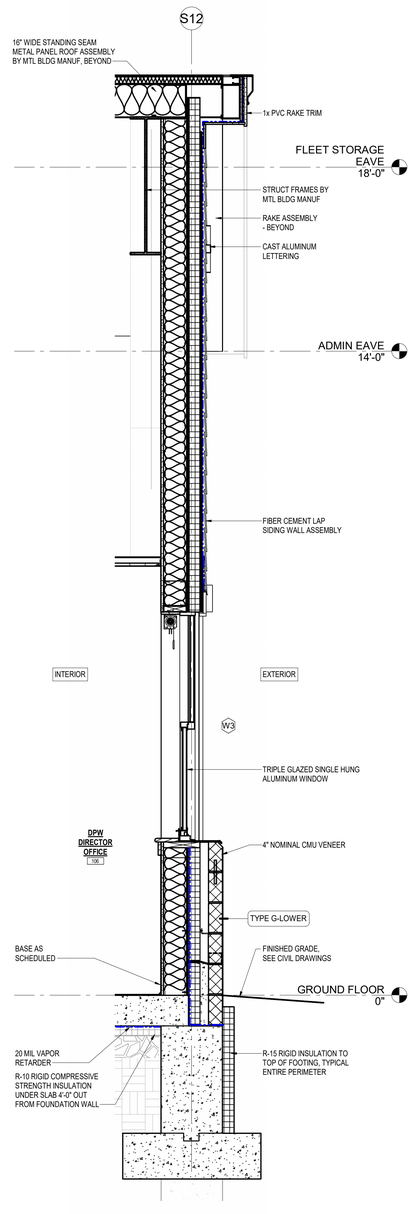
5 WALL SECTION - WASHBAY WEST COL. LINE (1)
3/4" = 1'-0" 1/ A101



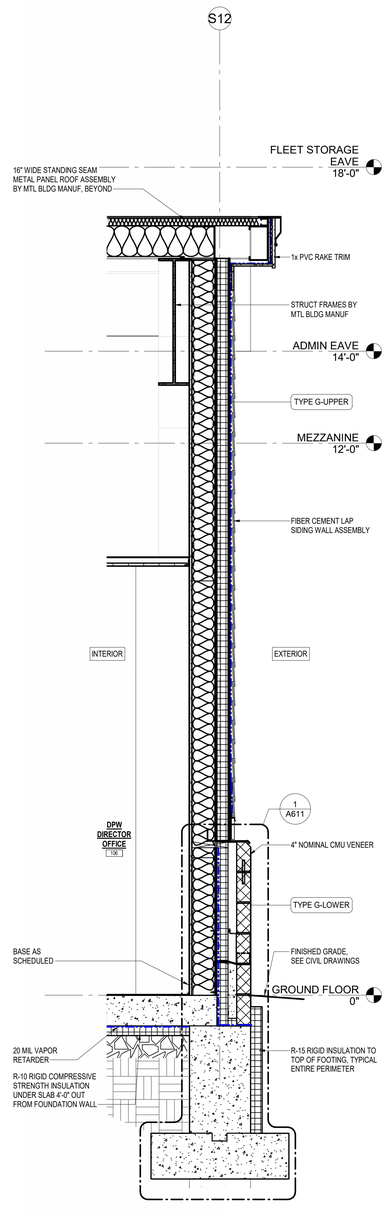
4 WALL SECTION - WASHBAY COL. LINE (SA)
3/4" = 1'-0" 1/ A101



3 WALL SECTION - ADMIN TO SHOPS ROOF TRANSITION
3/4" = 1'-0" 1/ A101



2 WALL SECTION ADMIN COL. LINE (S12)
3/4" = 1'-0" 2/ A301



1 WALL SECTION COL. LINE (S12)
3/4" = 1'-0" 1/ A101

0' 1' 2' 3'
SCALE: 3/4" = 1'-0"

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Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

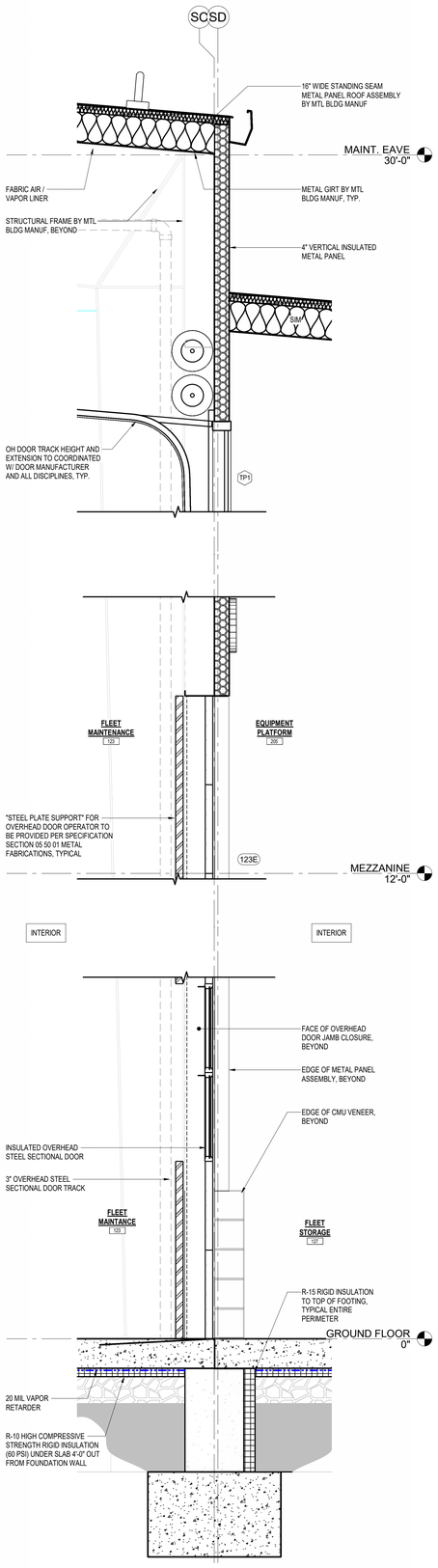
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WALL SECTIONS I

Sheet Number:
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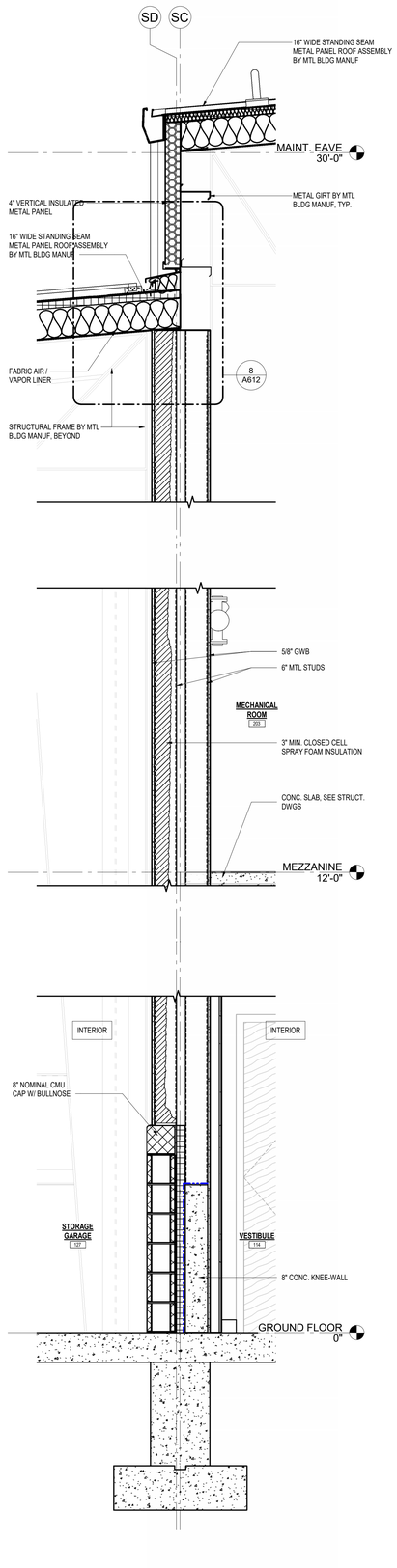
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TYPICAL WALL SECTION NOTES

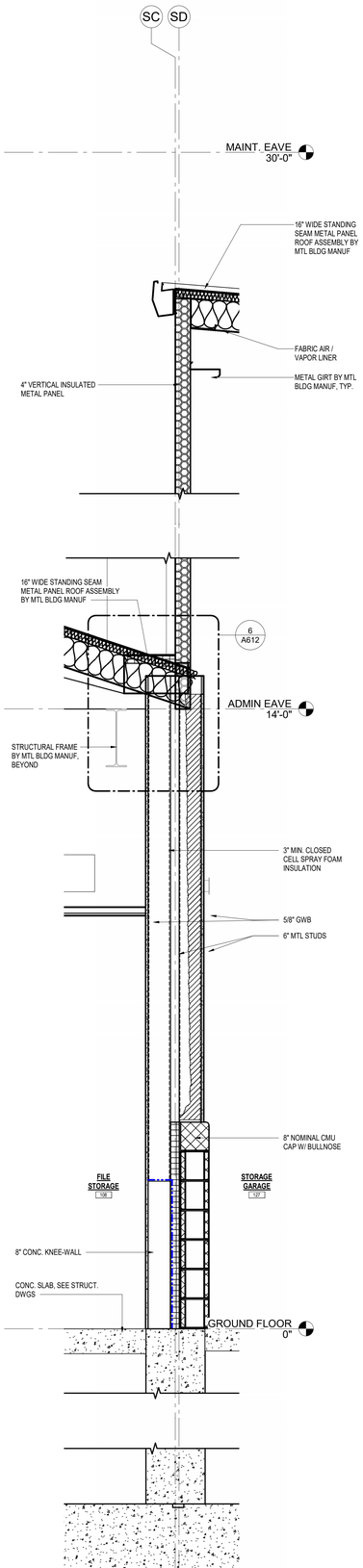
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- SEE A031 FOR WALL AND ROOF ASSEMBLY TYPES



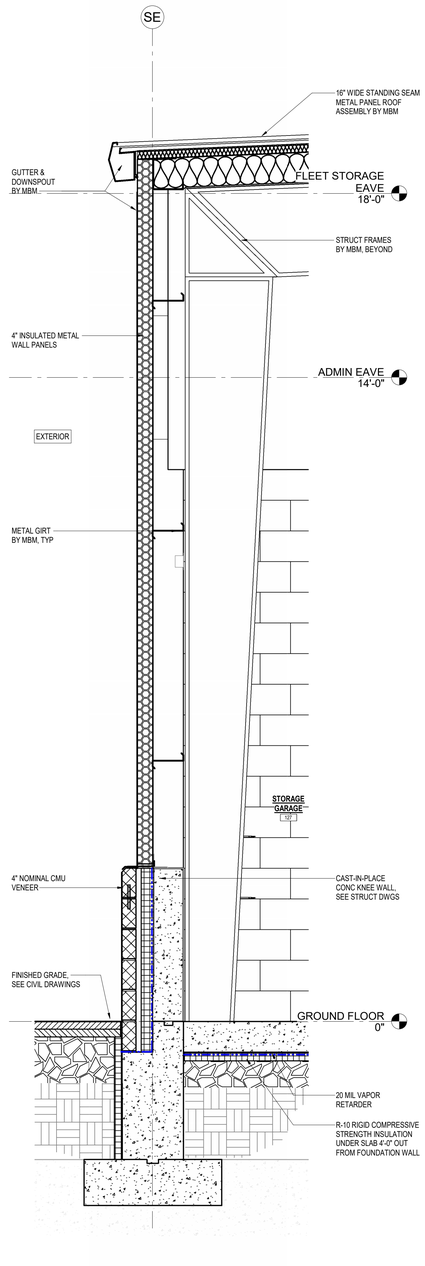
4 WALL SECTION - VEHICLE MAINTENANCE TO STORAGE GARAGE
3/4" = 1'-0" 1/ A101A



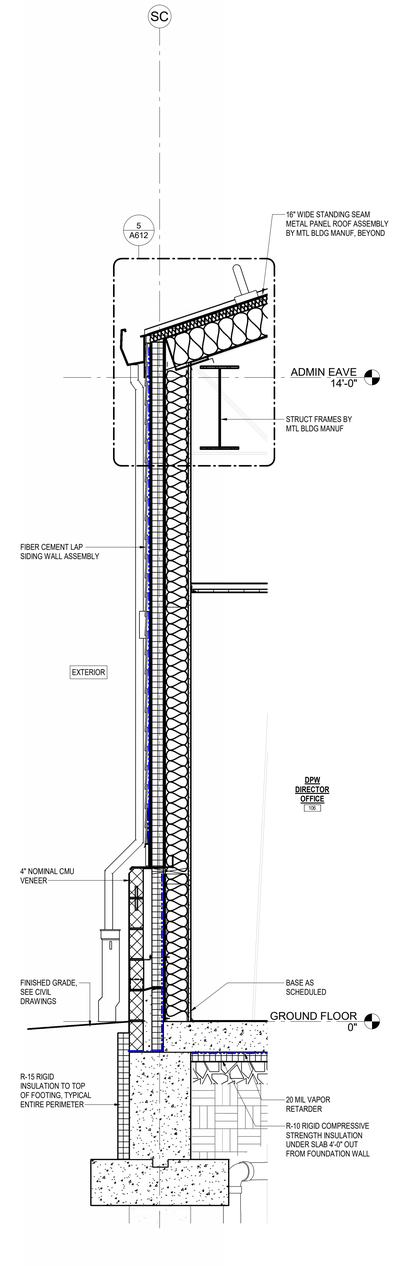
3 WALL SECTION - STORAGE GARAGE TO ADMIN FUME WALL
3/4" = 1'-0" 1/ A101



2 WALL SECTION - ADMIN TO STORAGE GARAGE FUME WALL
3/4" = 1'-0" 1/ A101



1 WALL SECTION COL. LINE (SE)
3/4" = 1'-0" 1/ A101



5 WALL SECTION COL. LINE (SC)
3/4" = 1'-0" 1/ A101

0' 1' 2' 3'
SCALE: 3/4" = 1'-0"

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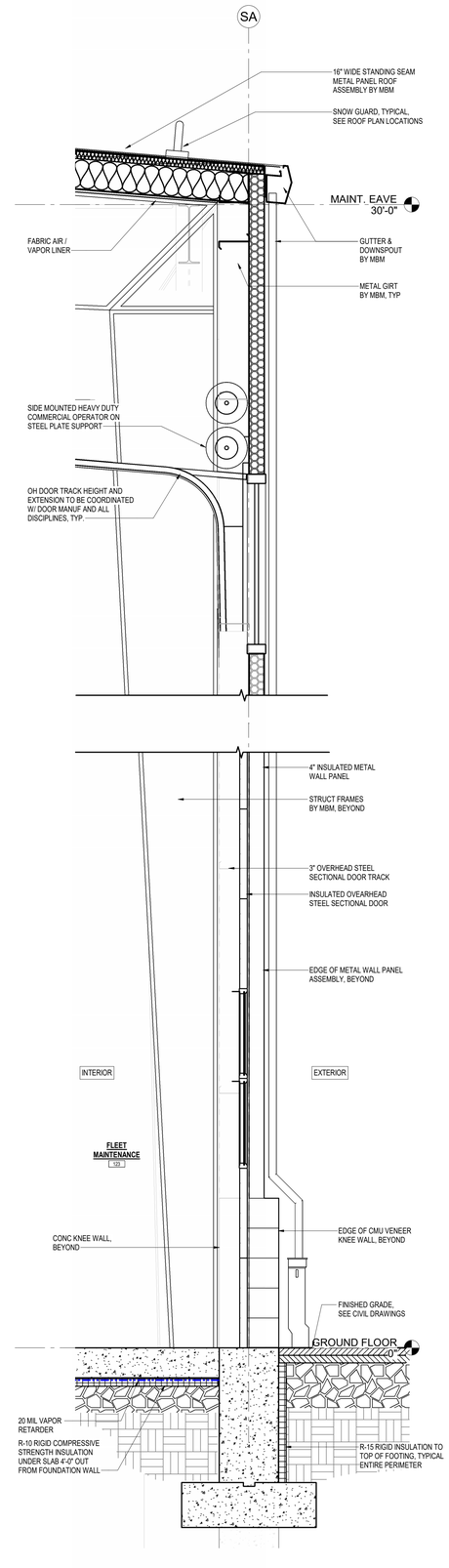
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
WALL SECTIONS II

Sheet Number:
A402

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10/30/2025 5:49:13 PM



1 WALL SECTION COL. LINE (SA)
3/4" = 1'-0" 1/ A101

0' 1' 2' 3'
SCALE: 3/4" = 1'-0"

10/30/2025 5:49:16 PM C:\~Revit\Projects\2024\24-1552_Town DPW_Arch_v24_Peach Samantha.rvt

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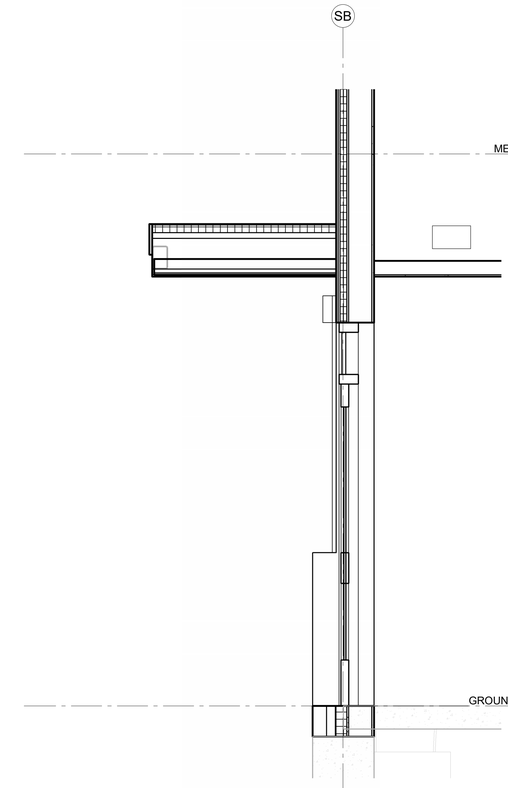
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W&S File No.:	XXX

Drawing Title:

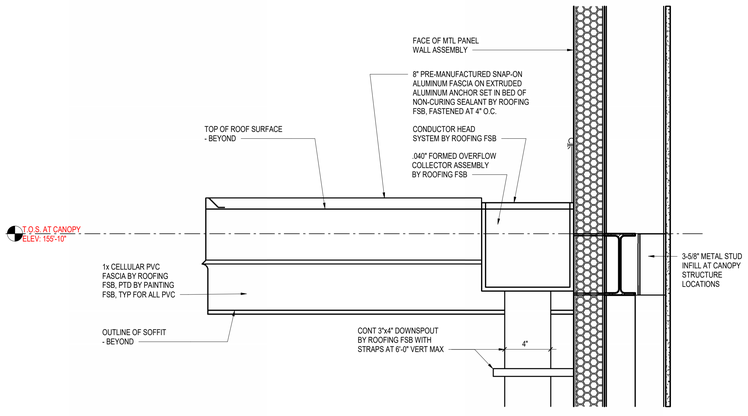
WALL SECTIONS III

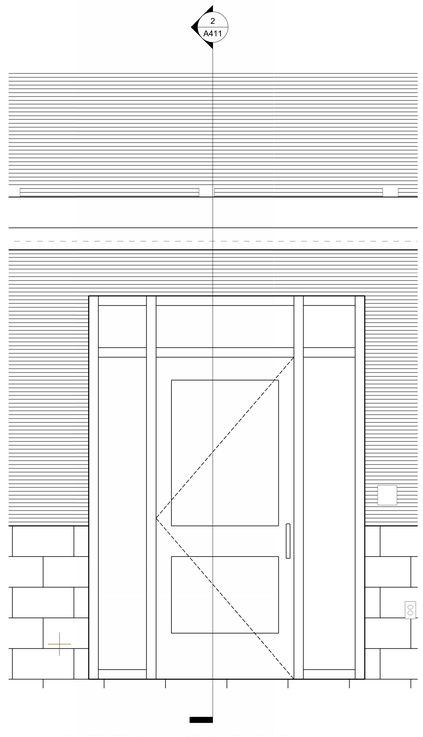
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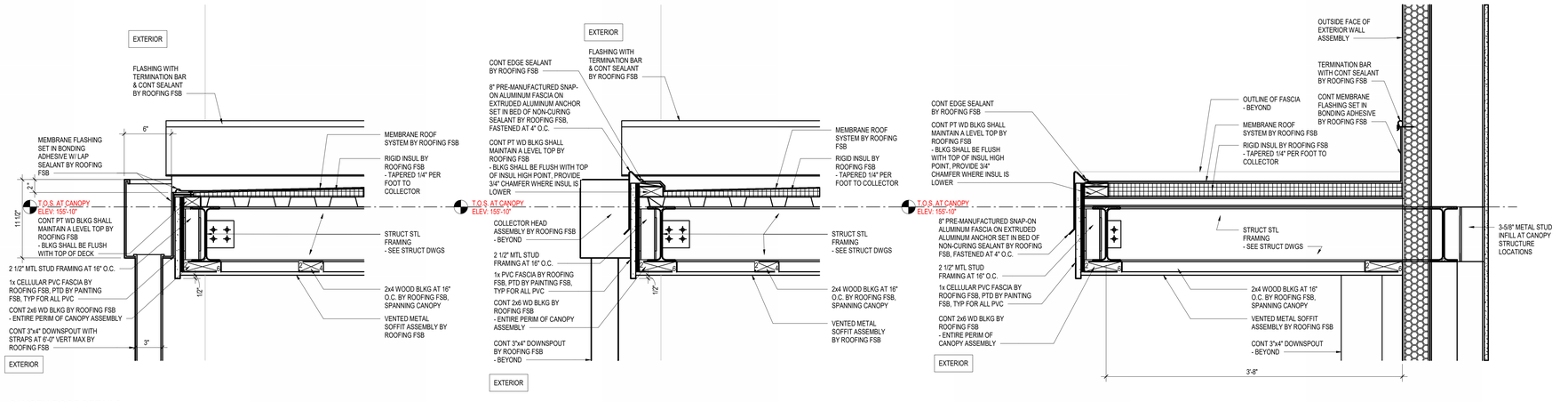
A403



2 WALL SECTION - ENTRANCE CANOPY
3/4" = 1'-0" 1/ A411







3 CANOPY ROOF DETAILS
1 1/2" = 1'-0"

1 CANOPY AT ENTRANCE - LARGE SCALE ELEVATION
3/4" = 1'-0" 2/ A201

0' 1' 2' 3'
SCALE: 3/4" = 1'-0"

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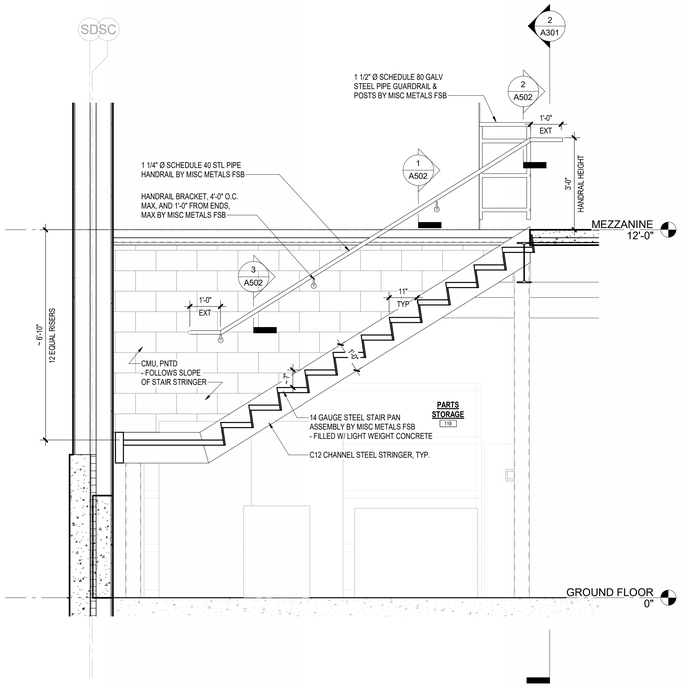
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ENTRANCE CANOPY PLANS, ELEVATIONS, SECTION & DETAILS

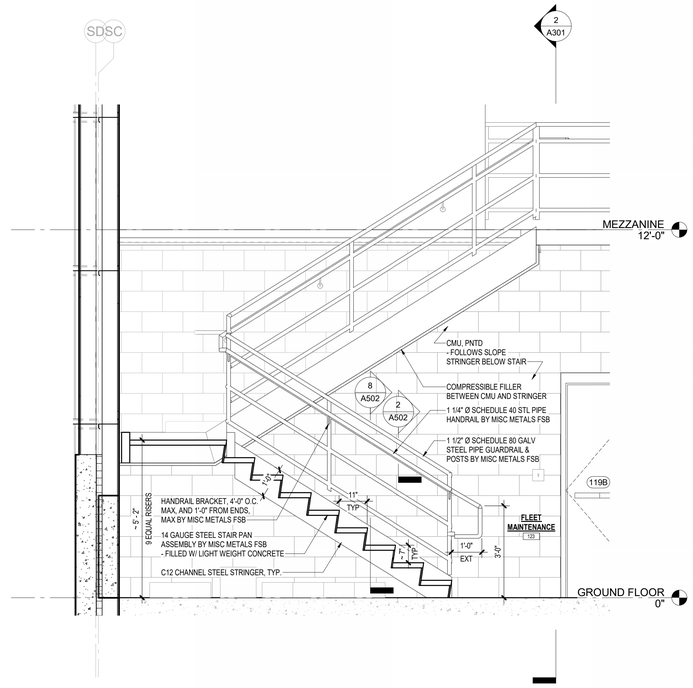
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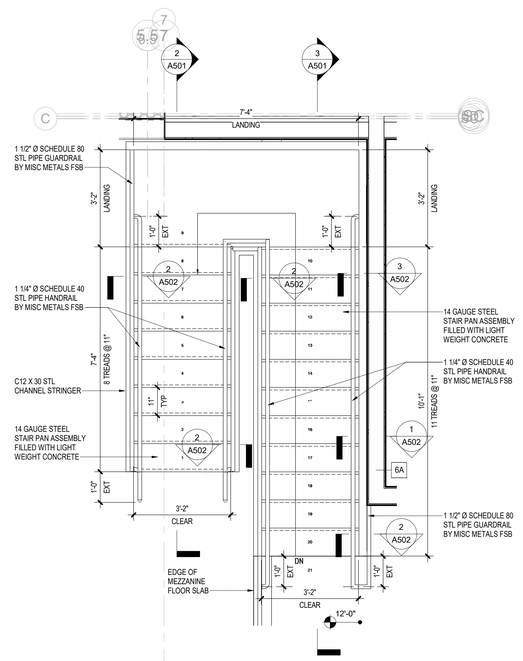
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3 STAIR SECTION - FLEET MAINTENANCE MEZZANINE 2
1/2" = 1'-0" 1/ A501



2 STAIR SECTION - FLEET MAINTENANCE MEZZANINE 1
1/2" = 1'-0" 1/ A501



1 STAIR PLAN - FLEET MAINTENANCE MEZZANINE
1/2" = 1'-0" 1/ A101

0' 1' 2' 4'
SCALE: 1/2" = 1'-0"

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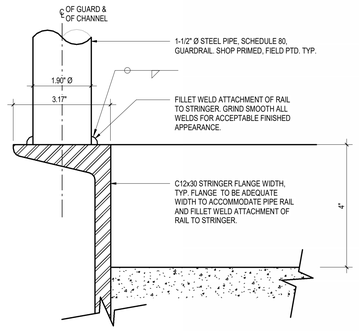
Drawing Title:

LARGE SCALE STAIR PLANS / SECTIONS

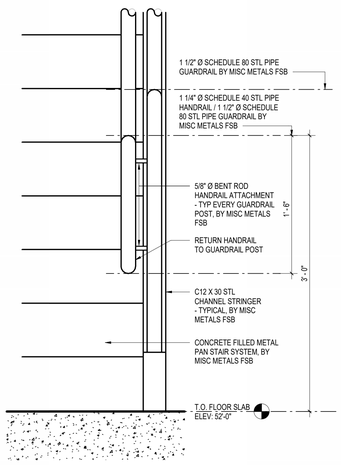
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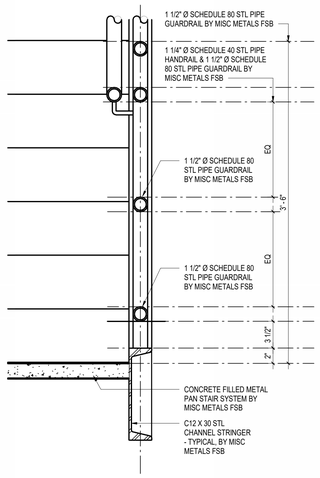
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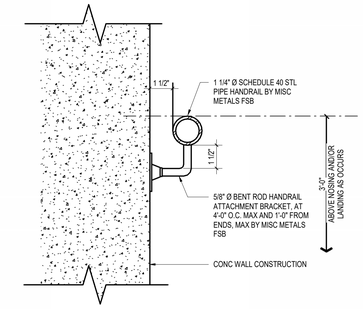
10 STAIR RAIL SECTION DETAIL
6" = 1'-0"



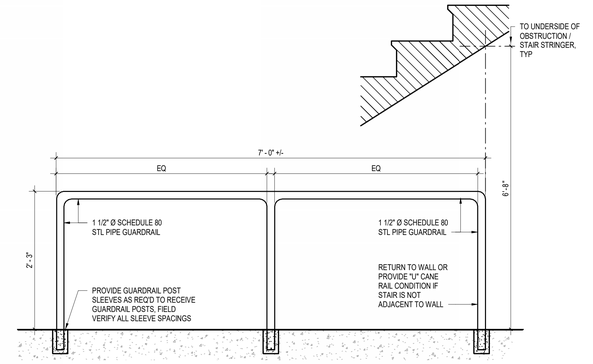
9 STAIR HANDRAIL / GUARDRAIL ELEVATION - END CONDITION
1 1/2" = 1'-0"



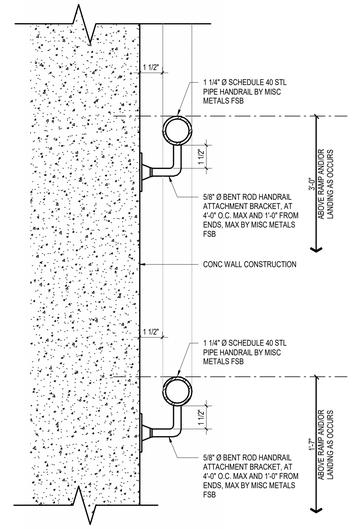
8 STAIR HANDRAIL / GUARDRAIL SECTION - 4 RAIL
1 1/2" = 1'-0" 2/ A501



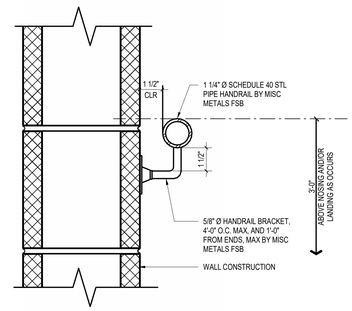
7 HANDRAIL DETAIL
3" = 1'-0"

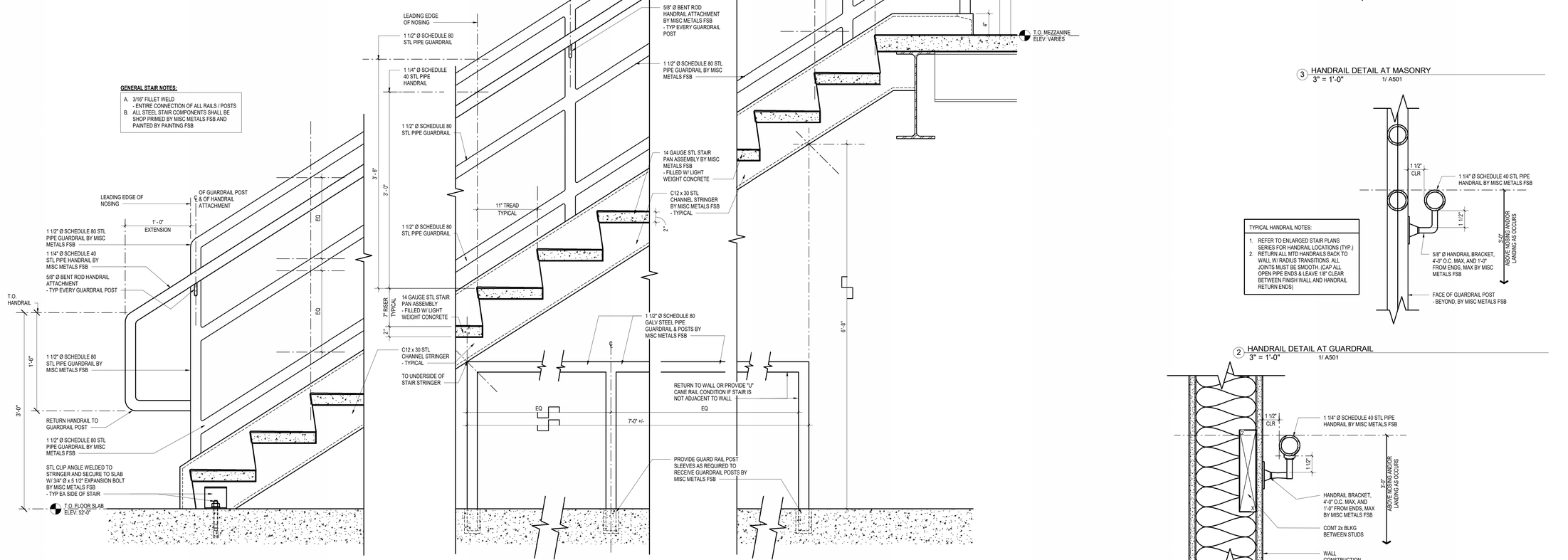


6 CANE DETECTION RAIL
1" = 1'-0"



4 RAMP HANDRAIL DETAIL
3" = 1'-0"





5 MEZZANINE STAIR SECTION - 4 RAIL
1 1/2" = 1'-0"

3 HANDRAIL DETAIL AT MASONRY
3" = 1'-0" 1/ A501

2 HANDRAIL DETAIL AT GUARDRAIL
3" = 1'-0" 1/ A501

1 HANDRAIL DETAIL AT GYPSUM WALL BOARD
3" = 1'-0" 1/ A501

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NORTH

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W&S Project No.:	ENG24-1552
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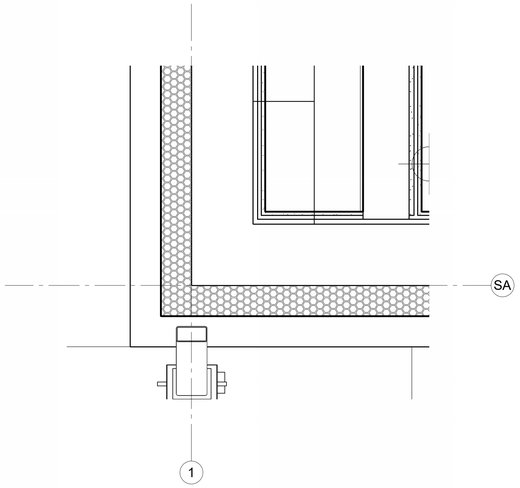
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LARGE SCALE STAIR PLANS / SECTIONS AND DETAILS

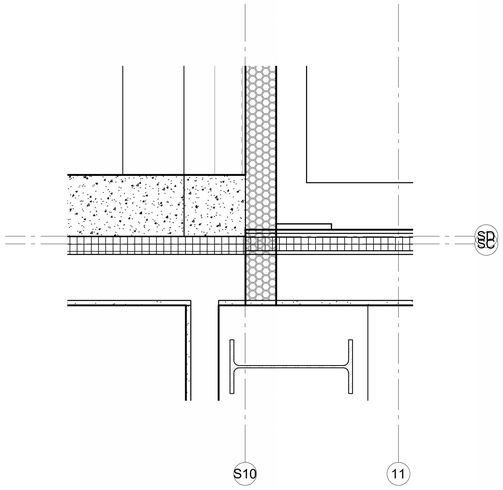
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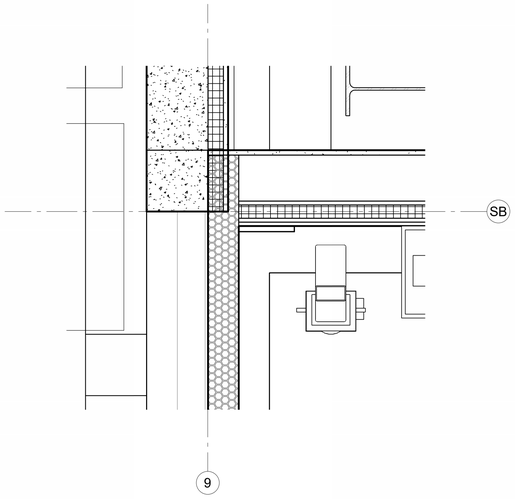
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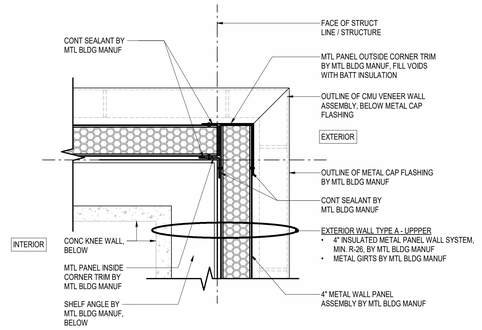
11 PLAN DETAIL 9
1 1/2" = 1'-0" 1/ A101



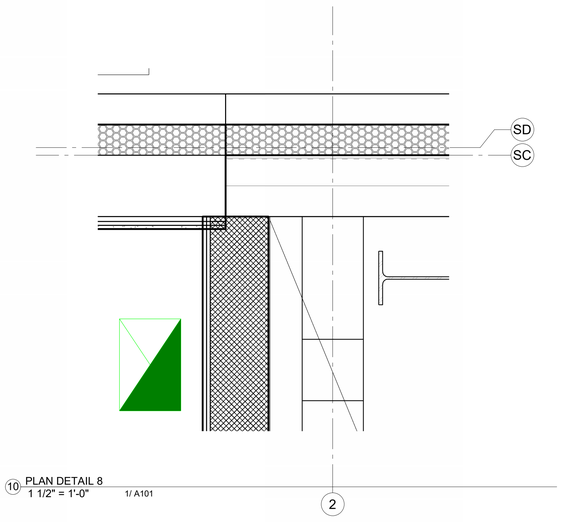
8 PLAN DETAIL 6
1 1/2" = 1'-0" 1/ A701



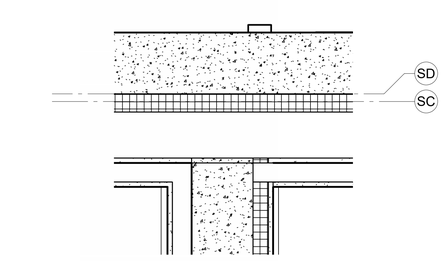
5 PLAN DETAIL 3
1 1/2" = 1'-0" 1/ A701



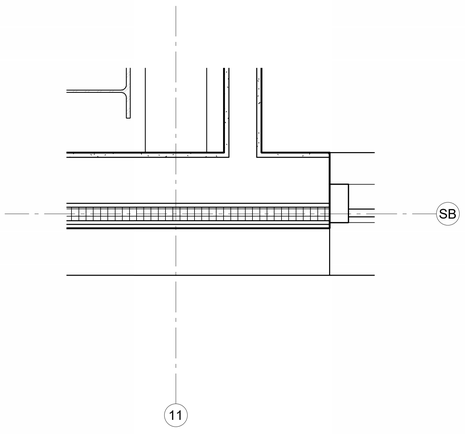
2 MTL PNL TYP. CORNER DETAIL
1 1/2" = 1'-0"



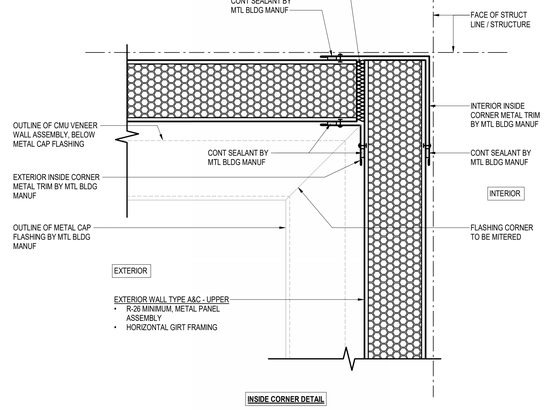
10 PLAN DETAIL 8
1 1/2" = 1'-0" 1/ A101

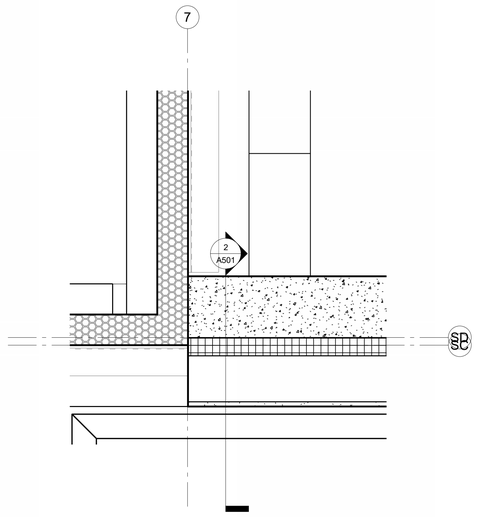


7 PLAN DETAIL 5
1 1/2" = 1'-0" 1/ A701

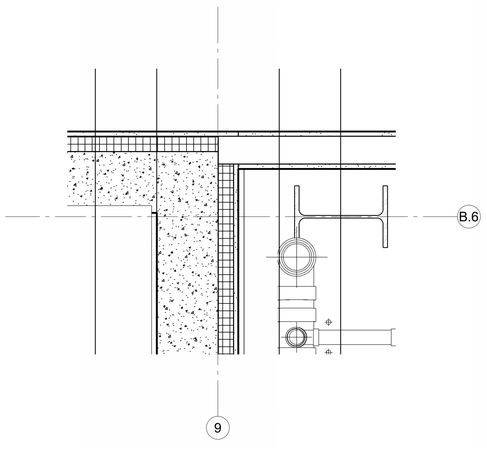


4 PLAN DETAIL 2
1 1/2" = 1'-0" 1/ A701

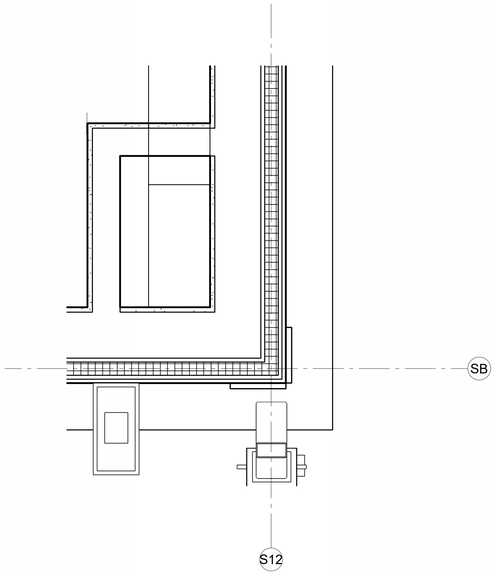




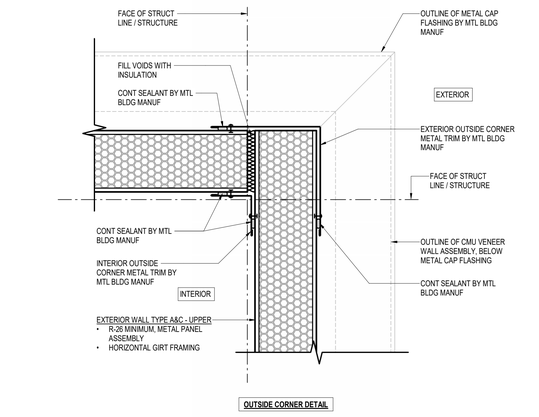
9 PLAN DETAIL 7
1 1/2" = 1'-0" 1/ A101



6 PLAN DETAIL 4
1 1/2" = 1'-0" 1/ A701



3 PLAN DETAIL 1
1 1/2" = 1'-0" 1/ A701



1 METAL PANEL OUTSIDE CORNER DETAIL
3" = 1'-0"

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

Project:
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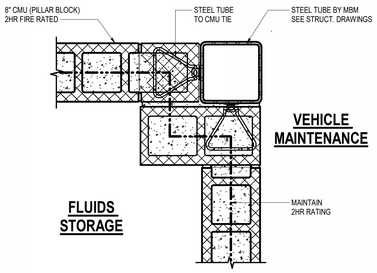
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

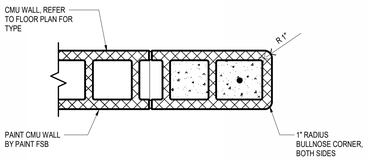
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Sheet Number:
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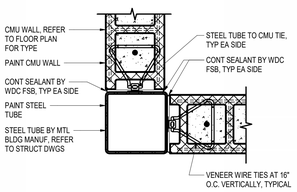
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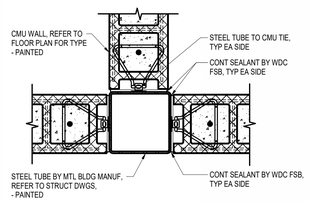
1 MASONRY AT COLUMN - CORNER, RATED
1 1/2" = 1'-0"



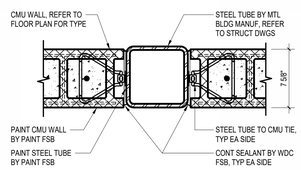
2 MASONRY BULLNOSE DETAIL
1 1/2" = 1'-0"



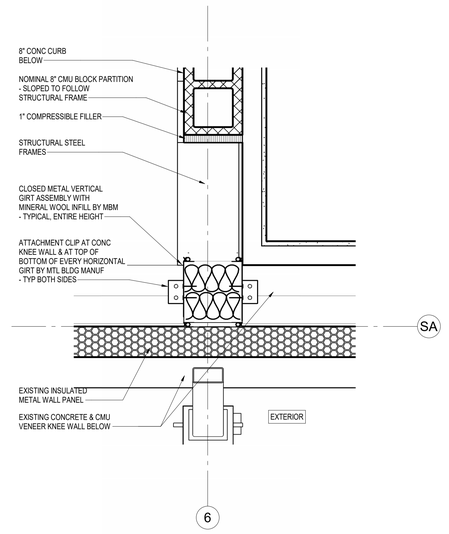
3 MASONRY AT COLUMN - CORNER
1 1/2" = 1'-0"



4 MASONRY AT COLUMN - INTERSECTION
1 1/2" = 1'-0"



5 MASONRY AT COLUMN
1 1/2" = 1'-0"



6 Detail 0
1 1/2" = 1'-0" 1/ A101

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

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Key Plan:

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Date:	OCTOBER 31, 2025
Drawn By:	FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

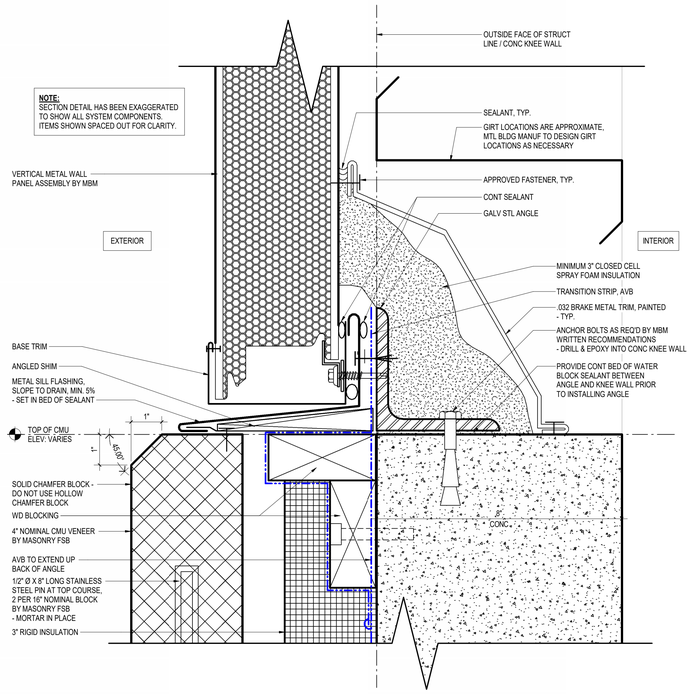
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PLAN DETAILS

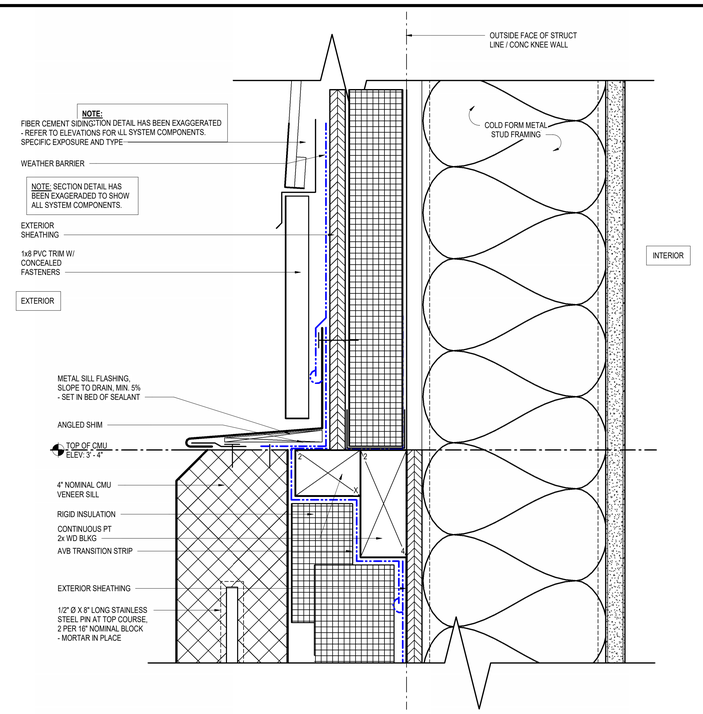
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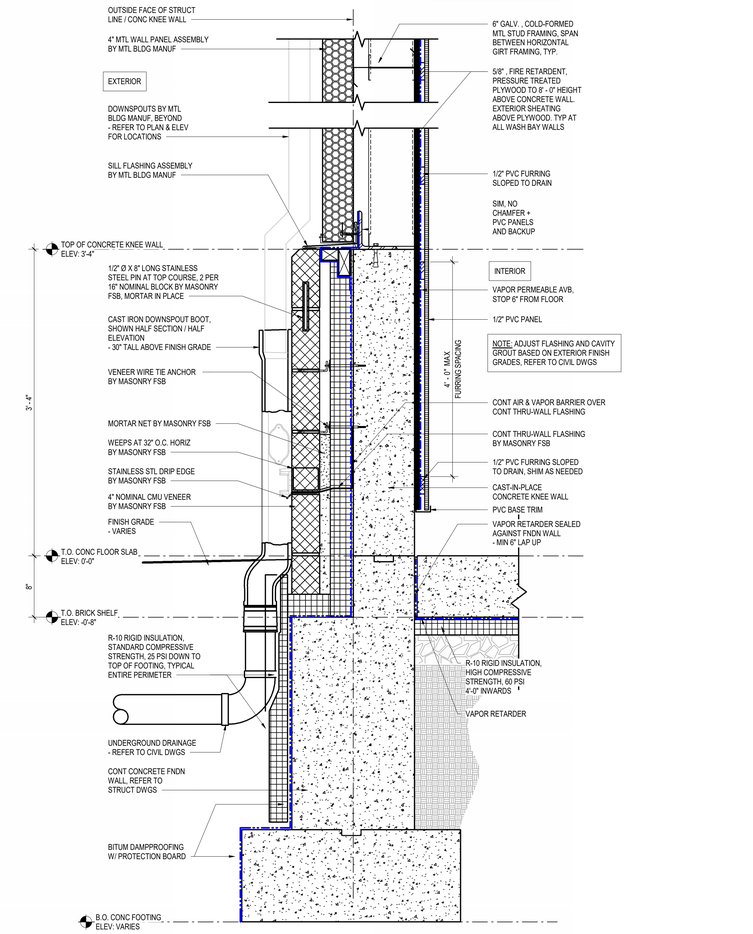
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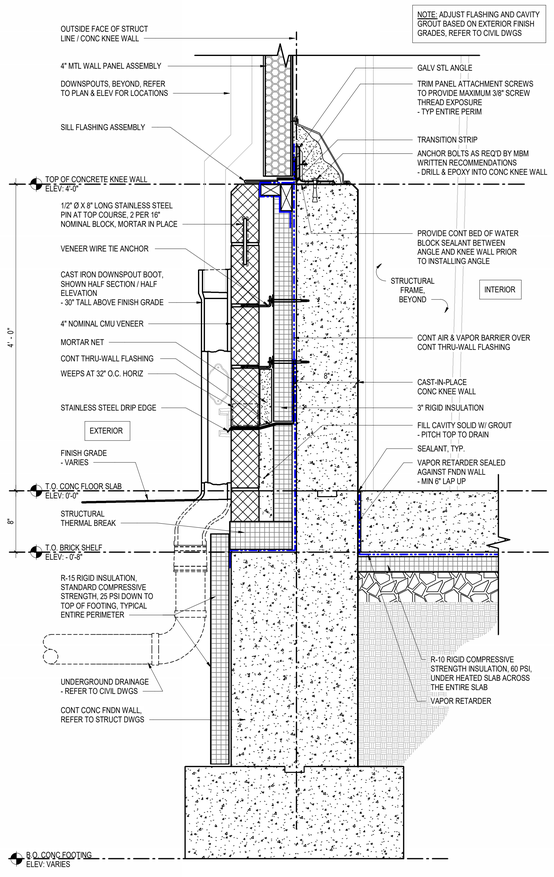
2 CAP FLASHING AT CMU VENEER TO METAL PANEL TRANSITION - CONC BACK UP
6" = 1'-0"



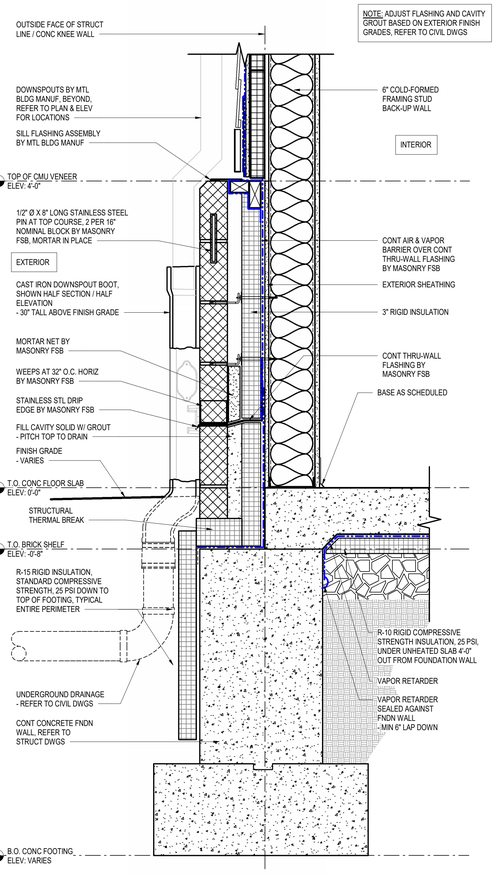
22 CAP FLASHING AT CMU VENEER TO METAL PANEL TRANSITION - MTL STUD BACK UP
6" = 1'-0"



5 MTL PANEL TO CMU WALL TRANSITION
1 1/2" = 1'-0"



3 MTL PANEL TO CMU WALL TRANSITION DETAIL - SHOPS, FLEET MAINTENANCE & FLEET STORAGE
1 1/2" = 1'-0"



1 MTL PANEL TO CMU WALL TRANSITION DETAIL - ADMINISTRATION
1 1/2" = 1'-0" 1/ A401

0' 6" 12" 1'-6"
SCALE: 6" = 1'-0"

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

10/30/2025 5:49:47 PM C:\Revit Projects\2024\24-1552_Truro DPW_Arch_v24_Peach Samantha.rvt

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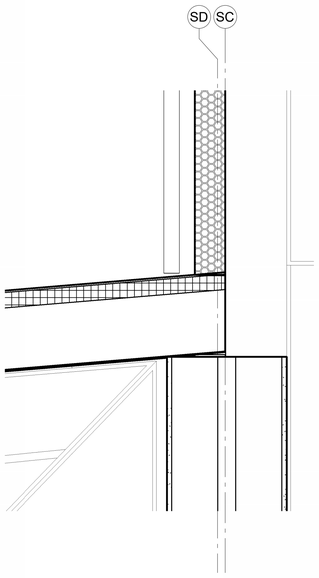
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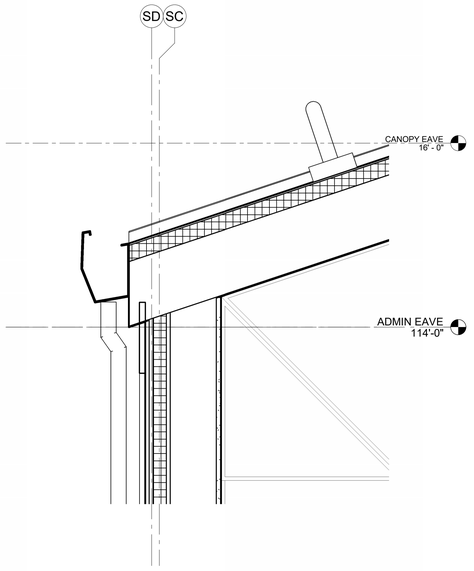
Date:	OCTOBER 31, 2025
Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
SECTION DETAILS

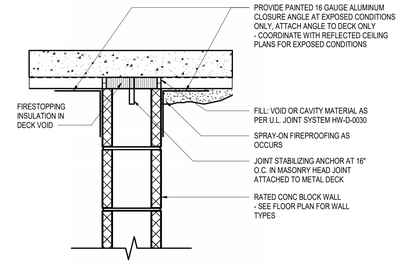
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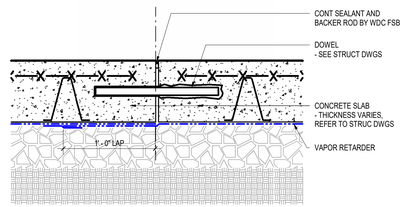
8 4
1 1/2" = 1'-0" 3/ A402



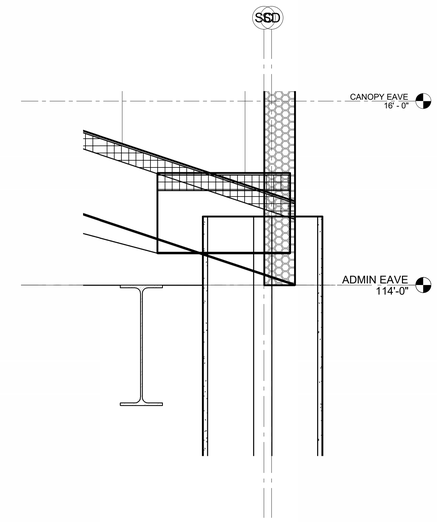
5 2
1 1/2" = 1'-0" 5/ A402



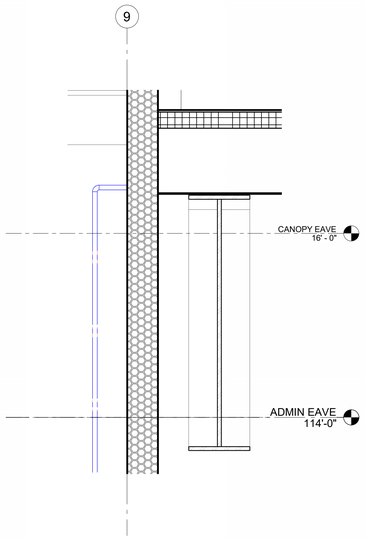
7 TYP. RATED T.O. WALL (MASONRY)
1 1/2" = 1'-0"



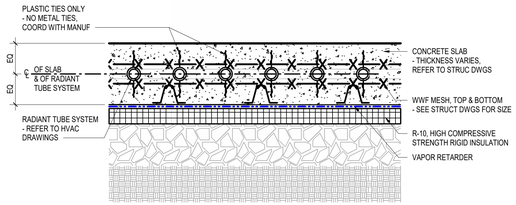
3 VAPOR RETARDER LAPPED JOINT
1 1/2" = 1'-0"



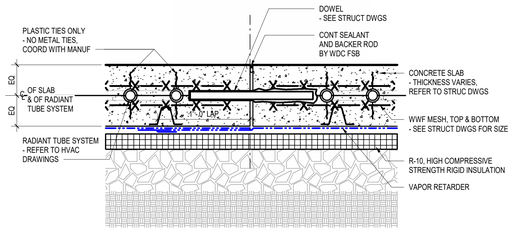
6 3
1 1/2" = 1'-0" 2/ A402



4 1
1 1/2" = 1'-0" 3/ A401



2 RADIANT HEATED SLAB - TYPICAL DETAIL
1 1/2" = 1'-0"



1 VAPOR RETARDER LAPPED JOINT AT RADIANT HEATED SLAB
1 1/2" = 1'-0"

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

10/30/2025 5:48:52 PM C:\+RevitProjects\2024\24-1552_Truro DPW_Arch_v24_Peach Samantha.rvt

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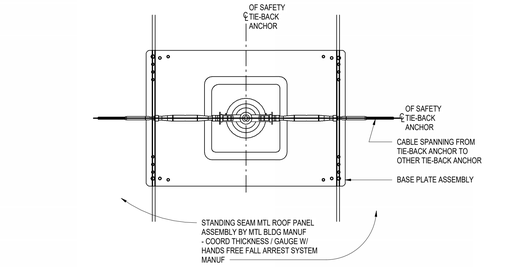
Date:	OCTOBER 31, 2025
Drawn By:	MMS, FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

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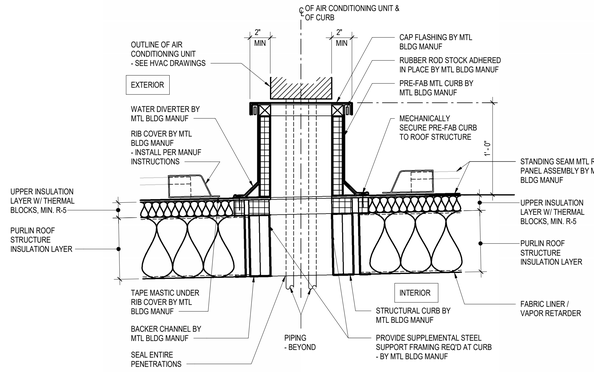
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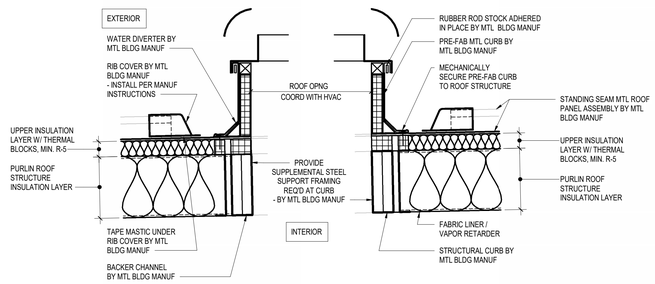
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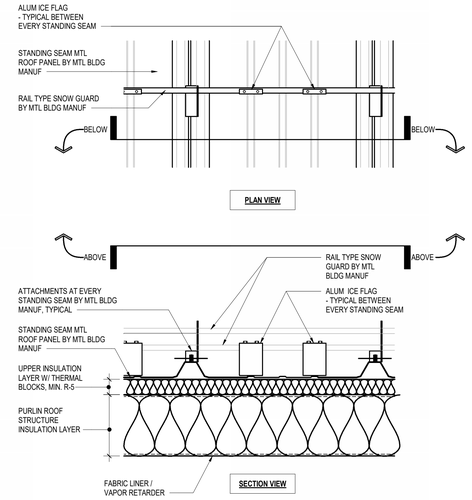
1 HANDS FREE FALL ARREST SYSTEM
1 1/2" = 1'-0"



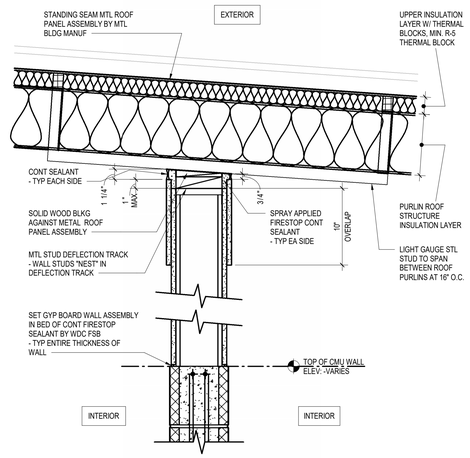
10 SPLIT SYSTEM CURB
1 1/2" = 1'-0"



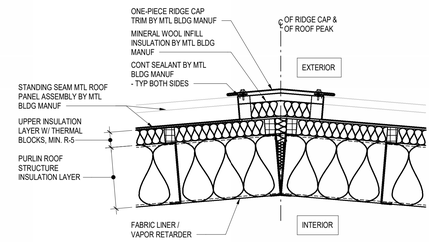
2 EXHAUST FAN CURB DETAIL
1 1/2" = 1'-0"



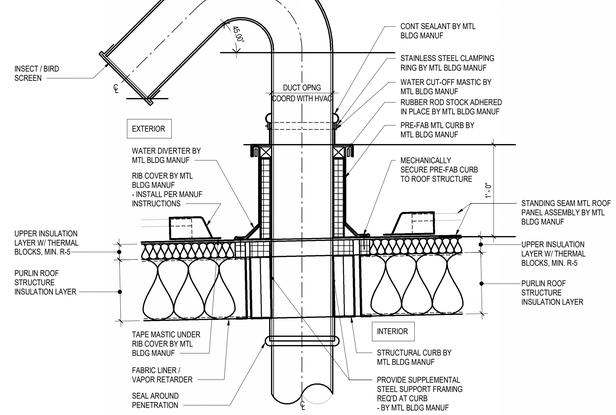
3 SNOW GUARD DETAIL
1 1/2" = 1'-0"



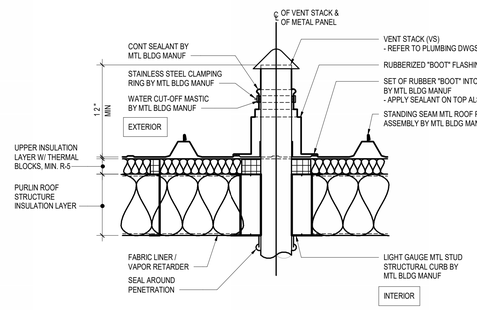
4 GYPSUM BOARD TO ROOF TRANSITION BETWEEN PURLINS SECTION
1 1/2" = 1'-0"



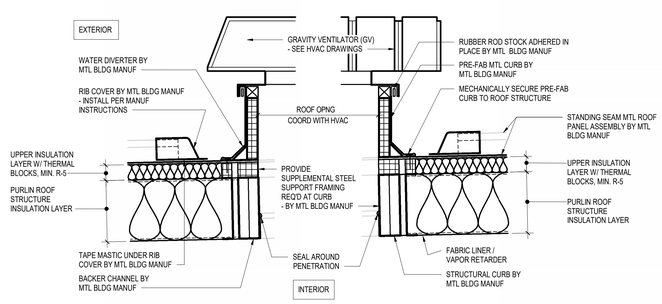
5 RIDGE CAP DETAIL
1 1/2" = 1'-0"



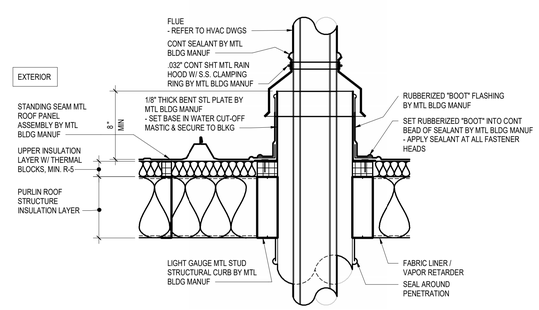
7 GOOSENECK DETAIL
1 1/2" = 1'-0"



9 VENT STACK DETAIL
1 1/2" = 1'-0"



6 GRAVITY VENTILATOR CURB DETAIL
1 1/2" = 1'-0"



8 FLUE / HOT STACK DETAIL
1 1/2" = 1'-0"

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

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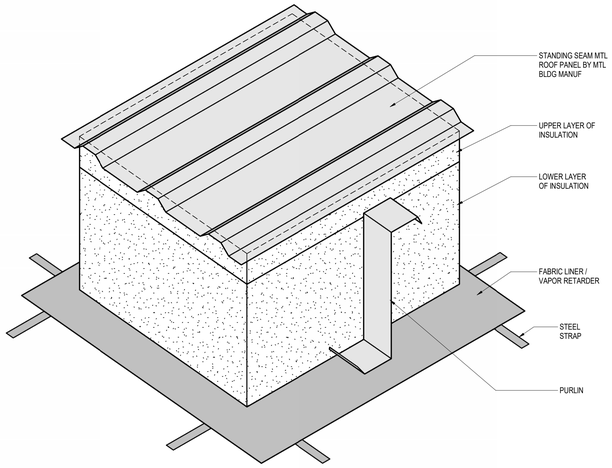
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Date: OCTOBER 31, 2025
Drawn By:
Reviewed By:
Approved By: JRC
W&S Project No.: ENG24-1552
W&S File No.: XXX

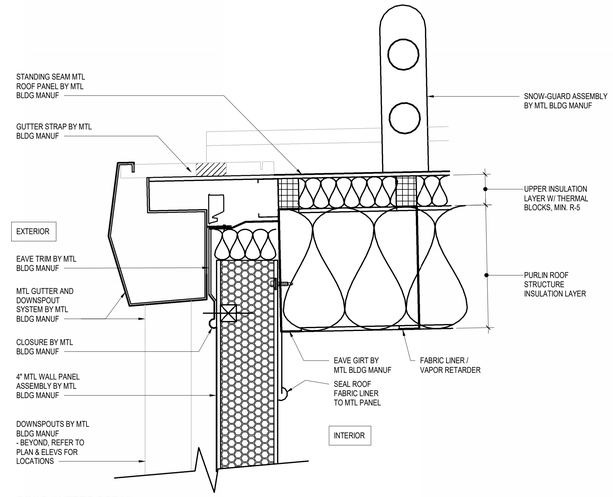
Drawing Title:
ROOF DETAILS

Sheet Number:
A621

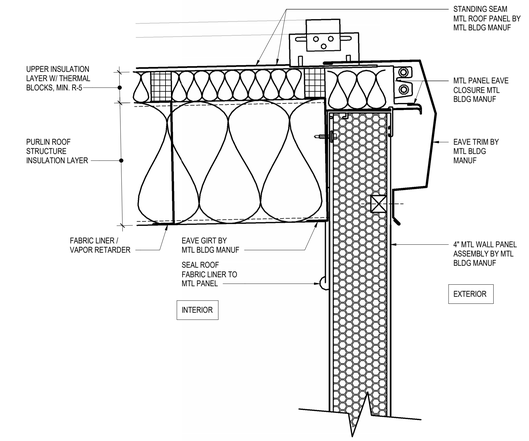
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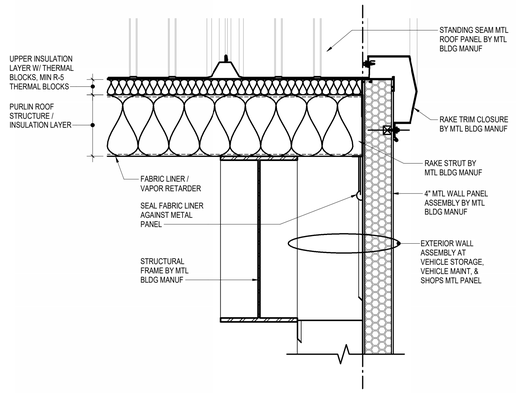
6 ANTENNA DETAIL
3" = 1'-0"



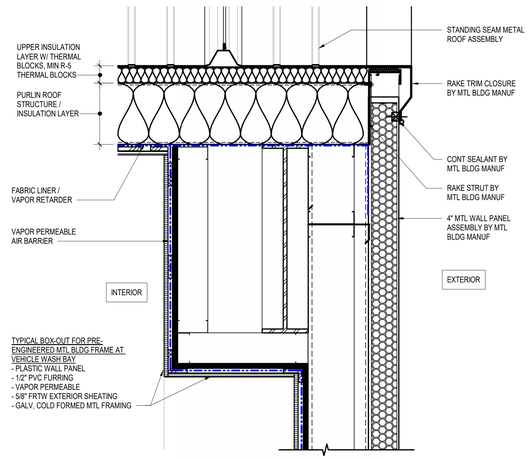
5 ROOF GUTTER DETAIL
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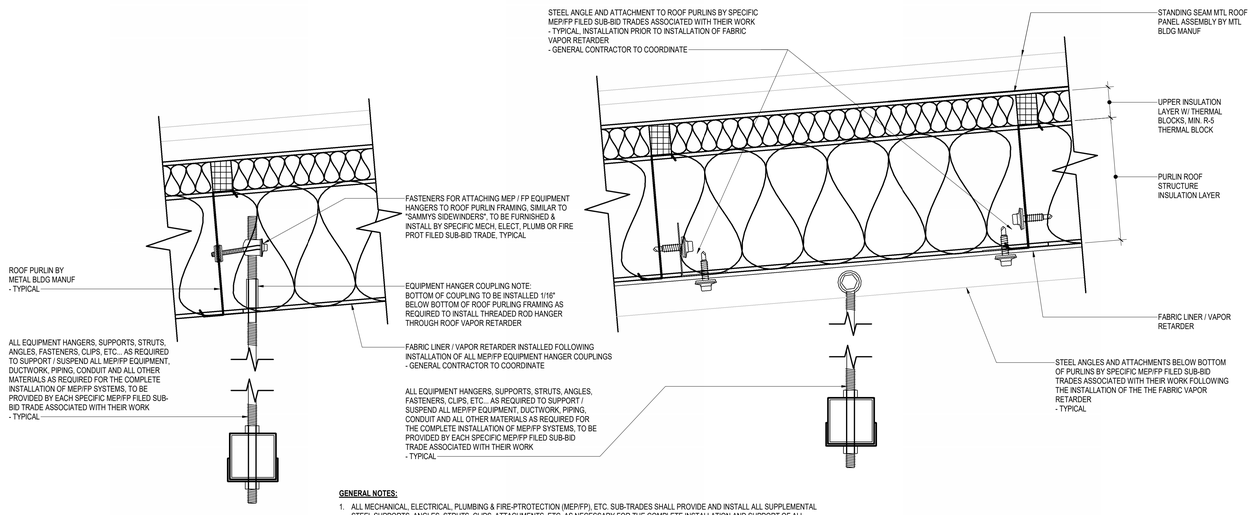
3 ROOF EAVE DETAIL
3" = 1'-0"



4 RAKE TRIM AT METAL PANEL - GIRT BACK UP
1 1/2" = 1'-0" 3/ A401



2 RAKE DETAIL AT MTL PANEL - VEHICLE WASH BAY
1 1/2" = 1'-0" 5/ A401



1 PURLIN ATTACHMENT DETAILS
3" = 1'-0"

GENERAL NOTES:

1. ALL MECHANICAL, ELECTRICAL, PLUMBING & FIRE-PTROTECTION (MEP/FP), ETC. SUB-TRADES SHALL PROVIDE AND INSTALL ALL SUPPLEMENTAL STEEL SUPPORTS, ANGLES, STRUTS, CLIPS, ATTACHMENTS, ETC. AS NECESSARY FOR THE COMPLETE INSTALLATION AND SUPPORT OF ALL BUILDING MEP/FP SYSTEMS.
2. ALL MEP/FP SUB-TRADES SHALL SIZE ALL SUPPORTS, ANGLES, CONNECTORS, ETC, AS REQUIRED TO SUPPORT THE LOADS OF THE SUSPENDED SYSTEMS AND SHALL COORDINATE SIZES AND LOCATIONS, AND SHALL OBTAIN APPROVAL FROM THE METAL BUILDING MANUFACTURER.
3. ALL FASTENERS, COUPLINGS, ANGLES, ETC. ATTACHED TO THE BUILDING ROOF PURLIN FRAMING ABOVE THE BOTTOM OF THE PURLIN, TO BE INSTALLED PRIOR TO INSTALLATION OF THE CEILING FABRIC LINER. SUSPENDED SUPPORTS INSTALLED BELOW THE BOTTOM OF THE PURLIN FRAMING TO BE INSTALLED FOLLOWING INSTALLATION OF THE CEILING LINER. GENERAL CONTRACTOR SHALL COORDINATE THE SEQUENCE AND INSTALLATION OF THE WORK.
4. ALL EQUIPMENT LOADS/ REACTIONS IMPOSED ON THE METAL BUILDING FRAMING TO BE REVIEWED AND APPROVED BY THE METAL BUILDING MANUFACTURER. ALL SUPPLEMENTAL BUILDING FRAMING MEMBERS, AS REQUIRED TO SUPPORT MECHANICAL/ ELECTRICAL/ FIRE PROTECTION EQUIPMENT, AS DETERMINED BY THE PREFABRICATED METAL BUILDING DESIGN, IN CONSIDERATION OF ALL EQUIPOMENT-IMPOSED LOADS TO THE BUILDING, TO BE PROVIDED BY METAL BUILDING MANUFACTURER.

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
17 TOWN HALL ROAD
TRURO, MA 02666

Weston & Sampson
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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: As Indicated

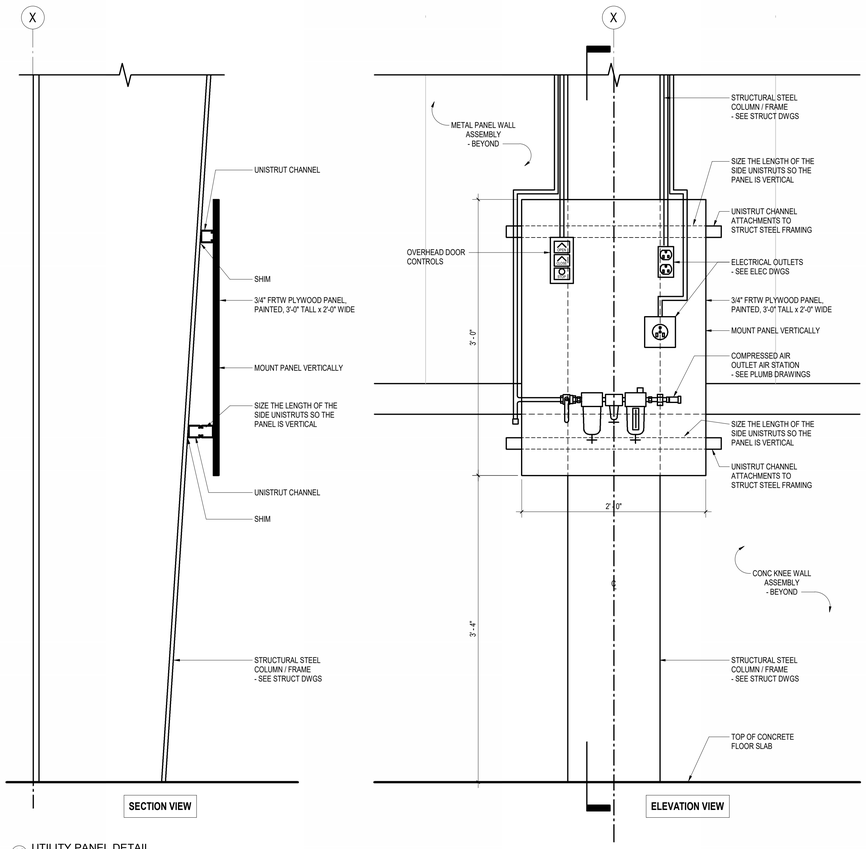
Key Plan:

Date: OCTOBER 31, 2025
Drawn By:
Reviewed By:
Approved By: JRC
W&S Project No.: ENG24-1552
W&S File No.: XXX

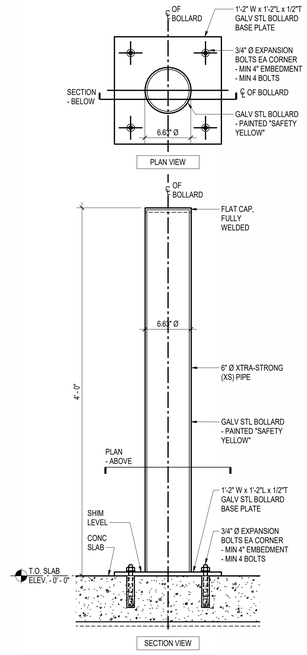
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ROOF DETAILS

Sheet Number:
A622

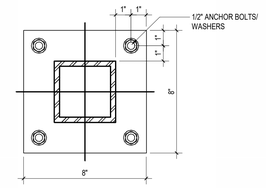
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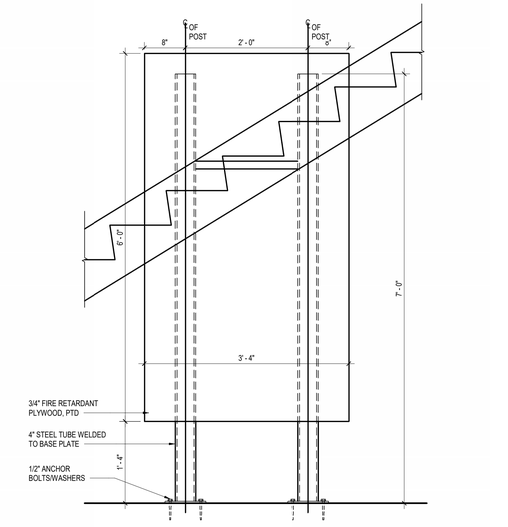
10 UTILITY PANEL DETAIL
1 1/2" = 1'-0"



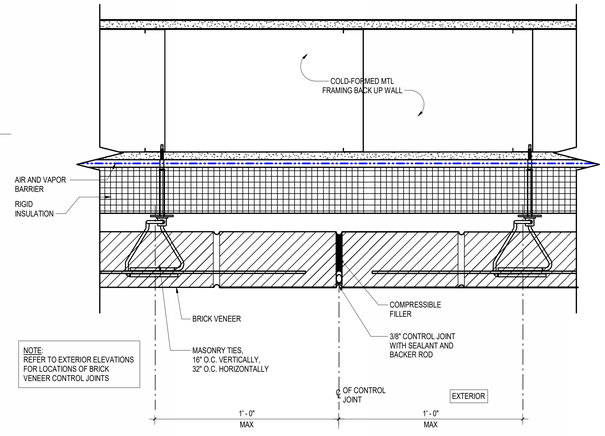
8 INTERIOR BOLLARD
1 1/2" = 1'-0"



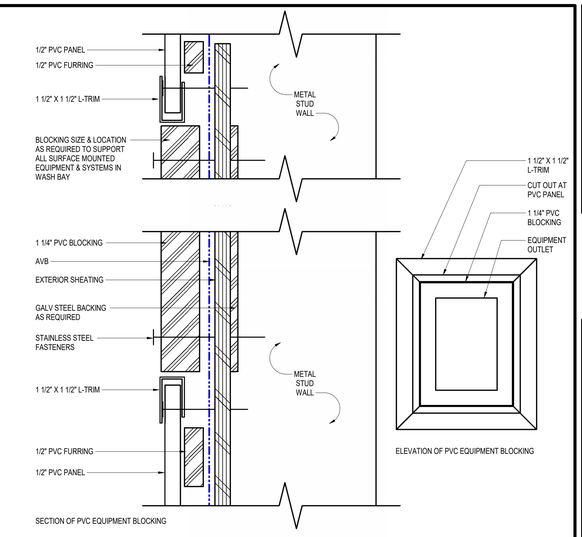
7 EQUIP. MOUNTING PANEL - BASE PLATE
3" = 1'-0"



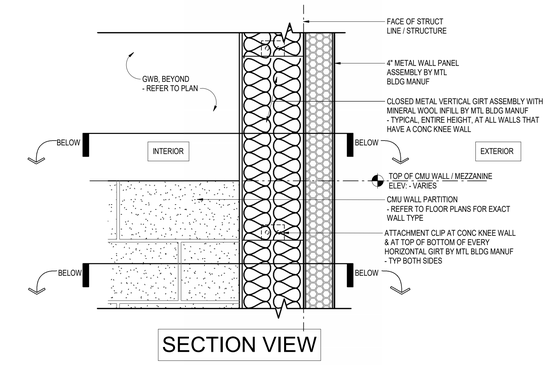
5 EQUIPMENT MOUNTING PANEL - ELEVATION DETAIL
1" = 1'-0"

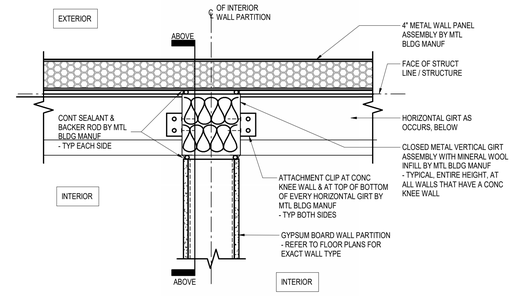


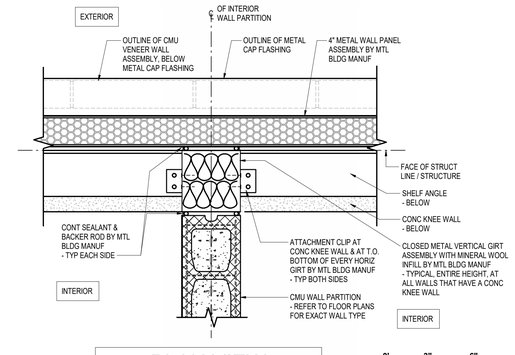
4 EXTERIOR WALL DETAIL - CMU CONTROL JOINT
3" = 1'-0"



2 VEHICLE WASH BAY EQUIPMENT BLOCKING - SECTION & ELEVATION DETAIL
6" = 1'-0"



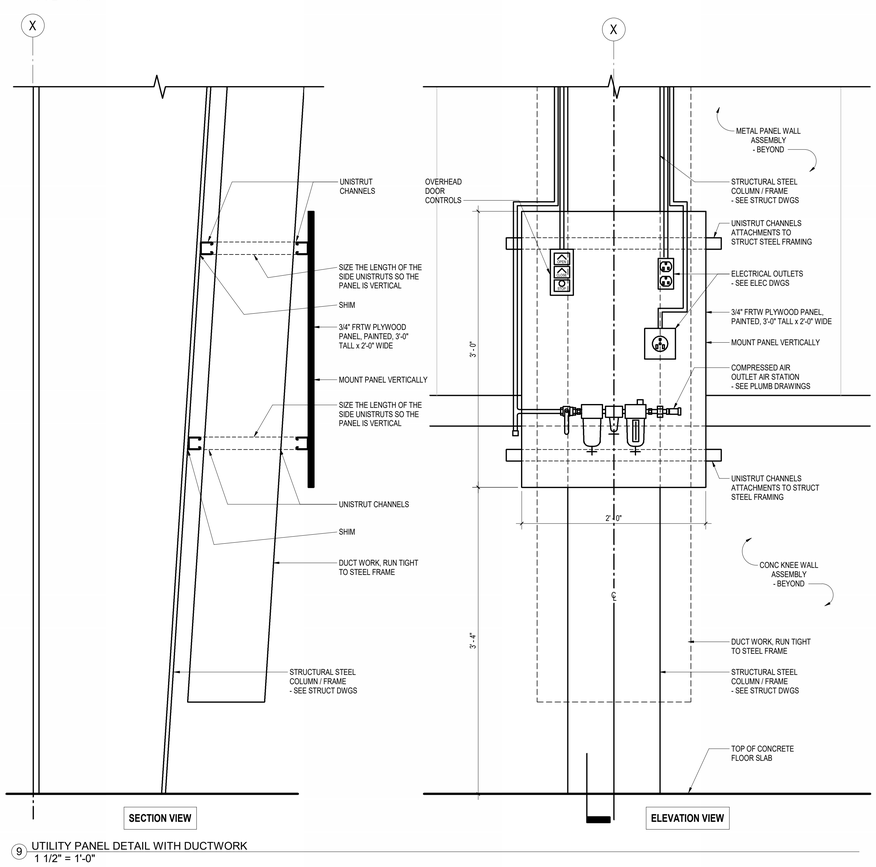




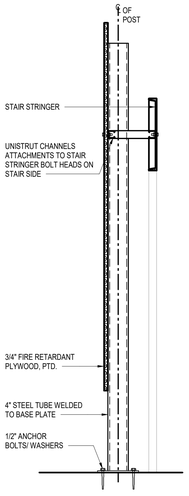
1 WALL INFILL AT GIRTS DETAILS
1 1/2" = 1'-0"

0' 3" 6" 9"
SCALE: 3" = 1'-0"

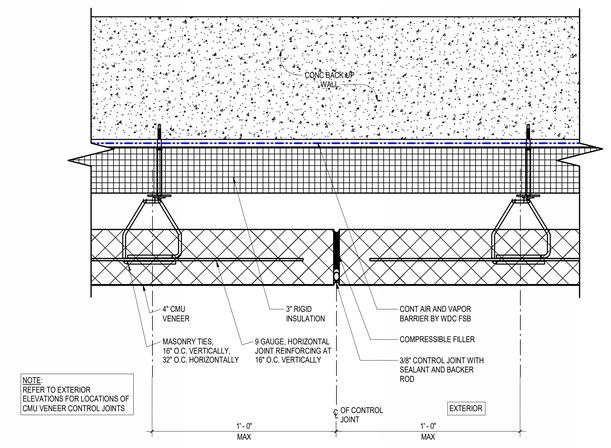
0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"



9 UTILITY PANEL DETAIL WITH DUCTWORK
1 1/2" = 1'-0"



6 EQUIP. MOUNTING PANEL - SECTION
1" = 1'-0"



3 EXTERIOR WALL DETAIL - CMU CONTROL JOINT
3" = 1'-0"

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

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DESIGN DEVELOPMENT

Scale: NTS indicated

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
MISC DETAILS

Sheet Number:
A631

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FLOOR PLAN GENERAL NOTES:

1. EQUIPMENT SHOWN FOR REFERENCE ONLY. SEE EQ DRAWINGS FOR MORE INFO.
2. FURNITURE SHOWN FOR INFORMATION ONLY (N.I.C.). SEE FURNITURE PLAN A921 FOR MORE INFO.
3. F.E. = FIRE EXTINGUISHER
   F.E.C = FIRE EXTINGUISHER CABINET
   - BRACKET MOUNTED
   - CABINET MOUNTED (SEMI-RECESSED)
4. ALL INTERIOR DIMENSIONS ARE TAKEN FROM FACE OF GYPSUM WALL BOARD TO FACE OF GYPSUM WALL BOARD OR FACE OF CMU UNLESS SPECIFICALLY NOTED OTHERWISE.
5. SEE SHEET A012 FOR PLUMBING FIXTURE SCHEDULE / MOUNTING HEIGHTS.
6. BOLLARDS:
   - EB: EXTERIOR BOLLARD, 6" DIAMETER (SEE CIVIL DWGS)
   - IB: INTERIOR BOLLARD, 6" DIAMETER (SEE DETAIL X / AXXX)
7. FUME SEPARATION PARTITION, SEE A031 - FUME SEPARATION ASSEMBLY, TYPE F1 AND F2.
8. BOX-OUT DIMENSIONS AT STRUCTURAL COLUMNS ARE APPROXIMATE. GENERAL CONTRACTOR TO INSTALL TIGHT TO STRUCTURE, TYPICAL.
9. NOT ALL TV / MONITOR LOCATIONS ARE SHOWN. COORDINATE PROPOSED LOCATIONS WITH ELECTRICAL &TELECOMMUNICATIONS DRAWINGS. PROVIDE BLOCKING AT EACH LOCATION ACCORDINGLY.
10. CG — CORNER GUARD, SEE A901 FOR LOCATIONS.

TOILET ACCESSORY SCHEDULE - DIV 10

FURNISHED BY OWNER - INSTALLED BY CONTRACTOR:

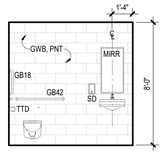
MARK	DESCRIPTION	MFR	QTY
SD	SOAP DISPENSER	OWNER REQ'S	PER PLANS
PTD	PAPER TOWEL DISPENSER	OWNER REQ'S	PER PLANS
TTD	TOILET TISSUE DISPENSER	OWNER REQ'S	PER PLANS
TB	TRASH BARREL	OWNER REQ'S	PER PLANS

FURNISHED AND INSTALLED BY CONTRACTOR:

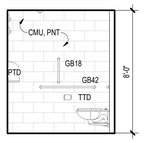
MARK	DESCRIPTION	MFR	QTY
SRWR	SEMI-RECESSED WASTE RECEPTICLE	PER SPEC	PER PLANS
SNV	SANITARY NAPKIN VENDOR	PER SPEC	PER PLANS
SND	SANITARY NAPKIN DISPOSAL	PER SPEC	PER PLANS
CH	COAT / ROBE HOOK	PER SPEC	PER PLANS
GB	GRAB BAR (DIMENSION PER PLANS)	PER SPEC	PER PLANS
MRR	MIRROR	PER SPEC	PER PLANS
M/BH	MOP/BROOM HOLDER	PER SPEC	PER PLANS
JS	JANITOR'S SHELVING	PER SPEC	PER PLANS
SC	SHOWER CURTAIN	PER SPEC	PER PLANS
CR	CURTAIN ROD FOR SHOWER	PER SPEC	PER PLANS

GENERAL NOTES:

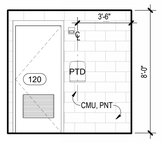
1. PROVIDE BULLNOSE TOP COURSE / MTL EDGE TRIM AND CEMENTITIOUS TILE BACK BOARD / CEMENT BOARD AT ALL CERAMIC TILE LOCATIONS, TYPICAL. INSTALLATION OF CERAMIC TILE OVER GYPSUM BOARD EXCEPT FOR A KITCHENETTE BACKSPLASH IS NOT ACCEPTABLE.
2. PROVIDE CONT. BLOCKING AT SHELVING, ACCESS PANELS, DISPLAY MONITORS, MARKER BOARDS ETC. COORDINATE LOCATION IN FIELD.
3. MOISTURE RESISTANT (MR) GYPSUM BOARD TO BE USED IN ALL TOILET ROOM / RESTROOM FACILITIES.
4. PROVIDE PVC SHIMS AS NECESSARY TO MAKE TOILET ROOM ACCESSORIES SUCH AS PTD'S, MIRRORS, SD'S, TOILET PARTITIONS, ETC... FLUSH ON WALL OVER CERAMIC TILE WAINSCOT. SHIMS TO BE PAINTED BY PAINTING FSB. THICKNESS TO MATCH CERAMIC WALL TILE.



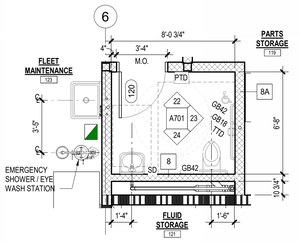
24 MECHANIC'S RESTROOM SOUTH
1/4" = 1'-0" 2/ A701



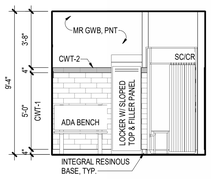
23 MECHANIC'S RESTROOM EAST
1/4" = 1'-0" 2/ A701



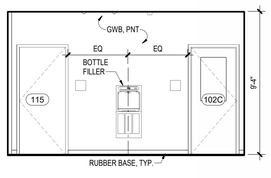
22 MECHANIC'S RESTROOM NORTH
1/4" = 1'-0" 2/ A701



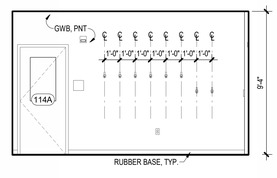
2 LARGE SCALE MECHANIC'S RESTROOM PLAN
1/4" = 1'-0" 1/ A101



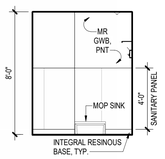
14 WOMEN'S LOCKER ROOM - WEST
1/4" = 1'-0" 1/ A701



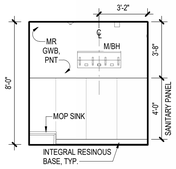
17 VESTIBULE - EAST
1/4" = 1'-0" 1/ A701



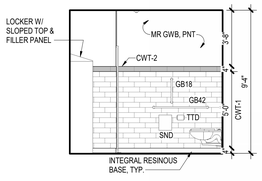
18 VESTIBULE - WEST
1/4" = 1'-0" 1/ A701



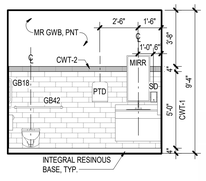
9 JANITOR CLOSET NORTH
1/4" = 1'-0" 1/ A701



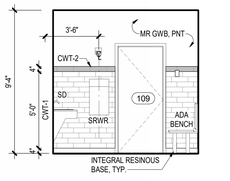
21 JANITOR CLOSET EAST
1/4" = 1'-0" 1/ A701



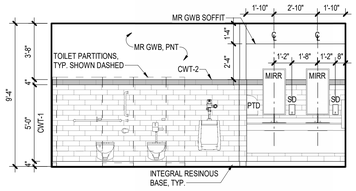
15 WOMEN'S LOCKER ROOM - NORTH
1/4" = 1'-0" 1/ A701



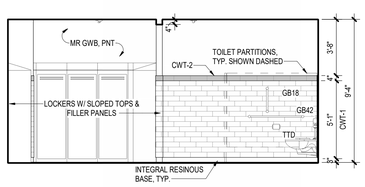
16 WOMEN'S LOCKER ROOM - EAST
1/4" = 1'-0" 1/ A701



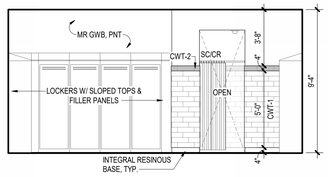
13 WOMEN'S LOCKER ROOM - SOUTH
1/4" = 1'-0" 1/ A701



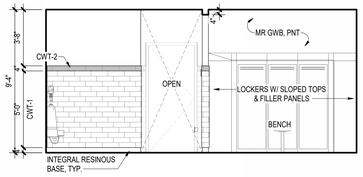
7 MEN'S LOCKER ROOM - WEST
1/4" = 1'-0" 1/ A701



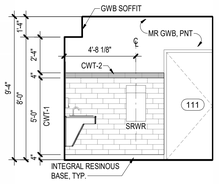
8 MEN'S LOCKER ROOM - SOUTH
1/4" = 1'-0" 1/ A701



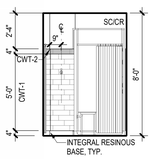
6 MEN'S LOCKER ROOM EAST
1/4" = 1'-0" 1/ A701



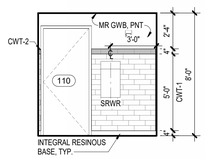
5 MEN'S LOCKER ROOM - NORTH
1/4" = 1'-0" 1/ A701



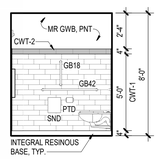
20 MEN'S LOCKER ROOM ENTRANCE NORTH
1/4" = 1'-0" 1/ A701



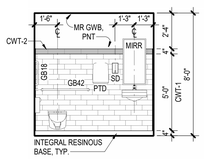
19 MEN'S LOCKER ROOM SHOWER
1/4" = 1'-0" 1/ A701



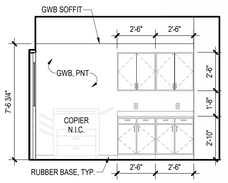
10 ADMIN RESTROOM - NORTH
1/4" = 1'-0" 1/ A701



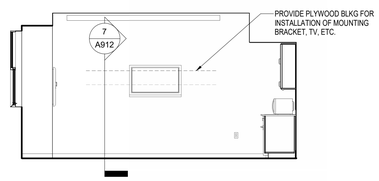
11 ADMIN RESTROOM - EAST
1/4" = 1'-0" 1/ A701



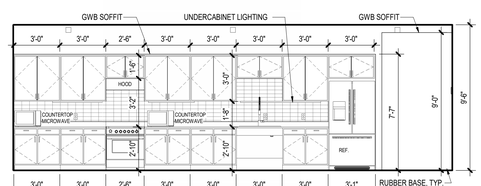
12 ADMIN RESTROOM - SOUTH
1/4" = 1'-0" 1/ A701



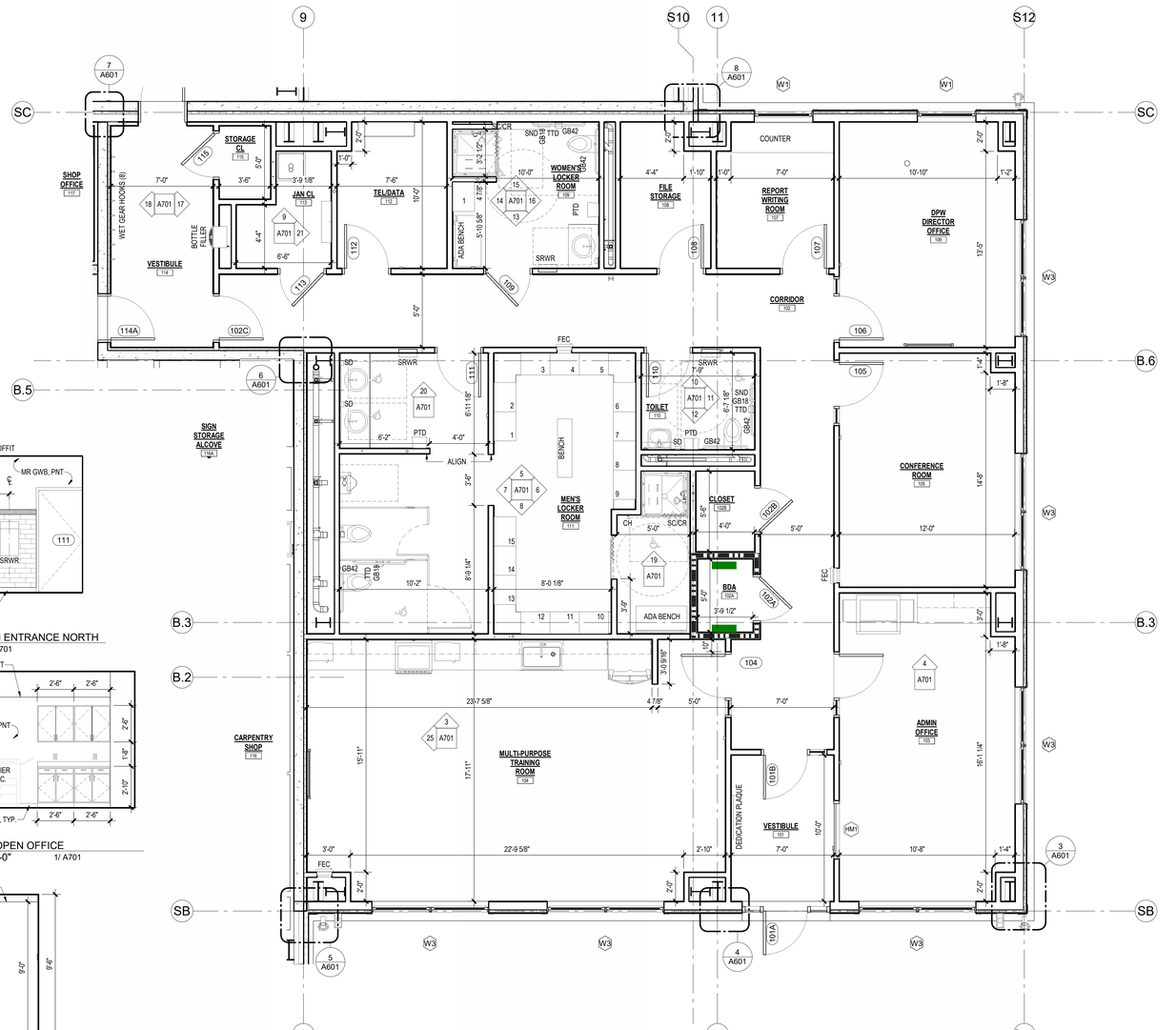
4 ADMIN OPEN OFFICE
1/4" = 1'-0" 1/ A701



25 MULTI-PURPOSE / TRAINING ROOM - WEST
1/4" = 1'-0" 1/ A701



3 MULTI-PURPOSE / TRAINING ROOM - NORTH
1/4" = 1'-0" 1/ A701



1 LARGE SCALE ADMIN & STAFF FACILITIES PLAN
1/4" = 1'-0" 1/ A101

0' 2' 4' 8'
SCALE: 1/4" = 1'-0"

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: NTS Indicated

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS, SP
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
LARGE SCALE FLOOR PLAN / INTERIOR ELEVATIONS

Sheet Number:
A701

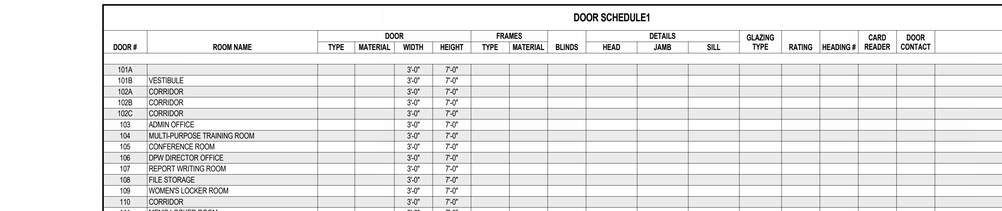
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DOOR SCHEDULE1

DOOR #	ROOM NAME	DOOR TYPE	DOOR MATERIAL	DOOR WIDTH	DOOR HEIGHT	FRAMES TYPE	FRAMES MATERIAL	BLINDS	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	GLAZING TYPE	RATING	HEADING #	CARD READER	DOOR CONTACT	REMARKS
101A				3'-0"	7'-0"												
101B	VESTIBULE			3'-0"	7'-0"												
102A	CORRIDOR			3'-0"	7'-0"												
102B	CORRIDOR			3'-0"	7'-0"												
102C	CORRIDOR			3'-0"	7'-0"												
103	ADMIN OFFICE			3'-0"	7'-0"												
104	MULTI-PURPOSE TRAINING ROOM			3'-0"	7'-0"												
105	CONFERENCE ROOM			3'-0"	7'-0"												
106	DPW DIRECTOR OFFICE			3'-0"	7'-0"												
107	REPORT WRITING ROOM			3'-0"	7'-0"												
108	FILE STORAGE			3'-0"	7'-0"												
109	WOMEN'S LOCKER ROOM			3'-0"	7'-0"												
110	CORRIDOR			3'-0"	7'-0"												
111	MEN'S LOCKER ROOM			3'-0"	7'-0"												
112	CORRIDOR			3'-0"	7'-0"												
113	JAN CL			3'-0"	7'-0"												
114A	CARPENTRY SHOP			3'-0"	7'-0"												
114B	FLEET STORAGE			3'-0"	7'-0"												
115	VESTIBULE			3'-0"	7'-0"												
116A	CARPENTRY SHOP			3'-0"	7'-0"												
116B	CARPENTRY SHOP			14'-0"	14'-0"												
117	SHOP OFFICE			3'-0"	7'-0"												
118A	ELEC RM			6'-0"	7'-0"								90 MIN				
118B	CARPENTRY SHOP			3'-0"	7'-0"												
118C	FLEET STORAGE			3'-0"	7'-0"												
118E	FIRE PUMP ROOM			6'-0"	7'-0"												
119A	PARTS STORAGE			3'-0"	7'-0"												
119B	PARTS STORAGE			6'-0"	7'-0"												
120	WC			3'-0"	7'-0"												
121	FLUID STORAGE			6'-0"	7'-0"												
122	MECHANIC'S OFFICE			3'-0"	7'-0"												
123A				3'-0"	7'-0"												
123B	FLEET MAINTENANCE			16'-0"	16'-0"												
123C	FLEET MAINTENANCE			16'-0"	16'-0"												
123D				3'-0"	7'-0"												
123E	FLEET MAINTENANCE			16'-0"	16'-0"												
123F	FLEET STORAGE			3'-0"	7'-0"												
124	PLUMBING ROOM			3'-0"	7'-0"												
125A	WASH BAY			6'-0"	7'-0"												
125B	WASH BAY			3'-0"	7'-0"												
125C	WASH BAY			16'-0"	16'-0"												
125D	WASH BAY			3'-0"	7'-0"												
125E	WASH BAY			3'-0"	7'-0"												
125F	WASH BAY			16'-0"	16'-0"												
127A				18'-0"	16'-0"												
127B	FLEET STORAGE			3'-0"	7'-0"												
127C	FLEET STORAGE			3'-0"	7'-0"												
127E				18'-0"	16'-0"												
150A	SECONDARY STORAGE BUILDING			3'-0"	7'-0"												
150B				22'-0"	16'-0"												
150C				22'-0"	16'-0"												
150D				22'-0"	16'-0"												
150E				22'-0"	16'-0"												
150F				22'-0"	16'-0"												
202	MEZZANINE			6'-0"	7'-0"												
203	MEZZANINE			6'-0"	7'-0"												

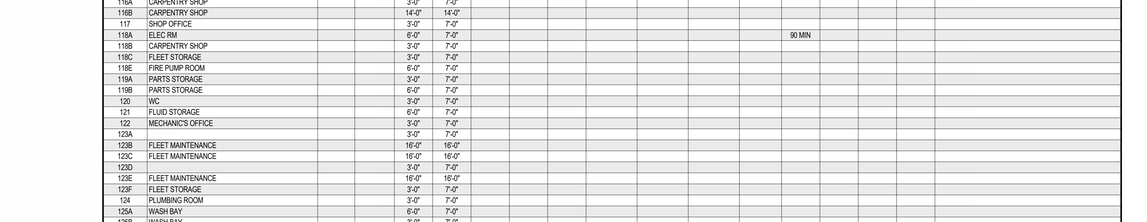
Grand total: 56

⚠	NON-STOREFRONT GLAZING SCHEDULE	
TYPE	DESCRIPTION	USE IN THESE LOCATIONS
1	1/4" CLEAR TEMPERED	ALL INTERIOR NON-FIRE RATED DOORS AND INTERIOR WINDOWS
2	1/4" CLEAR LAMINATED GLASS	AS INDICATED
3	5/16" - 3/8" CERAMIC FIRE RATED GLASS	ALL INTERIOR FIRE RATED DOORS & WINDOWS
4	1" CLEAR INSULATING TEMPERED GLASS	ALL EXTERIOR DOORS, CURTAIN WALL, STOREFRONT, & WINDOWS
5	1/4" TEMPERED FROSTED GLASS	AS INDICATED



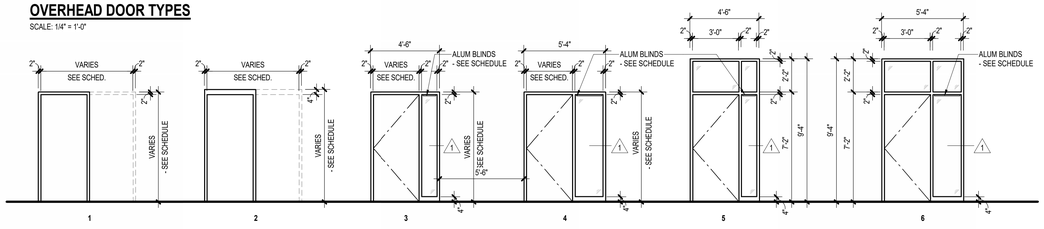
DOOR TYPES

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



OVERHEAD DOOR TYPES

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



FRAME TYPES

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

1 DOOR & FRAMES TYPES & ELEVATIONS
1/4" = 1'-0"

0' 2' 4' 8'
SCALE: 1/4" = 1'-0"

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DESIGN DEVELOPMENT

Scale: NTS = 1'-0"

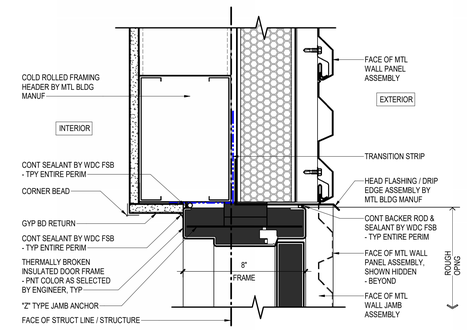
Key Plan:

Date: OCTOBER 31, 2025
Drawn By: MMS
Reviewed By: DRD
Approved By: JRC
W&S Project No.: ENG24-1552
W&S File No.: XXX

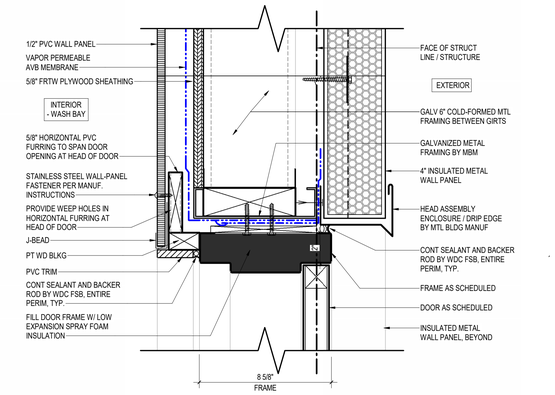
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DOOR SCHEDULE & DOOR AND FRAME TYPES

Sheet Number:
A801

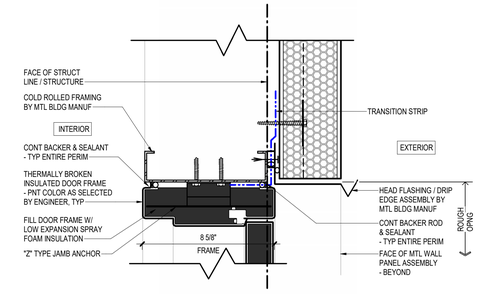
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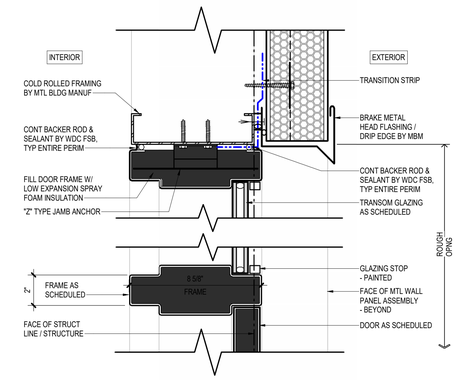
8 HM DOOR FRAME - LINER METAL PANEL W/ STUDS - HEAD
3" = 1'-0"



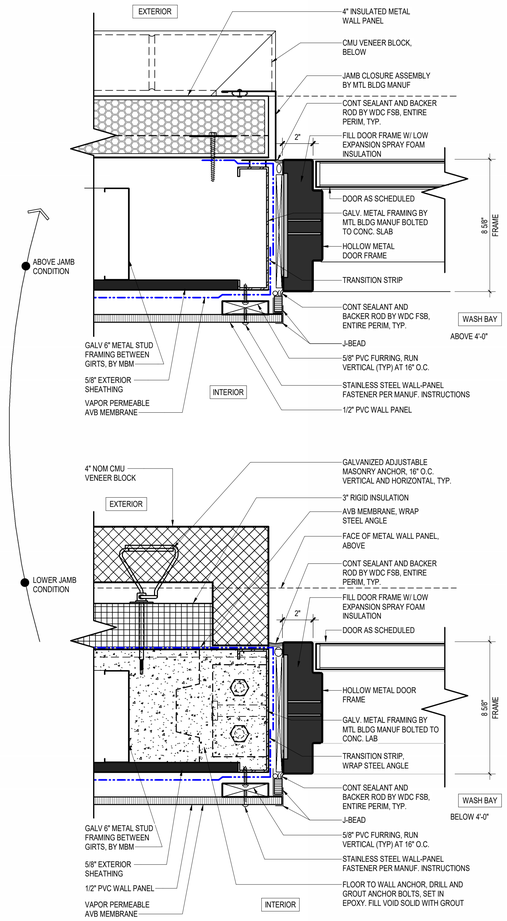
3 HEAD DETAIL - WASH BAY
3" = 1'-0"



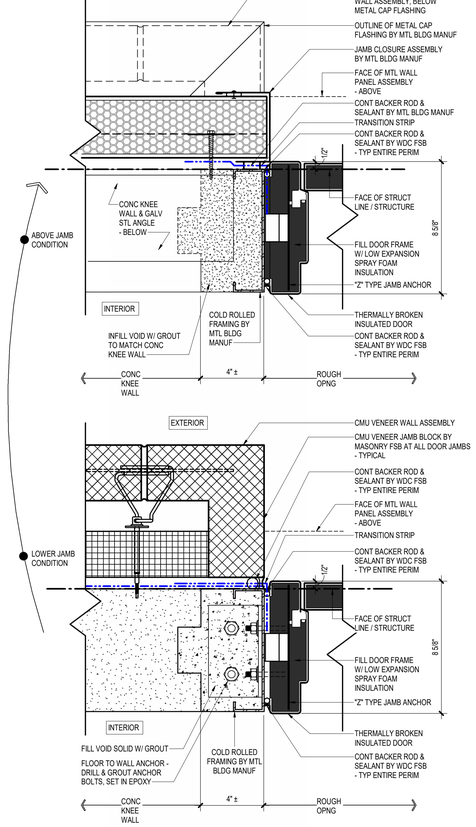
5 HM DOOR FRAME - METAL PANEL (BRAKE METAL) W/ GIRTS - HEAD DETAIL
3" = 1'-0"



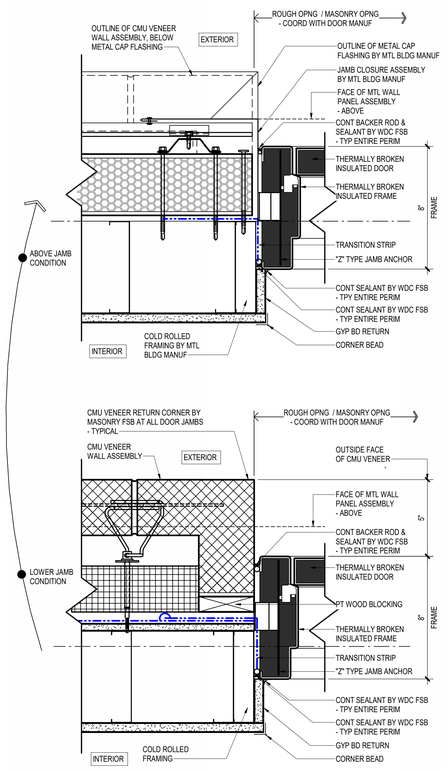
7 A805_Door w/ Transom - Mtl Pnl, Brake Mtl/Girts - HEAD
3" = 1'-0"



4 JAMB DETAIL - WASH BAY
3" = 1'-0"



6 HM DOOR FRAME - METAL PANEL W/ GIRTS/CONC - JAMB
3" = 1'-0"



9 HM DOOR FRAME - LINER METAL PANEL W/ STUDS - JAMB
3" = 1'-0"

0" 1" 2" 4"
SCALE: 1/2" = 1'-0"

10/30/2025 5:50:48 PM C:\+RevitProjects\2024\24-1552_Truro DPW_Archi_v24_Peach.Sammartino.rvt

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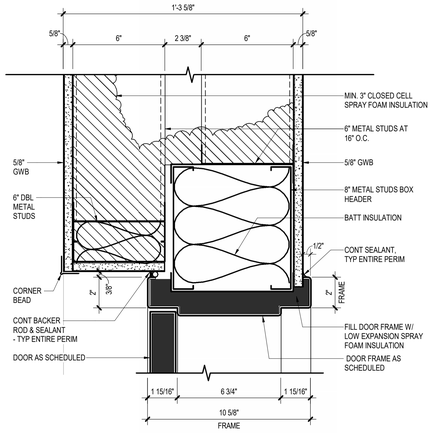
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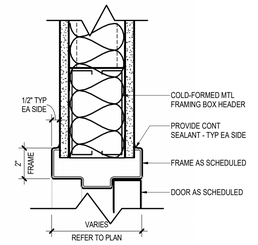
Date:	OCTOBER 31, 2025
Drawn By:	CL
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
DOOR DETAILS I

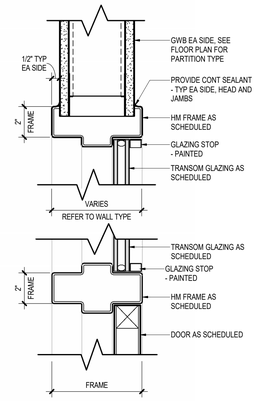
Sheet Number:
A811



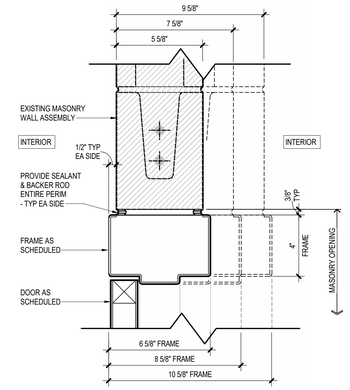
12 FUME SEPARATION WALL (TYPE 1 & 2) - DOOR HEAD
3" = 1'-0"



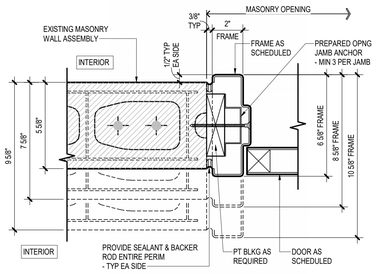
1 DOOR HEAD
3" = 1'-0"



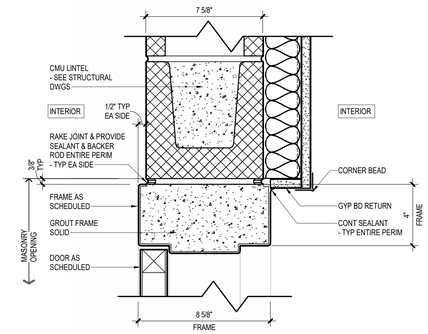
11 TRANSOM DOOR HEAD
3" = 1'-0"



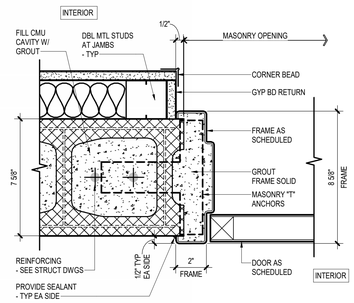
5 A811_Door - CMU, Existing Cond - HEAD
3" = 1'-0"



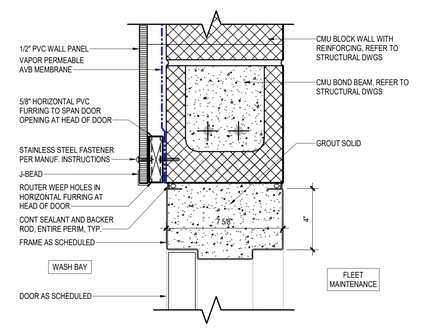
6 A811_Door - CMU, Existing Cond - JAMB
3" = 1'-0"



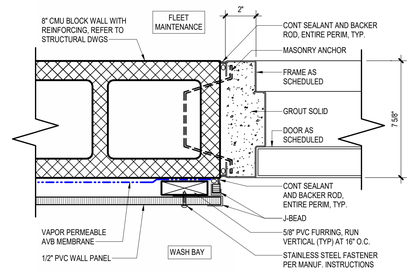
2 CMU / FUR-OUT DOOR HEAD
3" = 1'-0"



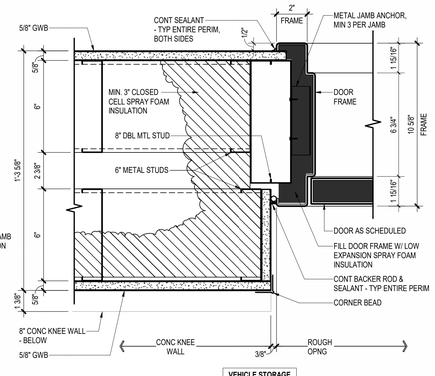
3 CMU / FUR-OUT DOOR JAMB
3" = 1'-0"



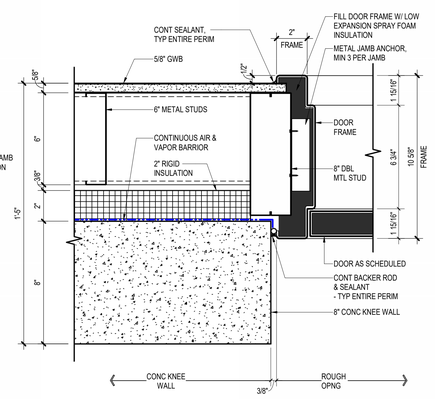
7 HEAD DETAIL - WASH BAY
3" = 1'-0"



8 JAMB DETAIL - WASH BAY
3" = 1'-0"

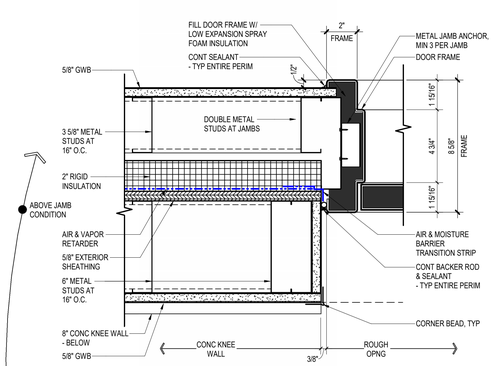


VEHICLE STORAGE
ABOVE 5' - 4" AFF

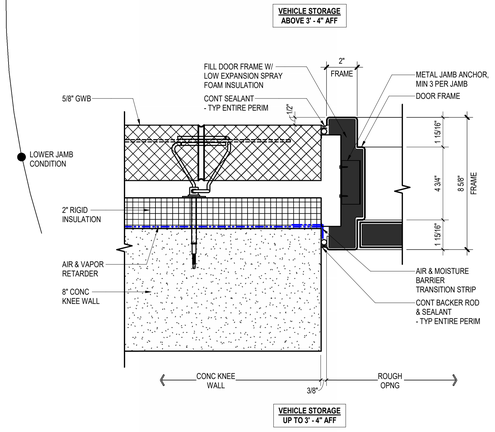


VEHICLE STORAGE
UP TO 5' - 4" AFF

3 FUME SEPARATION WALL (TYPE 2) - DOOR JAMB
3" = 1'-0"

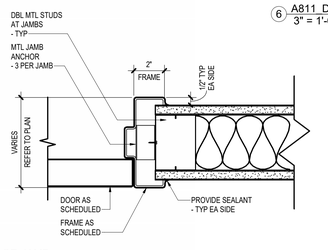


VEHICLE STORAGE
ABOVE 5' - 4" AFF

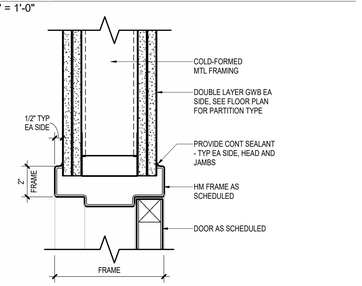


VEHICLE STORAGE
UP TO 3' - 4" AFF

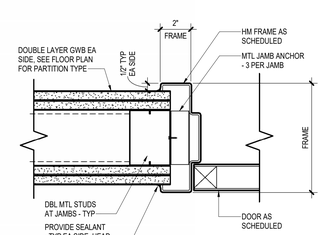
14 FUME SEPARATION WALL W/ CMU BASE - DOOR JAMB
3" = 1'-0"



4 DOOR JAMB
3" = 1'-0"



9 DOOR HEAD
3" = 1'-0"



10 DOOR JAMB
3" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
17 TOWN HALL ROAD
TRURO, MA 02666

Weston & Sampson Engineers, Inc.
100 Foxborough Boulevard, Suite 250
Foxborough, MA 02035
978.532.1900 800.SAMPSON
www.westonandsampson.com

Consultants:
GGD Consulting Engineers, Inc.
375 Corner Road, Suite D
Darmouth, MA 02747
(508) 996-0883

Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: NTS 1'-0"
Key Plan:

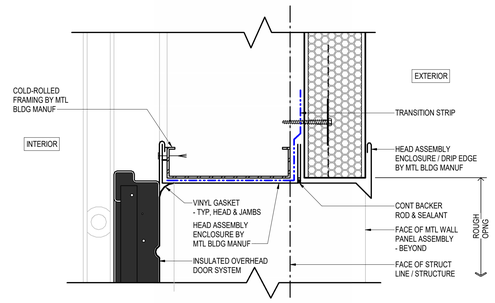
Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
DOOR DETAILS II

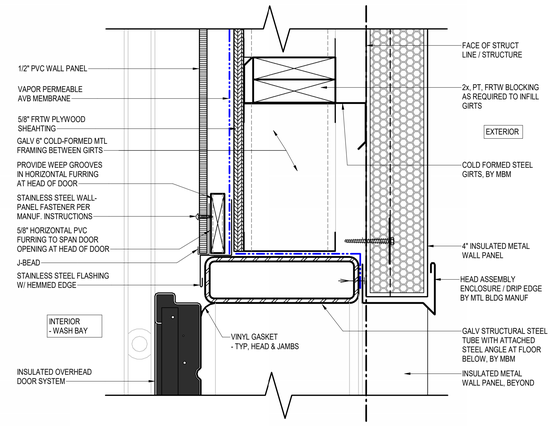
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A812

0' 1' 2' 4'
SCALE: 1/2" = 1'-0"

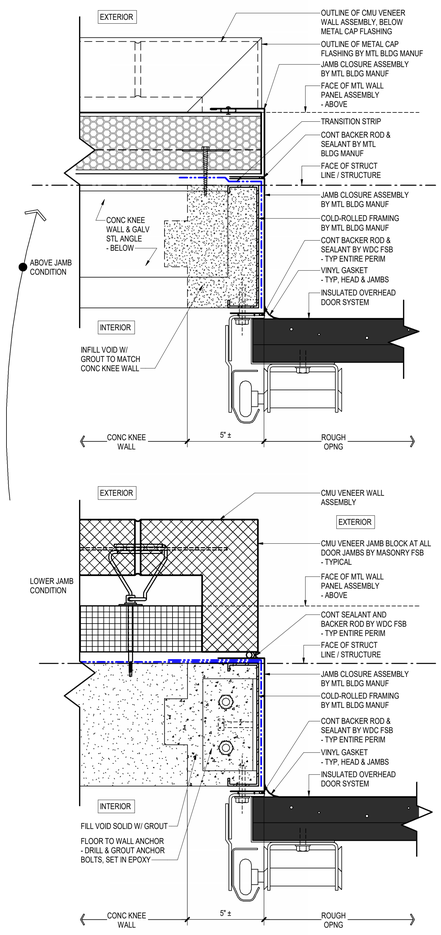
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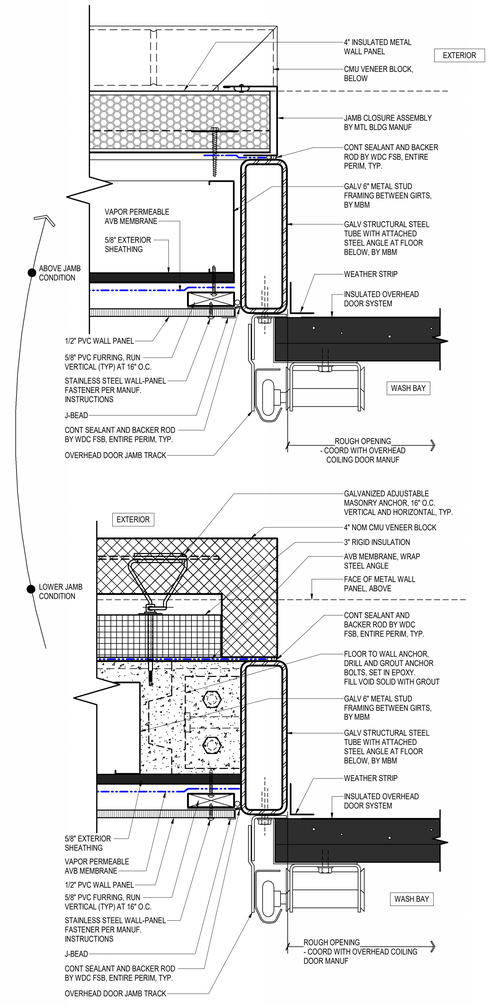
1 A801_OH Door - Mtl Pnl, Brake Mtl/Girts - HEAD
3" = 1'-0"



3 WASH BAY - OVERHEAD DOOR - HEAD DETAIL
3" = 1'-0"



2 A801_OH Door - Mtl Pnl, Brake Mtl/Girts/Conc - JAMB
3" = 1'-0"



4 WASH BAY - OVERHEAD DOOR - JAMB DETAIL
3" = 1'-0"

0' 1' 2' 4'
SCALE: 1/2" = 1'-0"

10/30/2025 5:50:57 PM C:\+Revit Projects\2024\24-1552_Truro DPW_Arch_v24_Peach.Samantha.rvt

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Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
DOOR DETAILS III

Sheet Number:
A813

FENESTRATION GENERAL NOTES:

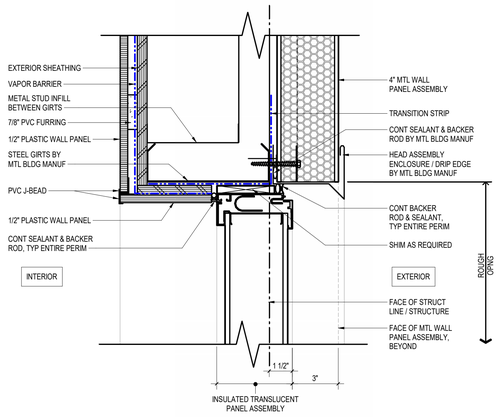
1. ALL OVERALL DIMENSIONS ARE SHOWN TO ROUGH-OPENING / MASONRY OPENING UNLESS NOTED OTHERWISE. TYP.
2. JOINT SEALANTS REQUIRED PER SPECIFICATION SECTION (07 92 00): PROVIDE BACK ROD AND SEALANT AT PERIMETER OF ALL WALL OPENINGS INCLUDING, BUT NOT LIMITED TO, WINDOWS, DOORS, LOUVERS AND TRANSLUCENT PANELS, AT ALL INTERIOR AND EXTERIOR JOINTS.
3. TYPICAL JOINT WIDTH: 3/8", MAXIMUM JOINT WIDTH: 1/2"
4. ALL AIR VAPOR BARRIERS (AVB) AT OPENINGS SHALL RETURN TO THE INSIDE FACE OF THE ROUGH OPENING (TYP) ON SILL, HEAD, AND JAMB CONDITIONS.
5. GLAZING TAG: (#)
6. INDICATES GLAZING:

(#) NON-STOREFRONT GLAZING SCHEDULE

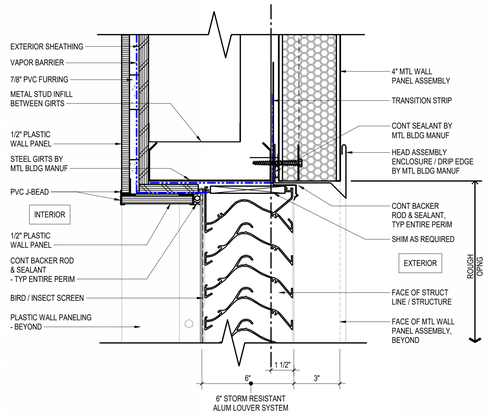
TYPE	DESCRIPTION	USE IN THESE LOCATIONS
1	1/4" CLEAR TEMPERED	ALL INTERIOR NON-FIRE RATED DOORS AND INTERIOR WINDOWS
2	1/4" CLEAR LAMINATED GLASS	AS INDICATED
3	5/16" - 3/8" CERAMIC FIRE RATED GLASS	ALL INTERIOR FIRE RATED DOORS & WINDOWS
4	1" CLEAR INSULATING TEMPERED GLASS	ALL EXTERIOR DOORS, CURTAIN WALL, STOREFRONT, & WINDOWS
5	1/4" TEMPERED FROSTED GLASS	AS INDICATED

(#) ALUMINUM FRAMED STOREFRONT - GLAZING SCHEDULE

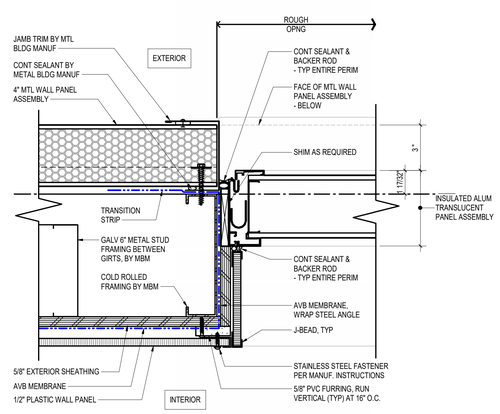
TYPE	DESCRIPTION	USE IN THESE LOCATIONS
A	1" INSULATED EXTERIOR GLAZING	ALL EXTERIOR STOREFRONTS & ALUMINUM WINDOWS
B	1" INSULATED EXTERIOR GLAZING - TEMPERED	AS INDICATED
C	1" INSULATED EXTERIOR SPANDREL GLASS	AS INDICATED
D	1/4" TEMPERED GLAZING	INTERIOR STOREFRONT ASSEMBLIES



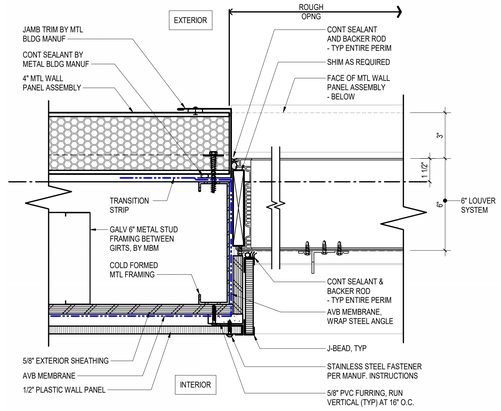
9 INSULATED TRANSLUCENT PANEL HEAD DETAIL - WASH BAY
3" = 1'-0"



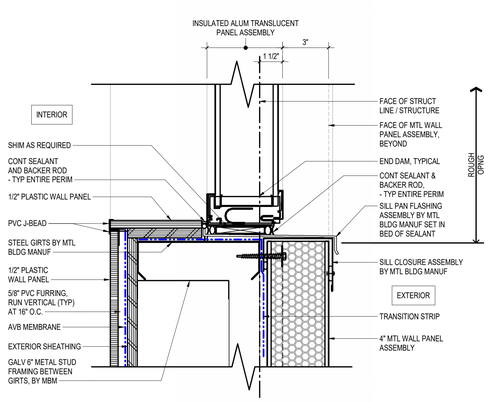
12 LOUVER HEAD DETAIL - WASH BAY
3" = 1'-0"



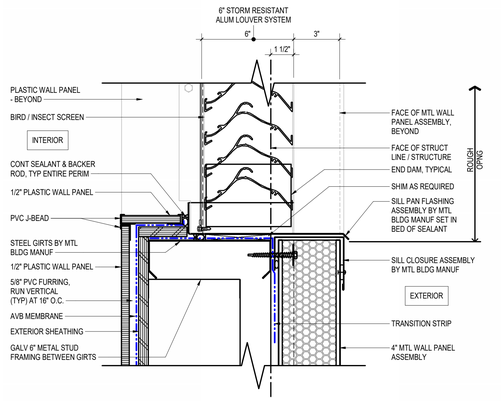
10 INSULATED TRANSLUCENT PANEL JAMB DETAIL - WASH BAY
3" = 1'-0"



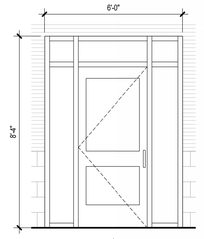
13 LOUVER JAMB DETAIL - WASH BAY
3" = 1'-0"



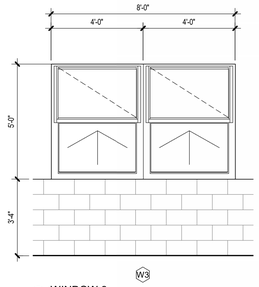
11 INSULATED TRANSLUCENT PANEL SILL DETAIL - WASH BAY
3" = 1'-0"



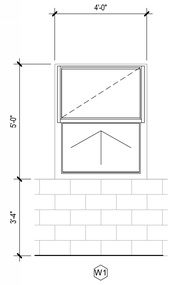
14 LOUVER SILL DETAIL - WASH BAY
3" = 1'-0"



1 CURTAIN WALL 1
3/8" = 1'-0"



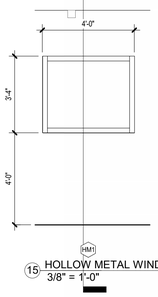
2 WINDOW 3
3/8" = 1'-0"



5 WINDOW 1
3/8" = 1'-0"

ALUMINUM CURTAIN WALL SCHEDULE

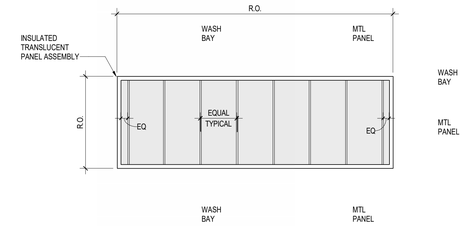
TYPE	WIDTH	HEIGHT	COUNT	WINDOW SHADE	COMMENTS
CW-1	6'-0"		1	A301	



15 HOLLOW METAL WINDOW 1
3/8" = 1'-0"

ALUMINUM WINDOW SCHEDULE

TYPE	WIDTH	HEIGHT	COUNT	WINDOW SHADE	COMMENTS



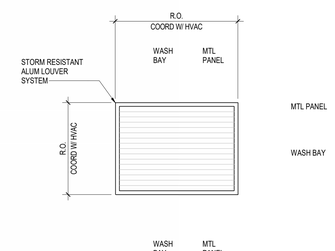
4 INSULATED TRANSLUCENT PANEL ELEVATION
3/8" = 1'-0"

HOLLOW METAL WINDOW SCHEDULE

TYPE	WIDTH	HEIGHT	COUNT	HEIGHT A.F.F.	COMMENTS

INSULATED TRANSLUCENT PANEL ASSEMBLY SCHEDULE

TYPE	WIDTH	HEIGHT	COUNT	HT. AFF (1ST FLR)	COMMENTS
TP1	16'-0"	4'-0"	6	20'-0"	
TP2	20'-0"	4'-0"	1	20'-0"	
TP3	14'-0"	4'-0"	1	20'-0"	
TP4	28'-0"	4'-0"	3	16'-0"	
TP5	22'-0"	4'-0"	5	12'-0"	BID ALT 2 - COLD STORAGE BUILDING



3 LOUVER ELEVATION
3/8" = 1'-0"

LOUVER SCHEDULE

TYPE	WIDTH	HEIGHT	COUNT	HEIGHT A.F.F.	COMMENTS

LOUVER GENERAL NOTES:

- CONTRACTOR MY INCREASE SIZE OF LOUVER AS REQUIRED IN ORDER TO ACHIEVE THE REQUIRED FREE AREA OF SIZES LISTED ON HVAC DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.

0' 3" 6" 9"
SCALE: 3" = 1'-0"

0' 1' 2' 4'
SCALE: 3/8" = 1'-0"

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Date:	OCTOBER 31, 2025
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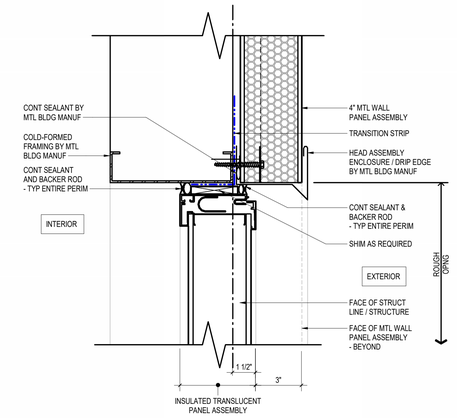
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FENESTRATION TYPES AND DETAILS

Sheet Number:
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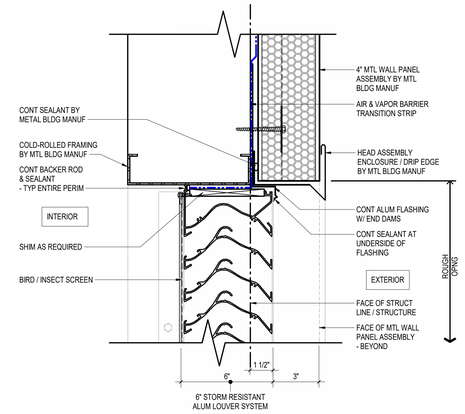
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LOUVER GENERAL NOTES:

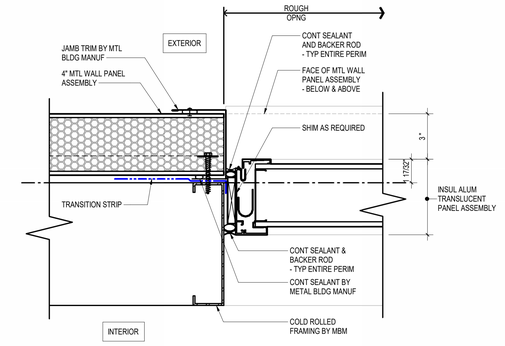
- CONTRACTOR MAY INCREASE SIZE OF LOUVER AS REQUIRED IN ORDER TO ACHIEVE THE REQUIRED FREE AREA OF SIZES LISTED ON HVAC DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.



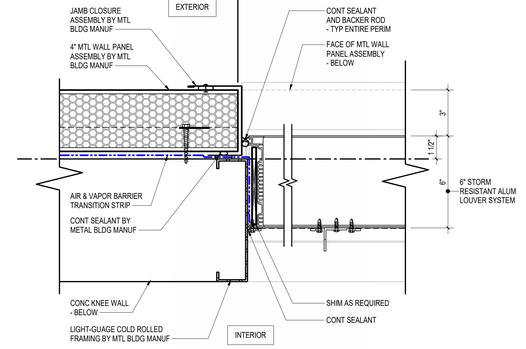
1 INSULATED TRANSLUCENT PANEL HEAD DETAIL
3" = 1'-0"



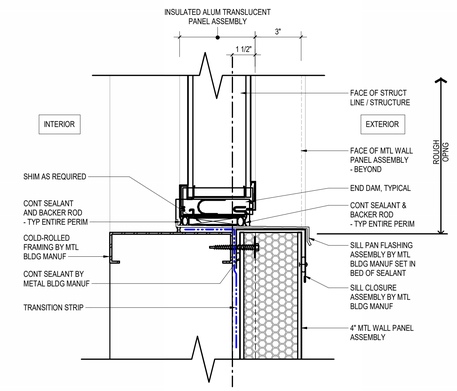
4 LOUVER HEAD DETAIL
3" = 1'-0"



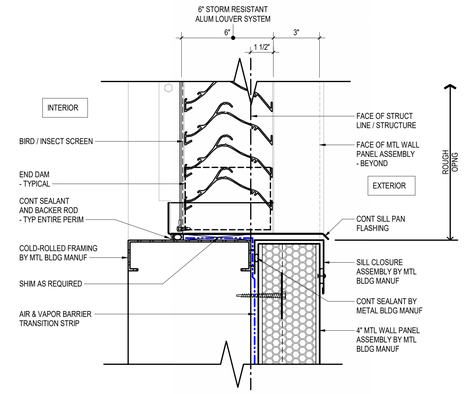
2 INSULATED TRANSLUCENT PANEL JAMB DETAIL
3" = 1'-0"



5 LOUVER JAMB DETAIL - MTL PANEL - BRAKE METAL
3" = 1'-0"



3 INSULATED TRANSLUCENT PANEL SILL DETAIL
3" = 1'-0"



6 LOUVER SILL DETAIL
3" = 1'-0"

0' 1' 2' 4'
SCALE: 3/8" = 1'-0"

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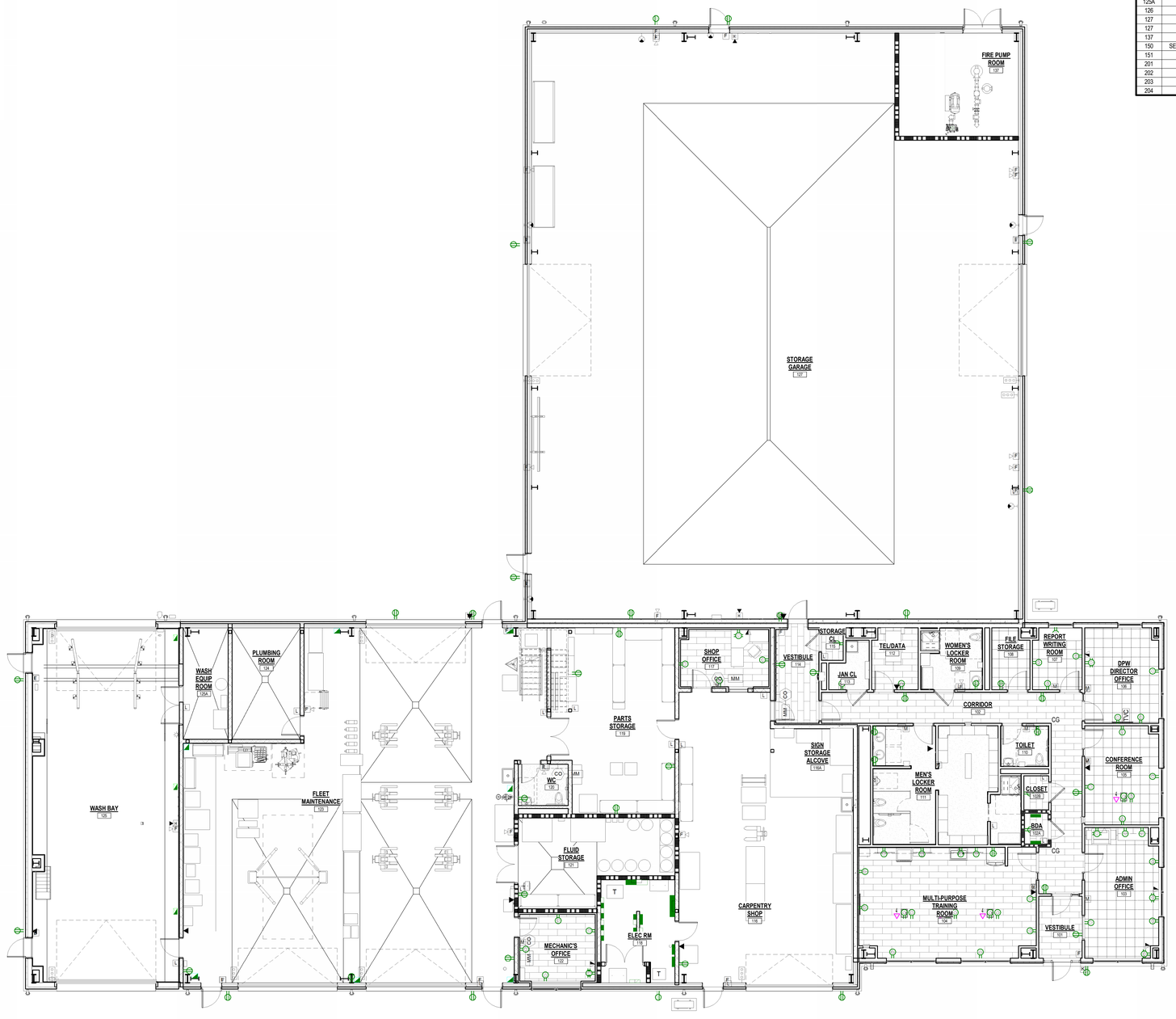
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LOUVERS & TRANSLUCENT PANEL DETAILS

Sheet Number:

A841

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1 FIRST FLOOR - FINISH PLAN
1/8" = 1'-0" 4/ A106

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR MAT	FLOOR FINISH	FLOOR BASE	WALLS MAT	WALLS FINISH	CEILING MAT	CEILING FINISH	CEILING HEIGHT	CEILING TYPE	REMARKS
101	VESTIBULE	CONC	CT	CT	GWB	PNT	GWB	PNT		G1	
102	CORRIDOR	CONC	LVT	RB	GWB	PNT	ACT	-		A1	
102A	BDA	CONC	CPT	RB	GWB	PNT	GWB	PNT		G1	
102B	CLOSET	CONC	CPT	RB	GWB	PNT	GWB	PNT		G1	
103	ADMIN OFFICE	CONC	CPT	RB	GWB	PNT	ACT / GWB	- / PNT		A1 / G1	
104	MULTI-PURPOSE TRAINING ROOM	CONC	LVT	RB	GWB	PNT	ACT / GWB	- / PNT		A1 / G1	
105	CONFERENCE ROOM	CONC	CPT	RB	GWB	PNT	ACT	-		A1	
106	DPW DIRECTOR OFFICE	CONC	CPT	RB	GWB	PNT	ACT	-		A1	
107	REPORT WRITING ROOM	CONC	CPT	RB	GWB	PNT	ACT	-		A1	
108	FILE STORAGE	CONC	CPT	RB	GWB	PNT	ACT	-		A1	
109	WOMEN'S LOCKER ROOM	CONC	RF	RF	CT / GWB	- / PNT	GWB	PNT		G2	
110	TOILET	CONC	RF	RF	CT / GWB	- / PNT	GWB	PNT		G2	
111	MEN'S LOCKER ROOM	CONC	RF	RF	CT / GWB	- / PNT	ACT / GWB	- / PNT		A2 / G2	
112	TEL/DATA	CONC	LVT	RB	GWB	PNT	GWB	PNT		G1	
113	JAN CL	CONC	RF	RF	FRP / GWB	- / PNT	ACT	-		A2	
114	VESTIBULE	CONC	LVT	RB	GWB	PNT	ACT	-		A1	
115	STORAGE CL	CONC	LVT	RB	GWB	PNT	GWB	-		G1	
116	CARPENTRY SHOP	CONC	SC	-	CMU / GWB	PNT / PNT	OPEN TO STRUCT / FABRIC LINER	PNT / -		-	
116	CARPENTRY SHOP	CONC	SC	-	CMU / GWB	PNT / PNT	OPEN TO STRUCT / FABRIC LINER	PNT / -		-	
116A	SIGN STORAGE ALCOVE	CONC	SC	-	CMU / GWB	PNT / PNT	OPEN TO STRUCT / FABRIC LINER	PNT / -		-	
117	SHOP OFFICE	CONC	LVT	RB	GWB	PNT	ACT	-		-	
118	ELEC RM	CONC	SC	-	CMU	PNT	OPEN TO STRUCT	PNT		-	
118A	EMERGENCY ELEC RM	CONC	SC	-	CMU	PNT	GWB	PNT		G3	
119	PARTS STORAGE	CONC	SC	-	CMU	PNT	OPEN TO STRUCT	PNT		-	
120	WC	CONC	RF	RF	CMU	PNT	GWB	PNT		G2	
121	FLUID STORAGE	CONC	SC	-	CMU	PNT	GWB	PNT		G3	
122	MECHANIC'S OFFICE	CONC	LVT	RB	GWB	PNT	ACT	-		A1	
123	FLEET MAINTENANCE	CONC	SC	-	CMU / GWB	PNT / PNT	FABRIC LINER	-		-	
123	FLEET MAINTENANCE	CONC	SC	-	CMU / GWB	PNT / PNT	FABRIC LINER	-		-	
123A	WELDING	CONC	SC	-	CMU	PNT	FABRIC LINER	-		-	
124	PLUMBING ROOM	CONC	SC	-	CMU	PNT	OPEN TO STRUCT	PNT		-	
125	WASH BAY	CONC	SC	-	PVC	-	FABRIC LINER / PVC	- / -		-	
125A	WASH EQUIP ROOM	CONC	SC	-	CMU	PNT	GWB	PNT		G2	
126	FIRE PUMP ROOM	CONC	SC	-	CMU / GWB	PNT / PNT	GWB	PNT		G3	
127	STORAGE GARAGE	CONC	SC	-	CMU	PNT	OPEN TO STRUCT / FABRIC LINER	PNT / -		-	BASE
127	STORAGE GARAGE	CONC	SC	-	CMU	PNT	OPEN TO STRUCT / FABRIC LINER	PNT / -		-	BID ALT 1
137	FIRE PUMP ROOM	CONC	SC	-	CMU	PNT	OPEN TO STRUCT / FABRIC LINER	PAINT / -		-	
150	SECONDARY STORAGE BUILDING	CONC	SC	-	CMU / GWB	PNT / PNT	OPEN TO STRUCT	PNT		-	BID ALT 2
151	SALT SHED	-	-	-	-	-	-	-	-	-	
201	MEZZANINE	CONC	SC	-	GWB	PNT	FABRIC LINER	-		-	
202	COMPRESSOR ROOM	CONC	SC	-	GWB	PNT	FABRIC LINER	-		-	
203	MECHANICAL ROOM	CONC	SC	-	GWB	PNT	FABRIC LINER	-		-	
204	EQUIPMENT PLATFORM	CONC	SC	-	GWB	PNT	FABRIC LINER	-		-	

ONE WALL IN EACH ROOM TO BE AN ACCENT WALL
- LOCATE ON FINISH PLAN

ROOM FINISH LEGEND:

CT	CERAMIC TILE - 12x12 FLOOR TILE
CT	CERAMIC TILE - 12x24 FLOOR TILE
CPT	CARPET TILE - 18x18
SC	SEALED CONCRETE
RF	RESINOUS FLOORING
MAT	RECESSED ALUM. ENTRY GRILLE
LVT	LUXURY VINYL TILE

ABBREVIATIONS:

CMU:	CONCRETE MASONRY UNIT
CONC:	CONCRETE
CT:	CERAMIC TILE
PNT:	PAINT
GWB:	GYPSUM WALL BOARD
LVT:	LUXURY VINYL TILE
CPT:	CARPET TILE
RB:	RUBBER BASE
REF:	RESINOUS FLOORING
REB:	RESINOUS BASE
CG	CORNER GUARD
FRP:	FIBERGLASS REINFORCED PLASTIC
ACT:	ACOUSTICAL CEILING TILE
A1:	2' X 2' SUSPENDED ACOUSTICAL PANEL
A2:	2' X 2' SUSPENDED ACOUSTICAL PANEL - MOISTURE RESISTANT
G1:	GYPSUM BOARD CEILING
G2:	GYPSUM BOARD CEILING, MOISTURE RESISTANT
G3:	2-HR FIRE RATED GWB CEILING ASSEMBLY
OTS:	OPEN TO STRUCTURE

NOTES:

1. PAINT EXPOSED STEEL - FRAMES, GIRTS, BEAMS AND COLUMNS.
2. PAINT EXPOSED DECK AT UNDERSIDE OF MEZZANINE.
3. PAINT EXPOSED DUCTWORK AND ELECTRICAL CONDUIT LOCATED ON WALLS SCHEDULED TO BE PAINTED ONLY.
4. PAINT ALL EXPOSED CONCRETE KNEE WALLS.
5. PAINT GUARD AND HAND RAILS.
6. ALL EXPOSED TO VIEW CONCRETE ON VERTICAL SURFACES TO RECEIVE SMOOTH FORMED FINISH, CLASS "A".
7. ACCENT WALLS ARE LOCATED ON THE FINISH PLAN. REFER TO GRAPHIC BELOW FOR LOCATIONS:

ACCENT WALL

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

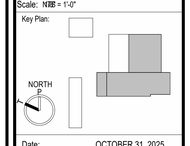
Seal:

Issued For:

DESIGN DEVELOPMENT

Scale: NTS = 1'-0"

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	SP
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

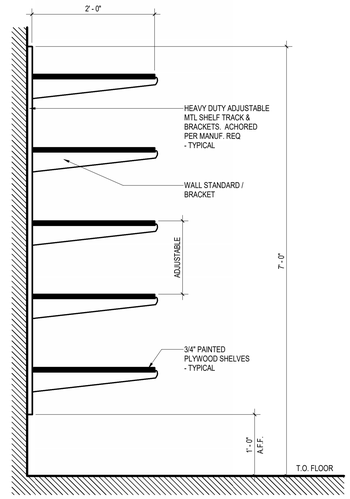
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FINISH PLAN & SCHEDULE

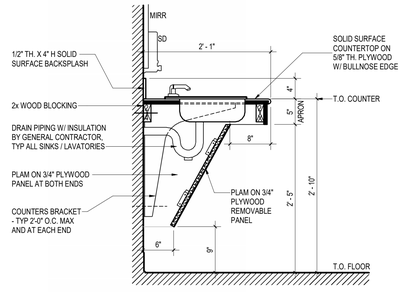
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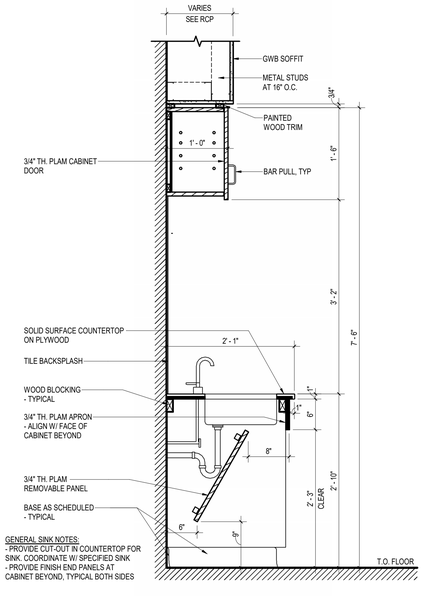
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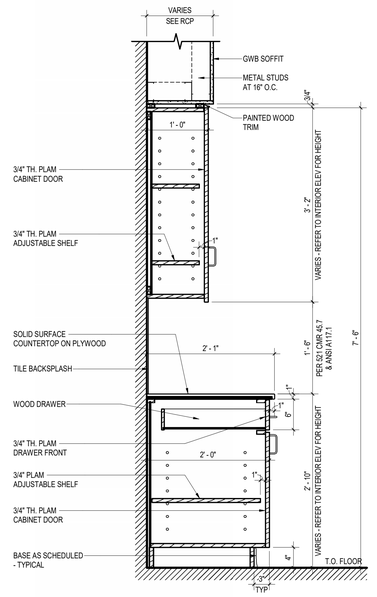
2 24" DEEP ADJUSTABLE SHELVING
1" = 1'-0"



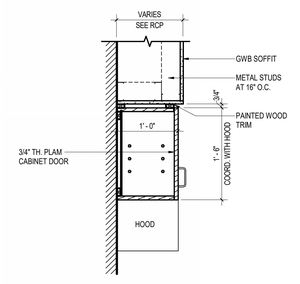
10 SINK - ADA RESTROOM
1" = 1'-0"



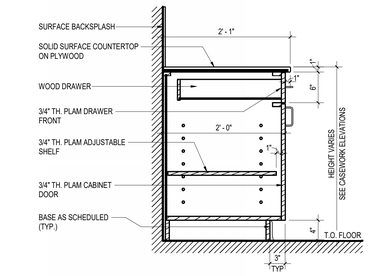
11 CABINET - SINK W/ BASE CABINET (ADA)
1" = 1'-0"



6 BASE / WALL CABINET (ADA)
1" = 1'-0"



7 UPPER CABINET, TYPICAL
1" = 1'-0"



1 24" DEEP DOOR / DRAWER BASE CABINET
1" = 1'-0"

0" 6" 1' 2'
SCALE: 1" = 1'-0"

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Seal:

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DESIGN DEVELOPMENT

Scale: NTS 1'-0"

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

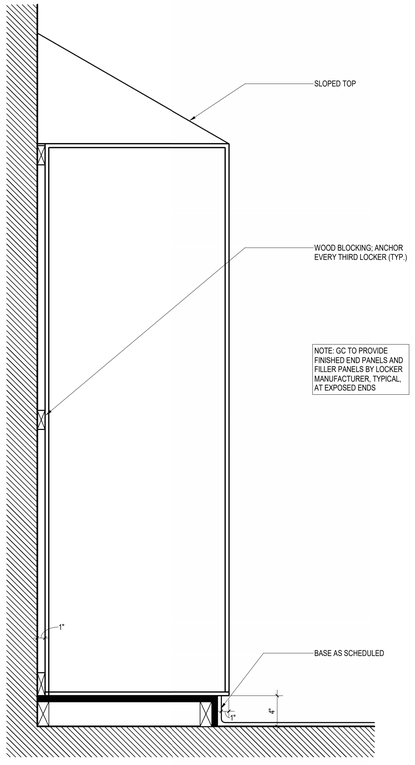
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CASEWORK DETAILS I

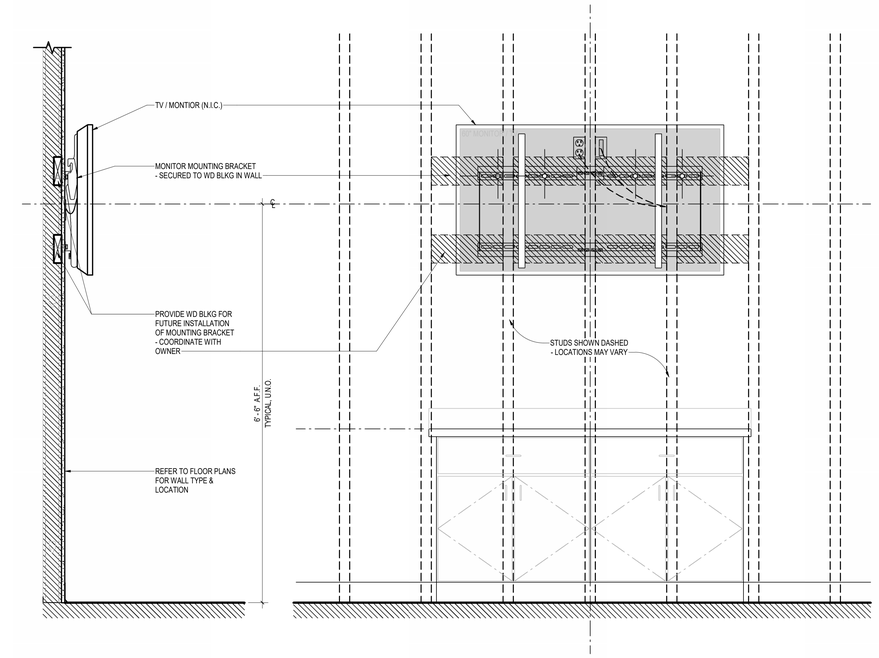
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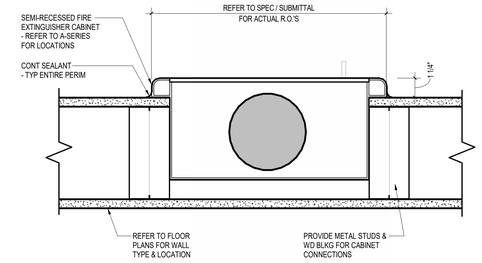
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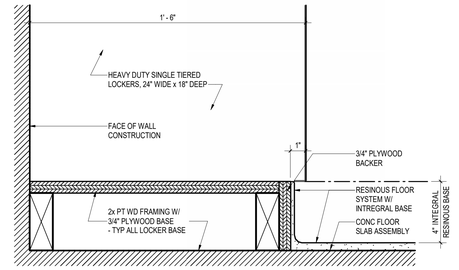
9 LOCKER SECTION
1 1/2" = 1'-0"



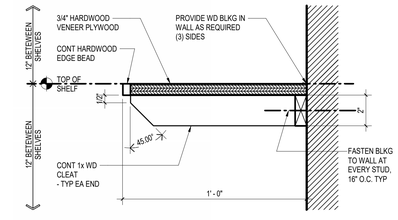
7 WALL-MOUNTED MONITOR BLOCKING
1" = 1'-0"



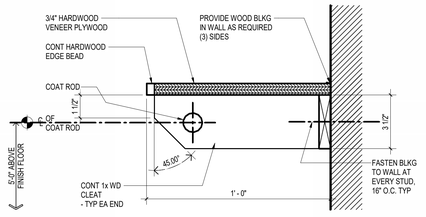
4 TYPICAL SEMI-RECESSED FIRE EXTINGUISHER CABINET
3" = 1'-0"



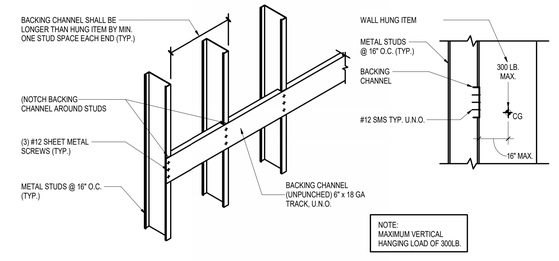
3 LOCKER BASE DETAIL
3" = 1'-0"



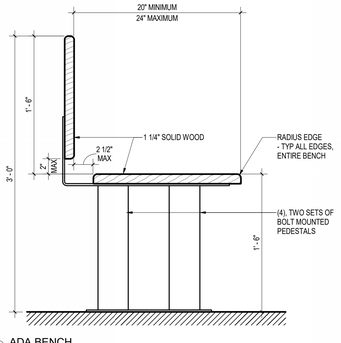
8 SHELVING - CLOSET (NO ROD)
3" = 1'-0"



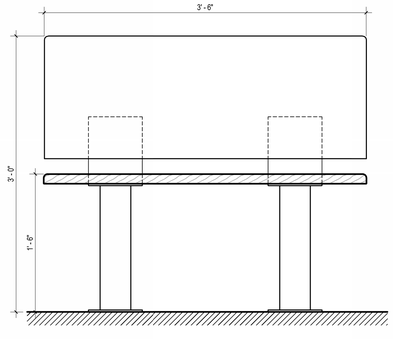
6 SHELVING - CLOSET W/ ROD
3" = 1'-0"

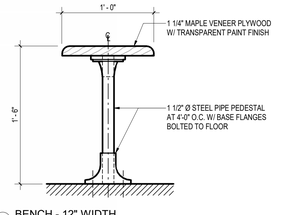


2 TYP. BACKING SUPPORT DETAIL
1" = 1'-0"



5 ADA BENCH
1 1/2" = 1'-0"





1 BENCH - 12" WIDTH
1 1/2" = 1'-0"

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Revisions:

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DESIGN DEVELOPMENT

Scale: As Indicated

Key Plan:

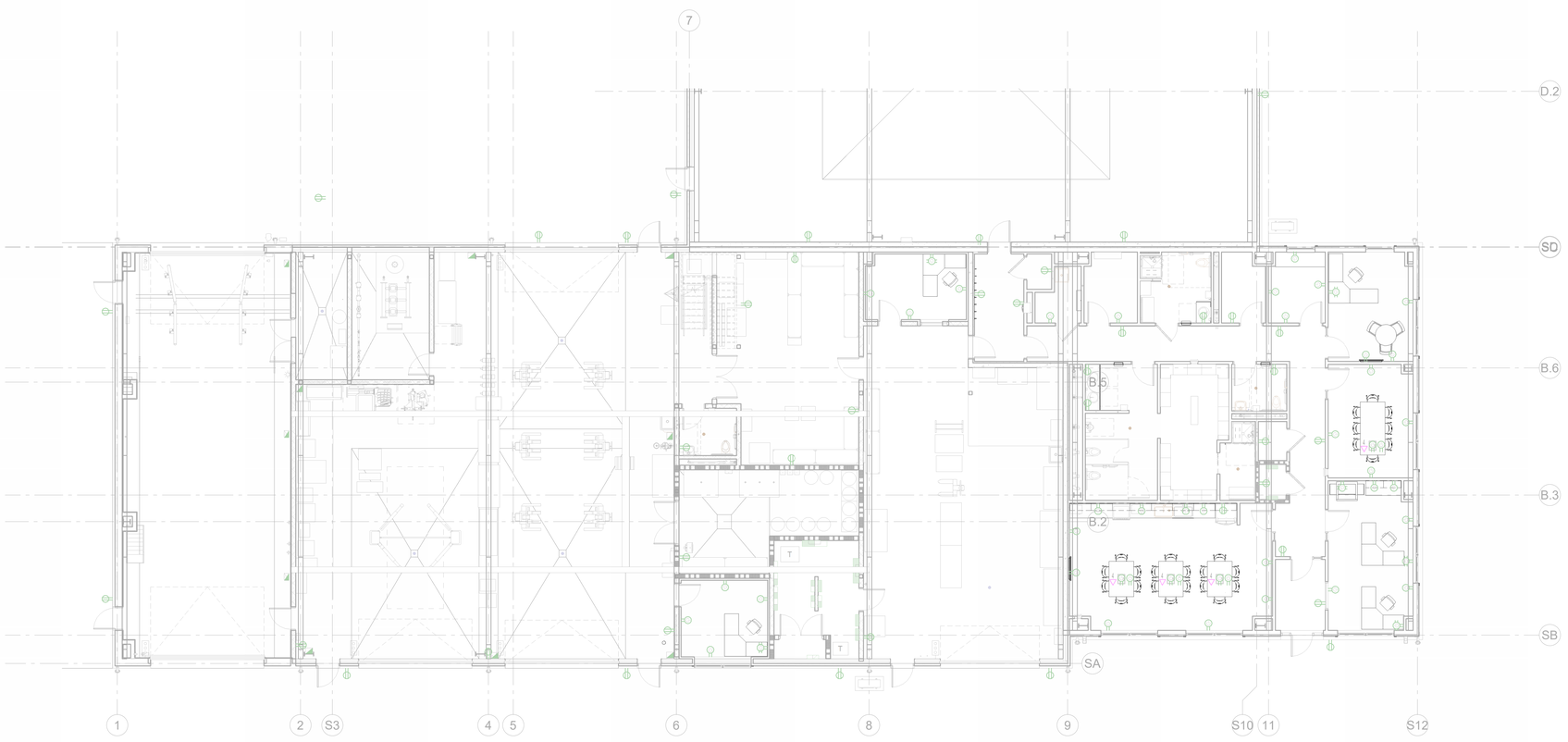
Date:	OCTOBER 31, 2025
Drawn By:	MMS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
CASEWORK DETAILS II

Sheet Number:
A912

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NOTE:
- FURNITURE IS SHOWN FOR REFERENCE ONLY.
- OWNER / CLIENT IS PURCHASING UNDER SEPARATE CONTRACT.



1 FIRST FLOOR - FURNITURE PLAN
1/8" = 1'-0" 4/ A106

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

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

Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	SP
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

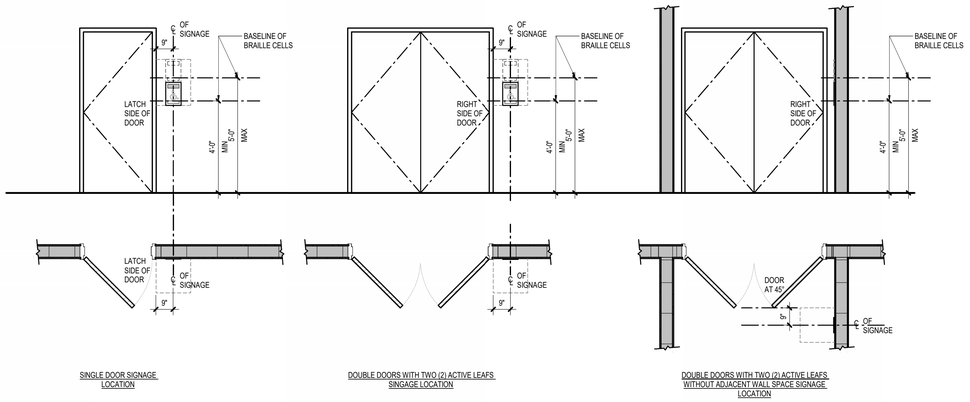
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FURNITURE LAYOUT

Sheet Number:

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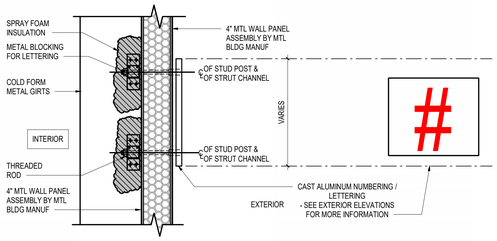
SINGLE DOOR SIGNAGE LOCATION

DOUBLE DOORS WITH TWO (2) ACTIVE LEAFS SINGAGE LOCATION

DOUBLE DOORS WITH TWO (2) ACTIVE LEAFS WITHOUT ADJACENT WALL SPACE SIGNAGE LOCATION

ROOM SIGNAGE MOUNTING LOCATIONS

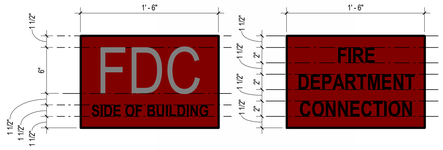
3/8" = 1'-0"



13 EXTERIOR SIGNAGE
1 1/2" = 1'-0"



9 SIGN TYPE M
6" = 1'-0"



APPLICABILITY:

- VERIFY SPECIFIC REQUIREMENTS WITH LOCAL FIRE CODE OFFICIAL - SIGNS ABOVE ARE ASSOCIATED FOR BIDDING BUT ARE TO BE CONFIRMED BY CONTRACTOR DURING CONSTRUCTION
- COLOR - EASILY IDENTIFIABLE COLOR, CONTRASTING WITH BACKGROUND
- SIGN MATERIAL MUST BE MADE OF WEATHERPROOF METAL OR RIGID PLASTIC AND ATTACHED WITH CORROSION PROOF FASTENERS

4 FIRE DEPARTMENT CONNECTION SIGN
1 1/2" = 1'-0"

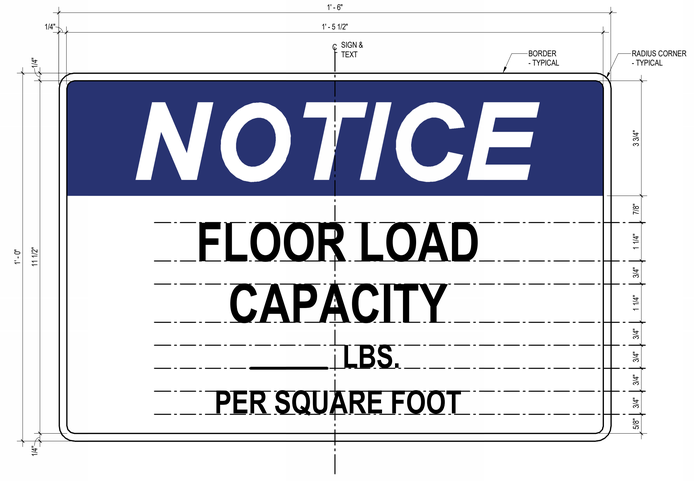


NOTES:
MATERIAL: 10mm WHITE STYRENE
PRINT: REVERSE PRINTING, PMS 485 RED BACKGROUND
WHITE PRINT 14.3mm LETTERS FOR "WARNING", 6.4mm LETTERS FOR "WARNING NOTE"

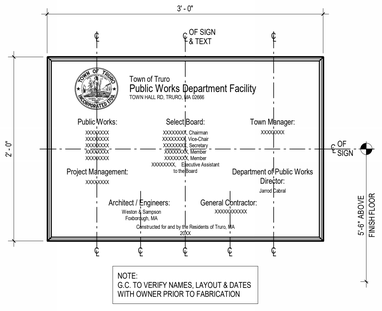
3 SIGN TYPE J
6" = 1'-0"

SIGNAGE SCHEDULE

ROOM #	ROOM NAME	SIGN TYPE	QUANTITY	GLASS BACKER PLATE
101	VESTIBULE			
102	CORRIDOR			
102A	BOA			
102B	CLOSET			
103	ADMIN OFFICE			
104	MULTI-PURPOSE TRAINING ROOM			
105	CONFERENCE ROOM			
106	DPW DIRECTOR OFFICE			
107	REPORT WRITING ROOM			
108	FILE STORAGE			
109	WOMEN'S LOCKER ROOM			
110	TOILET			
111	MEN'S LOCKER ROOM			
112	TEL/DATA			
113	JAN CL			
114	VESTIBULE			
115	STORAGE CL			
116	CARPENTRY SHOP			
116	CARPENTRY SHOP			
116A	SIGN STORAGE ALCOVE			
117	SHOP OFFICE			
118	ELEC RM			
118A	EMERGENCY ELEC RM			
119	PARTS STORAGE			
120	WC			
121	FLUID STORAGE			
122	MECHANICS OFFICE			
123	FLEET MAINTENANCE			
123	FLEET MAINTENANCE			
123A	WELDING			
124	PLUMBING ROOM			
125	WASH BAY			
125A	WASH EQUIP ROOM			
126	FIRE PUMP ROOM			
127	STORAGE GARAGE			
127	STORAGE GARAGE			
137	FIRE PUMP ROOM			
150	SECONDARY STORAGE BUILDING			
151	SALT SHED			
201	MEZZANINE			
202	COMPRESSOR ROOM			
203	MECHANICAL ROOM			
204	EQUIPMENT PLATFORM			

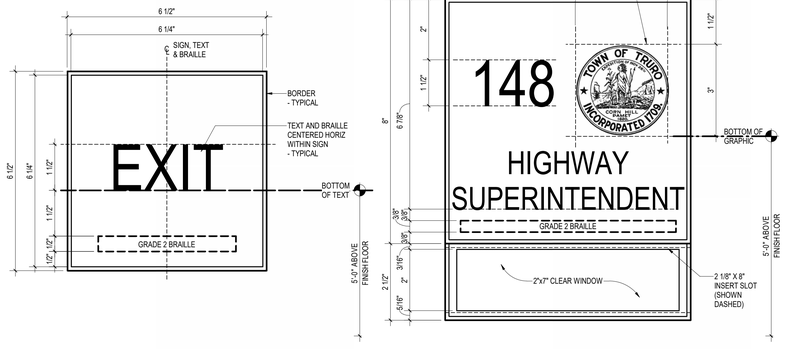


11 SIGN TYPE H
6" = 1'-0"



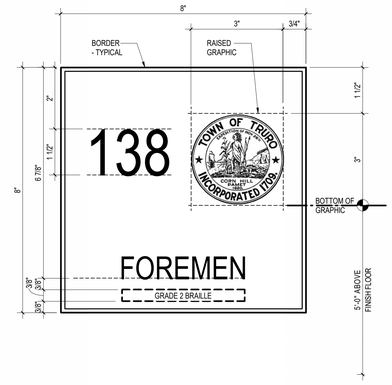
NOTE:
G.C. TO VERIFY NAMES, LAYOUT & DATES WITH OWNER PRIOR TO FABRICATION

8 SIGN TYPE L - DEDICATION PLAQUE
1 1/2" = 1'-0"

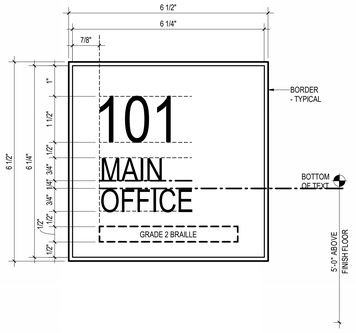


6 SIGN TYPE G
6" = 1'-0"

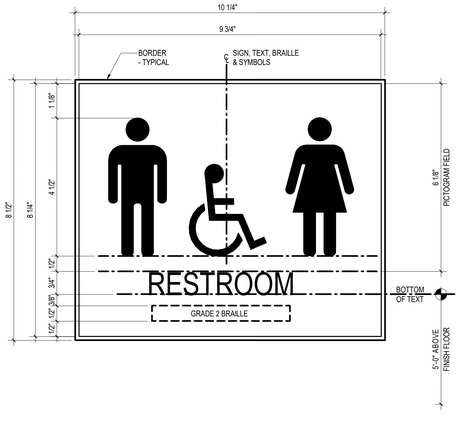
2 SIGN TYPE F
6" = 1'-0"



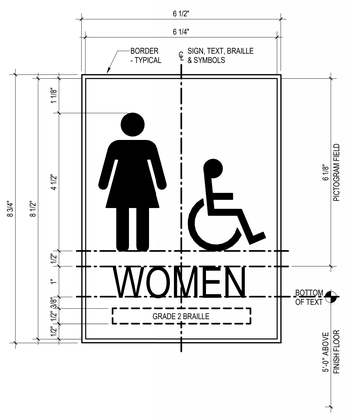
12 SIGN TYPE E
6" = 1'-0"



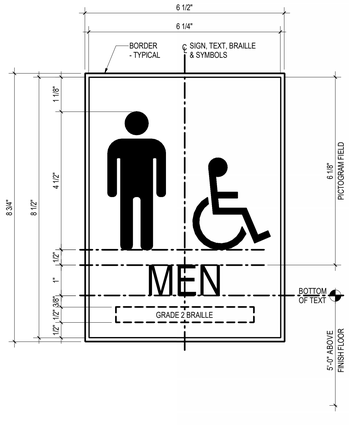
10 SIGN TYPE D
6" = 1'-0"



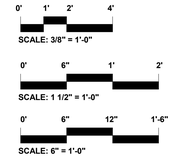
7 SIGN TYPE C
6" = 1'-0"



5 SIGN TYPE B
6" = 1'-0"



1 SIGN TYPE A
6" = 1'-0"



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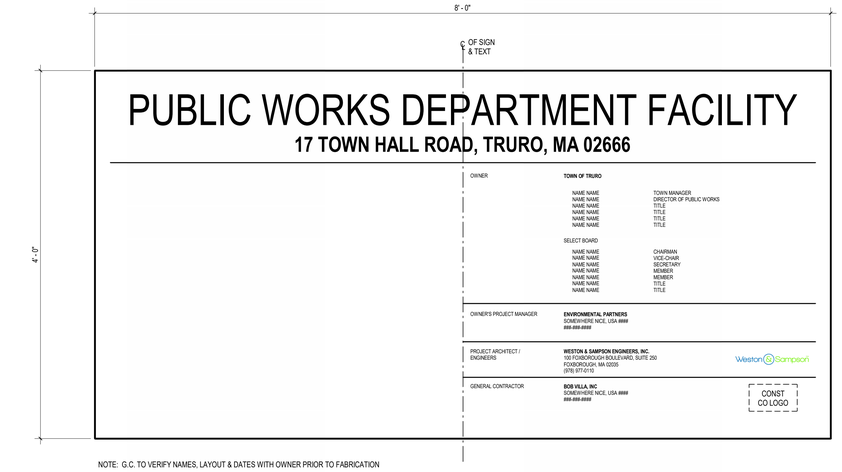
Scale: As Indicated
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	CL
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
SIGN SCHEDULE & TYPES

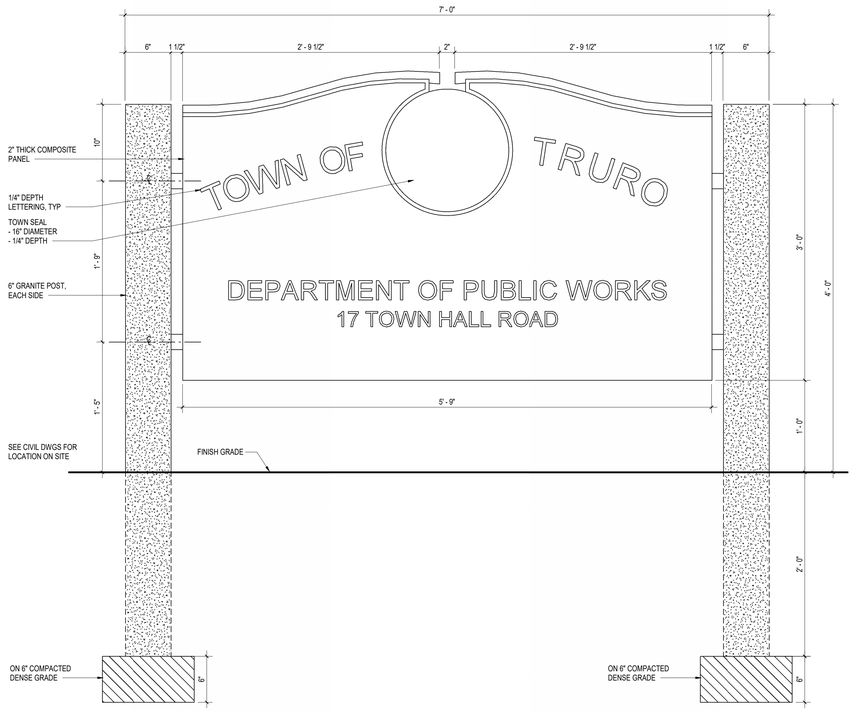
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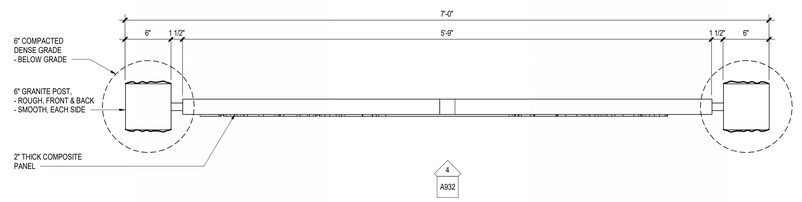


NOTE: G.C. TO VERIFY NAMES, LAYOUT & DATES WITH OWNER PRIOR TO FABRICATION

1 CONSTRUCTION SIGNAGE
1 1/2" = 1'-0"



4 DPW FACILITY SIGNAGE - FRONT ELEVATION
1 1/2" = 1'-0" 3/ A932



3 DPW FACILITY SIGNAGE - PLAN VIEW
1 1/2" = 1'-0"

0' 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
17 TOWN HALL ROAD
TRURO, MA 02666

Weston & Sampson Engineers, Inc.
100 Foxborough Boulevard, Suite 250
Foxborough, MA 02035
978.532.1900 800.SAMPSON
www.westonandsampson.com

Consultants:

GGD Consulting Engineers, Inc.
375 Corner Road, Suite D
Darmouth, MA 02747
(508) 996-0883

Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: NTS2" = 1'-0"

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	DRD
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
EXTERIOR SIGNAGE

Sheet Number:
A932

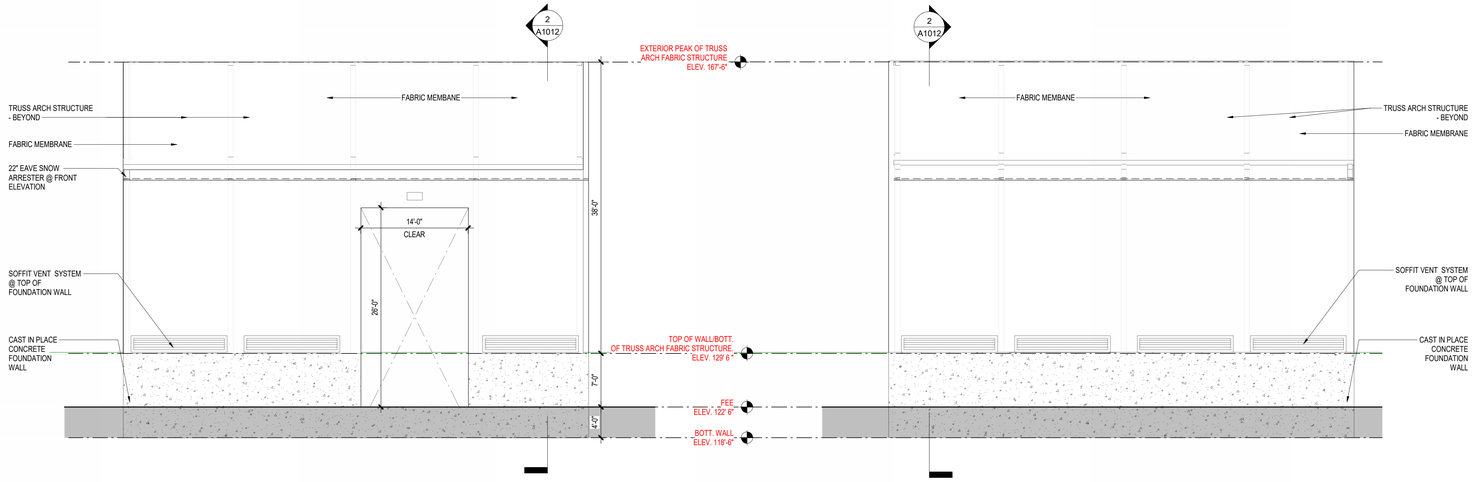
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GENERAL SALT SHED NOTES:

1. COLUMN LINE SPACING SHOWN FOR NEW TRUSS ARCH FRAMING AND WOOD SIDE WALL IS DIAGRAMMATIC ONLY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING THE STRUCTURE TO MEET ALL CURRENT CODES. FINAL QUANTITY OF TRUSS ARCH FRAMES AND COLUMN LINE SPACING SHALL BE DETERMINED BY THE SALT SHED MANUFACTURER. FINAL COLUMN LINE LOCATIONS ARE SUBJECT TO ENGINEER REVIEW. THE ADDITION OR DELETION OF TRUSS ARCH FRAMES BASED ON THE FINAL DESIGN BY THE BUILDING MANUFACTURER SHALL NOT BE CAUSE FOR A CHANGE IN THE CONTRACTOR PRICE.

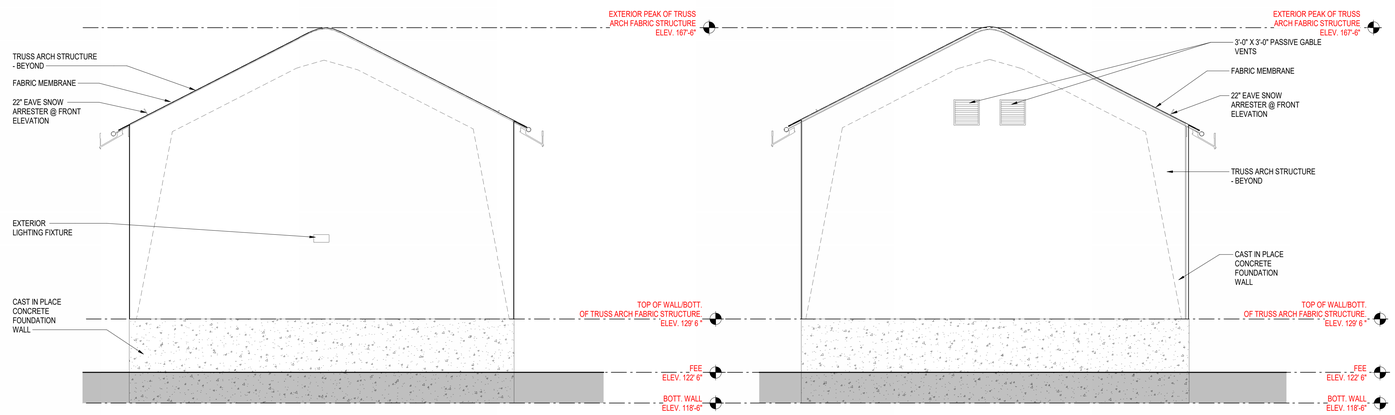
2. CONTRACTOR SHALL SUBMIT DETAILED CONNECTION DRAWINGS FOR THE MEMBRANE AND WOOD SIDE WALL COVERED FRAME STRUCTURE AND CAST-IN-PLACE CONCRETE WALLS STAMPED BY A LICENSED MASSACHUSETTS STRUCTURAL ENGINEER.

3. THE PT PLYWOOD PROTECTION WALL (INSIDE FACE OF SIDE AND BACK WALLS) SHALL CONSIST OF 3/4" PT PLYWOOD MOUNTED TO 1/2" STRAPPING AT 16" O.C. INSTALLED VERTICALLY FASTENED TO THE CONCRETE BLOCKS WITH NON- CORROSIVE FASTENERS (STAINLESS STEEL). PLYWOOD SHALL STOP 12" FORM THE FLOOR TO ALLOW SALT TO FALL OUT FROM BEHIND THE WALL.

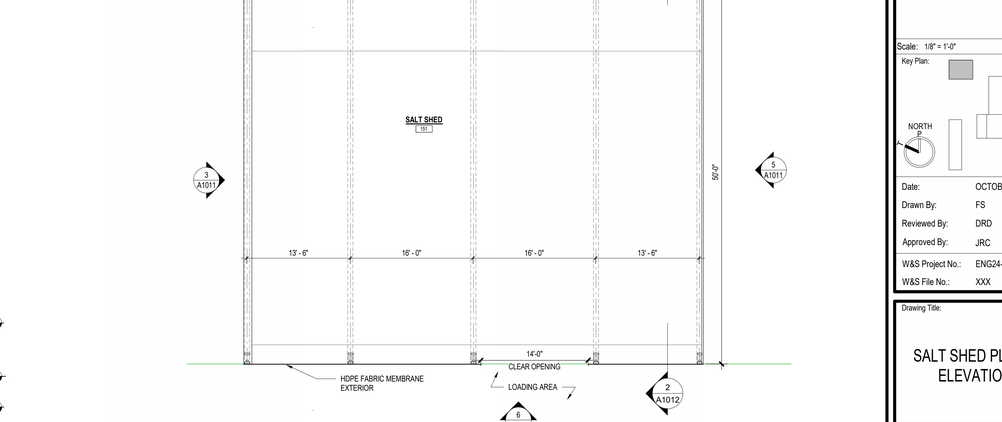


6 SALT SHED ELEVATION 4
1/8" = 1'-0" 1/ A1011

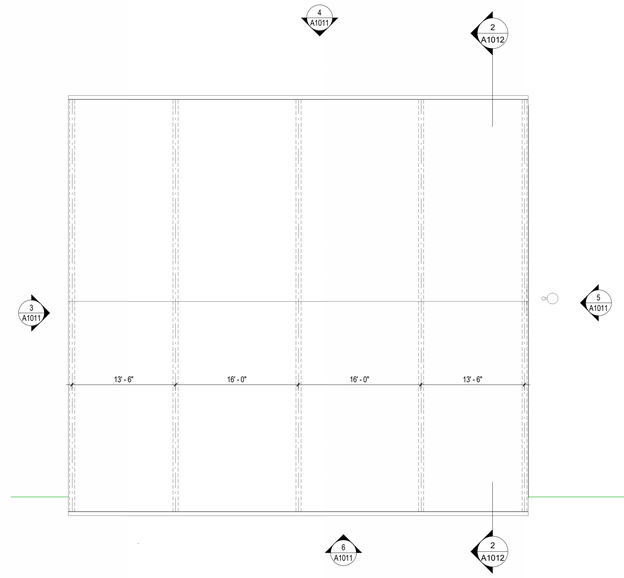
4 SALT SHED ELEVATION 2
1/8" = 1'-0" 1/ A1011



5 SALT SHED ELEVATION 1
1/8" = 1'-0" 1/ A1011



3 SALT SHED ELEVATION 3
1/8" = 1'-0" 1/ A1011



2 SALT SHED ROOF PLAN
1/8" = 1'-0" 4/ A106

1 SALT SHED FLOOR PLAN
1/8" = 1'-0" 4/ A106

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Project:
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Revisions:

No.	Date	Description

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DESIGN DEVELOPMENT

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

Key Plan:

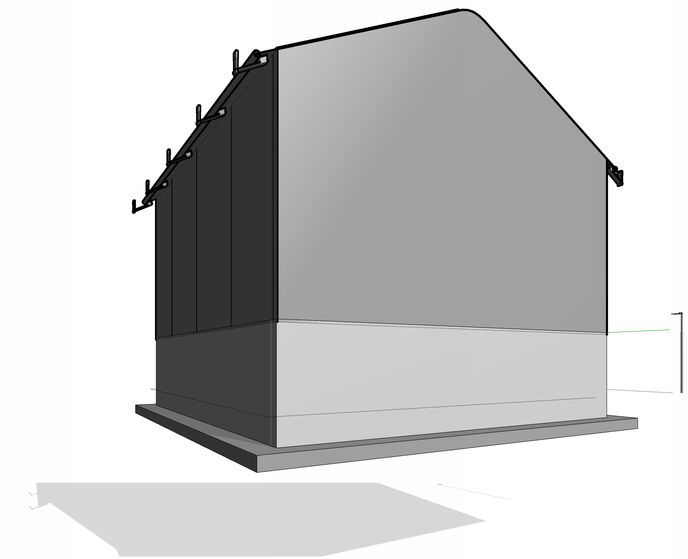
Date:	OCTOBER 31, 2025
Drawn By:	FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

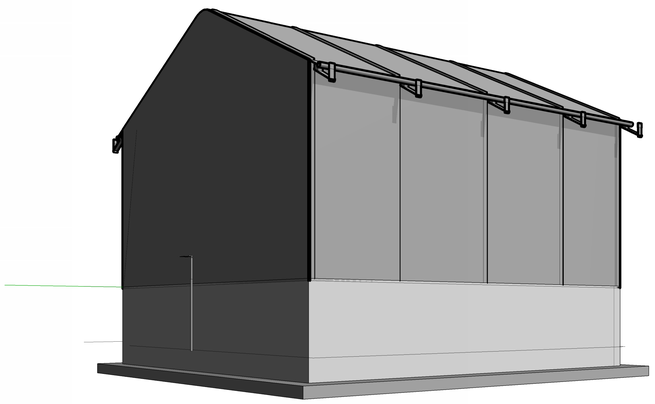
SALT SHED PLANS & ELEVATIONS

Sheet Number:

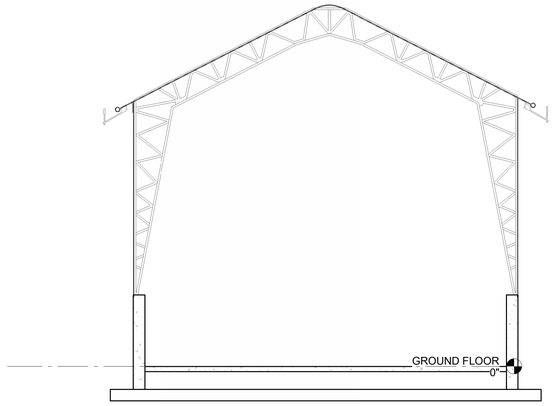
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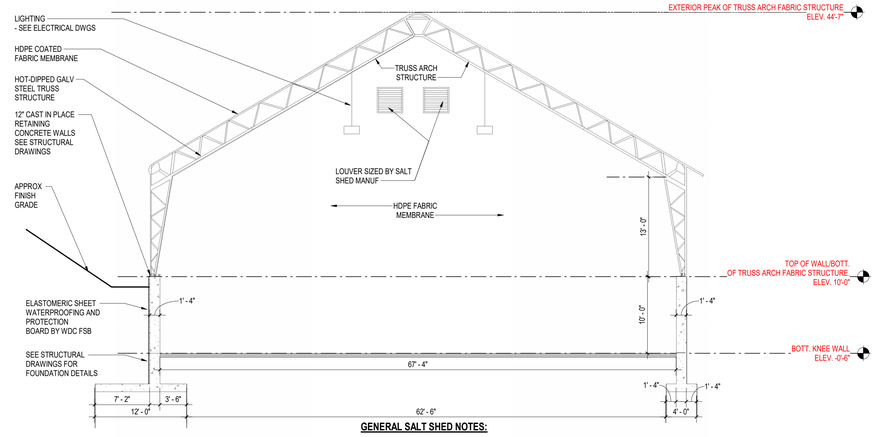
4 3D View 5



3 3D View 4



2 SALT SHED SECTION
1/8" = 1'-0" 1/ A1011



GENERAL SALT SHED NOTES:

1. COLUMN LINE SPACING SHOWN FOR NEW TRUSS ARCH FRAMING IS DIAGRAMMATIC ONLY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING THE STRUCTURE TO MEET ALL CURRENT CODES. FINAL QUANTITY OF TRUSS ARCH FRAMES AND COLUMN LINE SPACING SHALL BE DETERMINED BY THE SALT SHED MANUFACTURER. FINAL COLUMN LINE LOCATIONS ARE SUBJECT TO ENGINEER REVIEW. THE ADDITION OR DELETION OF TRUSS ARCH FRAMES BASED ON THE FINAL DESIGN BY THE BUILDING MANUFACTURER SHALL NOT BE CAUSE FOR A CHANGE IN THE CONTRACT PRICE.

2. CONTRACTOR SHALL SUBMIT DETAILED DESIGN DRAWINGS FOR THE MEMBRANE COVERED FRAME STRUCTURE STAMPED BY A LICENSED MASSACHUSETTS STRUCTURAL ENGINEER.

1 salt shed elevation
1/8" = 1'-0"

0' 4' 8' 16'
SCALE: 1/8" = 1'-0"

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DESIGN DEVELOPMENT

Scale: NTS = 1'-0"

Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	FS
Reviewed By:	DRD
Approved By:	JRC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

SALT SHED SECTIONS & 3D VIEWS

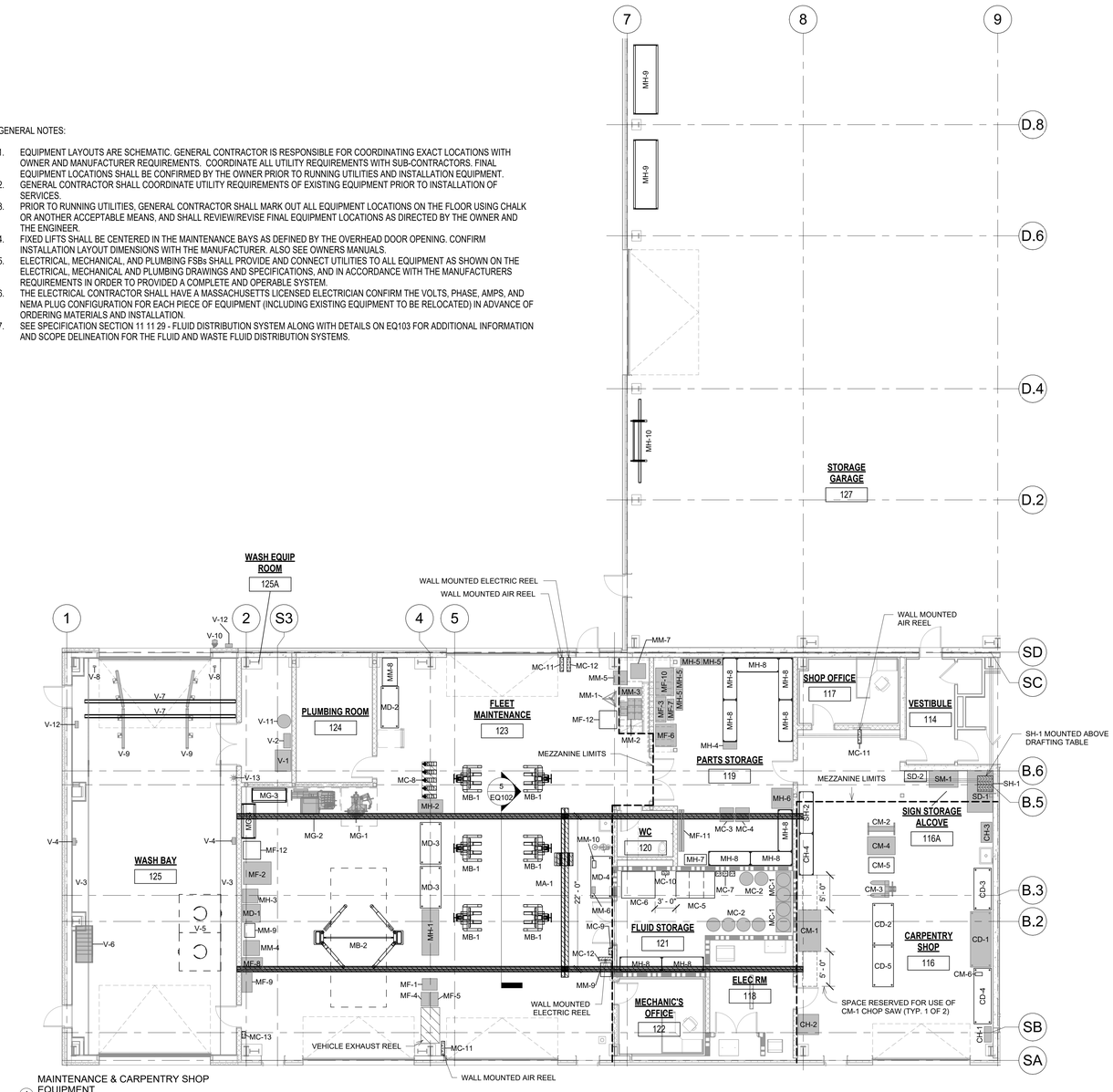
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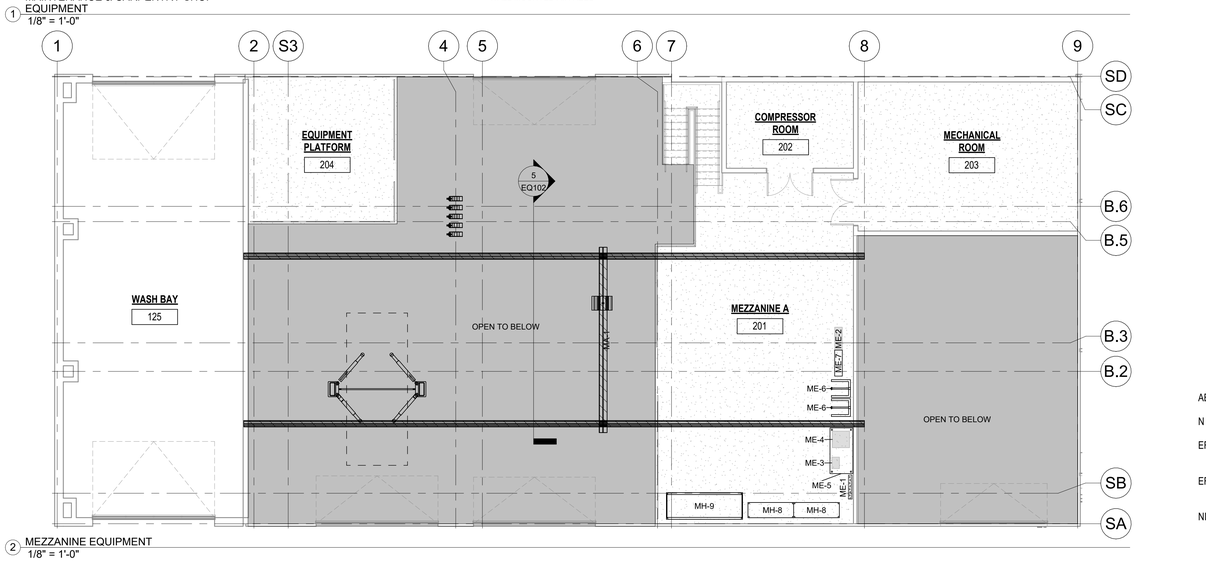
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GENERAL NOTES:

1. EQUIPMENT LAYOUTS ARE SCHEMATIC. GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING EXACT LOCATIONS WITH OWNER AND MANUFACTURER REQUIREMENTS. COORDINATE ALL UTILITY REQUIREMENTS WITH SUB-CONTRACTORS. FINAL EQUIPMENT LOCATIONS SHALL BE CONFIRMED BY THE OWNER PRIOR TO RUNNING UTILITIES AND INSTALLATION EQUIPMENT.
2. GENERAL CONTRACTOR SHALL COORDINATE UTILITY REQUIREMENTS OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF SERVICES.
3. PRIOR TO RUNNING UTILITIES, GENERAL CONTRACTOR SHALL MARK OUT ALL EQUIPMENT LOCATIONS ON THE FLOOR USING CHALK OR ANOTHER ACCEPTABLE MEANS, AND SHALL REVIEW/REVISE FINAL EQUIPMENT LOCATIONS AS DIRECTED BY THE OWNER AND THE ENGINEER.
4. FIXED LIFTS SHALL BE CENTERED IN THE MAINTENANCE BAYS AS DEFINED BY THE OVERHEAD DOOR OPENING. CONFIRM INSTALLATION LAYOUT DIMENSIONS WITH THE MANUFACTURER. ALSO SEE OWNERS MANUALS.
5. ELECTRICAL, MECHANICAL, AND PLUMBING FSBs SHALL PROVIDE AND CONNECT UTILITIES TO ALL EQUIPMENT AS SHOWN ON THE ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS, AND IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS IN ORDER TO PROVIDED A COMPLETE AND OPERABLE SYSTEM.
6. THE ELECTRICAL CONTRACTOR SHALL HAVE A MASSACHUSETTS LICENSED ELECTRICIAN CONFIRM THE VOLTS, PHASE, AMPS, AND NEMA PLUG CONFIGURATION FOR EACH PIECE OF EQUIPMENT (INCLUDING EXISTING EQUIPMENT TO BE RELOCATED) IN ADVANCE OF ORDERING MATERIALS AND INSTALLATION.
7. SEE SPECIFICATION SECTION 11 11 29 - FLUID DISTRIBUTION SYSTEM ALONG WITH DETAILS ON EQ103 FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION FOR THE FLUID AND WASTE FLUID DISTRIBUTION SYSTEMS.



1 MAINTENANCE & CARPENTRY SHOP EQUIPMENT
1/8" = 1'-0"



2 MEZZANINE EQUIPMENT
1/8" = 1'-0"

Maintenance Equipment Schedule					
EQ Number	Description	Count	Equipment Type	Spec Number	Notes
CD-1	Wood Workbench with Casters	1	ERO	N/A	
CD-2	Steel Work Bench (72inx36in) (14,000 Lbs Capacity)	1	N	12 40 00	
CD-3	Electric Charging Workbench	1	N	12 40 00	
CD-4	Long Wood Workbench	1	N	12 40 00	
CD-5	Heavy Duty Thick Top Workbench	1	N	12 40 00	
CH-1	Carpentry Tool Drawer	1	ERO	N/A	
CH-2	Flammable Cabinet (Green)(60-Gallons)	1	ERO	N/A	
CH-3	Flammable Cabinet (45-Gallons)	1	ERO	N/A	
CH-4	Parts Shelving (6' x 2')	1	N	12 40 00	
CM-1	Miter Saw with Stand	1	ERO	N/A	
CM-2	Saw Horse	1	ERO	N/A	
CM-3	Pallet Jack	1	ERO	N/A	
CM-4	Portable Table Saw	1	ERO	N/A	
CM-5	Portable Dust Collector	1	N	12 40 00	
CM-6	Bench Vise	1	N	12 40 00	
MA-1	5 Ton Bridge Crane	1	N	14 22 13	
MB-1	18,000lbs. Six Post Mobile Column Lift	6	N	14 45 00	
MB-2	20,000lbs. Two Post Lift	1	N	14 45 00	
MC-1	2-Drum Spill Pallet	2	ERO	N/A	
MC-2	55-Gallon Drum	10	NIC	N/A	
MC-3	Waste Oil Caddy	1	ERO	N/A	
MC-4	Grease Cart	1	ERO	N/A	
MC-5	600-Gallon Bulk Fluids Tank (300G 15W-40/180G 0W-30/120G 0W-20)	1	N	11 11 29	
MC-6	400-Gallon Waste Oil Tank	1	N	11 11 29	
MC-7	Wall Mounted Lube Pumps	3	N	11 11 29	
MC-8	Lube Reel Bank (0W-20, 0W-30, 15W-40, Electric Reel, 1/2" Air)	1	N	11 11 29	
MC-9	Fluid Storage Room Sump Alarm	1	N	11 11 29	
MC-10	Waste Oil High Level Alarm	1	N	11 11 29	
MC-11	Wall Mounted Air Reel	3	N	11 11 29	
MC-12	Wall Mounted Electric Reel	2	N	11 11 29	
MC-13	Industrial Waste Water High Level Alarm	1	N	11 11 29	
MD-1	Metal Worktop	1	ERO	N/A	
MD-2	Electric Charging Workbench	1	N	12 40 00	
MD-3	Steel Work Bench on Casters	2	N	12 40 00	
MD-4	Heavy Duty Thick Top Workbench	1	N	12 40 00	
ME-1	Hose Clamp Rack	2	ERO	N/A	On Mezzanine
ME-2	Hydraulic Hose Bins	1	ERO	N/A	On Mezzanine
ME-3	Hydraulic Hose Chop Saw	1	ERO	N/A	On Mezzanine
ME-4	Hydraulic Hose Crimper	1	ERO	N/A	On Mezzanine
ME-5	Steel Work Bench on Casters	1	N	12 40 00	On Mezzanine
ME-6	5 Ton Floor Jack	2	N	12 40 00	On Mezzanine
ME-7	Hydraulic Vertical Storage Cabinet	1	N	12 40 00	On Mezzanine
MF-1	Torch Cart	1	ERO	N/A	
MF-2	Lincoln AC225 Arc Welder	1	ERO	N/A	
MF-3	Miller Millermatic 252	1	ERO	N/A	
MF-4	Metabo HPT Hammer Cart	1	ERO	N/A	
MF-5	Thermal Dynamics Welder	1	ERO	N/A	
MF-6	Lincoln Welden Power	1	ERO	N/A	
MF-7	Lincoln SP-170T Arc Welder	1	ERO	N/A	
MF-8	Drill Press	1	ERO	N/A	
MF-9	Shop Press	1	ERO	N/A	
MF-10	Portable Weld Fume Extractor	1	NIC	N/A	
MF-11	Welding Screen	2	NIC	N/A	
MF-12	Oxygen/Acetylene Tank Storage Cage	2	N	12 40 00	
MG-1	Tire Changer	1	ERO	N/A	
MG-2	Tire Balancer	1	ERO	N/A	
MG-3	Tire Storage Rack	2	N	12 40 00	
MH-1	Snap-on Tool Box	1	ERO	N/A	
MH-2	MAC Tools Blue Cart	1	ERO	N/A	
MH-3	Wooden Cabinet (Glass Window)	1	ERO	N/A	
MH-4	Windshield Wiper Blade Rack	1	ERO	N/A	
MH-5	Nuts and Bolts Storage	4	ERO	N/A	
MH-6	Flammable Cabinet (60-Gallons)	1	ERO	N/A	
MH-7	Metal Cabinet	1	N	12 40 00	
MH-8	Parts Shelving (6' x 2')	12	N	12 40 00	(2) On Mezzanine
MH-9	Pallet Rack Hanging Tool Storage	3	N	12 40 00	(2) On Mezzanine
MH-10	Cantilever Rack (Flat)	1	N	12 40 00	
MM-1	Tall Jack Stand	1	ERO	N/A	
MM-2	Small Jack Stands	8	ERO	N/A	
MM-3	Floor Jack	1	ERO	N/A	
MM-4	Chop Saw on Cart	1	ERO	N/A	
MM-5	Snap-on Battery Charger	1	ERO	N/A	
MM-6	Chain Sharpener	1	ERO	N/A	
MM-7	Heated Carpet Extractor	1	ERO	N/A	
MM-8	Parts Washer	1	N	12 40 00	
MM-9	Pedestal Grinder	2	N	12 40 00	
MM-10	Bench Vise	1	N	12 40 00	
SD-1	Drafting Table	1	ERO	N/A	
SD-2	Computer Desk	1	N	12 40 00	
SH-1	Hanging Vinyl Storage	1	ERO	N/A	
SH-2	Parts Shelving (6' x 2')	1	N	12 40 00	
SM-1	Vinyl Express Printer	1	ERO	N/A	
V-1	15 HP Pressure Plant	1	NIC	N/A	
V-2	Control Panel	1	NIC	N/A	
V-3	Festoons	2	NIC	N/A	
V-4	Manual Wash On/Off Switch	2	NIC	N/A	
V-5	Vehicle Wash Pre-Treatment Tank (1500gal)	1	N	11 11 26	Base Bid
V-6	Mobile Platform	1	NIC	N/A	
V-7	Automatic Undercarriage Pre-Fab Trenches	2	N	11 11 26	Base Bid
V-8	Automatic Undercarriage Photo Eye	2	NIC	N/A	
V-9	Vehicle Wash Guide Rails	1	NIC	N/A	
V-10	Vehicle Wash Entry Traffic Light	1	NIC	N/A	
V-11	Vehicle Wash Soap drum	1	NIC	N/A	
V-12	Undercarriage Wash Control Station	2	NIC	N/A	
V-13	Undercarriage Wash Activation Light	1	NIC	N/A	

ABBREVIATIONS:

N	NEW EQUIPMENT TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
ERO	EXISTING EQUIPMENT TO BE RELOCATED AND INSTALLED BY THE OWNER. UTILITIES FOR ERO EQUIPMENT TO BE PROVIDED BY THE FILED SUB-BID CONTRACTORS.
ERC	EXISTING EQUIPMENT TO BE RELOCATED AND INSTALLED BY THE CONTRACTOR. UTILITIES FOR ERC EQUIPMENT TO BE PROVIDED BY THE FILED SUB-BID CONTRACTORS
NIC	NEW EQUIPMENT PROVIDED AND INSTALLED BY THE OWNER (NOT IN CONTRACT), HOWEVER UTILITIES FOR THIS EQUIPMENT SHALL BE PROVIDED BY THE FILED SUB-BID CONTRACTORS.

LINE TYPES
- MEZZANINE LIMITS
- NIC/ERO EQUIPMENT
- NEW EQUIPMENT

HATCHES
- CEILING MOUNTED
- WALL MOUNTED

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Revisions:

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COA:

Seal:

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DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:

NORTH

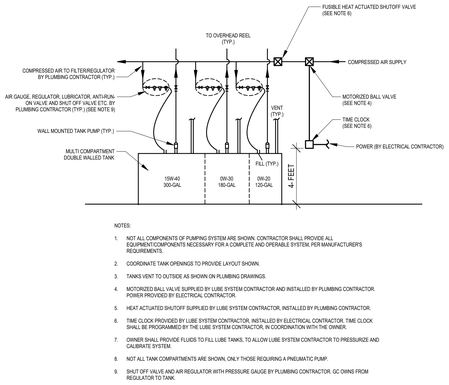
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Drawn By:	NCH
Reviewed By:	ZDW
Approved By:	TJC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
EQUIPMENT LAYOUT PLAN

Sheet Number:
EQ101

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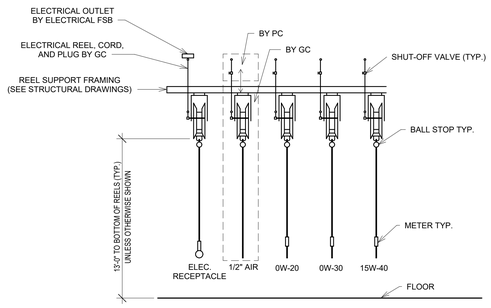
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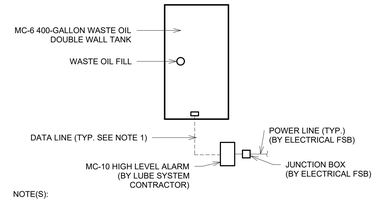
1. NOT ALL COMPONENTS OF PUMPING SYSTEM ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT/COMPONENTS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM, PER MANUFACTURER'S REQUIREMENTS.
2. COORDINATE TANK OPENINGS TO PROVIDE LAYOUT SHOWN.
3. TANKS VENT TO OUTSIDE AS SHOWN ON PLUMBING DRAWINGS.
4. MOTORIZED BALL VALVE SUPPLIED BY LUBE SYSTEM CONTRACTOR AND INSTALLED BY PLUMBING CONTRACTOR. POWER PROVIDED BY ELECTRICAL CONTRACTOR.
5. HEAT ACTUATED SHUTOFF SUPPLIED BY LUBE SYSTEM CONTRACTOR, INSTALLED BY PLUMBING CONTRACTOR.
6. TIME CLOCK PROVIDED BY LUBE SYSTEM CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. TIME CLOCK SHALL BE PROGRAMMED BY THE LUBE SYSTEM CONTRACTOR, IN COORDINATION WITH THE OWNER.
7. OWNER SHALL PROVIDE FLUIDS TO FILL LUBE TANKS, TO ALLOW LUBE SYSTEM CONTRACTOR TO PRESSURIZE AND CALIBRATE SYSTEM.
8. NOT ALL TANK COMPARTMENTS ARE SHOWN, ONLY THOSE REQUIRING A PNEUMATIC PUMP.
9. SHUT OFF VALVE AND AIR REGULATOR WITH PRESSURE GAUGE BY PLUMBING CONTRACTOR. GC DIANS FROM REGULATOR TO TANK.

1 GENERAL TANK PIPING ARRANGEMENT
N.T.S.



NOTE: CONTRACTOR SHALL PROVIDE SUPPLEMENTAL FRAMING/SUPPORTSAS NEEDED TO CONNECT TO REEL SUPPORT FRAMING

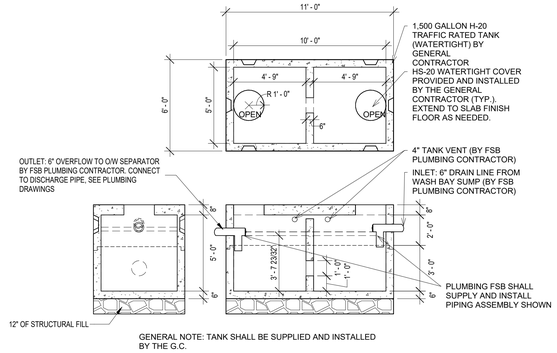
2 REEL BANK DETAIL (MC-8)
N.T.S.



NOTE(S):

1. EMPTY 1" CONDUITS WITH PULL STRING SHALL BE INSTALLED BY THE ELECTRICAL FSB. LUBE SYSTEM CONTRACTOR SHALL PULL DATA WIRES.

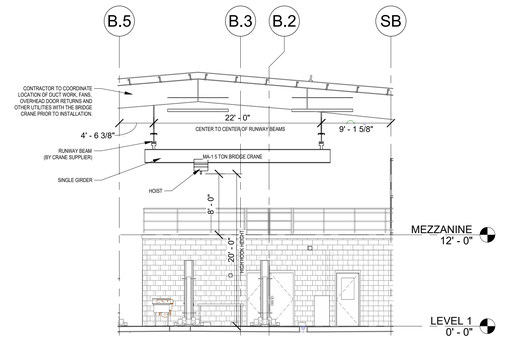
3 WASTE OIL TANK SCHEMATIC PIPING ARRANGEMENT
N.T.S.



GENERAL NOTE: TANK SHALL BE SUPPLIED AND INSTALLED BY THE G.C.

4 VEHICLE WASH PRE-TREATMENT TANK DETAIL
1/4" = 1'-0"

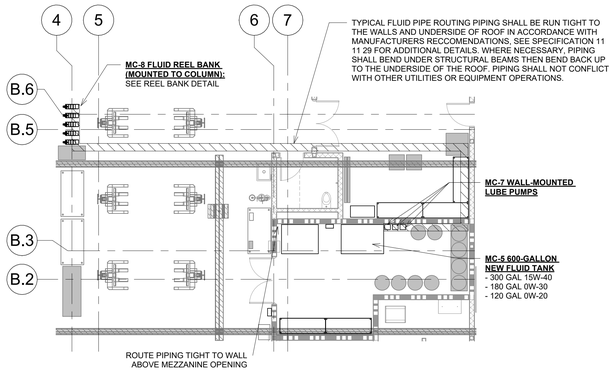
DESIGN NOTES:
1. CONCRETE 5,000 PSI @ 28 DAYS
2. HS-20-44 LOADING WITH 12" TO 60" OF COVER
3. REINFORCING ASTM A615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. PRE-CAST CONCRETE TANK SHALL BE DESIGNED FOR ANTI-BUOYANCY WITH GROUNDWATER AT GRADE. PROVIDE ANTI-BUOYANCY CALCULATIONS STAMPED BY A MASS. PROFESSIONAL ENGINEER.
6. TANK SHALL BE SEALED INSIDE AND OUT WITH AQUA-SAFE CONCRETE SEALER AS MANUFACTURED BY BAY OIL COMPANY OR APPROVED EQUAL.
7. TANK SHALL BE INSTALLED PER DETAIL SHOWN ON THE STRUCTURAL DRAWINGS.



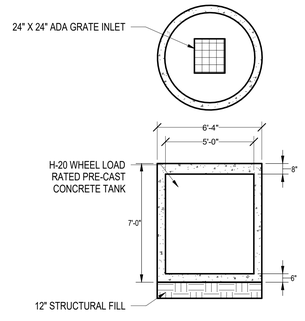
NOTES:

1. METAL BUILDING MANUFACTURER SHALL PROVIDE STEEL SUPPORTS/HMS FOR BRIDGE CRANE EQUIPMENT TO ACCOMODATE THE SLOPE OF THE STRUCTURAL STEEL IN ORDER TO PROVIDE A LEVEL BRIDGE CRANE SYSTEM AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
2. HOOK SHALL NOT EXTEND MORE THAN 1.5 FT DOWN FROM CRANE GIRDER WHEN IN FULL UP POSITION.
3. SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAILS
4. COORDINATE BRIDGE CRANE HEIGHT WITH OTHER UTILITIES AS REQUIRED.
5. BRIDGE CRANE SHALL BE LOCATED VERTICALLY IN THE VEHICLE MAINTENANCE AREA TO PROVIDE A MINIMUM OF 8 FT OF CLEARANCE OVER THE MEZZANINE SURFACE TO HIGH HOOK HEIGHT.
6. CRANE MANUFACTURER SHALL PROVIDE DRAWINGS STAMPED BY A MA LICENSED STRUCTURAL ENGINEER, SEE SPECIFICATION SECTION 14 22 13.

5 BRIDGE CRANE SECTION DETAIL
1/8" = 1'-0"



6 LUBE PIPE ROUTING DETAIL
1/8" = 1'-0"



NOTE:
1. TANK SHALL HAVE A MINIMUM CAPACITY OF 800 GALLONS
2. TANK SHALL BE LOCATED BENEATH THE FLUID STORAGE ROOM TO SERVE AS SECONDARY CONTAINMENT FOR THE LUBE STORAGE TANKS, THEREFORE THE TANK SHALL NOT HAVE ANY INLET OR OUTLETS BESIDES THE DRAIN INLET AT THE TOP OF THE TANK.
3. TANK SHALL BE INSTALLED PER DETAIL SHOWN ON THE STRUCTURAL DRAWINGS.
4. CONCRETE SHALL HAVE A 5,000 PSI MINIMUM COMPRESSIVE STRENGTH AFTER 28 DAYS. ALL REINFORCEMENT SHALL BE PER ASTMC1227.
5. TANK SHALL BE SEALED INSIDE AND OUT WITH AQUA-SAFE
6. CONCREETE SEALER AS MANUFACTURED BY BAY OIL COMPANY OR APPROVED EQUAL.
7. FLUID STORAGE ROOM SUMP SHALL BE FURNISHED WITH A 24" X 24" CAST IRON CATCH BASIN FRAME AND GRATE WHICH SHALL BE RATED FOR CLASS C LOAD OF 176-325 PSI, FOR HEAVY DUTY PNEUMATIC TIRE FORKLIFTS. THE GRATE SHALL BE AS MANUFACTURED BY NDS MODEL NUMBER 2413 OR APPROVED EQUAL.
8. PRE-CAST CONCRETE TANK SHALL BE DESIGNED FOR ANTI-BUOYANCY WITH EMPTY TANK AND GROUNDWATER AT GRADE. PROVIDE ANTI-BUOYANCY CALCULATIONS STAMPED BY A MASS. PROFESSIONAL ENGINEER.

7 FLUID STORAGE ROOM SUMP DETAIL
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Approved By:	TJC
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

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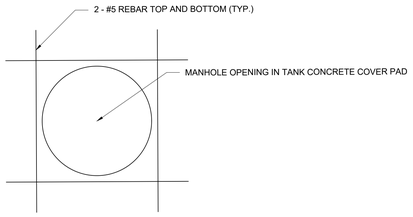
DETAILS

Sheet Number:

EQ102

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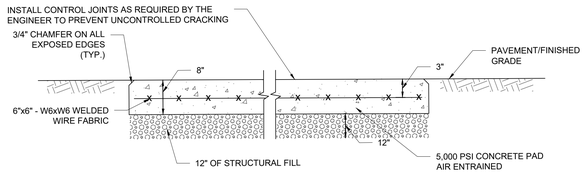


NOTE: REBAR SHALL HAVE 2"-3" OF CONCRETE COVER PER INDUSTRY STANDARDS

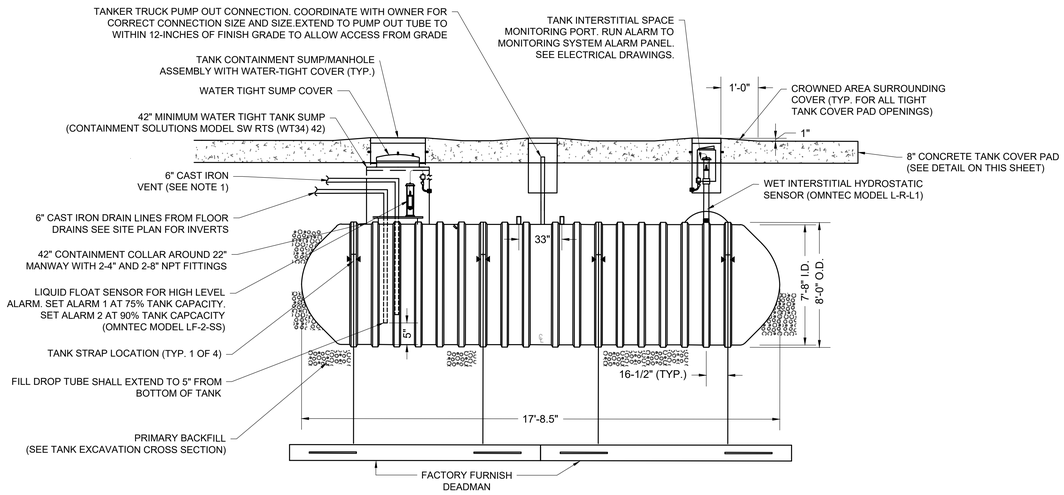
1 TIGHT TANK COVER PAD MANHOLE OPENING DETAIL
SCALE: N.T.S.

PLAN VIEW

2 HOLDING TANK COVER PAD PLAN
SCALE: N.T.S.



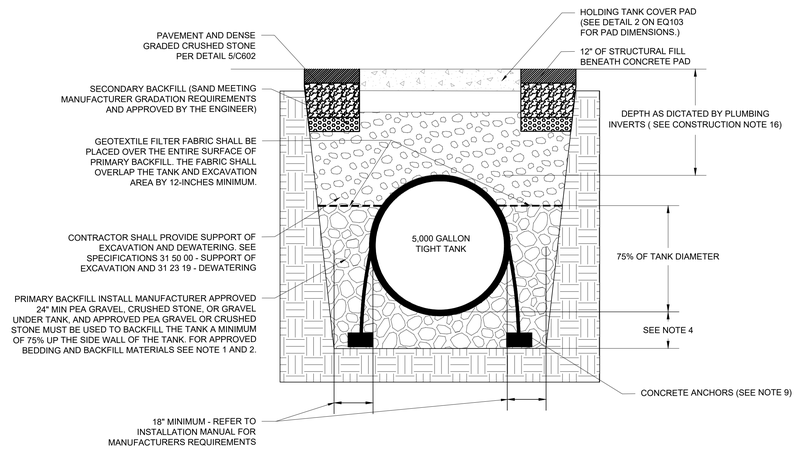
3 5,000 PSI CONCRETE TANK COVER PAD DETAIL
SCALE: N.T.S.



NOTES:

1. TANK VENT SHALL EXTEND TO THE ADJACENT BUILDING AND BE RUN/SECURE TO INSIDE OF BUILDING UP THROUGH ROOF. VENT SHALL BE EQUIPPED WITH A VENT CAP AND INSECT SCREEN PER MANUFACTURER RECOMMENDATIONS. VENT PIPING/SYSTEM SHALL BE PROVIDED AND INSTALLED BY PLUMBING FSB.
2. STRIKE PLATES TO BE INSTALLED UNDER ALL TANK FITTINGS.
3. CONCRETE COVER PAD SHALL BE 3'-0" WIDER AND 3'-0" LONGER OVERALL THAN TANK SIZE AS SHOWN.
4. HOLD-DOWN STRAPS' QUALITY, SIZE AND LOCATION OF ANCHORS AND STRAPS AS REQUIRED BY TANK MANUFACTURER. CONCRETE HOLD-DOWN DEADMEN SHALL BE PROVIDED PER MANUFACTURER'S RECOMMENDATIONS.
5. ALL PIPING TO PITCH TOWARD THE TANK PER SPECIFICATIONS.
6. AREA TO BE RESTORED TO MATCH PROPOSED CONDITIONS.
7. ALL MANHOLE COVERS/FRAMES SHALL BE HS-20 WHEEL LOAD RATED. FRAMES SHALL BE CAST INTO CONCRETE TANK COVER PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. OUTLINE DESCRIPTION AND DIAGRAMMATIC REPRESENTATION OF SYSTEM OPERATION AND EQUIPMENT DOES NOT LIMIT CONTRACTOR LIABILITY FOR THE INSTALLATION OF A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH ANY MISCELLANEOUS PARTS AND APPURTENANCES NOT SPECIFICALLY IDENTIFIED, TO MAKE A COMPLETE AND OPERABLE SYSTEM.
9. PLACE LABEL ON MANWAY COVER WITH THE WORDS "INDUSTRIAL WASTEWATER".
10. ALL SUMP OPENING COVER ASSEMBLIES IN CONCRETE COVER PAD SHALL BE WATER-TIGHT.
11. INSTALLATION OF THE TIGHT TANK SHALL FOLLOW MANUFACTURER RECOMMENDATIONS.
12. UST SHALL BE CONSTRUCTED AS DOUBLE WALLED FRP TANK DESIGNED IN ACCORDANCE ASTM D1248, D1785, AND D3299 STANDARDS.
13. LIQUID TIGHT SUMP ENTRY BOOTS SHALL BE PROVIDED FOR ALL SUMP PENETRATIONS.
14. TIGHT TANK SHALL BE MANUFACTURED BY CONTAINMENT SOLUTIONS, OR APPROVED EQUAL.
15. SEE PLUMBING DRAWINGS FOR THE DRAIN LINE CONNECTION TO BUILDING.
16. TIGHT TANK SHALL BE RATED FOR BURIAL DEPTHS GREATER THAN 7 FEET.
17. CONTRACTOR SHALL PROVIDE THE UNDERGROUND STORAGE TANK IN A WORKMAN LIKE MANNER AND SHALL PROVIDE A COMPLETE AND OPERABLE SYSTEM.
18. LISTED MAKE/MODEL NUMBERS ARE THE BASIS OF DESIGN FOR PUBLIC BID. ALTERNATIVE EQUIPMENT MAY BE SUBMITTED AS AN "OR EQUAL".

4 PROPOSED 5,000 GALLON DOUBLE WALL FIBERGLASS TIGHT TANK DETAIL
SCALE: N.T.S.



CONSTRUCTION NOTES:

1. PRIMARY BACKFILL AND SECONDARY BACKFILL (WHEN PERMITTED) MATERIALS SHALL BE CLEAN, FREE-FLOWING, AND FREE OF DIRT, SAND, LARGE ROCKS, ROOTS, ORGANIC MATERIAL, DEBRIS, ICE AND SNOW.
2. NO BACKFILL MATERIAL SHALL BE FROZEN OR CONTAIN LUMPS OF FROZEN MATERIAL ANY TIME DURING COMPACTION OR PLACEMENT.
3. INSTALL GEOTEXTILE FABRIC UNDERNEATH BEDDING MATERIAL, ALONG SIDE WALLS OF ENTIRE EXCAVATION, AND ALONG TOP OF BACKFILL MATERIAL. GEOTEXTILE FABRICS USED IN EXCAVATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
4. 12" BEDDING MINIMUM. REFER TO TANK MANUFACTURER'S INSTALLATION GUIDELINES FOR GREATER DEPTHS. WHERE SUBGRADE CONSISTS OF UNSUITABLE STABILIZING MATERIALS, THE CONTRACTOR SHALL PROVIDE A REINFORCED CONCRETE SLAB AS REQUIRED BY THE TANK MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL REFER TO SECTION 00 31 32 - SUBSURFACE DATA - FOR SITE'S GEOTECHNICAL REPORT AND SHALL COORDINATE TANK BEDDING, SUPPORT SLABS AND ANCHORING REQUIREMENTS WITH MANUFACTURER PRIOR TO INSTALLATION.
5. WHERE TANK MANUFACTURER ALLOWS USES OF SECONDARY BACKFILL, THE CONTRACTOR MAY USE SECONDARY BACKFILL MATERIAL ONLY AS DIRECTED BY THE DESIGN ENGINEER. CONTRACTOR SHALL PROVIDE PROPOSED MATERIAL SUBMITTAL FOR ENGINEER'S APPROVAL PRIOR TO USE FOR TANK BACKFILL.
6. CONTRACTOR SHALL SUBMIT WRITTEN CERTIFICATION AND SIEVE ANALYSIS SHOWING THAT BACKFILL MEETS TANK MANUFACTURER REQUIREMENTS. THE SIEVE ANALYSIS SHALL BE ATTACHED TO THE TANK INSTALLATION CHECK LIST.
7. TANK INSTALLATION SHALL BE RATED FOR H-20 WHEEL LOADING.
8. MINIMUM WIDTH OF TANK EXCAVATION SHALL BE IN ACCORDANCE WITH THE TANK MANUFACTURER'S REQUIREMENTS FOR TANK AND ANCHORING SYSTEM INSTALLATION.
9. CONTRACTOR SHALL PROVIDE A COMPLETE TANK ANCHORING SYSTEM IN ACCORDANCE WITH THE TANK MANUFACTURER'S REQUIREMENTS. CONTRACTOR SHALL PROVIDE BUOYANCY CALCULATIONS ASSUMING GROUNDWATER AT GRADE WHEN TANK IS COMPLETELY EMPTY AS BASIS FOR THE TANK ANCHORING SYSTEM. CALCULATIONS SHALL BE PREPARED AND STAMPED BY A MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER.
10. TANK SHALL BE INSTALLED BY A CERTIFIED INSTALLER AUTHORIZED BY THE TANK MANUFACTURER. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF VALID CERTIFICATES PRIOR TO TANK DELIVERY.

5 TANK EXCAVATION CROSS SECTION
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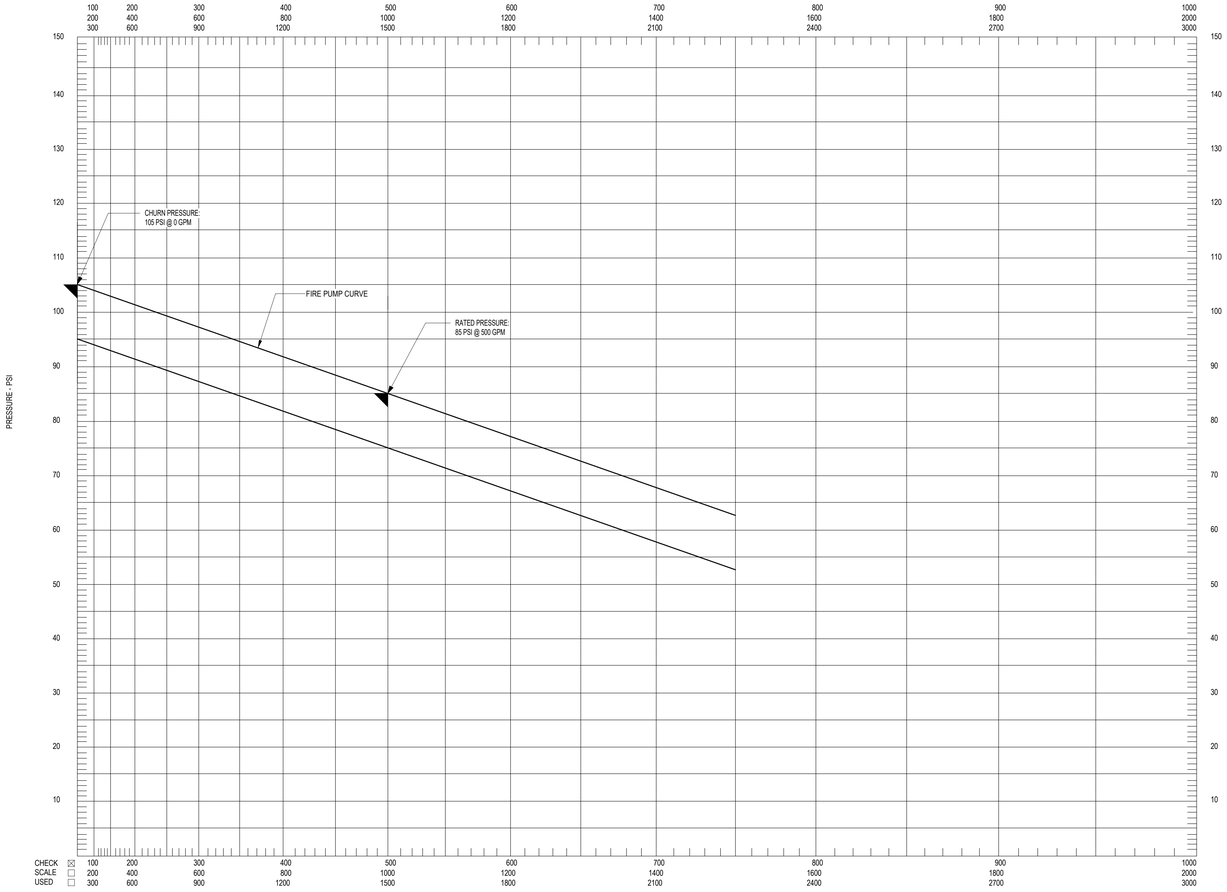
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INDUSTRIAL WASTE WATER HOLDING TANK DETAILS

Sheet Number:
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WATER SUPPLY GRAPH NO. N^1.85



HYDRAULIC GRAPH

NOT TO SCALE

FIRE PROTECTION LEGEND:

	SPRINKLER SYSTEM PIPING (PROPOSED)
WS	SPRINKLER WET SYSTEM PIPING
FP-D	SPRINKLER DRY SYSTEM PIPING
NG	NITROGEN GENERATOR
	CONCEALED PENDENT SPRINKLER HEAD
	UPRIGHT SPRINKLER HEAD
	HORIZONTAL SIDEWALL SPRINKLER HEAD

FIRE PROTECTION NOTES:

1. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR SPRINKLER PIPING LAYOUT AND HYDRAULIC CALCULATIONS TO MEET THE REQUIREMENTS OF 2019 EDITION OF NFPA #13. NOTE THAT THE LAYOUTS SHOW ARE CONCEPTUAL; DO NOT COUNT SPRINKLERS OR MEASURE PIPE RUNS.
2. THE FIRE PROTECTION CONTRACTOR SHALL PREPARE INSTALLATION DRAWINGS AND SUBMIT THEM TO THE ENGINEER AND LOCAL OFFICIAL FOR APPROVAL. SHOP DRAWING APPROVAL FROM THE AUTHORITY HAVING JURISDICTION IS REQUIRED PRIOR TO THE START OF SYSTEM INSTALLATION. NOTE THAT THE CONTRACTOR PRICE SHALL INCLUDE ALL NECESSARY SPRINKLERS AND PIPING NEEDED FOR APPROVAL, REGARDLESS OF LAYOUTS PROVIDED, AT NO ADDITIONAL COST TO THE OWNER.
3. ALL FIRE PROTECTION SYSTEMS, EQUIPMENT, PIPING AND VALVES SHALL BE INSTALLED AND TESTED BY A SPRINKLER CONTRACTOR LICENSED BY THE STATE AND EXPERIENCED IN THE INSTALLATION OF SPRINKLER SYSTEMS.
4. THE LOCATION OF THE WATER SERVICE ENTRANCE, FIRE PROTECTION RISERS AND BACKFLOW PREVENTER TEST HEADER SHALL BE AS SHOWN.
5. PIPING SHALL BE RUN CONCEALED THROUGHOUT FINISHED SPACES. REFER TO ARCHITECTURAL PLANS FOR CEILING TYPES, HEIGHTS AND CONSTRUCTION DETAILS. NOTE WHERE UPRIGHT HEADS ARE SHOWN THERE IS TYPICALLY NO FINISHED CEILING.
6. THE SPRINKLER CONTRACTOR SHALL PROVIDE AS PART OF THIS CONTRACT ALL SPRINKLERS BELOW FIXED OBSTRUCTIONS 48" AND LARGER REQUIRED BY NFPA 13, SECTION 8.6.5.3.3. IT IS RESPONSIBILITY OF THE SPRINKLER CONTRACTOR TO PROVIDE THE REQUIRED SPRINKLERS AND ALL ASSOCIATED PIPING FITTINGS, HANGERS, ..ETS. FOR A COMPLETE INSTALLATION.
7. FIRE PROTECTION CONTRACTOR SHALL PROVIDE NECESSARY SUPPLEMENTAL FRAMING BETWEEN PRIMARY FRAMING TO SUPPORT FIRE PROTECTION SYSTEM WHERE WEIGHT OF PIPING, WATER AND EQUIPMENT EXCEED COLLATERAL LOAD LIMITS OF PURLINS. REFER TO STRUCTURAL DRAWINGS.
8. PIPING SHALL NOT BE HUNG FROM ROOF DECK. PIPING SHALL BE SUPPORTED FROM BUILDING STEEL AND ROOF PURLINS .
9. FURNISH AND INSTALL ALL NECESSARY PIPING EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
10. PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING PERIODIC SERVICE AND MAINTENANCE. PROVIDE AUXILIARY DRAINS AT ALL LOW POINTS.
11. ALL FIRE PROTECTION SYSTEMS SHALL BE SEISMICALLY BRACED ACCORDING TO THE APPLICABLE SECTIONS OF THE STATE BUILDING CODE AND NFPA 13.
12. FINAL FIRE DEPARTMENT CONNECTION LOCATION SHALL BE COORDINATED WITH THE AUTHORITY HAVING JURISDICTION.
13. ALL SPRINKLER PIPING TO BE ROUTED AS HIGH AND TIGHT TO THE STRUCTURE AS POSSIBLE IN EXPOSED AREAS.
14. ALL EXPOSED FIRE PROTECTION PIPING SHALL BE PAINTED WITH ANTI-CORROSION PAINT. THE CONTRACTOR SHALL SUPERVISE THE PAINTING PROCESS TO ENSURE THAT ALL PIPES ARE COMPLETELY COATED AND THAT NO SPRINKLER HEADS ARE ACCIDENTALLY PAINTED
15. MAIN SERVICE FIRE PROTECTION DETAILS CONNECTION REFERS TO CIVIL DRAWINGS.
16. ALL SPRINKLER AND PIPE AND FITTINGS SHALL BE INSTALLED SO THAT THE SYSTEM CAN BE DRAINED.

FIRE PROTECTION DESIGN CRITERIA:

1. PROVIDE COMPLETE HYDRAULIC CALCULATIONS AND DISTRIBUTION SYSTEM DESIGN IN ACCORDANCE WITH THE CRITERIA OUTLINED IN THE CONTRACT DOCUMENTS. THE FINAL SYSTEM DESIGN SHALL BE BASED ON A FIRE PUMP CAPABLE OF MEETING THE SPRINKLER DEMAND AND SHALL BE PERFORMED BY THE CONTRACTOR. THE PRELIMINARY DESIGN WAS PREPARED ASSUMING A NEW FIRE PUMP WITH A RATED CAPACITY OF 500 GPM AT 85 PSI

2. REQUIRED DESIGN FLOWS:

A. DESIGN HAZARDS:

OCCUPANCY HAZARD CLASSIFICATION SCHEDULE.

OCCUPANCY HAZARD CLASSIFICATION SCHEDULE

LOCATION		OCCUPANCY HAZARD CLASSIFICATION SYMBOL
NO.	NAME	

B. REQUIRED DESIGN DENSITIES:

AUTOMATIC SPRINKLER SYSTEM DESIGN CRITERIA

SYMBOL	OCCUPANCY HAZARD CLASSIFICATION	DESIGN DENSITY (GPM/SF)	DESIGN AREA
LH	LIGHT HAZARD OCCUPANCY	0.10	1500 SF
OH1	ORDINARY HAZARD, GROUP 1 OCCUPANCY	0.15	1500 SF
OH2	ORDINARY HAZARD, GROUP 2 OCCUPANCY	0.20	1500 SF
EH1	EXTRA HAZARD, GROUP 1	0.30	2500 SF

NOTE:

HOSE ALLOWANCE SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13 AS FOLLOWS:

LIGHT HAZARD (LH): 100 GPM

ORDINARY HAZARD GROUP 1 & 2 (OH1 & OH2): 250 GPM

EXTRA HAZARD GROUP 1 (EH1): 500 GPM

C. COVERAGE AREA & SPRINKLER SPACING (MAX):

COVERAGE AREA / SPRINKLER SPACING	
HAZARD	COVERAGE / MAX SPACING
LIGHT HAZARD AREAS	225 S.F. / 15'-0"
ORDINARY HAZARD AREAS	130 S.F. / 15'-0"
EXTRA HAZARD AREAS	100 S.F. / 10'-0"
SIDEWALL	TABLE 8.7.2.2.1 OF NFPA 13

3. FOLLOW THE HEAD LAYOUT AS SHOWN ON THE DRAWINGS IN FINISHED AREAS. ALL SPRINKLER HEADS SHALL BE LOCATED DEAD CENTER ON THE CEILING TILE AND WING JOINTS MAY BE USED TO MEET THIS REQUIREMENT.
4. HYDRAULIC CALCULATIONS FOR THE SYSTEM SHALL INCLUDE A 10 PSI CUSHION.

FIRE PUMP SCHEDULE

ID	MANUFACTURER	MODEL NO	TYPE	QTY	PUMP		MOTOR			VOLT	PH	REMARKS
					FLOW (GPM)	HEAD (PSI)	QTY	POWER (HP)	SPEED (RPM)			
FP	PEERLESS-FIRE PUMP	10MAF	VERTICAL TURBIAN	1	500	85	1	40	1760	460	3	FIRE PUMP SHALL BE FURNISHED IN 8' DIAMETER PRECAST CONCRETE WET WELL AS SHOWN ON THE DRAWINGS.

JOCKEY PUMP SCHEDULE

ID	MANUFACTURER	MODEL NO	TYPE	QTY	PUMP		MOTOR			VOLT	PH	REMARKS
					FLOW (GPM)	HEAD (PSI)	QTY	POWER (HP)	SPEED (RPM)			
JP	GRUNDFOS	7S07	SUBMERSIBLE PUMP	1	7.7 GPM	120	1	0.75	3450	230	3	JOCKEY PUMP SHALL BE FURNISHED IN 8' DIAMETER PRECAST CONCRETE WET WELL AS SHOWN ON THE DRAWINGS.

FIRE PROTECTION NITROGEN GENERATOR SCHEDULE (FOR DRY SPRINKLER SYSTEM) FOR BID ALT 2 & 4

SYMBOL	MANUFACTURER	MODEL	LOCATION	MAINTENANCE CAPACITY (GAL)	SYSTEM CAPACITY (GAL)	AIR TANK SIZE	N2 TANK SIZE (GAL)	COMPRESSOR ELECTRICAL REQUIREMENTS					REMARKS
								VOLTS	PHASE	AMPS	HZ	HP	
NG	GENERAL AIR PRODUCTS	NGP - 1000D - M1 - 4B	FIRE PUMP ROOM (137)	3880	925	30	30	460	3	4.6	60	2	-

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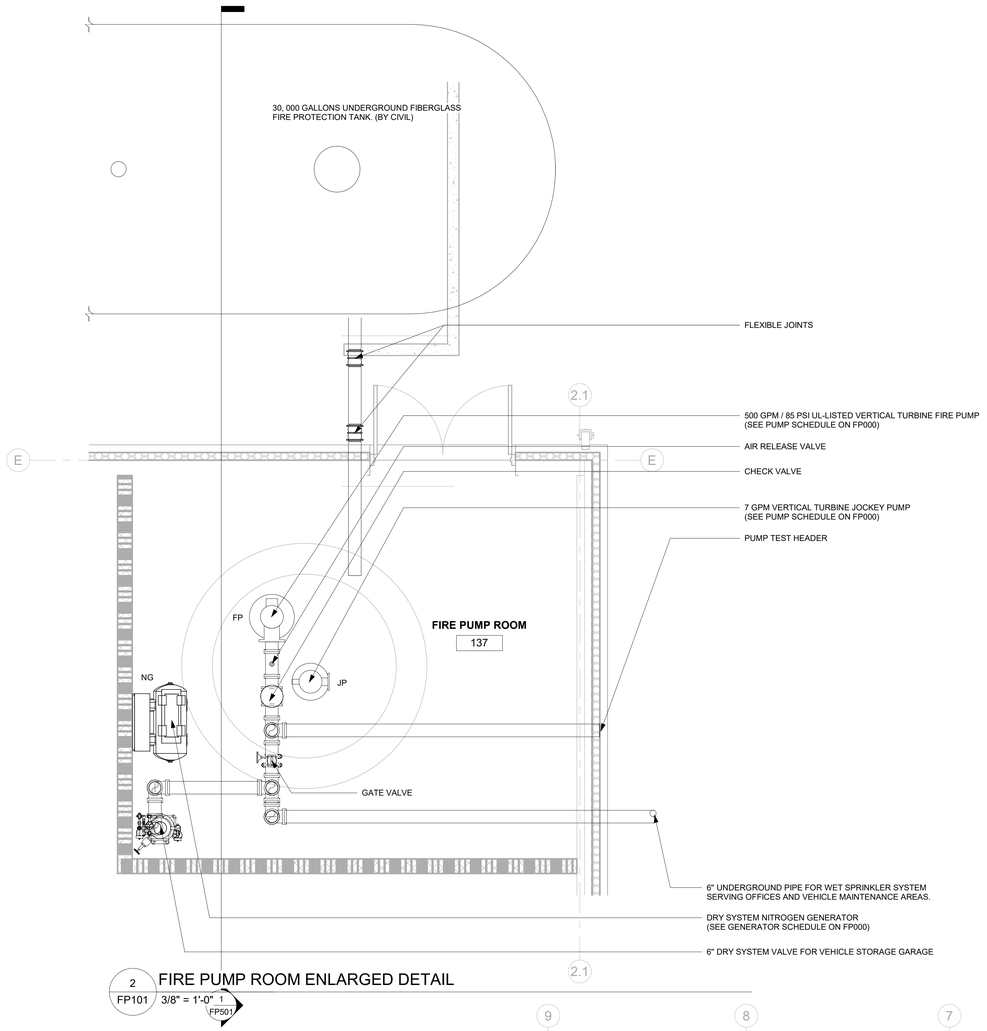


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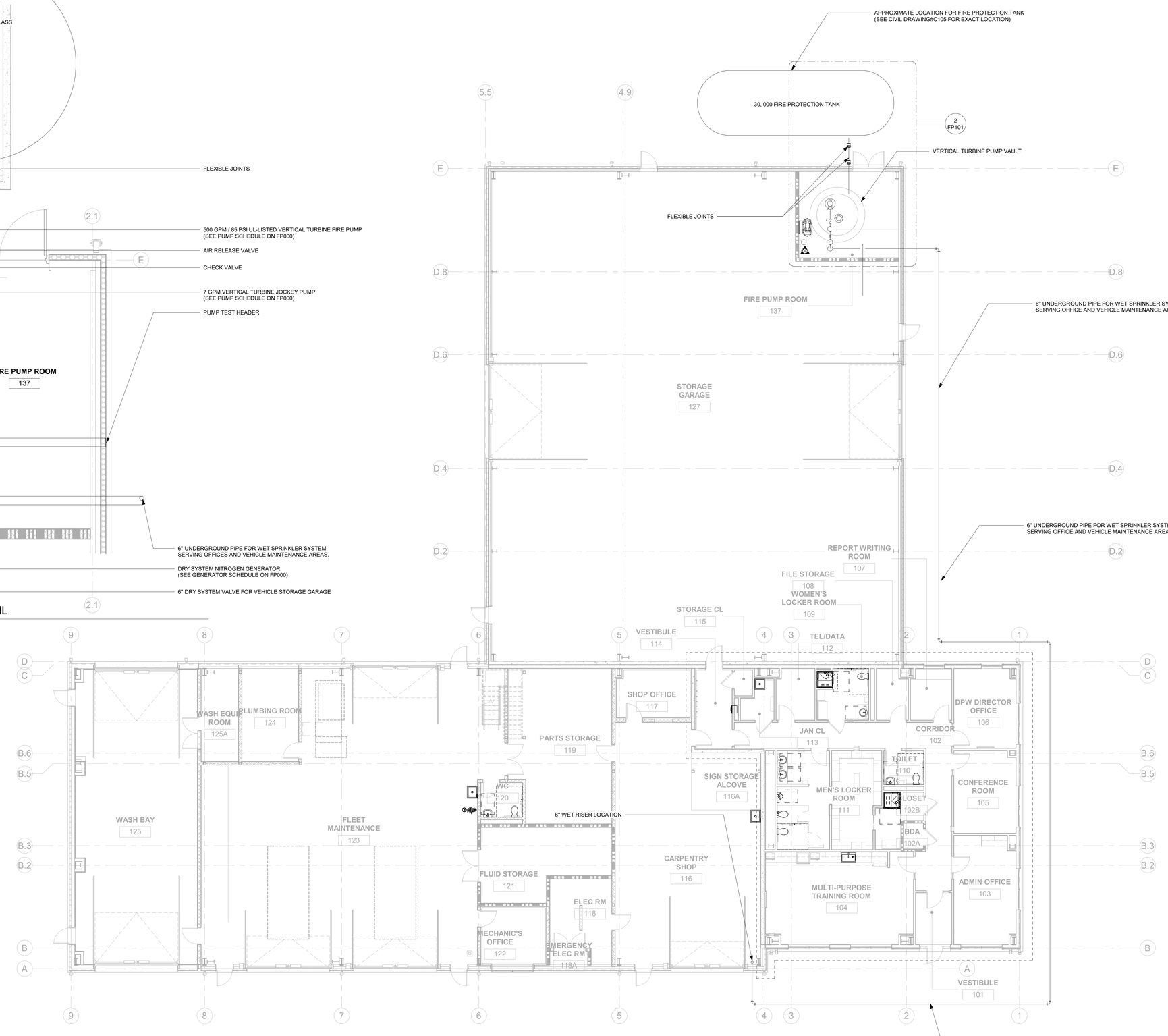
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FIRE PROTECTION LEGENDS, NOTES AND ABBREVIATIONS

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2 FP101 FIRE PUMP ROOM ENLARGED DETAIL
3/8" = 1'-0"
1 FP501



1 FP101 FIRE PROTECTION PLAN _ FIRST FLOOR LEVEL BASE BID
1/8" = 1'-0"

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Drawing Title:

FIRST FLOOR FIRE PROTECTION PLAN - BASE BID

Sheet Number:

FP101

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BID ALT#1

FIRE PUMP ROOM
137

WASH EQUIP ROOM
125A

PLUMBING ROOM
124

STORAGE CL
115

FILE STORAGE
108

VESTIBULE
114

WOMEN'S LOCKER ROOM
109

SHOP OFFICE
117

TEL/DATA
112

JAN CL
113

DPW DIRECTOR OFFICE
106

TOILET
110

CORRIDOR
102

CLOSET
102B

PARTS STORAGE
119

WC
120

SIGN STORAGE ALCOVE
116A

CONFERENCE ROOM
105

MEN'S LOCKER ROOM
111

WASH BAY
125

FLUID STORAGE
121

CARPENTRY SHOP
116

BDA
102A

ELEC RM
118

MECHANIC'S OFFICE
122

MULTI-PURPOSE TRAINING ROOM
104

ADMIN OFFICE
103

VESTIBULE
101

EMERGENCY ELEC RM
118A

1 FIRE PROTECTION PLAN _ FIRST FLOOR LEVEL BID ALT 1
FP102 1/8" = 1'-0"

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Project:
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NEW DEPARTMENT OF PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
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Scale: NTS = 1'-0"

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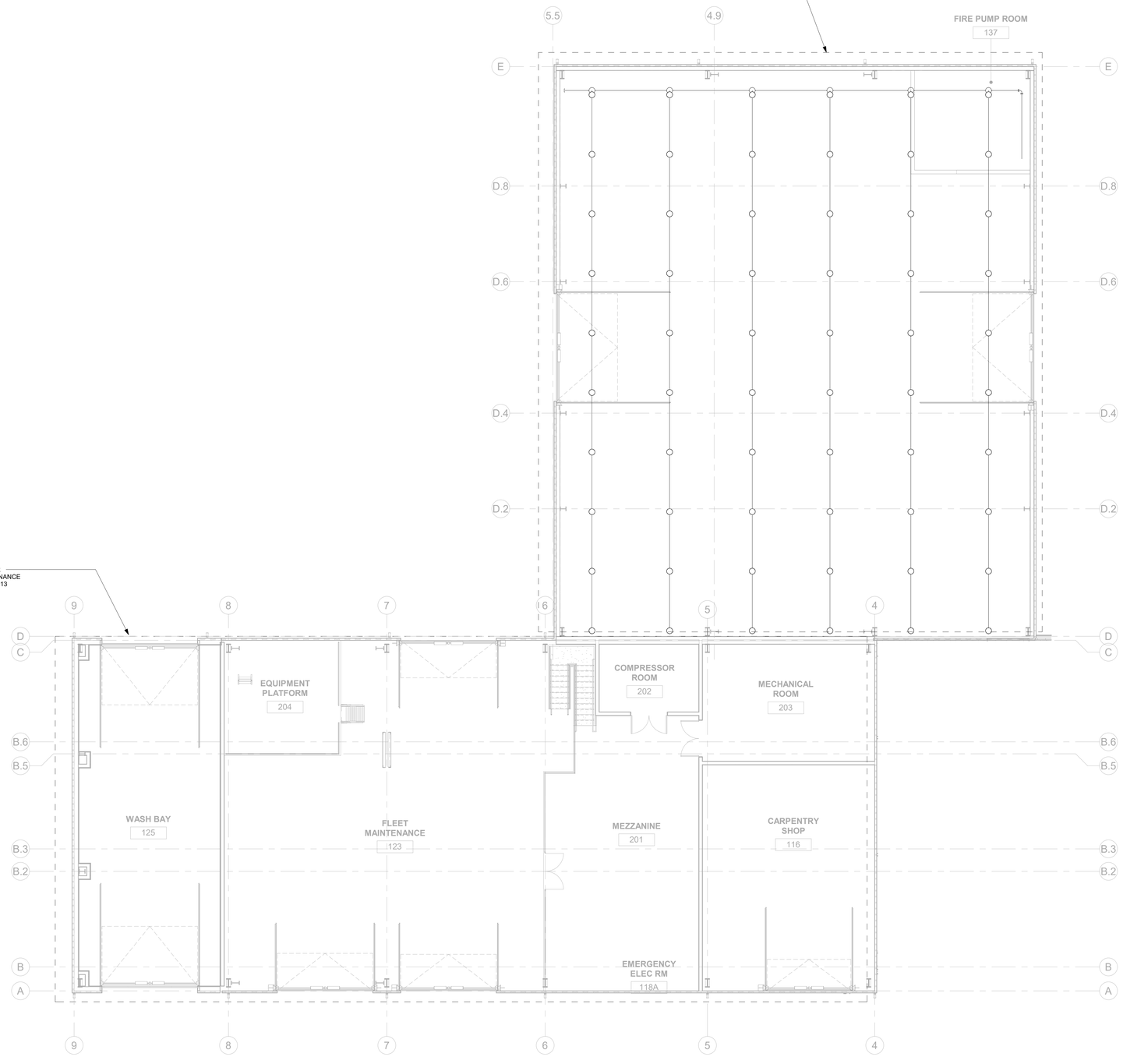
Date:	OCTOBER 31, 2025
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Reviewed By:	AI
Approved By:	AI
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
FIRST FLOOR FIRE PROTECTION PLAN - BID ALT 1

Sheet Number:
FP102

THE VEHICLE STORAGE AREA SHALL BE FULLY PROTECTED BY A DRY SPRINKLER SYSTEM, WITH THE DRY VALVE LOCATED IN THE FIRE PROTECTION ROOM. THE SPACE IS CLASSIFIED AS ORDINARY HAZARD GROUP 1 IN ACCORDANCE WITH NFPA 13 REQUIREMENTS.

THE VEHICLE MAINTENANCE AREA SHALL BE FULLY PROTECTED BY A WET SPRINKLER SYSTEM, WITH THE WET RISER LOCATED AS SHOWN ON THE DRAWINGS. THE MAINTENANCE GARAGE IS CLASSIFIED AS ORDINARY HAZARD GROUP 2, IN ACCORDANCE WITH NFPA 13 REQUIREMENTS



1 FP104 FIRE PROTECTION PLAN _ MEZZANINE FLOOR LEVEL BASE BID

1/8" = 1'-0"

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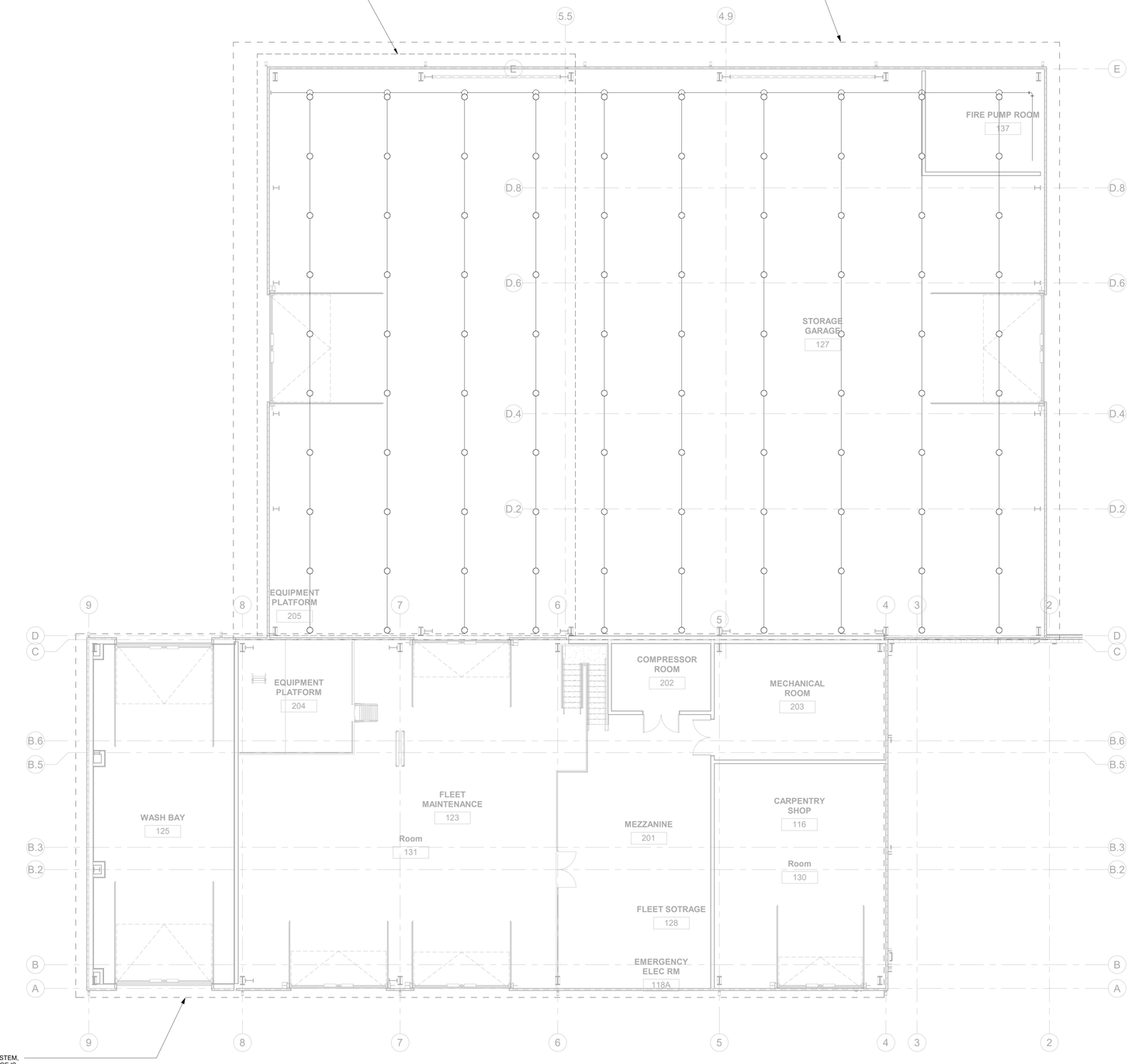
MEZZANINE FLOOR FIRE PROTECTION PLAN - BASE BID

Sheet Number:

FP104

BID ALT#1

THE VEHICLE STORAGE AREA SHALL BE FULLY PROTECTED BY A DRY SPRINKLER SYSTEM, WITH THE DRY VALVE LOCATED IN THE FIRE PROTECTION ROOM. THE SPACE IS CLASSIFIED AS ORDINARY HAZARD GROUP 1 IN ACCORDANCE WITH NFPA 13 REQUIREMENTS.



THE VEHICLE MAINTENANCE AREA SHALL BE FULLY PROTECTED BY A WET SPRINKLER SYSTEM, WITH THE WET RISER LOCATED AS SHOWN ON THE DRAWINGS. THE MAINTENANCE GARAGE IS CLASSIFIED AS ORDINARY HAZARD GROUP 2, IN ACCORDANCE WITH NFPA 13 REQUIREMENTS

1 / FP105 FIRE PROTECTION PLAN _ MEZZANINE FLOOR LEVEL BID ALT-1

1/8" = 1'-0"

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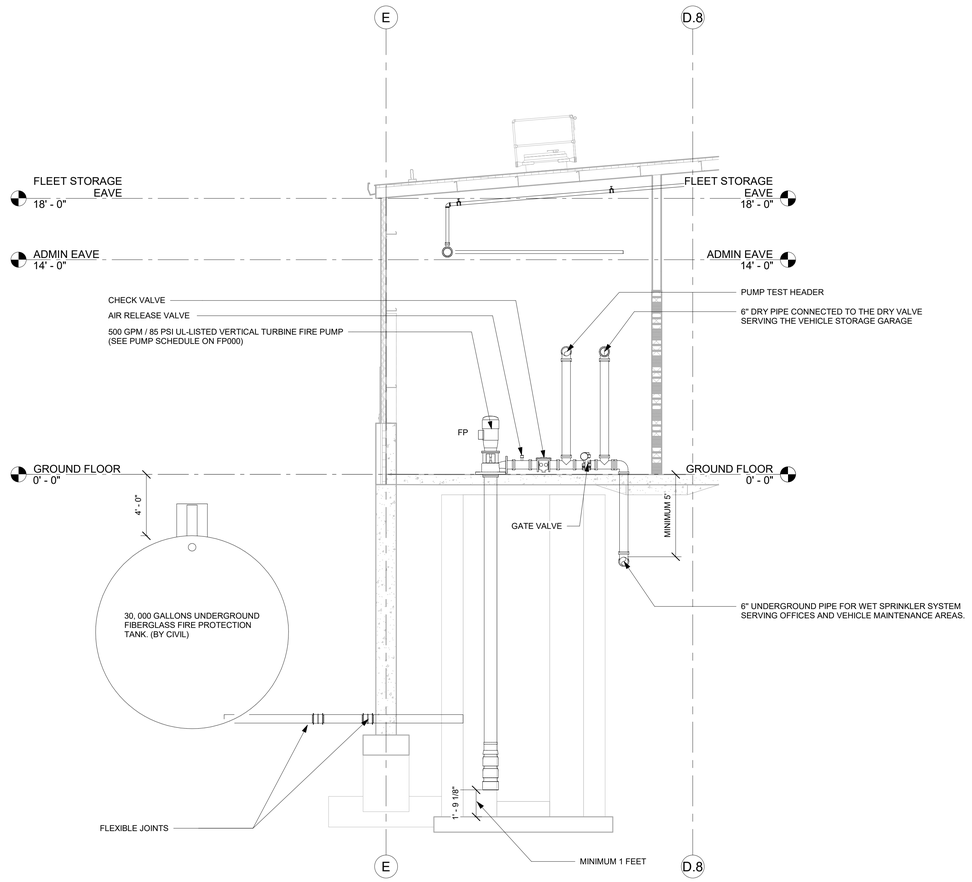
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Drawing Title:

MEZZANINE FLOOR FIRE PROTECTION PLAN - BID ALT 1

Sheet Number:

FP105



1 FP501 FIRE PROTECTION PUMP AND TANK – SECTION DETAIL

1/4" = 1'-0"

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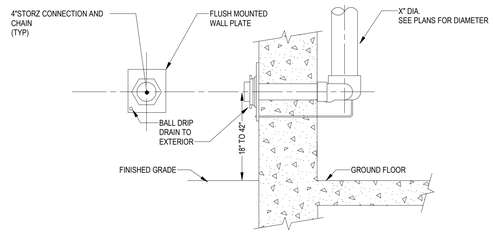
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Drawing Title:

FIRE PUMP ROOM SECTION DETAIL

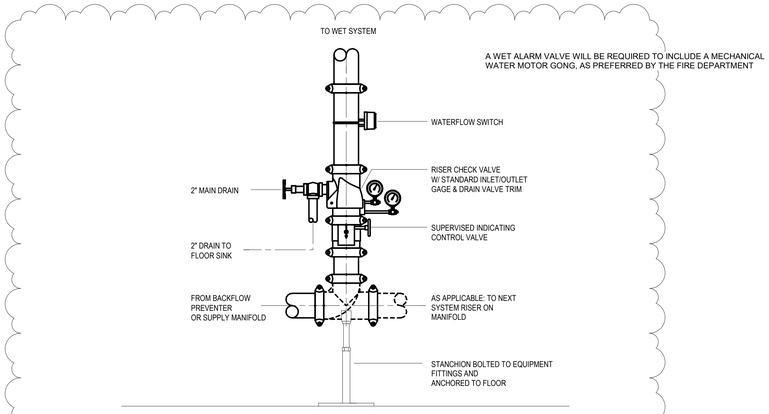
Sheet Number:

FP501



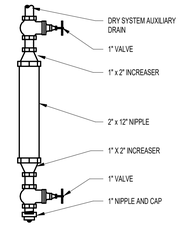
1 FP502 — FIRE DEPARTMENT CONNECTION DETAIL

N.T.S



8 FP502 — WET SYSTEM RISER

12" = 1'-0"



3 FP502 — DRY SYSTEM AUX DRAIN

12" = 1'-0"

2 FP502 — DRY SYSTEM RISER

12" = 1'-0"

7 FP502 — UPRIGHT SPRINKLER HEAD

12" = 1'-0"

5 FP502 — PENDANT SPRINKLER BRANCH

12" = 1'-0"

4 FP502 — FLEXIBLE SPRINKLER HEAD PIPING DETAIL

1/8" = 1'-0"

GENERAL NOTES:

1. ALL MECHANICAL, ELECTRICAL, PLUMBING & FIRE-PTROTECTION (MEP/FP), ETC. SUB-TRADES SHALL PROVIDE AND INSTALL ALL SUPPLEMENTAL STEEL SUPPORTS, ANGLES, STRUTS, CLIPS, ATTACHMENTS, ETC. AS NECESSARY FOR THE COMPLETE INSTALLATION AND SUPPORT OF ALL BUILDING MEP/FP SYSTEMS.
2. ALL MEP/FP SUB-TRADES SHALL SIZE ALL SUPPORTS, ANGLES, CONNECTORS, ETC, AS REQUIRED TO SUPPORT THE LOADS OF THE SUSPENDED SYSTEMS AND SHALL COORDINATE SIZES AND LOCATIONS, AND SHALL OBTAIN APPROVAL FROM THE METAL BUILDING MANUFACTURER.
3. ALL FASTENERS, COUPLINGS, ANGLES, ETC. ATTACHED TO THE BUILDING ROOF PURLIN FRAMING ABOVE THE BOTTOM OF THE PURLIN, TO BE INSTALLED PRIOR TO INSTALLATION OF THE CEILING FABRIC LINER. SUSPENDED SUPPORTS INSTALLED BELOW THE BOTTOM OF THE PURLIN FRAMING TO BE INSTALLED FOLLOWING INSTALLATION OF THE CEILING LINER. GENERAL CONTRACTOR SHALL COORDINATE THE SEQUENCE AND INSTALLATION OF THE WORK.
4. ALL EQUIPMENT LOADS/ REACTIONS IMPOSED ON THE METAL BUILDING FRAMING TO BE REVIEWED AND APPROVED BY THE METAL BUILDING MANUFACTURER. ALL SUPPLEMENTAL BUILDING FRAMING MEMBERS, AS REQUIRED TO SUPPORT MECHANICAL/ ELECTRICAL/ FIRE PROTECTION EQUIPMENT, AS DETERMINED BY THE PREFABRICATED METAL BUILDING DESIGN, IN CONSIDERATION OF ALL EQUIPMENT-IMPOSED LOADS TO THE BUILDING, TO BE PROVIDED BY METAL BUILDING MANUFACTURER.

6 FP502 — ROOF PURLIN

12" = 1'-0"

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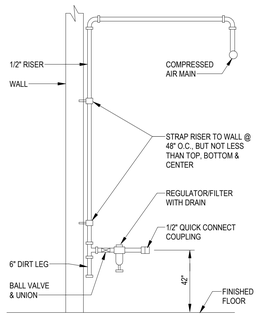
FIRE PROTECTION DETAILS

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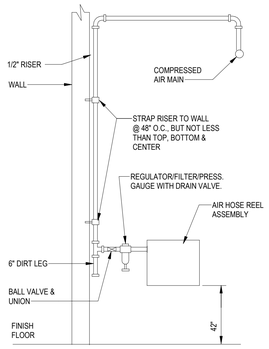
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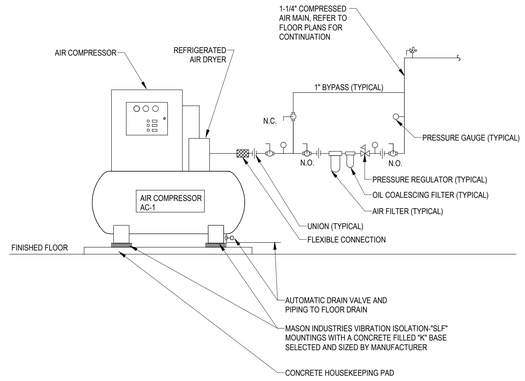
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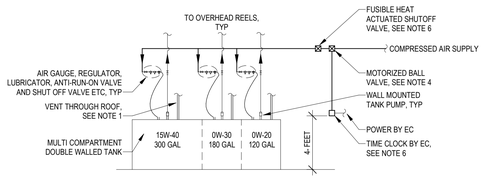
1 COMPRESSED AIR WALL OUTLET - CAO-1
EQ104 / NOT TO SCALE



2 COMPRESSED AIR HOSE REEL DETAIL - CAO-2
EQ104 / NOT TO SCALE



3 HORIZONTAL AIR COMPRESSOR DETAIL AND PIPING
EQ104 / NOT TO SCALE



4 GENERAL TANK PIPING ARRANGEMENT
EQ104 / NOT TO SCALE

NOTES:
1. NOT ALL COMPONENTS OF PUMPING SYSTEM ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT/COMPONENTS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM, PER MANUFACTURER'S REQUIREMENTS.
2. COORDINATE TANK OPENINGS TO PROVIDE LAYOUT SHOWN.
3. TANKS VENT TO OUTSIDE AS SHOWN ON EQ 200 SERIES DRAWINGS.
4. MOTORIZED BALL VALVE SUPPLIED BY LUBE SYSTEM CONTRACTOR AND INSTALLED BY GENERAL CONTRACTOR, POWER PROVIDED BY ELECTRICAL CONTRACTOR.
5. HEAT ACTUATED SHUTOFF SUPPLIED BY LUBE SYSTEM CONTRACTOR, INSTALLED BY GENERAL CONTRACTOR.
6. TIME CLOCK PROVIDED BY LUBE SYSTEM CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. TIME CLOCK SHALL BE PROGRAMMED BY THE LUBE SYSTEM CONTRACTOR, IN COORDINATION WITH THE OWNER.
7. OWNER SHALL PROVIDE FLUIDS TO FILL LUBE TANKS, TO ALLOW LUBE SYSTEM CONTRACTOR TO PRESSURIZE AND CALIBRATE SYSTEM.
8. NOT ALL TANK COMPARTMENTS ARE SHOWN, ONLY THOSE REQUIRING A PNEUMATIC PUMP.
9. SHUT OFF VALVE AND AIR REGULATOR WITH PRESSURE GAUGE BY GENERAL CONTRACTOR. GC OWNS FROM REGULATOR TO TANK.

5 LUBE STATION AIR PIPING DETAIL
EQ104 / NOT TO SCALE

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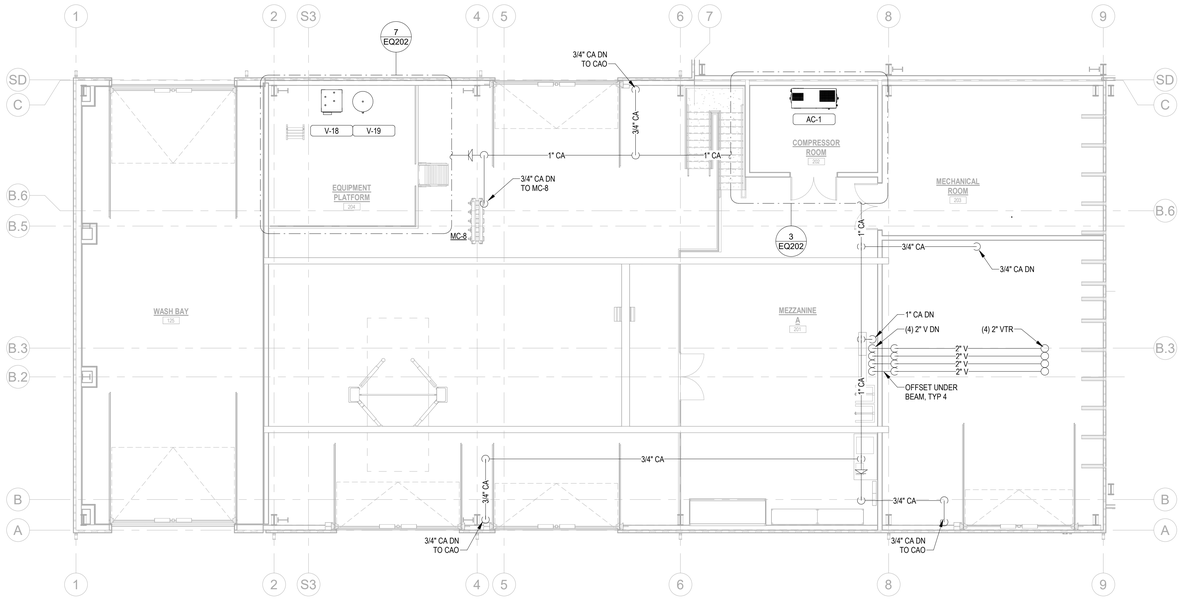
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DETAILS

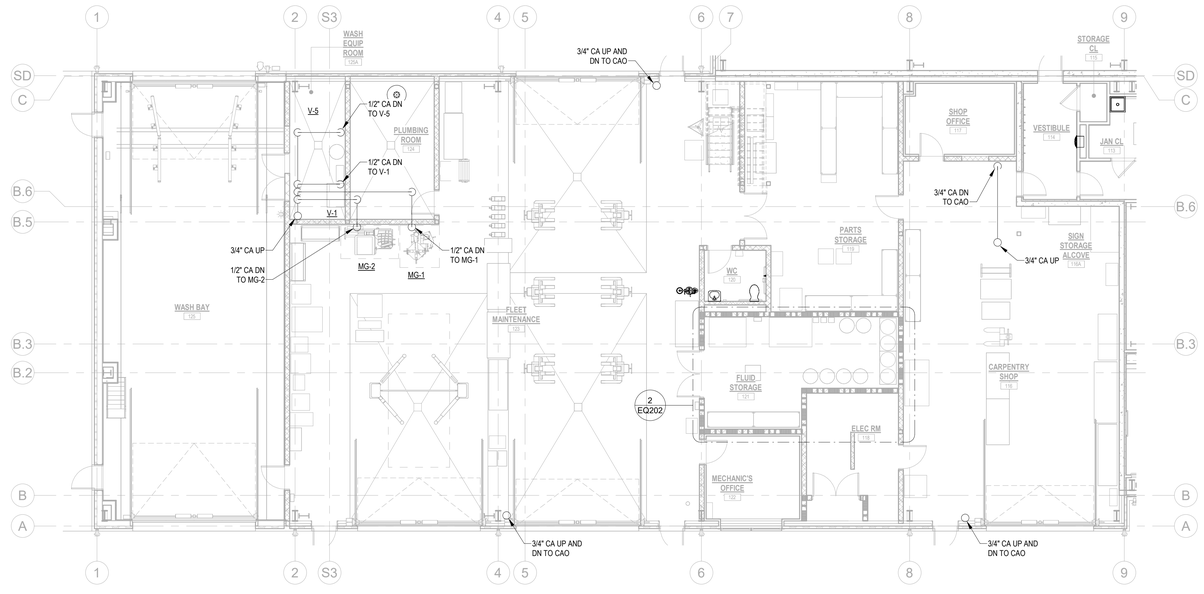
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EQ104

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2 MEZZANINE PIPING PLAN
1/8" = 1'-0"



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

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Key Plan:

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W&S File No.:	XXX

Drawing Title:

FIRST FLOOR AND MEZZANINE EQUIPMENT PIPING PLANS

Sheet Number:

EQ201

AIR COMPRESSOR SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	PUMP DESCRIPTION	PUMP TYPE	PUMP FLOW (CFM)	PUMP DISCHARGE PRESS (PSI)	MOTOR QTY	MOTOR POWER (HP)	RECEIVER SIZE (GAL)	DIMENSIONS (IN) LENGTH	DIMENSIONS (IN) WIDTH	DIMENSIONS (IN) HEIGHT	SOUND PRESSURE (dBa)	WEIGHT (lb)	ELECTRICAL DATA FLA	ELECTRICAL DATA V	ELECTRICAL DATA PH	NOTES
AC-1	COMPRESSOR ROOM	202	QUINCY	QGS-30-TMD	ROTARY SCREW	TANK MOUNT	SCREW	109	150.00	1	30.0	120.0	6' - 1"	2' - 7"	4' - 0"	68	1076.0	68.0	208	3	1 THRU 11

NOTES:
1. REFER TO SPECIFICATIONS (SECTION 22 15 13 AND 22 15 19) AND DETAILS FOR ADDITIONAL INFORMATION.
2. EQUIPMENT SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. PROVIDE AIR COMPRESSOR WITH 120 GALLON HORIZONTAL AIR RECEIVER.
4. PROVIDE INTEGRATED REFRIGERATED AIR DRYER WITH SEPARATE ELECTRICAL CONNECTION (115 V, 1 PH, 60 HZ).
5. DISCONNECT SWITCH BY DIV 26.
6. PROVIDE PROGRAMMABLE CONTROLLER WITH BUILT-IN INTERNET MONITORING CAPABILITY.
7. INSTALL AIR COMPRESSOR ON 4" HIGH CONCRETE PAD.
8. INSTALL AIR COMPRESSOR WITH CLEARANCE REQUIRED FOR PROPER VENTILATION.
9. CONDENSATE SHALL BE FILTERED BEFORE DRAINING TO SEWAGE SYSTEM. FOLLOW CODES AND LOCAL REGULATIONS FOR CONDENSATE DISPOSAL.
10. THE COMPRESSED AIR SUPPLY LINE SHALL BE PLUMBED INTO THE TOP OF THE HEADER.
11. PROVIDE EQUIPMENT WITH A 5-YEAR WARRANTY.

HEAT PUMP WATER HEATER SCHEDULE

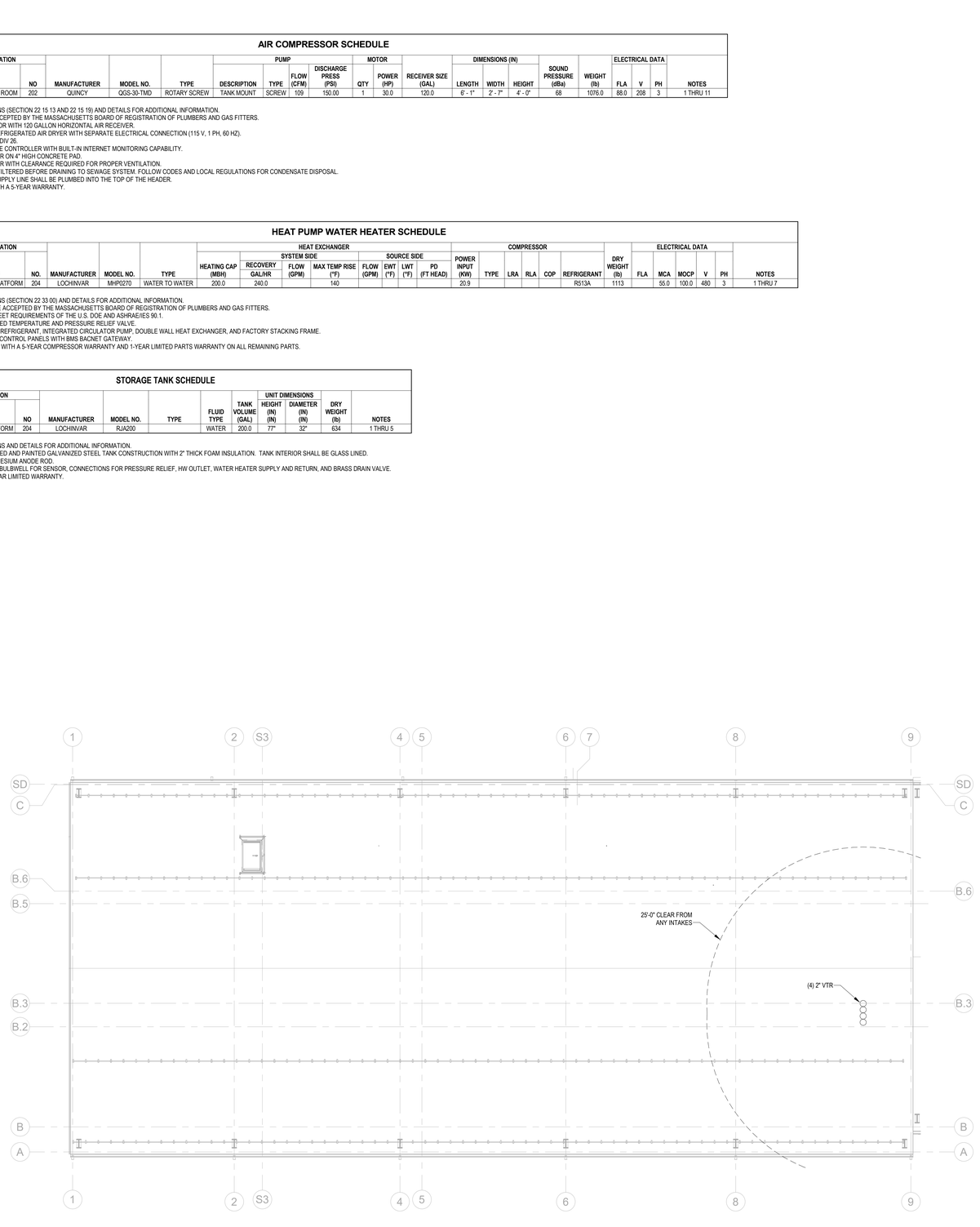
ID	LOCATION NAME	LOCATION NO.	MANUFACTURER	MODEL NO.	TYPE	HEAT EXCHANGER HEATING CAP (MBH)	SYSTEM SIDE RECOVERY GAL/HR	SYSTEM SIDE FLOW (GPM)	SYSTEM SIDE MAX TEMP RISE (°F)	SOURCE SIDE FLOW (GPM)	SOURCE SIDE EWT (°F)	SOURCE SIDE LWT (°F)	SOURCE SIDE PD (FT HEAD)	COMPRESSOR POWER INPUT (KW)	COMPRESSOR TYPE	COMPRESSOR LRA	COMPRESSOR RLA	COMPRESSOR COP	COMPRESSOR REFRIGERANT	DRY WEIGHT (lb)	ELECTRICAL DATA FLA	ELECTRICAL DATA MCA	ELECTRICAL DATA MOCP	ELECTRICAL DATA V	ELECTRICAL DATA PH	NOTES
V-18	EQUIPMENT PLATFORM	204	LOCHINVAR	MHP0270	WATER TO WATER	200.0	240.0		140					20.9					R513A	1113		55.0	100.0	480	3	1 THRU 7

NOTES:
1. REFER TO SPECIFICATIONS (SECTION 22 33 00) AND DETAILS FOR ADDITIONAL INFORMATION.
2. WATER HEATER SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. WATER HEATER SHALL MEET REQUIREMENTS OF THE U.S. DOE AND ASHRAE/IES 90.1.
4. PROVIDE WITH ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE.
5. PROVIDE WITH LOW GWP REFRIGERANT, INTEGRATED CIRCULATOR PUMP, DOUBLE WALL HEAT EXCHANGER, AND FACTORY STACKING FRAME.
6. PROVIDE WITH FACTORY CONTROL PANELS WITH BMS BACNET GATEWAY.
7. PROVIDE WATER HEATER WITH A 5-YEAR COMPRESSOR WARRANTY AND 1-YEAR LIMITED PARTS WARRANTY ON ALL REMAINING PARTS.

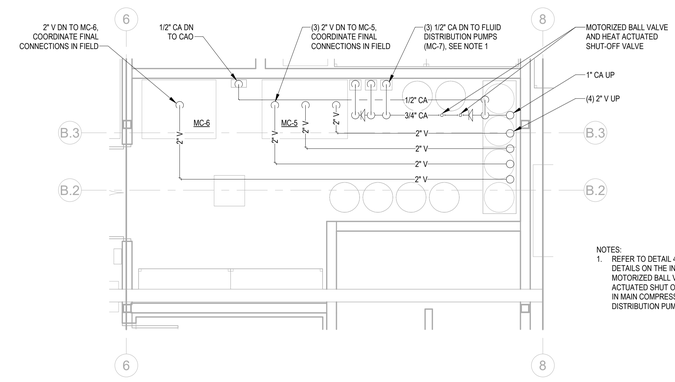
STORAGE TANK SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	FLUID TYPE	TANK VOLUME (GAL)	UNIT DIMENSIONS HEIGHT (IN) (IN)	UNIT DIMENSIONS DIAMETER (IN) (IN)	DRY WEIGHT (lb)	NOTES
V-19	EQUIPMENT PLATFORM	204	LOCHINVAR	RJA200		WATER	200.0	77"	32"	634	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. PROVIDE UNIT WITH PRIMED AND PAINTED GALVANIZED STEEL TANK CONSTRUCTION WITH 2" THICK FOAM INSULATION. TANK INTERIOR SHALL BE GLASS LINED.
3. PROVIDE FACTORY MAGNESIUM ANODE ROD.
4. PROVIDE WITH FACTORY BULBWELL FOR SENSOR, CONNECTIONS FOR PRESSURE RELIEF, HW OUTLET, WATER HEATER SUPPLY AND RETURN, AND BRASS DRAIN VALVE.
5. PROVIDE FACTORY 10 YEAR LIMITED WARRANTY.

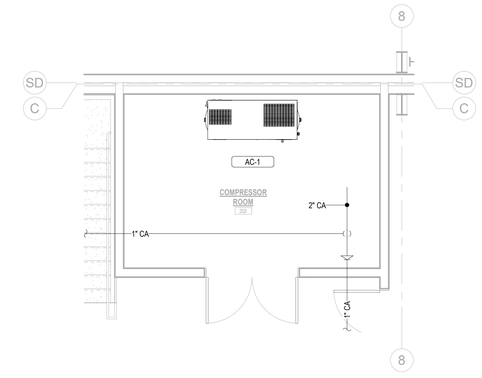


1 ROOF PLAN - BASE BID
1/8" = 1'-0"

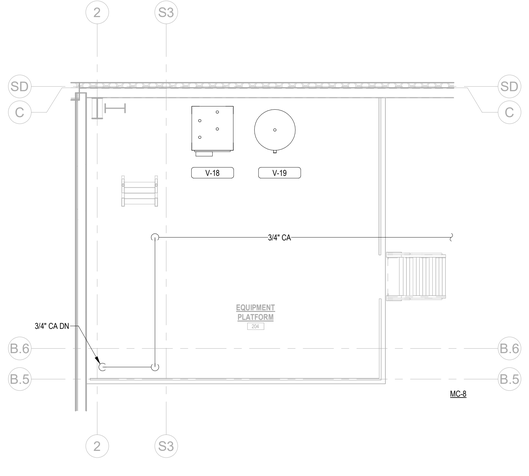


NOTES:
1. REFER TO DETAIL 4 ON EQ104 FOR ADDITIONAL DETAILS ON THE INSTALLATION OF A MOTORIZED BALL VALVE, AND FUSIBLE HEAT ACTUATED SHUT OFF VALVES TO BE INSTALLED IN MAIN COMPRESSED AIR LINE TO FLUID DISTRIBUTION PUMPS.

2 ENLARGED FLUIDS STORAGE ROOM
1/4" = 1'-0" 1/ EQ201



3 ENALRGED AIR COMPRESSOR ROOM
1/4" = 1'-0" 2/ EQ201



7 ENALRGED EQUIPMENT PLATFORM
1/4" = 1'-0" 2/ EQ201

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Revisions:

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Scale: As indicated

Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

ROOF EQUIPMENT PIPING PLAN AND ENLARGED PLANS

Sheet Number:

EQ202

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ABBREVIATIONS

Ø	DIAMETER	ID	INSIDE DIAMTER
ABV	ABOVE	IN	INCH
ACT	ACOUSTICAL CEILING TILE	INV	INVERT
AD	ACCESS DOOR	KW	KILOWATT
ADD	ADDENDUM	L	LENGTH
ADD'L	ADDITIONAL	LAV	LAVATORY-FIXTURE
AFF	ABOVE FINISHED FLOOR	LB	POUND
AFR	ABOVE FINISHED ROOF	LF	LINEAR FEET
ALT	ALTERNATE	LP	LOW POINT
AP	ACCESS PANEL	LPC	LIMIT OF PLUMBING CONTRACTOR
ARCH	ARCHITECT/ARCHITECTURAL	LPG	LIQUEFIED PETROLEUM GAS
AVG	AVERAGE	MAX	MAXIMUM
BFC	BELOW FINISHED CEILING	MECH	MECHANICAL
BFF	BELOW FINISHED FLOOR	MEZZ	MEZZANINE
BFP	BACKFLOW PREVENTER	MFR	MANUFACTURER
BLDG	BUILDING	MIN	MINIMUM
BOP	BOTTOM OF PIPE	MISC	MISCELLANEOUS
BOS	BOTTOM OF STEEL	MTR	MOTOR
BSMT	BASEMENT	MU	MAKE-UP WATER
CA	COMPRESSED AIR	N/A	NOT APPLICABLE
CI	CAST IRON	NB	NICKEL BRONZE
CL	CENTERLINE	NC	NORMALLY CLOSED
CLG	CEILING	NIC	NOT IN CONTRACT
CO	CLEAN OUT	NG	NATURAL GAS
COL	COLUMN	NO	NUMBER
CONC	CONCRETE	NO	NORMALLY OPEN
CONT	CONTINUATION	NTS	NOT TO SCALE
CONTR	CONTRACTOR	OC	ON CENTER
CONN	CONNECTION	OCC	OCCUPIED
CP	CHROME PLATED	OD	OUTSIDE DIAMETER
CTW	CONNECT TO EXISITNG	P	PUMP
CW	COLD WATER	PC	PLUMBING CONTRACTOR
D	DRAIN	PH	PHASE
DEG	DEGREE	PLBG	PLUMBING
DIA	DIAMETER	POS	PROVIDED BY OTHER SECTION
DIM	DIMENSION	PRESS	PRESSURE
DN	DOWN	PRV	PRESSURE REDUCING VALVE
DWG	DRAWING	PSI	POUNDS PER SQUARE INCH
EA	EACH	PSIG	PSI GAUGE
EC	ELECTRICAL CONTRACTOR	PWR	POWER
ELEC	ELECTRICAL	QTY	QUANTITY
ELEV	ELEVATION	R	RADIUS
EQUIP	EQUIPMENT	RM	ROOM
ET	EXPANSION TANK	RPM	REVOLUTIONS PER MINUTE
EVAP	EVAPORATOR	SA	SHOCK ABSORBER
EWH	ELECTRIC WATER HEATER	SF	SQUARE FOOT
EXIST	EXISTING	SPECS	SPECIFICATIONS
FA	FREE AREA	SS	STAINLESS STEEL
FC	FLEXIBLE CONNECTION	TOP	TOP OF PIPE
FCO	FLOOR CLEANOUT	TOS	TOP OF STEEL
FFE	FINISHED FLOOR ELEVATION	TOT	TOTAL
P-#	FIXTURE NUMBER	TYP	TYPICAL
FL	FLOOR	U	URINAL-FIXTURE IDENTIFICATION
FS	FLOW SWITCH	UG	UNDERGROUND
FT	FOOT/FEET	UNO	UNLESS NOTED OTHERWISE
FV	FLUSH VALVE	V	VENT
G	GAS	V	VENT STACK
GA	GAUGE	V	VOLTS
GAL	GALLON	VEL	VELOCITY
GALV	GALVANIZED	VFD	VARIABLE FREQUENCY DRIVE
GC	GENERAL CONTRACTOR	VTR	VENT THROUGH ROOF
GWH	GAS WATER HEATER	W	WASTE
GPH	GALLONS PER HOUR	WH	WALL HYDRANT
GPM	GALLONS PER MINUTE	W	WIDTH
GRD	GRADE	W	WITH
GWB	GYPSUM WALL BOARD	W/O	WITHOUT
HB	HOSE BIB	WC	WATER CLOSET-FIXTURE
HC	HANDICAPPED	WG	WATER GAUGE
HD	HEAD	°F	DEGREES FAHRENHEIT
HP	HORSE POWER		
HP	HIGH POINT		
HR	HOUR		
HT	HEIGHT		
HTG	HEATING		
HTR	HEATER		
HW	HOT WATER		
HWR	HOT WATER RETURN		

PLUMBING GENERAL NOTES

1. PLUMBING GENERAL NOTES APPLY TO ALL PLUMBING DRAWINGS. THE WORD "CONTRACTOR" USED IN "PLUMBING" WORK SHALL MEAN THE PLUMBING OR PLUMBING CONTRACTOR.
2. PLUMBING WORK OF THIS PROJECT REQUIRES FILED SUB-BIDS. FOR ADDITIONAL INFORMATION REFER TO SPECIFICATIONS SECTION 22 00 01 - PLUMBING SUB-BID REQUIREMENTS.
3. ALL PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH 248 CMR 10.00: UNIFORM STATE PLUMBING CODE, 248 CMR 4.00: MASSACHUSETTS FUEL GAS CODE, AND OTHER APPLICABLE STATE AND LOCAL CODES AND STANDARDS.
4. ALL PLUMBING EQUIPMENT, FIXTURES AND MATERIALS SHALL BE PRODUCT APPROVED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBING AND GAS FITTERS.
5. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
6. PLUMBING CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN ALL SCAFFOLDING, HOISTING EQUIPMENT, DERRICKS, ETC., NECESSARY FOR INSTALLATION WORK.
7. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
8. LOCATIONS OF PIPING AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD. OFFSETS IN PIPING AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
9. VERIFY ALL EQUIPMENT AND PLUMBING FIXTURES CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
10. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UNLESS SPECIFICALLY INDICATED AS REUSED.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR SERVICING TRAP PRIMERS AND ALL CONCEALED PLUMBING EQUIPMENT, CLEANOUTS, AND VALVES. ACCESS PANELS FOR PLUMBING SYSTEMS SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
12. PLUMBING CONTRACTOR SHALL PROVIDE WATERTIGHT SLEEVES AND SEALS FOR ALL PIPING PENETRATIONS THROUGH FLOORS AND OUTSIDE WALLS.
13. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PENETRATIONS AND SLEEVES THROUGH FIRE RATED WALLS, FLOORS, AND BARRIERS. THE CONTRACTOR SHALL COORDINATE ALL PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR THE RATINGS OF ALL WALLS, FLOORS, AND BARRIERS.
14. THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, PIPING, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
15. NO STRUCTURAL MEMBERS SHALL BE CUT OR DRILLED WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
16. THE CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL AND SUBMIT DOCUMENTATION.
17. THE CONTRACTOR SHALL PROVIDE AND SUBMIT DOCUMENTATION FOR PIPING PRESSURE AND LEAKAGE TESTS, OPERATING AND MAINTENANCE MANUALS, AND AS BUILT DRAWINGS.
18. MANY EQUIPMENT SCHEDULES DO NOT LIST QUANTITIES. CONTRACTOR SHALL REFER TO ALL DRAWINGS AND PROVIDE THE REQUIRED QUANTITIES FOR ALL COMPONENTS.
19. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES AND PREPARE COORDINATION DRAWINGS PRIOR TO INSTALLATION. COORDINATION DRAWINGS SHALL BE SUBMITTED TO THE OWNERS REPRESENTATIVE FOR REVIEW PRIOR TO INSTALLATION.
20. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
21. ALL PLUMBING VENT TERMINALS SHALL BE LOCATED NO LESS THAN 25 FEET HORIZONTALLY FROM ALL FRESH AIR INTAKES, UNLESS SPECIFICALLY INDICATED OTHERWISE.
22. REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS.

PLUMBING PIPING NOTES

1. FIELD VERIFY ALL WATER, WASTE, VENT, COMPRESSED AIR, AND GAS PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.
2. RUN WATER PIPE ON THE WARM SIDE OF BUILDING INSULATION. NO WATER PIPING SHALL BE RUN IN EXTERIOR WALLS.
3. PROVIDE DRAWOFFS WITH BALL VALVE, HOSE END VACUUM BREAKER, CAP AND CHAIN AT ALL DOMESTIC WATER LOW POINTS AND PITCH PIPING TO DRAIN.
4. PROVIDE SHOCK ABSORBERS AS SHOWN ON DRAWINGS AND AS REQUIRED TO AVOID WATER HAMMER. SIZE SHALL CONFORM TO P.D.I. STANDARDS.
5. PROVIDE ISOLATION VALVES AT ALL PLUMBING FIXTURES.
6. HOT WATER TAKEOFFS SHALL HAVE NOT LESS THAN THREE ELBOW SWINGS.
7. ALL PIPING SHALL BE SUPPORTED FROM BUILDING STRUCTURES. INSTALL HORIZONTAL RUNS OF WATER AND COMPRESSED AIR PIPING AS HIGH AS POSSIBLE OR AS INDICATED ON DRAWINGS.
8. ROUTE DOMESTIC WATER AND SANITARY SEWER SERVICES TO SITE UTILITIES 10'-0" FROM BUILDING, UNLESS NOTED OTHERWISE. FIELD VERIFY LOCATION AND INVERTS OF SITE UTILITIES PRIOR TO INSTALLATION OF PIPING.
9. MINIMUM PITCH FOR SANITARY PIPING 4" AND GREATER SHALL BE AT 1/8" PER FOOT. MINIMUM PITCH FOR SANITARY PIPING 3" AND SMALLER SHALL BE AT 1/4" PER FOOT.
10. ALL INVERT ELEVATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY AND SHALL BE DETERMINED IN FIELD IN COORDINATION WITH THE STRUCTURAL AND CIVIL DRAWINGS. REFER TO CIVIL PLANS FOR SITE CONNECTIONS.
11. PLUMBING CONTRACTOR IS RESPONSIBLE FOR OIL WATER SEPARATOR, COORDINATE WITH CIVIL FOR LOCATION. PROVIDE OIL WASTE AND VENT PIPING BETWEEN THE BUILDING AND SEPARATOR.
12. WASTE AND VENT PIPING UNDERGROUND BELOW SLAB AND THROUGH THE SLAB SHALL BE 2" MINIMUM.
13. PROVIDE CLEANOUTS IN ACCESSIBLE LOCATIONS AT THE BASE OF ALL PLUMBING RISERS, WHERE SHOWN ON THE PLANS AND REQUIRED BY THE CODE.
14. DIELECTRIC INSULATING FITTINGS SHALL BE USED WHERE PIPES OF DISSIMILAR METALS ARE CONNECTED.
15. AN AIR GAP OF AT LEAST TWICE THE EFFECTIVE DIAMETER OF THE DRAIN SERVICED SHALL BE PROVIDED ON ALL EQUIPMENT DRAINS PIPED TO FLOOR DRAINS.
16. PROVIDE P-TRAPS AND TRAP PRIMERS FOR ALL FLOOR DRAINS, FLOOR SINKS, AND TRENCH DRAINS, UNLESS INDICATED OTHERWISE. PROVIDE 1/2" COLD WATER TUBING UNDER SLAB FROM TRAP PRIMER TO FLOOR DRAINS (THIS TUBING IS NOT SHOWN ON THE PLANS).
17. FOR ALL PIPING SIZES NOT SHOWN ON PLANS REFER TO DETAILS AND DIAGRAMS. WHEN SECTION OF PIPING IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED PIPE SHALL PREVAIL.

CALLOUT SYMBOLS

	CONNECT TO EXISTING
	LIMIT OF DEMOLITION
A / H2.0	SECTION DESIGNATION
	SECTION SHEET NUMBER
1	REVISION NUMBER
	REMOVE EXISTING ITEM
WC-XX	FIXTURE TAG (REFER TO SCHEDULES FOR DETAILS)

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

PIPING LEGEND

	GATE VALVE (OUTSIDE SCREW AND YOKE UNLESS SPECIFIED OTHERWISE)
	BALL VALVE
	BUTTERFLY VALVE
	DRAIN VALVE WITH CAP AND CHAIN
	PLUG VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE (SILENT TYPE ON PUMP DISCHARGE)
	STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
	RELIEF/SAFETY VALVE
	UNION
	BLIND FLANGE
	PIPE - CAPPED
	DIRECTION OF FLOW
	FLEXIBLE CONNECTOR
	PIPE CONNECTION - TOP
	PIPE CONNECTION - BOTTOM
	PIPE - DOWN
	PIPE - UP
R	PITCH OF PIPE - (R) RISE OR (D) DROP
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	QUICK CLOSING VALVE, FUSIBLE LINK (USED WITH FUELS)
	PIPE BREAK (SINGLE LINE)
	DIRT LEG
CO	CLEANOUT
	PIPE - UP (DOUBLE LINE)
	PIPE - DOWN (DOUBLE LINE)
	PIPE BREAK (DOUBLE LINE)
	FLOOR DRAIN
TP	TRAP PRIMER
	FCO FLOOR CLEANOUT
	P-TRAP
HB	HOSE BIBB (INTERIOR)
WH	WALL HYDRANT (EXTERIOR)
CAO	COMPRESSED AIR OUTLET

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

PIPING ABBREVIATIONS

CW	COLD WATER
HW	HOT WATER
HW 140	HOT WATER 140
HW-R	HOT WATER RECIRCULATION
HW-R 140	HOT WATER RECIRCULATION 140
OW	OIL WASTE ABOVE GROUND
OW	OIL WASTE UNDERGROUND
OV	OIL VENT ABOVE GROUND
OV	OIL VENT UNDERGROUND
W	SOIL OR WASTE ABOVE GROUND
W	SOIL OR WASTE UNDERGROUND
TW	TEMPERED WATER
TWR	TEMPERED WATER RETURN
TP	TRAP PRIMER ABOVE GROUND
TP	TRAP PRIMER UNDERGROUND
V	VENT ABOVE GROUND
V	VENT UNDERGROUND
(NAME)	REMOVE EXISTING PIPING

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

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LEGENDS, NOTES AND ABBREVIATIONS

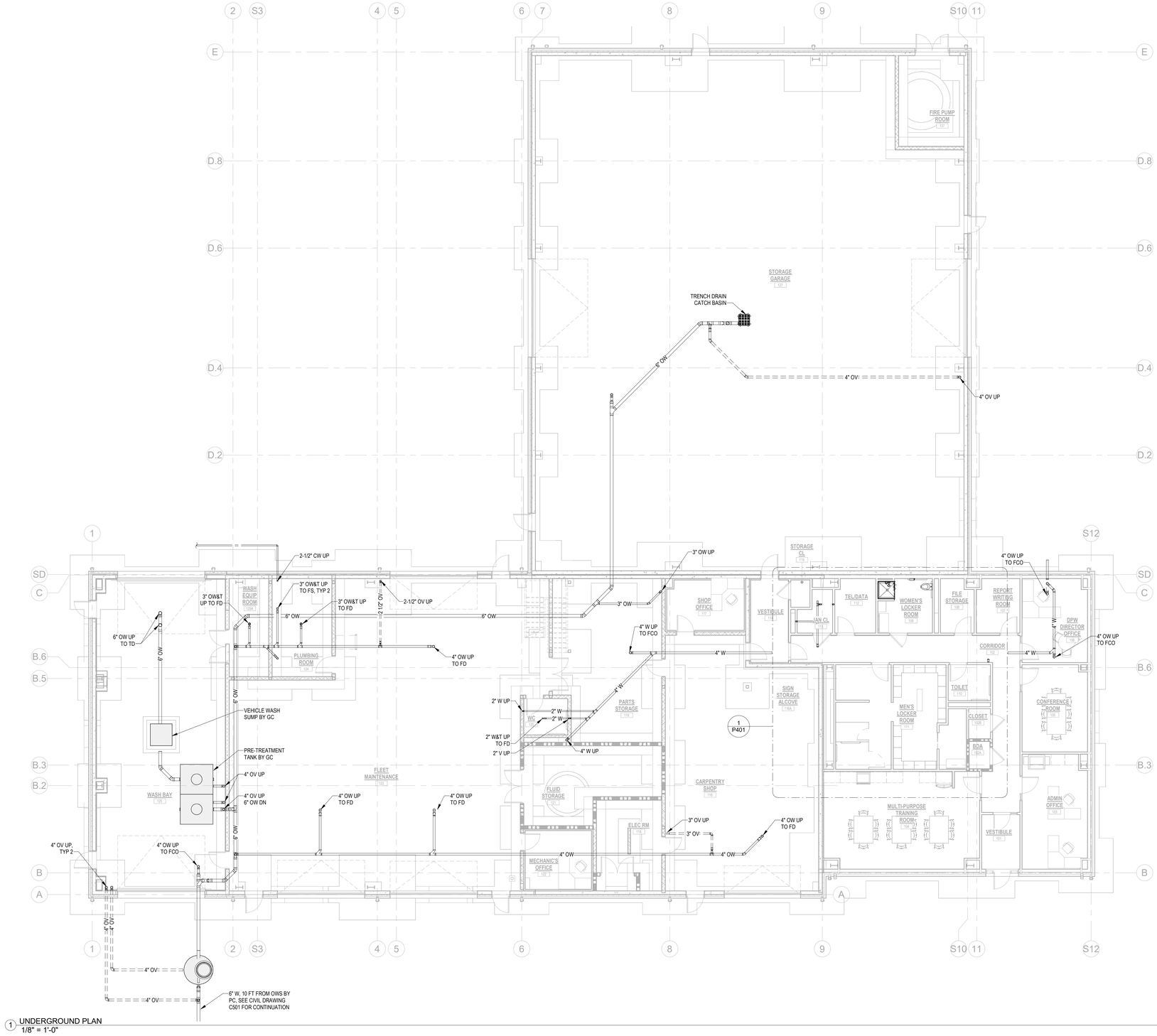
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PLUMBING NEW WORK NOTES

1. NEW WORK NOTES SHALL APPLY TO ALL PLUMBING NEW WORK DRAWINGS.
2. EXISTING PIPE SIZES INDICATED ARE APPROXIMATE. FIELD VERIFY EXISTING PIPE SIZES AFTER INSULATION IS REMOVED. PROVIDE TRANSITIONS FROM EXISTING PIPING TO NEW PIPING AS REQUIRED.
3. REFER TO PLUMBING GENERAL NOTES ON P001 FOR NEW PLUMBING WORK PHASING REQUIREMENTS.
4. LOCATE , PIPING AND PLUMBING EQUIPMENT OUTSIDE OF THE REQUIRED ELECTRICAL CLEARANCES ABOVE/AROUND ELECTRICAL PANELS, TRANSFORMERS, AND OTHER ELECTRICAL EQUIPMENT.
5. FIRE SEAL AROUND PIPING PENETRATIONS OF FIRE RATED WALLS. REFER TO SPECIFICATIONS.
6. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
7. ADJUST PIPING SIZES TO PROPERLY CONNECT TO PLUMBING EQUIPMENT.
8. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
9. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
10. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
11. INSTALL ALL SENSORS AND CONTROLS AT LOCATIONS AWAY FROM ANY DEVICE OR EQUIPMENT THAT CAN ADVERSELY IMPACT OPERATION, FUNCTION, OR LONGEVITY OF THE SENSOR AND/OR CONTROL.
12. INSTALL EXPOSED PIPING AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
13. FIELD VERIFY ALL NEW WATER, WASTE, AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.
14. PITCH UNDERFLOOR SANITARY WASTE PIPING AT 1/4" PER FOOT, UNLESS NOTED OTHERWISE.
15. PITCH UNDERFLOOR STORM PIPING 3" AND GREATER AT 1/8" PER FOOT, UNLESS NOTED OTHERWISE. PITCH ALL OTHER STORM PIPING AT 1/4" PER FOOT UNLESS OTHERWISE NOTED.
16. FIELD VERIFY LOCATION AND INVERTS OF SITE UTILITIES PRIOR TO INSTALLATION.
17. ROUTE DOMESTIC WATER, FIRE PROTECTION, SANITARY SEWER, AND STORM SEWER SERVICES TO SITE UTILITIES 5'-0" FROM BUILDING UNLESS NOTED OTHERWISE. REFER TO CIVIL PLANS.
18. WASTE AND VENT PIPING BELOW FLOOR AND THROUGH FLOOR SHALL BE 2" MINIMUM.
19. PROVIDE CLEANOUT IN ACCESSIBLE LOCATION AT THE BASE OF ALL PLUMBING RISERS.
20. PROVIDE ISOLATION VALVES AT ALL PLUMBING FIXTURES, ALL BRANCHES, AND RISERS/DROPS.



1 UNDERGROUND PLAN
1/8" = 1'-0"

0 4' 8' 16'

Project:
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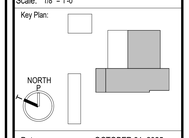
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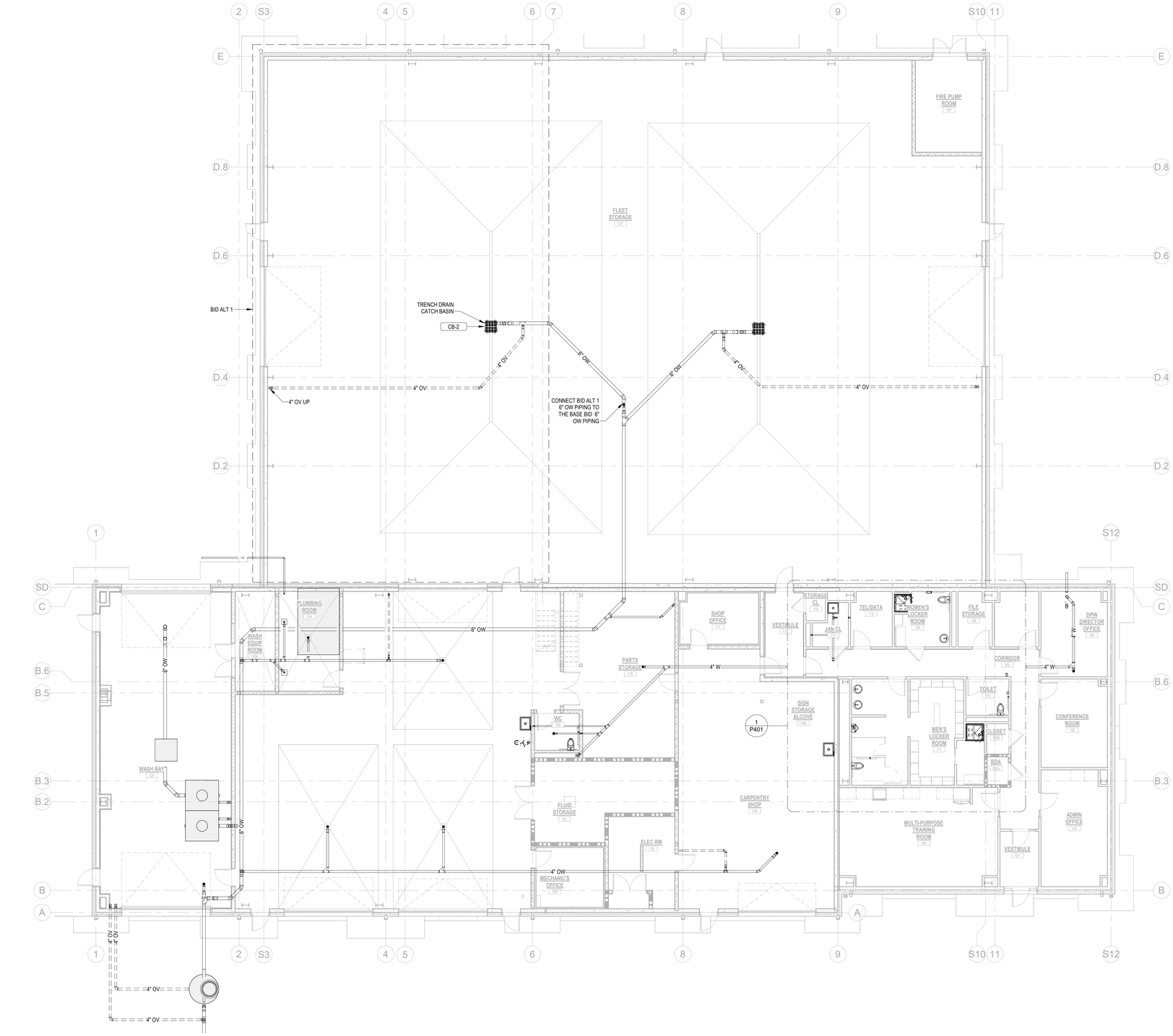
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UNDERGROUND PLAN - BASE BID

Sheet Number:

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1 UNDERGROUND PLAN BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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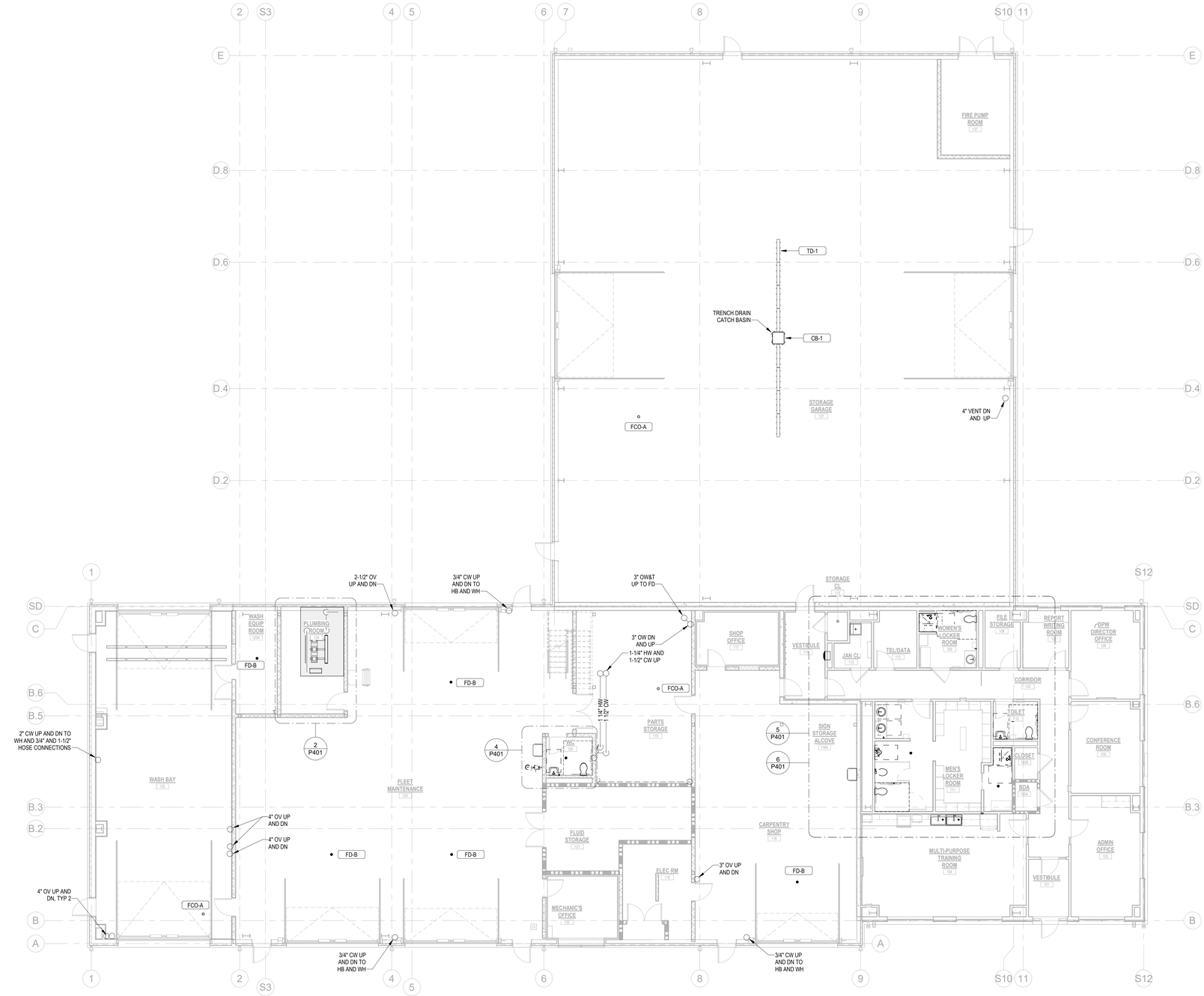
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UNDERGROUND PLAN - BID ALT 1

Sheet Number:

P100A



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

0 4' 8' 16'

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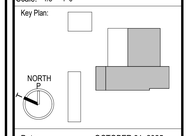
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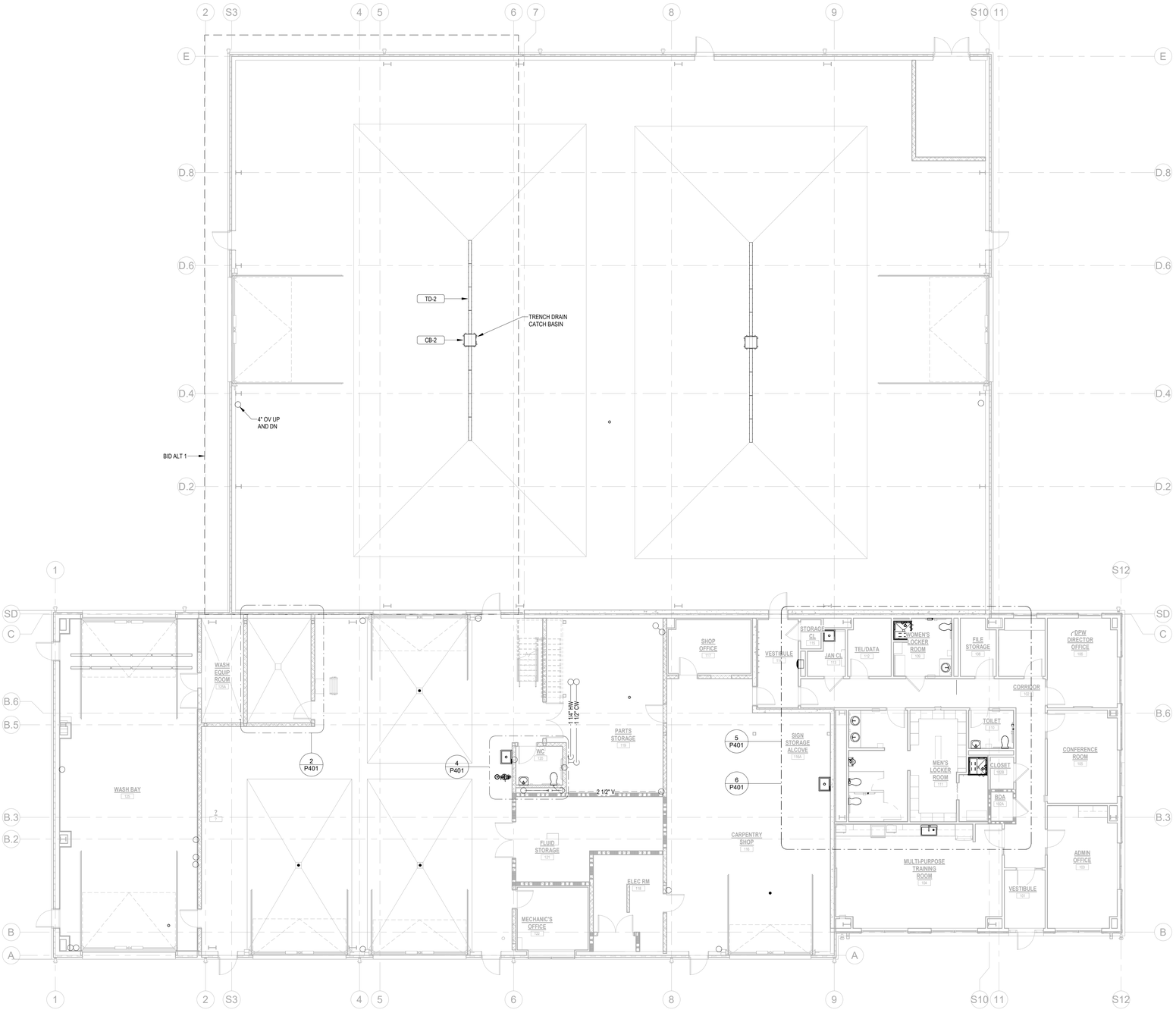
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FIRST FLOOR PIPING PLAN - BASE BID

Sheet Number:

P101



1 FIRST FLOOR PIPING PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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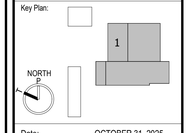
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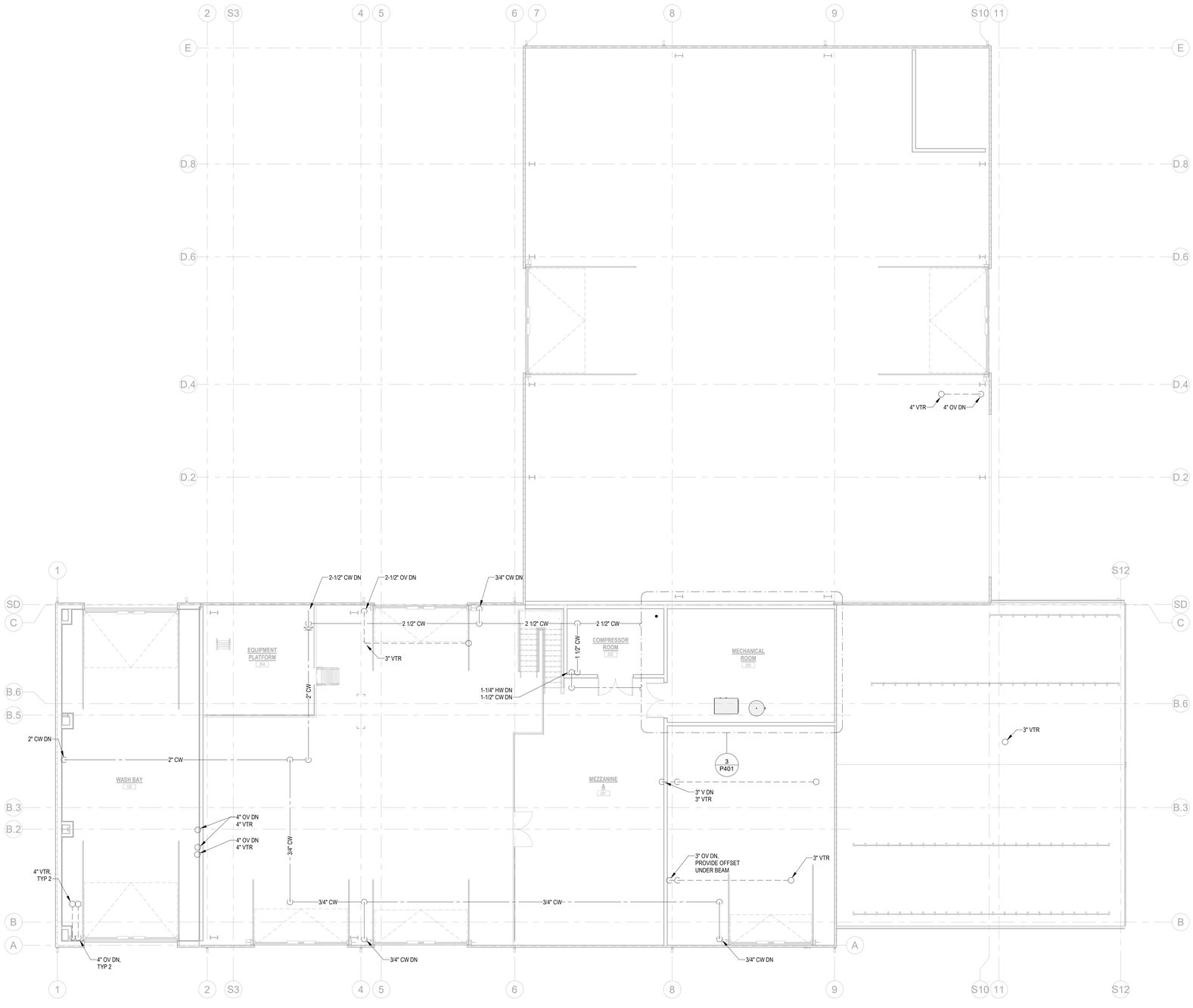
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FIRST FLOOR PIPING PLAN - BID ALT 1

Sheet Number:

P101A

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1 MEZZANINE PIPING PLAN
1/8" = 1'-0"

0 4" 8" 16"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
TRURO, MA 02666

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

Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
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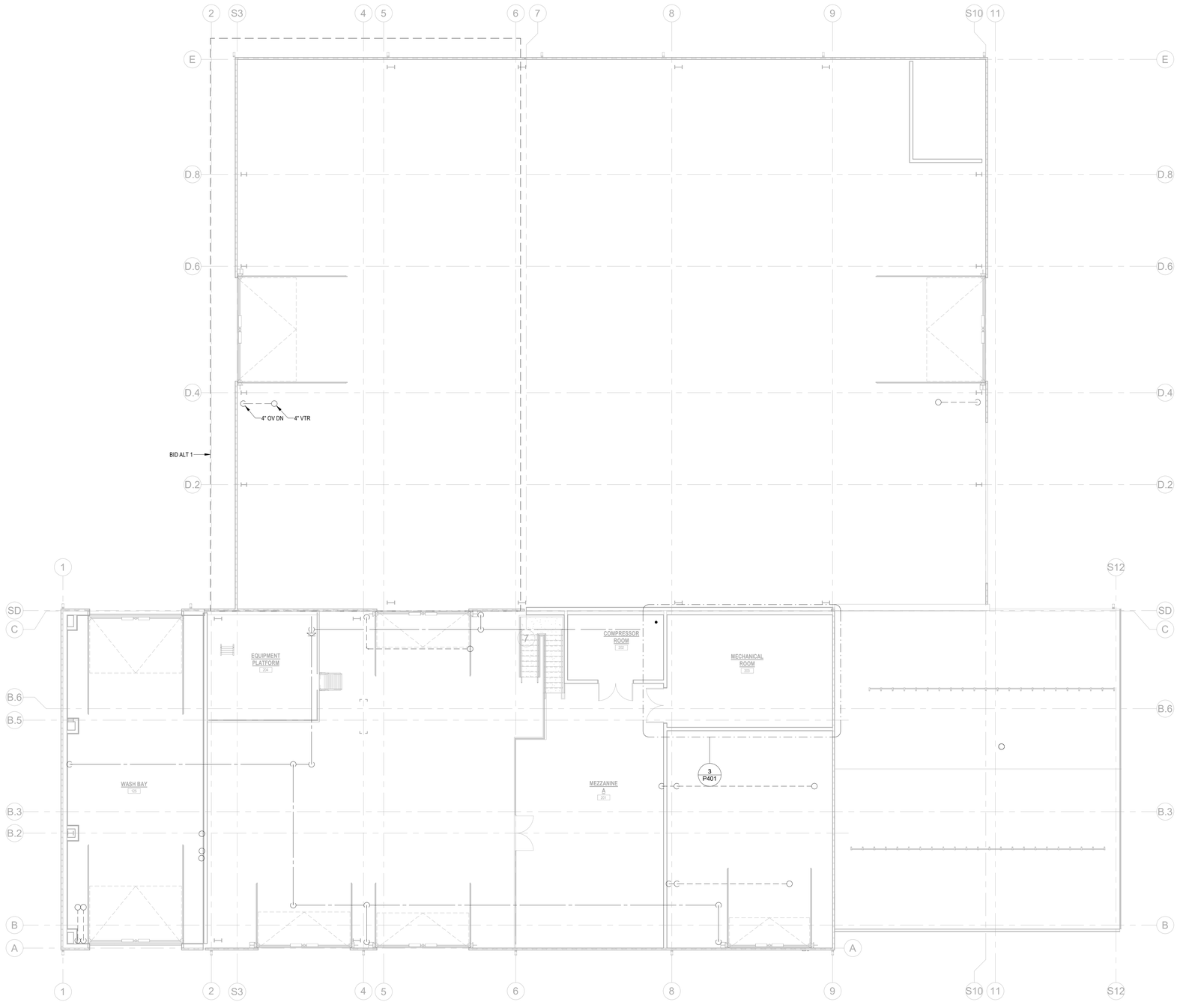
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MEZZANINE PIPING PLAN - BASE BID

Sheet Number:

P102

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1 MEZZANINE PIPING PLAN - BASE BID
1/8" = 1'-0"

0 4" 8" 16"

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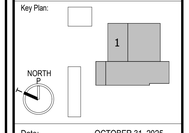
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Issued For:

DESIGN DEVELOPMENT SET

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

Key Plan:



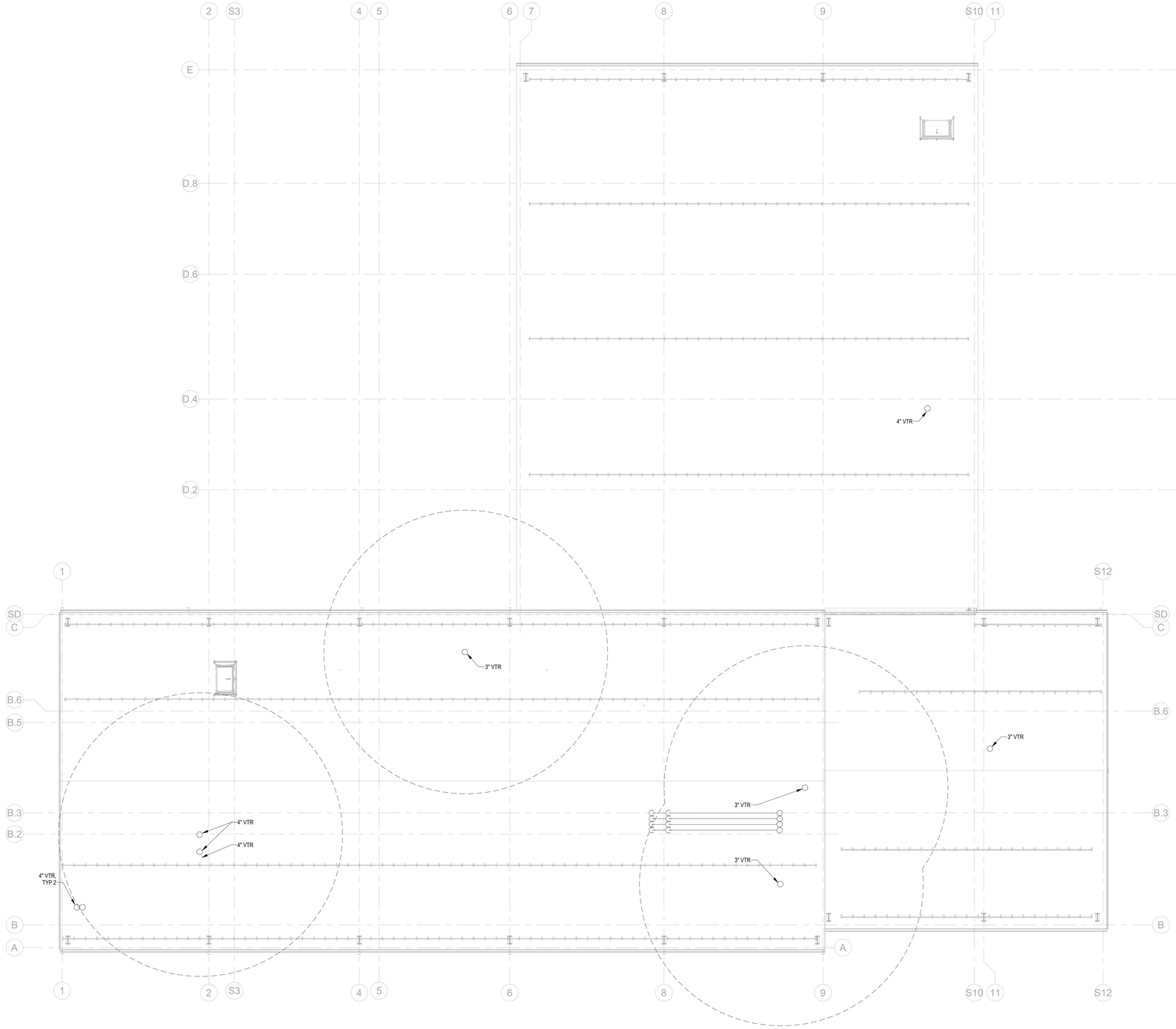
Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

MEZZANINE PIPING PLAN - BID ALT 1

Sheet Number:

P102A



1 ROOF PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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No.	Date	Description

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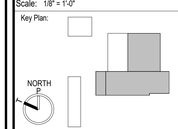
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DESIGN DEVELOPMENT SET

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

Key Plan:



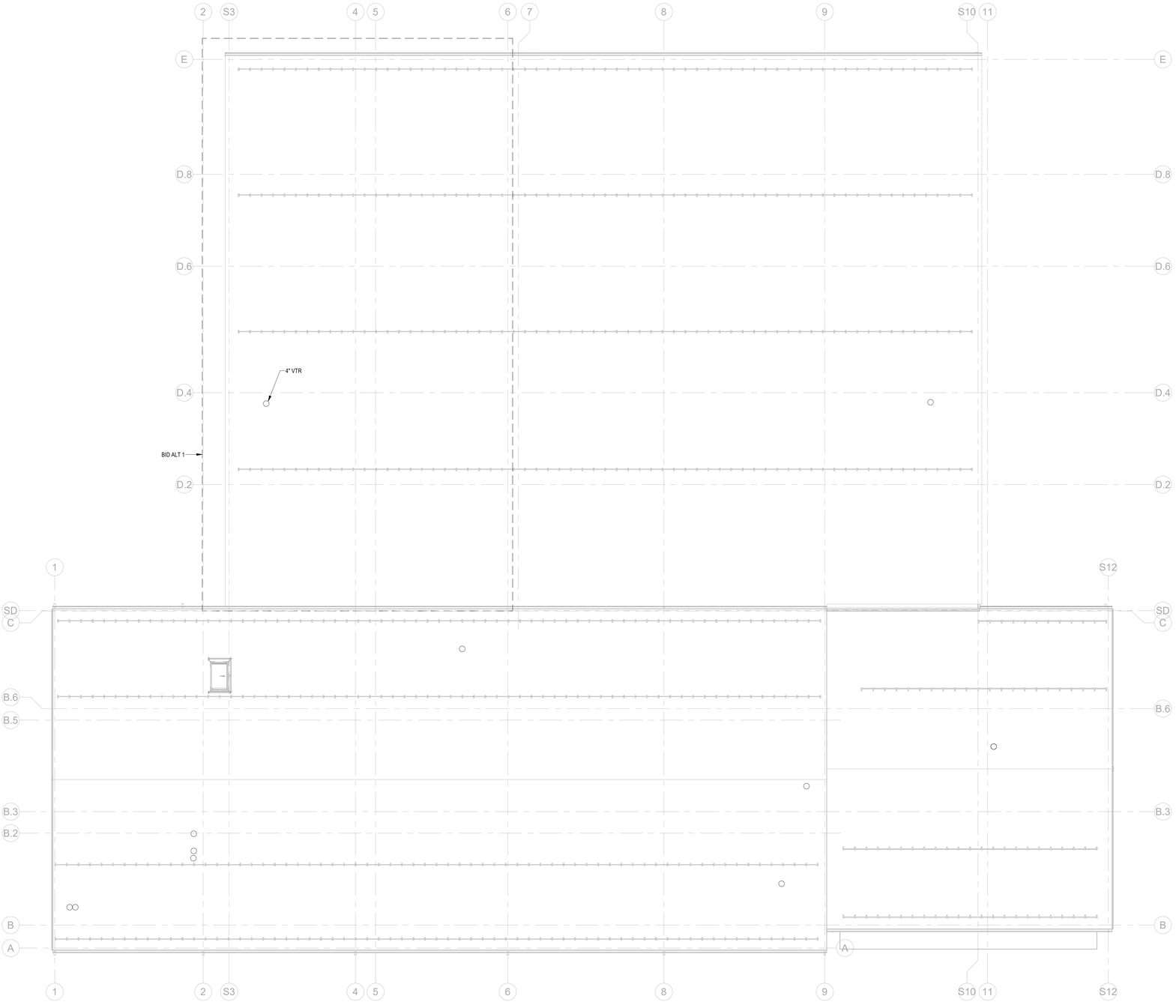
Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

ROOF PLAN - BASE BID

Sheet Number:

P103



1 ROOF PLAN - BID ALT 1
1/8" = 1'-0"

0 4' 8' 16'

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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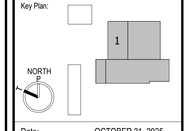
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DESIGN DEVELOPMENT SET

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

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

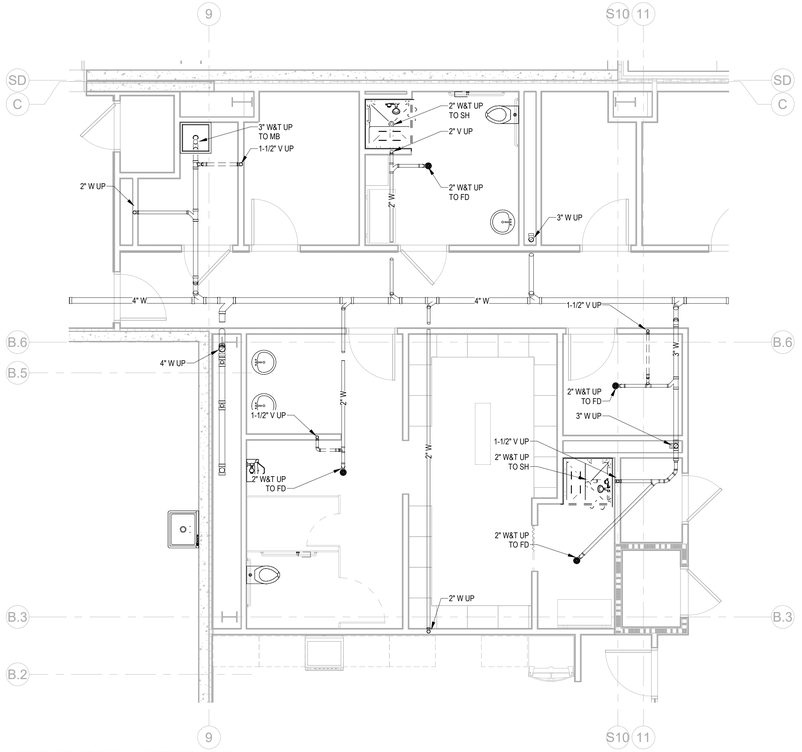
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ROOF PLAN - BID ALT 1

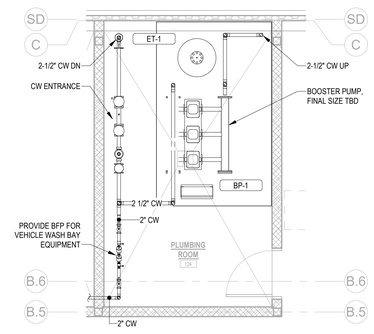
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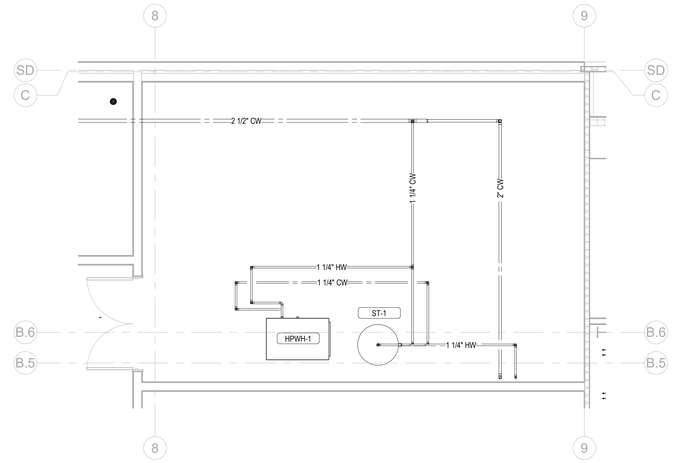
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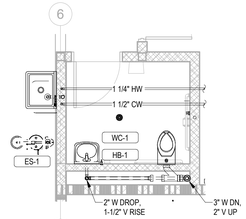
1 ENLARGED LOCKER ROOM UNDERGROUND PLAN
1/4" = 1'-0" 1/ P100



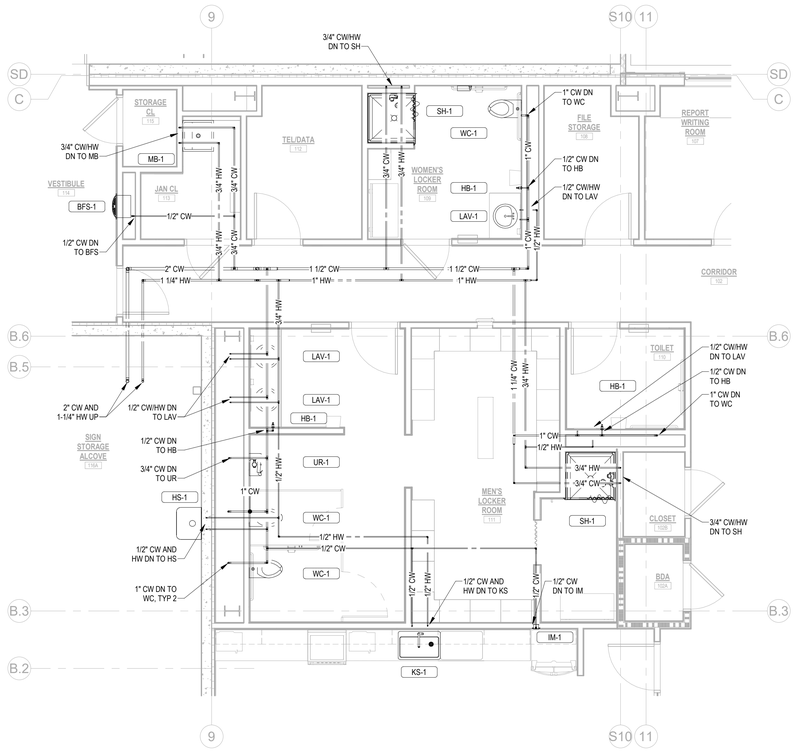
2 ENLARGED PLUMBING ROOM PLAN
1/4" = 1'-0" 1/ P101



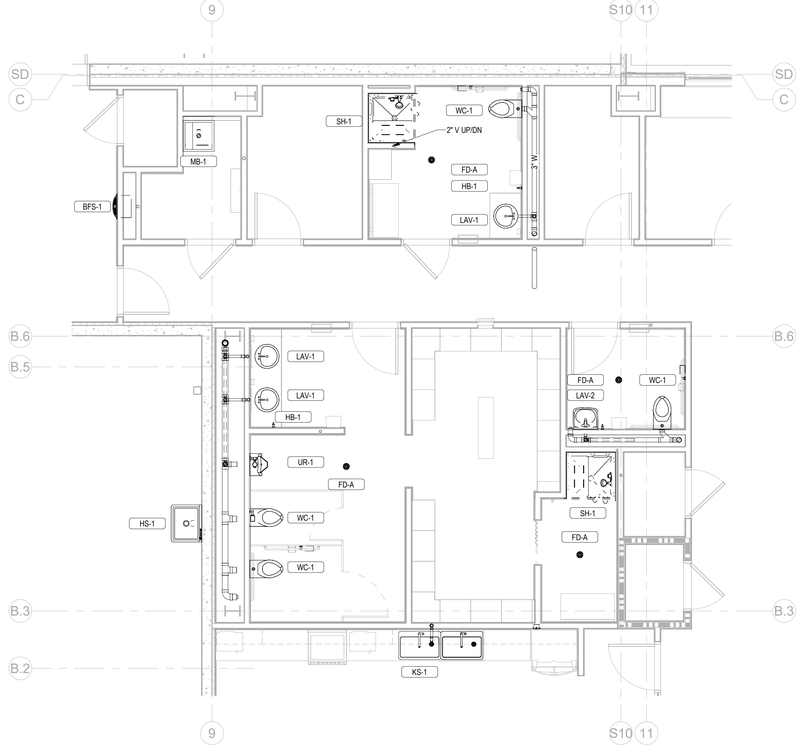
3 ENLARGED MEZZANINE MECH ROOM PLAN
1/4" = 1'-0" 1/ P102



4 ENLARGED WC RM 120 PLAN
1/4" = 1'-0" 1/ P101



5 ENLARGED LOCKER ROOM FIRST FLOOW DOMESTIC WATER PLAN
1/4" = 1'-0" 1/ P101



6 ENLARGED LOCKER ROOM FIRST FLOOR SAN & VENT PLAN
1/4" = 1'-0" 1/ P101

0 2' 4' 8'

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Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
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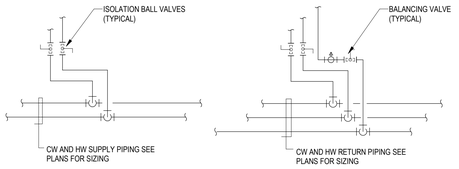
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ENLARGED PLANS

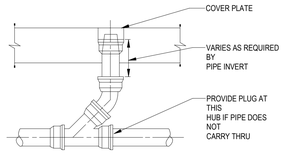
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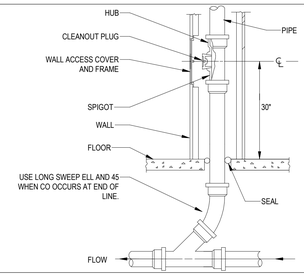
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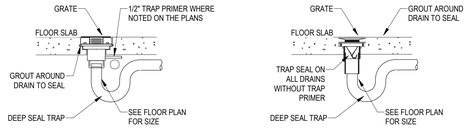
1 TYP BRANCH PIPING DETAIL
P501 NOT TO SCALE



2 CLEAN OUT AND PLUGGED RISER
P501 NOT TO SCALE

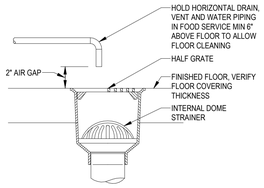


3 WALL CLEAN OUT DETAIL
P501 NOT TO SCALE

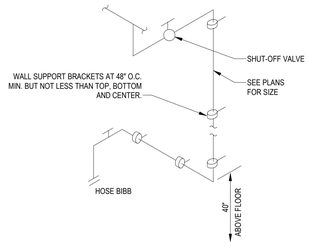


NOTE:
PROVIDE EXTENSION ADAPTER IF REQUIRED TO ACCOMMODATE FLOOR THICKNESS

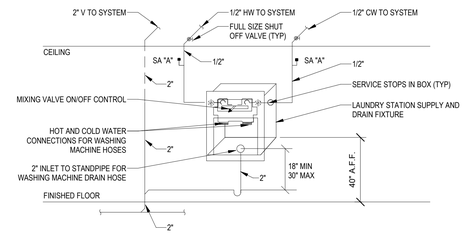
4 FLOOR DRAIN DETAIL
P501 NOT TO SCALE



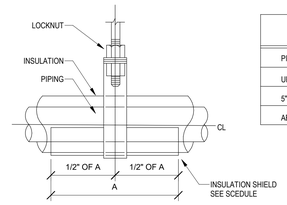
5 FLOOR SINK
P501 NOT TO SCALE



6 INTERIOR HOSE BIBB PIPING RISER
P501 NOT TO SCALE

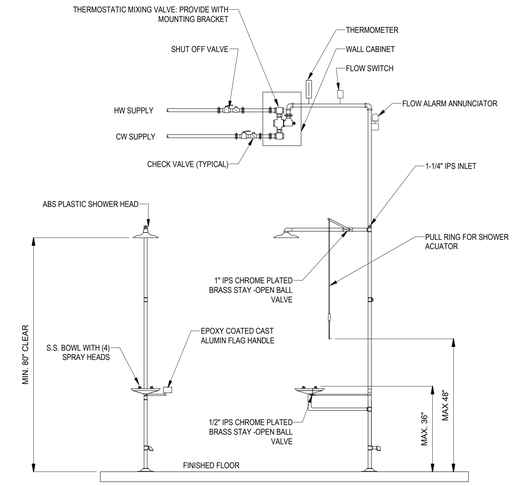


7 LAUNDRY BOX
P501 NOT TO SCALE



INSULATION SHIELD SCHEDULE		
PIPE SIZE	DIM. A	GA. OF STEEL
UP TO 4"	12"	18"
5" & 6"	18"	16"
ABOVE 6"	24"	14"

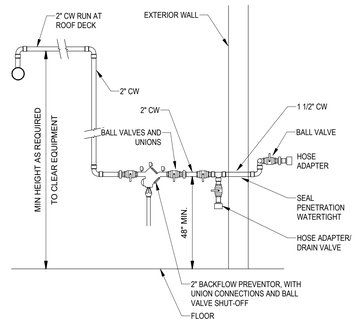
8 PIPE HANGER/SHIELD DIAGRAM
P501 NOT TO SCALE



NOTE:
1. PROVIDE A LOOSE-KEY LOCKSHIELD TYPE SHUT-OFF VALVE IN DOMESTIC WATER SUPPLY DROP TO EYEWASH. LABEL VALVE TO PREVENT UNAUTHORIZED SHUT-OFF.

9 EMERGENCY EYEWASH SHOWER
P501 NOT TO SCALE

GENERAL NOTE:
PIPING CONFIGURATION SHOWN IS FOR PIPING DETAIL ONLY. ACTUAL PIPING LAYOUT, SEE FLOOR PLANS AND COORDINATE WITH ARCHITECTURAL DRAWING.



NOTES:
1. 2" BACKFLOW PREVENTOR: WATTS, #009, FULLY ASSEMBLED TEST VALVE COCKS, MEETS ALL ASSE, CSA AND AWWA REQUIREMENTS. ALTERNATE ACCEPTABLE MANUFACTURERS: ZURN, FEBCO AND APOLLO.
2. BALL VALVES: WATTS, B6400, BRONZE, 2-PIECE, STANDARD PORT, THREADED END, LOCKABLE HANDLE WITH PADLOCK. ALTERNATE ACCEPTABLE MANUFACTURERS: NIBCO, MILWAUKEE AND APOLLO.
3. HOSE ADAPTER FITTING: MOON AMERICAN, BRASS PIN LUG, SWIVEL FEMALE TO MALE CONNECTIONS, 1.5 NH-SW-Fx1.5 NPT (VERIFY CONNECTION THREADS WITH TOWN HOSES FOR COMPATIBILITY). ALTERNATE ACCEPTABLE MANUFACTURERS, ELKHART AND MUELLER.
4. PROVIDE CLEVIS HANGERS, WALL SUPPORTS OR FLOOR STANDS AS REQUIRED FOR PIPING.

10 KNOCKDOWN PAD HOSE STATION
P501 NOT TO SCALE

GENERAL CONSTRUCTION NOTES:

THE SEPARATOR IS TO BE LOCATED OUTSIDE OF A BUILDING WHERE POSSIBLE AND THE COVER IS TO INCORPORATE A CENTER-HOLE.

A SEALED TIGHT COVER IS TO BE USED IF THE SEPARATOR IS LOCATED INSIDE THE BUILDING.

THE COVER SHALL BE NO LESS THAN 24" IN DIAMETER. tHE SEPARATOR SHALL BE LOCATED AND CONSTRUCTED TO PREVENT SURFACE OR SUB SURFACE WATER FROM ENTERING.

THE INLET PIPE SHALL BE NO LESS THAN FOUR INCHES ABOVE WATER LINE LEVEL.

WHEN SEPARATOR IS SUBJECT TO FREEZING IS SHALL BE SET TO A MINIMUM OF THREE FEET BELOW GRADE.

THE SEPARATOR SHALL BE FILLED WITH WATER AND LEAK TESTED BEFORE BEING INTRODUCED INTO SERVICE.

THE NON CORROSIVE STEPS SHALL BE SPACED 18"- INCHES APART. THE CHAMBER VENT AND OUTLET VENT SHALL RETURN TO THE INSIDE OF THE BUILDING AND EXTEND THROUGH THE ROOF.

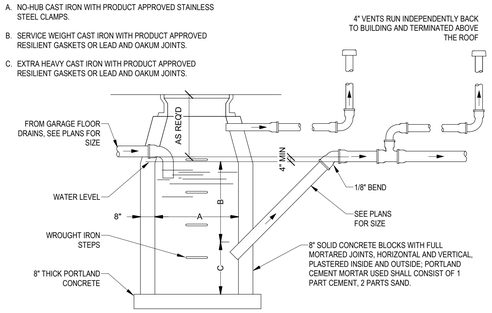
PIPING MATERIAL NOTES:

A. NO-HUB CAST IRON WITH PRODUCT APPROVED STAINLESS STEEL CLAMPS.

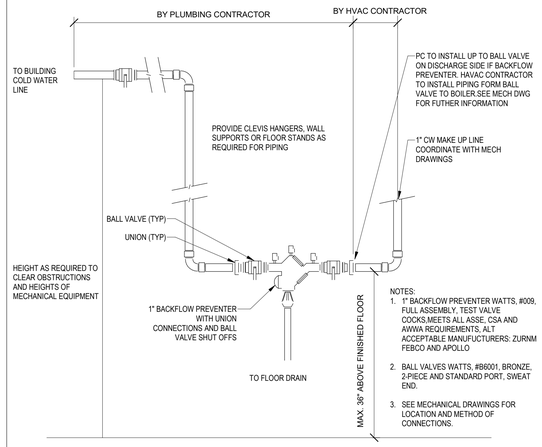
B. SERVICE WEIGHT CAST IRON WITH PRODUCT APPROVED RESILIENT GASKETS OR LEAD AND OAKUM JOINTS.

C. EXTRA HEAVY CAST IRON WITH PRODUCT APPROVED RESILIENT GASKETS OR LEAD AND OAKUM JOINTS.

INTERCEPTOR SIZE			
INLET	A	B	C
4"	3'-6"	3'-0"	2'-6"
5"	3'-6"	5'-0"	4'-0"
	3'-6"x3'-6"	4'-0"	3'-0"
	4'-0"	3'-6"	3'-0"
	4'-0"x4'-0"	3'-0"	2'-6"
	4'-6"	3'-0"	2'-6"
6"	4'-0"	5'-0"	4'-6"
	4'-0"x4'-0"	4'-0"	3'-6"
	4'-6"	4'-0"	3'-6"
	4'-6"x4'-6"	3'-6"	3'-0"
	5'-0"	3'-6"	3'-0"
	5'-0"x5'-0"	3'-0"	2'-6"
8"	5'-0"	6'-0"	5'-0"
	4'-6"x4'-6"	4'-6"	4'-0"
	6'-0"	4'-0"	3'-6"
	6'-0"x6'-0"	3'-0"	2'-6"
	6'-6"	3'-6"	3'-0"
	6'-6"x6'-6"	3'-0"	2'-6"

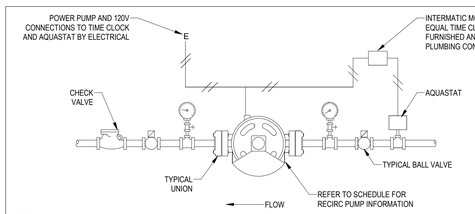


11 OIL WATER SEPARATOR
P501 NOT TO SCALE



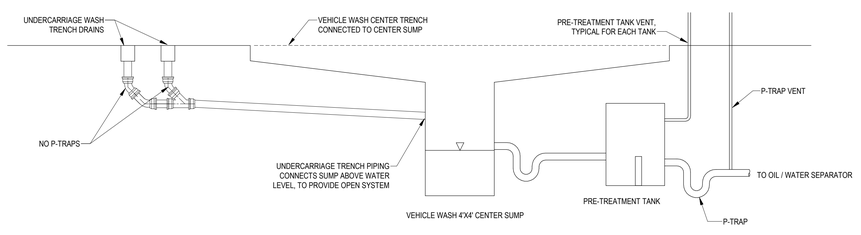
NOTES:
1. 1" BACKFLOW PREVENTER WATTS, #009, FULL ASSEMBLY, TEST VALVE COCKS,MEETS ALL ASSE, CSA AND AWWA REQUIREMENTS, ALT ACCEPTABLE MANUFACTURERS: ZURNM FEBCO AND APOLLO
2. BALL VALVES WATTS, #B6001, BRONZE, 2-PIECE AND STANDARD PORT, SWEAT END.
3. SEE MECHANICAL DRAWINGS FOR LOCATION AND METHOD OF CONNECTIONS.

12 BOILER MAKE UP WATER DETAIL
P501 NOT TO SCALE



NOTE:
THE HOT WATER RECIRCULATION PUMP IS CONTROLLED VIA WATER TEMPERATURE IN SERIES WITH A TIME CLOCK SUPPLIED AND INSTALLED BY THE PLUMBING CONTRACTOR. PROVIDE 120V BRANCH CIRCUITS AS ILLUSTRATED AND INTERCONNECT THE DEVICES WITH 2#10 AND 1#10G-3/4C.

13 RECIRCULATION PUMP
P501 NOT TO SCALE



14 VEHICLE WASHBAY SUMP WASTE PIPING
P501 NOT TO SCALE

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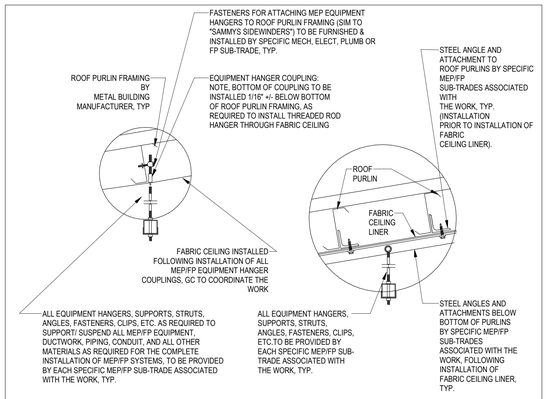
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Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
DETAILS

Sheet Number:
P501

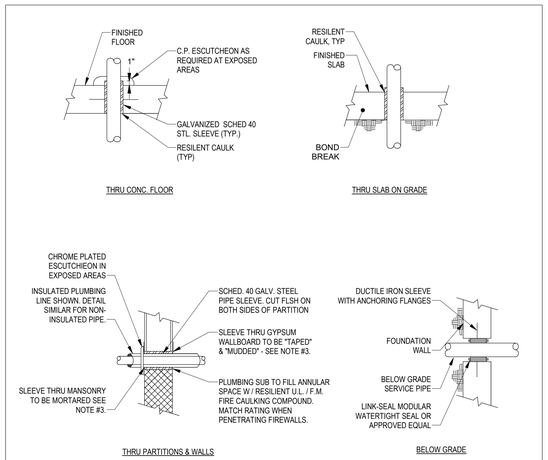
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GENERAL NOTES:

1. ALL MECHANICAL, ELECTRICAL, PLUMBING & FIRE-PTROTECTION (MEP/FP), ETC. SUB-TRADES SHALL PROVIDE AND INSTALL ALL SUPPLEMENTAL STEEL SUPPORTS, ANGLES, STRUTS, CLIPS, ATTACHMENTS, ETC. AS NECESSARY FOR THE COMPLETE INSTALLATION AND SUPPORT OF ALL BUILDING MEP/FP SYSTEMS.
2. ALL MEP/FP SUB-TRADES SHALL SIZE ALL SUPPORTS, ANGLES, CONNECTORS, ETC, AS REQUIRED TO SUPPORT THE LOADS OF THE SUSPENDED SYSTEMS AND SHALL COORDINATE SIZES AND LOCATIONS, AND SHALL OBTAIN APPROVAL FROM THE METAL BUILDING MANUFACTURER.
3. ALL FASTENERS, COUPLINGS, ANGLES, ETC. ATTACHED TO THE BUILDING ROOF PURLIN FRAMING ABOVE THE BOTTOM OF THE PURLIN, TO BE INSTALLED PRIOR TO INSTALLATION OF THE CEILING FABRIC LINER. SUSPENDED SUPPORTS INSTALLED BELOW THE BOTTOM OF THE PURLIN FRAMING TO BE INSTALLED FOLLOWING INSTALLATION OF THE CEILING LINER. GENERAL CONTRACTOR SHALL COORDINATE THE SEQUENCE AND INSTALLATION OF THE WORK.
4. ALL EQUIPMENT LOADS/ REACTIONS IMPOSED ON THE METAL BUILDING FRAMING TO BE REVIEWED AND APPROVED BY THE METAL BUILDING MANUFACTURER. ALL SUPPLEMENTAL BUILDING FRAMING MEMBERS, AS REQUIRED TO SUPPORT MECHANICAL/ ELECTRICAL/ FIRE PROTECTION EQUIPMENT, AS DETERMINED BY THE PREFABRICATED METAL BUILDING DESIGN, IN CONSIDERATION OF ALL EQUIPMENT-IMPOSED LOADS TO THE BUILDING, TO BE PROVIDED BY METAL BUILDING MANUFACTURER.

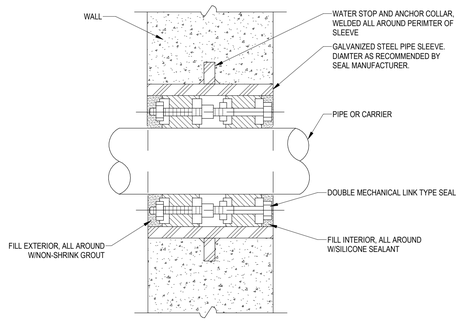
1 P502 ROOF PURLIN
NOT TO SCALE



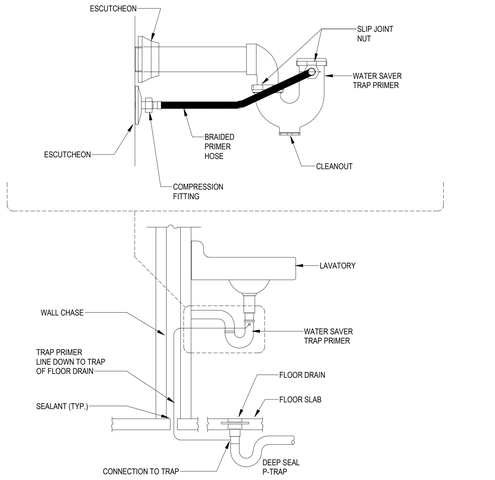
NOTES:

1. ALL PIPING PENETRATING ALL PARTITIONS, WHETHER FIRE OR SMOKE RATED OR NOT, CONCEALED OR EXPOSED, SHALL BE BE SLEEVED AS DETAILED.
2. WHERE CONC. WALLS, SLABS, ETC., ARE COREDRILLED, INSTALL SLEEVE FLUSH WITH BOTH SIDES, CAULKED AND LEADED IN PLACE.
3. REFER TO DIVISION 4 & 9 FOR PROCEDURES & METHODS OF PATCHING AROUND SLEEVES AND GYPSUM, PLASTER & MANSONRY. REFER TO SPECS FOR DELINEATION OF RESPONSIBILITY.
4. SLEEVES SHALL BE SIZED TO PROVIDE MIN. 1" CLEARANCE BETWEEN PIPE OD & SLEEVE ID.

2 P502 TYPICAL PLUMBING SLEEVE CONDITIONS
NOT TO SCALE



3 P502 WATERTIGHT/GAS TIGHT PIPING SLEEVE
NOT TO SCALE



4 P502 VALVE-LESS TRAP PRIMER DETAIL - TOILET ROOMS
NOT TO SCALE

NOTES:

1. PROVIDE SPOOL PIECES MINIMUM 10x PIPE DIAMETER BEFORE METER, AND MINIMUM 5x PIPE DIAMETER AFTER METER, OR AS RECOMMENDED BY METER MANUFACTURER.
2. PROVIDE MINIMUM 18" CLEARANCE ABOVE METER, OR AS RECOMMENDED BY METER MANUFACTURER.
3. INSTALL METER / BACKFLOW PREVENTER ASSEMBLY 1'-0" (MIN.) FROM WALL. PROVIDE 3'-0" (MIN.) MAINTENANCE CLEARANCE IN FRONT OF THE ASSEMBLY.
4. IF Z-PLATE STRAINER IS NOT REQUIRED BY METER MANUFACTURER, PROVIDE Y-TYPE STRAINER AS PART OF BACKFLOW PREVENTER ASSEMBLY.

5 P502 P_Water Entrance Detail_4 No Bypass 2 1/2" and Larger
NOT TO SCALE

NOTES:

1. FOR MULTIPLE TEMPERED LOOPS INSTALL BALANCING VALVE AND CHECK VALVE ON EACH LOOP AFTER TEMPERED FIXTURES.

6 P502 MIXING VALVE DETAIL
NOT TO SCALE

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY
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Revisions:

No.	Date	Description

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Drawing Title:
DETAILS

Sheet Number:
P502

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PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE					FITTING			TRAP	CARRIER	FLOW RATE	REMARKS
	TYPE	MANUFACTURER	MODEL	DESCRIPTION	SIZE	MANUFACTURER	TYPE	SUPPLY				
WC-1	WATER CLOSET	KOHLER	K-4325-SS	WALL MOUNTED VITREOUS CHINA SIPHON JET WATER CLOSET 1.28 GPF ELONGATED BOWL	26-1/2" x 16-1/2" x 13-1/4"	SLOAN ROYAL 111	MANUAL FLUSHOMETER 1.28 GPF	1"	INTEGRAL	JAY R SMITH OR EQUAL	1.28 GPF	ELONGATED BOWL LESS SEAT. CHURCH MODEL 1955FR, SEE ARCHITECTURAL PLANS FOR ADA MOUNTING REQUIREMENTS FIXTURES MUST BE WATERSENSE LABELED.
UR-1	URINAL	KOHLER	K-4991-ETSS	WALL MOUNTED VITREOUS CHINA WASHOUT JET URINAL 0.5 GPF	16-1/8" x 1" x 26-7/8"	SLOAN ROYAL 186 1/8GPF	MANUAL FLUSHOMETER 0.125 GPF	3/4"	INTEGRAL	JAY R SMITH OR EQUAL	0.125 GPF	REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING REGULATIONS. FIXTURES MUST BE WATERSENSE LABELED.
LAV-1	LAVATORY	KOHLER	K-2210	UNDER COUNTER	19-1/4" x 16-1/4"	CHICAGO 420-T45E39VPABCP	MANUAL	1/2" CW 1/2" HW	1-1/2" CHROME PLATED BRASS P-TRAP W/CO PLUG FOR ADA...	JAY R SMITH OR EQUAL	0.35 GPC	TRAPS AND SUPPLIES TO BE INSULATED WITH TRU-BRO PREFORMED INSULATION KIT PROVIDE ACORN ST70 LAVATORY MIXING VALVE. FIXTURES MUST BE WATERSENSE LABELED.
LAV-2	LAVATORY	KOHLER	K-2007	WALL HUNG	21-1/4" x 18-1/8"	CHICAGO 420-T45E39VPABCP	MANUAL	1/2" CW 1/2" HW	1-1/2" CHROME PLATED BRASS P-TRAP W/CO PLUG FOR ADA...	JAY R SMITH OR EQUAL	0.09 GPC	TRAPS AND SUPPLIES TO BE INSULATED WITH TRU-BRO PREFORMED INSULATION KIT PROVIDE ACORN ST70 LAVATORY MIXING VALVE. FIXTURES MUST BE WATERSENSE LABELED.
SH-1	SHOWER	AQUARIUS G3682	N/A	ALCOVE SHOWER	N/A	KOHLER AWAKEN G110	KOHLER K-8304-K PRESSURE BALANCING MIXING VALVE 1.75 GPM FLOW RESTRICTOR	1/2" CW 1/2" HW	2" P-TRAP	N/A	1.75 GPM	REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF VALVE ASSEMBLY. FIXTURES MUST BE WATERSENSE LABELED.
HB-1	HOSE BIBB (OFFICE SPACE)	CHICAGO FAUCETS	387-E27CP	N/A	N/A	CHICAGO FAUCETS	CHROME PLATED WALL MOUNTED SILL FITTING W/VB AND T HANDLE	3/4" CW	N/A	N/A	N/A	PROVIDE WITH INTEGRAL VACUUM BREAKER
OB-1	OUTLET BOX	SIOUX CHEF	696	OUTLET BOX FOR WASHING MACHINE	11-1/2" x 7-1/4" x3- 1/2"			1/2" CW 1/2" HW	2" OUTLET CONN.			
KS-1	KITCHENETTE SINK	ELKAY	LRAD221950	STAINLESS STEEL DROP IN	22" x 19-1/2" x 5" DEEP	ELKAY	KITCHEN FAUCET, CHROME FINISH, SINGLE HANDLE OPERATION, PULL OUT SPRAY	1/2" CW 1/2" HW	2" P-TRAP	N/A	1.5 GPM	
MB-1	MOP BASIN	FIAT	MSB 2424	MOLDED-STONE, STAINLESS STEEL BUMPER GUARDS, STAINLESS STEEL SPLASH GUARD	24" x 24"	SPEAKMAN SC-5811-RCP	SERVICE SINK FAUCET, VACUUM BREAKER, PAIL HOOK, THREADED OUTLET	1/2" CW 1/2" HW	2" P-TRAP	N/A	N/A	
ES-1	EMERGENCY EYEWASH / SHOWER COMBINATION	GUARDIAN	G19090PCC	COMBINATION WIDE AREA EYE/FACE WASH AND SHOWER AFETY STATION	10" SHOWER HEAD 11-1/8" BOWL	N/A	N/A	1-1/4" TW	N/A	N/A	20 GPM	POLISHED CHROME CONSTRUCTION, POWDER COATED CAST ALUMINUM FLOOR FLANGE AND FLAG HANDLE, SS SHOWER PULL HANDLE, SHOWER HEAD, AND ACTUATING ARM
IM-1	ICE MAKER CONNECTION	SOUIX CHIEF	696-G1010MF	ABS BOX WITH CHROME PLATED BRASS VALVE AND WATER HAMMER ARRESTOR	5-3/4" x 1-1/4"	N/A	N/A	1/2" CW	N/A	N/A	0.4 GPM	NSF-372 COMPLIANT, VALVE MEETS ASME A112.18.1
WH-1	WALL HYDRANT (EXTERIOR)	WOODFORD	B67	BOX TYPE BACKFLOW PROTECTED, FREEZELESS WALL HYDRANT	6-1/2" x 7-1/2" x 7-3/8" DEEP	N/A	N/A	3/4" CW	N/A	N/A	N/A	LOOSE TEE KEY OPERATION. HARDENED STAINLESS STEEL OPERATING STEM.
HB-2	HOSE BIBB (SHOPS)	WOODFORD	84	ANTI-SIPHON PROTECTED CLOSE COUPLED WALL HYDRANT	4-1/2" x 2-3/4" x 3-1/4" DEEP	N/A	N/A	3/4" CW	N/A	N/A	N/A	LOOSE TEE KEY OPERATION. HARDENED STAINLESS STEEL OPERATING STEM.
BFS-1	BOTTLE FILLING STATION	ELKAY	EZWSM8K	BOTTLE FILLING STATION AND COOLER, NON-FILTERED 8GPH STAINLESS	19-3/4" x 40-13/16" x 11" DEEP	N/A	N/A	3/4" CW	1-1/4" OUTLET	N/A	8 GPH	SENSOR ACTIVATED BOTTLE FILL, ELECTRIC SELF CONTAINED REFRIGERANT BASED COOLING SYSTEM, ADJUSTABLE THERMOSTAT, AND SILVER ION ANTIMICROBIAL AGENT COATED COMPONENTS
HS-1	HAND SINK	ELKAY	EWS25202	STAINLESS STEEL WALL MOUNTED SERVICE SINK	22" x 16" x 12" DEEP	ELKAY LK940GN08T4H	SERVICE SINK FAUCET, DUAL HANDLE, 14.5" H GOOSENECK SWING SPOUT, 8" CENTERS	1/2" CW 1/2" HW	1-1/2" P-TRAP	N/A	1.5 GPM	FLAT GRID STRAINER, SERVICE STOPS WITH LOOSE KEY, STAINLESS STEEL BRAIDED HOSE (VERIFY LENGTH IN FIELD)
SF-1	WALL MOUNTED FAUCET	CHICAGO FAUCETS	835-RCF				SERVICE SINK FAUCET , EXPOSED WALL MOUNT, ROUGH CHROME PLATED 6" CENTERS					

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION
ALL PLUMBING FIXTURES AND EQUIPMENT SHALL BE MASSACHUSETTS PLUMBING BOARD APPROVED

MIXING VALVE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LOCATION	INLET TEMPERATURE...	OUTLET TEMPERATURE (°F)	GPM	DELTA P AT GPM	MIN. RATED GPM	INLET SIZE	OUTLET SIZE	REMARKS
TMV-A	ACORN	MV17-3	SEE PLANS	140	120	43	10	90	1"	1-1/4"	BRASS VALVE BODY WITH (2) 1" NPT BRASS BALL VAVLES, OUTLET TEMPERATURE GAUGE, INTEGRAL CARTRIDGE STYLE CHECKS WITH SCREEN
TMV-B	GUARDIAN	G3800LF	SEE PLANS	140	60	40	35	56	1"	1-1/4"	BRASS VALVE BODY WITH (2) 1" NPT BRASS BALL VAVLES, OUTLET TEMPERATURE GAUGE, INTEGRAL CARTRIDGE STYLE CHECKS WITH SCREEN, BUILT-IN COLD WATER BYPASS, ADJUSTABLE HIGH TEMPERATURE LIMIT

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

TRAP PRIMER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	PIPE SIZE	ACTIVATION TYPE	MOUNT TYPE	REMARKS
TP-1	PRECISION PLUMBING PRODUCTS	MP-500-12V	3/4"	ELECTRONIC	SURFACE	BATTERY OPERATED TRAP PRIMER. IF UNIT IS SERVING IS MORE THAN ONE FLOOR DRAIN TRAP PRIMER SHALL BE EQUIPPED WITH (DU) DISTRIBUTION UNIT.
TP-2	PRECISION PLUMBING PRODUCTS	LTP-1500	3/4"	TAIL PIECE	LAVATORY DRAIN	

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

WATER HAMMER ARRESTOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	PIPE SIZE	FIXTURE UNIT RANGE	VOLUME (CU IN)	REMARKS
WHA-A	SIOUX CHIEF	6562-A	PISTON	1/2"	1 -11	5	POLY PISTON WITH TWO EPDM O-RINGS LUBRICATED WITH FDA APPROVED SILICONE COMPOUND, LEAD FREE SOLDER JOINT, ANSI/ASSE 1010 CERTIFIED
WHA-B	SIOUX CHIEF	653-B	PISTON	3/4"	12 - 32	7	POLY PISTON WITH TWO EPDM O-RINGS LUBRICATED WITH FDA APPROVED SILICONE COMPOUND, LEAD FREE SOLDER JOINT, ANSI/ASSE 1010 CERTIFIED
WHA-C	SIOUX CHIEF	654-C	PISTON	1"	33 - 60	11	POLY PISTON WITH TWO EPDM O-RINGS LUBRICATED WITH FDA APPROVED SILICONE COMPOUND, LEAD FREE SOLDER JOINT, ANSI/ASSE 1010 CERTIFIED

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

PLUMBING DRAIN SCHEDULE

SYMBOL	TYPE	MANUFACTURER	MODEL	OUTLET	STRAINER	LOCATION	REMARKS
FD-A	FLOOR DRAIN	JR SMITH	2005Y-B	NO HUB	5-INCH SQUARE NICKEL BRONZE	TOILET ROOM AND SHOWER	CAST IRON BODY, FLASHING COLLAR, TRAP PRIMER CONNECTION SHOWER DRAIN TO HAVE ROUND STRAINER
FD-B	FLOOR DRAIN	JR SMITH	2110Y-B	NO HUB	8-1/2" ROUND CAST IRON	MECHANCIAL ROOM	CAST IRON BODY, FLASHING COLLAR, TRAP PRIMER CONNECTION
FD-C	FLOOR DRAIN	JR SMITH	2250	NO HUB	15-INCH ROUND DUCTILE IRON	VEHICLE STORAGE / GARAGE	DUCO CAST IRON BODY, HEAVY DUTY WIDE FLANGE FLASHING COLLAR, CAST IRON ADA TRACTOR GRATE AND SEDIMENT BUCKET, QUAD CLOSE TRAP SEAL DEVICE/TRAP PRIMER CONNECTION AS INDICATED ON DRAWINGS
FCO-A	FLOOR CLEANOUT	JR SMITH	4120	NO HUB	MEDIUM DUTY FINISHED FLOOR CLEAN OUT	ADMIN AREAS	CAST IRON BODY, ROUND NICKEL BRONZE TOP WITH THREADED SPANNER WRENCH COVER, TWIST TO FLOOR ADJUSTMENT
FCO-B	FLOOR CLEANOUT	JR SMITH	4220	NO HUB	EXTRA HEAVY DUTY CAST IRON CLEAN OUT	VEHICLE STORAGE	CAST IRON BODY, ROUND NICKEL BRONZE TOP WITH THREADED SPANNER WRENCH COVER, TWIST TO FLOOR ADJUSTMENT
FS-A	FLOOR SINK	WATTS	FS-790	NO HUB	STAINLESS STEEL	MECHANICAL ROOMS, WHERE INDICATED	12" SQUARE x 8" DEEP, 14 GAUGE TYPE 304 STAINLESS STEEL SANITARY FLOOR SINK WITH LOOSE SET CAST STAINLESS STEEL GRATE, DOME BOTTOM STRAINER, PROVIDE TRAP PRIMER
TD-A	TRENCH DRAIN	WATTS	DEAD LEVEL D	NO HUB	METAL GRATE PROVIDED BY OTHERS	WASH BAY	6" WIDE PREFORMED POLYPROPYLENE CHANNEL, 4" NO HUB DRAIN. PROVIDE APPROPRIATE QUANTITY TO PROVIDE CONTINUOUSLY SLOPED DRAIN FOR THE DISTANCE SHOWN ON THE PLAN.
CB-A	CATCH BASIN	WATTS	DEAD LEVEL	NO HUB	DUCTILE IRON HEAVY DUTY GRATES	VEHICLE STORAGE	24" X 24" X 25.5" DEEP, FRP, HEAVY DUTY, H-20 LOAD, WITH END OUTLET, TRAP PRIMER CONNECTION

NOTES:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION
2. BEFORE SETTING DRAINS, OBTAIN EXACT INFORMATION RELATIVE TO FINISH FLOOR LEVEL, FLOOR CONSTRUCTION AND SET TOP OF DRAINS AT FINISH FLOOR LEVEL.
3. SIZE OF DRAINS IS INDICATED ON THE DRAWINGS.

HEAT PUMP WATER HEATER SCHEDULE

ID	LOCATION NAME	LOCATION NO.	MANUFACTURER	MODEL NO.	TYPE	HEAT EXCHANGER HEATING CAP (MBH)	SYSTEM SIDE RECOVERY GAL/HR	SYSTEM SIDE FLOW (GPM)	SYSTEM SIDE MAX TEMP RISE (°F)	SOURCE SIDE FLOW (GPM)	SOURCE SIDE EWT (°F)	SOURCE SIDE LWT (°F)	SOURCE SIDE PD (FT HEAD)	COMPRESSOR POWER INPUT (KW)	TYPE	LRA	RLA	COP	REFRIGERANT	DRY WEIGHT (lb)	ELECTRICAL DATA FLA	MCA	MOCP	V	PH	NOTES
HPWH-1	MECHANICAL ROOM		LOCHINVAR	WHP125	MULTI-PASS	137.2	233.0		160									R513A	649		30.0	50.0	480	3	1 THRU 7

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. WATER HEATER SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. WATER HEATER SHALL MEET REQUIREMENTS OF THE U.S. DOE AND ASHRAE/IES 90.1.
4. PROVIDE WITH ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE.
5. PROVIDE WITH LOW GWP REFRIGERANT, INTEGRATED CIRCULATOR PUMP, DOUBLE WALL HEAT EXCHANGER, AND FACTORY STACKING FRAME.
6. PROVIDE WITH FACTORY CONTROL PANELS WITH BMS BACNET GATEWAY.
7. PROVIDE WATER HEATER WITH A 5-YEAR COMPRESSOR WARRANTY AND 1-YEAR LIMITED PARTS WARRANTY ON ALL REMAINING PARTS.

STORAGE TANK SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	FLUID TYPE	TANK VOLUME (GAL)	UNIT DIMENSIONS HEIGHT (IN)	UNIT DIMENSIONS DIAMETER (IN)	DRY WEIGHT (lb)	NOTES
ST-1	MECHANICAL ROOM	203	LOCHINVAR	RJA200	DHW	WATER	200.0	77"	32"	634	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. PROVIDE UNIT WITH 316L STAINLESS STEEL TANK CONSTRUCTION.
3. PROVIDE WITH FACTORY TEXTURED, IMPACT RESISTANT POLYPROPYLENE JACKET.
4. PROVIDE WITH FACTORY BULBWELL FOR SENSOR, CONNECTIONS FOR PRESSURE RELIEF, HW OUTLET, WATER HEATER SUPPLY AND RETURN, AND BRASS DRAIN VALVE.
5. PROVIDE FACTORY 10 YEAR LIMITED WARRANTY.

PUMP SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	GPM	HEAD (FT)	MOTOR HP	MOTOR RPM	WEIGHT (lb)	ELECTRICAL V	ELECTRICAL PH	NOTES

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. PUMP SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. PUMP SHALL BE LEAD FREE, CERTIFIED TO ANSI/NSF 61, AND RATED FOR POTABLE WATER.
4. PROVIDE PUMP OF BRONZE OR STAINLESS STEEL CONSTRUCTION.
5. PROVIDE PREMIUM EFFICIENCY ECM TYPE MOTOR WITH INTEGRAL CONTROLS AND THERMAL AND OVERCURRENT PROTECTION. REFER TO DIVISION 26 FOR DISCONNECT SWITCH.
6. PROVIDE FLEXIBLE CONNECTIONS, SHUT OFF AND CHECK VALVES.
7. RECIRCULATION PUMP SHALL BE CONTROLLED BY THE AQUASTAT.

EXPANSION TANK SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	PRESSURE (PSIG) INITIAL TANK AIR CHARGE	PRESSURE (PSIG) PRESS RELIEF	VOLUME (GAL) TANK	VOLUME (GAL) ACCEPTANCE	UNIT DIMENSIONS HEIGHT (IN)	UNIT DIMENSIONS DIAMETER (IN)	DRY WEIGHT (lb)	NOTES
ET-1	PLUMBING ROOM	124											

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. EXPANSION TANK SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. TANK SHALL BE LEAD FREE, CERTIFIED TO ANSI/NSF 61, AND RATED FOR POTABLE WATER.
4. PROVIDE TANK OF DRAWN STEEL CONSTRUCTION WITH FLEXIBLE BUTYL DIAPHRAGM, AND STAINLESS STEEL INLET CONNECTOR.
5. EXPANSION TANK SHALL BE PRE-CHARGED TO 40 PSI (FIELD ADJUSTABLE).

BOOSTER PUMP SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	GPM	HEAD (FT)	MOTOR QTY	MOTOR BHP	MOTOR HP	MOTOR RPM	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	REMARKS
BP-1	PLUMBING ROOM	124	Grundfos	HYDRO MPC-E3 CRE45-1-1 UL D-A-A-HV	TRIPLEX	260.0	0.0	3								480	3	1 THRU 8

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. PUMP SHALL BE ACCEPTED BY THE MASSACHUSETTS BOARD OF REGISTRATION OF PLUMBERS AND GAS FITTERS.
3. PUMP SHALL BE LEAD FREE, CERTIFIED TO ANSI/NSF 61, AND RATED FOR POTABLE WATER.
4. PROVIDE VERTICAL PUMP WITH PUMP HEAD AND BASE WITH CAST IRON CONSTRUCTION. PROVIDE ALL HYDRAULIC PUMP PARTS WITH STAINLESS STEEL CONSTRUCTION.
5. PROVIDE PREMIUM EFFICIENCY MOTOR WITH INTEGRAL FREQUENCY CONVERTER, CONTROLS AND THERMAL AND OVERCURRENT PROTECTION.
6. DIVISION 26 SHALL PROVIDE DISCONNECT SWITCH.
7. PROVIDE FACTORY BASE FRAME WITH STAINLESS STEEL MANIFOLD AND VALVES.
8. PROVIDE WITH FACTORY CONTROL CABINET ON ITS OWN BASE FRAME FOR REMOTE MOUNTING.

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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TRURO, MA 02666

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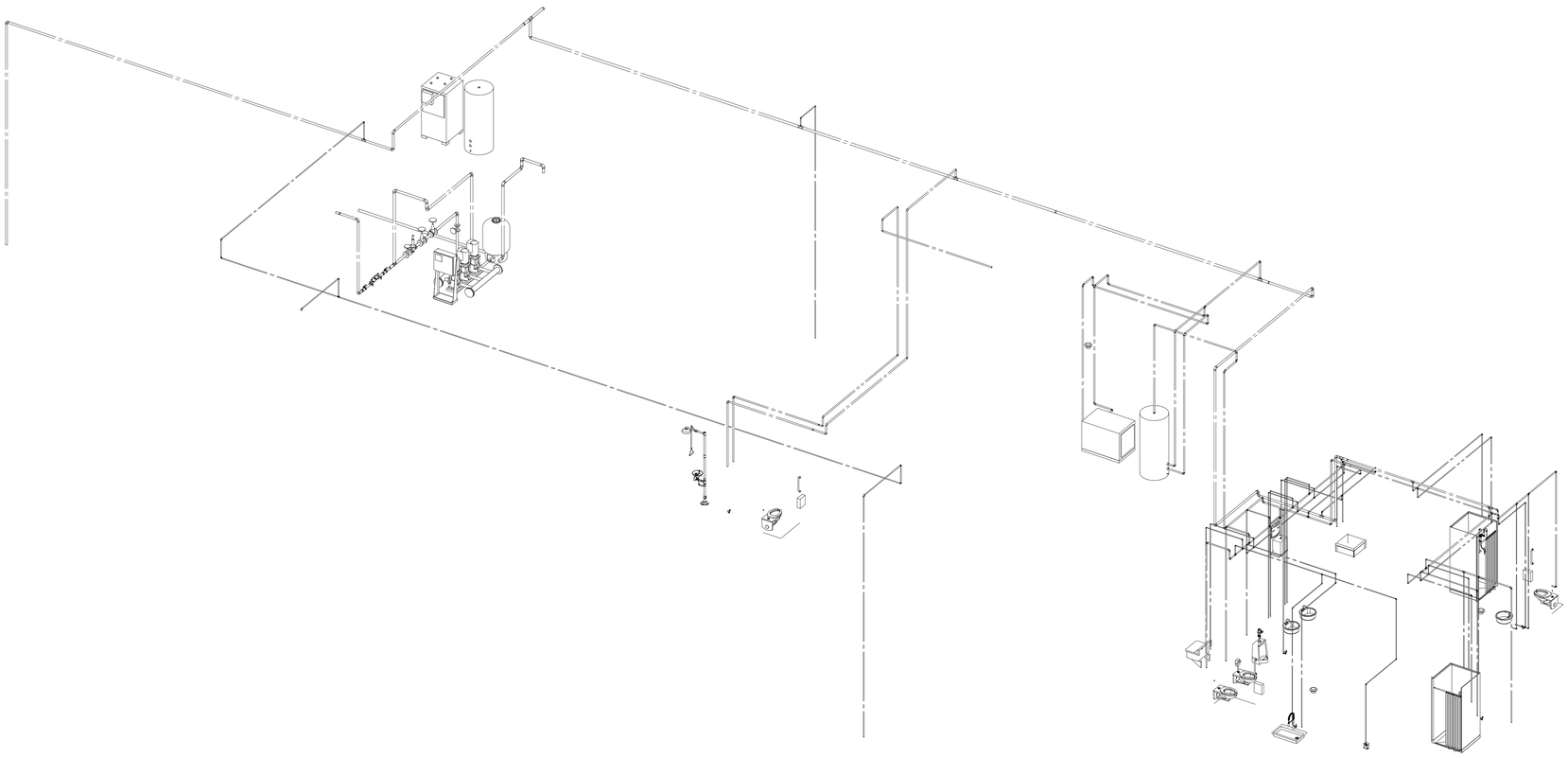
Key Plan:

Date: OCTOBER 31, 2025
Drawn By: HJH
Reviewed By: AAH
Approved By: AAH
W&S Project No.: ENG24-1552
W&S File No.: XXX

Drawing Title:
SCHEDULES

Sheet Number:
P601

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1 DOMESTIC WATER RISER DIAGRAM

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Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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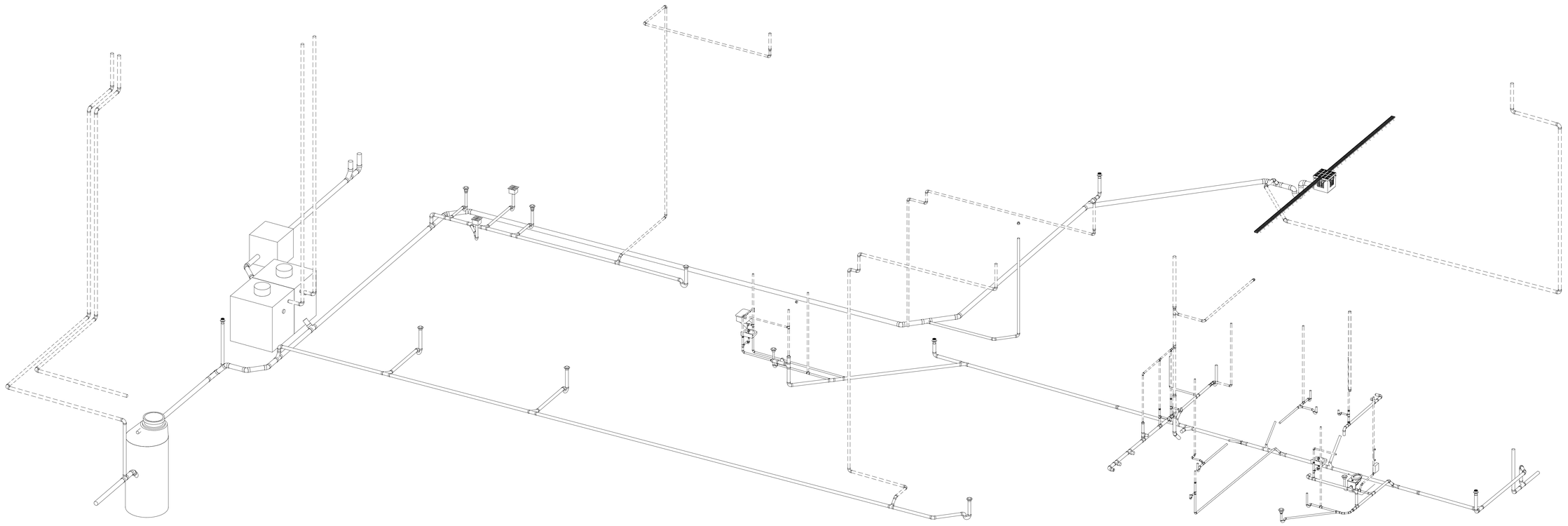
Date:	OCTOBER 31, 2025
Drawn By:	HJH
Reviewed By:	AAH
Approved By:	AAH
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:

DOMESTIC WATER RISER DIAGRAM

Sheet Number:

P701



1 SANITARY WASTE AND VENT RISER DIAGRAM

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Drawing Title:

WASTE AND VENT RISER DIAGRAM

Sheet Number:

P702

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ABBREVIATIONS

Ø	ROUND/DIAMETER	ID	INDIRECT
ABV	ABOVE	ID	INSIDE DIAMETER
AC	AIR CONDITIONING	IEER	INTEGRATED EER
ACCU	AIR COOLED CONDENSING UNIT	IH	INTAKE HOOD, GRAVITY VENTILATOR
ACD	AUTOMATIC CONTROL DAMPER	IN	INCH
ACT	ACOUSTICAL CEILING TILE	IN WC	INCHES WATER COLUMN
ACU	AIR CONDITIONING UNIT	IN WG	INCHES WATER GAUGE
AD	ACCESS DOOR	INV	INVERT
ADD	ADDENDUM	KW	KILOWATT
ADD'L	ADDITIONAL	L	LENGTH
AF	AIR FOIL	LAT	LEAVING AIR TEMPERATURE
AFF	ABOVE FINISHED FLOOR	LB	POUND
AFLV	AUTOMATIC FLOW LIMITING VALVE	LB/HR	POUNDS PER HOUR
AFMS	AIR FLOW MONITORING STATION	LD	LINEAR DIFFUSER
AFR	ABOVE FINISHED ROOF	LF	LINEAR FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LP	LOW POINT
AHU	AIR HANDLING UNIT	LP	LOW PRESSURE
AL	ACOUSTIC DUCT LINER	LPG	LIQUEFIED PETROLEUM GAS
ALT	ALTERNATE	LVG	LEAVING
AMB	AMBIENT	LVR	LOUVER
AMP	AMPERE	LWT	LEAVING WATER TEMPERATURE
AP	ACCESS PANEL	M/A	MIXED AIR
APD	AIR PRESSURE DROP	MAX	MAXIMUM
ARCH	ARCHITECT/ARCHITECTURAL	MAU	MAKE-UP AIR UNIT
AS	AIR SEPARATOR	MAV	MANUAL AIR VENT
AS	AIR STREAM	MBH	ONE THOUSAND BTU PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPACITY
ATM	ATMOSPHERE	MCF	ONE THOUSAND CUBIC FEET
AVG	AVERAGE	MD	MOTORIZED DAMPER
B	BOILER	MECH	MECHANICAL
BDD	BACKDRAFT DAMPER	MEZZ	MEZZANINE
BFC	BELOW FINISHED CEILING	MFR	MANUFACTURER
BFF	BELOW FINISHED FLOOR	MIN	MINIMUM
BFP	BACKFLOW PREVENTER	MISC	MISCELLANEOUS
BHP	BRAKE HORSEPOWER	MOCP	MAXIMUM OVER CURRENT PROTECTION
BI	BACKWARD INCLINED	MTR	MOTOR
BLDG	BUILDING	MU	MAKE-UP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NOISE CRITERIA
BOS	BOTTOM OF STEEL	NC	NORMALLY CLOSED
BP	BOILER PUMP	NIC	NOT IN CONTRACT
BSMT	BASEMENT	NG	NATURAL GAS
BTU	BRITISH THERMAL UNITS	NO	NUMBER
BTUH	BRITISH THERMAL UNITS PER HOUR	NO	NORMALLY OPEN
CA	COMBUSTION AIR	NTS	NOT TO SCALE
CAP	CAPACITY	O	OXYGEN
CAV	CONSTANT AIR VOLUME	O/A	OUTSIDE AIR
CC	COOLING COIL	OAI	OUTDOOR AIR INTAKE
CD	CONDENSATE DRAIN	OBD	OPPOSED BLADE DAMPER
CENT	CENTRIFUGAL	OC	ON CENTER
CF	CUBIC FEET	OCC	OCCUPIED
CFM	CUBIC FEET PER MINUTE	OD	OUTSIDE DIAMETER
CH	CHILLER	ODP	OPEN DRIP PROOF
CHW	CHILLED WATER	OED	OPEN END DUCT
CHWR	CHILLED WATER RETURN	OV	OUTLET VELOCITY
CHWS	CHILLED WATER SUPPLY	P	PUMP
CL	CENTERLINE	PAD	PRIMARY AIR DAMPER
CLG	CEILING	PD	PRESSURE DROP
CLG	COOLING	PD	PRESSURE DIFFERENCE
CO	CLEAN OUT	PH	PHASE
CO	CARBON MONOXIDE	PHC	PREHEAT COIL
CO2	CARBON DIOXIDE	PHX	PLATE AND FRAME HEAT EXCHANGER
COL	COLUMN	PLBG	PLUMBING
CONC	CONCRETE	POS	PROVIDED BY OTHER SECTION
CONN	CONNECTION	PRESS	PRESSURE
CP	CONDENSATE PUMP	PRV	PRESSURE REDUCING VALVE
CSF	CHEMICAL SHOT FEEDER	PSI	POUNDS PER SQUARE INCH
CT	COOLING TOWER	PSIA	PSI ABSOLUTE
CU	CONDENSING UNIT	PSID	PSI DIFFERENTIAL
CUH	CABINET UNIT HEATER	PSIG	PSI GAUGE
CV	CONSTANT VOLUME TERMINAL UNIT	PWR	POWER
CW	COLD WATER	QTY	QUANTITY
CW	CONDENSER WATER	R	RADIUS
CWR	CONDENSER WATER RETURN	R/A	RETURN AIR
CWS	CONDENSER WATER SUPPLY	RCP	RADIANT CEILING PANEL
D	DRAIN	RD	REFRIGERANT DISCHARGE
D	DEPTH	REC	RECESSED
DB	DRY BULB	RED	REDUCER
DC	DRY COOLER	RET	RETURN
DDC	DIRECT DIGITAL CONTROLS	RF	RETURN FAN
DEG	DEGREE	RH	RELATIVE HUMIDITY
DH	DUCT HEATER	RH	RELIEF HOOD, GRAVITY VENTILATOR
DIA	DIAMETER	RHC	REHEAT COIL
DIM	DIMENSION	RHGB	REFRIGERANT HOT GAS BYPASS
DN	DOWN	RL	REFRIGERANT LIQUID
DOV	DRAIN OFF VALVE	RLA	RUNNING LOAD AMPS
DP	DIFFERENTIAL PRESSURE	RL/A	RELIEF AIR
DX	DIRECT EXPANSION	RLF	RELIEF
EA	EACH	RM	ROOM
E/A	EXHAUST AIR	RPM	REVOLUTIONS PER MINUTE
EAT	ENTERING AIR TEMPERATURE	RS	REFRIGERANT SUCTION
EBB	ELECTRIC BASEBOARD	RTU	ROOFTOP UNIT
ECM	ELECTRONICALLY COMMUTATED MOTOR	S/A	SUPPLY AIR
EER	ENERGY EFFICIENCY RATIO	SA	SOUND ATTENUATOR
EF	EXHAUST FAN	SCHE	SIMULTANEOUS COOLING & HEATING EFF
EFF	EFFICIENCY	SCR	SCREEN
EHC	ELECTRIC HEATING COIL	SD	SMOKE DAMPER
ELEC	ELECTRICAL	SDET	SMOKE DETECTOR
ELEV	ELEVATION	SEER	SEASONAL ENERGY EFFICIENCY RATING
ERU	ENERGY RECOVERY UNIT	SENS	SENSIBLE
ERV	ENERGY RECOVERY VENTILATOR	SF	SQUARE FOOT
EQUIP	EQUIPMENT	SF	SUPPLY FAN
ESP	EXTERNAL STATIC PRESSURE	SFD	COMBINATION SMOKE FIRE DAMPER
ET	EXPANSION TANK	SHC	SENSIBLE HEAT CAPACITY
EVAP	EVAPORATOR	SHR	SENSIBLE HEAT RATIO
EUH	ELECTRIC UNIT HEATER	SM	SURFACE MOUNT
EWT	ENTERING WATER TEMPERATURE	SP	STATIC PRESSURE
EWH	ELECTRIC WATER HEATER	SPECS	SPECIFICATIONS
EXH	EXHAUST	SS	STAINLESS STEEL
EXP	EXPANSION	STM	STEAM
EXT	EXTERNAL	SUP	SUPPLY
EXIST	EXISTING	T	THERMOSTAT
F	DEGREES FAHRENHEIT	T/A	TRANSFER AIR
FA	FREE AREA	TAV	THERMOSTATIC AIR VENT
FC	FLEXIBLE CONNECTION	TD	TEMPERATURE DROP
FCU	FAN COIL UNIT	TEFC	TOTALLY ENCLOSED FAN COOLED
FD	FIRE DAMPER	TEMP	TEMPERATURE
FL	FLOOR	TF	TRANSFER FAN
FLA	FULL LOAD AMPS	TOD	TOP OF DUCT
FPM	FEET PER MINUTE	TOP	TOP OF PIPE
FPS	FEET PER SECOND	TOS	TOP OF STEEL
FS	FLOW SWITCH	TOT	TOTAL
FT	FOOT/FEET	TR	TRANSFER
FTR	FIN TUBE RADIATION	TSP	TOTAL STATIC PRESSURE
G	GAS	TYP	TYPICAL
GA	GAUGE	UG	UNDERGROUND
GAL	GALLON	UH	UNIT HEATER
GALV	GALVANIZED	UNO	UNLESS NOTED OTHERWISE
GC	GENERAL CONTRACTOR	UNOCC	UNOCCUPIED
GFU	GLYCOL FEED UNIT	UV	UNIT VENTILATOR
GMU	GLYCOL MAKE UP	V	VENT
GPH	GALLONS PER HOUR	V	VOLTS
GPM	GALLONS PER MINUTE	VAC	VACUUM
GRD	GRADE	VAR	VARIABLE
GV	GRAVITY VENTILATOR	VAV	VARIABLE AIR VOLUME
GWB	GYPSUM WALL BOARD	VB	VACUUM BREAKER
H	HUMIDIFIER	VD	VOLUME DAMPER
HB	HOSE BIB	VEL	VELOCITY
HD	HEAD	VENT	VENTILATION
HGB	HOT GAS BYPASS	VFD	VARIABLE FREQUENCY DRIVE
HP	HORSE POWER	VTR	VENT THROUGH ROOF
HP	HIGH POINT	W	WATT
HR	HOUR	W	WIDTH
HRU	HEAT RECOVERY UNIT	W/	WITH
HRV	HEAT RECOVERY VENTILATOR	W/O	WITHOUT
HT	HEIGHT	WB	WET BULB
HTG	HEATING	WC	WATER COLUMN
HTR	HEATER	WG	WATER GAUGE
HV	HEATING AND VENTILATION UNIT	WMS	WIRE MESH SCREEN
HW	HOT WATER	WPD	WATER PRESSURE DROP
HWC	HOT WATER HEATING COIL	WTD	WATER TEMPERATURE DIFFERENCE
HWR	HOT WATER RETURN	ΔP	CHANGE IN PRESSURE
HWS	HOT WATER SUPPLY	ΔT	CHANGE IN TEMPERATURE
HX	HEAT EXCHANGER	°F	DEGREES FAHRENHEIT
HZ	HERTZ		

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

HVAC GENERAL NOTES

1. MECHANICAL GENERAL NOTES APPLY TO ALL MECHANICAL DRAWINGS. THE WORD "CONTRACTOR" USED IN "HVAC" OR "MECHANICAL" WORK SHALL MEAN THE HVAC FILED SUB-BIDDER OR MECHANICAL CONTRACTOR.
2. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM INCLUDING ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE HVAC WORK COMPLETE AND READY FOR OPERATION. FINAL PRODUCT SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
3. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
4. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
5. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED, INCLUDING BUT NOT LIMITED TO DIV 21, 22, AND 26. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
6. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR TERMINAL DEVICES.
8. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
9. DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.
10. ACCESS PANELS SHALL BE FURNISHED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT TO BE INSTALLED BY THE GENERAL CONTRACTOR.
11. THE INSIDE OF ALL DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK IN ACCORDANCE WITH DIVISION 9.
12. ROOM THERMOSTATS AND SENSORS SHALL BE PROTECTED DURING CONSTRUCTION. INSTALL NEW ROOM THERMOSTATS AND SENSORS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ARCHITECT.
13. WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
14. THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
15. THE CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL AND SUBMIT DOCUMENTATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
16. THE CONTRACTOR SHALL PROVIDE AND SUBMIT DOCUMENTATION FOR TESTING AND BALANCING OF ALL AIR AND WATER SYSTEMS. DUCT AND PIPING PRESSURE AND LEAKAGE TESTS, OPERATING AND MAINTENANCE MANUALS, AND AS BUILT DRAWINGS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
17. THE CONTRACTOR SHALL COORDINATE ALL FRESH AIR INTAKE AND EXHAUST TERMINATION LOCATIONS WITH ALL OTHER TRADES BASED ON CLEARANCE REQUIREMENTS INDICATED IN THE IMC AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
18. REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS.
19. MANY EQUIPMENT SCHEDULES DO NOT LIST QUANTITIES. CONTRACTOR SHALL REFER TO ALL DRAWINGS AND PROVIDE THE REQUIRED QUANTITIES FOR ALL COMPONENTS.
20. IN ACCORDANCE WITH SPECIFICATION FOR DIVISION 23, THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES AND PREPARE COORDINATION DRAWINGS PRIOR TO INSTALLATION. COORDINATION DRAWINGS SHALL BE SUBMITTED TO THE OWNERS REPRESENTATIVE FOR REVIEW PRIOR TO INSTALLATION.
21. MINIMAL CONTROL POWER HAS BEEN IDENTIFIED ON THE ATC DRAWINGS. IF ANY ADDITIONAL POWER IS REQUIRED BASED ON SYSTEMS DESIGN BY THE CONTROLS CONTRACTOR THE ATC/BAS CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY THAT POWER. COORDINATE ALL POWER REQUIREMENTS WITH DIV 26.

DESIGN CONDITIONS

CODES/STANDARDS

MASSACHUSETTS STATE BUILDING CODE, TENTH EDITION
2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
225 CMR 23 MASSACHUSETTS STRETCH ENERGY CODE
2023 MUNICIPAL OPT-IN SPECIALIZED CODE

COMPLIANCE PATH

225 CMR 23 CC101.3.2 ALL ELECTRIC PATHWAY

OUTDOOR AIR TEMPERATURE

ASHRAE - PROVINCETOWN
WINTER 12°F DB/ 10°F WB
SUMMER 83°F DB/ 73°F WB

INDOOR CONDITIONS (°F)

SPACE	WINTER	SUMMER
OFFICES	70	74
CONFERENCE ROOMS	70	74
BATHROOM	65	78
LOCKER ROOM	70	-
STORAGE/MECH	65	-
CORRIDOR	65	78
MUSTER/TRAINING ROOM	70	74
MAINTENANCE BAYS	70	-
SHOPS	65	-
VEHICLE STORAGE	65	-
VEHICLE WASH	65	-
LUBE ROOM	65	-
PARTS STORAGE	65	-
COMPRESSOR ROOM	65	95***

MINIMUM VENTILATION

SPACE	CFM/PERSON	CFM/SF	CFM
OFFICES	5	0.06	
CONFERENCE ROOMS	5	0.06	
BATHROOM	0	0	50*
LOCKER ROOM	0	0.25*	
STORAGE/MECH	0	0.12	
CORRIDOR	0	0.06	
MUSTER/TRAINING ROOM	7.5	0.06	
MAINTENANCE BAYS	0	1	
SHOPS W/ ENGINE REPAIR	0	0.75**	
SHOPS	0	0.5/0.75**	
VEHICLE STORAGE	0	0.05/0.75**	
VEHICLE WASH	0	0.05/0.75**	
LUBE ROOM	0	1	
PARTS STORAGE	0	1	
COMPRESSOR ROOM	0	0	0***

* PER FIXTURE (INCLUDING SHOWERS) CONTINUOUS EXHAUST
** EXHAUST FOR GAS DETECTION PURGE
*** CFM TO BE CALCULATED BASED ON COMPRESSOR HP OR AIRFLOW

SCOPE OF WORK
(INCLUDING BUT NOT LIMITED TO)

1. PROVIDE INSTALLATION OF NEW DUCTWORK FOR THE NEW HVAC EQUIPMENT AS INDICATED ON THE PLANS.
2. PROVIDE INDOOR HEAT RECOVERY UNIT WITH HW COIL AND CHW COIL FOR THE FLEET MAINTENANCE BAYS AND SHOPS.
3. PROVIDE RADIANT FLOOR HEATING FOR THE FLEET MAINTENANCE BAYS AND SHOP.
4. PROVIDE INDOOR ENERGY RECOVERY UNIT WITH HW COIL AND CHW COIL FOR HYDRONIC FAN COIL TERMINAL UNITS FOR THE ADMIN AREA.
5. PROVIDE INDOOR BASE MOUNTED HEATING AND VENTILATING UNIT WITH HW HEATING COILS AND ALUMINUM CONSTRUCTION FOR THE WASHBAY.
6. PROVIDE GROUND SOURCE HEAT PUMPS AND ASSOCIATED APPURTENANCES (PUMPS, ET, AS, GFU, ETC.).
7. PROVIDE HW TYPE UNIT HEATERS IN MECHANICAL SPACES AND ELECTRIC TYPE UNIT HEATER IN THE ELECTRIC ROOM.
8. PROVIDE DUCTLESS SPLIT SYSTEM FOR TEL/DATA ROOM.
9. PROVIDE EXHAUST FANS FOR STORAGE SPACES, AND MECHANICAL SPACES.

CALLOUT SYMBOLS

- CONNECT TO EXISTING
- LIMIT OF DEMOLITION
- A / H2.0 — SECTION DESIGNATION
- SECTION SHEET NUMBER
- 1 — REVISION NUMBER
- H — HUMIDISTAT/HUMIDITY SENSOR, WALL MOUNTED
- H — HUMIDISTAT/HUMIDITY SENSOR, DUCT MOUNTED
- T — THERMOSTAT/TEMPERATURE SENSOR, DUCT MOUNTED
- T — THERMOSTAT, WALL MOUNTED
- S — SENSOR, WALL MOUNTED
- CO2 — CARBON DIOXIDE SENSOR
- CO — CARBON MONOXIDE SENSOR
- NO2 — NITROGEN DIOXIDE SENSOR
- MS — MANUAL SWITCH, WALL MOUNTED
- H — HORN/STROBE AUDIO/VISIBLE ALARM
- REMOVE EXISTING ITEM
- SA(100) — S = SUPPLY A = SCHEDULED DIFFUSER (100) - CFM TO BALANCE TO
- RA(100) — R = RETURN A = SCHEDULED DIFFUSER (100) - CFM TO BALANCE TO
- EA(100) — E = EXHAUST A = SCHEDULED DIFFUSER (100) - CFM TO BALANCE TO
- TA(100) — T = TRANSFER A = SCHEDULED DIFFUSER (100) - CFM TO BALANCE TO
- XxX (100) — X = EXISTING NECK SIZE (RECTANGULAR SHOWN) (100) - REBALANCE TO DESIGNATED CFM
- (XXX) — XXX = REBALANCE TO DESIGNATED GPM
- VAV-XX — EQUIPMENT TAG (REFER TO SCHEDULES FOR DETAILS)

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

DUCTWORK

SINGLE LINE	ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE	DOUBLE LINE
WxD	RECTANGULAR DUCT W = WIDTH, D = DEPTH	WxD, 10x6
DIA"Ø	ROUND DUCT (DIA = INSIDE DIAMETER)	DIA"Ø, 10"Ø
	ROUND DUCT UP	
	RECTANGULAR SUPPLY DUCT UP	
	RECTANGULAR RETURN/EXHAUST DUCT UP	
	RECTANGULAR SUPPLY DUCT DN	
	RECTANGULAR RETURN/EXHAUST DUCT DN	
	STANDARD RADIUS ELBOW (R = W) SUPPLY/RETURN/EXHAUST)	R = W
	FULL LENGTH SPLITTER VANES (R < W) SUPPLY/RETURN/EXHAUST	R = ½ W
	HORIZONTAL OFFSET SUPPLY/RETURN/EXHAUST	
R/D	CHANGE OF ELEVATION (R) RISE OR (D) DROP SUPPLY/RETURN/EXHAUST	R/D
	45° TAP TAKE-OFF	
	90° TAP TAKE-OFF (45°, SQUARE TO ROUND, 45°TAKE-OFF TRANSITION TO ROUND, AND BELLMOUTH, RESPECTIVLEY)	L1, L2, L3
	SPLIT TAKE-OFF	
	RECTANGULAR WYE W/ RADIUS ELBOWS	
	RECTANGULAR WYE W/ 45° TAKE-OFFS	
10x6 — 6"Ø	RECTANGULAR TO ROUND TRANSITION	10x6, 6"Ø
	ACOUSTICALLY LINED DUCTWORK	
	FLEXIBLE DUCTWORK	
	OPEN END DUCT W/ 1/2"x1/2" WMS	

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

DIFFUSERS

SINGLE LINE	ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE	DOUBLE LINE
VD	TAKE-OFF TO DIFFUSER/GRILLE	VD
VD	TAKE-OFF W/ FLEXIBLE DUCT TO DIFFUSER/GRILLE	VD, HARD ELBOW
VD	CEILING DUCT MOUNTED DIFFUSER/GRILLE	VD
	SIDEWALL DUCT MOUNTED DIFFUSER/GRILLE	
VD, VD	SIDEWALL SUPPLY LINEAR DIFFUSER (W/ SHEETMETAL PLENUM, LINING, & BRANCH CONNECTION FOR EVERY 4' OF LINEAR)	VD, VD
VD, VD	CEILING SUPPLY LINEAR DIFFUSER (W/ SHEETMETAL PLENUM, LINING, & BRANCH CONNECTION FOR EVERY 4' OF LINEAR)	VD, VD, PLENUM BY LD MFR

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

DUCTWORK/RGD SYMBOLS

- F — FIRE DAMPER - SELF CLOSING W/ACCESS DOOR
- S — SMOKE DAMPER - AUTOMATIC W/ ACCESS DOOR
- C — COMBINATION FIRE/SMOKE DAMPER W/ ACCESS DOOR
- V — MANUAL VOLUME DAMPER
- B — BACKDRAFT DAMPER
- M — MOTORIZED DAMPER - AUTOMATIC W/ ACCESS DOOR
- SLIDE GATE DAMPER
- SDET — SMOKE DETECTOR
- AIRFLOW MONITORING STATION
- STANDARD 4-WAY BLOW SUPPLY DIFFUSER
- 3-WAY BLOW SUPPLY DIFFUSER
- OR — 2-WAY BLOW SUPPLY DIFFUSER
- 1-WAY BLOW SUPPLY DIFFUSER
- RETURN OR EXHAUST GRILLE OR REGISTER
- UNDER CUT DOOR (1")
- RETURN OR EXHAUST AIRFLOW
- SUPPLY AIRFLOW

NOTE: SOME OR ALL OF THE SYMBOLS MAY BE USED ON THIS PROJECT

PIPING ABBREVIATIONS

A	COMPRESSED AIR
ATV	ATMOSPHERIC VENT
B	BRINE SUPPLY
BR	BRINE RETURN
BBD	BOILER BLOW DOWN
BF	BOILER FEED
CHEM	CHEMICAL FEED
CTBD	COOLING TOWER BLOW DOWN
C(X)	STEAM CONDENSATE (X=PSIG)
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CD	CONDENSATE DRAIN
D	DRAIN
FOG	FUEL OIL GAUGE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
GMU	GLYCOL MAKE-UP
GR	GLYCOL RETURN
GS	GLYCOL SUPPLY
HCR	DUAL TEMPERATURE RETURN
HCS	DUAL TEMPERATURE SUPPLY
HPWR	HEAT PUMP WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
MU	MAKE-UP WATER
NG	NATURAL GAS
PC	PUMPED CONDENSATE
PCHWR	PRIMARY CHILLED WATER RETURN
PCHWS	PRIMARY CHILLED WATER SUPPLY
PRCHWR	PROCESSED CHILLED WATER RETURN
PRCHWS	PROCESSED CHILLED WATER SUPPLY
RD	REFRIGERANT DISCHARGE
RG	REFRIGERANT GAS
RHGB	REFRIGERANT HOT GAS BYPASS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
GSS	GROUND SOURCE SUPPLY
GSR	GROUND SOURCE RETURN
V	REFRIGERANT SUCTION
(NAME)	VENT
	REMOVE EXISTING PIPING

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

PIPING LEGEND

- GATE VALVE (OUTSIDE SCREW AND YOKE UNLESS SPECIFIED OTHERWISE)
- GLOBE VALVE (OUTSIDE SCREW AND YOKE UNLESS SPECIFIED OTHERWISE)
- BALL VALVE
- BUTTERFLY VALVE
- DRAIN VALVE WITH CAP AND CHAIN
- PLUG VALVE
- PRESSURE REDUCING VALVE
- ANGLE VALVE (SECTION VIEW)
- ANGLE VALVE (PLAN VIEW)
- GLOBE ANGLE VALVE
- CHECK VALVE (SILENT TYPE ON PUMP DISCHARGE)
- STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
- SD — SUCTION DIFFUSER/STRAINER (NON-REDUCING) WITH BLOWOFF
- STRAINER, BASKET TYPE WITH DRAIN VALVE, HOSE BIBB AND CAP
- STRAINER, DUPLEX BASKET
- SOLENOID VALVE
- 2-WAY MODULATING PRESSURE INDEPENDENT ACV
- 2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- 3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 3-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- BALANCING VALVE (CIRCUIT SETTER)
- COMBINATION FLOW METER/SHUT-OFF/BALANCING VALVE
- AUTOMATIC FLOW LIMITING VALVE (PRESSURE INDEPENDENT)
- TRIPLE DUTY PUMP VALVE, CHECK, BALANCING (FLOW METER), SHUT-OFF
- BTU — BTU METER (HOT TAP TYPE WITH VALVE)
- FMT — FLOW METER/TRANSMITTER (HOT TAP TYPE WITH VALVE)
- VENTURI FLOW METER
- ORIFICE FLOW METER
- FS — FLOW SWITCH
- RELIEF/SAFETY VALVE
- THERMOSTATIC RADIATOR VALVE
- UNION
- BLIND FLANGE
- PIPE - CAPPED
- PRESSURE GAUGE (W/ BALL VALVE(S), SNUBBER, AND FOR STEAM, SIPHON)
- PS — PRESSURE SWITCH
- THERMOMETER
- STEAM TRAP (INDICATE TYPE)
- F&T — FLOAT AND THERMOSTATIC STEAM TRAP
- IB — INVERTED BUCKET STEAM TRAP
- T — THERMOSTATIC STEAM TRAP
- TD — THERMODYNAMIC STEAM TRAP
- VB — VACUUM BREAKER
- PT — PRESSURE GAUGE/THERMOMETER WELL
- AV — AIR VENT - AUTOMATIC
- MV — AIR VENT - MANUAL
- TAV — THERMOSTATIC AIR VENT (STEAM ONLY)
- DIRECTION OF FLOW
- EXPANSION LOOP
- EJ — EXPANSION JOINT
- FLEXIBLE CONNECTOR
- PIPE ANCHOR
- PIPE GUIDE
- PIPE CONNECTION - TOP
- PIPE CONNECTION - BOTTOM
- PIPE - DOWN
- PIPE - UP
- R — PITCH OF PIPE - (R) RISE OR (D) DROP
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- QUICK CLOSING VALVE, FUSIBLE LINK (USED WITH FUELS)
- PIPE BREAK (SINGLE LINE)
- DIRT LEG
- CO — CLEANOUT FOR CONDENSATE DRAIN PIPE
- PIPE - UP (DOUBLE LINE)
- PIPE - DOWN (DOUBLE LINE)
- PIPE BREAK (DOUBLE LINE)

NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

Project:
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COA:

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DESIGN DEVELOPMENT

Scale: NTS

Key Plan:

Date: OCTOBER 31, 2025
Drawn By: JCG
Reviewed By: HJH
Approved By: SEH

W&S Project No.: 24-1552
W&S File No.: XXX

Drawing Title:

LEGENDS, NOTES, AND ABBREVIATIONS

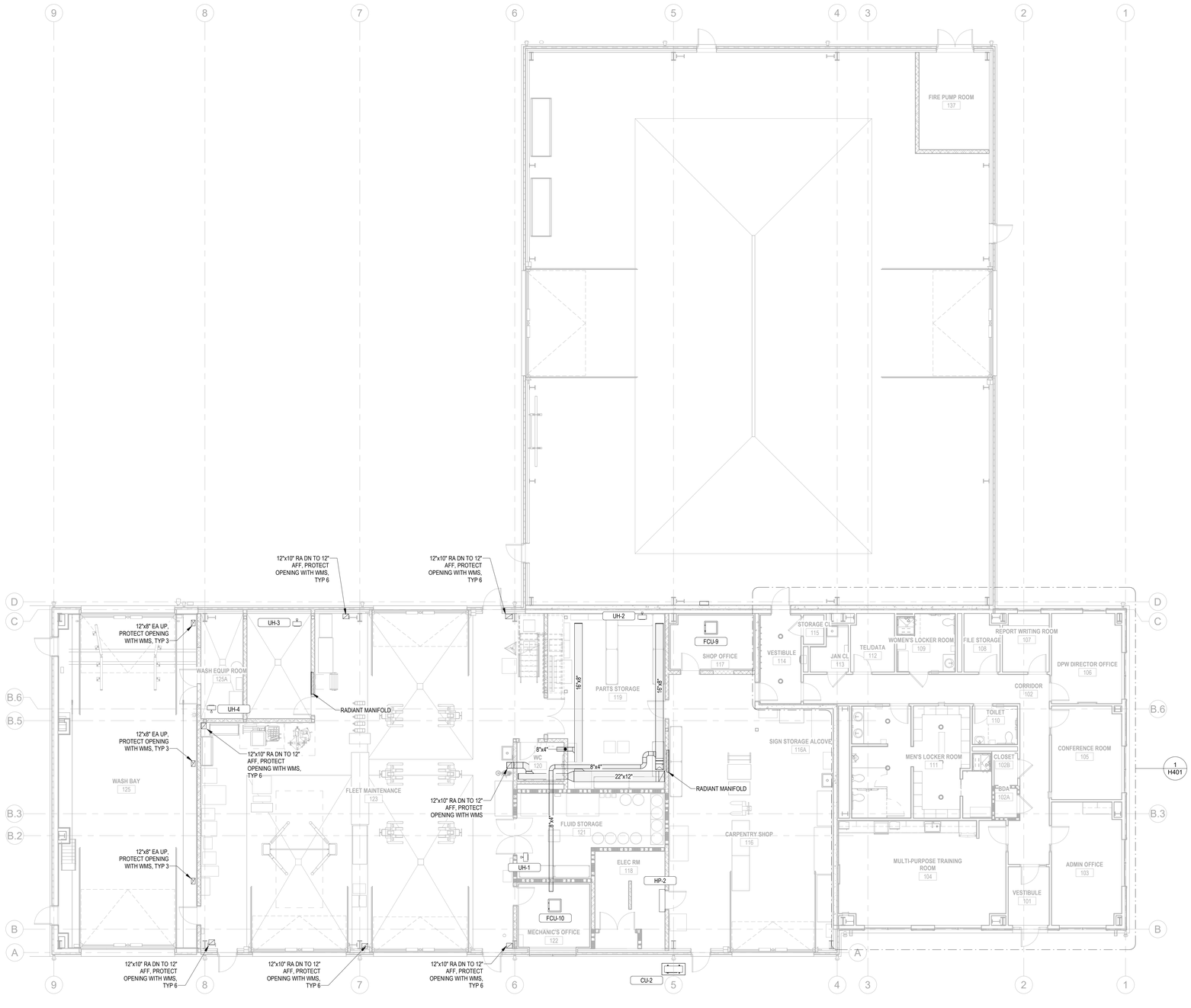
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HVAC NEW WORK NOTES

1. NEW WORK NOTES SHALL APPLY TO ALL HVAC NEW WORK DRAWINGS.
2. 1" FILTER MEDIA SHALL BE TEMPORARILY INSTALLED OVER ALL SUPPLY AIR DIFFUSERS AND REGISTERS PRIOR TO STARTING UP THE NEW AIR HANDLING EQUIPMENT. AFTER THE NEW AIR HANDLING EQUIPMENT HAS RUN FOR A SHORT PERIOD OF TIME, THE MECHANICAL CONTRACTOR SHALL REMOVE THE FILTER MEDIA. THE GENERAL CONTRACTOR SHALL PROVIDE ALL REQUIRED LADDERS AND BATTERY OPERATED LIFTS.
3. BALANCE DIFFUSERS, REGISTERS, GRILLES, AND EQUIPMENT TO FLOWS INDICATED.
4. REFER TO HVAC GENERAL NOTES ON H001 FOR SCOPE OF WORK.
5. EQUIPMENT LOCATED ABOVE THE CEILING REQUIRING ACCESS SHALL BE A MAXIMUM OF 2'-0" ABOVE THE CEILING.
6. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
7. CONSTRUCT AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
8. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT OUTSIDE OF THE REQUIRED ELECTRICAL CLEARANCES ABOVE/AROUND ELECTRICAL PANELS. TRANSFORMERS, AND OTHER ELECTRICAL EQUIPMENT.
9. FIRE SEAL AROUND DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS. PROVIDE FIRE DAMPERS AND ACCESS PANELS AT ALL FIRE RATED ASSEMBLIES AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY LOCATIONS. REFER TO SPECIFICATIONS.
10. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
11. ADJUST PIPING SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT. PROVIDE SHUTOFF VALVES IN THE SUPPLY AND RETURN PIPING TO ALL EQUIPMENT TO ALLOW FOR SERVICING. UNIONS OR FLANGES SHALL BE ARRANGED SUCH THAT EQUIPMENT CAN BE SERVICED WITHOUT CUTTING AND MINIMAL DISRUPTION OF PIPING SERVING THE EQUIPMENT.
12. MINIMUM SIZE OF HOT WATER SUPPLY, HOT WATER RETURN, AND CONDENSATE DRAIN PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
13. PROVIDE ISOLATION VALVES IN SUPPLY AND RETURN PIPING ON EACH FLOOR AND IN BRANCH PIPE SERVING MORE THAN ONE PIECE OF EQUIPMENT. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
14. ALL REFRIGERANT AND CONDENSATE PIPING SHALL BE CONCEALED IN THE WALL. FOR ANY PIPING THAT MUST BE EXPOSED, THE REFRIGERANT AND CONDENSATE PIPING SHALL BE INSTALLED IN A LINE HIDE SET.
15. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
16. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
17. INSTALL ALL SENSORS AND CONTROLS AT LOCATIONS AWAY FROM ANY DEVICE OR EQUIPMENT THAT CAN ADVERSELY IMPACT OPERATION, FUNCTION, OR LONGEVITY OF THE SENSOR AND/OR CONTROL.
18. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
19. ADJUST DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT. PROVIDE MANUAL VOLUME DAMPERS AT POINTS ON ALL DUCTED SYSTEMS WHERE BRANCHES EXTEND FROM LARGER DUCTS.
20. PROVIDE LOW-VOLTAGE WIRING FROM ELECTRICAL SOURCE TO MISCELLANEOUS ATC DEVICES. REFER TO AND COORDINATE WITH DIVISION 26.
21. THE CONTRACTOR SHALL PROVIDE MINIMUM OF 20 LINEAR FEET OF 1" DUCT LINING FROM NEW AIR HANDING UNITS AND NEW TERMINAL BOXES, WHERE POSSIBLE.



1 FIRST FLOOR DUCT PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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

Key Plan:

NORTH

Date:	OCTOBER 31, 2025
Drawn By:	JCG
Reviewed By:	HJH
Approved By:	SEH
W&S Project No.:	24-1552
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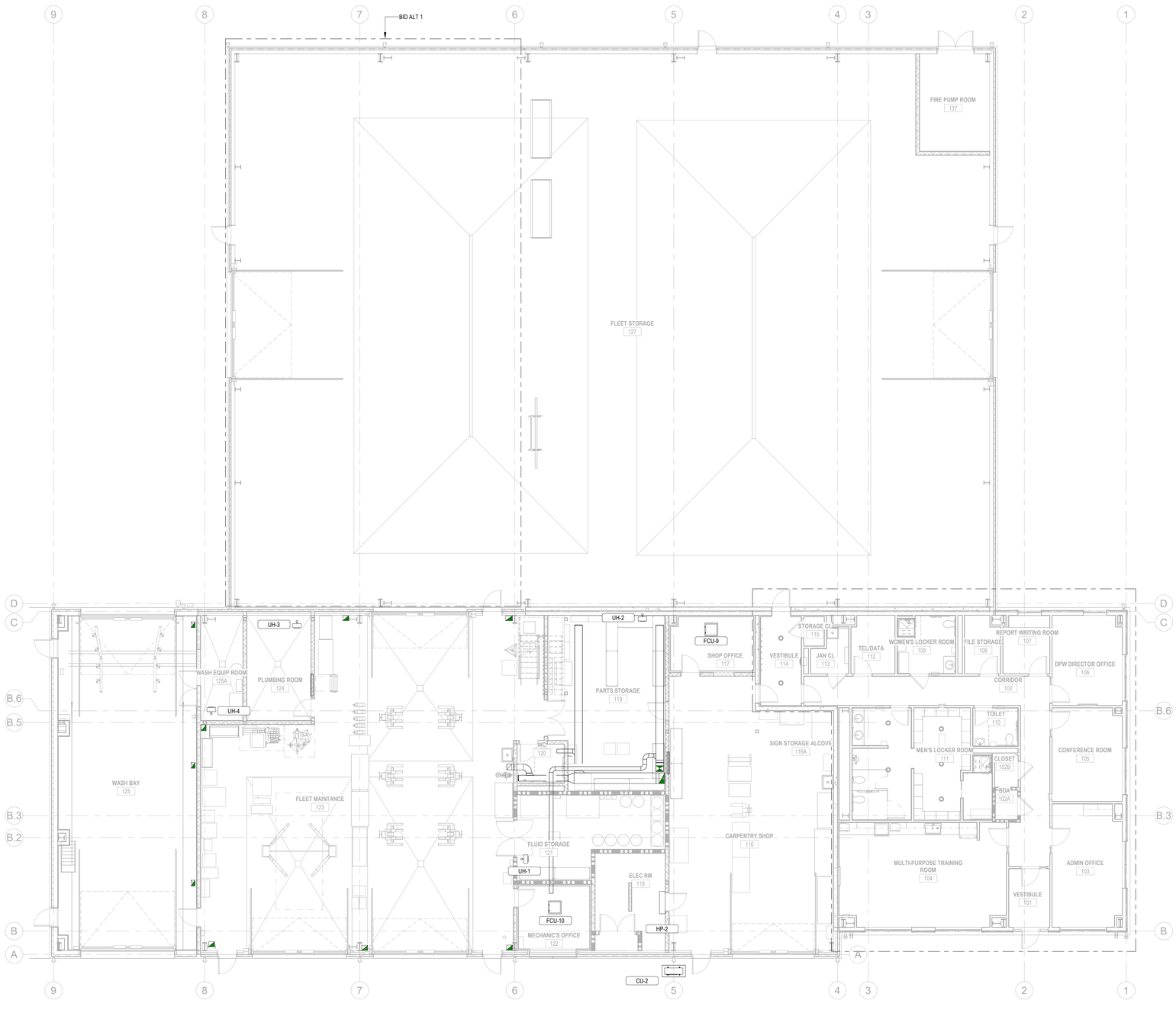
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FIRST FLOOR DUCT PLAN - BASE BID

Sheet Number:

H101

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1 FIRST FLOOR DUCT PLAN - BID ALT 1
1/8" = 1'-0"

0 4" 8" 16'

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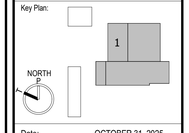
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Scale: 1/8" = 1'-0"

Key Plan:



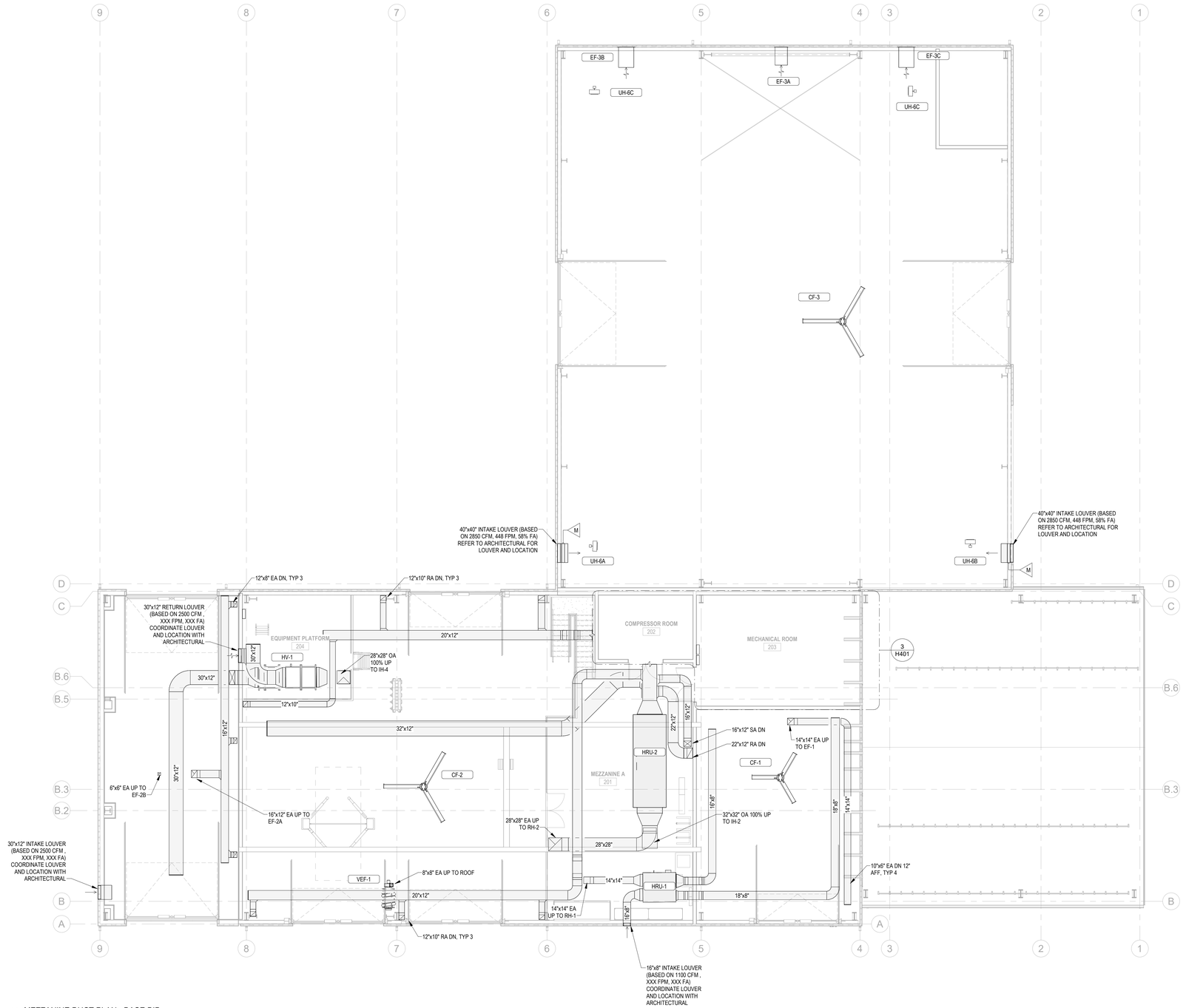
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Drawing Title:

FIRST FLOOR DUCT PLAN - BID ALT 1

Sheet Number:

H101A



1 MEZZANINE DUCT PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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

Key Plan:

NORTH

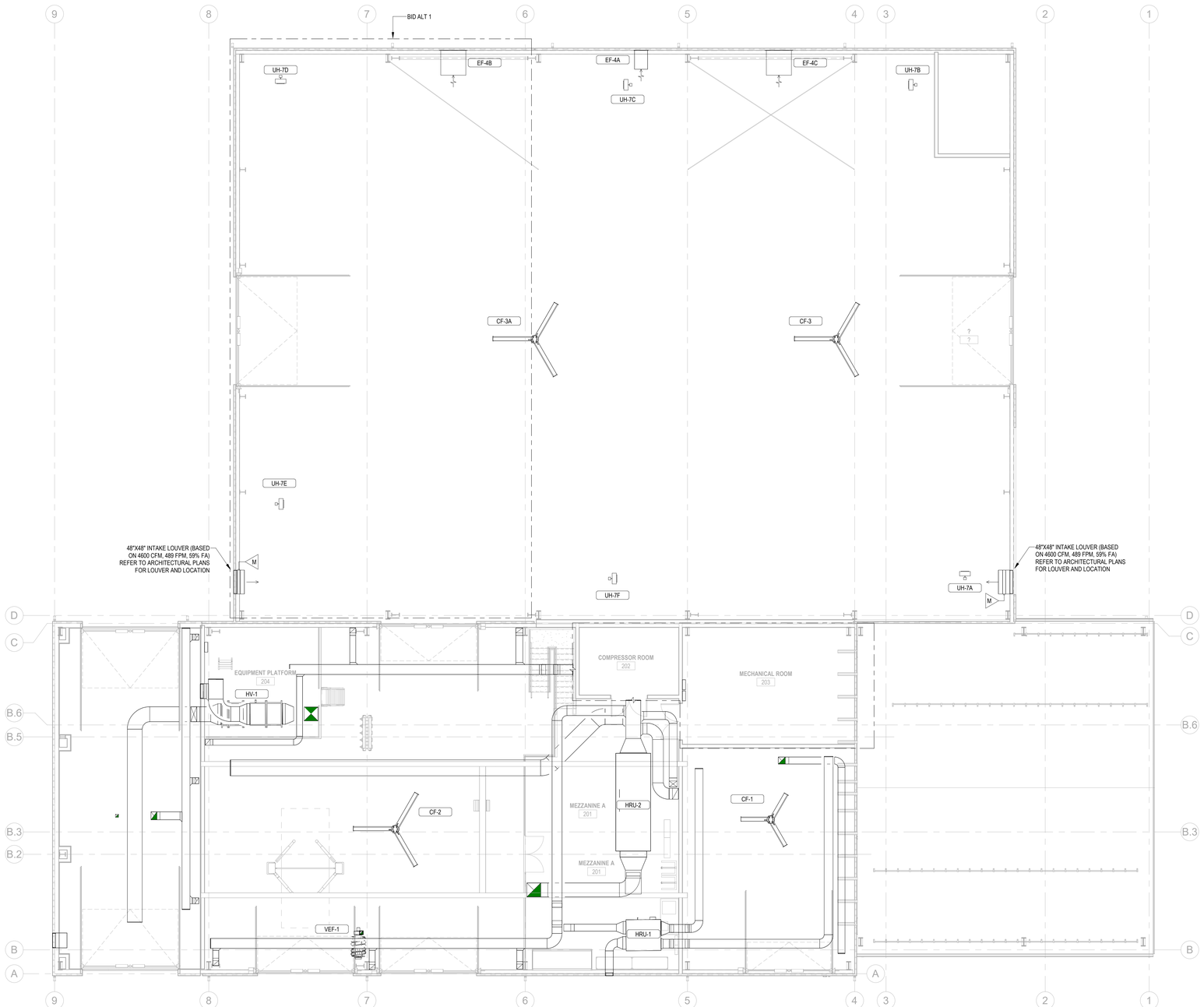
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Drawing Title:

MEZZANINE DUCT PLAN - BASE BID

Sheet Number:

H102



1 MEZZANINE DUCT PLAN - BID ALT 1
1/8" = 1'-0"

0 4' 8' 16'

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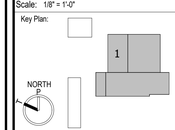
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DESIGN DEVELOPMENT

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

Key Plan:



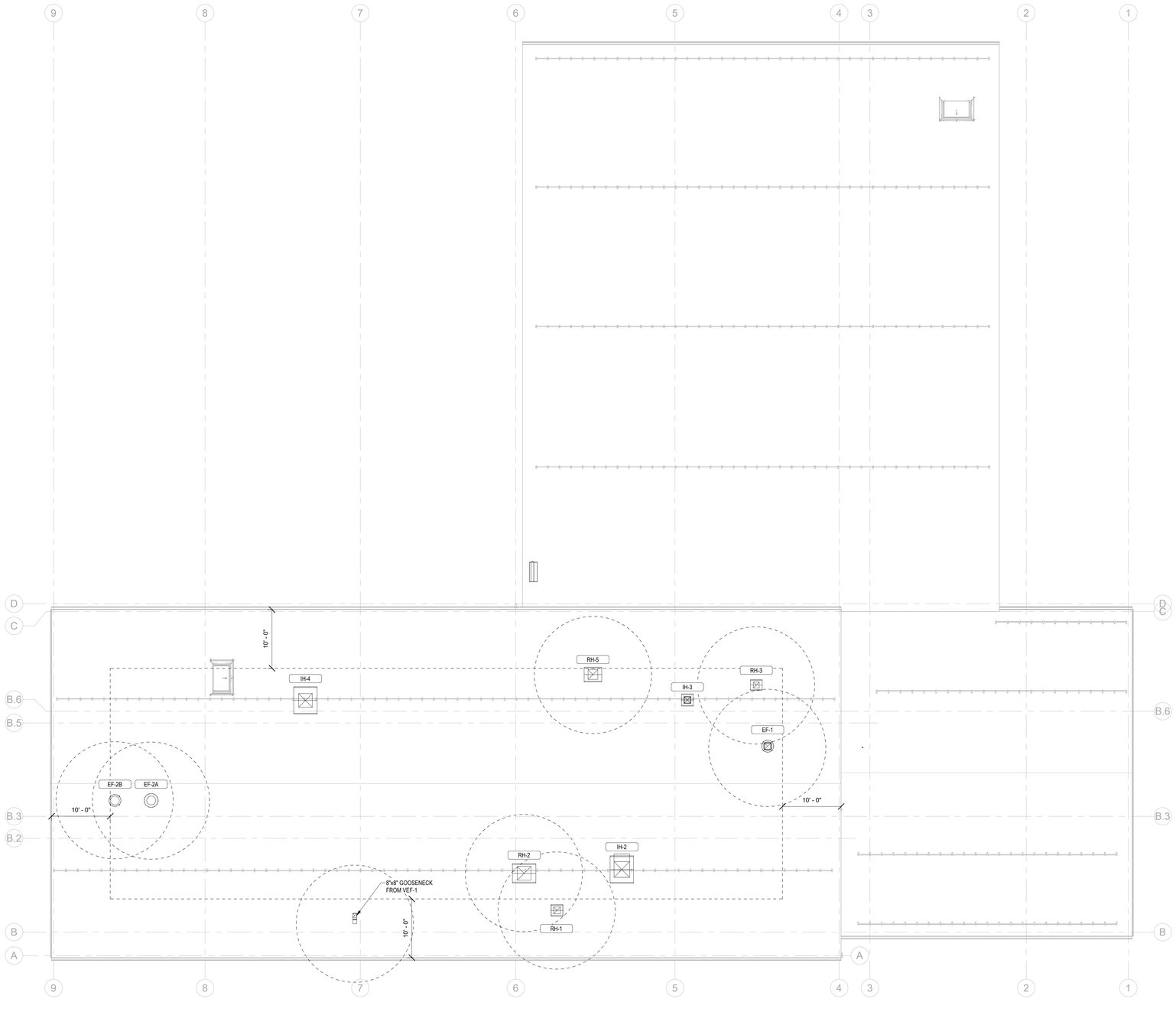
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Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

Drawing Title:

MEZZANINE DUCT PLAN - BID ALT 1

Sheet Number:

H102A



1 ROOF PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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

Key Plan:

NORTH

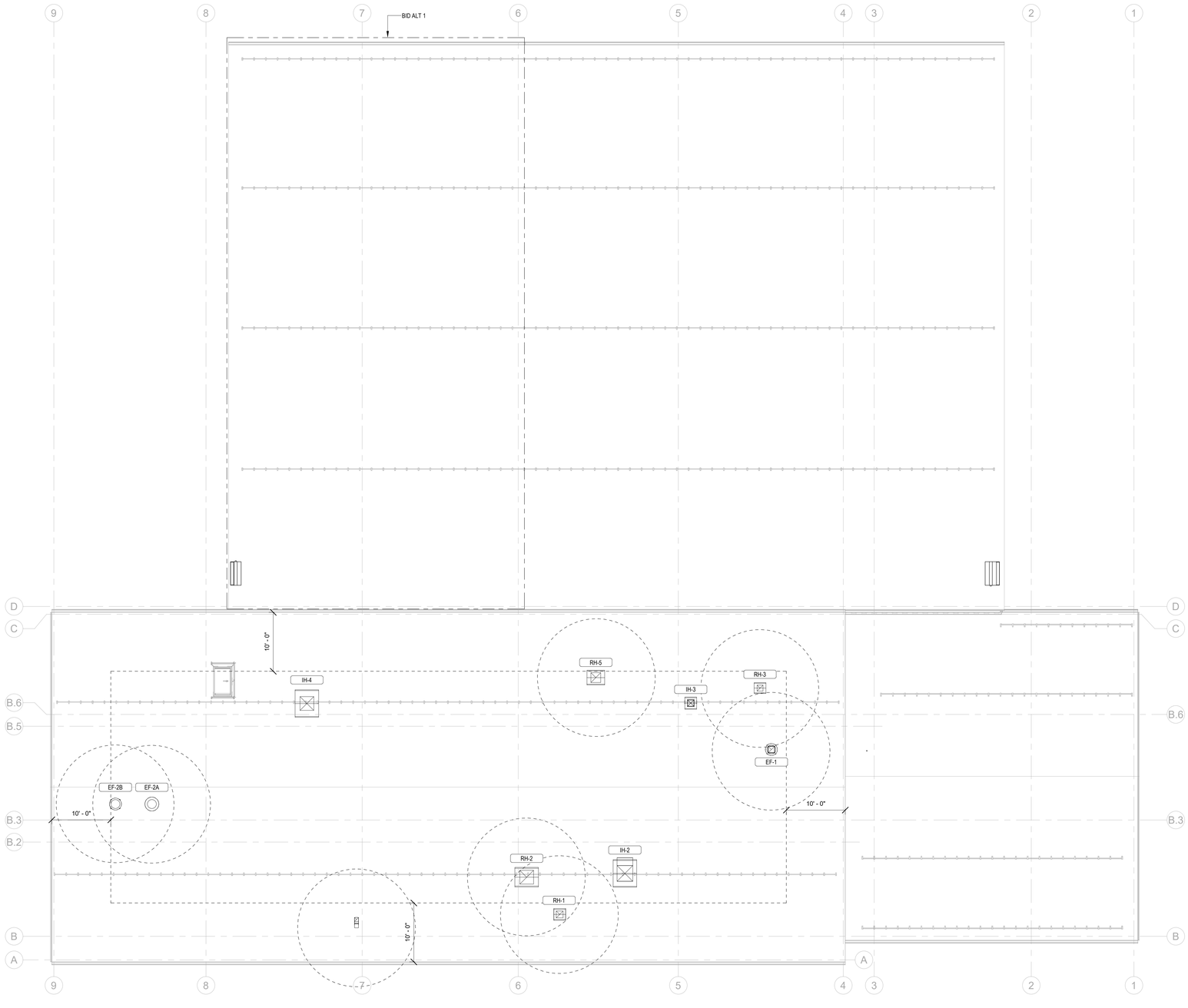
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Drawing Title:

ROOF PLAN - BASE BID

Sheet Number:

H103



1 ROOF PLAN - BID ALT 1
1/8" = 1'-0"

0 4' 8' 16'

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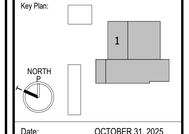
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Scale: 1/8" = 1'-0"

Key Plan:



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Drawing Title:

ROOF PLAN - BID ALT 1

Sheet Number:

H103A

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

0 4' 8' 16'

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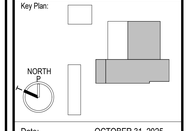
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Key Plan:



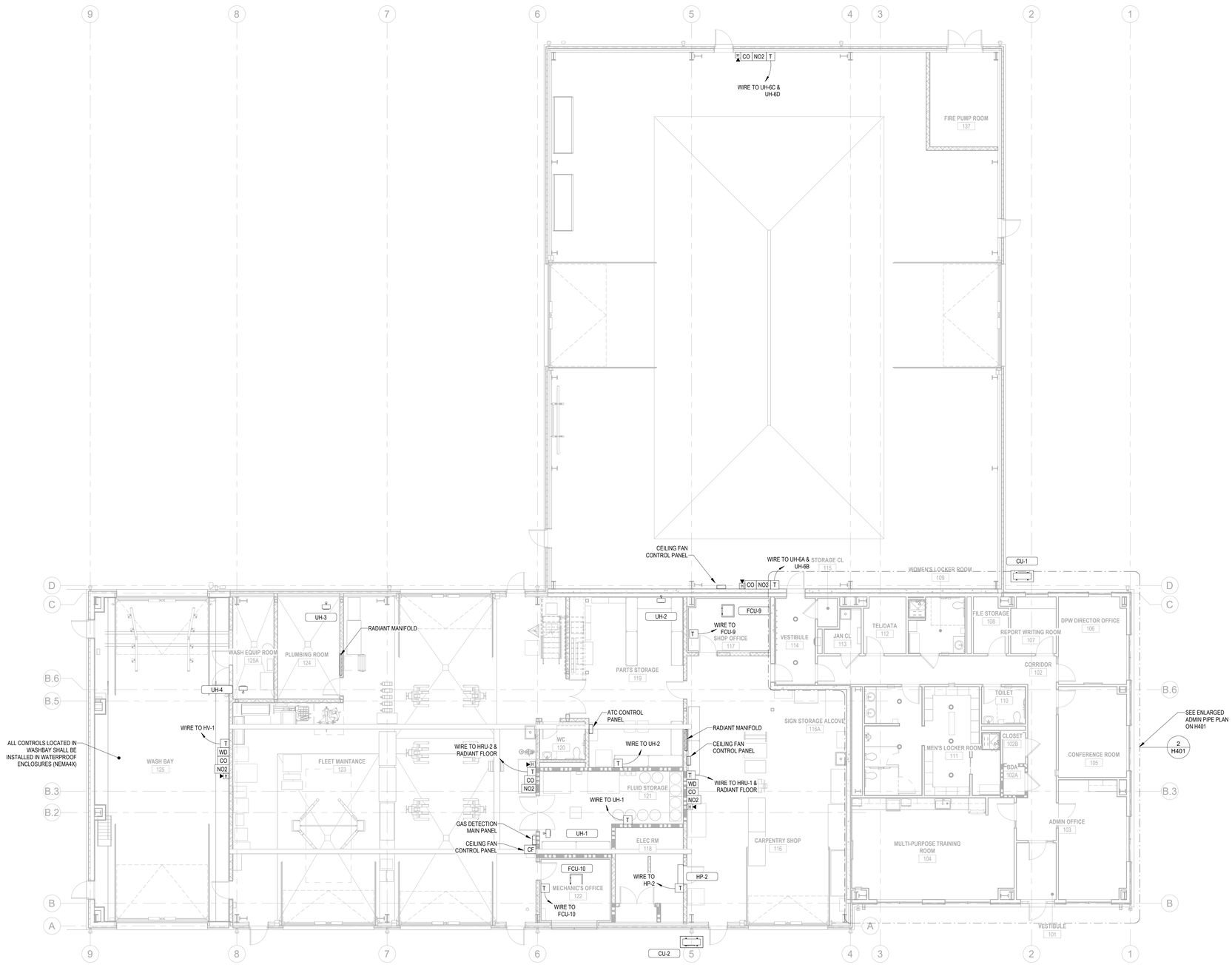
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Drawn By:	JCG
Reviewed By:	HJH
Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

Drawing Title:

FIRST FLOOR
RADIANT PIPING PLAN

Sheet Number:

H200



1 FIRST FLOOR PIPE PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

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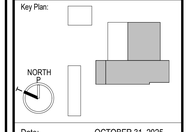
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Scale: 1/8" = 1'-0"

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	JCG
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Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

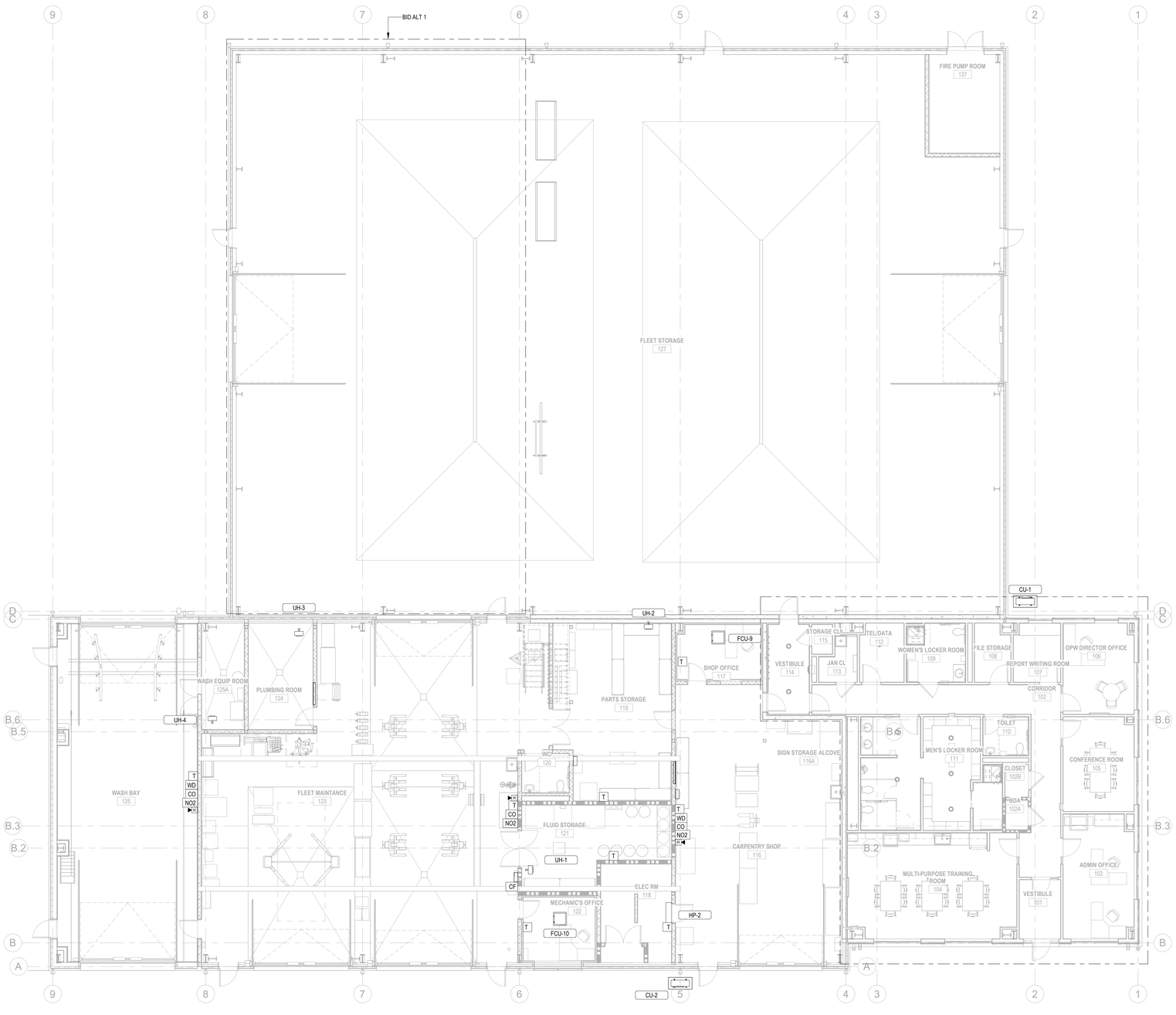
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FIRST FLOOR PIPING PLAN - BASE BID

Sheet Number:

H201

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1 FIRST FLOOR PIPE PLAN - BID ALT 1
1/8" = 1'-0"

0 4' 8' 16'

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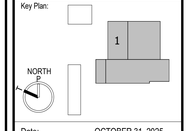
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Scale: 1/8" = 1'-0"

Key Plan:



Date:	OCTOBER 31, 2025
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W&S File No.:	XXX

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FIRST FLOOR PIPING PLAN - BID ALT 1

Sheet Number:

H201A



1 MEZZANINE PIPE PLAN - BASE BID
1/8" = 1'-0"

0 4' 8' 16'

Project:
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No.	Date	Description

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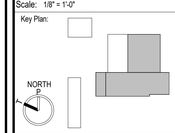
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DESIGN DEVELOPMENT

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

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	JCG
Reviewed By:	HJH
Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

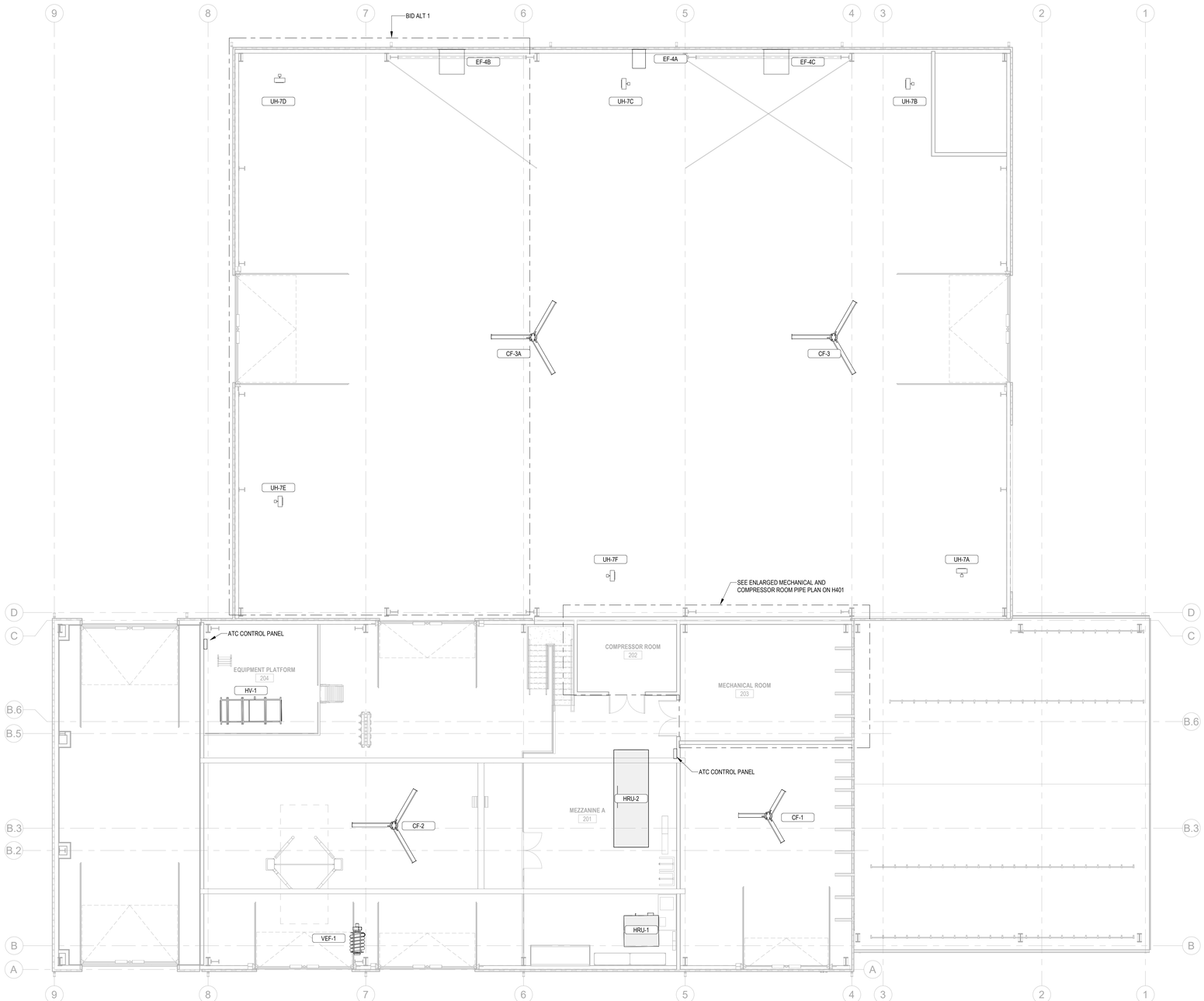
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MEZZANINE PIPING PLAN - BASE BID

Sheet Number:

H202

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1 MEZZANINE PIPE PLAN - BID ALT 1
1/8" = 1'-0"

0 4' 8' 16'

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

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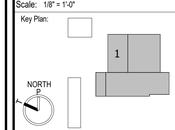
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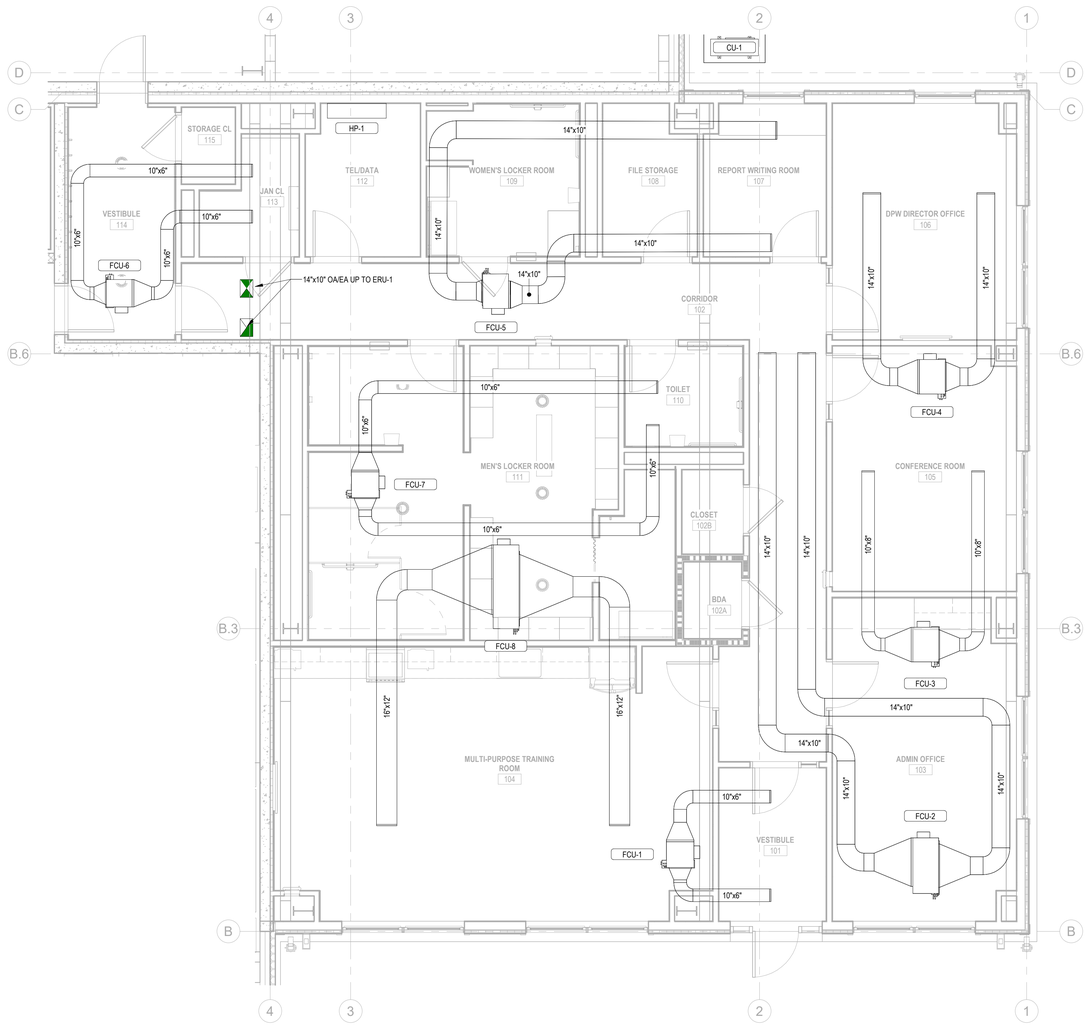
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MEZZANINE PIPING PLAN - BID ALT 1

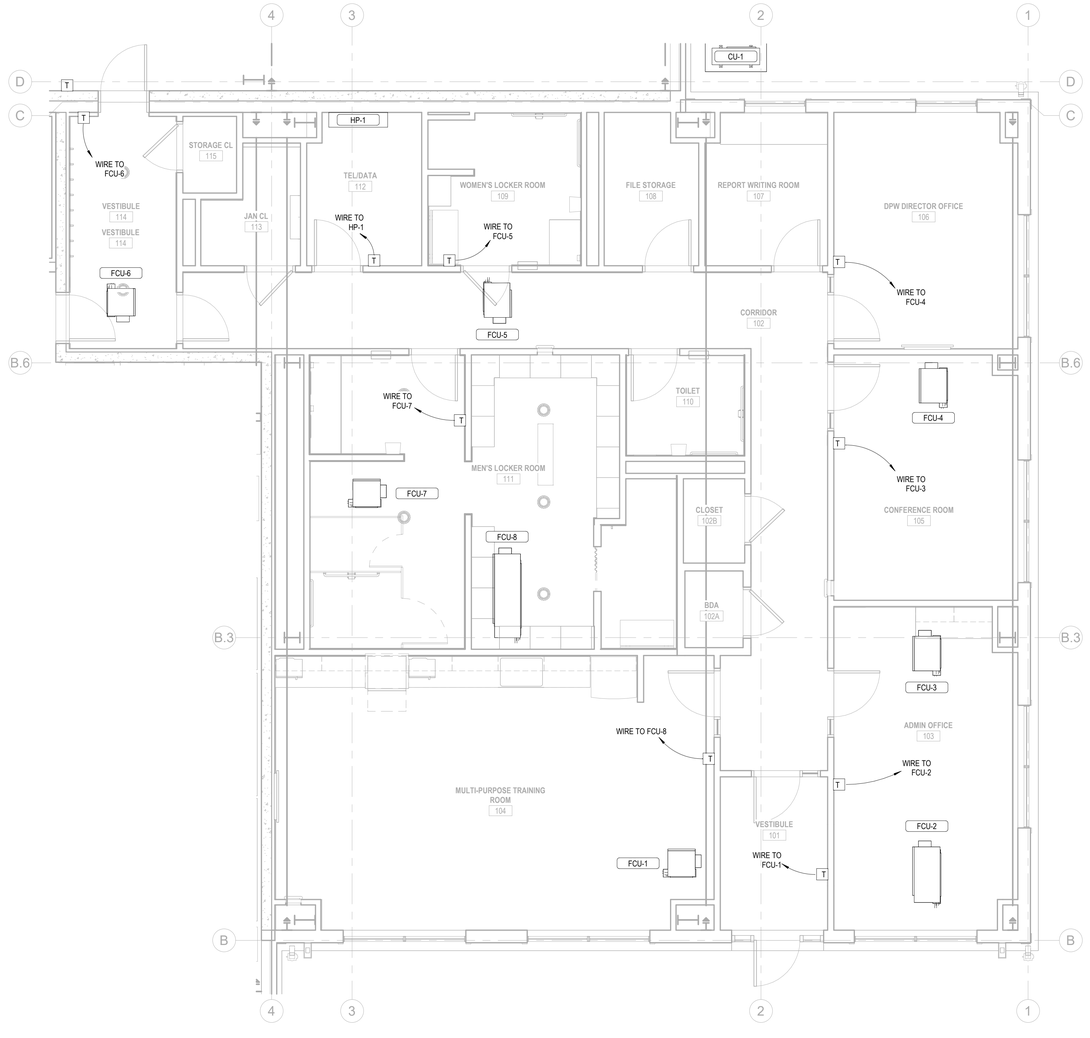
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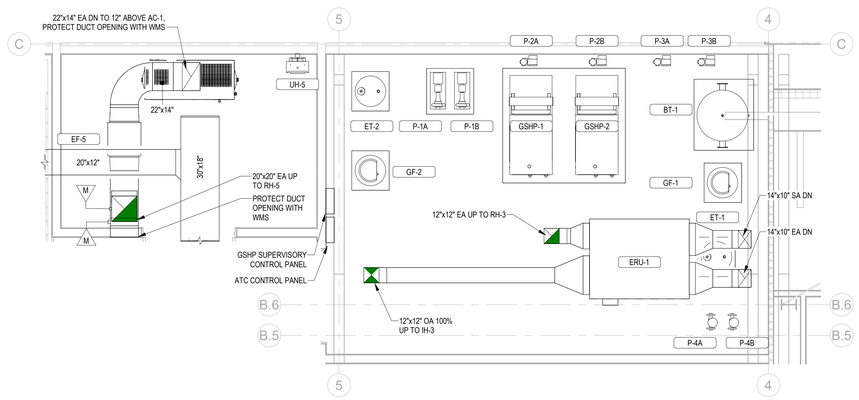
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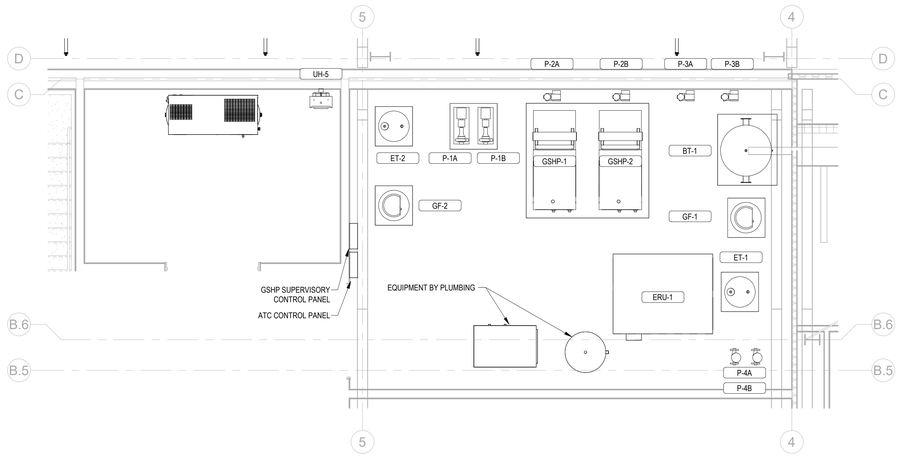
1 ENLARGED ADMIN DUCT PLAN
1/4" = 1'-0" 1/ H101



2 ENLARGED ADMIN PIPE PLAN
1/4" = 1'-0" 1/ H201



3 ENLARGED MECHANICAL AND COMPRESSOR ROOM DUCT PLAN
1/4" = 1'-0" 1/ H102



4 ENLARGED MECHANICAL AND COMPRESSOR ROOM PIPE PLAN
1/4" = 1'-0" 1/ H202

0 2" 4" 8"

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

Key Plan:

NORTH

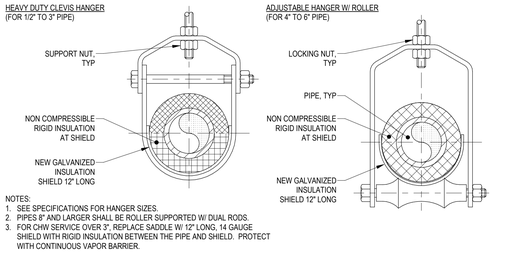
Date:	OCTOBER 31, 2025
Drawn By:	JCG
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W&S File No.:	XXX

Drawing Title:

ENLARGED FLOOR PLANS

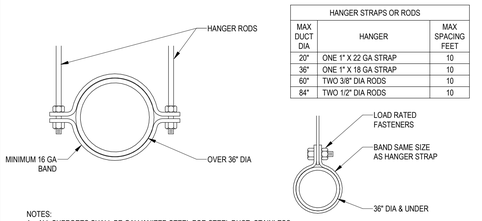
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H401



NOTES:
1. SEE SPECIFICATIONS FOR HANGER SIZES.
2. PIPES 8" AND LARGER SHALL BE ROLLER SUPPORTED W/ DUAL RODS.
3. FOR CHW SERVICE OVER 3", REPLACE SADDLE W/ 12" LONG, 14 GAUGE SHIELD WITH RIGID INSULATION BETWEEN THE PIPE AND SHIELD. PROTECT WITH CONTINUOUS VAPOR BARRIER.

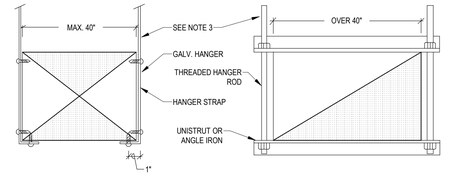
1 H501 PIPE HANGER SUPPORT
NOT TO SCALE



HANGER STRAPS OR RODS		
MAX DUCT DIA	HANGER	MAX SPACING FEET
20"	ONE 1" X 22 GA STRAP	10
36"	ONE 1" X 18 GA STRAP	10
60"	TWO 3/8" DIA RODS	10
84"	TWO 1/2" DIA RODS	10

NOTES:
1. ALL SUPPORTS SHALL BE GALVANIZED STEEL FOR STEEL DUCT, STAINLESS STEEL FOR STAINLESS STEEL DUCT, OR ALUMINUM FOR ALUMINUM DUCT.
2. HANGERS MUST NOT DEFORM DUCT SHAPE.
3. ATTACHEMENTS TO STRUCTURE SHALL BE PER SMACNA.

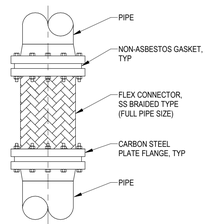
2 H501 ROUND METAL DUCT HANGERS
NOT TO SCALE



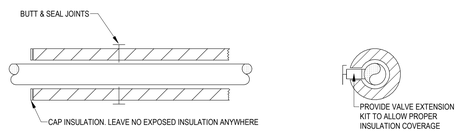
NOTES:
1. ON DUCTS OVER 48" WIDE, BOTTOM SHALL BE BRACED BY ANGLE. FOR CROSS SECTION AREA MORE THEN 8 SQ FT, DUCT SHALL BE BRACED BY ANGLES ON ALL FOUR SIDES.
2. CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION.
3. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.

3 H501 DUCT HANGER SUPPORT
NOT TO SCALE

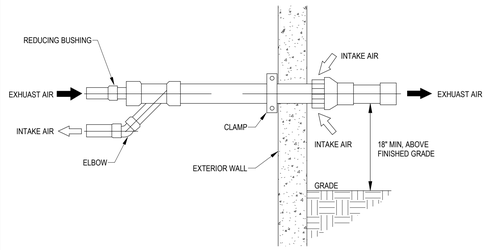
NOTES:
1. SEE SPECIFICATION FOR ADDITIONAL INFORMATION.
2. SEE PLANS AND DETAILS FOR FLEXIBLE CONNECTION LOCATIONS.
3. PROVIDE SS BRAIDED TYPE FLEXIBLE CONNECTOR FOR ALL SIZES. PROVIDE DOUBLE SPHERE EPDM TYPE FLEXIBLE CONNECTOR IF THE LEAD TIME FOR THE SS BRAIDED TYPE FLEIBLE CONNECTOR IS LONGER THAN 6 WEEKS.



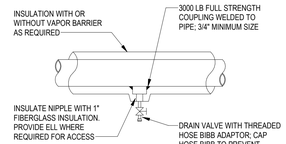
4 H501 FLEXIBLE CONNECTORS, UP TO 16"
NOT TO SCALE



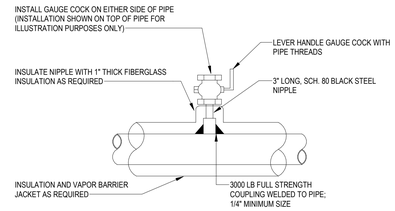
5 H501 TYPICAL PIPE INSULATION & VALVE HANDLE EXTENSION
NOT TO SCALE



6 H501 SIDEWALL CONCENTRIC TERMINATION DETAIL
NOT TO SCALE

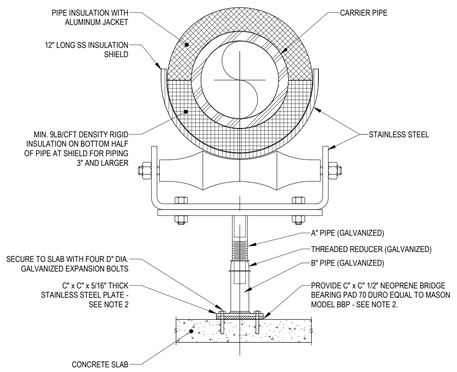


7 H501 DRAIN VALVE INSTALLATION
NOT TO SCALE



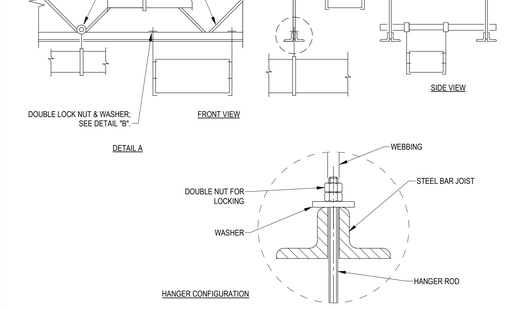
8 H501 GAUGE COCK INSTALLATION
NOT TO SCALE

	PIPE SIZES (IN)		PLATE INFO (IN)	
SIZE (IN)	A (MIN)	B (MIN)	C (MIN)	D (MIN)
UP TO 3	2	2 1/2	9	1/2
4 TO 12	2 1/2	3	9	5/8
14 TO 16	3	4	11	3/4
18 AND LARGER	4	6	13 1/2	1



NOTES:
1. ADJUST HEIGHT OF SUPPORTS FOR ZERO STRESS ON ADJACENT FLANGES.
2. FOR SUPPORTS FOR PIPING WITHIN 10 FEET OF EQUIPMENT, PROVIDE A SECOND LAYER OF STAINLESS STEEL PLATE AND PAD.
3. PIPE ROLLER AND HARDWARE SHALL BE STAINLESS STEEL.

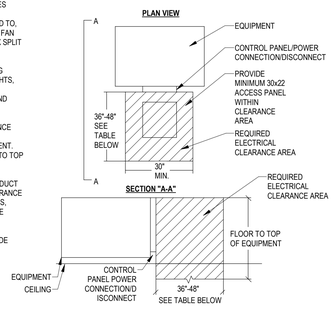
9 H501 ADJUSTABLE FLOOR PIPE ROLLER SUPPORT
NOT TO SCALE



NOTES:
1. ALL DETAILS SHOWN SHALL BE SUBMITTED AS SHOP DRAWINGS AND SHALL BE REVIEWED BY THE RIGISTERED STRUCTURAL ENGINEER.
2. WHERE POSSIBLE ALL HANGERS SHALL BE SUSPENDED FROM WF BEAMS IN LIEU OF FROM JOIST.
3. EQUIPMENT SHALL NOT BE HUNG FROM STEEL DECK OR FROM BRIDGING ANGLES.
4. HANGERS & SUPPORTING MEMBERS SUCH AS PIPES & UNISTRUT SHALL BE LOCATED AT PANEL POINTS OF JOIST & SHALL BE SUPPORTED BY BAR JOISTS & NOT DIRECTLY BY WEBBING; COORDINATE WITH STRUCTURAL ENGINEER.
5. THE SUM OF ALL BUILDING TRADES HANGER LOADS SHALL NOT EXCEED 250 LBS. PER JOIST. WHEN THIS MAXIMUM IS EXCEEDED A DETAIL OF PROPOSED METHOD OF HANGING SHALL BE SUBMITTED FOR APPROVAL.
6. THIS CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES CONCERNED.
7. PROVIDE APPROVED TYPE PIPE OR CHANNEL MEMBERS TO SUPPORT DUCTWORK AND OTHER EQUIPMENT LOADS.
8. ECCENTRIC BEAM CLAMPS WILL NOT BE ALLOWED.
9. AT FIRE RATED PARTITIONS, ADD ADDITIONAL LAYER OF FIRE SAFIN INSULATION AROUND PENETRATION SO AS TO FILL CAVITY.
10. DUCT PENETRATIONS THRU CORRIDOR WALLS ABOVE THE CEILING ARE TO BE "FIRE STOPPED" AROUND THE PENETRATION.

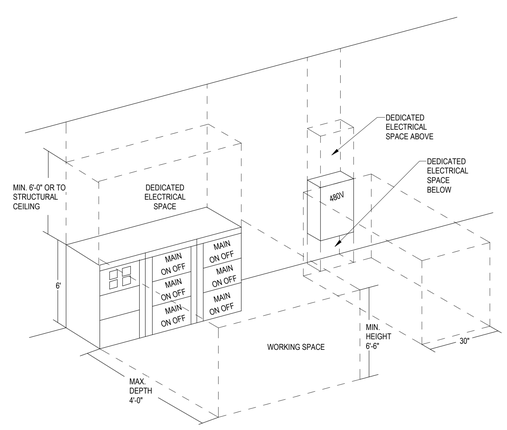
10 H501 OPEN WEB JOIST DUCT SUPPORT
NOT TO SCALE

NOTES:
1. DETAIL APPLIES TO ALL MECHANICAL EQUIPMENT LOCATED ABOVE A CEILING THAT REQUIRES POWER, INCLUDING CONTROL POWER. EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, FAN POWERED BOXES, VAV BOXES, FANS, FAN COIL UNITS, HEAT PUMPS, CRAC UNITS, DX SPLIT SYSTEMS, DUCT HEATERS, ETC.
2. ELECTRICAL CLEARANCE AREA (INCLUDING WITHIN CEILING) MUST BE FREE FROM LIGHTS, SPRINKLER HEADS, FIRE ALARM DEVICES, SPEAKERS, PIPING, DUCTWORK, BEAMS AND OTHER OBSTRUCTIONS.
3. THE HEIGHT OF THE ELECTRICAL CLEARANCE SHALL BE AS REQUIRED TO INSTALL AND PERFORM MAINTENANCE ON THE EQUIPMENT. MINIMUM HEIGHT SHALL BE FROM FLOOR TO TOP OF EQUIPMENT.
4. REFER TO SPECIFIC MANUFACTURER PRODUCT DATA FOR ADDITIONAL ACCESS AND CLEARANCE REQUIREMENTS FOR FANS, COMPRESSORS, VALVES, DAMPERS, FILTERS, ETC. PROVIDE ACCESS PANELS AS REQUIRED.
5. COORDINATE WITH ALL TRADES TO PROVIDE THESE MINIMUM REQUIRED CLEARANCES



MINIMUM ELECTRICAL CLEARANCES (NEC 2021 COMPLIANCE)			
VOLTAGE TO GROUND (SINGLE PHASE VOLTAGE)	CONDITION 1	CONDITION 2	CONDITION 3
0-150	36"	36"	36"
151-600	36"	42"	48"
CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARRTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS. CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE NOTE: CLEARANCE WIDTH SHALL BE 30" OR THE WIDTH OF THE CONTROL PANEL/POWER CONNECTION, WHICHEVER IS GREATER			

11 H501 ELECTRICAL CLEARANCE ABOVE CEILING
NOT TO SCALE



NOTES:
1. NO EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION (PIPING, DUCTS, ETC) SHALL ENTER THE DEDICATED SPACE ABOVE OR BELOW ELECTRICAL POWER EQUIPMENT INCLUDING SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, & MOTOR CONTROL CENTERS.
2. NO EQUIPMENT SHALL PROTRUDE INTO WORKING SPACE.
3. PIPING SYSTEMS INSTALLED ABOVE THE DEDICATED ELECTRICAL SPACE SHALL BE ALLOWED WHERE DRIP PANS ARE INSTALLED TO CAPTURE LEAKS, RUPTURES OR CONDENSATION DRIPS. THE PIPING AND DRIP PANS SHALL BOTH BE OUTSIDE THE DEDICATED SPACE ENVELOPE.

12 H501 ELECTRICAL EQUIPMENT CLEARANCES AND DEDICATED SPACE
NOT TO SCALE

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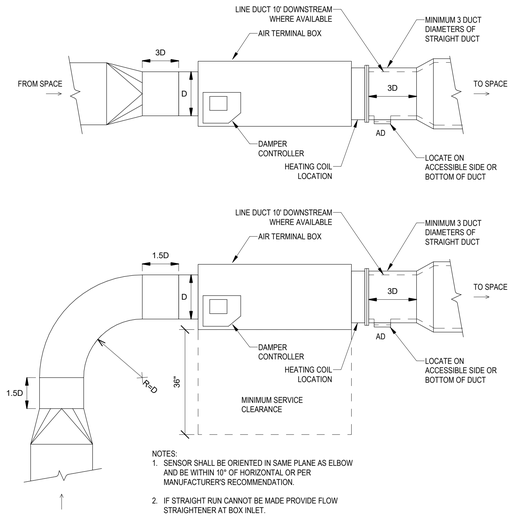
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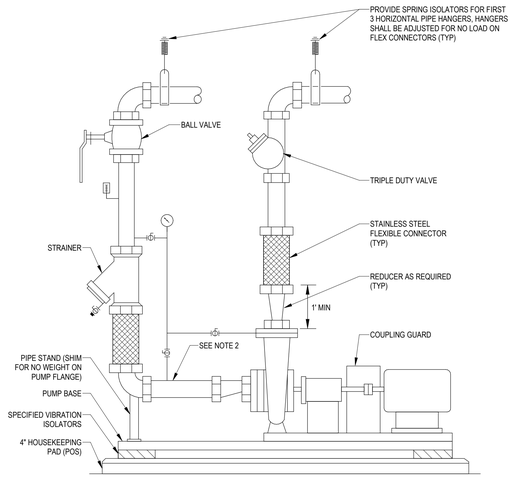
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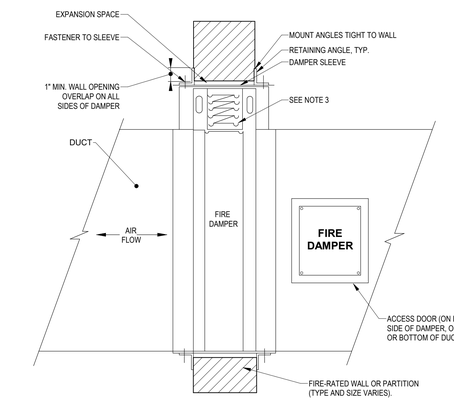
NOTES:
1. SENSOR SHALL BE ORIENTED IN SAME PLANE AS ELBOW AND BE WITHIN 10° OF HORIZONTAL OR PER MANUFACTURER'S RECOMMENDATION.
2. IF STRAIGHT RUN CANNOT BE MADE PROVIDE FLOW STRAIGHTENER AT BOX INLET.
3. BOX ORIENTATION FOR SUPPLY AND RET/EXH IS DIFFERENT. VELOCITY SENSOR MUST BE IN CORRECT ORIENTATION.

1 H502 — AIR TERMINAL BOX CONNECTIONS (HARD DUCTED)
NOT TO SCALE



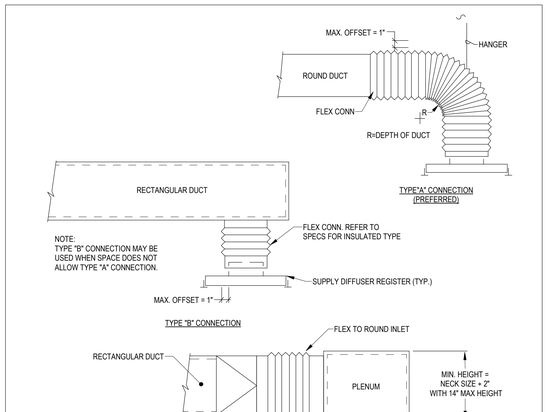
NOTES:
1. PROVIDE ABRASIVE SEPERATORS FOR MECHANICAL SEALS (NOT SHOWN FOR CLARITY).
2. PROVIDE A 10X DIAMETER INLET NIPPLE. IF SPACE DOES NOT PERMIT A 10X DIAMETER INLET NIPPLE, A FULL SIZE, NON-REDUCING SUCTION DIFFUSER SHALL BE USED TO REPLACE STRAINER AND ELBOW TO PROVIDE PROPER INLET FLOW TO PUMP. PROVIDE REDUCER BETWEEN DIFFUSER AND PUMP AS REQUIRED.

2 H502 — SMALL END SUCTION PUMP
NOT TO SCALE



NOTES:
1. WALL OPENING SHALL BE SIZED TO MAINTAIN MANUFACTURER'S REQUIRED EXPANSION SPACE AROUND DAMPER.
2. DAMPER BLADES SHALL BE OUT OF AIRSTREAM TYPE "3A,3B,7 OR 8" (SEE SMACNA FIRE DAMPER AND HEAT STOP GUIDE - 2ND EDITION PAGE 9 OR NEWER VERSION IF APPLICABLE) WHEN OPEN 100% FREE AREA IS REQUIRED. WHEN DUCT DIMENSIONS ARE LARGER THEN THE LARGEST AVAILABLE CURTAIN TYPE DAMPER (SHOWN), PROVIDE BLADE TYPE DAMPERS (SIMILAR TO FIRE/SMOKE DAMPERS). IF POWERED ACTIVATORS ARE REQUIRED, THE WIRING SHALL BE INCLUDED IN THE MECHANICAL CONTRACTOR'S COST.
3. PROVIDE SPRING LOADED CLOSURE FOR ALL FIRE DAMPERS.
4. WHEN DUCTWORK IS INSULATED OR LINED, PROVIDE INSULATED ACCESS DOOR.
5. ACCESS DOOR SHALL BE 12"x12" OR LARGER IF REQUIRED FOR FUSIBLE LINK REPLACEMENT.
6. TYPE "1" OR "2" FIRE DAMPERS (BLADES OR FROM IN AIR STREAM) MAY BE SUBSTITUTED FOR TYPE "3A OR 3B" WHERE VELOCITIES ARE UNDER 500 FPM IN LOW PRESSURE DUCT SYSTEMS ONLY.
7. INSTALLATION SHOWN AS AN EXAMPLE. SPECIFIC INSTALLATION REQUIREMENTS, INCLUDING BREAKAWAY CONNECTIONS, SHALL CONFORM WITH MANUFACTURER'S UL APPROVED INSTRUCTIONS.
8. NEW FIRE DAMPERS INSTALLATION IN EXISTING CONCRETE FLOORS SHALL BE RATED FOR "OUT OF FLOOR" APPLICATIONS WITH MINIMUM 18 GAUGE SLEEVE EXTENSION WITH INSULATION PROVIDED BY THE FIRE DAMPER MANUFACTURER.

3 H502 — FIRE DAMPER
NOT TO SCALE



NOTES:
- TYPE "C" CONNECTION AY BE USED WHEN SPACE DOS NOT ALLOW TYPE "A" OR "B" CONNECTIONS.
- BUCKLY ASSOCIATES DIFFUSER CONNECTION BOOT TRANSITION DCBTR MAY BE USED.

NOTES:
1. THESE DETAILS ALLOW DUCTWORK TO BE PROVIDED BEFORE CEILING GRID IS INSTALLED THEN DIFFUSER / REGISTER CAN BE POSITIONED INTO GRID.
2. PROVIDE INSULATED TRANSITION ROUND TO SQUARE IF REQUIRED AT DIFFUSER.
3. PROVIDE NYLON TY-WRAP TOOL OR REUSABLE SS DRAW BAND PER SPECS.
4. FLEX DUCT SHALL NOT HAVE MORE THAN 1/2" SAG PER FOOT.
5. LENGTH OF FLEX DUCT SHALL NOT EXCEEN 6'-0".
6. PROVIDE DUCT MOUNTED VOLUME DAMPER WHENEVER POSSIBLE. TRY TO AVOID NECK DAMPERS.

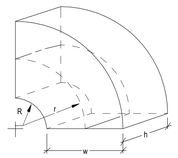
4 H502 — TYPICAL SUPPLY DIFFUSER/REGISTER DUCTWORK & CONNECTION
NOT TO SCALE

RADIUS ELBOW AND SPLITTER VANE REQUIREMENTS

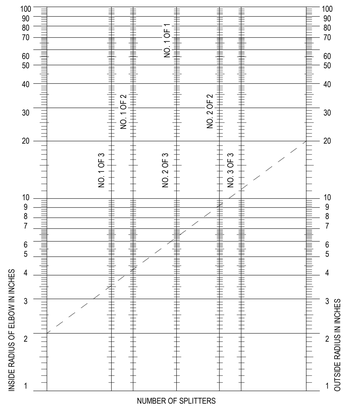
r/w RATIO:	NO. OF VANES FOR 1 ELBOW:	NO. OF VANES WHEN 2 ELBOWS ARE WITHIN 2 EQUIV. DIA.:
r/w >= 1.50	0	0
1.5 > r/w >= 0.70	1	1
0.7 > r/w >= 0.60	2	2
0.6 > r/w >= 0.55	3	3

EQUIVALENT DIAMETER = (w+h)/2

NOTES: r/w = 0.5 IS A SQUARE THROAT ELBOW! HOWEVER, MINIMUM INSIDE RADIUS R SHOULD BE 2".



r = CENTERLINE RADIUS
R = INSIDE RADIUS
w = DUCT WIDTH
h = DUCT HEIGHT

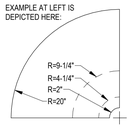


TERMINOLOGY:

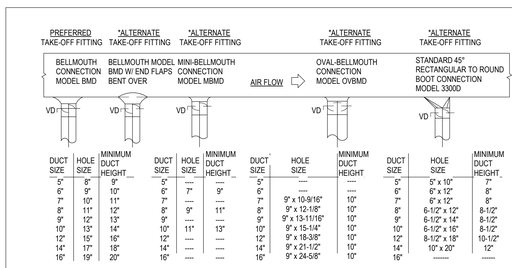
"NO. OF 3" = NO. 1 VANE OF TOTAL OF 3 VANES.

"NO. 2 OF 3" = NO. 2 VANE OF A TOTAL OF 3 VANES.

EXAMPLE AT LEFT IS DEPICTED HERE:



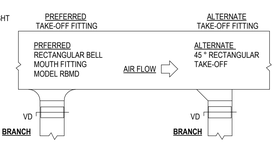
5 H502 — NUMBERING & SPACING OF DUCT SPLITTER VANES
NOT TO SCALE



ALTERNATE ROUND BRANCH DUCT TAKE-OFFS

* ALTERNATE FITTING'S TO BE USED WHEN DUCT HEIGHT DOES NOT PERMIT THE USE OF THE FULL SIZE BELLMOUTH

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
6 x 4	7.5 x 5.5	7.5
10 x 4	11.5 x 5.5	7.5
16 x 4	17.5 x 5.5	7.5
24 x 4	25.5 x 5.5	7.5
6 x 5	7.5 x 6.5	8.5
10 x 5	11.5 x 6.5	8.5
16 x 5	17.5 x 6.5	8.5
24 x 5	25.5 x 6.5	8.5
6 x 6	7.5 x 7.5	9.5
10 x 6	11.5 x 7.5	9.5
16 x 6	17.5 x 7.5	9.5
24 x 6	25.5 x 7.5	9.5
8 x 8	9.5 x 9.5	11.5
16 x 8	17.5 x 9.5	11.5
24 x 8	25.5 x 9.5	11.5
10 x 10	11.5 x 11.5	13.5
16 x 10	17.5 x 11.5	13.5
24 x 10	25.5 x 11.5	13.5

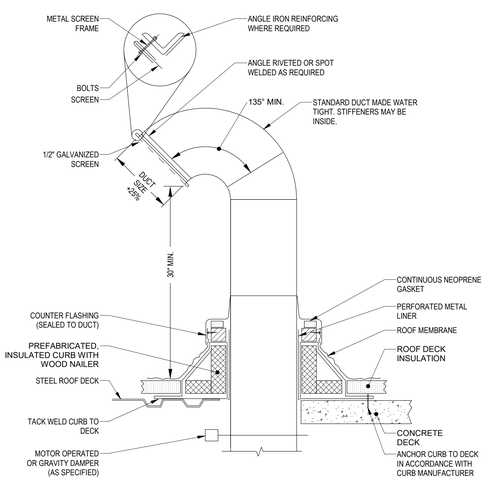


ALTERNATE RECTANGULAR BRANCH DUCT TAKE-OFF

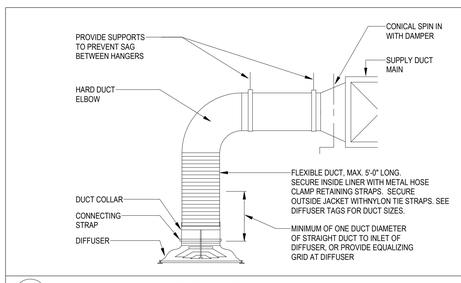
NOTES:
ALL ROUND AND RECTANGULAR BELLMOUTH FITTINGS SHALL BE INCLUDED WITH THE FOLLOWING STANDARD FEATURES:

1. NEOPREME GASKERT TO MINIMIZE AIR LEAKAGE.
2. PRE-DRILLED HOLES FOR WUICK MOUNTING.
3. CONSTRUCTED OF HEAVY GALVANIZED STEEL.
4. 26 GAUGE GALV. QUADRANT VOLUME DAMPER W/ TIGHT FITTING GASKETING TO MINIMIZE LEAKAGE AT DAMPER PIVOT POINTS. (FOR LOW PRESSURE DUCTWORK)

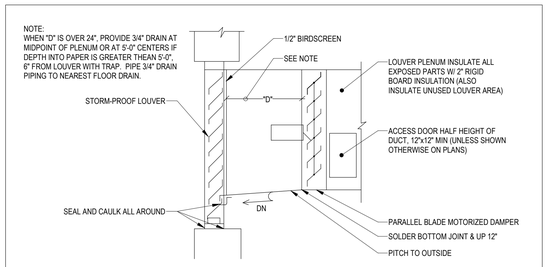
6 H502 — TYPICAL DUCT TAKE-OFF
NOT TO SCALE



7 H502 — GOOSENECK DETAIL
NOT TO SCALE



8 H502 — DIFFUSER FLEXIBLE DUCT CONNECTION
NOT TO SCALE



9 H502 — LOUVER CONNECTION
NOT TO SCALE

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

Scale: NTS

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JCG
Reviewed By:	HJH
Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

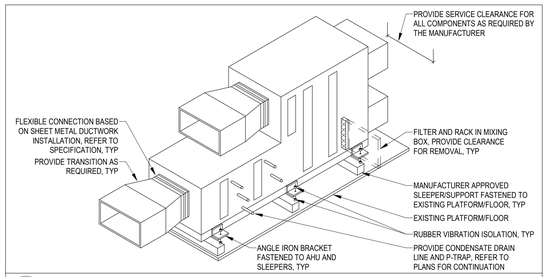
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DETAILS

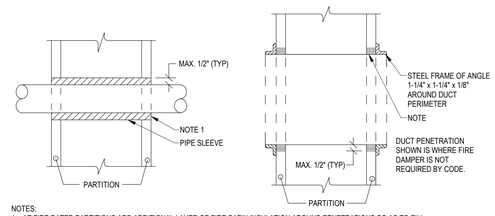
Sheet Number:

H502

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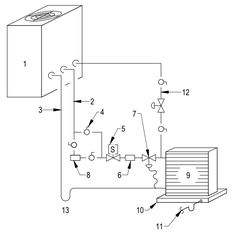


1 DOAS MOUNTING
H503 NOT TO SCALE



NOTES:
1. AT FIRE RATED PARTITIONS ADD ADDITIONAL LAYER OF FIRE SAFIN INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. DUCT AND PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.

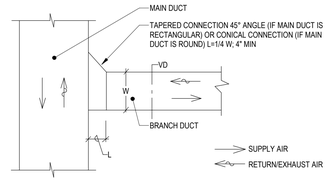
2 DUCT & PIPE WALL PENETRATIONS
H503 NOT TO SCALE



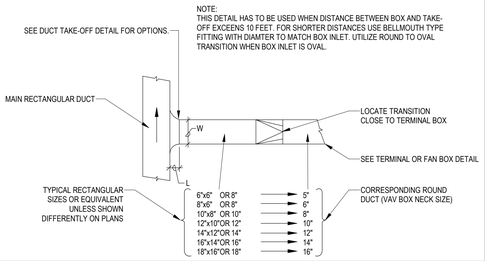
1. CONDENSING UNIT
2. LIQUID LINE
3. INSULATED SUCTION LINE
4. BALL SHUT-OFF VALVES
5. SOLENOID VALVE
6. SIGHT GLASS
7. THERMAL EXPANSION VALVE WITH EQUILIZER LINE
8. FILTER DRYER
9. COOLING COIL
10. DRAIN PAN
11. DRAIN LINE-TRAP & ROUTE TO NEAREST DRAIN
12. HOT GAS BYPASS LINE AND VALVE
13. TRAP

NOTES:
1. PIPING SHOWN IS FOR LEAD CIRCUIT. ADDITIONAL CIRCUITS ARE SIMILAR, EXCEPT NO HOT GAS BYPASS.
2. PIPE SIZING WITH UNIT MANUFACTURER BASED ON ACTUAL FIELD ROUTING.
3. PROVIDE BYPASS CIRCUIT, CONTROL EQUIPMENT, ANY REQUIRED DOUBLE SECTION RISERS TRAPS, AND APPURTENANCES AS RECOMMENDED SIZED AND DIAGRAMMED BY THE UNIT MANUFACTURER AND SUBMITTED, ALONG WITH CALCULATIONS AND SIZING CHARTS FOR ENGINEERS REVIEW.

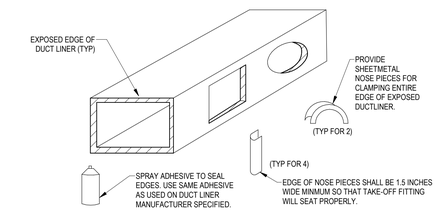
3 REFRIGERANT COMPONENT PIPING
H503 NOT TO SCALE



4 BRANCH TAKE-OFFS
H503 NOT TO SCALE

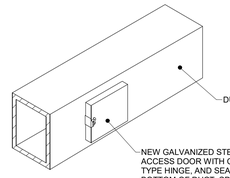


5 TAKE-OFFS TO TERMINAL UNITS
H503 NOT TO SCALE



6 SEALING & SECURING EXPOSED DUCTLINER
H503 NOT TO SCALE

NOTE:
REFER TO SPECIFICATIONS FOR CAMLOCK/HINGE REQUIREMENTS BASED ON SIZE OF ACCESS DOOR

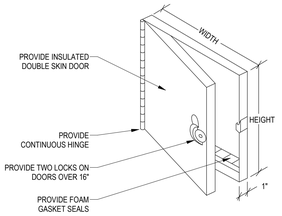


7 DUCT CLEANING ACCESS PANELS
H503 NOT TO SCALE

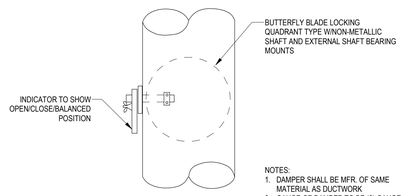
SCHEDULE FOR DUCTWORK ACCESS DOOR SIZES

DUCT WIDTH (INCHES)	ACCESS DOOR SIZE (INCHES)
< = 10	10 x 6
12 - 16	12 x 8
OVER 16	18 x 24

NOTES:
1. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
2. PROVIDE AT ALL DAMPERS, SMOKE DETECTORS, AND WHERE SPECIFIED FOR CLEANOUTS.

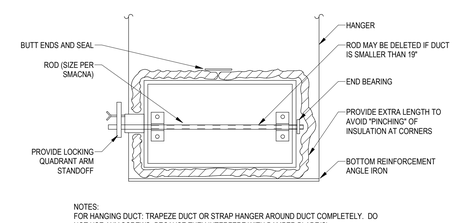


8 TYPICAL CLEANOUT/ ACCESS DOOR FOR RECTANGULAR DUCT
H503 NOT TO SCALE



NOTES:
1. DAMPER SHALL BE MFR. OF SAME MATERIAL AS DUCTWORK
2. GAUGE OF DAMPER TO BE (2) GAUGES HEAVIER THAN DUCTWORK

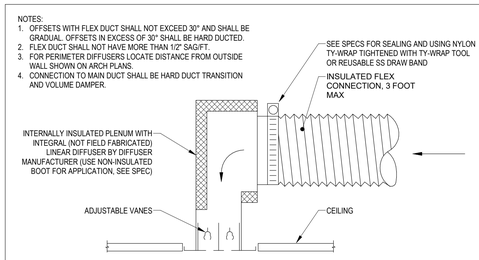
9 ROUND VOLUME DAMPER BELOW 14"ø - LOW PRESSURE
H503 NOT TO SCALE



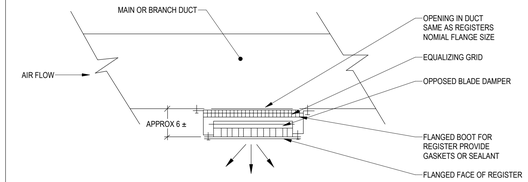
NOTES:
FOR HANGING DUCT: TRAPEZE DUCT OR STRAP HANGER AROUND DUCT COMPLETELY. DO NOT USE ANY SCREWS, BECAUSE THEY INTERFERE WITH DAMPER BLADE(S).

10 TYPICAL DUCT INSTALLATION & SUPPORT NEAR VOLUME DAMPER
H503 NOT TO SCALE

NOTES:
1. OFFSETS WITH FLEX DUCT SHALL NOT EXCEED 30" AND SHALL BE GRADUAL. OFFSETS IN EXCESS OF 30° SHALL BE HARD DUCTED.
2. FLEX DUCT SHALL NOT HAVE MORE THAN 1/2" SAG/FT.
3. FOR PERIMETER DIFFUSERS LOCATE DISTANCE FROM OUTSIDE WALL SHOWN ON ARCH PLANS.
4. CONNECTION TO MAIN DUCT SHALL BE HARD DUCT TRANSITION AND VOLUME DAMPER.



11 LINEAR DIFFUSER CONNECTION
H503 NOT TO SCALE



12 CLOSED COUPLED SUPPLY DUCT & REGISTER
H503 NOT TO SCALE

Project:
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Drawing Title:

DETAILS

Sheet Number:

H503

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HEAT RECOVERY UNIT SCHEDULE

ID	LOCATION NAME	NO	MANUFACTURER	MODEL NO.	SERVES	SUPPLY AIFLOW (CFM)	EXHAUST AIRFLOW (CFM)	EXHAUST FAN FAN TYPE	EXHAUST FAN PRESS ESP (IN WG)	EXHAUST FAN PRESS TSP (IN WG)	EXHAUST FAN DRIVE TYPE	EXHAUST FAN MOTOR HP	EXHAUST FAN MOTOR BHP	EXHAUST FAN MOTOR RPM	SUPPLY FAN FAN TYPE	SUPPLY FAN PRESS ESP (IN WG)	SUPPLY FAN PRESS TSP (IN WG)	SUPPLY FAN DRIVE TYPE	SUPPLY FAN MOTOR HP	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR RPM	HEATING COIL CAP (MBH)	HEATING COIL AIRSIDE EAT DB (°F)	HEATING COIL AIRSIDE LAT DB (°F)	HEATING COIL PD (IN WG)	HEATING COIL WATERSIDE FLOW (GPM)	HEATING COIL WATERSIDE EWT (°F)	HEATING COIL WATERSIDE LWT (°F)	HEATING COIL WATERSIDE PD (FT H2O)	HEATING COIL GLYCOL TYPE	HEATING COIL GLYCOL %	WINTER DESIGN HEAT RECOVERY TYPE	WINTER DESIGN HEAT RECOVERY RECOVERED HEATING CAP (MBH)	WINTER DESIGN HEAT RECOVERY OA/SA EAT DB (°F)	WINTER DESIGN HEAT RECOVERY OA/SA LAT DB (°F)	WINTER DESIGN HEAT RECOVERY RA/EA EAT DB (°F)	WINTER DESIGN HEAT RECOVERY RA/EA LAT DB (°F)	SOUND PRESS (dBa)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	NOTES
HRU-1	MEZZANINE A	201	OXYGEN 8	H10IN-HRV-BP	CARPENTRY SHOP	625	688	PLENUM	2.00	2.89	DIRECT	1.05		2595	PLENUM	2.30	4.00	DIRECT	0.82		2960	25	63.3	100.6	0.13	3.5	120	105	2.7	PG	30	SENSIBLE	32	17.0	63.3	70.0	27.9	75	614	8.1	9.1	15.0	208	1	
HRU-2	MEZZANINE A	201	OXYGEN 8	V40IN-HRV-BP	FLEET MAINTENANCE	3285	3650	PLENUM	2.00	3.34	DIRECT	3.34		2810	PLENUM	2.00	3.64	DIRECT	3.55		2802	89	62.0	87.7	0.11	12.4	120	105	12.7	PG	30	SENSIBLE	163	17.0	62.7	70.0	28.9	69	4250	16.6	17.0	20.0	460	3	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE DOUBLE WALL INSULATED CABINET, INSULATION SHALL BE 2" THICK INJECTED FOAM. PROVIDE HINGED ACCESS DOORS WITH SINGLE LEVER LATCH MECHANISM. EXTERIOR SHALL BE A WEATHER RESISTNT BAKED ENAMEL FINISH.
3. PROVIDE SENSIBLE HEAT PLATE AND FRAME AIR TO AIR HEAT EXHANGER.
4. PROVIDE FACTORY DAMPERS, FANS, MOTORS, VFDS, ACTUATORS, AND CONTROLS. PROVIDE WITH FACTORY BACNET CONNECTION.
5. PROVIDE SUPPLY AND EXHAUST AIR FILTERS-2" THICK MERV 13, PLEATED, DISPOSABLE TYPE. PROVIDE 4 SETS OF SPARE FILTERS.
6. PROVIDE UNIT WITH SINGLE POINT POWER AND DISCONNECT.
7. PROVIDE FACTORY STARTUP.
8. UNITS SHALL BE TESTED AND BALANCED WITH EXHAUST BALANCED AT +10% / 0%. EXHAUST RATES SHALL NOT BE LESS THAN SCHEDULED.
9. INSULATED ROOF CURBS SHALL BE PROVIDED BY METAL BUILDING CONTRACTOR. COORDINATE REQUIRED 24" HIGHT, DIMENSIONS, AND INSULATION THICKNESS. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS.
10. PROVIDE PREMIUM EFFICIENCY VFD MOTOR WITH SHAFT GROUNDING RINGS (WHERE APPLICABLE).
11. PROVIDE WITH 1 YEAR COMPLETE UNIT WARRANTY (PARTS AND LABOR) AND 5 YEAR EXTENDED PARTS WARRANTY.

ENERGY RECOVERY UNIT SCHEDULE

ID	LOCATION NAME	NO.	MANUFACTURER	MODEL NO.	SERVES	TYPE	ARRANGEMENT	SUPPLY FAN AIRFLOW SUPPLY (CFM)	SUPPLY FAN AIRFLOW OA (CFM)	SUPPLY FAN TYPE	SUPPLY FAN PRESS ESP (IN WC)	SUPPLY FAN PRESS TSP (IN WC)	SUPPLY FAN MOTOR QTY	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR RPM	EXHAUST FAN CFM	EXHAUST FAN TYPE	EXHAUST FAN PRESS ESP (IN WC)	EXHAUST FAN PRESS TSP (IN WC)	EXHAUST FAN MOTOR QTY	EXHAUST FAN MOTOR BHP	EXHAUST FAN MOTOR HP	EXHAUST FAN MOTOR RPM	SUMMER DESIGN ENERGY RECOVERY OUTSIDE AIR EAT DB (°F)	SUMMER DESIGN ENERGY RECOVERY SUPPLY AIR EAT DB (°F)	SUMMER DESIGN ENERGY RECOVERY RETURN AIR EAT DB (°F)	SUMMER DESIGN ENERGY RECOVERY EXHAUST AIR EAT DB (°F)	WINTER DESIGN ENERGY RECOVERY OUTSIDE AIR EAT DB (°F)	WINTER DESIGN ENERGY RECOVERY SUPPLY AIR EAT DB (°F)	WINTER DESIGN ENERGY RECOVERY RETURN AIR EAT DB (°F)	WINTER DESIGN ENERGY RECOVERY EXHAUST AIR EAT DB (°F)	HEATING COIL AIRSIDE EAT DB (°F)	HEATING COIL AIRSIDE LAT DB (°F)	HEATING COIL PD (IN WG)	HEATING COIL WATERSIDE FLOW (GPM)	HEATING COIL WATERSIDE EWT (°F)	HEATING COIL WATERSIDE LWT (°F)	HEATING COIL WATERSIDE PD (FT H2O)	HEATING COIL GLYCOL TYPE	HEATING COIL GLYCOL %	SOUND PRESS (dBa)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	NOTES
ERU-1	MECHANICAL ROOM	204	OXYGEN 8	H15IN-ERV-BP	ADMIN SPACE	VENTUM	HORIZONTAL	750	750	PLENUM		3.45	1	0.9	2531	650	PLENUM		3.26	1	3.4	2452	91.0	73.0	79.4	66.4	75.0	63.0	88.4	71.1	0.0	-1.0	50.5	38.4	50.0	50.0	11.7	20.8	18.6	50.5	73.4	0.05	2.6	120	105	4.4	PG	30	75	711	8.1	9.1	15.0	460	3	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE DOUBLE WALL INSULATED CABINET, INSULATION SHALL BE 2" THICK INJECTED FOAM. PROVIDE HINGED ACCESS DOORS WITH SINGLE LEVER LATCH MECHANISM. EXTERIOR SHALL BE A WEATHER RESISTNT BAKED ENAMEL FINISH.
3. PROVIDE ENERGY PLATE AND FRAME AIR TO AIR HEAT EXHANGER.
4. PROVIDE FACTORY DAMPERS, FANS, MOTORS,VFDS,ACTUATORS, AND CONTROLS. PROVIDE WITH FACTORY BACNET CONNECTION.
5. PROVIDE SUPPLY AND EXHAUST AIR FILTERS-2" THICK,MERV 13, PLEATED, DISPOSABLE TYPE. PROVIDE 4 SETS OF SPARE FILTERS.
6. PROVIDE UNIT WITH SINGLE POINT POWER AND DISCONNECT.
7. PROVIDE FACTORY STARTUP.
8. UNITS SHALL BE TESTED AND BALANCED WITH EXHAUST BALANCED AT +10% / 0%. EXHAUST RATES SHALL NOT BE LESS THAN SCHEDULED.
9. INSULATED ROOF CURBS SHALL BE PROVIDED BY METAL BUILDING CONTRACTOR. COORDINATE REQUIRED 24" HIGHT, DIMENSIONS, AND INSULATION THICKNESS. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS.
10. PROVIDE PREMIUM EFFICIENCY VFD MOTOR WITH SHAFT GROUNDING RINGS (WHERE APPLICABLE).
11. PROVIDE WITH 1 YEAR COMPLETE UNIT WARRANTY (PARTS AND LABOR) AND 5 YEAR EXTENDED PARTS WARRANTY.

FAN COIL UNIT SCHEDULE (CHW, HW)

ID	LOCATION NAME	NO	MANUFACTURER	MODEL NO.	SERVES	TYPE	ARRANGEMENT	OUTSIDE AIR DESIGN (CFM)	SUPPLY FAN AIRFLOW (CFM)	SUPPLY FAN PRESS ESP (IN WG)	SUPPLY FAN PRESS TSP (IN WG)	SUPPLY FAN DRIVE TYPE	SUPPLY FAN MOTOR QTY	SUPPLY FAN MOTOR HP	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR RPM	SUPPLY FAN MOTOR ECM	COOLING COIL NOMINAL CAP (TONS)	COOLING COIL CAP TOTAL (MBH)	COOLING COIL CAP SENSIBLE (MBH)	COOLING COIL AIRSIDE EAT DB (°F)	COOLING COIL AIRSIDE EAT WB (°F)	COOLING COIL AIRSIDE LAT DB (°F)	COOLING COIL AIRSIDE LAT WB (°F)	COOLING COIL AIRSIDE PD (IN WG)	COOLING COIL WATERSIDE FLOW (GPM)	COOLING COIL WATERSIDE EWT (°F)	COOLING COIL WATERSIDE LWT (°F)	COOLING COIL WATERSIDE PD (FT HD)	COOLING COIL GLYCOL TYPE	COOLING COIL GLYCOL %	HEATING COIL AIRSIDE CAP (MBH)	HEATING COIL AIRSIDE EAT DB (°F)	HEATING COIL AIRSIDE LAT DB (°F)	HEATING COIL AIRSIDE PD (IN WG)	HEATING COIL WATERSIDE FLOW (GPM)	HEATING COIL WATERSIDE EWT (°F)	HEATING COIL WATERSIDE LWT (°F)	HEATING COIL WATERSIDE PD (FT HD)	HEATING COIL GLYCOL TYPE	HEATING COIL GLYCOL %	SOUND PRESSURE (dBa)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	NOTES
FCU-1	VESTIBULE	101	DAIKIN APPLIED	FCHH202	ZONE 1	HIDEAWAY	HORIZONTAL	0	200	0.50			1	0.25			Yes		4.8	4.2	75.0	63.0	55.8	54.8		0.8	42	54	0.7	PG	30	4.1	70.0	88.9		0.6	120	105	1.3	PG	30	58	56		4.4		115	1	
FCU-2	ADMIN OPEN OFFICE	103	DAIKIN APPLIED	FCHH206	ZONE 2	HIDEAWAY	HORIZONTAL	55	500	0.50			1	0.25			Yes		10.5	9.7	75.0	63.0	57.3	56.0		1.8	42	54	2.8	PG	30	7.9	70.0	84.4		1.1	120	105	2.1	PG	30	62	94		4.4		115	1	
FCU-3	CONFERENCE ROOM	105	DAIKIN APPLIED	FCHH204	ZONE 3	HIDEAWAY	HORIZONTAL	55	350	0.50			1	0.30			Yes		8.1	7.4	75.0	63.0	55.6	55.2		1.4	42	54	1.8	PG	30	4.3	70.0	81.3		0.6	120	105	1.2	PG	30	58	76		4.4		115	1	
FCU-4	DPW DIRECTOR OFFICE	106	DAIKIN APPLIED	FCHH204	ZONE 4	HIDEAWAY	HORIZONTAL	35	410	0.50			1	0.25			Yes		7.1	7.1	75.0	63.0	59.2	57.3		1.2	42	54	1.1	PG	30	7.9	70.0	87.5		1.1	120	105	4.7	PG	30	59	76		4.4		115	1	
FCU-5	CORRIDOR	102	DAIKIN APPLIED	FCHH202	ZONE 5	HIDEAWAY	HORIZONTAL	140	175	0.50			1	0.25			Yes		3.0	2.8	75.0	63.0	60.5	57.3		0.5	42	54	0.3	PG	30	3.7	70.0	89.4		0.5	120	105	1.1	PG	30	58	56		4.4		115	1	
FCU-6	VESTIBULE	114	DAIKIN APPLIED	FCHH202	ZONE 6	HIDEAWAY	HORIZONTAL	0	255	0.50			1	0.25			Yes		3.6	3.3	75.0	63.0	63.1	58.4		0.6	42	54	0.4	PG	30	6.1	70.0	92.0		0.9	120	105	1.1	PG	30	59	56		4.4		115	1	
FCU-7	MEN'S LOCKER ROOM	111	DAIKIN APPLIED	FCHH202	ZONE 7	HIDEAWAY	HORIZONTAL	250	200	0.50			1	0.25			Yes		3.2	3.0	75.0	63.0	61.3	57.6		0.6	42	54	0.3	PG	30	4.1	70.0	88.9		0.6	120	105	1.3	PG	30	58	56		4.4		115	1	
FCU-8	MULTI-PURPOSE TRAINING ROOM	104	DAIKIN APPLIED	FCHH210	ZONE 8	HIDEAWAY	HORIZONTAL	160	1050	0.50			2	0.25			Yes		18.0	18.0	75.0	63.0	59.3	57.6		3.2	42	54	2.6	PG	30	14.1	70.0	82.3		2.0	120	105	2.6	PG	30	65	134		8.8		115	1	
FCU-9	SHOP OFFICE	127	TOSHIBA CARRIER	MMU-AP007	ZONE 9	CASSETTE	HORIZONTAL	25	320	0.00			1				No	1.0 ton	6.0	3.8	80.0	71.0	70.0	66.1	0.01	1.1	42	54	10.2	PG	30	12.7	50.0	86.2	0.01	1.7	120	105	23.2	PG	30		51	0.4	0.5	1	208	1	
FCU-10	MECHANICS OFFICE	122	TOSHIBA CARRIER	MMU-AP007	ZONE 10	CASSETTE	HORIZONTAL	50	320	0.00			1				No	1.0 ton	6.0	3.8	80.0	71.0	70.0	66.1	0.01	1.1	42	54	10.2	PG	30	12.7	50.0	86.2	0.01	1.7	120	105	23.2	PG	30		51	0.4	0.5	1	208	1	

HEAT & VENTILATION SCHEDULE

ID	LOCATION NAME	NO	MANUFACTURER	MODEL NO.	SERVES	SUPPLY AIFLOW (CFM)	EXHAUST AIRFLOW (CFM)	EXHAUST FAN FAN TYPE	EXHAUST FAN PRESS ESP (IN WG)	EXHAUST FAN PRESS TSP (IN WG)	EXHAUST FAN RPM	EXHAUST FAN DRIVE TYPE	EXHAUST FAN MOTOR HP	EXHAUST FAN MOTOR BHP	EXHAUST FAN MOTOR RPM	SUPPLY FAN FAN TYPE	SUPPLY FAN PRESS ESP (IN WG)	SUPPLY FAN PRESS TSP (IN WG)	SUPPLY FAN RPM	SUPPLY FAN DRIVE TYPE	SUPPLY FAN MOTOR HP	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR RPM	HEAT COIL CAP (MBH)	HEAT COIL AIRSIDE EAT DB (°F)	HEAT COIL AIRSIDE LAT DB (°F)	HEAT COIL AIRSIDE PD (IN WG)	HEAT COIL WATERSIDE FLOW (GPM)	HEAT COIL WATERSIDE EWT (°F)	HEAT COIL WATERSIDE LWT (°F)	HEAT COIL WATERSIDE PD (FT H2O)	HEAT COIL GLYCOL TYPE	HEAT COIL GLYCOL %	SOUND PRESS (dBa)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	NOTES
HV-1	EQUIPMENT PLATFORM	204	DAIKIN APPLIED	CAH	WASHBAY	2500	2500	PLENUM	2.00	2.65	1976	DIRECT	2.00		1750		2.00	3.54	2198	DIRECT	3.00		1750	61	50.4	72.6	0.22	8.4	120	105	2.6	PG	30	75	2300	4.2			460	3	

DUCTLESS SPLIT HEAT PUMP SCHEDULE

ID	LOCATION NAME	NO	MANUFACTURER	MODEL NO.	SERVES	TYPE	ARRANGEMENT	FAN AIRFLOW SUPPLY (CFM)	FAN AIRFLOW OA (CFM)	COOLING COIL NOMINAL CAP (TONS)	COOLING COIL CAP TOTAL (MBH)	COOLING COIL CAP SENSIBLE (MBH)	COOLING COIL AIRSIDE EAT DB (°F)	COOLING COIL AIRSIDE EAT WB (°F)	COOLING COIL AIRSIDE LAT DB (°F)	COOLING COIL AIRSIDE LAT WB (°F)	HEATING COIL CAP (MBH)	HEATING COIL AIRSIDE EAT DB (°F)	HEATING COIL AIRSIDE LAT DB (°F)	REFRIGERANT TYPE	SOUND PRESS LEVEL (dB)	WEIGHT (lb)	ELECTRICAL V	ELECTRICAL PH	NOTES
HP-1	TEL/DATA	112	Mitsubishi Electric	PKA-A24KA7		WALL	HORIZONTAL	775	0	2	23.9	18.5	80.0	67.0	57.4		14.5	70.0	87.3		45		208	1	
HP-2	ELEC RM	118	Mitsubishi Electric	PKA-A24KA7		WALL	HORIZONTAL	775	0	2	23.9	18.5	80.0	67.0	57.4		14.5	70.0	87.3		45		208	1	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE FACTORY THERMOSTATS (LOCAL DISPLAY AND OVERRIDE ONLY), REFER TO PLANS FOR QUANTITIES AND LOCATIONS.
3. PROVIDE WITH FACTORY DRAIN PAN LEVEL SENSORS AND FILTERS.
4. PROVIDE EC TYPE MOTORS WITH MULTIPLE FAN SPEED SETTINGS.
5. PROVIDE WITH CONDENSATE PUMP.
6. DISCONNECT SHALL BE BY DIV 26.

REMOTE AIR COOLED CONDENSING UNIT SCHEDULE

ID	LOCATION NAME	MANUFACTURER	MODEL NO.	SERVES	TYPE	COOLING NOMINAL CAP (MBH)	COOLING ACTUAL CAP (MBH)	COOLING EER	COOLING SUMMER AMBIENT DB (°F)	CONDENSER FAN QTY	CONDENSER FAN TYPE	CONDENSER FAN DRIVE TYPE	CONDENSER FAN MOTOR QTY	CONDENSER FAN MOTOR POWER (HP)	CONDENSER FAN MOTOR RPM	COMPRESSOR TYPE	COMPRESSOR REFRIGERANT TYPE	COMPRESSOR REFRIGERANT CIRCUIT (QTY)	COMPRESSOR STAGES (QTY)	COMPRESSOR MOTOR QTY	COMPRESSOR MOTOR RLA	COMPRESSOR MOTOR LRA	SOUND PRESS (dBa)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V	ELECTRICAL PH	NOTES
CU-1	OUTDOOR	Mitsubishi Electric	PUY-A24NHA7(-BS)	HP-1		24.0	23.9	12.2	83	1	PROPELLER	DIRECT	1			TWIN ROTARY		1			7	11	48	179	0	19	25	208	1	1 THRU 5
CU-2	OUTDOOR	Mitsubishi Electric	PUY-A24NHA7(-BS)	HP-2		24.0	23.9	12.2	83	1	PROPELLER	DIRECT	1			TWIN ROTARY		1			7	11	48	179		19	25	208	1	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE WITH LOW AMBIENT CONTROLS AND ACCESSORIES FOR OPERATION DOWN TO 30°F (INCLUDING WIND BAFFLE AND MOUNTING BASE).
3. PROVIDE 24" HIGH STAND WITH SQUARE TUBULAR POWDER COATED STEEL, MIN 12 INCH SQUARE FOOTINGS WITH NYLON VIBRATION ISOLATION, EQUAL TO QUICK-SLING STAND MODEL QSSSVRF.
4. COMPRESSOR SHALL HAVE DC DRIVEN INVERTER TECHNOLOGY, CRANKCASE HEATERS, INTERNAL THERMAL OVERLOAD, AND COMPRESSOR ISOLATION.
5. PROVIDE WITH 1 YEAR COMPLETE UNIT WARRANTY (PARTS AND LABOR) AND 5 YEAR EXTENDED PARTS WARRANTY.

GRAVITY VENTILATOR SCHEDULE

ID	LOCATION NAME	MANUFACTURER	MODEL NO.	SERVES	TYPE	DESIGN AIRFLOW (CFM)	THROAT VELOCITY (FPM)	THROAT AREA (SF)	PD (IN WC)	DIMENSIONS (IN) THROAT (IN) WIDTH	DIMENSIONS (IN) THROAT (IN) LENGTH	DIMENSIONS (IN) THROAT (IN) EXT HEIGHT	DIMENSIONS (IN) HOOD (IN) LENGTH	DIMENSIONS (IN) HOOD (IN) WIDTH	WEIGHT (lb)	NOTES
IH-2	ROOF	Greenheck	FGI	HRU-2	INTAKE		513	7.00	0.06	2' - 8"	2' - 8"	2' - 7"	5' - 3"	4' - 7"	163	1 THRU 4
IH-3	ROOF	Greenheck	FGI	ERU-1	INTAKE		551	1.00	0.07	1' - 2"	1' - 2"	2' - 4"	2' - 3"	2' - 4"	62	1 THRU 4
IH-4	ROOF	Greenheck	FGI	HV-1	INTAKE		459	5.00	0.05	2' - 4"	2' - 1"	2' - 7"	4' - 3"	4' - 5"	136	1 THRU 4
RH-1	ROOF	Greenheck	FGR	HRU-1	RELIEF	688	506	1.00	0.06	1' - 2"	1' - 2"	2' - 4"	2' - 3"	2' - 4"	61	1 THRU 4
RH-2	ROOF	Greenheck	FGR	HRU-2	RELIEF	3285	603	5.00	0.09	2' - 4"	2' - 4"	2' - 7"	4' - 3"	3' - 6"	117	1 THRU 4
RH-3	ROOF	Greenheck	FGR	ERU-1	RELIEF	650	650	1.00	0.10	1' - 0"	1' - 0"	2' - 2"	2' - 3"	2' - 2"	53	1 THRU 4
RH-5	ROOF	Greenheck	FGR	EF-5	RELIEF	1850	666	3.00	0.11	1' - 8"	1' - 8"	2' - 4"	3' - 3"	2' - 10"	80	1 THRU 4

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE ALUMINUM CONSTRUCTION WITH HINGED OPENING AND 12" HIGH BASE.
3. PROVIDE GALVANIZED STEEL BIRDSCREEN.
4. INSULATED ROOF CURBS SHALL BE PROVIDED BY METAL BUILDING CONTRACTOR. COORDINATE REQUIRED 18" HIGHT, DIMENSIONS, AND INSULATION THICKNESS.

EXHAUST FAN SCHEDULE

ID	LOCATION NAME	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW CFM	FAN VELOCITY OUTLET (FPM)	FAN PRESS ESP (IN WG)	FAN RPM	FAN WHEEL TYPE	FAN WHEEL DIA (IN)	FAN DRIVE TYPE	FAN MOTOR BHP	FAN MOTOR HP or KW	FAN MOTOR ECM	SOUND PRESS LEVEL (dBA)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL V	ELECTRICAL PH	NOTES
EF-1	ROOF	Greenheck	G-100-C	CENTRIFUGAL	960	1067	0.50	1446			DIRECT	0.17	0.25	Yes	56	63	2.9	120	1	
EF-2A	ROOF	Greenheck	G-130-C	CENTRIFUGAL	1100	982	0.75	1238			DIRECT	0.22	0.50	Yes	59	72	6.4	120	1	
EF-2B	ROOF	Greenheck	G-097-C	CENTRIFUGAL	110	115	0.50	1142			DIRECT	0.03	0.25	Yes	48	63	2.9	120	1	
EF-3A	VEHICLE STORAGE	Greenheck	AER-20	PROPELLER	400	177	0.50	939		20 1/8"	DIRECT	0.15	0.50	Yes	61	64	6.4	120	1	
EF-3B	VEHICLE STORAGE	Greenheck	AER-24	PROPELLER	2850	1259	0.50	1097		24 1/8"	DIRECT	0.44	0.75	Yes	67	115		208	3	
EF-3C	VEHICLE STORAGE	Greenheck	AER-24	PROPELLER	2850	1259	0.50	1097		24 1/8"	DIRECT	0.44	0.75	Yes	67	115		208	3	
EF-5	COMPRESSOR ROOM	Greenheck	SQ-160-VG	INLINE	1850	515	0.50	899		16 3/4"	DIRECT	0.29	0.75	Yes	55	105		120	1	

CEILING FAN SCHEDULE

ID	LOCATION NAME	NO.	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW (CFM)	FAN RPM	FAN MAX RPM	FAN BLADE DIA (FT)	FAN POWER (W)	SOUND PRESS LEVEL (dBA)	WEIGHT (lb)	ELECTRICAL FLA	ELECTRICAL V	ELECTRICAL PH	NOTES
CF-1			Greenheck	DS-3-10-70HV	Base							141	3	460	3	
CF-2			Greenheck	DS-3-14-70HV	Base							150	3	460	3	
CF-3			Greenheck	DS-3-14-70HV	Base											

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE FACTORY WALL MOUNTED CONTROLLER TO ALLOW FOR MULTIPLE FAN CONTROL.
3. PROVIDE APPROPRIATE CEILING MOUNTING AND GUY WIRE KIT. PROVIDE EXTENTION TUBES AS REQUIRED FOR INSTALLATION. COORDINATE FINAL MOUNTING HEIGHT AND LOCATION WITH ALL TRADES AND EQUIPMENT INSTALLATION.
4. PROVIDE FACTORY FIRE ALARM RELAY AND WIRING PIGTAIL. PROVIDE WITH FACTORY BACNET CONNECTION.
5. PROVIDE WITH 10 YEAR UNIT WARRANTY.

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WATER TO WATER HEAT PUMP SCHEDULE

ID	LOCATION NAME	LOCATION NO.	MANUFACTURER	MODEL NO.	TYPE	ARRANGEMENT	EVAPORATOR COOLING HEAT EXCHANGER: COOLING CAP (MBH)	LOAD: CHILLED WATER: FLOW (GPM) DESIGN	MIN	EWT (°F)	LWT (°F)	PD (FT HD)	VOL (GAL)	COOLING PLANT: GLYCOL TYPE	%	CONDENSER REJECTION HEAT EXCHANGER: REJECTION CAP (MBH)	SOURCE: CONDENSER WATER: FLOW (GPM) DESIGN	MIN	EWT (°F)	LWT (°F)	PD (FT HD)	VOL (GAL)	REJECTION PLANT: GLYCOL TYPE	%	CONDENSER HEATING HEAT EXCHANGER: HEATING CAP (MBH)	LOAD: HEATING WATER: FLOW (GPM) DESIGN	MIN	EWT (°F)	LWT (°F)	HEATING PLANT: GLYCOL TYPE	%	EVAPORATOR ABSORBING HEAT EXCHANGER: ABSORBING CAP (MBH)	SOURCE: EVAPORATOR WATER: FLOW (GPM) DESIGN	MIN	EWT (°F)	LWT (°F)	COMPRESSOR: TYPE	REFRIGERANT TYPE	CIRCUIT QTY	UNLOADING STEPS	MOTOR QTY	RLA	EER	IEER	COP	SOUND PRESS (dBa)	WEIGHT (lb)	ELECTRICAL DATA FLA	MCA	MOCP	V	PH	NOTES
GSHP-1	MECHANICAL ROOM	204	WATER FURNANCE	T5HS0S30LN2	CHILLER	VERTICAL	30.0 ton	62.0	62.0	54	42	5.4		PG	30			91.5	75	85					300.3	41.7	41.7	105	120	PG	30			44.7	40	30	SCROLL	R-454B	2		2	25	16.3	21.3		0	3000	69	80	125	460	3	
GSHP-2	MECHANICAL ROOM	204	WATER FURNANCE	T5HS0S30LN2	CHILLER	VERTICAL	30.0 ton	62.0	62.0	54	42	5.4		PG	30			91.5	75	85					300.3	41.7	41.7	105	120	PG	30			44.7	40	30	SCROLL	R-454B	2		2	25	16.3	21.3			3000	69	80	125	460	3	

AIR SEPARATOR SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	SERVES	TYPE	FLOW (GPM)	PD (FT HD)	UNIT DIMENSIONS (IN) HEIGHT	DIAMETER	DRY WEIGHT (lb)	NOTES

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE BALL TYPE BLOWDOWN VALVE, HOSE CONNECTION WITH CAP AND CHAIN.
3. PROVIDE HIGH CAPACITY AIR VENT WITH 1/2" COPPER TUBING FROM THE AIR VENT TO THE NEAREST DRAIN.

BUFFER TANK SCHEDULE

ID	LOCATION NAME	LOCATION NO.	MANUFACTURER	MODEL NO.	TYPE	FLUID TYPE	FLUID %	TANK VOLUME	UNIT DIMENSIONS (IN) HEIGHT	DIAMETER	WEIGHT (lb)	NOTES
BT-1	MECHANICAL ROOM	203	Lochinvar	BVU300		PG	30	300.0	6' - 8"	3' - 4"	1290	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. TANK SHALL BE RATED FOR MAXIMUM WORKING PRESSURE OF 125 PSIG. PROVIDE WITH FLANGED CONNECTIONS.
3. PROVIDE WITH FACTORY 1/2" THICK ARMAFLEX INSULATION.
4. PROVIDE CARBON STEEL CONSTRUCTION. TANK SHALL BE ASME RATED.
5. PROVIDE AUTOMATIC AIR VENT AND PIPE AIR VENT TO NEAREST FLOOR DRAIN.

GLYCOL MAKE-UP UNIT SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	PUMP FLOW	UNIT VOL (GAL)	DRY WEIGHT (lb)	ELECTRICAL FLA	MOCP	V	PH	NOTES
GF-1	MECHANICAL ROOM	203	AXIOM	SF-100	1.0	55.0	35	0.7	15	120	1	1 THRU 5
GF-2	MECHANICAL ROOM	203	AXIOM	SF-100	1.0	55.0	35	0.7	15	120	1	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE FACTORY PRESSURE GAUGE, SYSTEM CONNECTION HOSE, UNION, AND CHECK VALVE.
3. PROVIDE FACTORY PUMP WITH THERMAL CUT-OUT, INTEGRAL PRESSURE SWITCH, AND CORD AND PLUG.
4. PROVIDE FACTORY LOW LEVEL ALARM PANEL WITH REMOTE MONITORING AND SELECTABLE AUDIBLE ALARM.
5. PROVIDE SECOND PRESSURE REDUCING VALVE, PRESSURE GAUGE, SYSTEM CONNECTOR AND CHECK VALVE TO ALLOW FOR INDEPENDENT PRESSURE SUPPLY TO A SECOND SYSTEM.

EXPANSION TANK SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	SERVES	TYPE	FLUID TEMP (°F) MIN	MAX	GLYCOL TYPE	%	PRESSURE (PSIG) SYSTEM PRESSURE AT TANK MIN	MAX	INITIAL TANK AIR CHARGE	VOLUME (GAL) TANK	ACCEPTANCE	UNIT DIMENSIONS HEIGHT (IN)	DIAMETER (IN)	DRY WEIGHT (lb)	NOTES
ET-1	MECHANICAL ROOM	203	Bell & Gossett	B-200	SYSTEM	BLADDER	40	120	PG	30				53.0	53.0	43"	24"	210	
ET-2	MECHANICAL ROOM	203	Bell & Gossett	B-200	SOURCE	BLADDER	30	70	PG	30				53.0	53.0	43"	24"	210	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. TANK SHALL BE ASME RATED

PUMP SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	SERVES	TYPE	FLUID TEMP (°F)	TYPE	%	GPM	HEAD (FT)	SHUT-OFF HD	IMPELLER SIZE	MOTOR BHP	HP	RPM	UNIT WEIGHT (lb)	ELECTRICAL V	PH	NOTES
P-1A	MECHANICAL ROOM	203	Bell & Gossett	1.25 AD		END SUCTION		PG	30	90.0	110.0			4.33	7.50	3172	130	460	3	1 THRU 5
P-1B	MECHANICAL ROOM	203	Bell & Gossett	1.25 AD		END SUCTION		PG	30	90.0	110.0			4.33	7.50	3172	130	460	3	1 THRU 5
P-2A	MECHANICAL ROOM	203	Bell & Gossett	ecocirc XL 20-140		INLINE		PG	30	55.0	15.0			0.37	0.50	2875	31	208	1	1 THRU 5
P-2B	MECHANICAL ROOM	203	Bell & Gossett	ecocirc XL 20-140		INLINE		PG	30	55.0	15.0			0.37	0.50	2875	31	208	1	1 THRU 5
P-3A	MECHANICAL ROOM	203	Bell & Gossett	ecocirc XL 20-140		INLINE		PG	30	50.0	15.0			0.38	0.50	2857	31	208	1	1 THRU 5
P-3B	MECHANICAL ROOM	203	Bell & Gossett	ecocirc XL 20-140		INLINE		PG	30	50.0	15.0			0.38	0.50	2857	31	208	1	1 THRU 5
P-4A	MECHANICAL ROOM	203	Bell & Gossett	2AAC		INLINE		PG	30	100.0	75.0			2.71	5.00	3253	85	460	3	1 THRU 5
P-4B	MECHANICAL ROOM	203	Bell & Gossett	2AAC		INLINE		PG	30	100.0	75.0			2.71	5.00	3253	85	460	3	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE PREMIUM EFFICIENCY MOTOR, CAST BRONZE IMPELLOR, AND STEEL SHAFT.
3. PROVIDE FACTORY FLOOR MOUNT AND NEOPRENE TYPE VIBRATION ISOLATION.
4. PROVIDE PREMIUM EFFICIENCY, VFD COMPATIBLE MOTOR WITH SHAFT GROUNDING RINGS. PROVIDE FACTORY MOUNTED AND WIRED VFD.
5. PROVIDE PREMIUM EFFICIENCY ECM TYPE MOTOR WITH INTEGRAL CONTROLS AND THERMAL AND OVERCURRENT PROTECTION. PROVIDE WITH STAINLESS STEEL IMPELLOR AND SHAFT. REFER TO DIV 26 FOR DISCONNECT SWITCH.

UNIT HEATER (HOT WATER) SCHEDULE

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW (CFM)	MOTOR HP	QTY	ECM	HEATING COIL TOTAL CAP (MBH)	AIRSIDE (°F) EAT (db)	LAT (db)	WATERSIDE FLOW (GPM)	WATERSIDE EWT (°F)	WATERSIDE LWT (°F)	WATERSIDE PD (ft hd)	GLYCOL TYPE	GLYCOL %	WEIGHT (lb)	ELECTRICAL DATA FLA	MCA	MOCP	V	PH	REMARKS
UH-1	FLUID STORAGE	121	STERLING	HS-108A	HORIZONTAL	210	0.02	1	Yes	2.3	60.0	70.0	0.2	120	105	0.1	PG	30	22	1.0			115	1	1 THRU 5
UH-2	PARTS STORAGE	119	STERLING	HS-108A	HORIZONTAL	210	0.02	1	Yes	2.9	60.0	73.0	1.0	120	105	1.3	PG	30	22	1.0			115	1	1 THRU 5
UH-3	PLUMBING ROOM	124	STERLING	HS-108A	HORIZONTAL	210	0.02	1	Yes	2.3	60.0	70.0	0.2	120	105	0.1	PG	30	22	1.0			115	1	1 THRU 5
UH-4	WASH EQUIPMENT ROOM	125A	STERLING	HS-108A	HORIZONTAL	210	0.02	1	Yes	2.3	60.0	70.0	0.2	120	105	0.1	PG	30	22	1.0			115	1	1 THRU 5
UH-5	COMPRESSOR ROOM	202	STERLING	HS-108A	HORIZONTAL	210	0.02	1	Yes	2.3	60.0	70.0	0.2	120	105	0.1	PG	30	22	1.0			115	1	1 THRU 5
UH-6A	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.10	1	Yes	12.9	60.0	76.0	2.0	120	105	0.0	PG	30	41	1.8			115	1	1 THRU 5
UH-6B	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.05	1	Yes	12.9	60.0	76.0	2.0	120	105	0.0	PG	30	41	1.8			115	1	1 THRU 5
UH-6C	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.10	1	Yes	12.9	60.0	76.0	2.0	120	105	0.0	PG	30	41	1.8			115	1	1 THRU 5
UH-6C	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.10	1	Yes	12.9	60.0	76.0	2.0	120	105	0.0	PG	30	41	1.8			115	1	1 THRU 5

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL DISCONNECT PREWIRED TO THE UNIT. DISCONNECTING MEANS SHALL BE NEMA RATED AND SUITABLE FOR LOCKING IN THE OFF POSITION.
3. PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL RESETTABLE THERMAL OVERLOAD.
4. PROVIDE WIRE CAGE FAN GUARD.
5. PROVIDE WITH SPRING HANGING TYP VIBRATION ISOLATION.

CIRCUIT INFORMATION

NUMBER	MANIFOLD	ROOMS	TUBE SIZE	SPACING (IN)	LENGTH (FT)	FLOW (USGPM)	HEAD LOSS (FT WATER)	ACTUATOR
M1.1	MANIFOLD 1	MAINT BAY	5/8	12	342	0.99	5.2	NO
M1.2	MANIFOLD 1	MAINT BAY	5/8	12	339	0.98	5.1	NO
M1.3	MANIFOLD 1	MAINT BAY	5/8	12	342	0.98	5.2	NO
M1.4	MANIFOLD 1	MAINT BAY	5/8	12	350	1.00	5.5	NO
M2.1	MANIFOLD 2	MAINT BAY	5/8	12	390	1.39	10.7	NO
M2.2	MANIFOLD 2	MAINT BAY	5/8	12	383	1.37	10.2	NO
M2.3	MANIFOLD 2	MAINT BAY	5/8	12	365	1.29	8.8	NO
M2.4	MANIFOLD 2	MAINT BAY	5/8	12	368	1.32	9.2	NO
M2.5	MANIFOLD 2	MAINT BAY	5/8	12	365	1.28	8.7	NO
M2.6	MANIFOLD 2	MAINT BAY	5/8	12	373	1.34	9.7	NO
M2.7	MANIFOLD 2	MAINT BAY	5/8	12	396	1.40	10.9	NO
M2.8	MANIFOLD 2	MAINT BAY	5/8	12	386	1.37	10.3	NO
M3.1	MANIFOLD 3	MAINT BAY	5/8	12	412	1.31	10.3	NO
M3.2	MANIFOLD 3	MAINT BAY	5/8	12	418	1.34	10.8	NO
M3.3	MANIFOLD 3	MAINT BAY	5/8	12	414	1.34	10.7	NO
M3.4	MANIFOLD 3	MAINT BAY	5/8	12	421	1.36	11.1	NO
M3.5	MANIFOLD 3	MAINT BAY	5/8	12	406	1.29	9.9	NO
M3.6	MANIFOLD 3	MAINT BAY	5/8	12	413	1.31	10.3	NO
M3.7	MANIFOLD 3	MAINT BAY	5/8	12	419	1.36	11.1	NO

ROOMS

NAME	HEATING ZONE	AREA (FT²)	ROOM TEMP (°F)	REQ. SURFACE TEMP (°F)	FLOOR COVER R (R)	PANEL TYPE	HEAT LOSS (BTU/HR)	PANEL BACKLOSS	TOTAL LOAD (BTU/HR)	SUPPLEMENTAL
MAINT BAY	101	1,429	70	83	0	EMBEDDED SLAB	35,713	3,571	39,284	0
MAINT BAY	101	3,899	70	86	0	EMBEDDED SLAB	97,482	9,748	107,231	0
MAINT BAY	101	3,368	70	85	0	EMBEDDED SLAB	84,209	8,421	92,630	0

MANIFOLDS

NAME	MANIFOLD TYPE	# CIRCUITS	TUBING SIZE	SUPPLY TEMP (°F)	TOTAL LOAD (BTU/HR)	TOTAL FLOW (GPM)	HEAD LOSS (FT WATER)
MANIFOLD 1	STAINLESS STEEL - SHUT OFF/BALANCING/FLOW METERS, 1-1/4"	4	5/8	118	39,284	3.94	8.1
MANIFOLD 2	STAINLESS STEEL - SHUT OFF/BALANCING/FLOW METERS, 1-1/4"	8	5/8	126	107,231	10.74	15.1
MANIFOLD 3	STAINLESS STEEL - SHUT OFF/BALANCING/FLOW METERS, 1-1/4"	7	5/8	123	92,630	9.29	15.1

PIPE INSULATION

MINIMUM INSULATION THICKNESS IN INCHES FOR INDOOR PIPE SIZES (SEE NOTES BELOW)

PIPING SYSTEM TYPES	FLUID TEMPERATURE RANGE (°F)	<1"	1" & 1-1/4"	1-1/2" - 3"	4" - 6"	8" AND UP	K-FACTOR (BTU-INCH/°F-HR-SF) AT AVG TEMPERATURE (°F)
LOW TEMPERATURE HEATING	141-200	1.5	1.5	2	2	2	0.25-0.29 @ 125°F
FULLY CONDENSING BOILERS	105-140	1	1	1.5	1.5	1.5	0.22-0.28 @ 100°F
CHILLED WATER OR REFRIGERANT OR COOLING COIL CONDENSATE DRAIN	<60	0.5	1	1	1	1.5	0.20-0.27 @ 75°F

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. FOR MINIMUM THICKNESS OF ALTERNATIVE INSULATION TYPES OUTSIDE THE STATED CONDUCTIVITY RANGE, SEE TEST METHOD FOR STEADY STATE HEAT TRANSFER PROPERTIES OF HORIZONTAL PIPE INSULATIONS, ASTM C 335-95, AND THE STATE ENERGY CODE.
3. FOR DUAL TEMPERATURE SYSTEMS (HEATING AND COOLING) USE THE THICKER INSULATION VALUE REQUIRED FOR EITHER HEATING OR COOLING AND PROVIDE VAPOR BARRIER JACKET.
4. ALL OUTDOOR REFRIGERANT PIPING SHALL BE PROVIDED WITH 3/4" THICK INSULATION WITH PVC JACKETING.

MINIMUM DUCT INSULATION R-VALUES

LOCATION	SUPPLY	RETURN	RAW OUTDOOR AIR	EXHAUST W/ ENERGY RECOVERY	EXHAUST W/O ENERGY RECOVERY
ATTIC TYPE SPACE (EXPOSED ROOF AREA AND VENTED...	R-8	R-8	R-4	R-8	R-6*
OUTDOORS	R-12	R-12	-0-	R-12	R-12*
CRAWL SPACE	R-6	R-6	R-4	R-6	-0-
BELOW GRADE	R-12	R-12	-0-	R-12	-0-
UNCONDITIONED SPACE (SHAFT OR CEILING WITH DUCTED RETURNS)	R-6	R-6	R-4	R-6	-0-
RETURN AIR PLENUM	R-4**	-0-	R-4**	-0-	-0-
EXPOSED IN MECHANICAL ROOM	R-6	R-6	R-6	R-6	-0-
EXPOSED IN ZONE SERVED	R-4***	-0-	R-4	-0-	-0-

* R-VALUE SHOWN IS ONLY IF AREA OF BUILDING BEING EXHAUSTED IS HUMIDIFIED. IF NOT HUMIDIFIED, NO INSULATION (-0-), UNLESS FIRE WRAP OR LINING IS NEEDED.
** WHERE THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM IS NOT GREATER THAN 15°F.
*** ONLY DUCTS THAT PROVIDE COOLING, IF HEATING ONLY, NO INSULATION (-0-), UNLESS FIRE WRAP OR LINING IS NEEDED.

DUCT LINING SCOPE: ACOUSTIC DUCT LINING OF THE TYPE AND THICKNESS SPECIFIED SHALL BE INSTALLED ON ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK WITHIN 20 FEET OF ALL TYPES OF AIR HANDLING UNITS (INCLUDING RTU, ERU, FCU, MUA, ETC., AND ALL BRANCHES WITHIN 20') ALL FANS (INCLUDING BRANCHES), ALL LOW PRESSURE DUCTWORK DOWNSTREAM OF ALL TYPES OF SUPPLY VOLUME BOXES (CV, VAV, FPVAV, ETC.), AND WHERE DETAILED OR SHOWN ON DRAWINGS. LINING SHALL NOT BE USED ON DUCTWORK SERVING VEHICLE WASH BAYS OR SURGICAL SUITES, DELIVERY ROOMS, INTENSIVE CARE UNITS AND ISOLATION AREAS OF HOSPITALS AND MEDICAL FACILITIES OR ON KITCHEN AND FUME HOOD EXHAUST AND WET/HUMID EXHAUST SUCH AS DISHWASHER, CLOTHES DRYER, AND SHOWER SYSTEMS.

NOTES: (SEE SPECIFICATIONS FOR R-VALUES OF VARIOUS DUCT INSULATION AND LINERS)
1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2 R-VALUES SHOWN MAY BE OBTAINED BY ADDING THE R-VALUES OF BOTH THE LINING (WHERE SHOWN OR USED) AND EXTERNAL DUCT INSULATION.
3 R-VALUES SHOWN ARE AS INSTALLED. USE R-VALUES FOR 25% COMPRESSION FOR NON-RIGID INSULATION.

DUCTWORK PRESSURE CLASS AND SEAL CLASS

PRESSURE CLASS	STATIC PRESSURE CLASS	SMACNA SEAL CLASS	SMACNA LEAKAGE CLASS RECTANGULAR	SMACNA LEAKAGE CLASS ROUND	DESIGN VELOCITY LIMITS
4"	4" POS OR NEG	A	6	3	3000 FPM OR LESS
3"	3" POS OR NEG	A	6	3	2500 FPM OR LESS
2"	2" POS OR NEG	A	6	3	2000 FPM OR LESS

UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, USE THE FOLLOWING PRESSURE CLASSIFICATIONS FOR THE TYPES OF DUCTWORK LISTED...

4" (POS) CLASS::	ALL SUPPLY DUCTWORK BETWEEN THE DISCHARGE OF AIR SUPPLY UNITS TO THE INLETS OF SUPPLY TERMINAL VOLUME BOXES.
4" (NEG AND POS):	ALL SUCTION AND DISCHARGE FUME HOOD, KITCHEN EXHAUST DUCTWORK AND FOR MEDIUM PRESSURE EXHAUST AND RETURN SYSTEMS, ALL DUCTWORK BETWEEN AIR EXHAUST AND RETURN UNITS TO OUTLETS OF EXHAUST AND RETURN TERMINAL VOLUME BOXES.
2" CLASS	ALL OTHER DUCTWORK

NOTES
1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2 CONTRACTOR SHALL LEAK TEST (SUBMIT REPORT) A MINIMUM OF 25% OF THE SURFACE AREA FOR ALL DUCTWORK ABOVE PRESSURE CLASS 3" AND 100% OF ALL DUCTWORK LOCATED OUTDOORS.
3 FOR NEGATIVE PRESSURE OVER 3"W.G., REFER TO SMACNA ROUND AND RECTANGULAR INDUSTRIAL DUCT CONSTRUCTION STANDARDS FOR JOINT AND INTERMEDIATE REINFORCEMENT REQUIREMENTS.
4 FOR ROUND DUCTWORK, NEGATIVE PRESSURE OVER 2"W.G., REFER TO SMACNA ROUND INDUSTRIAL DUCT CONSTRUCTION STANDARDS AND BUILD TO NEGATIVE RATING SPECIFIED (-4"W.G. MIN.).
5 LEAKAGE CLASS AND THE ASSOCIATED DUCT SEALING FOR DUCTWORK SERVING LABORATORIES, HOSPITAL OPERATING ROOMS, AND CLEAN ROOMS SHALL ALLOW FOR 1/2 THE LEAKAGE LISTED.

REGISTER, GRILLE, & DIFFUSER SCHEDULE

TAG	AIRFLOW RANGE (CFM)	NECK SIZE (IN)	OVERALL SIZE (IN)	MATERIAL	SERVICE	MOUNTING	TYPE	PD (IN WG)	NC	MANUFACTURER	MODEL	REMARKS
SA	0 - 100	6"ø	12" x 12"	STEEL	SUPPLY	LAY-IN OR SURFACE	PLAQUE	0.08	<16	PRICE	SPD	1 THRU 6
SB	101 - 200	8"ø	24" x 24"	STEEL	SUPPLY	LAY-IN OR SURFACE	PLAQUE	0.04	<19	PRICE	SPD	1 THRU 6
SC	201 - 325	10"ø	24" x 24"	STEEL	SUPPLY	LAY-IN OR SURFACE	PLAQUE	0.06	<18	PRICE	SPD	1 THRU 6
SD	326 - 550	12"ø	24" x 24"	STEEL	SUPPLY	LAY-IN OR SURFACE	PLAQUE	0.13	21	PRICE	SPD	1 THRU 6
SE	551 - 750	14"ø	24" x 24"	STEEL	SUPPLY	LAY-IN OR SURFACE	PLAQUE	0.17	23	PRICE	SPD	1 THRU 6
S1	0 - 145	8" x 4"	10" x 6"	ALUMINUM	SUPPLY	SIDEWALL	DOUBLE DEFLECTION	0.12	17	PRICE	22	1 THRU 6
S2	146 - 240	10" x 6"	12" x 8"	ALUMINUM	SUPPLY	SIDEWALL	DOUBLE DEFLECTION	0.08	17	PRICE	22	1 THRU 6
S3	241 - 320	14" x 6"	16" x 8"	ALUMINUM	SUPPLY	SIDEWALL	DOUBLE DEFLECTION	0.08	18	PRICE	22	1 THRU 6
S4	321 - 485	16" x 8"	18" x 10"	ALUMINUM	SUPPLY	SIDEWALL	DOUBLE DEFLECTION	0.06	16	PRICE	22	1 THRU 6
S5	486 - 710	24" x 8"	26" x 10"	ALUMINUM	SUPPLY	SIDEWALL	DOUBLE DEFLECTION	0.06	17	PRICE	22	1 THRU 6
LD1	0 - 150	6"ø	48" x 4" 2 SLOT/1" WIDTH	ALUMINUM	SUPPLY	LAY-IN OR SURFACE	LINEAR	0.09	15	PRICE	TBD3	1 THRU 7
LD2	151 - 310	8"ø	48" x 6" 4 SLOT/1" WIDTH	ALUMINUM	SUPPLY	LAY-IN OR SURFACE	LINEAR	0.10	18	PRICE	TBD3	1 THRU 7
DR1	0 - 350	12" x 6"	14" x 8"	STEEL	SUPPLY	DUCT	HIGH CAPACITY DRUM LOUVER	0.21	30	PRICE	HCD	1 THRU 6, 8
DR2	351 - 525	18" x 6"	20" x 8"	STEEL	SUPPLY	DUCT	HIGH CAPACITY DRUM LOUVER	0.18	32	PRICE	HCD	1 THRU 6, 8
DR3	526 - 875	30" x 6"	32" x 8"	STEEL	SUPPLY	DUCT	HIGH CAPACITY DRUM LOUVER	0.16	33	PRICE	HCD	1 THRU 6, 8
DRA1	0 - 350	12" x 6"	14" x 8"	ALUMINUM	SUPPLY	DUCT	HIGH CAPACITY DRUM LOUVER	0.21	30	PRICE	AHCD	1 THRU 6, 8
DRA2	351 - 525	18" x 6"	20" x 8"	ALUMINUM	SUPPLY	DUCT	HIGH CAPACITY DRUM LOUVER	0.18	32	PRICE	AHCD	1 THRU 6, 8
RA OR EA	0 - 100	6"ø	12" x 12"	ALUMINUM	RETURN OR EXHAUST	LAY-IN OR SURFACE	PERFORATED FACE	0.04	<16	PRICE	APDDR	1 THRU 6
RB OR EB	101 - 210	8"ø	24" x 24"	ALUMINUM	RETURN OR EXHAUST	LAY-IN OR SURFACE	PERFORATED FACE	0.06	<18	PRICE	APDDR	1 THRU 6
RC OR EC	211 - 325	10"ø	24" x 24"	ALUMINUM	RETURN OR EXHAUST	LAY-IN OR SURFACE	PERFORATED FACE	0.06	<16	PRICE	APDDR	1 THRU 6
RD OR ED	326 - 470	12"ø	24" x 24"	ALUMINUM	RETURN OR EXHAUST	LAY-IN OR SURFACE	PERFORATED FACE	0.06	<16	PRICE	APDDR	1 THRU 6
RE OR EE	471 - 620	14"ø	24" x 24"	ALUMINUM	RETURN OR EXHAUST	LAY-IN OR SURFACE	PERFORATED FACE	0.06	<18	PRICE	APDDR	1 THRU 6
R1 OR E1	0 - 90	6" x 6"	8" x 8"	ALUMINUM	RETURN OR EXHAUST	SIDEWALL	DOUBLE DEFLECTION	0.01	25	PRICE	60	1 THRU 6
R2 OR E2	91 - 155	8" x 8"	10" x 10"	ALUMINUM	RETURN OR EXHAUST	SIDEWALL	DOUBLE DEFLECTION	0.01	24	PRICE	60	1 THRU 6
R3 OR E3	156 - 240	10" x 10"	12" x 12"	ALUMINUM	RETURN OR EXHAUST	SIDEWALL	DOUBLE DEFLECTION	0.01	26	PRICE	60	1 THRU 6
R4 OR E4	241 - 270	12" x 12"	14" x 14"	ALUMINUM	RETURN OR EXHAUST	SIDEWALL	DOUBLE DEFLECTION	0.01	21	PRICE	60	1 THRU 6
R5 OR E5	271 - 350	14" x 14"	16" x 16"	ALUMINUM	RETURN OR EXHAUST	SIDEWALL	DOUBLE DEFLECTION	0.01	23	PRICE	60	1 THRU 6

NOTES
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE INLET/NECK SIZE.
3. PROVIDE APPROPRIATE BORDER FOR INSTALLATION TYPE.
4. PROVIDE FACTORY POWDER COAT FINISH. COORDINATE FINAL COLOR WITH ARCHITECT/OWNER
5. COORDINATE BLOW PATTERN WITH MECHANICAL PLANS.
6. CONTRACTOR SHALL VERFIY QUANTITY OF REGISTERS, GRILLES, AND DIFFUSERS REQUIRED.
7. PROVIDE FACTORY PLENUM.
8. SET DRUM ANGLE TO 30° TOWARDS FLOOR. PROVIDE ALUMINUM CONSTRUCTION FOR WASH BAY DIFFUSERS.

Project:
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CEILING FAN SCHEDULE - BID ALT 1

ID	LOCATION NAME	LOCATION NO.	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW (CFM)	FAN RPM	FAN MAX RPM	FAN BLADE DIA (FT)	FAN POWER (W)	SOUND PRESS LEVEL (dBA)	WEIGHT (lb)	ELECTRICAL DATA FLA	V	PH	NOTES
CF-3A			Greenheck	DS-3-14-70HV	BA4											

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE FACTORY WALL MOUNTED CONTROLLER TO ALLOW FOR MULTIPLE FAN CONTROL.
3. PROVIDE APPROPRIATE CEILING MOUNTING AND GUY WIRE KIT. PROVIDE EXTENTION TUBES AS REQUIRED FOR INSTALLATION. COORDINATE FINAL MOUNTING HEIGHT AND LOCATION WITH ALL TRADES AND EQUIPMENT INSTALLATION.
4. PROVIDE FACTORY FIRE ALARM RELAY AND WIRING PIGTAIL. PROVIDE WITH FACTORY BACNET CONNECTION.
5. PROVIDE WITH 10 YEAR UNIT WARRANTY.

UNIT HEATER (HOT WATER) SCHEDULE - BID ALT 1

ID	LOCATION NAME	LOCATION NO	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW (CFM)	FAN MOTOR HP	FAN MOTOR QTY	FAN MOTOR ECM	HEATING COIL TOTAL CAP (MBH)	AIRSIDE (°F) EAT (db)	AIRSIDE (°F) LAT (db)	WATERSIDE FLOW (GPM)	WATERSIDE EWT (°F)	WATERSIDE LWT (°F)	WATERSIDE PD (ft hd)	GLYCOL TYPE	GLYCOL %	WEIGHT (lb)	ELECTRICAL DATA FLA	MCA	MOCP	V	PH	REMARKS
UH-7A	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	
UH-7B	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	
UH-7C	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	
UH-7D	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	
UH-7E	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	
UH-7F	VEHICLE STORAGE	127	STERLING	HS-48	HORIZONTAL	750	0.1	1	Yes	12.9	60.0	76.0	2.0	120	105	0.04	PG	30	41		1.8		115	1	

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION.
2. PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL DISCONNECT PREWIRED TO THE UNIT. DISCONNECTING MEANS SHALL BE NEMA RATED AND SUITABLE FOR LOCKING IN THE OFF POSITION.
3. PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL RESETTABLE THERMAL OVERLOAD.
4. PROVIDE WIRE CAGE FAN GUARD.
5. PROVIDE WITH SPRING HANGING TYP VIBRATION ISOLATION.

EXHAUST FAN SCHEDULE BID ALT 1

ID	LOCATION NAME	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW CFM	FAN VELOCITY OUTLET (FPM)	FAN PRESS ESP (IN WG)	FAN RPM	FAN WHEEL TYPE	FAN WHEEL DIA (IN)	FAN DRIVE TYPE	FAN MOTOR BHP	FAN MOTOR HP or KW	FAN MOTOR ECM	SOUND PRESS LEVEL (dBA)	WEIGHT (lb)	ELECTRICAL DATA FLA	V	PH	NOTES
EF-4A	VEHICLE STORAGE	Greenheck	AER-20	PROPELLER	600	276	0.50	1052		20 1/8"	DIRECT	0.18	0.50	Yes	61	66	6.4	120	1	
EF-4B	VEHICLE STORAGE	Greenheck	AER-42	PROPELLER	4600	467	0.50	731		42 1/4"	DIRECT	0.71	2.00	Yes	73	224	4.7	460	3	
EF-4C	VEHICLE STORAGE	Greenheck	AER-42	PROPELLER	4600	467	0.50	731		42 1/4"	DIRECT	0.71	2.00	Yes	73	224	4.7	460	3	

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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SCHEDULES

Sheet Number:

H603

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CONTROL POINT DESCRIPTOR LEGEND

TAG	ATC CONTRACTOR PROVIDED DDC POINT AND HARDWARE
TAG	CONTROL DEVICE FURNISHED BY ELECTRICAL OR PLUMBING CONTRACTOR BUT INTERFACED TO DDC SYSTEM BY ATC CONTRACTOR (ELEC SHOWN)
TAG	ATC CONTRACTOR INTERFACE TO EQUIPMENT MANUFACTURER'S HARDWARE
TAG	ATC CONTRACTOR PROVIDED LOCAL CONTROL POINT

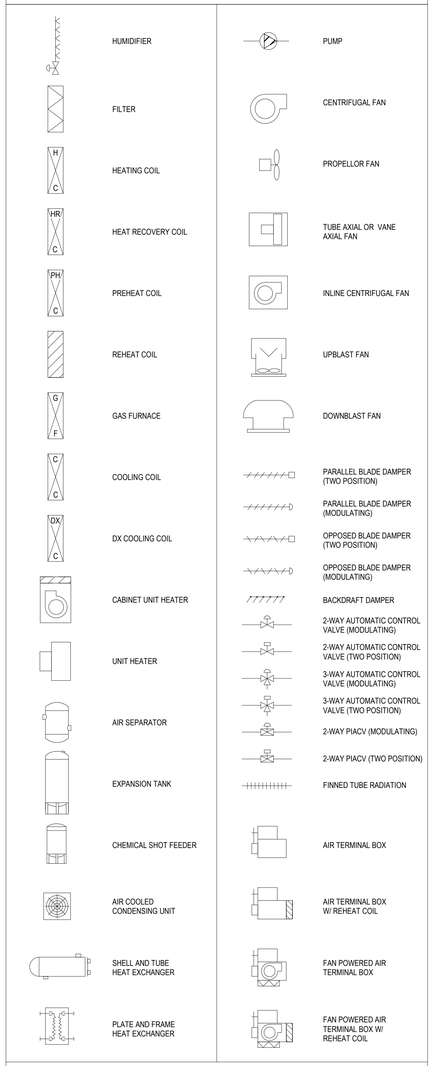
CONTROL ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
ACV	AUTOMATIC CONTROL VALVE
AFMS	AIR FLOW MEASURING STATION
ALM	ALARM
ATC	AUTOMATIC TEMPERATURE CONTROL
AQS	AQUASTAT
BCV	BASEBOARD CONTROL VALVE
BDD	BACKDRAFT DAMPER W/ ADJ COUNTERWEIGHT
BV	BYPASS VALVE
CO2	CARBON DIOXIDE SENSOR
CAP	CAPACITY CONTROL
CCLT	COOLING COIL LEAVING AIR TEMP SENSOR
CLT	COIL LAT SENSOR
CHRT	CHILLED WATER RETURN TEMP SENSOR
CHST	CHILLED WATER SUPPLY TEMP SENSOR
CHWRT	CHILLED WATER RESET TEMPERATURE
CO	CARBON MONOXIDE SENSOR
CRT	CONDENSER WATER RET TEMP SENSOR
CST	CONDENSER WATER SUP TEMP SENSOR
CT	CURRENT TRANSFORMER (STATUS FEEDBACK)
CV	COOLING COIL CONTROL VALVE
DAT	DISCHARGE AIR TEMPERATURE SENSOR
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIFFERENTIAL PRESSURE SWITCH
DL	DEMAND LIMIT
DPS	DEIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
DPV	DIFFERENTIAL PRESSURE BYPASS VALVE
DSP	DISCHARGE STATIC PRESSURE SENSOR
EAD	EXHAUST AIR DAMPER
EAT	ENTERING AIR TEMPERATURE
ECM	ELECTRONICALLY COMMUTATED MOTOR
ERW	ENERGY RECOVERY WHEEL
ES	END SWITCH
FA	FAULT ALARM
FDPS	FILTER DIFFERENTIAL PRESSURE SWITCH
FMT	FLOW METER/TRANSMITTER
FS	FLOW SWITCH
FZ	FREEZESTAT
H	RELATIVE HUMIDITY SENSOR
HCV	HEATING COIL CONTROL VALVE
HCLT	HEATING COIL LEAVING AIR TEMP SENSOR
HE	HIGH EFFICIENCY
HEGA	HE GAS ABSORBER FILTER
HEPA	HE PARTICULATE AIR FILTER
HGB	HOT GAS BYPASS
HHL	HIGH HUMIDITY LIMIT SENSOR
HLH	HIGH/LOW HUMIDITY LIMIT SENSOR
HOA	HANDS-OFF AUTOMATIC SWITCH
HS	HAND SWITCH
HPS	HIGH LIMIT PRESSURE SENSOR
HSPS	HIGH STATIC PRESSURE SWITCH
HV	HEATING CONTROL VALVE
HWRT	HOT WATER RETURN TEMP SENSOR
HWST	HOT WATER SUPPLY TEMP SENSOR
IFBD	INTEGRAL FACE AND BYPASS
IGV	INLET GUIDE VANES
LAT	LEAVING AIR TEMP SENSOR
LEL	LOW EXPLOSIVE LIMIT
LLSV	LIQUID LINE SOLENOID VALVE
LSPS	LOW STATIC PRESSURE SWITCH
LS	LEVEL SENSOR
LSI	LIGHT SWICH INTERFACE
LSHA	LEVEL SENSOR HIGH ALARM
LSHS	LEVEL SENSOR HIGH SWITCH
LSLA	LEVEL SENSOR LOW ALARM
LSLS	LEVEL SENSOR LOW SWITCH
MAT	MIXED AIR TEMP SENSOR
MUWW	MAKE-UP WATER VALVE
MD	MOTION DETECTOR
NC	NORMALLY CLOSED (ON LOSS OF POWER)
NO	NORMALLY OPEN (ON LOSS OF POWER)
NO2	NITROGEN DIOXIDE SENSOR
OAD	OUTSIDE AIR DAMPER
OAH	OUTSIDE AIR HUMIDITY SENSOR (WB)
OAT	OUTSIDE AIR TEMPERATURE SENSOR (DB)
PAD	PRIMARY AIR DAMPER
PIACV	PRESSURE INDEPENDANT ACV
PPM	PARTS PER MILLION
PR	PRESSURE SENSOR
PROP	PROPANE SENSOR
RAD	RETURN AIR DAMPER
RAH	RETURN AIR HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
RV	REHEAT CONTROL VALVE
RH	RELATIVE HUMIDITY
RI	RUN INDICATOR
RSID	RETURN SMOKE ISOLATION DAMPER
S	SWITCH
SAD	SUPPLY AIR DAMPER
SD	SMOKE DAMPER
SDET	SMOKE DETECTOR
SFT	SMOKE/FIRE DETECTOR
SP	STATIC PRESSURE SENSOR
SPD	SPEED CONTROL
S/S	START/STOP
S/SH	START/STOP HIGH SPEED/CAPACITY
S/SL	START/STOP LOW SPEED/CAPACITY
SSID	SUPPLY SMOKE ISOLATION DAMPER
SSP	SUCTION STATIC PRESSURE SENSOR
T	THERMOSTAT
TAD	TRANSFER AIR DAMPER
TS	TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE
VFDS	VFD SPEED
VFDO	VFD OUTPUT (FEEDBACK)
VS	VIBRATION SWITCH

GENERAL ATC NOTES

1. PROVIDE NEW DDC AUTOMATIC TEMPERATURE CONTROL SYSTEM INCLUDING OPERATOR WORKSTATION. CONTROL SOFTWARE TO ALLOW GRAPHIC REPRESENTATION OF THE HVAC SYSTEM WITH "POINT AND CLICK" SELECTION OF ALL EQUIPMENT. ALL TEMPERATURE SETPOINT CHANGES, SCHEDULING, ETC. SHALL BE ADJUSTABLE THROUGH THE USE OF A MOUSE. PROVIDE GRAPHIC REPRESENTATION OF ALL FLOOR PLANS SHOWING HVAC EQUIPMENT, VALVES, DAMPERS, TEMPERATURE SENSORS, HUMIDITY SENSORS, ETC.
2. OPERATOR WORKSTATION SHALL CONSIST OF CURRENT GENERATION MULTI-CORE INTEL PROCESSOR OPERATING AT 2.4 GHZ MINIMUM SPEED. INCLUDE 2GB RAM AND A MINIMUM OF (1) 160GB SOLID STATE HARD DISK DRIVE. PROVIDE A X16 PCIE GRAPHICS CARD, FOUR USB 2.0 PORTS, 100/1000 BASE-T NETWORK CARD, AND 16X DVD±RW DRIVE. PROVIDE 19IN. LCD FLAT SCREEN MONITOR.
3. NEW DDC CONTROL SYSTEM SHALL BE CONNECTED TO AND CONTROL NEW AIR HANDLING UNITS, AIR COOLED CONDENSING UNITS, FANS, VAV TERMINAL UNITS, PUMPS, ETC.
4. OPERATOR WORKSTATION TO BE INSTALLED IN THE MAINTENANCE OFFICE. FINAL LOCATION TO BE DETERMINED BY THE OWNER. PROVIDE SECURITY ACCESS/PASSWORD PROGRAMMING FOR DDC CONTROL SYSTEM.
5. ALL ATC CONTROLS SHALL BE HARDWIRED. NO WIRELESS TECHNOLOGY SHALL BE ALLOWED UNLESS CONFIRMED WITH THE OWNER. ALL EXPOSED WIRING IN THE SHOPS, MAINTENANCE OR STORAGE AREAS SHALL BE INSTALLED IN MINIMUM 1/2 INCH GALVANIZED EMT CONDUIT. ALL EXPOSED WIRING IN A CLASS 1 DIVISION 1 SPACE SHALL BE INSTALLED IN MINIMUM 1/2" PVC COATED RIGID STEEL.
6. INSTALL ALL NEW CONTROL WIRING FOR OFFICES AND OTHER SIMILAR OCCUPIED SPACES IN THE WALLS.
7. ALL DDC CONTROLLERS CONTROLLING THE H&V UNITS SHALL BE PROVIDED WITH AN OPERATOR DISPLAY/INTERFACE ALLOWING THE USER TO PERFORM OPERATIONS TASKS ON THE ATC SYSTEM. PROVIDE PASSWORD PROTECTION.
8. THE CONTRACTOR SHALL CARRY 16 HOURS OF ADDITIONAL ON-SITE PROGRAMMING (ABOVE BASE CONTRACT) TO ALLOW FOR FIELD MODIFICATIONS THAT MAY BE NEEDED TO OPTIMIZE THE VARIOUS SYSTEMS TO FULLY CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS, SEQUENCE OF CONTROLS AND WORK WITH THE ACTUAL OPERATING CONDITIONS AS INSTALLED. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST,
9. ON-SITE TRAINING SHALL ALSO INCLUDE A MINIMUM OF 24 HOURS OF HANDS ON INSTRUCTION GEARED TOWARD OPERATION AND MAINTENANCE OF THE SYSTEMS, PRIOR TO TRAINING, THE NECESSARY LESSON PLANS, TRAINING DOCUMENTS, HANDOUTS, ETC. SHALL BE PROVIDED WITH THE CURRICULUM OUTLINE, WHICH SHALL INCLUDE AS A MINIMUM:
   A. INITIAL SESSION - 8 HRS
   B. 2ND SESSION, 2 WEEKS LATER - 8 HRS
   C. REMAINING 8 HRS TO BE SCHEDULED BY THE OWNER AS NEEDED.
10. ALL TRAINING SHALL BE RECORDED AND COPIED TO DVD BY THE ATC CONTRACTOR. THREE COPIES OF THE RECORDED SESSIONS SHALL BE SUBMITTED TO THE OWNER FOR THEIR USE.
11. PROVIDE WIRING FROM ELECTRICAL SOURCE TO MISCELLANEOUS ATC DEVICES. REFER TO HVAC PLANS, HVAC MECHANICAL ROOM PLANS, AND ELECTRICAL PLANS FOR LOCATION OF POWER SOURCES FOR ATC SYSTEM.
12. SUBMIT ACCEPTANCE TESTING PLAN, PRE-FUNCTIONAL PERFORMANCE TEST FORMS/NARRATIVES AND FUNCTIONAL TEST FORMS/NARRATIVES TO ENGINEER FOR REVIEW AND APPROVAL.
13. PROVIDE DEMOLITION OF EXISTING CONTROL COMPONENTS WHICH ARE BEING REPLACED BY THE NEW ATC CONTROL SYSTEM.
14. ALL MOTOR RATED RELAYS FOR FANS, ETC. SHALL BE FURNISHED BY DIVISION 23 AND TURNED OVER TO DIVISION 26 FOR INSTALLATION.
15. THE HVAC SYSTEM SHALL BE INDEXED TO HEATING WHEN HOT WATER IS AVAILABLE (GENERALLY BETWEEN THE MONTHS OF OCTOBER AND APRIL). THE HVAC SYSTEM SHALL BE INDEXED TO COOLING WHEN DX IS AVAILABLE (GENERALLY BETWEEN THE MONTHS OF MAY AND SEPTEMBER).
16. LOCATION OF ALL NEW DDC CONTROL PANELS SHALL BE FIELD VERIFIED WITH THE FIELD CONDITIONS BY THE CONTRACTOR AND COORDINATED WITH DIVISION 26.

DIAGRAM EQUIPMENT SYMBOLS



NOTE: SOME OR ALL SYMBOLS MAY BE USED ON THIS PROJECT

DDC MATRIX

DDC CONTROL MATRIX		
EQUIPMENT CATEGORY	CONTROLS BY: MFR	ATC
GSHP	X	
GV	X	
ERU-1		X
HV-1		X
HRV-1 & 2		X
EXHAUST FANS		X
VRF FCUS	X	
UH		X
SPLIT SYSTEMS	X	
CEILING FANS	X	
GAS DETECTION		X
RADIANT FLOOR		X

1. LOCATE ATC PANELS IN MECHANICAL ROOM. COORDINATE LOCATION OF PANELS.
2. EQUIPMENT PROVIDED WITH PACKAGED CONTROL WILL BE PROVIDED WITH BACNET COMMUNICATION ACCESSORIES TO INTEGRATED INTO BMS. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ATC CONTRACTOR AND EQUIPMENT MANUFACTURERS.

GLOBAL POINTS

TS
RH

GLOBAL OUTDOOR AIR TEMPERATURE AND RELATIVE HUMIDITY SENSORS.

ENERGY MANAGEMENT STRATEGIES

SYSTEM (AIR SIDE)	SYSTEM ABBREVIATION	OPTIMUM START/STOP (1)	SUPPLY AIR TEMPERATURE RESET (2)	STATIC PRESSURE RESET (3)	TIME OF DAY PROGRAMMING
HEAT RECOVERY VENTILATOR UNITS (NO COOLING, HW) - 100% OA	HRU	X	X		X
ENERGY RECOVERY VENTILATOR UNITS (HW, DX)	ERU	X	X		X
ENERGY RECOVERY VENTILATORS (NO COOLING OR HEATING)	ERV	X	X		X
HEATING AND VENTILATION UNITS (NO COOLING, HW)	HV	X	X		X
ENERGY RECOVERY UNITS (NO HEATING OR COOLING)	ERV	X	X		X
AIR HANDLING UNITS CONSTANT VOLUME	AHU	X	X		X
AIR HANDLING UNITS VARIABLE VOLUME	AHU	X	X	X	X
ROOFTOP UNITS (DX, HW, GAS) CONSTANT VOLUME	RTU	X	X		X
ROOFTOP UNITS (DX, HW, GAS) VARIABLE VOLUME	RTU	X		X	X
DEHUMIDIFICATION UNITS (DX)	DHU	X	X		X
VARIABLE AIR VOLUME AIR TERMINAL UNITS (W/O HEAT)	VAV	X			X
VARIABLE AIR VOLUME AIR TERMINAL UNITS (W/ HW REHEAT)	VAV	X			X
AIR CONDITIONING UNITS (DUCTED, DX, HW)	AC	X			X
AIR CONDITIONING UNITS (DUCTLESS, DX)	AC	X			X
AIR CONDITIONING UNITS (VARIABLE REFRIGERANT FLOW DX)	AC	X			X
HEAT PUMP UNITS (DUCTED, DX)	AC	X			X
HEAT PUMP UNITS (DUCTLESS, DX)	AC	X			X
HEAT PUMP UNITS (VARIABLE REFRIGERANT FLOW DX)	AC	X			X
DEDICATED OUTSIDE AIR UNITS (DX, HW) - 100% OA	DOAS	X	X		X
EXHAUST FANS	EF				X
VEHICLE EXHAUST FANS / HOSE REELS	VEF				
CABINET UNIT HEATER / UNIT HEATER (HW)	CUH / UH				X
UNIT HEATER (GAS)	GUH				X
UNIT HEATER (ELECTRIC)	EUH				X
FINNED TUBE RADIATION	FTR	X			X

SYSTEM (WATER SIDE)	SYSTEM ABBREVIATION	OPTIMUM START/STOP (1)	HOT WATER TEMPERATURE RESET (4)	CHILLED WATER TEMPERATURE RESET (5)	DIFFERENTIAL PRESSURE RESET (6)
BOILER (HEATING HOT WATER) CONDENSING	B	X	X		
HEATING PUMPS (SYSTEM)	HWP	X	X		X
RADIANT FLOOR PUMP	RP	X	X		
CHILLER (DX)	CH	X		X	
CHILLER (CW)	CH	X		X	
COOLING TOWER	CT	X			
CHILLED WATER PUMPS	CHWP	X			X

NOTES:

1. OPTIMUM START/STOP - THE BMS SHALL LEARN, COMPARING OUTSIDE AIR CONDITIONS WITH SPACE SETBACK CONDITIONS WITH HOW MUCH TIME IN ADVANCE THE HEATING OR COOLING SYSTEM SHALL BE STARTED TO ACHIEVE THE OCCUPIED SET POINT WHEN THE BUILDING/SPACE IS SCHEDULED TO BE OCCUPIED.
2. SUPPLY AIR TEMPERATURE RESET (SAT) - FOR AIRSIDE COOLING EQUIPMENT THE SAT SETPOINT, WHEN OUTSIDE AIR AND SPACE WET BULB IS LESS THAN 52ºF (ADJ.), THE SAT SHALL RESET TO THE HIGHEST TEMPERATURE POSSIBLE TO MEET THE SPACE COOLING LOAD.
3. STATIC PRESSURE RESET - FOR AIRSIDE VAV EQUIPMENT, WHEN THE SYSTEM STATIC PRESSURE SETPOINT IS EXCEEDED, THE SUPPLY FAN STATIC PRESSURE SHALL RESET TO THE LOWEST STATIC PRESSURE TO SATISFY THE ZONE REQUIRING THE MOST PRESSURE. NOTE: MIN AIRFLOW REQUIREMENTS AT THE SUPPLY FAN AND/OR COILS SHALL BE MAINTAINED AT ALL TIMES.
4. HEATING HOT WATER RESET - FOR WATERSIDE HEATING EQUIPMENT THE HOT WATER TEMPERATURE RESET SET POINT, WHEN OUTSIDE AIR TEMPERATURE DRY BULB IS LESS THAN 60ºF (ADJ), THE HEATING HOT WATER TEMPERATURE SHALL RESET TO THE COOLEST TEMPERATURE POSSIBLE TO MEET THE SPACE HEATING LOAD.
5. CHILLED WATER RESET - FOR WATERSIDE COOLING EQUIPMENT THE CHILLED WATER TEMPERATURE RESET SET POINT, WHEN OUTSIDE AIR TEMPERATURE DRY BULB IS LESS THAN 70ºF (ADJ), THE CHILLED WATER TEMPERATURE SHALL RESET TO THE WARMEST TEMPERATURE POSSIBLE TO MEET THE SPACE COOLING LOAD.
6. DIFFERENTIAL PRESSURE RESET - FOR WATER SIDE VARIABLE VOLUME PUMPS, WHEN THE DIFFERENTIAL PRESSURE SETPOINT IS EXCEEDED, THE PUMP SPEED SHALL RESET TO THE LOWEST SPEED TO SATISFY THE HIGHEST WATER FLOW DEMAND. NOTE: MIN WATER FLOW REQUIREMENTS AT THE PUMPS SHALL BE MAINTAINED AT ALL TIMES.



GENERAL
1. IR HEATERS SHALL BE CONTROLLED BY BMS THERMOSTAT. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. LOCAL HAND-OFF-AUTOMATIC SWITCH (H-O-A) FOR FANS SHALL OVERRIDE ALL OTHER COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
3. THE IR HEATERS AND EXHAUST FAN (EF-11) SHALL RUN CONTINUOUSLY DURING OCCUPIED MODE. THIS WILL BE CONSIDERED THE NORMAL OPERATION MODE.
4. PURGE EXHAUST FANS SHALL HAVE MANUAL OVERRIDE VIA LOCAL SWITCH (60 MINUTE WIND DOWN TIMER, ADJUSTABLE).

NORMAL OPERATION SEQUENCE
1. WHEN COMMANDED TO START THE EXHAUST FAN (EF-11) DAMPER SHALL OPEN AND THE IR HEATERS SHALL START AND EXHAUST FAN (EF-11) SHALL START. THE SPACE TEMPERATURE SENSOR SHALL MODULATE THE IR HEATERS TO MAINTAIN THE SPACE TEMPERATURE SET POINT. THE IR HEATERS AND EXHAUST FAN (EF-11) SHALL RUN CONTINUOUSLY IN THE NORMAL OPERATION MODE.

GAS DETECTION PURGE SEQUENCE
1. IF AT ANY TIME THE GAS DETECTION SYSTEM SERVING THE VEHICLE STORAGE DETECTS A GAS OVER THE LOW OR HIGH LIMIT SETPOINT THE BMS SHALL SIGNAL THE EXHAUST FANS (EF-5, EF-5A, EF-5B) INTO PURGE MODE.
2. DURING A LOW LIMIT ALARM THE PURGE EXHAUST FANS (EF-5, EF-5A, EF-5B) SHALL BE ACTIVATED. THE EXHAUST DAMPERS SHALL OPEN AND THE FANS SHALL OPERATE AT 50% SPEED. THE MOTORIZED DAMPERS ON THE OA INTAKE LOUVERS SHALL MODULATE TO ACCOMMODATE THE 50% EXHAUST AIRFLOW. EXHAUST FAN (EF-11) AND ITS RESPECTIVE EXHAUST DAMPER SHALL SHUT OFF AND CLOSE.
3. IF THE GAS LEVELS DO NOT RETURN TO NORMAL LEVELS AFTER 30 MIN (ADJ) OR IF A HIGH LIMIT ALARM IS DETECTED, THE PURGE EXHAUST FANS (EF-4, EF-5A, EF-5B) SHALL OPERATE AT 100% SPEED. THE DAMPERS ON THE OA INTAKE LOUVERS SHALL MODULATE FULLY OPEN.
4. WHEN THE GAS DETECTION SYSTEM SIGNALS NORMAL LEVELS OF GAS, THE BMS SHALL SIGNAL THE PURGE. EXHAUST FANS TO SHUT OFF AND EF-11 TO TURN ON. THE DAMPERS ON THE LARGE OA INTAKE LOUVERS SHALL CLOSE AND THE DAMPER ON THE SMALL OA INTAKE LOUVER SHALL OPEN.
5. REFER TO THE GAS MONITORING SYSTEM DIAGRAM FOR ADDITIONAL DETAILS.

VEHICLE STORAGE EXHAUST FANS

CF-1



GENERAL
1. UNIT SHALL BE CONTROLLED BY MANUFACTURER'S WALL MOUNTED CONTROLLER. CONTROLLER SHALL PROVIDE FAN START/STOP, SPEED, AND DIRECTION CONTROL FUNCTIONS. CONTROLLER SHALL BE ABLE TO CONTROL MULTIPLE FANS.
2. FANS SHALL BE SHUT DOWN WHEN SIGNALED BY AN ALARM FROM THE BMS VIA A GENERAL ALARM FROM THE FACP.
3. PROVIDE DDC CONTROLLER TO INTERFACE WITH BMS. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM WITH REAL TIME UPDATING OF CONDITIONS.

OCCUPIED MODE
1. FAN SHALL BE MANUALLY ENABLED AND DISABLED AT THE CONTROLLER. ONCE ENABLED, THE FAN CONTROLLER SHALL AUTOMATICALLY ADJUST THE SPEED OF THE FAN BASED ON SPACE TEMPERATURE SET POINT.
2. FAN SHALL BE AUTOMATICALLY CHANGE DIRECTION BASED ON MODE (WINTER/SUMMER).
   A. WINTER MODE: CONTROLLER TO AUTOMATICALLY ADJUST THE FAN SPEED TO MINIMIZE STRATIFICATION (TEMPERATURE DIFFERENCE BETWEEN THE FLOOR AND CEILING).
   B. SUMMER MODE: CONTROLLER TO AUTOMATICALLY INCREASE THE FAN SPEED AS THE FLOOR TEMPERATURE RISES.

UNOCCUPIED MODE
1. FAN SHALL BE OFF DURING UNOCCUPIED MODE.

CEILING FAN CONTROL SEQUENCE

UH-1

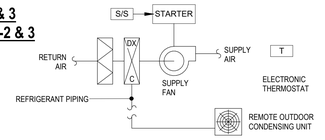
UNIT HEATER CONTROLS:
GENERAL
1. UNIT HEATER SHALL BE STARTED AND STOPPED VIA DDC CONTROLLER.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY CONTROL SEQUENCE.
4. ALL TEMPERATURES LISTED ARE IN FAHRENHEIT.

CONTROL SEQUENCE
1. THE UNIT HEATER FAN SHALL BE DE-ENERGIZED. UPON A DROP IN SPACE TEMPERATURE BELOW THE SETPOINT OF 60°F (ADJ), THE CONTROL VALVE (HV) SHALL OPEN AND FLOW SHALL BE PROVEN BY THE AQUASTAT PRIOR TO THE FAN BEING ENERGIZED.
2. THE OPPOSITE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE ABOVE 62°F (ADJ).

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 50°F (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION.

UNIT HEATER CONTROL SEQUENCE

AC-2 & 3
ACCU-2 & 3



DUCTLESS SPLIT CONTROLS:

GENERAL
1. DUCTLESS SPLIT SYSTEM SHALL BE CONTROLLED VIA THE MANUFACTURER'S PACKAGED CONTROL SYSTEM (7 DAY PROGRAMMABLE THERMOSTAT). PROVIDE BACNET GATEWAY TO INTERFACE WITH BMS.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. ALL TEMPERATURES LISTED ARE IN FAHRENHEIT.
4. INVERTER DRIVEN COMPRESSORS AND SAFETIES ON COMPRESSORS SHALL BE PROVIDED BY THE MANUFACTURER.
5. WIRE AND TEST UNIT MANUFACTURER'S CONTROLS.

DUCTLESS SPLIT CONTROL
1. THE SUPPLY FAN SHALL BE DE-ENERGIZED. UPON A RISE IN ROOM TEMPERATURE ABOVE THE COOLING SETPOINT OF 80°F (ADJ), THE DUCT SPLIT SYSTEM SHALL MODULATE TO MAINTAIN THE SETPOINT.
2. THE OPPOSITE SHALL OCCUR ON A DROP IN SPACE TEMPERATURE BELOW 76°F (ADJ).

DUCTLESS SPLIT SYSTEM (TEL/DATA)

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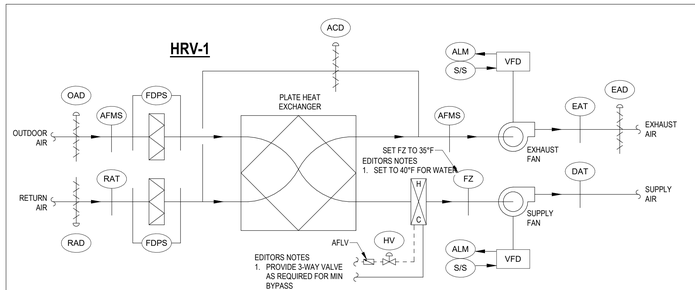
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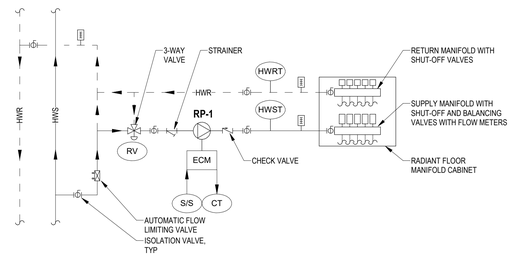
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AUTOMATIC TEMPERATURE CONTROLS

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HRV-1





GENERAL
1. ENERGY RECOVERY UNIT (HRV) SHALL BE CONTROLLED BY DDC CONTROLLER.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. ALL ACTUATORS SHALL BE ELECTRONIC. MANUFACTURER TO WIRE ALL CONTROL POINTS TO A TERMINAL STRIP FOR THE ATC CONTRACTOR TO CONNECT TO.
4. THE RADIANT FLOOR HEATING SYSTEM SHALL BE CONTROLLED BY THE BMS.
5. THE RADIANT FLOOR HEATING SYSTEM SHALL BE CONTROLLED WITH A VARIABLE HOT WATER TEMPERATURE TO MAINTAIN THE SPACE TEMPERATURE SENSOR. REFER TO THE RADIANT MANIFOLD SCHEDULE ON H602. THIS CONTROL SHALL UTILIZE THE INDOOR SPACE TEMPERATURE SENSOR AND OUTDOOR AIR TEMPERATURE SENSOR TO CONTROL THE RADIANT HWS TEMPERATURE.
6. THE RADIANT HEAT PORTION OF THE CONTROL SEQUENCE TO BE TYPICAL FOR EACH RADIANT MANIFOLD.
7. ALL TEMPERATURES LISTED ARE IN FAHRENHEIT.
8. LOCAL HAND-OFF-AUTOMATIC SWITCH (H-O-A) FOR FANS SHALL OVERRIDE DDC START/STOP COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
9. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (FAN, VALVES, DAMPERS, ETC.) WITH REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURE, ETC.).

HRV FAN CONTROL
1. WHILE DE-ENERGIZED (OR OFF ON SAFETY OR MANUAL DISCONNECT) HRV SUPPLY AND EXHAUST FAN SHALL BE OFF WITH THE OAD, RAD AND HV CLOSED.
2. WHEN COMMANDED TO START, THE HRV UNIT OAD AND RAD SHALL OPEN AND THE ACD SHALL REMAIN CLOSED. EAD SHALL OPEN, THE HRV SUPPLY AND EXHAUST FAN SHALL START. THE SPACE TEMPERATURE SENSOR SHALL MODULATE THE HOT WATER HEATING VALVE (HV) TO MAINTAIN THE SPACE TEMPERATURE SET POINT. THE HRV SUPPLY FAN AND EXHAUST FAN SHALL RUN CONTINUOUSLY.
3. THE SPACE PRESSURE SHALL REMAIN NEGATIVE TO ALL ADJACENT SPACES. THE SPACE DIFFERENTIAL SETPOINT SHALL BE SET TO -0.02" WC AND SHALL BE CONTROLLED BY REDUCING THE SUPPLY FAN SPEED.

ECONOMIZER
1. WHEN THE OUTDOOR TEMPERATURE IS ABOVE 50°F AND THE TEMPERATURE IN THE SPACE IS ABOVE SETPOINT, THE BYPASS DAMPER (ACD) SHALL OPEN TO BYPASS THE HEAT RECOVERY CORE. THE HRV OAD, EAD, AND RAD SHALL OPEN, AND THE SUPPLY AND EXHAUST FAN SHALL BE ENERGIZED.
2. IF THE SPACE TEMPERATURE DROPS 5°F BELOW SETPOINT WHILE IN THE ECONOMIZER MODE, THE SYSTEMS SHALL RETURN TO OCCUPIED SEQUENCE.

OCCUPIED HEATING MODE (HRV)
1. THE OAD, EAD, AND RAD SHALL OPEN AND THE ACD SHALL REMAIN CLOSED. THE SUPPLY AND EXHAUST FAN SHALL RUN CONTINUOUSLY. PRIMARY HEATING SHALL BE PROVIDED BY THE RADIANT FLOOR.
2. THE HV SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE (DAT) OF 65°F (ADJ).
3. IF THE RADIANT PUMP HAS FAILED, THE HV SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

UNOCCUPIED HEATING MODE (HRV)
1. THE OAD, EAD, AND RAD SHALL BE CLOSED. THE SUPPLY FAN SHALL BE DE-ENERGIZED.
2. IF THE RADIANT PUMP HAS FAILED, THE OAD, EAD, AND RAD SHALL OPEN AND THE ACD SHALL REMAIN CLOSED. THE SUPPLY AND EXHAUST FAN SHALL RUN CONTINUOUSLY, AND THE HV SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

UNOCCUPIED OVERRIDE (HRV)
1. BUTTON ON TEMPERATURE SENSOR SHALL ALLOW 2-HOUR (ADJ) OVERRIDE FROM UNOCCUPIED TO OCCUPIED CONTROL.

HEATING (RADIANT)
1. THE BMS SYSTEM WILL MONITOR THE OUTDOOR AIR TEMPERATURE. IF THE OUTDOOR AIR TEMPERATURE DROPS BELOW 65°F (ADJ) FOR MORE THAN 5 MINUTES (ADJ) THE BMS SYSTEM WILL ENABLE THE RADIANT FLOOR SYSTEM. WHEN THE SYSTEM IS ENABLED THE FOLLOWING WILL OCCUR:
   A. THE RADIANT PUMP SHALL BE ENERGIZED.
      a. THE LEAD RADIANT PUMP SHALL BE ENERGIZED AND PROVE FLOW. ONCE A PUMP IS ENERGIZED, IF FLOW IS NOT ESTABLISHED AS SENSED BY THE CURRENT TRANSFORMER (CT), THE LEAD PUMP SHALL BE DE-ENERGIZED AND THE STAND-BY PUMP SHALL BE ENERGIZED.
      b. LEAD PUMP OPERATION SHALL BE AUTOMATICALLY ROTATED WEEKLY (ADJ).
   B. THE MIXING VALVE SHALL MODULATE TO MAINTAIN THE SLAB TEMPERATURE BETWEEN A MINIMUM OF 65°F AND MAXIMUM OF 85°F AS REQUIRED TO MAINTAIN SPACE HEATING SETPOINT, SLAB TEMPERATURE INITIALLY SET FOR 65°F.
2. DURING THE HEATING SEASON THE BMS SYSTEM WILL MODULATE MIXING VALVE (RV) TO PROVIDE THE MIXED WATER TEMPERATURE TO THE FLOOR.
   A. IF ROOM IS AT SPACE HEATING SETPOINT, THE SLAB TEMPERATURE SETPOINT SHALL RESET TO 65°F (ADJ.),
   B. IF ROOM IS 5°F BELOW SETPOINT FOR 5 MINUTES (ADJ), SLAB TEMPERATURE SETPOINT SHALL RESET TO 85° F (ADJ). THE MIXING VALVE SHALL MODULATE TO MAINTAIN RADIANT LOOP HOT WATER TEMPERATURE BETWEEN A MINIMUM OF 60°F (ADJ) AND A MAXIMUM OF 120°F (ADJ) AS REQUIRED TO MAINTAIN THE SLAB AND CORRESPONDING ROOM TEMPERATURE SETPOINT.
   C. THERE SHALL NOT BE MORE THAN A 20°F (ADJ) DIFFERENTIAL TEMPERATURE BETWEEN THE MANIFOLD SUPPLY TEMPERATURE (HWST) AND THE MANIFOLD RETURN TEMPERATURE (HWRT).
   D. IF ROOM IS 5°F (ADJ) OR MORE ABOVE SPACE HEATING SETPOINT FOR 5 MINUTES (ADJ),AND THE OUTDOOR AIR IS ABOVE 40°F THE RV SHALL CLOSE AND THE PUMP SHALL BE DISABLED.
   E. IF THE OUTDOOR AIR IS BELOW 40°F, THE PUMP SHALL REMAIN ON 24/7.
3. IF THE OUTDOOR AIR TEMPERATURE RISE ABOVE 65°F (ADJ) FOR MORE THAN 5 MINUTES (ADJ) THE BMS WILL CLOSE THE RV AND THE RADIANT PUMP WILL BE DISABLED.

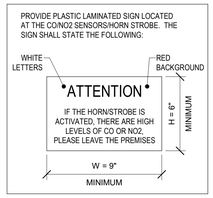
GAS DETECTION SEQUENCE
1. IF AT ANY TIME THE GAS DETECTION SYSTEM SERVING THE SHOP DETECTS A GAS OVER THE LOW OR HIGH LIMIT SETPOINT THE BMS SHALL SIGNAL THE HRV UNITS AND EXHAUST FAN INTO PURGE MODE (THE BYPASS DAMPERS (ACD) SHALL OPEN TO BYPASS THE HEAT RECOVERY CORE).
2. DURING A LOW OR HIGH LIMIT ALARM THE EXHAUST SEQUENCE SHALL BE ACTIVATED. THE OAD, EAD, AND RAD SHALL OPEN. THE EXHAUST AND SUPPLY FANS SHALL ENERGIZE.
3. WHEN THE GAS DETECTION SYSTEM SIGNALS NORMAL LEVELS OF GAS, THE DDC CONTROLLER SHALL SIGNAL THE HRV UNIT AND EXHAUST FAN TO RETURN TO NORMAL OPERATION (OCCUPIED OR UNOCCUPIED MODE).
4. REFER TO THE GAS MONITORING SYSTEM DIAGRAM FOR ADDITIONAL DETAILS.

PURGE FAN NORMAL OPERATION
1. PURGE FAN SHALL BE EXERCISED ON A MONTHLY BASIS (ADJ) FOR 15 MINUTES (ADJ).

SAFETIES
1. THE FOLLOWING SAFETIES SHALL SHUT DOWN THE HRV UNIT.
   A. THE FREEZESTAT SHALL SHUTDOWN HRV, CLOSE THE OAD AND RAD, OPEN THE HV WHENEVER THE TEMPERATURE IS BELOW 37°F (ADJ) EXCEPT WHEN THE HRU IS IN PURGE MODE. A DETAILED ALARM SIGNAL SHALL BE SENT TO THE OPERATOR WORKSTATION.
   B. UPON A FAILURE OF THE HRV SUPPLY OR EXHAUST FAN AS SENSED BY THE CURRENT SENSOR, A DETAILED ALARM SIGNAL SHALL BE SENT TO THE OPERATOR WORKSTATION. THE HRV UNIT SHALL BE DE-ENERGIZED, THE OAD AND RAD SHALL BE CLOSED.
2. UPON A FAILURE OF THE RADIANT PUMP AS SENSED BY THE CURRENT SENSOR, A DETAILED ALARM SIGNAL SHALL BE SENT TO THE OPERATOR WORKSTATION.

ALARMS
1. IF SUPPLY FAN OR ANY EXHAUST FAN FAILS OR ANY SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION.
2. IF THE FILTER PRESSURE DROP EXCEEDS SETPOINT (INITIALLY 0.4" WG) FOR 10 MINUTES, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION.
3. HEATING COIL DISCHARGE TEMPERATURE SENSOR SHALL LIMIT THE HEATING DISCHARGE AIR TEMPERATURE TO NO LOWER THAN 50°F (ADJ). IF THE LIMITS ARE EXCEEDED BY 2°F FOR 5 MINUTES (ADJ) OR LONGER, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION.
4. IF ANY PUMP FAILS OR ANY SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION.
5. IF THE SLAB TEMPERATURE RISES ABOVE 90°F (ADJ) FOR 30 MINUTES (ADJ) OR LONGER, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION. THE BMS SYSTEM SHALL ALSO DISABLE THE RADIANT FLOOR SYSTEM AND A HIGH SLAB TEMPERATURE ALARM WILL BE INDICATED IN THE BMS SYSTEM.
6. IF THE HOT WATER SUPPLY TEMPERATURE FOR THE RADIANT FLOOR RISES ABOVE 140°F (ADJ) FOR 30 MINUTES (ADJ) OR LONGER, THE DDC CONTROLLER SHALL SEND A DETAILED ALARM SIGNAL TO THE OPERATOR WORKSTATION. THE BMS SYSTEM SHALL ALSO DISABLE THE RADIANT FLOOR SYSTEM AND A HIGH WATER TEMPERATURE ALARM WILL BE INDICATED IN THE BMS SYSTEM.

HEAT RECOVERY VENTILATION UNIT W/ RADIANT FLOOR HEATING

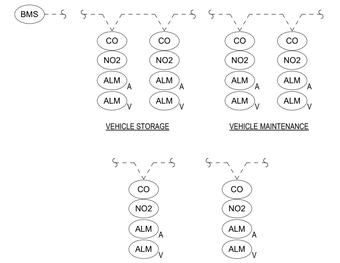


GAS SENSOR DETAILS			
SENSOR TYPE	GAS LEVEL LIMIT		INSTALLLATION
	LOW	HIGH	HEIGHT (AFF)
CO (CARBON MONOXIDE)	50 PPM	100 PPM	5 FT
NO2 (NITROGEN DIOXIDE)	2 PPM	5 PPM	5 FT

GENERAL
1. REFER TO FLOOR PLANS FOR LOCATIONS AND QUANTITIES OF GAS SENSORS. ALL SENSORS TO BE PROVIDED BY THE ATC CONTRACTOR.
2. THE GAS DETECTION SYSTEM SHALL BE PROVIDED WITH LOW VOLTAGE EQUIPMENT, REFER TO SPECIFICATIONS. LOW VOLTAGE WIRING BETWEEN SENSORS AND BMS BY ATC CONTRACTOR. EXPOSED CONTROL WIRING SHALL BE INSTALLED IN CONDUIT.
3. PROVIDE SIGN AT EACH SENSOR LOCATION TO INDICATE EVACUATION IF HORN AND STROBE IS ACTIVATED.

SEQUENCE
1. UPON A DETECTION OF EITHER GAS (CO OR NO2) AT LOW OR HIGH LIMIT, THE BMS SHALL SIGNAL THE CORRESPONDING SYSTEMS TO ENTER INTO A PURGE SEQUENCE OF OPERATION. IF A HIGH LIMIT IS DETECTED, THE GAS MONITORING SYSTEM SHALL ENERGIZE THE AUDIO AND VISUAL ALARMS VIA HORN AND STROBE (ALM A & ALM V) AND SEND A DETAILED ALARM TO THE BMS.
2. REFER TO THE ADDITIONAL SEQUENCES OF OPERATION FOR ADDITIONAL INFORMATION ON THE GAS DETECTION PURGE MODE.

GAS DETECTION SYSTEM



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NEW DEPARTMENT of PUBLIC WORKS FACILITY
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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale: NTS

Key Plan:

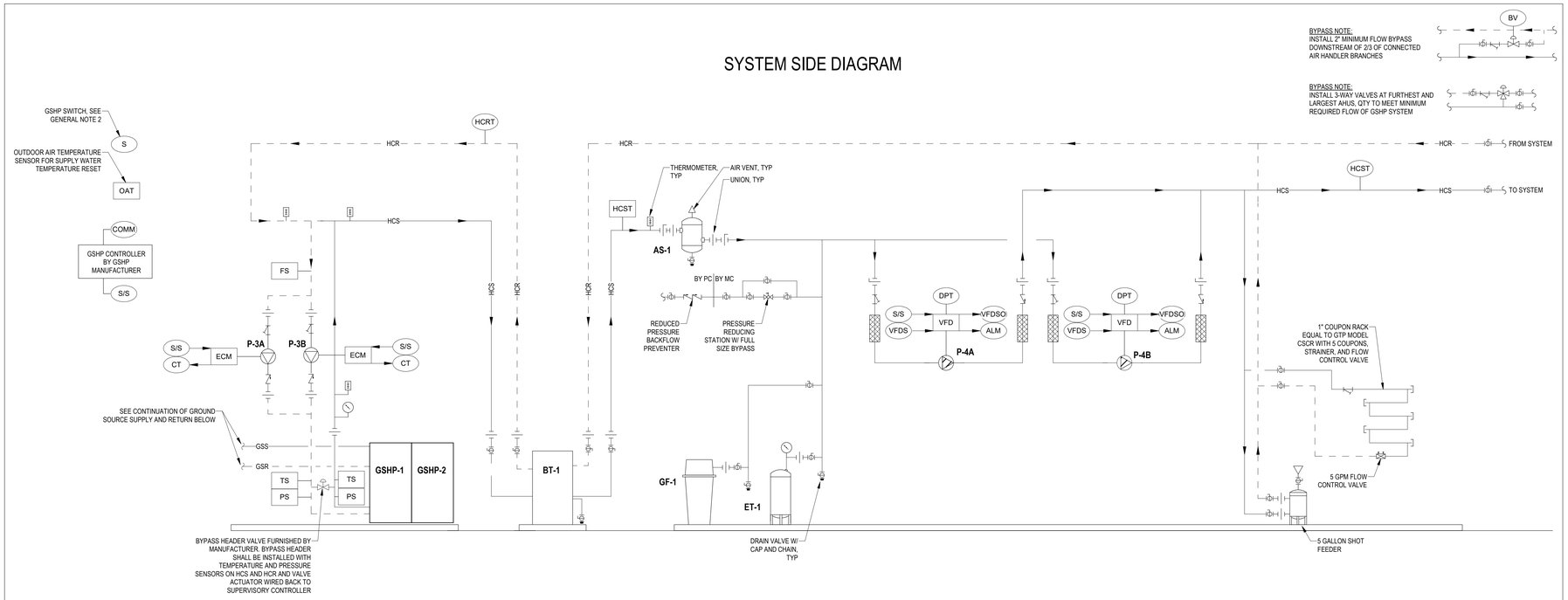
Date:	OCTOBER 31, 2025
Drawn By:	JCG
Reviewed By:	SEH
Approved By:	SEH
W&S Project No.:	24-1552
W&S File No.:	XXX

Drawing Title:
AUTOMATIC TEMPERATURE CONTROLS

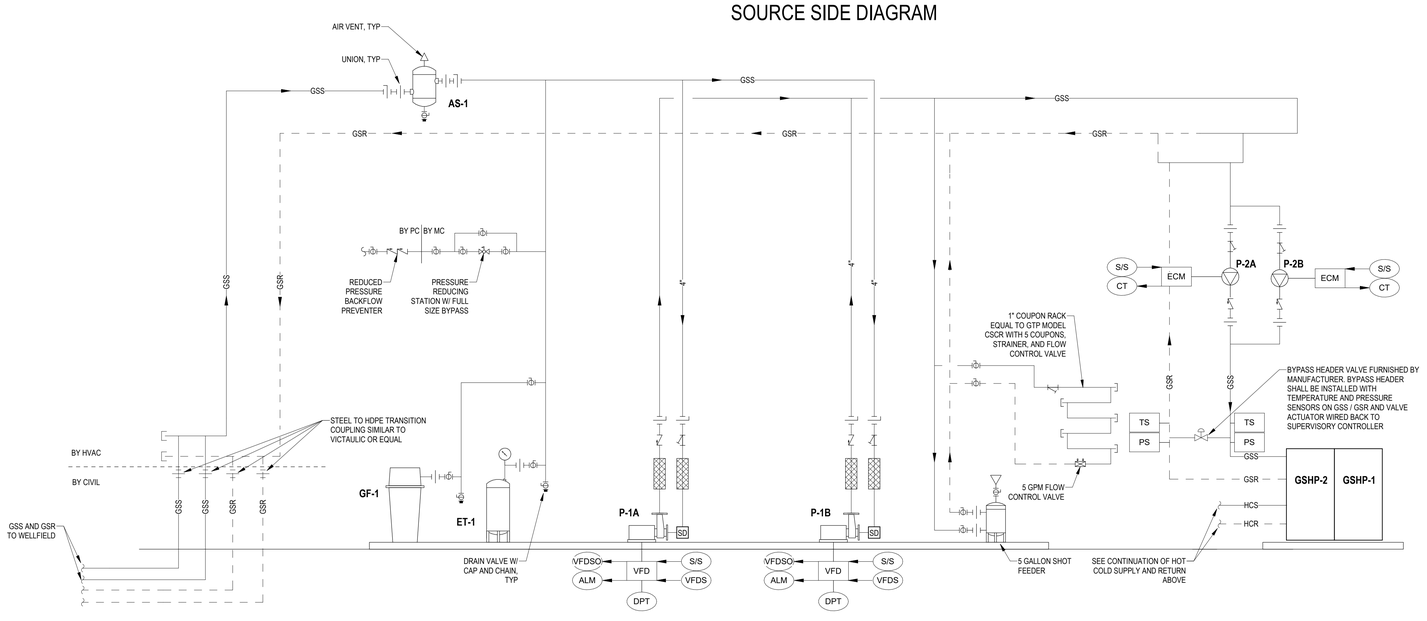
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SYSTEM SIDE DIAGRAM



SOURCE SIDE DIAGRAM



Project:
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Drawing Title:

AUTOMATIC TEMPERATURE CONTROLS

Sheet Number:

H703

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SYSTEM DESCRIPTION:

1. THE HEATING / COOLING PLANT CONSISTS OF:

a. ONE BANK OF GROUND SOURCE HEAT PUMPS - 2 MODULES (GSHP-1,2);
b. TWO SYSTEM PRIMARY PUMPS (P-3A & P-3B);
c. TWO SYSTEM SECONDARY PUMPS (P-4A & P-4B);
d. MANUFACTURER FURNISHED BYPASS HEADER. ONE BYPASS HEADER ON THE SYSTEM SIDE AND ONE ON THE SOURCE SIDE.
e. TWO SOURCE PRIMARY PUMPS (P-2A & P-2B);
f. TWO SOURCE SECONDARY PUMPS (P-1A & P-1B);
g. MINIMUM FLOW DIFFERENTIAL PRESSURE BYPASS CONTROL VALVE;
h. MANUFACTURER SUPERVISORY CONTROLLER.
i. ASSOCIATED APPURTENANCES.

1. HEAT PUMPS (GSHP) ALONG WITH PRIMARY PUMPS P-3A & GP-3B SHALL BE CONTROLLED BY THE HEAT PUMPS MANUFACTURER'S SUPERVISORY CONTROLLER AND INTEGRATED TO THE BAS.
2. THE HOT/CHILLED WATER DISTRIBUTION PUMPS P-4A & P-4B AND BYPASS HEADER SHALL BE CONTROLLED BY A DDC CONTROLLER.
3. ALL TEMPERATURES ARE IN FAHRENHEIT AND ALL SET POINTS SHALL BE ADJUSTABLE.
4. PROVIDE SENSORS AS SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR AND THE EQUIPMENT MANUFACTURER.
5. PROVIDE PRESSURE DIFFERENTIAL SENSORS / TRANSMITTER (DPS) FOR EACH PUMP FOR STATUS AND RUN TIME MONITORING VIA THE DDC SYSTEM.
6. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (PUMPS P-1A,1B, P-2A,2B, P-3A,3B, P-4A,4B, HEAT PUMPS GSHP-1, GSHP-2, WITH REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURES, ETC.).

AIR SOURCE HEAT PUMPS:
GENERAL:

1. PROGRAMS AND SEQUENCES INDICATED OR IMPLIED HEREIN SHALL BE PROVIDED.
2. PROVIDE ALL I/O POINT INDICATED ON THE CONTROL DIAGRAM AND AS REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION.
3. ALL WIRE TERMINALS, DEVICES, GAUGES AND WIRES SHALL BE IDENTIFIED WITHIN THE PANELS.
4. ALL POINTS SHALL BE ABLE TO INTEGRATE TO ALL TRENDS, TOTALIZATIONS, ETC., AS APPLICABLE.
5. AUTOMATICALLY RESTART ALL HEAT PUMPS AND HYDRONIC PUMPS UPON A POWER LOSS AND AFTER RESUMPTION OF NORMAL POWER FOLLOWING POWER OUTAGES AND DROPOUTS.
6. ALL ALARMS, AS INDICATED ON THE DRAWINGS IN THE SEQUENCE OF OPERATION, SHALL BE GENERATED TO THE APPROPRIATE SERVER OR WORKSTATIONS.
7. THE HEAT/COOL PLANT CONTROLS INFRASTRUCTURE SHALL BE DESIGNED FOR REDUNDANCY SO THE FAILURE OF A SINGLE PLANT STAGING CONTROLLER SHALL NOT CAUSE A TOTAL PLANT STAGING FAILURE.
8. GROUND SOURCE HEAT PUMP MANUFACTURER SHALL PROVIDE ALL SENSORS, RELAYS AND OTHER CONTROL DEVICES NECESSARY FOR COMPLETE AND WORKABLE HEAT/COOL CHANGEOVER SYSTEM FOR THE PRIMARY LOOP.
9. THE PRIMARY LOOP CONTROL SYSTEM SHALL PROVIDE ALL SEQUENCES FOR HEAT PUMPS, PRIMARY LOOP PUMPS, AND VALVES. THE PLANT CONTROL SHALL BE PROVIDED FOR MINIMAL USER INTERVENTION AND SHALL OPERATE AS A FULLY AUTOMATIC PLANT FOR YEAR ROUND OPERATION.
10. HEAT PUMP MANUFACTURER SHALL PROVIDE PRIMARY LOOP CONTROLS FOR ALL FLOW AND OPTIMIZATION SETPOINTS.
11. IF THE UNIT IS SERVED BY GENERATOR POWER, THE BAS CONTRACTOR SHALL CONFIRM ALL SEQUENCES ON NORMAL POWER, GENERATOR POWER AND TRANSITION STARTUPS FOR ALL RESTARTS OCCUR AUTOMATICALLY WITHOUT USER INTERVENTION

GROUND SOURCE HEAT PUMP SUPERVISORY CONTROLLER:

1. SYSTEM CAN BE ENABLED (CONTROLLER ON):
   - LOCALLY AT THE CONTROLLER'S DISPLAY.
   - BY DRY CONTACT
   - BY BMS
2. THE CONTROLLER SHALL ENABLE THE UNIT WITH THE LEAST AMOUNT OF RUNNING HOURS.
3. THE GSHP UNIT STARTS ITS OWN SEQUENCE: CHECK FLOWSWITCH STATUS,
   - IF UNSUCCESSFUL GENERATES ALARM.
   - IF SUCCESSFUL, THE UNIT STARTS NORMAL OPERATION, STAGING COMPRESSORS AS NEEDED TO MEET THE SETPOINT.
4. THE FIRST COMPRESSOR STARTS 60 SECONDS AFTER THE UNIT IS ENABLED. THE COMPRESSORS ARE STAGED FOLLOWING FACTORY RECOMMENDED TIMING, AND IN ORDER TO EQUALIZE RUN TIME BETWEEN COMPRESSORS.
5. THE CONTROLLER WILL DETERMINE IF ANOTHER UNIT IS REQUIRED TO BE ENABLED. AFTER THE MINIMUM TIME BETWEEN TWO DIFFERENT UNITS ENABLED IS SATISFIED (CONFIGURABLE), THE CONTROLLER WILL CALL THE SECOND UNIT ON, ONLY IF NEEDED.
6. THE CONTROLLER WILL STAGE ALL THE UNITS ON OR OFF, BASED ON ITS OWN LOGIC (LOAD PERCENTAGE AND TIMING, ALL CONFIGURABLE).
7. IF THERE IS NO LOAD REQUEST, BUT THE CONTROLLER IS ENABLED, ONE UNIT WILL BE ENABLED AND READY TO START AT ANY MOMENT.
8. THE CONTROLLER CAN HAVE ONE UNIT CONFIGURED AS BACK-UP. THIS UNIT WILL ONLY BE ENABLED IF ONE UNIT IS IN ALARM OR OUT FOR MAINTENANCE.

GENERAL

1. PROVIDE SENSORS AS SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR AND THE EQUIPMENT MANUFACTURER.
2. ALL TEMPERATURES ARE IN FAHRENHEIT AND ALL SET POINTS SHALL BE ADJUSTABLE.
3. PROVIDE SENSORS SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR AND THE EQUIPMENT MANUFACTURER.
4. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (PUMPS P-1A, P-1B, P-2A, P-2B, ETC.) WITH REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURES, ETC.)

GSHP OPERATION

1. THE GSHP SYSTEM SHALL BE ENABLED WHEN THE OAT DROPS BELOW 65°F (ADJ) FOR MORE THAN 15 MINUTES (ADJ) OR IF REHEAT IS REQUIRED IN ANY ZONE. THE GSHP SHALL BE AUTOMATICALLY STARTED AND STOPPED VIA THE LEAD GSHP'S CONTROL PANEL. THE GSHP SYSTEM SHALL BE DISABLED WHEN OAT RISES ABOVE 67°F (ADJ) FOR MORE THAN 15 MINUTES (ADJ) OR IF NO REHEAT IS REQUIRED.
2. THE HOT WATER SUPPLY TEMPERATURE SHALL BE 120°F. THE HOT WATER RETURN TEMPERATURE SHALL BE 105°F (ADJ).
3. THE HOT WATER SUPPLY TEMPERATURE SHALL BE RESET LINEARLY BETWEEN XX°F AND XX°F DEPENDENT UPON THE OUTDOOR AIR TEMPERATURE (XX°F AND -XX°F RESPECTIVELY). THE OUTDOOR RESET SCHEDULE SHALL BE FULLY ADJUSTABLE.
4. PROVIDE PRESSURE DIFFERENTIAL SENSORS/TRANSMITTER (DPS) FOR EACH PUMP FOR STATUS AND RUN TIME MONITORING VIA THE DDC SYSTEM.
5. HOT WATER HEATING LOAD (BTU/H) SHALL BE CALCULATED USING THE SECONDARY HOT WATER FLOW AND THE SUPPLY AND RETURN TEMPERATURES. PROVIDE A READ OUT AT THE OPERATOR WORKSTATION.

GSHP PUMP OPERATION

1. THERE SHALL BE A SOFTWARE ENABLE/DISABLE FOR THE CHILLED/HOT WATER SYSTEM. NO OPERATION CAN TAKE PLACE UNLESS THE SYSTEM IS ENABLED.
2. THE CHILLED/HOT WATER SYSTEM IS DESIGNED TO OPERATE YEAR ROUND.
3. WHEN THE SYSTEM IS COMPLETELY OFF, ALL VALVES SHALL BE CLOSED WITH THE EXCEPTION OF ANY DIFFERENTIAL PRESSURE, BYPASS OR MINIMUM FLOW VALVES TO PREVENT WATER HAMMER ON STARTUP.
4. THE BAS CONTRACTOR SHALL COORDINATE WITH THE GROUND SOURCE HEAT PUMP MANUFACTURER FOR ALL MINIMUM ON/OFF TIMES AND ANY TIMERS IN THE SEQUENCE THAT ARE REQUIRED FOR THEIR MACHINE TO RUN PROPERLY. THESE TIMES SHALL BE INCORPORATED INTO THE BAS CONTRACTORS SEQUENCE OF OPERATION AT TIME OF SUBMITTAL FOR APPROVAL.
5. ANY TIME THE VALVE END SWITCH DOES NOT MATCH COMMAND AFTER 1 MINUTE (ADJ.), AN ALARM SHALL BE GENERATED.
6. ANY TIME A PUMP STATUS DOES NOT MATCH THE COMMAND AFTER 1 MINUTE (ADJ.), AN ALARM SHALL BE GENERATED.
7. NO PUMP SHALL BE STARTED UNLESS THERE IS A FLOW PATH AS CONFIRMED BY VALVE END SWITCHES.
8. ANY EQUIPMENT DESIGNATED "LEAD" SHALL BE THE HEAT PUMP OR PUMP WITH THE LEAST RUNTIME AND SHALL BE ROTATED MONTHLY TO INSURE EQUAL WEAR. IF A LEAD DEVICE FAILS, THE NEXT DEVICE WITH THE LOWEST RUNTIME SHALL BE STARTED AND AN ALARM SHALL BE GENERATED. SHOULD THE FAILED DEVICE RESTART NORMAL OPERATION SHALL RESUME.
9. DURING THE SWITCHOVER PROCESS THE NEW LEAD PUMP SHALL BE SLOWLY RAMPED UP UNTIL ALL PUMPS ARE AT THE SAME SPEED WITHOUT AFFECTING SYSTEM PRESSURE. ONCE ALL PUMPS ARE AT THE SAME SPEED, THE PUMP WITH THE HIGHEST RUNTIME SHALL BE SLOWLY RAMPED DOWN UNTIL THE BAS HAS A 0% SPEED SIGNAL TO THE PUMP. AT THAT POINT THE PUMP SHALL BE SHUTDOWN.
10. WHEN A HEAT PUMP IS ENABLED TO START, A 10 MINUTE TIMER (ADJ.) IS STARTED. IF THE COMPRESSOR DOES NOT START OR SHUTS DOWN WITHIN 10 MINUTES (ADJ.), OR THE CHILLED WATER TEMPERATURE IS ABOVE SETPOINT, A LOCKOUT POINT WILL BE ENABLED, THE HEAT PUMP WILL SHUT DOWN, AND A BACK-UP HEAT PUMP WILL START. THE FAILED HEAT PUMP LOCKOUT ALARM SHALL BE ACTIVATED AT THE BAS. THE LOCKOUT POINT MUST BE MANUALLY COMMANDED OFF AT THE BAS SYSTEM VIA THE WORKSTATION FOR THE HEAT PUMP TO BE RE-ENABLED FOR AUTOMATIC OPERATION. THE LOCKOUT POINT SHALL AUTOMATICALLY RELEASE TO THE READIED AUTOMATIC STATE.

TEMPERATURE CONTROL:

CHILLED WATER:

1. CHILLED WATER SUPPLY TEMPERATURE SETPOINT: 42°F (ADJ.).
2. WHEN THE AIR SOURCE HEAT PUMP IS RUNNING FOR COOLING THE THREE-WAY TEMPERATURE CONTROL VALVE SHALL BE MODULATED TO MAINTAIN A SETPOINT THAT IS 12°F (ADJ.) ABOVE THE GROUND SOURCE HEAT PUMP CHILLED WATER SUPPLY SETPOINT.
3. IF THE GROUND SOURCE HEAT PUMP IS NOT AVAILABLE OR CANNOT MAINTAIN CHILLED WATER SUPPLY SETPOINT BASED ON BEING 2°F (ADJ.) ABOVE SETPOINT FOR 20 MINUTES (ADJ.), THE SECOND HEAT PUMP SHALL BE STARTED.
4. CHILLED WATER COOLING LOAD (BTU/H) SHALL BE CALCULATED USING THE PRIMARY LOOP CHILLED WATER FLOW AND THE SUPPLY AND RETURN TEMPERATURES. PROVIDE A READ OUT AT THE OPERATOR STATION.

HOT WATER:

1. HOT WATER SUPPLY TEMPERATURE SETPOINT: 120°F (ADJ).
2. THE MANUFACTURES' CONTROLS SHALL BE CONFIGURED SO THAT IF THE CONTROLLING HEAT PUMP FAILS OR IS OFF, HOT WATER IS STILL MAINTAINED.
3. WHEN THE HOT WATER SYSTEM IS OPERATIONAL, THE GROUND SOURCE HEAT PUMP SHALL BE PREFERENTIALLY LOADED BY INCREASING THE HOT WATER SUPPLY TEMPERATURE SETPOINT 2°F.
4. HOT WATER HEATING LOAD (BTU/H) SHALL BE CALCULATED USING THE PRIMARY LOOP HOT WATER FLOW AND THE SUPPLY AND RETURN TEMPERATURES. PROVIDE A READ OUT AT THE OPERATOR STATION.

SAFETIES AND MONITORING

1. THE FOLLOWING EVENTS SHALL CAUSE AN ALARM TO BE SIGNALED AT THE BAS FRONT END:
   A. ANY ALARM GENERATED BY THE AIR SOURCE HEAT PUMP CONTROL PANEL.
   B. ANY ALARM GENERATED AT THE EXISTING BOILER CONTROL PANEL.
   C. PUMP OR VFD FAILURE.
   D. EMERGENCY GAS SHUT-OFF.
2. PROVIDE FIREOMATIC THERMAL SAFETY SWITCHES AT EACH BURNER. REFER TO ELECTRICAL DRAWINGS.
3. PROVIDE BOILER SHUT-OFF SWITCHES AT EACH EXISTING BOILER ROOM ENTRANCE. REFER TO ELECTRICAL DRAWINGS. PROVIDE AND INSTALL SOLENOID VALVES IF NOT PROVIDED AS PART OF THE BOILERS GAS TRAIN. ALARM BPC SYSTEM UPON ACTIVATION.

GROUND SOURCE HEAT PUMP SEQUENCE OF OPERATION

Project:
TOWN of TRURO, MA
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AUTOMATIC TEMPERATURE CONTROLS

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ELECTRICAL SYMBOL LIST

LEGEND NOTES: THIS SHEET IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS AND SHALL BE USED AS A DICTIONARY TO DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT. ALL EQUIPMENT IS TO BE PROVIDED UNDER THIS SECTION UNLESS SPECIFICALLY INDICATED OTHERWISE.

LIGHTING FIXTURES (SEE LIGHTING FIXTURE SCHEDULE)

- LIGHTING FIXTURE, CEILING MOUNTED SURFACE, PENDANT OR RECESSED.
- LIGHTING FIXTURE ON LIFE SAFETY CIRCUIT.
- SINGLE FACE INTERNALLY LIT EXIT SIGN, DIRECTIONAL INDICATORS OF THE 'CHEVRON' TYPE AS INDICATED ON DRAWINGS.
- DOUBLE FACE INTERNALLY LIT EXIT SIGN, DIRECTIONAL INDICATORS OF THE 'CHEVRON' TYPE AS INDICATED ON DRAWINGS.
- CEILING MOUNTED FIXTURE-RECESSED, SURFACE OR PENDANT.
- WALL MOUNTED FIXTURE.
- FIXTURE KEYING SYSTEM
  A1 = FIXTURE TYPE
  32= CIRCUIT #
  32b b= SWITCH CONTROL
- EB EMERGENCY BATTERY UNIT WITH INTEGRAL HEADS.
- TRACK MOUNTED LIGHTING FIXTURES-LENGTH OF TRACK AS INDICATED ON DRAWINGS.
- POLE MOUNTED SITE LIGHTING FIXTURE-DOUBLE OR SINGLE HEAD.

LIGHTING CONTROLS

- SSU ALCS SYSTEM SERVER UNIT - REFER TO ALCS ONE-LINE DIAGRAM.
- ECU ALCS ENERGY CONTROL UNIT - REFER TO ALCS ONE-LINE DIAGRAM.
- NES ALCS NETWORK ETHERNET SWITCH - REFER TO ALCS ONE-LINE DIAGRAM.
- L ALCS MULTI-ZONE LOCAL STATION - REFER TO ALCS RISER DIAGRAM
- L K ALCS KEYED LOCAL SWITCHING STATION - REFER TO ALCS RISER DIAGRAM
- L RS ALCS SINGLE ZONE LOCAL ROUGH SERVICE STATION - REFER TO ALCS RISER DIAGRAM
- M ALCS MULTI-ZONE MASTER STATION - REFER TO ALCS RISER DIAGRAM
- MTS ALCS MASTER TOUCH SCREEN - REFER TO ALCS ONE-LINE DIAGRAM.
- LTS ALCS LOCAL TOUCH SCREEN - REFER TO ALCS ONE-LINE DIAGRAM.
- I/O DMX ALCS DMX512 CONTROL INTERFACE - REFER TO ALCS ONE-LINE DIAGRAM.
- PC ALCS EXTERIOR PHOTOCELL - REFER TO ALCS ONE-LINE DIAGRAM.
- X OS a ALCS CEILING OCCUPANCY SENSOR - REFER TO ALCS ONE-LINE DIAGRAM.
  X = SPECIAL TYPE DESIGNATION E.G.("WG" WIRE GUARD)
  a = OCCUPANCY SENSOR ZONE CONTROL
- X OSH a ALCS CEILING OCCUPANCY HIGH BAY SENSOR - REFER TO ALCS ONE-LINE DIAGRAM.
  X = SPECIAL TYPE DESIGNATION E.G.("WG" WIRE GUARD)
  a = OCCUPANCY SENSOR ZONE CONTROL
- PS ALCS CEILING PHOTO SENSOR - REFER TO ALCS ONE-LINE DIAGRAM.
- OS ALCS WALL OCCUPANCY SENSOR - REFER TO ALCS ONE-LINE DIAGRAM.
- LCM ALCS INPUT/OUTPUT MODULE - REFER TO ALCS ONE-LINE DIAGRAM.
- ER EMERGENCY BY-PASS RELAY - REFER TO EMERGENCY SUPERVISORY BY-PASS RELAY DETAIL

FIRE ALARM SYSTEM

- F MANUAL PULL STATION - MTD 48" AFF TO ℄.
- F AUDIO / VISUAL "ADA" COMPLIANT SIGNAL - MTD 80" AFF TO ℄. COLOR SHALL BE WHITE.
- F VISUAL "ADA" COMPLIANT SIGNAL - MTD 80" AFF TO ℄. COLOR SHALL BE WHITE.
- F AUDIO / VISUAL "ADA" COMPLIANT SIGNAL - CEILING MTD. COLOR SHALL BE WHITE.
- S CEILING MOUNTED PHOTOELECTRIC SMOKE DETECTOR.
- S E SMOKE DETECTOR ALSO USED FOR ELEVATOR RECALL.
- S SC SELF-CONTAINED 120 VOLT SMOKE DETECTOR.
- S L CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR WITH INTELLIGENT ADDRESSABLE LOW FREQUENCY LOCAL SOUNDER BASE.
- S D DUCT TYPE SMOKE DETECTOR WITH SAMPLING TUBE. FURNISHED BY EC, INSTALLED BY HVAC, WIRED BY EC.
- S D/FSD DUCT TYPE SMOKE DETECTOR WITH SAMPLING TUBE FOR CONTROL OF ASSOCIATED FSD AND UNIT SHUTDOWN FURNISHED BY EC, INSTALLED BY HVAC, WIRED BY EC.
- F H 135° THERMAL DETECTOR - 135°F FIXED TEMPERATURE AND RATE OF RISE. "F" INDICATES FIXED TEMPERATURE ONLY.
- H 200° THERMAL DETECTOR - 200°F FIXED TEMPERATURE.
- REMOTE ALARM INDICATOR - LABEL.
- T BD BEAM SMOKE DETECTOR - "T" DESIGNATES TRANSMITTER, "R" RECEIVER.
- RT KEY OPERATED REMOTE TEST STATION WITH LED LABEL.
- FS SPRINKLER FLOW SWITCH - F&I BY F.P.C. WIRED BY E.C.
- TS SPRINKLER TAMPER SWITCH - F&I BY F.P.C. WIRED BY E.C.
- PS SPRINKLER PRESSURE SWITCH - F&I BY F.P.C. WIRED BY E.C.
- LPS SPRINKLER LOW PRESSURE SWITCH - F&I BY F.P.C. WIRED BY E.C.
- FSD FIRE SMOKE DAMPER - F&I BY HVAC CONTRACTOR, WIRED BY E.C. CONTROL MODULE AND FIRE ALARM INTERLOCK WIRED BY ELECTRICAL CONTRACTOR.
- DH MAGNETIC DOOR HOLDER - MTD 80" AFF TO ℄.
- DC ELECTRIC DOOR CLOSER-F&I BY HARDWARE, WIRED BY EC.
- FACP FIRE ALARM CONTROL PANEL.
- ANN FIRE ALARM ANNUNCIATOR.
- LOC MASS NOTIFICATION SYSTEM LOCAL OPERATOR CONSOLE.
- MNS MASS NOTIFICATION SYSTEM ELECTRONIC TEXTUAL/ORAL MESSAGE BOARD
- R RED FIRE ALARM BEACON - WEATHERPROOF.
- W WHITE FIRE ALARM BEACON - WEATHERPROOF.
- F RED FIRE ALARM LIGHT OVER MASTER BOX - WEATHERPROOF.
- E SPRINKLER SYSTEM ELECTRIC BELL, FURNISHED BY F.P.C., INSTALLED & WIRED BY E.C.
- MM MONITOR MODULE
- CM CONTROL MODULE
- IM ISOLATION MODULE
- K KEY REPOSITORY BOX (KNOX BOX)
- KD KNOX DOCUMENT CABINET, MOUNTED TO PEDESTAL
- FATC FIRE ALARM TERMINAL CABINET
- PIV POST INDICATOR VALVE - F&I BY F.P.C., WIRED BY E.C.
- E3 CO WALL MOUNTED CARBON MONOXIDE DETECTOR, MOUNTING HEIGHT PER MANUFACTURERS RECOMMENDATION. PROVIDE ONE MONITOR MODULE PER SENSOR. "E3" INDICATES HONEYWELL E3 POINT CO DETECTOR
- GD WALL MOUNTED COMBUSTIBLE GAS DETECTOR (CH4) . PROVIDE A FIRE ALARM CONTROL MODULE PER DETECTOR FOR MONITORING BY THE FACP. MOUNT 1' BELOW CEILING.
- E FIRE ALARM ELECTRIC BELL (120 VOLTS), MOUNTED ABOVE FIRE DEPARTMENT SPRINKLER CONNECTION. FURNISHED BY F.P.C., INSTALLED & WIRED BY E.C.
- CO D DUCT MOUNTED CARBON MONOXIDE DETECTOR WITH SAMPLING TUBE FURNISHED BY E.C., INSTALLED BY HVAC, WIRED BY E.C. PROVIDE (1) MONITOR MODULE PER DETECTOR. PROVIDE (1) REMOTE ACCESSORY KIT WITH KEY TEST SWITCH AND INTEGRAL AUDIBLE AND VISUAL ALARM INDICATION TO BE MOUNTED BELOW HVAC UNIT.

TECHNOLOGY

- W VOICE OUTLET - AT 18" A.F.F., UNO - SINGLE GANG OPENING AND 4"SQ. X 2 1/2"DP J.B. WITH 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. MOUNTING DESIGNATIONS: "C" = ABOVE COUNTER, "W" = WALL PHONE AT 48" A.F.F., "V" = VERIZON LINE 18" A.F.F. "R" = RADIO AT 18" A.F.F. WIRING AND JACKS BY I.T. SUBCONTRACTOR
- #V/#D VOICE/DATA OUTLET - AT 18" A.F.F., UNO - SINGLE GANG OPENING AND 4"SQ. X 2 1/2"DP J.B. WITH 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. MOUNTING DESIGNATIONS: "C"=ABOVE COUNTER. WIRING AND JACKS BY I.T. SUBCONTRACTOR.
- # DATA OUTLET - AT 18" A.F.F. UNO-SINGLE GANG OPENING AND 4"SQ. X 2 1/2"DP J.B. WITH 1 1/4"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. MOUNTING DESIGNATIONS: "C"=ABOVE COUNTER, "AN"=WIRELESS ACCESS POINT ABOVE CEILING "S" = RADIO. JACKS AND WIRING BY I.T. SUBCONTRACTOR.
- DATA OUTLET FLUSH FLOOR MOUNTED - PROVIDE FLOOR BOX WITH SINGLE GANG OPENING WITH 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING OF SAME FLOOR. WIRING AND JACKS BY I.T. SUBCONTRACTOR.
- 60" 60" TVC VIDEO DISPLAY OUTLET & (2) 20AMP 120VOLT DUPLEX RECEPTACLE OUTLET PROVIDE WIREMOLD SERIES EFSB4 WALL BOX MODEL# EFSB4 OR EQUAL- AT 60"A.F.F., UNO-WITH (1)1"C. FOR DATA AND (1)1 1/4"C FOR FUTURE AV WIRING WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. DATA WIRING AND JACK BY I.T. SUBCONTRACTOR.
- 60" 60" TVE VIDEO PROJECTOR OUTLET - AT 108" A.F.F., UNO - (1)DOUBLE GANG OPENING AND (1) 4"SQ.X4"DEEP J.B. WITH (2) 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. (1) SINGLE GANG OPENINGS AND (1) 4"SQ. X 2 1/2"DP J.B. WITH (1) 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE.. WIRING AND DATA JACKS BY I.T. SUBCONTRACTOR.
- T VOICE/DATA OUTLET - AT 18" A.F.F., UNO - (1)DOUBLE GANG OPENING AND (1) 4"SQ.X4"DEEP J.B. WITH (2) 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. (2) SINGLE GANG OPENINGS AND (2) 4"SQ. X 2 1/2"DP J.B. WITH (2) 1"C. WITH PULL LINE TO NEAREST ACCESSIBLE CEILING SPACE. WIRING AND JACKS BY I.T. SUBCONTRACTOR.
- SRP SMART RESCUE PHONE. CUSTOM BACK BOX FURNISHED BY IT SUBCONTRACTOR AND INSTALL BY E.C. 1" CONDUIT W/PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.. DEVICE AND WIRING BY I.T. SUBCONTRACTOR.
- ARA AREA OF RESCUE ASSISTANCE BUTTON. CUSTOM BACK BOX FURNISHED BY IT SUBCONTRACTOR AND INSTALL BY E.C. 1" CONDUIT W/PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.. DEVICE AND WIRING BY I.T. SUBCONTRACTOR.

POWER

- 120/208 VOLT, 3 PHASE, 4 WIRE PANELBOARD.
- 277/480 VOLT, 3 PHASE, 4 WIRE, PANELBOARD.
- 120/208 VOLT, 3 PHASE, 4 WIRE NORMAL/EMERGENCY SYSTEM PANELBOARD.
- 277/480 VOLT 3 PHASE, 4 WIRE NORMAL/EMERGENCY SYSTEM PANELBOARD.
- PANELBOARD FLUSH MOUNTED.
- T5 T DRY TYPE TRANSFORMER - REFER TO TRANSFORMER SCHEDULE FOR RATINGS "T5"-INDICATES 45KVA TRANSFORMER. "K13" INDICATES TRANSFORMER WITH A K13 RATING.
- E ELECTRIC MANHOLE
- T TELEPHONE MANHOLE
- C CATV MANHOLE
- M METER SOCKET
- JB J J JUNCTION BOX - SIZE AS REQUIRED.
- DW J JUNCTION BOX - WITH FLEXIBLE CONNECTION TO EQUIPMENT-"DW" DENOTES DISHWASHER. PROVIDE GROUND FAULT INTERRUPTER TYPE CIRCUIT BREAKER & LOCAL TOGGLE SWITCH.
- WQ J JUNCTION BOX - WITH FLEXIBLE CONNECTION TO EQUIPMENT- "H" DENOTES HOOD, "WQ" WALL OVEN, "D" DISPOSER, "HD" HAND DRYER.
- 3R FUSED DISCONNECT SWITCH HEAVY DUTY TYPE-"3R" INDICATES NEMA 3R
  20 INDICATES TIME DELAY FUSE SIZE.
  30 INDICATES SAFETY SWITCH SIZE
- 3R UNFUSED DISCONNECT SWITCH HEAVY DUTY TYPE-"3R" INDICATES NEMA 3R
- RV MAGNETIC MOTOR STARTER, "RV" INDICATES REDUCED VOLTAGE.
- COMBINATION FUSED DISCONNECT AND MOTOR STARTER
- TS HORSEPOWER RATED THERMAL SWITCH WITH PILOT LIGHT
- VFD VARIABLE FREQUENCY DRIVE.
- C MULTIPOLE CONTACTOR IN NEMA I ENCLOSURE-RATINGS AND NUMBER OF POLES AS RQUIRED.
- CP EQUIPMENT CONTROL PANEL.
- ATS AUTOMATIC TRANSFER SWITCH.
- HOA HAND-OFF-AUTOMATIC SELECTOR SWITCH.
- THREE FUNCTION PUSHBUTTON SWITCH (UP/DOWN/STOP)-FURNISHED BY EQUIPMENT SUPPLIER, INST. & WIRED BY EC.
- 70AT 100AF CB ON/OFF PUSHBUTTON SWITCH. ENCLOSED CIRCUIT BREAKER-"70AT" INDICATES 70 AMP TRIP; "100AF" INDICATES 100 AMP FRAME.
- PB PULL BOX-SIZE AS REQUIRED.
- G GENERATOR.
- SPD SURGE PROJECTION DEVICE

WIRING AND RACEWAYS

- WIRING AND RACEWAY - NO. OF DIAGONAL LINES INDICATES NO. #12 AWG CONDUCTORS. ABSENCE OF DIAGONAL LINES INDICATES 2 #12 AWG+#12AWG GROUND UNLESS NOTED OTHERWISE. GROUND WIRE IS NOT SHOWN IN COUNT BUT SHALL BE PROVIDED.
- HOMERUN TO PANEL - NO. OF ARROWS INDICATES NO. OF 20 AMP/1 POLE CIRCUITS TO PANEL - UNLESS NOTED OTHERWISE.
- NE NORMAL/EMERGENCY WIRING - MIN. 2#10 AWG + #10 AWG GROUND. RUN IN SEPARATE RACEWAY.
- 4F FIRE ALARM WIRING - "4F" INDICATES 4 #14 THHN SOLID IN SIZE CONDUIT. 3/4" MIN.
- E EMERGENCY ONLY WIRING-MINIMUM 2#10 AWG IN SEPARATE RACEWAY.
- P UNDERGROUND PRIMARY ELECTRIC SERVICE
- SE UNDERGROUND SECONDARY ELECTRIC SERVICE
- T UNDERGROUND TELEPHONE SERVICE
- CTV UNDERGROUND CABLE TV SERVICE
- F UNDERGROUND FIRE ALARM SERVICE
- 4" CONDUIT SLEEVE THRU-WAY, ACROSS CORRIDOR OR BETWEEN ROOMS FOR TEL/DATA - LOCATE ABOVE CEILING.
- CONDUIT SLEEVE EXTENDED TO NEAREST ACCESSIBLE CEILING-TERMINATE WITH INSULATED BUSHING.
- FLEXIBLE CONNECTION TO EQUIPMENT
- CABLE TRAY-CONCEALED ABOVE CEILING IN FINISHED AREAS. PROVIDE LATERAL SUPPORT AS REQUIRED.
- WW WIREWAY-SIZE AS REQUIRED.

SECURITY SYSTEM

REFER TO DWG. E500 FOR SECURITY SYMBOL LIST

RECEPTACLES

ALL 15 & 20 AMP RECEPTACLES MOUNTED BELOW 5' 6" A.F.F. SHALL BE TAMPER RESISTANT.

TYPICAL OUTLET NOTATIONS (typically mtd. at 18" a.f.f., uno)

- "a" = SWITCHED OUTLET, "a" INDICATES SWITCH CONTROL
- "C" = MOUNTED 6" ABOVE COUNTER OR 42" AFF. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
- "F" = FURNITURE MTD, COORDINATE EXACT LOCATION WITH FURNITURE PLANS.
- "GFC" = GROUND FAULT INTERRUPTER TYPE MOUNTED AT 42" AFF.
- "GFI" = GROUND FAULT INTERRUPTER TYPE.
- "H" = HORIZONTALLY MOUNTED.
- "IG" = ISOLATED GROUND RECEPTACLE WITH SEPERATE GREEN GROUND CONDUCTOR WITH YELLOW STRIPE TO ISOLATED GROUND BUS IN PANEL.
- "M" = MODULAR FURNITURE SERVICE - PROVIDE FLEXIBLE CONNECTION, COORDINATE EXACT LOCATION WITH FURNITURE PLANS.
- "SP" = SURGE PROTECTION RECEPTACLE.
- "T" = TAMPER RESISTANT SAFETY RECEPTACLE.
- "TL" = TWIST LOCK TYPE.
- "WP" = WEATHER PROOF RECEPTACLE WITH LISTED "IN-USE" COVER PLATE FOR WET LOCATION WITH GFI TYPE RECEPTACLE INSTALLED IN NEMA 4 ENCLOSURE WITH KEY LOCK.
- "CD" = CABLE DROP RECEPTACLE - REFER TO CABLE DROP DETAIL.
- "P" = PEDESTAL MOUNTED ON CASEWORK WITH GFI RECEPTACLE. COORDINATE WITH EQUIPMENT DRAWINGS FOR EXACT LOCATION.
- "CR" = CORD REEL RECEPTACLE (WHITE) - REFER TO CORD REEL DETAIL.
- "E" = RECEPTACLE CONNECTED TO NORMAL/EMERGENCY CIRCUIT.
- "C" = OUTLET FOR GOOGLE CABINET, MTD 6'-6" AFF (REFER TO ARCH ELEVATIONS.)
- "REF = OUTLET FOR REFRIGERATOR
- "MIC" = OUTLET FOR MICROWAVE
- 20AMP, 120 VOLT SINGLE RECEPTACLE
- 2 20 AMP, 120 VOLT DUPLEX RECEPTACLE; "2" INDICATES CIRCUIT NUMBER.
- 20AMP, 120 VOLT DOUBLE DUPLEX RECEPTACLE.
- SPECIAL PURPOSE OUTLET - RATING AS INDICATED ON DRAWINGS. EXAMPLE: ELECTRIC DRYER= 30A, 125/250V, 3 POLE, 4 WIRE, NEMA 14-30R ELECTRIC RANGE= 50A, 125/250V, 3 POLE, 4 WIRE, NEMA 14-50R
- 20 AMP, 120 VOLT DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED EQUAL TO STEEL CITY #664-S WITH COVER #664-CST & (1) 664-S-RP.
- 20 AMP, 120 VOLT DOUBLE DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED EQUAL TO STEEL CITY #664-S WITH COVER #664-CST & (2) 664-S-RP.
- EWC J ELECTRIC WATER COOLER OUTLET OR BOTTLE FILLING STATION - 20 AMP, 120 VOLT, PROVIDE GROUND FAULT INTERRUPTER TYPE CIRCUIT BREAKER & LOCAL TOGGLE SWITCH.
- 20AMP, 120VOLT DUPLEX RECEPTACLE CONNECTED TO NORMAL/ EMERGENCY CIRCUIT.
- SURFACE RACEWAY WITH BASE, COVER, AND DIVIDER "B,C&D". EQUAL TO WIREMOLD V4000 SERIES, IVORY FINISH. PROVIDE FIBER READY 2" RADIUS FITTINGS. SOLID END INDICATES RISE TO ABOVE ACCESSIBLE CEILING SPACE WITH B,C&D.
- 20 AMP, 120 VOLT GFI, HORIZONTALLY MOUNTED ON FURNITURE DUPLEX RECEPTACLE INTENDED FOR COMPUTER USE. COLOR OF OUTLET TO BE SELECTED BY OWNER.
- 20 AMP, 120 VOLT DUPLEX RECEPTACLE INTENDED FOR COMPUTER USE. COLOR OF OUTLET TO BE SELECTED BY OWNER.
- 20AMP, 120VOLT DOUBLE DUPLEX RECEPTACLE INTENDED FOR COMPUTER USE. COLOR OF OUTLET TO BE SELECTED BY OWNER.
- TWO DUPLEX RECEPTACLES, MOUNTED AT 18" AFF AND 84" AFF.
- USB 20 AMP, 120 VOLT DUPLEX RECEPTACLE w/ USB OUTLETS INTENDED FOR COMPUTER USE. COLOR OF OUTLET TO BE SELECTED BY ARCHITECT.
- 20 AMP, 120 VOLT DUPLEX SWITCHED RECEPTACLE. PROVIDE IO MODULE. REFER TO DETAIL 12/E306
- 20 AMP, 120 VOLT DOUBLE DUPLEX SWITCHED RECEPTACLE. PROVIDE IO MODULE . REFER TO DETAIL 12/E306
- ECAT RECESSED FLOOR BOX WITH (2) 20A, 120V DUPLEX RECEPTACLES AND PROVISIONS FOR (4) RJ45 JACKS EQUAL TO WIREMOLD RESOURCE SERIES #RFB4-FPCTCBS (CARPET), FPBTCBS (WOOD FLOOR) AND COMMUNICATION BRACKET FOR TEL/DATA DEVICES. PROVIDE (1)3/4"C FOR POWER AND (2)1"C FOR TEL/DATA TO NEAREST ACCESSIBLE CEILING SPACE.
- ECAT RECESSED FLOOR BOX WITH (2) 20A, 120V DUPLEX RECEPTACLES AND PROVISIONS FOR (4) RJ45 JACKS EQUAL TO WIREMOLD EVOLUTION SERIES #EFB6-FPCTCBS (CARPET), FPBTCBS (WOOD FLOOR) AND COMMUNICATION BRACKET FOR TEL/DATA DEVICES. PROVIDE (1)3/4"C FOR POWER, (1)1"C FOR TEL/DATA AND (3) 1 1/4" FOR A/V WIRING TO NEAREST ACCESSIBLE CEILING SPACE.
- FLUSH MOUNTED 2 HOUR RATED POKE-THRU ASSEMBLY WITH (2) DUPLEX RECEPTACLES & (4) COMMUNICATION DEVICES EQUAL TO WIREMOLD EVOLUTION 6AT SERIES WITH SOLID BRASS FINISH RING OR EQUAL. REQUIRES 6" CORED HOLE.
- 2V/4D FLUSH MOUNTED 2 HOUR RATED POKE-THRU ASSEMBLY WITH (2) DUPLEX RECEPTACLES & (2) COMMUNICATION DEVICES EQUAL TO WIREMOLD EVOLUTION 6AT SERIES WITH SOLID BRASS FINISH RING. REQUIRES 6" CORED HOLE.
- FLUSH MOUNTED 2 HOUR RATED POKE-THRU ASSEMBLY WITH (2) DUPLEX RECEPTACLES & (2) COMMUNICATION DEVICES EQUAL TO WIREMOLD EVOLUTION 8AT SERIES WITH SOLID BRASS FINISH RING. REQUIRES 8" CORED HOLE. PROVIDE (1) 1 1/4"C. & (2) 1"C. TO ABOVE ACCESSIBLE CEILING OF ROOM BEING SERVED BY THE POKE-THRU.

MECHANICAL EQUIPMENT

(REFER TO MECHANICAL EQUIPMENT SCHEDULE)

- BB CH ELECTRIC BASEBOARD-FURNISHED BY HVAC, INSTALLED AND WIRED BY EC. CABINET HEATER - F & I BY HVAC, WIRED BY E.C.
- UH UNIT HEATER - F & I BY HVAC, WIRED BY E.C.
- EF EXHAUST FAN - F & I BY HVAC, WIRED BY E.C.
- C.O J CONNECTION TO CARBON MONOXIDEMONITOR MIN. 3#14 AWG. PER MONITOR.
- TB TERMINAL BOX-F&I BY HVAC WIRED BY E.C.
- FS D MOTORIZED FIRE/SMOKE DAMPER-F&I BY HVAC, WIRED BY E.C. TO POWER & FIRE ALARM SYSTEM.
- 2 MOTOR - NUMERAL INDICATES HORSEPOWER

SWITCHES (typically mtd 48" AFF ℄ u.n.o)

- S_a SINGLE POLE SWITCH-"a" DESIGNATES SWITCH CONTROL (LOWER CASE).
- S_2 TWO POLE SWITCH
- S_3 THREE-WAY SWITCH.
- S_P SINGLE POLE SWITCH WITH PILOT LIGHT-GLOWS IN "OFF" POSITION WHEN IN VIEW OF LIGHTS. GLOWS IN "ON" POSITION WHEN REMOTE FROM LIGHTS.
- S_K KEY OPERATED SWITCH.
- S_{WP} WEATHERPROOF SINGLE POLE SWITCH.
- S_{XP} EXPLOSION PROOF SINGLE POLE SWITCH.
- S_F FAN SPEED SWITCH.

ONE LINE POWER

- LOAD-BREAK SWITCH.
- CIRCUIT BREAKER.
- K1 KIRK-KEY INTERLOCK.
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER.
- LA LIGHTNING ARRESTER AND GROUNDING TO PROTECT ALL PHASES.
- CONTACT, NORMALLY OPEN (NO).
- CONTACT, NORMALLY CLOSED (NC).
- ST SHUNT TRIP COIL.
- CM CUSTOMER METERING, ELECTRONIC SOLID STATE, EQUAL TO WESTINGHOUSE IQ DATA PLUS, UNLESS OTHERWISE INDICATED.
- POWER TRANSFORMER.
- FUSE, SIZE AS INDICATED.
- GF GROUND FAULT SENSOR & RELAY.
- DRAWOUT CIRCUIT BREAKER.
- 300A 400A SWITCH AND FUSE
  "400A" - INDICATES AMPERE SWITCH SIZE.
  "300A" - INDICATES AMPERE FUSE SIZE.
- SYSTEM GROUND OR EQUIPMENT GROUND.
- N E L AUTOMATIC TRANSFER SWITCH.
- MO ELECTRONICALLY OPERATED MOTORIZED CIRCUIT BREAKER

MISCELLANEOUS DEVICES

- EPO EMERGENCY POWER SHUNT TRIP - RED MUSHROOM HEAD WITH EXTENDED GUARD EQUAL TO SQUARE D NO. KRSRH13-K68 WITH EMERGENCY OFF LEGEND, MOUNT AT 48"AFF., U.O.I. PROVIDE NAMEPLATE INDICATING LOAD CONTROLLED "B" - INDICATES BREAK GLASS STATION WITH HAMMER SUPPORT CLIP AND FIVE REPLACEMENT DISCS STORED INSIDE BOX SUPPORTING DEVICE.
- HANDICAP DOOR ACTIVATE SWITCH-FURN. & INST. BY SYSTEM SUPPLIER. PROVIDE 4"SQ X 2 1/2"DP JB AND 1"C WITH PULL LINE TO ELECTRIC DOOR OPERATOR.
- SV SOLENOID VALVE-F&I BY P.C., WIRED BY E.C.
- TC TIMECLOCK
- TPD TEMPERATURE SENSOR - CONNECT TO SECURITY SYSTEM.
- LS LIMIT SWITCH.
- B DOOR BELL-COORDINATE MH WITH ARCHITECT.
- LOW VOLTAGE PUSHBUTTON.
- 1 E1.1 DETAIL IDENTIFIER - INDICATES DETAIL #1 ON DWG. E1.1 OF THE SAME BUILDING DESIGNATION AS THE DWG. THE REFERENCE IS MADE UNLESS OTHERWISE NOTED. GENERAL SHEETS (DESIGNATION "G") HAVE UNIQUE DRAWING NUMBERS AND SHALL NOT HAVE ADDITIONAL NOTATION.
- GROUND BAR 24W" X 1/8" THICK X 18" LONG COPPER BUS, U.N.O.
- A A 1 E-3 SECTION IDENTIFIER- INDICATES SECTION A-A, DETAIL #2 ON DWG. E-3.
- K2 EQUIPMENT TAG NUMBER, REFER TO EQUIPMENT SCHEDULE, "K" INDICATES KITCHEN "C" INDICATES COMPUTER.
- 1 NOTE SYMBOL, "1" INDICATES TO REFER TO NOTE #1
- 3 CIRCUIT SIZE NUMBER, REFER TO "CIRCUIT SIZE SCHEDULE".
- SB SB SCOREBOARD CONTROL OUTLET - WALL MOUNTED AT 18" A.F.F. OR FLOOR BOX. UNO - SINGLE GANG OPENING AND 4"SQ. X 2 1/2"DP J.B. WITH 1"C. WIRING AND JACKS BY I.T. CONTRACTOR.
- ADA CS ADA "CALL STATION", HANDS FREE. MOUNT AT 48"AFF.
- ADA MCS ADA "MASTER CALL STATION", HANDS FREE. MOUNT AT 48"AFF.
- P EMERGENCY CALL STATION - LOCATE WITHIN 3' OF WATER CLOSET WITH PULL CORD EXTENDING TO WITHIN 12" OF THE FLOOR.
- AV AUDIO/VISUAL SIGNAL FOR SINGLE TOILETS. MOUNT OVER DOOR.
- E ELECTRIC DOOR-OPERATOR. FURN. & INST. BY GC, WIRED BY EC.
- FS XX EYE WASH FLOW SWITCH- F&I BY PLUMBING CONTRACTOR WIRED BY E.C. PROVIDE SINGLE GANG BOX FOR KEY SWITCH, FLOW SWITCH, 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. REFER TO KEY SWITCH BY-PASS DETAIL.
- EFS E FLOW SWITCH NOTIFICATION BEACON
- XX01 EQUIPMENT TAG. REFER TO ASSOCIATED EQUIPMENT SCHEDULES.
- SM SECURITY MODULE FOR HANDICAP DOOR OPERATOR.
- XXX THEATRICAL EQUIPMENT TAG
- CH CABLE HOOK
- CABLE PASS THRU
- LEAK DETECTION SENSOR

ELECTRICAL GENERAL NOTES

1. THE SCOPE OF WORK SHALL INCLUDE PROVIDING ALL WORK INDICATED, AND COORDINATION WITH ALL TRADES. SCOPE OF WORK IS INDICATED ON THE CONTRACT DOCUMENTS INCLUDING THE DRAWINGS AND THE SPECIFICATIONS, WHICH ARE COMPLIMENTARY. WORK INDICATED IN ANY CONTRACT DOCUMENT SHALL BE CONSIDERED PART OF THE SCOPE OF WORK. IN GENERAL, WORK REQUIREMENTS ARE NOT INDICATED IN BOTH DOCUMENTS . WHERE DOCUMENTS CONFLICT WITHIN THEMSELVES OR WITH CODES AND REGULATIONS, PROVIDE THE HIGHER QUANTITY AND QUALITY AND FOLLOW THE STRICTER REQUIREMENTS.
2. COORDINATE WITH THE GENERAL CONTRACTOR, OTHER TRADES AND OF MANUFACTURERS EQUIPMENT AND MAKE ALL FINAL CONNECTIONS AS REQUIRED, I.E., POWER, CONTROL, INTERLOCK, ETC.
3. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH OSHA, NFPA STANDARDS, THE ELECTRICAL CODE AND THE LOCAL GOVERNING AUTHORITIES. THE DRAWINGS AND SPECIFICATIONS DO NOT ATTEMPT TO INDICATE ALL WORK REQUIRED BY CODES AND AUTHORITIES.
4. TEST ALL EQUIPMENT AND SYSTEMS INSTALLED TO CERTIFY COMPLIANCE WITH DRAWINGS, SPECIFICATIONS, CODES, LOCAL AUTHORITIES AND REGULATIONS. INCLUDE LABOR AND COSTS FOR TESTING, REVIEWS, APPROVALS AND CERTIFICATIONS.
5. DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATION, MOUNTING HEIGHTS OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED WITH THE EQUIPMENT REQUIREMENTS AND FIELD CONDITIONS.
6. FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.
7. SUPPORT ALL WORK FROM THE BUILDING STRUCTURE.
8. ALL MOUNTING HEIGHTS ARE TO CENTERLINE UNLESS OTHERWISE INDICATED.
9. IF EXACT MOUNTING OR RACEWAY ROUTINGS ARE NOT INDICATED (LOCATION OR HEIGHT) REQUEST CLARIFICATION PRIOR TO ROUGHING, OR INSTALLATION.
10. ELECTRICAL WORK SHALL BE RECESSED INTO WALLS OR INSTALLED ABOVE HUNG CEILINGS UNLESS OTHERWISE INDICATED.
11. DO NOT INSTALL OUTLETS BACK TO BACK. PROVIDE 24 INCH SPACING IN FIRE RATED WALLS. SEE ARCHITECTURAL DRAWING FOR ADDITIONAL INFORMATION.
12. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND INTERIOR WALLS BETWEEN CONDITIONED AND NON-CONDITIONED SPACES.
13. WIRE AND CONDUIT SIZES INDICATED ON HOMERUNS SHALL BE CONTINUOUS THROUGHOUT CIRCUIT.
14. FURNISH AND INSTALL CODE REQUIRED DISCONNECTS WHICH ARE NOT FURNISHED BY THE HVAC OR PLUMBING CONTRACTORS.
15. INSTALL A GREEN GROUNDING CONDUCTOR WITHIN EACH RACEWAY SIZED IN ACCORDANCE WITH THE ELECTRIC CODE.
16. PROVIDE WATERTIGHT AND GAS TIGHT SEALS INSIDE AND OUTSIDE OF CONDUITS THAT PENETRATE THE BUILDING BELOW GRADE, O.Z. GEDNEY OR APPROVED EQUAL. PROVIDE WEATHER TIGHT SEAL AT PENETRATIONS ABOVE GRADE.
17. PROVIDE NRTL LISTED SMOKE AND FIRE SEALS AT ALL PENETRATIONS THROUGH FLOORS OR FULL HEIGHT (SLAB TO SLAB) WALLS.
18. USE CAUTION TO AVOID DAMAGE TO EXISTING UTILITY LINES AND/OR HARM TO PERSONNEL WORKING IN THESE AREAS.
19. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER MINIMUM #12 AWG. SIZE UNLESS OTHERWISE INDICATED.
20. PROVIDE A PULL LINE IN EVERY EMPTY CONDUIT PROVIDED UNDER THIS SECTION.
21. WIRING IS INDICATED ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
22. WIRING AND CONDUIT SHALL BE REQUIR

LIGHTING FIXTURE SCHEDULE (1) (7) (8) (9) (10)

TYPE	MANUFACTURER	MODEL / SERIES	MTG.	VOLTAGE	LIGHTING SOURCE			DESCRIPTION	SCHEDULE NOTES
					LUMENS	WATTS	SOURCE/CCT		
J	MOBERN LIGHTING	VPL-14W-40K-V8-CG-SB-WM	W	UNIVERSAL	595	13	LED/4000K	UTILITY LED JELLY JAR STYLE FIXTURE WITH FROSTED HEAT TREATED GLASS GLOBE AND CAST GUARD CAPABLE OF 0-10V DIMMING.	4 6 - - -
LP1	SPEC GRADE LIGHTING	HBF SERIES	P	UNIVERSAL	-	-	LED/3500K	LED HIGH BAY LIGHTING FIXTURE WITH FROSTED LENSING, 0-10V DIMMING CAPABILITY, UP-LIGHT SOURCE, AND RIGID STEM MTG.	- - - - -
LP8	LUX ILLUMINAIRE	EOS 3.0m-P-DI SERIES	AC	UNIVERSAL	-	-	LED/3500K	8' LED LINEAR PENDANT FIXTURE WITH DIRECT/INDIRECT DISTRIBUTION, WIDE SPREAD TOP OPTIC, AND 0-10V DIMMING CAPABILITY.	6 - - - -
LP10	LUX ILLUMINAIRE	EOS 3.0m-P-DI SERIES	AC	UNIVERSAL	-	-	LED/3500K	10' LED LINEAR PENDANT FIXTURE WITH DIRECT/INDIRECT DISTRIBUTION, WIDE SPREAD TOP OPTIC, AND 0-10V DIMMING CAPABILITY.	4 6 - - -
LR4	LUX ILLUMINAIRE	EOS 3.0-R SERIES	R	UNIVERSAL	-	-	LED/3500K	4' LED RECESSED FIXTURE WITH 2" APERTURE AND FROSTED DIFFUSING LENS PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
LR6	LUX ILLUMINAIRE	EOS 3.0-R SERIES	R	UNIVERSAL	-	-	LED/3500K	6' LED RECESSED FIXTURE WITH 2" APERTURE AND FROSTED DIFFUSING LENS PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
LR8	LUX ILLUMINAIRE	EOS 3.0-R SERIES	R	UNIVERSAL	-	-	LED/3500K	8' LED RECESSED FIXTURE WITH 2" APERTURE AND FROSTED DIFFUSING LENS PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
LR22	MARK ARCHITECTURAL	WHSPR SERIES	R	UNIVERSAL	-	-	LED/3500K	2'x2' LED RECESSED TROFFER FIXTURE WITH DECORATIVE CENTER BASKET AND PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
LS4	PRIMUS LIGHTING	LN2-FRL SERIES	S	UNIVERSAL	-	-	LED/3500K	4' LED LINEAR UTILITY FIXTURE WITH FROSTED ACRYLIC LENS, 0-10V DIMMING CAPABILITY AND PROVIDED WITH CHAIN MOUNTING HARDWARE.	4 6 - - -
LS4H	ILP LIGHTING	WTZ SERIES	S	UNIVERSAL	-	-	LED/3500K	4' LED FULLY GASKETED FIXTURE WITH FROSTED POLY CARBONATE LENS AND PROVIDED WITH PENDANT MOUNTING HARDWARE.	4 6 - - -
LS8	PRIMUS LIGHTING	LN2-FRL SERIES	S	UNIVERSAL	-	-	LED/3500K	8' LED LINEAR UTILITY FIXTURE WITH FROSTED ACRYLIC LENS, 0-10V DIMMING CAPABILITY AND PROVIDED WITH CHAIN MOUNTING HARDWARE.	4 6 - - -
LS8H	ILP LIGHTING	WTZ SERIES	S/P	UNIVERSAL	-	-	LED/3500K	8' LED FULLY GASKETED FIXTURE WITH FROSTED POLY CARBONATE LENS AND PROVIDED WITH PENDANT MOUNTING HARDWARE.	4 6 - - -
LSV8	ILP LIGHTING	WTZ SERIES	S/P	UNIVERSAL	-	-	LED/3500K	8' LED FULLY GASKETED FIXTURE WITH FROSTED POLY CARBONATE LENS AND PROVIDED WITH PENDANT MOUNTING HARDWARE.	4 6 - - -
LWS	FINELITE LIGHTING	EOS 3.0-R-PER SERIES	R	UNIVERSAL	-	-	LED/3500K	4" APERTURE LED WALL WASH FIXTURE WITH REGRESSED LENSING AND PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
RC1	GOTHAM	EVO4 SERIES	R	UNIVERSAL	-	-	LED/3500K	4" APERTURE LED DOWNLIGHT FIXTURE WITH SEMI-SPECULAR REFLECTOR AND PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
RC2	GOTHAM	EVO2 SERIES	R	UNIVERSAL	-	-	LED/3500K	2" APERTURE LED DOWNLIGHT FIXTURE WITH SEMI-SPECULAR REFLECTOR AND PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
RSH	GOTHAM	EVO4SH SERIES	R	UNIVERSAL	-	-	LED/3500K	4" APERTURE LED DOWNLIGHT FIXTURE DEAD FRONT LENS AND SUITABLE FOR USE IN WET LOCATION APPLICATIONS.	4 6 - - -
UC	ACOLYTE	CHAC 2 SERIES	S	UNIVERSAL	-	-	LED/3500K	LED TAPE MOUNTED IN QUARTER SPHERE SURFACE MOUNTABLE CHANNEL. FIX. TO BE PROVIDED WITH 0-10V DIMMING CAPABILITY.	4 6 - - -
SL1/3	LITHONIA LIGHTING	DSX0LED-P1-30K-80CRI-T3M-MVOLT-RPA+15' ROUND TAPERED ALUMINUM POLE	POLE	UNIVERSAL	-	-	LED/3000K	SINGLE HEAD POLE FIXTURE W/ TYPE III DISTRIBUTION MOUNTED ON ROUND ALUMINUM TAPERED POLE RATED FOR 110MPH WIND CONDITIONS	3 4 6 13 -
SL1/4	LITHONIA LIGHTING	DSX0 LED-P1-30K-80CRI-T4M-MVOLT-RPA+15 ' ROUND TAPERED ALUMINUM POLE	POLE	UNIVERSAL	-	-	LED/3000K	SINGLE HEAD POLE FIXTURE W/ TYPE IV DISTRIBUTION MOUNTED ON ROUND ALUMINUM TAPERED POLE RATED FOR 110MPH WIND CONDITIONS	3 4 6 13 -
SL1/4HS	LITHONIA LIGHTING	DSX0 LED-P1-30K-80CRI-BLC4-MVOLT-RPA+15' ROUND TAPERED ALUMINUM POLE	POLE	UNIVERSAL	-	-	LED/3000K	SINGLE HEAD POLE FIXTURE W/ TYPE IV DISTRIBUTION WITH INTEGRAL HOUSE SIDE SHIELD OPTICS MOUNTED ON ROUND ALUMINUM TAPERED POLE RATED FOR 110MPH WIND CONDITIONS	3 4 6 13 -
SL1/FT	LITHONIA LIGHTING	DSX0 LED-P1-30K-80CRI-TFTM-MVOLT-RPA+ 15' ROUND TAPERED ALUMINUM POLE	POLE	UNIVERSAL	-	-	LED/3000K	SINGLE HEAD POLE FIXTURE W/ FORWARD THROW DISTRIBUTION MOUNTED ON ROUND ALUMINUM TAPERED POLE RATED FOR 110MPH WIND CONDITIONS	3 4 6 13 -
SL3	LITHONIA LIGHTING	WDGE3LED-P1-30K-80CRI-R4-MVOLT-SRM	W	UNIVERSAL	-	-	LED/3000K	LED WALL MOUNTED WEDGE FIXTURE WITH A TYPE IV DISTRIBUTION. SUITABLE FOR EXTERIOR APPLICATIONS AND CAPABLE OF 0-10V DIMMING.	4 6 - - -
SL3B	LITHONIA LIGHTING	WDGE2 LED-P3-40K-80CRI-VF-MVOLT-SRM	W	UNIVERSAL	-	-	LED/3000K	LED WALL MOUNTED WEDGE FIXTURE WITH A FORWARD THROW DISTRIBUTION, SUITABLE FOR EXTERIOR APPLICATIONS AND CAPABLE OF 0-10V DIMMING.	4 6 - - -
SL4	LITHONIA LIGHTING	WDGE1LED-P1-40K-80CRI-VF-MVOLT-SRM	W	UNIVERSAL	-	-	LED/3000K	LED WALL MOUNTED WEDGE FIXTURE WITH A FORWARD THROW DISTRIBUTION, SUITABLE FOR EXTERIOR APPLICATIONS AND CAPABLE OF 0-10V DIMMING.	4 6 - - -
SL5	LITHONIA LIGHTING	EVO4-30K-10-XX-XX-LSS-MWD-MVOLT-GZ10	R	UNIVERSAL	-	-	LED/3000K	4" APERTURE LED DOWN LIGHT FIXTURE WITH SEMI-SPECULAR FINISH AND 0-10V DIMMING CAPABILITY. FIXTURE HAS 45 DEGREE DISTRIBUTION.	4 6 - - -
SL6	ECOSENSE	F080-1S-MO-30-80-40-XX-XX-C RISE-PERMA-POST-19	OG	UNIVERSAL	-	-	LED/3000K	LED GRADE STAKE MOUNTED IP66 RATED FIXTURE PROVIDED WITH MOUNT FOR ADJUSTABLE OPTICS.	4 6 - - -
SL7	TARGETTI	KPL-41-ZM-L2-30+1DU2XX+1DUXXX+ 1DU2530+1E2495+1E2496+1E0388+XX	IG	UNIVERSAL	-	-	LED/3000K	LED IP68 RATED FIXTURE SUITABLE FOR USE IN GRADE. FIXTURE CAPABLE OF ADJUSTING BOTH DISTRIBUTION ANGLE AND AIMING.	4 6 - - -
	EVENLITE	SOV-AC-G-1M-XX-XX-XX-XX	U	UNIVERSAL	-	3	LED	SINGLE FACED LED EDGE LIT EXIT SIGN WITH GREEN LETTERING COORDINATE CHEVRONS WITH ARCHITECTURAL CODE PLAN.	2 5 - - -
	EVENLITE	SOV-AC-G-2M-XX-XX-XX-XX	U	UNIVERSAL	-	3	LED	DOUBLE FACED LED EDGE LIT EXIT SIGN WITH GREEN LETTERING COORDINATE CHEVRONS WITH ARCHITECTURAL CODE PLAN.	2 5 - - -
HC	EVENLITE	TRE-AC-G-1M-W/SC-XX	U	UNIVERSAL	-	3	LED	SINGLE FACED LED EXIT SIGN WITH MASS. APPROVED WHEEL CHAIR GRAPHIC LOCATED AT ANY EXIT FROM BUILDING TO GRADE.	2 14 - - -
HC EM	EVENLITE	TSMA-EM-G-U-W-XX	U	UNIVERSAL	-	3	LED	SINGLE FACED ROUGH SURFACE LED EXIT SIGN WITH MASS. APPROVED WHEEL CHAIR GRAPHIC LOCATED AT ANY EXIT FROM BUILDING TO GRADE.	2 14 16 - -
HC RS	EVENLITE	TSMA-AC-G-U-W-XX	U	UNIVERSAL	-	3	LED	SINGLE FACED ROUGH SURFACE LED EXIT SIGN WITH MASS. APPROVED WHEEL CHAIR GRAPHIC LOCATED AT ANY EXIT FROM BUILDING TO GRADE.	2 14 15 - -
RS	EVENLITE	RXR3-AC-G-1-XX-XX-RS-XX	U	UNIVERSAL	-	3	LED	SINGLE FACED LED EXIT SIGN WITH GREEN LETTERING AND SUITABLE FOR USE IN ROUGH SERVICE APPLICATIONS.	2 15 - - -
EB	EVENLITE	WW-EM-XX-A250209-CT-XX	U	UNIVERSAL	-	14	LED	LED EMERGENCY BATTERY UNIT FIXTURE TYPICALLY MOUNTED AT 7' 6" A.F.F. AND PROVIDED WITH SELF DIAGNOSTIC CAPABILITIES	

MOUNTING DESIGNATIONS

C	COVE	U	UNIVERSAL
P	PENDANT	W	WALL
R	RECESSED	AC	AIRCRAFT CABLE
S	SURFACE/CHAIN	IGM	IN GRADE MOUNTING
T	TRACK/RAIL/CABLE	POLE	POLE
OG	ON-GRADE	IG	IN-GRADE

LIGHTING GENERAL NOTES

1. MANUFACTURERS AND CATALOG NUMBERS IDENTIFIED IN THE "LIGHTING FIXTURE SCHEDULE" SHALL SERVE TO ESTABLISH THE BASIS OF DESIGN FOR EACH LIGHTING FIXTURE TYPE. PRODUCTS OF EQUAL APPEARANCE, CONSTRUCTION, PERFORMANCE, AND WARRANTY COVERAGE FROM MANUFACTURERS OTHER THAN THOSE IDENTIFIED MAY BE PROPOSED FOR USE ON THIS PROJECT, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND ENGINEER. THE "FIXTURE MANUFACTURER OPTIONS (OR EQUAL)" LISTING IS PROVIDED FOR GUIDANCE IN IDENTIFYING MANUFACTURERS CAPABLE OF PROVIDING EQUAL PRODUCTS, BUT IN NO WAY LIMITS MANUFACTURERS OR PRODUCTS THAT MAY BE PROPOSED AS EQUALS FOR THE PROJECT.
2. "LIGHTING FIXTURE SCHEDULE" REMARKS, "LIGHTING FIXTURE SCHEDULE NOTES", "LIGHTING GENERAL NOTES", AND NOTATIONS ELSEWHERE MAY INDICATE FEATURES AND ACCESSORIES THAT ARE NOT INDICATED IN THE CATALOG NUMBER BUT ARE REQUIRED FOR THE PROJECT. PRODUCTS OTHER THAN THOSE SPECIFIED SUBMITTED SHALL BE DOCUMENTED FOR CONFORMANCE IN PERFORMANCE, CONSTRUCTION, AND APPEARANCE WITH THE CRITERIA ESTABLISHED BY THE SPECIFIED PRODUCT.
3. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET THE JOB REQUIREMENTS. VERIFY ROOM SURFACE CONSTRUCTION AND FINISHES PRIOR TO ORDERING FIXTURES TO ENSURE PROPER MOUNTING PROVISIONS AND FIXTURE FITTINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS.
4. VERIFY ALL FIXTURE MOUNTING HEIGHTS AND LOCATIONS WITH LATEST ARCHITECTURAL DRAWINGS. EXACT LOCATION OF FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO START OF ROUGHING.
5. LED ARRAYS, MODULES, AND LIGHT ENGINES SHALL HAVE KELVIN COLOR TEMPERATURE AS SCHEDULED HAVING A MINIMUM COLOR RENDERING INDEX (CRI) OF 82 AND A MINIMUM L70 LIFETIME RATING OF 50,000 HOURS AT 25°C AMBIENT. LED DRIVERS SHALL HAVE 0-10V DIMMING CONTROL WITH FULLY ISOLATED CONTROL INPUTS AND MINIMUM POWER LEVEL OF 10%%%. LED FIXTURES WITH ARRAY / MODULE AND DRIVER PACKAGES OR LIGHT ENGINES SHALL HAVE PUBLISHED IESNA LM-79 AND LM-80 TESTING DATA AS A STANDARD MANUFACTURED OFFERING. INDIVIDUAL COMPONENT TESTING DATA WILL NOT BE ACCEPTED ALL FIXTURES SHALL BE "DESIGN LIGHTS CONSORTIUM" (DLC) OR "ENERGYSTAR" LISTED, OR FURNISHED WITH DATA INDICATING CONFORMANCE WITH LATEST APPLICABLE LISTING CRITERIA.
6. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE INDICATED. PROVIDE RUN LENGTH AS INDICATED (NUMERICALLY OR GRAPHICALLY) OR CONTINUOUS WHERE SHOWN BETWEEN TWO ARCHITECTURAL ELEMENTS (WALLS, SOFFITS, COLUMNS, ETC.).
7. LINEAR ROWS OF RECESSED, SURFACE, OR SUSPENDED FIXTURES SHALL BE INSTALLED TO PROVIDE CONTINUOUS RUN LENGTHS AS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED FITTINGS, CONNECTORS, SUPPORTS, TRIMS, ETC. SO THAT RUNS ARE A COMPLETE ASSEMBLY WITH THE APPEARANCE OF A SINGLE UNIT. ROWS SHALL BE CONFIGURED FOR MINIMUM NUMBER OF FEEDS, JOINTS, AND MOUNTINGS. PROVIDE ROW AND PATTERN CONFIGURATION DRAWINGS FOR REVIEW PRIOR AND APPROVAL PRIOR TO RELEASE OF MATERIAL ORDER.
8. PROVIDE FLAT ROUND CANOPIES FOR SUSPENDED FIXTURE LOCATIONS WHERE SUSPENSIONS MOUNTS TO UNFINISHED CEILING STRUCTURE (WHERE LOCATED IN FINISHED SPACES) AND WHERE PASSING THROUGH SUSPENDED CEILINGS (CONFIRM WHETHER IN TILE OR AT GRID). PROVIDE SWIVEL ALIGNERS FOR SUSPENSIONS WHERE REQUIRED FOR SLOPED CEILINGS. ENTIRE SUSPENSION ASSEMBLY SHALL BE SUPPLIED BY MANUFACTURER OF FIXTURES.
9. FIXTURES WITH LOUVERS SHALL BE PROVIDED WITH HIGH TRANSMISSION (95%%% OR BETTER) DIFFUSING LENSES OR FILMS TO OBSCURE DIRECT LAMP VIEWING.
10. FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILINGS. DO NOT TAP METAL ROOF DECK FOR SUPPORT OF ANY ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT AS REQUIRED FOR SUPPORT OF ALL ELECTRICAL EQUIPMENT.
11. REFER TO SPECIFICATIONS FOR SEISMIC SUPPORT, RESTRAINT, AND BRACING REQUIREMENTS OF THIS PROJECT.
12. PROVIDE TYPE AND QUANTITY OF DRIVERS AND TRANSFORMERS AS REQUIRED TO PROVIDE CONTROL METHOD INDICATIONS ON THE PLANS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: SWITCHING SUBSCRIPTS, NOTES, SCHEDULE REMARKS / DESCRIPTIONS, AND DETAILS. QUANTITY OF DRIVERS AND TRANSFORMERS SHALL BE THE MINIMUM REQUIRED TO PROVIDE CONTROL INDICATED TO MAINTAIN THE LOWEST CONNECTED LOAD OF LIGHTING SYSTEM POSSIBLE. TANDEM WIRING OF FIXTURES SHALL BE PROVIDED WHERE NECESSARY AND WITHIN THE WIRING DISTANCE RESTRICTIONS OF THE MANUFACTURER'S INSTALLATION REQUIREMENTS.
13. ALL LAMPS, LED SOURCES, DRIVERS, AND CONTROLS SHALL MEET THE LATEST UTILITY COMPANY INCENTIVE REQUIREMENTS. REFER TO THE LATEST PROGRAM REQUIREMENTS DOCUMENTATION AND COORDINATE WITH THE UTILITY COMPANY TO ENSURE COMPLIANCE.
14. ALL EXIT SIGN LIGHTING SHALL BE CIRCUITED AHEAD OF ANY SWITCH CONTROL FOR CONSTANT "ON" OPERATION. PROVIDE LOCKING DEVICE ON CIRCUIT BREAKER SERVING EXIT SIGNS.
15. EXIT SIGNS TO BE PROVIDED WITH ARROWS AS INDICATED ON DRAWINGS. TYPICALLY MOUNT ON CEILING WHERE VISIBLE OR ON WALL WHERE CEILING MOUNTING IS NOT PRACTICAL. EDGE-LIT SIGNS SHALL GENERALLY HAVE CLEAR PANELS EXCEPT FOR DOUBLE FACED UNITS AND SINGLE FACED UNITS ABLE TO BE VIEWED FROM BEHIND WHICH SHALL HAVE OPAQUE / MIRRORED PANELS. REFER TO ARCHITECTURAL DRAWINGS FOR INDICATION OF MOUNTING REQUIREMENTS.
16. EXIT SIGNS SHALL BE THE SELF-CONTAINED TYPE WITH INTEGRAL BATTERY BACK-UP AND SELF-DIAGNOSTICS WHERE NO LIFE SAFETY POWER SOURCE IS AVAILABLE, REGARDLESS OF MODEL / SERIES SPECIFIED.
17. EXIT SIGNS INSTALLED IN GYMNASIUMS, LOCKER ROOMS, AND ANY OTHER DESIGNATED AREAS SHALL BE PROVIDED WITH POLYCARBONATE FACE PLATE / SHIELD AS PART OF EXIT SIGN PACKAGE FROM SAME MANUFACTURER.
18. PROVIDE A SELF CONTAINED EMERGENCY LIGHTING UNIT WITH TWIN ADJUSTABLE HEADS (TYPE "EB" WHERE SCHEDULED) AT EACH FIRE ALARM CONTROL PANEL , REMOTE FIRE ALARM ANNUNCIATOR, @ THE LIFE SAFETY TRANSFER SWITCH AND IN THE GENERATOR ROOM. EXACT MOUNTING TO BE COORDINATED IN FIELD WITH ARCHITECT OR ENGINEER.
19. FIXTURES WITH MULTI WATTAGE BALLASTS OR DRIVERS SHALL BE LABELED FROM THE FACTORY FOR THE WATTAGE SPECIFIED TO ENSURE COMPLIANCE WITH ENERGY CODE CALCULATIONS.
20. FINISH FOR ALL FIXTURES SHALL BE SELECTED BY THE ARCHITECT FROM THE MANUFACTURER'S CATALOG OPTIONS. BLACK AND WHITE SHALL BE CONSIDERED A STANDARD FINISH OPTION FOR ALL PRODUCTS SPECIFIED REGARDLESS OF WHAT IS LISTED.
21. WHERE FIXTURES OTHER THAN THE SPECIFIED PRODUCTS ARE PROPOSED, THE CONTRACTOR SHALL PROVIDE LIGHT LEVEL CALCULATIONS IN ACCORDANCE WITH IESNA STANDARDS TO JUSTIFY THAT THE SUBSTITUTED FIXTURES ARE OF EQUAL PERFORMANCE (WITH EQUAL OR LOWER INPUT WATTAGE) TO THE SPECIFIED PRODUCTS (APPLIES TO ALL FIXTURES IN ALL SPACES.)
22. EVERY SPACE ENCLOSED BY FLOOR TO CEILING WALLS SHALL BE PROVIDED WITH A MINIMUM OF ONE MANUAL LIGHTING SWITCH AND ONE CEILING MOUNTED OCCUPANCY SENSOR. ADDITIONAL CONTROLS SHALL BE AS INDICATED ON THE PLAN OR AS SPECIFIED ELSEWHERE.

LIGHTING FIXTURE SCHEDULE NOTES (1)

1. LIGHTING FIXTURE PACKAGE SUBMITTALS SHALL BE FULLY COORDINATED BETWEEN THE ELECTRICAL CONTRACTOR, LIGHTING FIXTURE REPRESENTATIVE(S), AND LIGHTING MANUFACTURERS TO ENSURE ALL PRODUCT, INSTALLATION, AND CONTROL REQUIREMENTS ARE MET PRIOR TO SUBMISSION FOR REVIEW. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROVIDE A PACKAGE MEETING ALL REQUIREMENTS OF THE PROJECT FOR A COMPLETE AND FULLY FUNCTIONAL LIGHTING SYSTEM.=
2. PROVIDE EXIT SIGN THAT COMPLIES WITH NFPA 101, UL 924, 521 CMR 26.1.2 AND ALL REFERENCED STANDARDS AND CODES.
3. SITE LIGHTING POLES SHALL BE PROVIDED WITH FULL BASE COVERS TO MATCH PROFILE OF POLE; NUT COVERS ONLY ARE NOT ACCEPTABLE.
4. UNLESS OTHER NOTED, PROVIDE ALL FIXTURES WITH 0-10V DIMMING BALLAST, DRIVER, TRANSFORMER, OR LIGHT ENGINE REQUIRED FOR LAMP OR LED SOURCE SPECIFIED.
5. E.C. SHALL PROVIDE ADDITIONAL EXIT SIGNS (TO INCLUDE 100' OF MC CABLE BRANCH CIRCUITING) FOR FIELD PLACEMENT DURING CONSTRUCTION. REFER TO SPECIFICATIONS FOR QUANTITIES.
6. PROVIDE ALCS ADDRESSABLE INPUT/OUTPUT (I/O) MODULE FOR EACH FIXTURE UNLESS OTHERWISE NOTED. APPLICATIONS NOT REQUIRING INDIVIDUAL CONTROL (WHERE NOTED ON PLANS) SHALL BE PROVIDED WITH I/O MODULES ON A FIXTURE GROUPING BASIS. WHERE FIXTURES ARE LOCATED IN HARD CEILING AREAS THE I/O MODULE SHALL BE REMOTE MOUNTED IN ACCESSIBLE AREA ABOVE AN A.C.T. CEILING. WHERE FIXTURES ARE LOCATED OUTDOORS THE I/O MODULE SHALL BE LOCATED IN THE MAIN ELECTRICAL ROOM ADJACENT TO THE PANEL SERVING THE LIGHTING. REFER TO "AUTOMATED LIGHTING CONTROL SYSTEM - TYPICAL ONE-LINE DIAGRAM" AND SPECIFICATIONS FOR FURTHER INFORMATION.
7. PROVIDE LED SOURCES WITH MAXIMUM A MAXIMUM COLOR VARIATION OF 3-STEP MCADAM ELLIPSE. PROVIDE STATEMENT OF COMPLIANCE WITH SUBMITTALS.
8. PROVIDE FIXTURES WITH A MINIMUM WARRANTY COVERAGE OF 5 YEARS ON ALL PARTS. MANUFACTURER SHALL PROVIDE WRITTEN WARRANTY TO PROVIDE REPLACEMENT PARTS, INCLUDING BUT NOT LIMITED TO, LED SOURCE MODULE AND DRIVER FOR A MINIMUM OF TEN YEARS. PARTS SHALL BE FULLY COMPATIBLE WITH FIXTURE TO PROVIDE SAME LIGHT OUTPUT, DISTRIBUTION, COLOR, AND COLOR RENDERING AT OR BELOW THE ORIGINAL WATTAGE. PROVIDE STATEMENT OF COMPLIANCE WITH SUBMITTALS.
9. PROVIDE FIXTURES WITH PROJECT SPECIFIC LABELS CLEARLY INDICATING THE FIXTURE TYPE, SERVICE CONTACT INFORMATION, AND REPLACEMENT PARTS (INCLUDING BUT NOT LIMITED TO SOURCE, DRIVER, AND LENS). MANUFACTURER STANDARD OFFERING OF QR CODE OR BAR CODE CONTAINING REQUIRED INFORMATION WILL BE ACCEPTABLE. PROVIDE STATEMENT OF COMPLIANCE WITH SUBMITTALS.
10. PROVIDE FIXTURES FROM MANUFACTURERS WITH A DOCUMENTED HISTORY OF SUPPLYING PRODUCTS SPECIFIED FOR A MINIMUM OF 5 YEARS. PROVIDE STATEMENT OF COMPLIANCE WITH SUBMITTALS.
11. FIXTURE FLANGE TYPES TO BE COORDINATED WITH ARCHITECT ON A PER LOCATION BASES PROVIDE MARK-UP OF PROPOSED FLANGE TYPES FOR REVIEW PRIOR TO FINAL FIXTURE APPROVAL.
12. FIXTURE LENGTHS TO BE COORDINATED WITH ELECTRICAL LIGHTING PLANS. PROVIDE ALL NECESSARY MOUNTING HARDWARE, DRIVERS, CONNECTOR CABLES, ETC. FOR RUNS SHOWN.
13. PROVIDE 7 PIN PHOTOCELL PROVISIONS FOR EACH POLE FIXTURE TO HOUSE THE WIRELESS SITE LIGHTING CONTROL MODULE (WSLC) - SEE ALCS RISER.
14. HANDICAP STYLE EXIT SIGNS SHALL BE PROVIDED AT ALL EXTERIOR ACCESS POINTS TO THE BUILDING FROM GRADE REGARDLESS OF WHAT IS SHOWN.
15. ROUGH SERVICE STYLE EXIT SIGNS SHALL BE PROVIDED IN ALL GYMS, LOCKER ROOMS, UTILITY SPACES ETC. WHERE REQUIRED REGARDLESS OF EXIT SIGN TYPE SHOWN.
16. FIXTURE TO BE PROVIDED INTEGRAL EMERGENCY BATTERY BACK-UP WITH SELF DIAGNOSTICS.

ELECTRICAL GENERAL NOTES

1. THE SCOPE OF WORK SHALL INCLUDE PROVIDING ALL WORK INDICATED, AND COORDINATION WITH ALL TRADES. SCOPE OF WORK IS INDICATED ON THE CONTRACT DOCUMENTS INCLUDING THE DRAWINGS AND THE SPECIFICATIONS, WHICH ARE COMPLIMENTARY. WORK INDICATED IN ANY CONTRACT DOCUMENT SHALL BE CONSIDERED PART OF THE SCOPE OF WORK. IN GENERAL, WORK REQUIREMENTS ARE NOT INDICATED IN BOTH DOCUMENTS . WHERE DOCUMENTS CONFLICT WITHIN THEMSELVES OR WITH CODES AND REGULATIONS, PROVIDE THE HIGHER QUANTITY AND QUALITY AND FOLLOW THE STRICTER REQUIREMENTS.
2. COORDINATE WITH THE GENERAL CONTRACTOR, OTHER TRADES AND OF MANUFACTURERS EQUIPMENT AND MAKE ALL FINAL CONNECTIONS AS REQUIRED, I.E., POWER, CONTROL, INTERLOCK, ETC.
3. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH OSHA, NFPA STANDARDS, THE ELECTRICAL CODE AND THE LOCAL GOVERNING AUTHORITIES. THE DRAWINGS AND SPECIFICATIONS DO NOT ATTEMPT TO INDICATE ALL WORK REQUIRED BY CODES AND AUTHORITIES.
4. TEST ALL EQUIPMENT AND SYSTEMS INSTALLED TO CERTIFY COMPLIANCE WITH DRAWINGS, SPECIFICATIONS, CODES, LOCAL AUTHORITIES AND REGULATIONS. INCLUDE LABOR AND COSTS FOR TESTING, REVIEWS, APPROVALS AND CERTIFICATIONS.
5. DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATION, MOUNTING HEIGHTS OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED WITH THE EQUIPMENT REQUIREMENTS AND FIELD CONDITIONS.
6. FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.
7. SUPPORT ALL WORK FROM THE BUILDING STRUCTURE.
8. ALL MOUNTING HEIGHTS ARE TO CENTERLINE UNLESS OTHERWISE INDICATED.
9. IF EXACT MOUNTING OR RACEWAY ROUTINGS ARE NOT INDICATED (LOCATION OR HEIGHT) REQUEST CLARIFICATION PRIOR TO ROUGHING, OR INSTALLATION.
10. ELECTRICAL WORK SHALL BE RECESSED INTO WALLS OR INSTALLED ABOVE HUNG CEILINGS UNLESS OTHERWISE INDICATED.
11. DO NOT INSTALL OUTLETS BACK TO BACK. PROVIDE 24 INCH SPACING IN FIRE RATED WALLS.
12. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND INTERIOR WALLS BETWEEN CONDITIONED AND NON-CONDITIONED SPACES.
13. WIRE AND CONDUIT SIZES INDICATED ON HOMERUNS SHALL BE CONTINUOUS THROUGHOUT CIRCUIT.
14. FURNISH AND INSTALL CODE REQUIRED DISCONNECTS WHICH ARE NOT FURNISHED BY THE HVAC OR PLUMBING CONTRACTORS.
15. INSTALL A GREEN GROUNDING CONDUCTOR WITHIN EACH RACEWAY SIZED IN ACCORDANCE WITH THE ELECTRIC CODE.
16. PROVIDE WATERTIGHT AND GAS TIGHT SEALS INSIDE AND OUTSIDE OF CONDUITS THAT PENETRATE THE BUILDING BELOW GRADE, O.Z. GEDNEY OR APPROVED EQUAL. PROVIDE WEATHER TIGHT SEAL AT PENETRATIONS ABOVE GRADE.
17. PROVIDE NRTL LISTED SMOKE AND FIRE SEALS AT ALL PENETRATIONS THROUGH FLOORS OR FULL HEIGHT (SLAB TO SLAB) WALLS.
18. USE CAUTION TO AVOID DAMAGE TO EXISTING UTILITY LINES AND/OR HARM TO PERSONNEL WORKING IN THESE AREAS.
19. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER MINIMUM #12 AWG. SIZE UNLESS OTHERWISE INDICATED.
20. PROVIDE A PULL LINE IN EVERY EMPTY CONDUIT PROVIDED UNDER THIS SECTION.
21. WIRING IS INDICATED ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
22. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
23. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE PROVIDED.
24. ALL SWITCH CONTROLS SHALL BE PROVIDED WITH WIRING AND CONDUIT AS REQUIRED.
25. RACEWAYS SHALL BE LIMITED TO SIX CURRENT CARRYING CONDUCTORS (THREE PHASE AND THREE NEUTRALS) AND GROUNDING CONDUCTOR, UNLESS OTHERWISE INDICATED. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH SINGLE PHASE RECEPTACLE CIRCUIT UNLESS AN OVERSIZED NEUTRAL IS SPECIFICALLY INDICATED.

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:
DESIGN DEVELOPMENT

Scale:

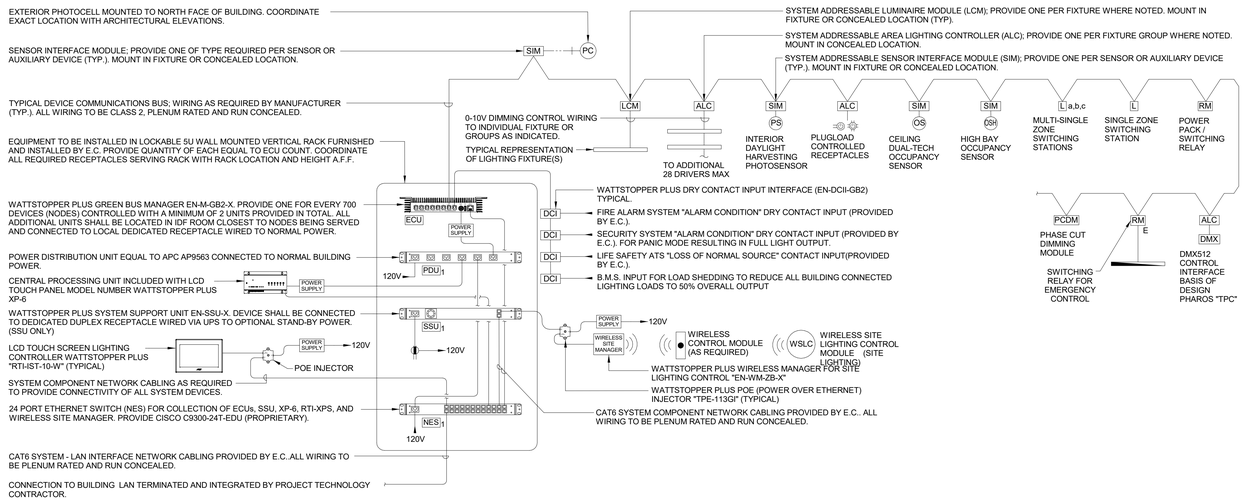
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
LIGHTING FIXTURE SCHDULE

Sheet Number:
E002

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AUTOMATED LIGHTING CONTROL SYSTEM NOTES:

1. PROVIDE SWITCHING AND 0-10V DIMMING CONTROL FOR ALL LIGHTING (REFER TO PLANS) WITH PRESETS VIA LCM MODULES AND ACCESSORY POWER PACKS.
2. PROVIDE ALL SYSTEM COMPONENTS (AND WARRANTIES) FROM A SINGLE MANUFACTURER EXCEPT WHERE OTHERWISE SPECIFIED.
3. PROVIDE GANGED MASTER AND LOCAL SWITCHES AT LOCATION AS INDICATED FOR USER CONTROL OF LIGHTING (UNDER COMMON MULTI-GANG PLATE).ALL SWITCHES SHALL BE PROVIDED WITH ENGRAVED LABELS ON PLATES DESIGNATING THEIR FUNCTION. FILL FOR ENGRAVED LETTERING SHALL BE AS DIRECTED BY THE ARCHITECT.
4. PROVIDE ENERGY MONITORING AND REPORTING MODULE TO ALLOW FOR ALL LIGHTING ELECTRICAL CONSUMPTION TO BE RECORDED, TRENDED, AND PASSED TO THE BMS SYSTEM VIA THE BACNET IP INTERFACE.
5. THE BASIS-OF-DESIGN FOR THIS SYSTEM IS THE WATTSTOPPER PLUS SYSTEM (W/ POLARIS 3D AND PCS SOFTWARE)
6. REFER TO THE "ALCS METHODS OF OPERATION NOTES" FOR SYSTEM SETUP REQUIREMENTS.
7. ALCS VENDOR SHALL ASSIST THE BMS SUB-SUB CONTRACTOR WITH ALL MAPPING OF BACNET DEVICES / POINTS.
8. LUTRON, N-LIGHT, CRESTRON, OR EQUAL ARE ACCEPTABLE MANUFACTURER OPTIONS.

ALCS METHODS OF OPERATION NOTES

SENSOR OPERATIONS

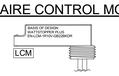
1. INTERIOR PHOTOSENSORS (ADDRESSABLE): EACH PHOTOSENSOR SHALL BE PROGRAMMED TO MAINTAIN FOOTCANDLE SETPOINTS ESTABLISHED FOR EACH SPACE DURING SYSTEM SETUP AND COMMISSIONING. DIMMING DEADBANDS AND FADE/RISE RATES SHALL BE ESTABLISHED TO PROVIDE SMOOTH, NON-INTRUSIVE, CHANGES IN SPACE LIGHT LEVELS IN RESPONSE TO CHANGING DAYLIGHT CONTRIBUTIONS AT ANY GIVEN TIME.
2. EXTERIOR PHOTOCELLS (ADDRESSABLE): SENSOR SHALL BE PROGRAMMED TO TURN SITE LIGHTING "ON" AT DUSK AND TURN LIGHTS "OFF" AT DAWN. TIMED SCHEDULE PRESETS WILL DETERMINE OUTPUT LEVELS.
3. OCCUPANCY SENSORS (ADDRESSABLE); EACH OCCUPANCY SENSOR SHALL BE PROGRAMMED TO OPERATE AS INDICATED IN AUTOMATED LIGHTING CONTROL SYSTEM SEQUENCE OF OPERATIONS 2/E0.2 UNLESS OTHERWISE NOTED. SENSORS SHALL MAINTAIN 100% DIMMING LEVELS LIGHTING FOR AS LONG AS MOTION IS DETECTED. ABSENCE OF MOTION DETECTION FOR TIME PERIODS AS INDICATED IN SEQUENCE OF OPERATIONS 2/E0.2 SHALL PROMPT A RESPONSE AS INDICATED. FADE/RISE RATES SHALL BE ESTABLISHED TO PROVIDE SMOOTH, NON-INTRUSIVE, CHANGES IN SPACE LIGHT LEVELS. MOTION DETECTED AT ANYTIME PRIOR TO THE FULL TIME-OUT SHALL RETURN THE LIGHTING TO THE NORMAL LEVEL.
4. SENSOR ADJUSTMENTS FOR ALL FUNCTIONS SHALL BE TURNED TO THE MINIMUM ON EACH DEVICE AND ADJUSTED SOLELY THROUGH THE SYSTEM SOFTWARE.

ZONING & PRESET LEVELS

1. INTERIOR SPACES SHALL BE PROGRAMMED AS INDICATED IN SEQUENCE OF OPERATIONS DETAIL 2/E003. LEVELS MAY BE ADJUSTED OUTSIDE OF THESE PRESETS VIA THE LOCAL WALL STATION. HOWEVER, WHERE PHOTOSENSORS ARE PRESENT THE LIGHTING SHALL NOT BE ALLOWED EXCEED THE FOOTCANDLE LEVEL ESTABLISHED BY THE SPACE'S PHOTOSENSOR BASED ON AVAILABLE DAYLIGHT CONTRIBUTION AT ANY GIVEN TIME.
2. LIGHTING WITHIN THE DAYLIGHT ZONE ADJACENT TO OPENINGS TO THE EXTERIOR SUCH AS WINDOWS AND SKYLIGHTS (DEPTH OF EACH DAYLIGHT ZONE RELATIVE TO THE DAYLIGHT OPENING SHALL BE AS DEFINED BY UTILITY COMPANY ADVANCED BUILDING PROGRAM CORE REQUIREMENTS AND COMMONWEALTH OF MASSACHUSETTS ENERGY CODE) SHALL BE PROGRAMMED TO ALLOW FOR CONTROL SEPARATE FROM THE REMAINDER OF THE SPACE.
3. EXTERIOR LIGHTING SHALL BE PROGRAMMED FOR 50% (POST-CURFEW) AND 100% (PRE-CURFEW) DIMMING LEVELS TO BE ACTIVATED VIA PHOTOCELL SET POINTS AND TIMED SCHEDULES. PROVIDE (1) WIRELESS SITE LIGHTING CONTROL MODULE "WSLC" PER EACH POLE MOUNTED LIGHT FIXTURE. COORDINATE WITH POLE FIXTURE MANUFACTURER. PROVIDE WIRELESS MANAGER & WIRELESS CONTROL MODULES REQUIRED FOR COMPLETE CONTROL OF SITE LIGHTING.
4. INTERIOR AND EXTERIOR PATHS OF EGRESS SHALL BE PROGRAMMED TO ACTIVATE AT 100% LEVELS UPON RECEIPT OF AN ALARM SIGNAL FROM THE LIFE SAFETY AUTOMATIC TRANSFER SWITCH, FIRE ALARM SYSTEM, AND SECURITY SYSTEM. LIGHTING LEVELS SHALL BE MAINTAINED AT 100% LEVELS REGARDLESS OF SUBSEQUENT INPUT REQUESTS UNTIL THE ORIGINATING ALARM SIGNAL IS RESTORED TO A NORMAL CONDITION. CONTACT CLOSURE OUTPUTS FROM EACH PIECE OF EQUIPMENT / SYSTEM SHALL BE PROVIDED BY THE RESPECTIVE VENDOR WITH COORDINATION OF ALL PROGRAMMING REQUIRED TO PROVIDE THE FUNCTIONALITY DESCRIBED.
5. REFER TO SPECIFICATIONS FOR FURTHER CONTROL SCENARIOS SUCH AS LOAD SHEDDING, PEAK LIMITING, TASK TUNING, ETC..
6. EXACT ZONING AND LEVEL PROGRAMMING SHALL BE MAPPED OUT (VIA BUILDING FLOOR & SITE GRAPHICS IN SYSTEM SOFTWARE) WITH THE OWNER OR THEIR REPRESENTATIVE PRIOR TO SYSTEM SETUP AND PROGRAMMING OF THE SYSTEM. ALL PROGRAMMING SHALL BE CONFIRMED AND COMPLETED PRIOR TO COMMISSIONING NO OWNER REQUESTED PROGRAMMING SHALL BE ALLOWED WHICH WILL VIOLATE THE LEED PROGRAM REQUIREMENTS OR COMMONWEALTH OF MASSACHUSETTS BUILDING, ELECTRICAL, AND ENERGY CODES OR ANY CODES. REFERENCED THEREIN.

LUMINAIRE CONTROL MODULE

WIRED



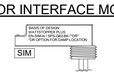
1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE LUMINAIRE CONTROL MODULE (LCM), ALL CABLING AND FIXTURES. E.C. TO MAKE ALL LINE AND LOW VOLTAGE CONNECTIONS TO/BETWEEN LCM AND FIXTURE DRIVERS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM LCM TO DRIVER WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTHS OF WHIPS ON LCM AND DRIVERS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH AND REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS BETWEEN DRIVERS.

OCCUPANCY SENSOR



1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE SENSOR INTERFACE MODULES (SIM), ALL CABLING AND ASSOCIATED SENSOR DEVICES. E.C. TO PROVIDE CABLE AS REQUIRED AND MAKE ALL WIRING CONNECTIONS TO/BETWEEN SIM AND SENSOR.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CABLES (EXCEPT GREENBUS FURNISHED BY ENCELIUM TO E.C.) ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM SIM TO SENSOR / DEVICE WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTH OF THE WHIPS ON SIM AND SENSOR / DEVICE.

SENSOR INTERFACE MODULE



1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE SENSOR INTERFACE MODULES (SIM), ALL CABLING AND ASSOCIATED SENSOR DEVICES. E.C. TO PROVIDE CABLE AS REQUIRED AND MAKE ALL WIRING CONNECTIONS TO/BETWEEN SIM AND SENSOR.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM SIM TO SENSOR / DEVICE WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTH OF THE WHIPS ON SIM AND SENSOR / DEVICE.

PHOTO SENSOR



1. INTERIOR PHOTOSENSORS (ADDRESSABLE): EACH PHOTOSENSOR SHALL BE PROGRAMMED TO MAINTAIN FOOTCANDLE SETPOINTS ESTABLISHED FOR EACH SPACE DURING SYSTEM SETUP AND COMMISSIONING. DIMMING DEADBANDS AND FADE/RISE RATES SHALL BE ESTABLISHED TO PROVIDE SMOOTH, NON-INTRUSIVE, CHANGES IN SPACE LIGHT LEVELS IN RESPONSE TO CHANGING DAYLIGHT CONTRIBUTIONS AT ANY GIVEN TIME.
2. EXTERIOR PHOTOCELLS (ADDRESSABLE): SENSOR SHALL BE PROGRAMMED TO TURN SITE LIGHTING "ON" AT DUSK AND TURN LIGHTS "OFF" AT DAWN. TIMED SCHEDULE PRESETS WILL DETERMINE OUTPUT LEVELS.

EMERGENCY LIGHTING RELAY



1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE LUMINAIRE CONTROL MODULE (LCM), ALL CABLING AND FIXTURES. E.C. TO MAKE ALL LINE AND LOW VOLTAGE CONNECTIONS TO/BETWEEN LCM AND FIXTURE DRIVERS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM LCM TO DRIVER WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTHS OF WHIPS ON LCM AND DRIVERS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH AND REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS BETWEEN DRIVERS.

PHASE CUT DIMMING MODULE

WIRED

1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE LUMINAIRE CONTROL MODULE (LCM), ALL CABLING AND FIXTURES. E.C. TO MAKE ALL LINE AND LOW VOLTAGE CONNECTIONS TO/BETWEEN LCM AND FIXTURE DRIVERS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM LCM TO DRIVER WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTHS OF WHIPS ON LCM AND DRIVERS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH AND REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS BETWEEN DRIVERS.

WIRELESS CONTROL MODULE

WIRELESS

1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE LUMINAIRE CONTROL MODULE (LCM), ALL CABLING AND FIXTURES. E.C. TO MAKE ALL LINE AND LOW VOLTAGE CONNECTIONS TO/BETWEEN LCM AND FIXTURE DRIVERS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM LCM TO DRIVER WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTHS OF WHIPS ON LCM AND DRIVERS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH AND REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS BETWEEN DRIVERS.

WIRELESS CONTROL MODULE

WIRELESS

1. ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE LUMINAIRE CONTROL MODULE (LCM), ALL CABLING AND FIXTURES. E.C. TO MAKE ALL LINE AND LOW VOLTAGE CONNECTIONS TO/BETWEEN LCM AND FIXTURE DRIVERS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS FROM LCM TO DRIVER WHERE DISTANCE BETWEEN THEM EXCEEDS THE LENGTHS OF WHIPS ON LCM AND DRIVERS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH AND REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE CONNECTIONS BETWEEN DRIVERS.

AREA LIGHTING CONTROLLER

WIRED

1. ELECTRICAL CONTRACTOR (E.C.) TO PROVIDE AREA LIGHTING CONTROLLER (ALC), ALL CABLING, AND FIXTURES. E.C. TO MAKE ALL LINE VOLTAGE AND LOW VOLTAGE WIRING CONNECTIONS TO/BETWEEN ALC AND FIXTURE BALLASTS/DRIVERS IN FIELD.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 0-10V CABLES ALONG WITH ANY REQUIRED RACEWAY, SUPPORTS, HARDWARE, ETC. TO MAKE ALL NECESSARY CONNECTIONS.
3. MAXIMUM OF 30 0-10V DIMMING BALLASTS/DRIVERS WITH ALC IN 0-10V DIMMING CONFIGURATION.
4. MAXIMUM OF 100FT OF 0-10V CABLING (VIOLET & GREY) FROM FARTHEST BALLAST/DRIVER IN GROUP TO ALC.

CONTROL SEQUENCE NOTES:

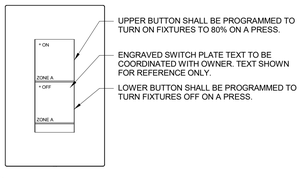
1. ALL SEQUENCE OF OPERATIONS LISTED IN THE TABLE ABOVE SHALL BE USED TO SERVE AS A BASIS FOR DESIGN. FINAL CONTROL PROGRAMMING AND TIME CONTROLS TO BE REVIEWED AND APPROVED BY OWNER OR OWNERS PROJECT MANAGER PRIOR TO SYSTEM COMMISSIONING.
2. SENSOR QUANTITIES SHALL BE COORDINATED WITH WHAT IS SHOWN ON FLOOR PLANS. SENSORS TO BE LOCATED AND INSTALLED PER MANUFACTURES RECOMMENDATIONS.
3. ALL SPACES WITHIN THE BUILDING WHERE THE OCCUPANCY SENSOR WILL EXCEED A MOUNTING HEIGHT OF 15' AFF. THE SENSOR PROVIDED SHALL BE OF THE HIGH BAY VARIETY.
4. ALL SENSOR OPERATIONS SHALL BE IN ACCORDANCE WITH IECC 2018, IESNA RECOMMENDATIONS, AND LOCAL APPLICABLE ENERGY CODES IRREGARDLESS OF INFORMATION SHOWN IN SCHEDULE ABOVE.

	OCCUPANCY SENSORS					DAYLIGHT SENSORS		WALL SWITCH OPERATION							TIME CLOCK OPERATION			OTHER		
	VACANCY MODE	OCCUPANCY MODE	DUAL-TECHNOLOGY SENSOR	SENSOR TIMEOUT PERIODS	GENERAL NOTES	TARGET LIGHTING LEVEL	GENERAL NOTES	SCHEDULE OVERRIDE SWITCH	MANUAL (ON/OFF)	MANUAL DIMMING	SCENE CONTROL	GRAPHICAL TOUCHSCREEN	KEY SWITCH	GENERAL NOTES	TIME CLOCK SCHEDULE ON	TIME CLOCK SCHEDULE OFF	GENERAL NOTES	EXTERIOR LOCATION	PLUG LOAD CONTROLLER	GENERAL NOTES
PRIVATE OFFICES	X	-	X	10 MIN -> 25% 15 MIN -> OFF	REFER TO NOTE #1,2,4	30 FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
LOBBY/VESTIBULE	-	X	X	30 MIN -> 25%	REFER TO NOTE #1,2,4	20 FC	REFER TO NOTE #2,4	-	-	-	-	-	-	-	-	-	REFER TO NOTE #1	-	-	-
CORRIDOR	-	X	X	30 MIN -> 25%	REFER TO NOTE #1,2,4	20 FC	REFER TO NOTE #2,4	-	-	-	-	-	-	-	-	-	REFER TO NOTE #1	-	-	-
TRAINING ROOM	X	-	X	30 MIN -> OFF	REFER TO NOTE #1,2,4	30FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
STORAGE	X	-	X	10 MIN -> OFF	REFER TO NOTE #1,2,4	20 FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
BATHROOM	-	X	X	15 MIN -> OFF	REFER TO NOTE #1,2,4	20 FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
LOCKERS	X	-	X	15 MIN -> OFF	REFER TO NOTE #1,2,3,4	30FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
SHOP SPACES	-	X	X	30 MIN -> 10% 45 MIN -> OFF	REFER TO NOTE #1,2,3,4	50FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
CONFERENCE RM.	X	-	X	15 MIN -> OFF	REFER TO NOTE #1,2,4	30FC	REFER TO NOTE #2,4	-	X	X	-	-	-	REFER TO NOTE #1	-	-	REFER TO NOTE #1	-	-	-
PARKING LOT	-	-	-	-	-	.5 FC	REFER TO NOTE #2,4	-	-	-	-	-	-	REFER TO NOTE #1	DUSK	DAWN	REFER TO NOTE #1	-	-	-
BUILDING FACADE	-	-	-	-	-	2 FC	REFER TO NOTE #2,4	-	-	-	-	-	-	REFER TO NOTE #1	DUSK	DAWN	REFER TO NOTE #1	-	-	-

CONTROL SEQUENCE GENERAL NOTES:

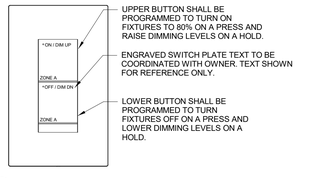
1. ALL SEQUENCE OF OPERATIONS LISTED IN THE TABLE ABOVE SHALL BE USED TO SERVE AS A BASIS FOR DESIGN. FINAL CONTROL PROGRAMMING AND TIME CONTROLS TO BE REVIEWED AND APPROVED BY OWNER OR OWNERS PROJECT MANAGER PRIOR TO SYSTEM COMMISSIONING.
2. SENSOR QUANTITIES SHALL BE COORDINATED WITH WHAT IS SHOWN ON FLOOR PLANS. SENSORS TO BE LOCATED AND INSTALLED PER MANUFACTURES RECOMMENDATIONS.
3. ALL SPACES WITHIN THE BUILDING WHERE THE OCCUPANCY SENSOR WILL EXCEED A MOUNTING HEIGHT OF 15' AFF. THE SENSOR PROVIDED SHALL BE OF THE HIGH BAY VARIETY.
4. ALL SENSOR OPERATIONS SHALL BE IN ACCORDANCE WITH IECC 2018, IESNA RECOMMENDATIONS, AND LOCAL APPLICABLE ENERGY CODES IRREGARDLESS OF INFORMATION SHOWN IN SCHEDULE ABOVE.

1 E002A AUTOMATED LIGHTING CONTROL SYTEM ONE-LINE DIAGRAM



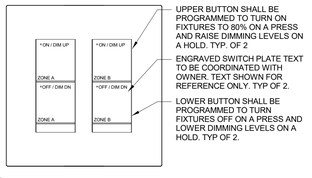
2 E002A STANDARD ZONE CONTROLLER DETAIL (NO DIMMING) — SCALE : N.T.S. — SYMBOL REF: L a

NOTES:
1. BASIS OF DESIGN FOR SWITCH SHOWN IS WATTSTOPPER PLUS MODEL NUMBER "EN-WS-2B-GB2-WH" AND "EN-WS-2B-CBK-WH"
2. ALL ENGRAVED SWITCH PLATES SHALL BE COORDINATED WITH OWNER OR OWNERS PROJECT MANAGER PRIOR TO CONTROL STATION PROCUREMENT.
3. SWITCH STATIONS BEING UTILIZED TO CONTROL FIXTURES WITHIN A DAY LIGHTING ZONE SHALL BE PROGRAMMED AS TO NOT ALLOW A MANUAL OVERRIDE OF THE DIMMING LEVELS SET BY THE PHOTO SENSOR IN THE SPACE.
4. SWITCH SHALL BE PROGRAMMED TO MANUAL OVERRIDE TIME SCHEDULE INDICATED FOR 60 MINUTE INTERVALS.



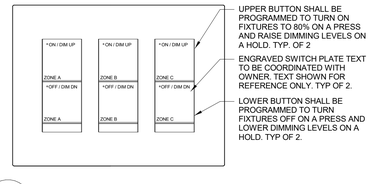
3 E002A STANDARD ZONE CONTROLLER DETAIL — SCALE : N.T.S. — SYMBOL REF: M a

NOTES:
1. BASIS OF DESIGN FOR SWITCH SHOWN IS WATTSTOPPER PLUS MODEL NUMBER "EN-WS-2B-GB2-WH" AND "EN-WS-2B-CBK-WH"
2. ALL ENGRAVED SWITCH PLATES SHALL BE COORDINATED WITH OWNER OR OWNERS PROJECT MANAGER PRIOR TO CONTROL STATION PROCUREMENT.
3. SWITCH STATIONS BEING UTILIZED TO CONTROL FIXTURES WITHIN A DAY LIGHTING ZONE SHALL BE PROGRAMMED AS TO NOT ALLOW A MANUAL OVERRIDE OF THE DIMMING LEVELS SET BY THE PHOTO SENSOR IN THE SPACE.
4. SWITCH SHALL BE PROGRAMMED TO MANUAL OVERRIDE TIME SCHEDULE INDICATED FOR 60 MINUTE INTERVALS.



4 E002A STANDARD 2 ZONE CONTROL DETAIL — SCALE : N.T.S. — SYMBOL REF: M a,b

NOTES:
1. BASIS OF DESIGN FOR SWITCH SHOWN IS WATTSTOPPER PLUS MODEL NUMBER (2)"EN-WS-2B-GB2-WH" AND (2)"EN-WS-2B-CBK-WH"
2. ALL ENGRAVED SWITCH PLATES SHALL BE COORDINATED WITH OWNER OR OWNERS PROJECT MANAGER PRIOR TO CONTROL STATION PROCUREMENT.
3. SWITCH STATIONS BEING UTILIZED TO CONTROL FIXTURES WITHIN A DAY LIGHTING ZONE SHALL BE PROGRAMMED AS TO NOT ALLOW A MANUAL OVERRIDE OF THE DIMMING LEVELS SET BY THE PHOTO SENSOR IN THE SPACE.
4. SWITCH SHALL BE PROGRAMMED TO MANUAL OVERRIDE TIME SCHEDULE INDICATED FOR 60 MINUTE INTERVALS.

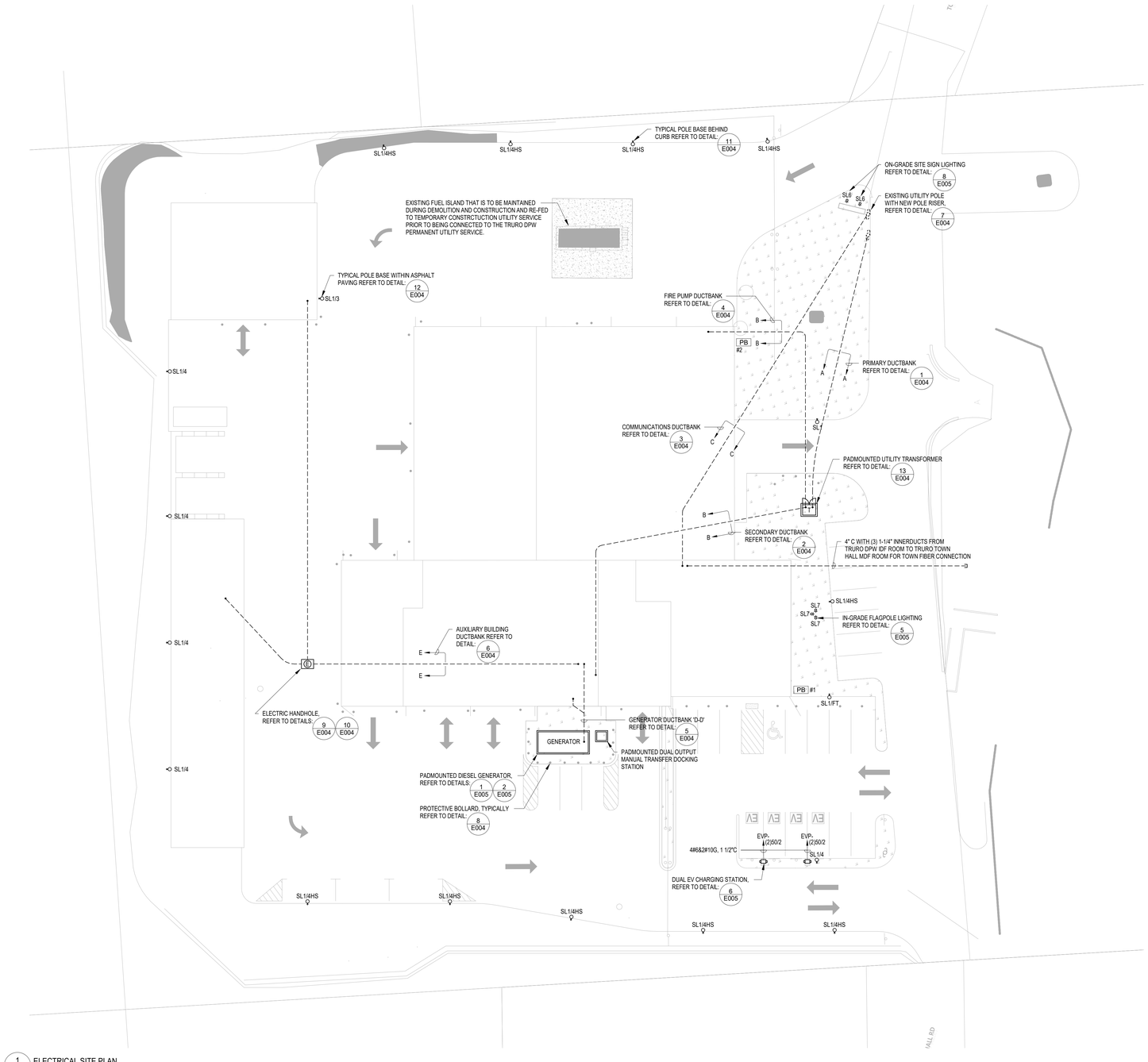


5 E002A STANDARD 3 ZONE CONTROLLER DETAIL — SCALE : N.T.S. — SYMBOL REF: M a,b,c

NOTES:
1. BASIS OF DESIGN FOR SWITCH SHOWN IS WATTSTOPPER PLUS MODEL NUMBER (3)"EN-WS-2B-GB2-WH" AND (3)"EN-WS-2B-CBK-WH"
2. ALL ENGRAVED SWITCH PLATES SHALL BE COORDINATED WITH OWNER OR OWNERS PROJECT MANAGER PRIOR TO CONTROL STATION PROCUREMENT.
3. SWITCH STATIONS BEING UTILIZED TO CONTROL FIXTURES W

ELECTRICAL SITE NOTES:

1. DO NOT RUN ANY UNDERGROUND RACEWAYS WITHIN PLANTING AREAS OR LEACHING FIELDS. REFER TO DRAWINGS FOR LOCATIONS. COORDINATE ROUTING WITH LANDSCAPE ARCHITECT.
2. REFER TO CIVIL DRAWINGS FOR EXACT ROUTING OF UTILITIES. REFER TO LANDSCAPE DRAWINGS FOR EXACT LOCATION OF 'SITE' FIXTURES.
3. ALL SITE WIRING SHALL BE 2#8&#10G,1"C MINIMUM UNLESS SHOWN OTHERWISE.
4. ALL EXTERIOR LIGHTING TO BE PROGRAMMED FOR PHOTOCELL "ON", TIMED "OFF" AND DIMMED LEVELS (VIA 0-10V SIGNAL). PROVIDE INDIVIDUAL CONTROL FOR EACH CIRCUIT. COORDINATE PROGRAMMING WITH OWNER. (REFER TO ALCS ONE-LINE DIAGRAM & SPECIFICATIONS).
5. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF EXTERIOR WALL MOUNTED LIGHTING.
6. REMOVE ALL SITE ELECTRICS WHEN NO LONGER REQUIRED.
7. PROVIDE 17"x30"x12"D GROUND MOUNTED PULL BOX (QUAZITE #PC1730BA12 WITH COVER #PC1730CA17 OR SAME BY CARSON, HIGHLINE, STRONGWELL, OR EQUAL. RUN ALL SITE LIGHTING VIA PULL BOX. ALSO PROVIDE (1) 1"SPARE WITH PULL LINE BETWEEN PULL BOX AND NEAREST ELECTRIC ROOM. LABEL @ EACH END.
8. PROVIDE LIGHTNING PROTECTION SYSTEM FOR COVERAGE OF ENTIRE FACILITY.
9. PROVIDE 12"x12"x12"D GROUND MOUNTED PULL BOX (QUAZITE #PC1212BG12 WITH #PC1212HG00 COVER OR SAME BY CARSON, HIGHLINE, STRONGWELL, OR EQUAL) AT ALL POLES WITH THREE PAIRS OF 1" CONDUITS APPROACHING BASE TO ALLOW FOR SINGLE PAIR TO ENTER BASE.
10. GENERATOR EMISSIONS EXHAUST SHALL MAINTAIN 25 FEET CLEARANCE FROM ANY OPERABLE WINDOWS OR INTAKE LOUVERS. COMPLY WITH ALL FEDERAL EPA AND STATE DEP REQUIREMENTS.



1 E003 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
TRURO, MA 02666

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

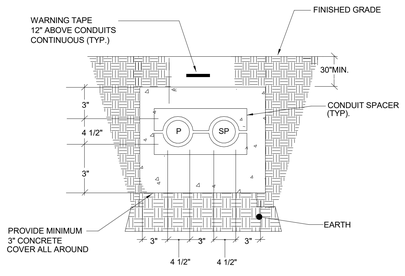
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ELECTRICAL SITE PLAN

Sheet Number:

E003

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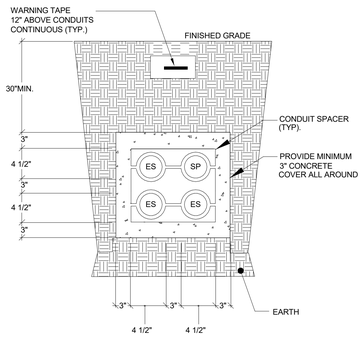
CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

1 E004 PRIMARY DUCT BANK SECTION "A-A"

SCALE: N.T.S

(P) 4" PRIMARY- SCHEDULE 40 P.V.C. PROVIDE 3/16" PULL ROPE.

(SP) 4" SPARE - SCHEDULE 40 P.V.C. PROVIDE 3/16" PULL ROPE.



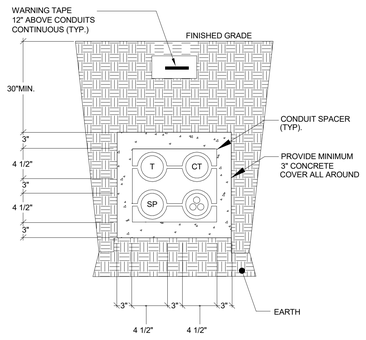
CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

2 E004 SECONDARY DUCT-BANK DETAIL "B-B"

SCALE: N.T.S

(ES) 4" SECONDARY - SCHEDULE 40 P.V.C.

(SP) 4" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE.



CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

3 E004 COMMUNICATIONS DUCT-BANK DETAIL "C-C"

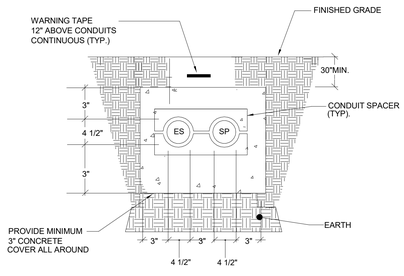
SCALE: N.T.S

(CT) 4" CABLE TV - SCHEDULE 40 P.V.C. PROVIDE PULL LINE IN CONDUIT.

(T) 4" TELEPHONE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE IN CONDUIT.

(SP) 4" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE IN CONDUIT.

4" CONDUIT - SCHEDULE 40 P.V.C. (3) 1 1/4" INNER DUCTS FOR FIBER



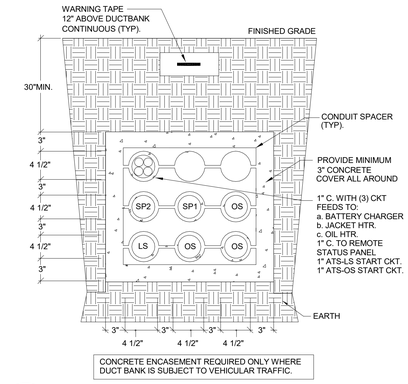
CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

4 E004 FIRE PUMP DUCT-BANK DETAIL "D-D"

SCALE: N.T.S

(ES) 4" SECONDARY - SCHEDULE 40 P.V.C.

(SP) 4" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE.



CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

5 E004 GENERATOR DUCT-BANK DETAIL "E-E"

SCALE: N.T.S.

(OS) 4 " ATS-OS SCHEDULE 40 P.V.C.

(LS) 2" ATS-LS SCHEDULE 40 P.V.C.

SCHEDULE 40 P.V.C. (4) 1"C

(SP1) 4" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE.

(SP2) 2" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE.

CONCRETE ENCASEMENT REQUIRED ONLY WHERE DUCT BANK IS SUBJECT TO VEHICULAR TRAFFIC.

6 E004 AUXLIARY BUILDING DUCT-BANK DETAIL "E-E"

SCALE: N.T.S

(AE) 2" AUXILIARY SECONDARY - SCHEDULE 40 P.V.C.

(SP) 2" SPARE - SCHEDULE 40 P.V.C. PROVIDE PULL LINE.

(SE) 2" SALT SHED SERVICE - SCHEDULE 40 P.V.C.

7 E004 UTILITY POLE RISER DETAIL

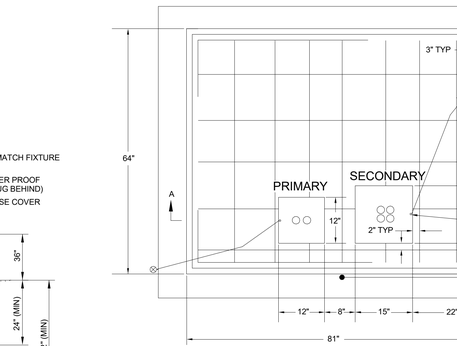
SCALE: N.T.S.

NOTES:

1. RISER CONDUITS SHALL BE LOCATED ON THE STREET QUARTER OF THE POLE, AND, WHEN POSSIBLE ON THE QUARTER AWAY FROM APPROACHING TRAFFIC.
2. CAP SPARES @ BASE OF POLE 6" ABOVE GRADE.

8 E004 TYPICAL BOLLARD DETAIL

SCALE: N.T.S.



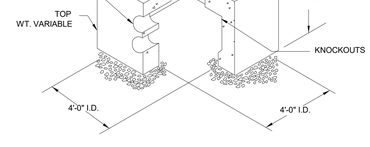
NOTES:

1. COVERS WILL HAVE "ELECTRIC", "TELEPHONE", OR "CATV" CAST IN THEM IN 3 INCH LETTERS.
2. FRAME AND COVER TO SUPPORT H2O WHEEL LOAD.
3. NO VAULT MANHOLE SHALL BE BURIED DEEPER THAN 18" BELOW FINISHED GRADE.
4. COVER SHALL BE FLUSH TO FINAL GRADE (CONCRETE, ASPHALT, GRAVEL, GRASS, ETC..)

	SUPPLIER & CATALOG#	STOCK CODE
FRAME	NACIP AE 124 LEBARON LE-285L OR APPROVED EQUAL	07-29-229
COVER	NACIP LEBARON LE-28C5 ELECTRIC OR APPROVED EQUAL	07-15-530

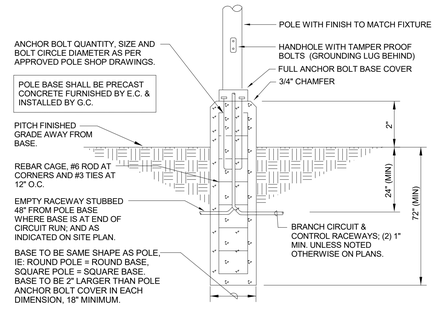
9 E004 FRAME AND COVER DETAIL

SCALE: N.T.S



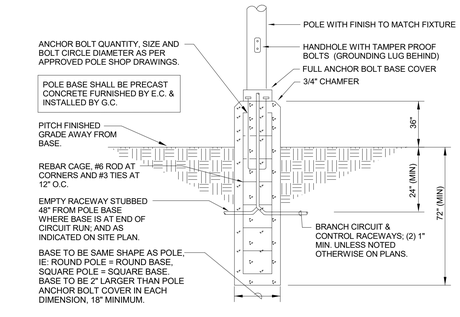
10 E004 HEAVYDUTY HANDOLE DETAIL(E C)

SCALE: N.T.S



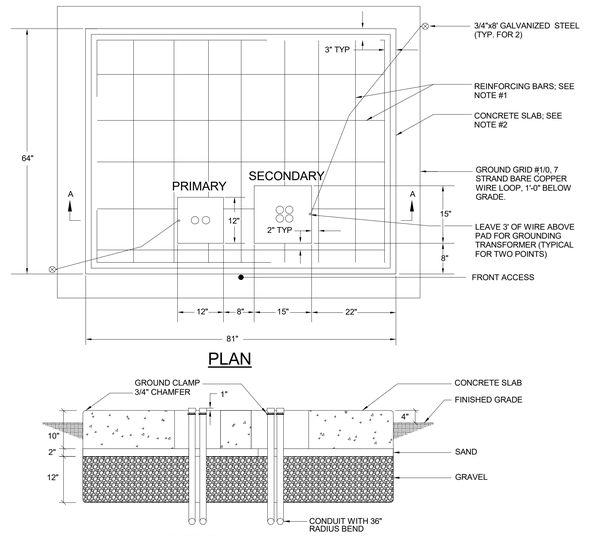
11 E004 TYPICAL BEHIND CURB POLE BASE DETAIL

SCALE: N.T.S



12 E004 TYPICAL AT ASPHALT PAVING POLE BASE DETAIL

SCALE: N.T.S



PLAN

SECTION A-A

E.C. SHALL OBTAIN LATEST PAD AND PAD MOUNTED TRANSFORMER GROUNDING SPECIFICATION FROM UTILITY COMPANY PRIOR TO PAD CONSTRUCTION.

13 E004 PADMOUNT TRANSFORMER PAD DETAIL

SCALE: N.T.S

NOTES:

1. REINFORCING TO BE #4 GRADE 60 BARS AND SHALL CONFORM TO ASTM STANDARD A-615 OF LATEST DATE REINFORCING RODS TO BE LOCATED IN CENTER OF SLAB, WITH A MINIMUM OF 2" CLEARANCE FROM FACE OF CONCRETE
2. CONCRETE TO CONFORM TO GS 0211 OF LATEST DATE, (MIX M4) FOR READY MIX CONCRETE. ALL EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
TRURO, MA 02666

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Revisions:

No.	Date	Description

COA:

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DESIGN DEVELOPMENT

Scale:

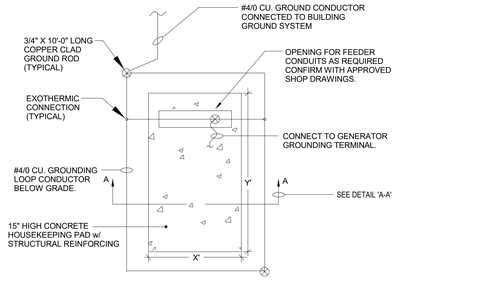
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
ELECTRICAL SITE DETAILS

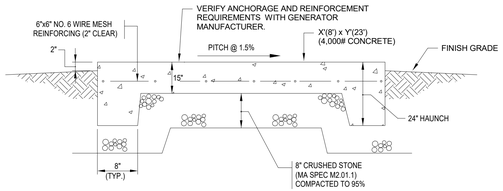
Sheet Number:
E004

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NOTE:

1. PAD SHALL BE PROVIDED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. PAD SHALL BE PROVIDED BY G.C.
2. REFER TO PAD SIZING CHART FOR APPROXIMATE PAD DIMENTIONS.
3. PAD DIMENSIONS ARE APPROXIMATE. PROVIDE 12" OF PAD ALL AROUND GENERATOR.

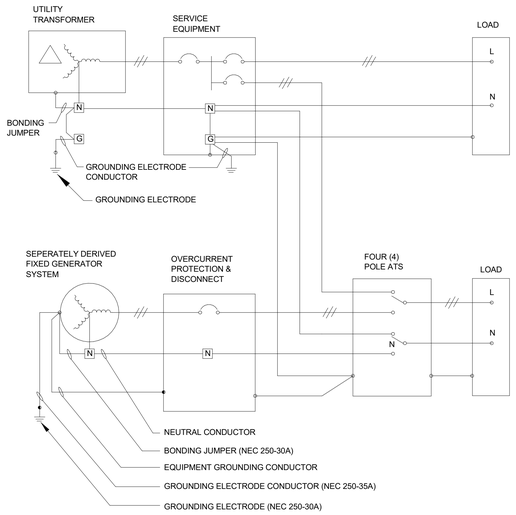


GENERATOR PAD DETAIL 'A-A'

SCALE: N.T.S.

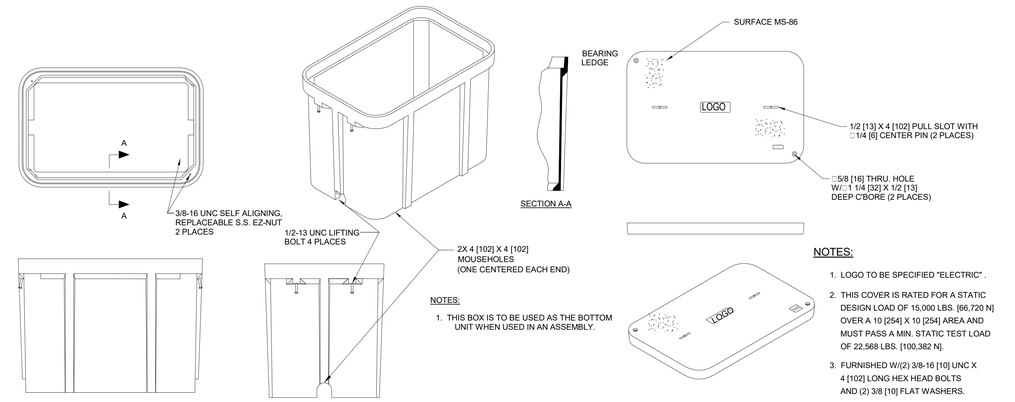
1 E005 — GENERATOR PAD DETAIL (SEPARATELY DERIVED)

SCALE: N.T.S



2 E005 — SEPERATELY DERIVED GENERATOR SYSTEM

SCALE: N.T.S



NOTES:

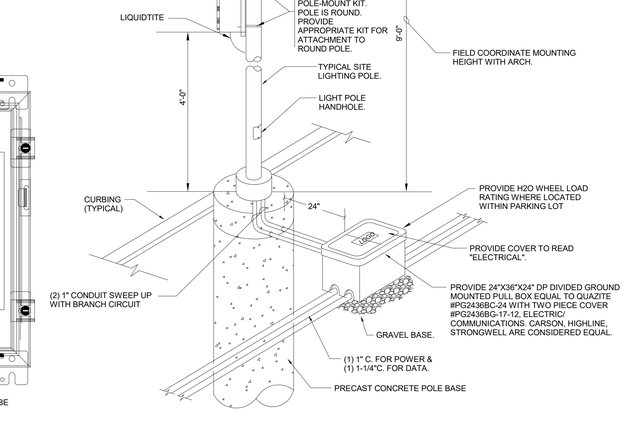
1. THIS BOX IS TO BE USED AS THE BOTTOM UNIT WHEN USED IN AN ASSEMBLY.

NOTES:

1. LOGO TO BE SPECIFIED "ELECTRIC" .
2. THIS COVER IS RATED FOR A STATIC DESIGN LOAD OF 15,000 LBS. [66,720 N] OVER A 10 [254] X 10 [254] AREA AND MUST PASS A MIN. STATIC TEST LOAD OF 22,568 LBS. [100,382 N].
3. FURNISHED W/(2) 3/8-16 [10] UNC X 4 [102] LONG HEX HEAD BOLTS AND (2) 3/8 [10] FLAT WASHERS.
4. DIMENSIONS IN BRACKETS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

3 E005 — PULLBOX DETAIL

SCALE: N.T.S

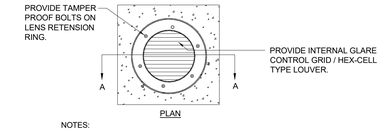


4 E005 — POLE MOUNTED CCTV CAMERA AND LIGHTING POLE UNDERGROUND DETAIL

SCALE: N.T.S.

NOTES:

1. INSTALLATION TYPICAL FOR LANDSCAPED AREAS. HANDHOLE SHALL NOT BE LOCATED IN TRAFFIC AREAS. COORDINATE COVER AND FRAME COLOR OF HANDHOLE WITH ARCHITECT.
2. REFER TO TYPICAL LIGHT POLE BASE DETAIL.
3. WHERE CAMERA IS NOT MOUNTED TO A LIGHTING POLE PROVIDE A 15' ROUND ALUMINUM POLE THAT MATCHES ALL OTHER SITE POLE FOR MOUNTING OF CAMERAS.

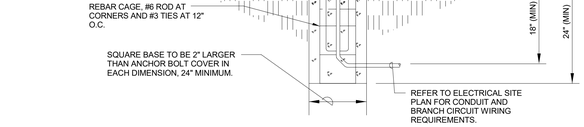


NOTES:

1. THIS DETAIL SHALL BE TYPICAL FOR FIXTURE TYPE SL6

5 E005 — GROUND MOUNTED LIGHTING DETAIL

SCALE: N.T.S

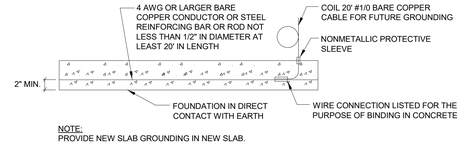


6 E005 — PEDASTAL MOUNTED EV CHARGING STATION BASE DETAIL

SCALE: N.T.S.

NOTES:

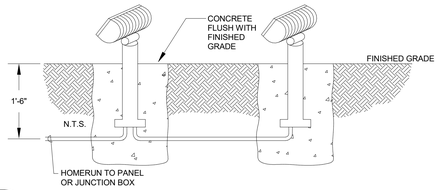
1. FURNISH & INSTALL PEDESTAL DUAL AC LEVEL 2 COMMERCIAL/FLEET ELECTRIC VEHICLE CHARGING STATION, REFER TO SPECIFICATIONS.



NOTE:
PROVIDE NEW SLAB GROUNDING IN NEW SLAB.

7 E005 — UFER GROUNDING DETAIL

SCALE: N.T.S



8 E005 — ON-GRADE FIXTURE MOUNTING DETAIL

Project:
TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

17 TOWN HALL ROAD
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No.	Date	Description

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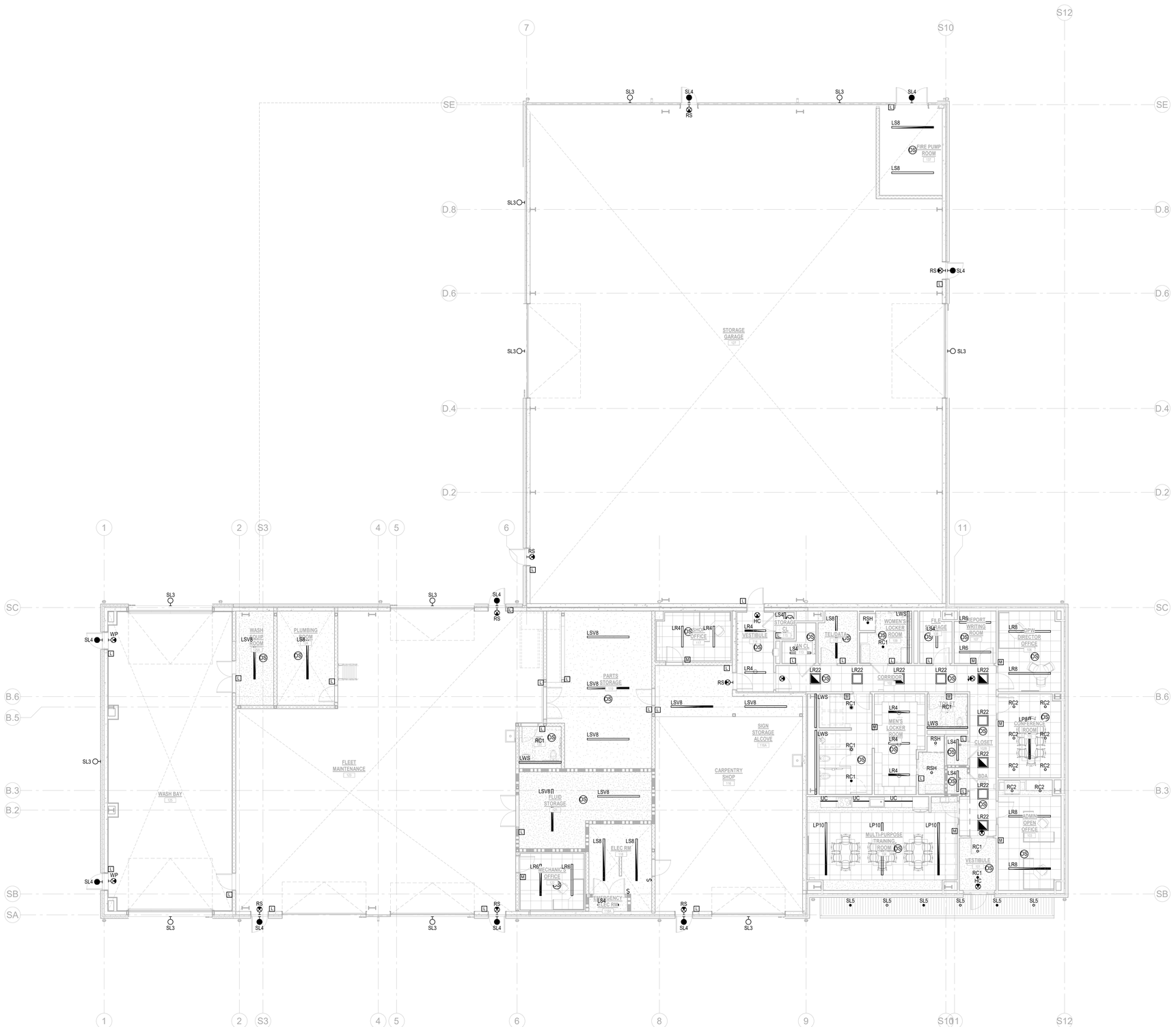
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
ELECTRICAL SITE DETAILS

Sheet Number:
E005

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1 E101 0 - OVERALL FLOOR PLAN - BASE - LIGHTING
SCALE: 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

1. EXACT LOCATIONS OF ALL FIXTURES AND DEVICES SHALL BE FULLY COORDINATED WITH ARCHITECTURAL PLANS, ELEVATIONS, SECTIONS AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
2. WIRING AND CONDUIT OR MC CABLE SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, SWITCHES, DIMMERS, SENSORS, POWER PACKS, RELAYS, AND OTHER AUXILIARY DEVICES. WIRING AND CONDUIT OR MC CABLE IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT AND CONTROL WIRING SYSTEM BE INSTALLED.
3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM # 12 AWG SIZE, THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES, ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
5. METAL ROOF DECKS SHALL NOT BE TAPPED FOR SUPPORT OF ANY LIGHTING FIXTURES OR ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT OR OTHER SUPPLEMENTAL SUPPORT FITTINGS TO BE ATTACHED TO BUILDING STRUCTURAL FRAMING AS REQUIRED FOR SUPPORT OF ALL LIGHTING FIXTURES AND ELECTRICAL EQUIPMENT.
6. ALL EXPOSED CONDUITS, RACEWAYS, WIREWAYS, BOXES, FITTINGS AND SIMILAR COMPONENTS SHALL BE PAINTED TO MATCH SURROUNDING FINISH WITH EQUAL TYPE PRODUCT(S).
7. ALL OCCUPANCY AND DAYLIGHT HARVESTING PHOTOSENSORS SHALL BE LOCATED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR EACH INDIVIDUAL SPACE. E.C. SHALL PROVIDE A CEILING PLAN LOCATING ALL SENSORS WHICH HAS BEEN FULLY COORDINATED WITH THE WORK OF OTHER TRADES FOR FINAL REVIEW AND APPROVAL. E.C. SHALL PROVIDE THE SENSOR VENDOR(S) WITH ALL INFORMATION REQUIRED TO FULLY UNDERSTAND THE CONDITIONS OF EACH SPACE.
8. INDIRECT AND DIRECT/INDIRECT FIXTURES SHALL BE SUSPENDED WITH AIRCRAFT CABLE TO PROVIDE A MINIMUM CLEARANCE 18" FROM THE CEILING TO TOP OF EACH FIXTURE. FIELD CONDITIONS REQUIRING A SHORTER SUSPENSION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO COMMENCING WITH FIXTURE INSTALLATIONS.
9. FIXTURES ON PLANS SHALL BE PROVIDED WITH 0-10V DIMMING DRIVER(S) OR LIGHT ENGINE(S) AS REQUIRED FOR LED SOURCES SPECIFIED TO BE CONTROLLED VIA A 0-10V SIGNAL FROM THE ALCS, DAYLIGHT HARVESTING PHOTOSENSORS, THEATRICAL DIMMING SYSTEM OR OTHER CONTROLS
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11. ALL EXTERIOR EQUIPMENT, FIXTURES, AND DEVICES SHALL BE RATED IP65 (MINIMUM) AND BE CONSTRUCTED OF STAINLESS STEEL AND/OR MARINE GRADE ALUMINUM SUITABLE FOR COASTAL ENVIRONMENT APPLICATION. PAINTED FINISHES SHALL HAVE PASSED A MINIMUM 5,000 HOUR SALT SPRAY TEST.

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Revisions:

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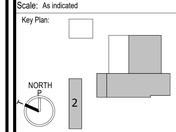
Seal:

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DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
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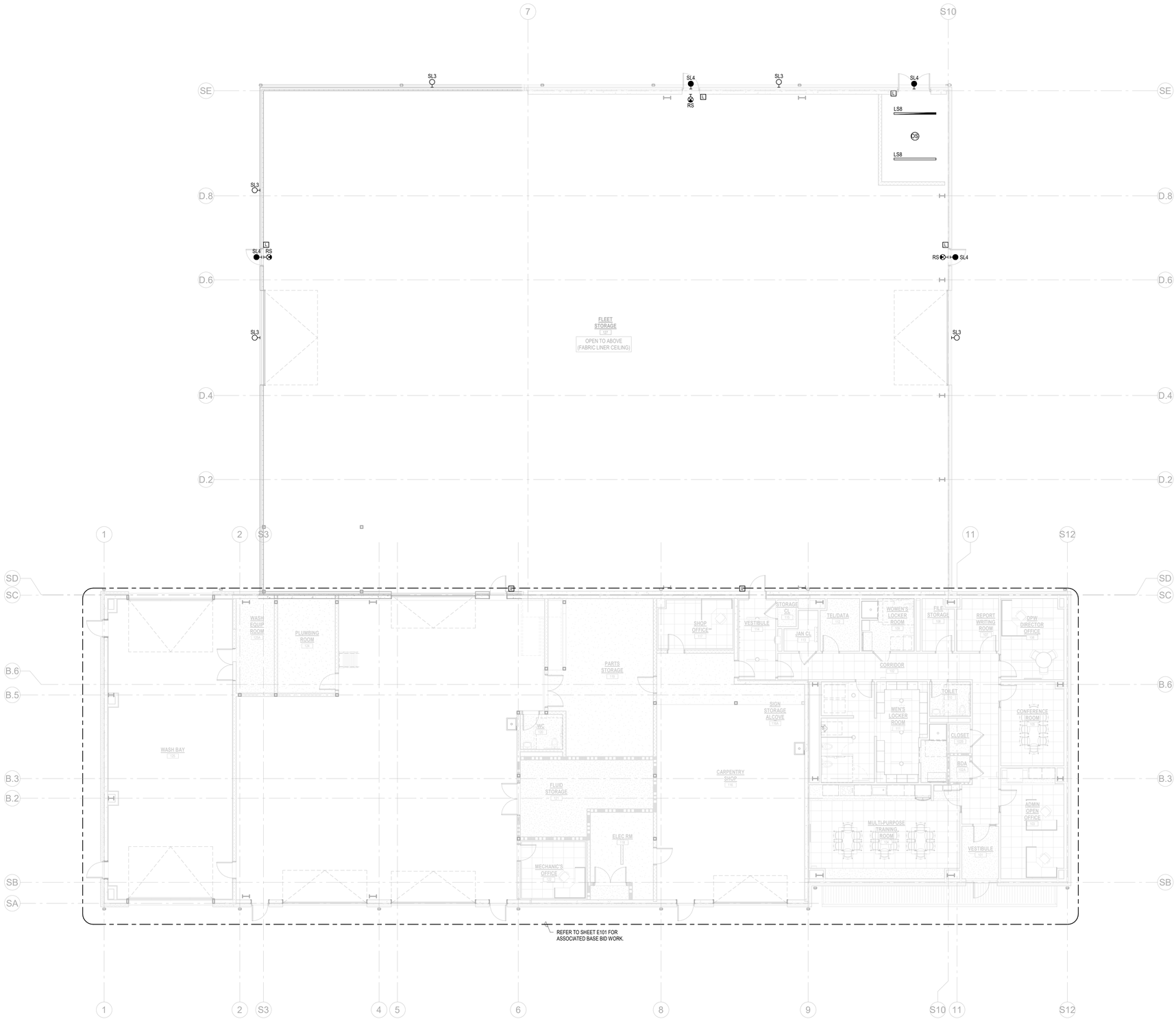
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OVERALL FLOOR PLAN - BASE - LIGHTING

Sheet Number:

E101

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1 / E101A 0 - OVERALL FLOOR PLAN - BID ALT 1 - LIGHTING
SCALE: 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

1. EXACT LOCATIONS OF ALL FIXTURES AND DEVICES SHALL BE FULLY COORDINATED WITH ARCHITECTURAL PLANS, ELEVATIONS, SECTIONS AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
2. WIRING AND CONDUIT OR MC CABLE SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, SWITCHES, DIMMERS, SENSORS, POWER PACKS, RELAYS, AND OTHER AUXILIARY DEVICES. WIRING AND CONDUIT OR MC CABLE IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT AND CONTROL WIRING SYSTEM BE INSTALLED.
3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM # 12 AWG SIZE. THWN/THHN INSULATION. 600 VOLTS RATED UNLESS OTHERWISE NOTED.
4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES, ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
5. METAL ROOF DECKS SHALL NOT BE TAPPED FOR SUPPORT OF ANY LIGHTING FIXTURES OR ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT OR OTHER SUPPLEMENTAL SUPPORT FITTINGS TO BE ATTACHED TO BUILDING STRUCTURAL FRAMING AS REQUIRED FOR SUPPORT OF ALL LIGHTING FIXTURES AND ELECTRICAL EQUIPMENT.
6. ALL EXPOSED CONDUITS, RACEWAYS, WIREWAYS, BOXES, FITTINGS AND SIMILAR COMPONENTS SHALL BE PAINTED TO MATCH SURROUNDING FINISH WITH EQUAL TYPE PRODUCT(S).
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9. FIXTURES ON PLANS SHALL BE PROVIDED WITH 0-10V DIMMING DRIVER(S) OR LIGHT ENGINE(S) AS REQUIRED FOR LED SOURCES SPECIFIED TO BE CONTROLLED VIA A 0-10V SIGNAL FROM THE ALCS, DAYLIGHT HARVESTING PHOTOSENSORS, THEATRICAL DIMMING SYSTEM OR OTHER CONTROLS
10. REFER TO "AUTOMATED LIGHTING CONTROL SYSTEM (ALCS) - TYPICAL ONE LINE DIAGRAM" AND SPECIFICATIONS FOR DETAILED LIGHTING CONTROL REQUIREMENTS.
11. ALL EXTERIOR EQUIPMENT, FIXTURES, AND DEVICES SHALL BE RATED IP65 (MINIMUM) AND BE CONSTRUCTED OF STAINLESS STEEL AND/OR MARINE GRADE ALUMINUM SUITABLE FOR COASTAL ENVIRONMENT APPLICATION. PAINTED FINISHES SHALL HAVE PASSED A MINIMUM 5,000 HOUR SALT SPRAY TEST.

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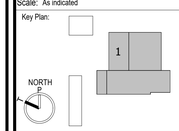
Seal:

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Date:	OCTOBER 31, 2025
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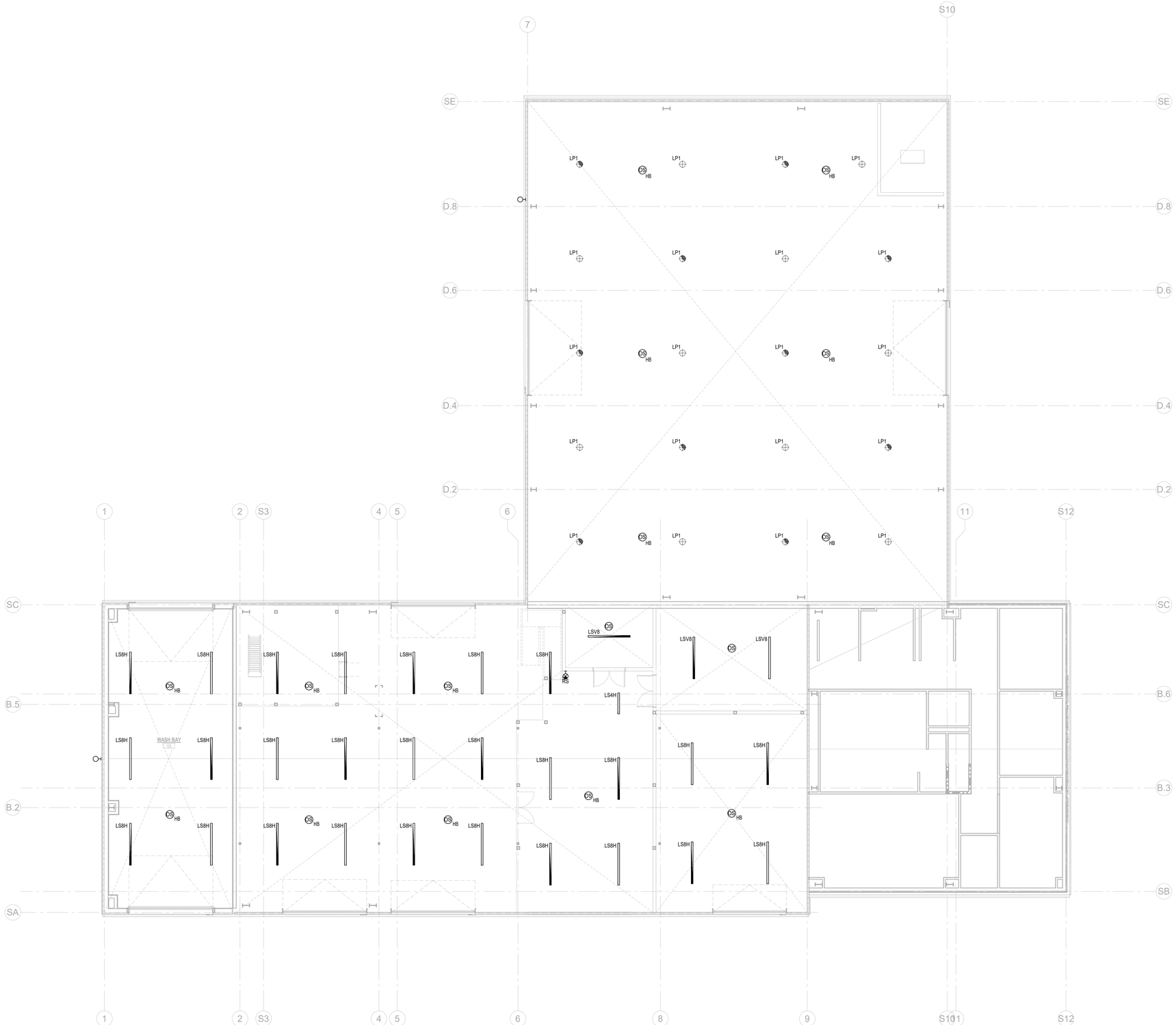
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OVERALL FLOOR PLAN - BID ALT 1 - LIGHTING

Sheet Number:

E101A

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1 E102 1 - MEZZANINE FLOOR PLAN - BASE - LIGHTING
SCALE: 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

1. EXACT LOCATIONS OF ALL FIXTURES AND DEVICES SHALL BE FULLY COORDINATED WITH ARCHITECTURAL PLANS, ELEVATIONS, SECTIONS AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
2. WIRING AND CONDUIT OR MC CABLE SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, SWITCHES, DIMMERS, SENSORS, POWER PACKS, RELAYS, AND OTHER AUXILIARY DEVICES. WIRING AND CONDUIT OR MC CABLE IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT AND CONTROL WIRING SYSTEM BE INSTALLED.
3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM # 12 AWG SIZE, THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES, ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
5. METAL ROOF DECKS SHALL NOT BE TAPPED FOR SUPPORT OF ANY LIGHTING FIXTURES OR ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT OR OTHER SUPPLEMENTAL SUPPORT FITTINGS TO BE ATTACHED TO BUILDING STRUCTURAL FRAMING AS REQUIRED FOR SUPPORT OF ALL LIGHTING FIXTURES AND ELECTRICAL EQUIPMENT.
6. ALL EXPOSED CONDUITS, RACEWAYS, WIREWAYS, BOXES, FITTINGS AND SIMILAR COMPONENTS SHALL BE PAINTED TO MATCH SURROUNDING FINISH WITH EQUAL TYPE PRODUCT(S).
7. ALL OCCUPANCY AND DAYLIGHT HARVESTING PHOTOSENSORS SHALL BE LOCATED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR EACH INDIVIDUAL SPACE. E.C. SHALL PROVIDE A CEILING PLAN LOCATING ALL SENSORS WHICH HAS BEEN FULLY COORDINATED WITH THE WORK OF OTHER TRADES FOR FINAL REVIEW AND APPROVAL. E.C. SHALL PROVIDE THE SENSOR VENDOR(S) WITH ALL INFORMATION REQUIRED TO FULLY UNDERSTAND THE CONDITIONS OF EACH SPACE.
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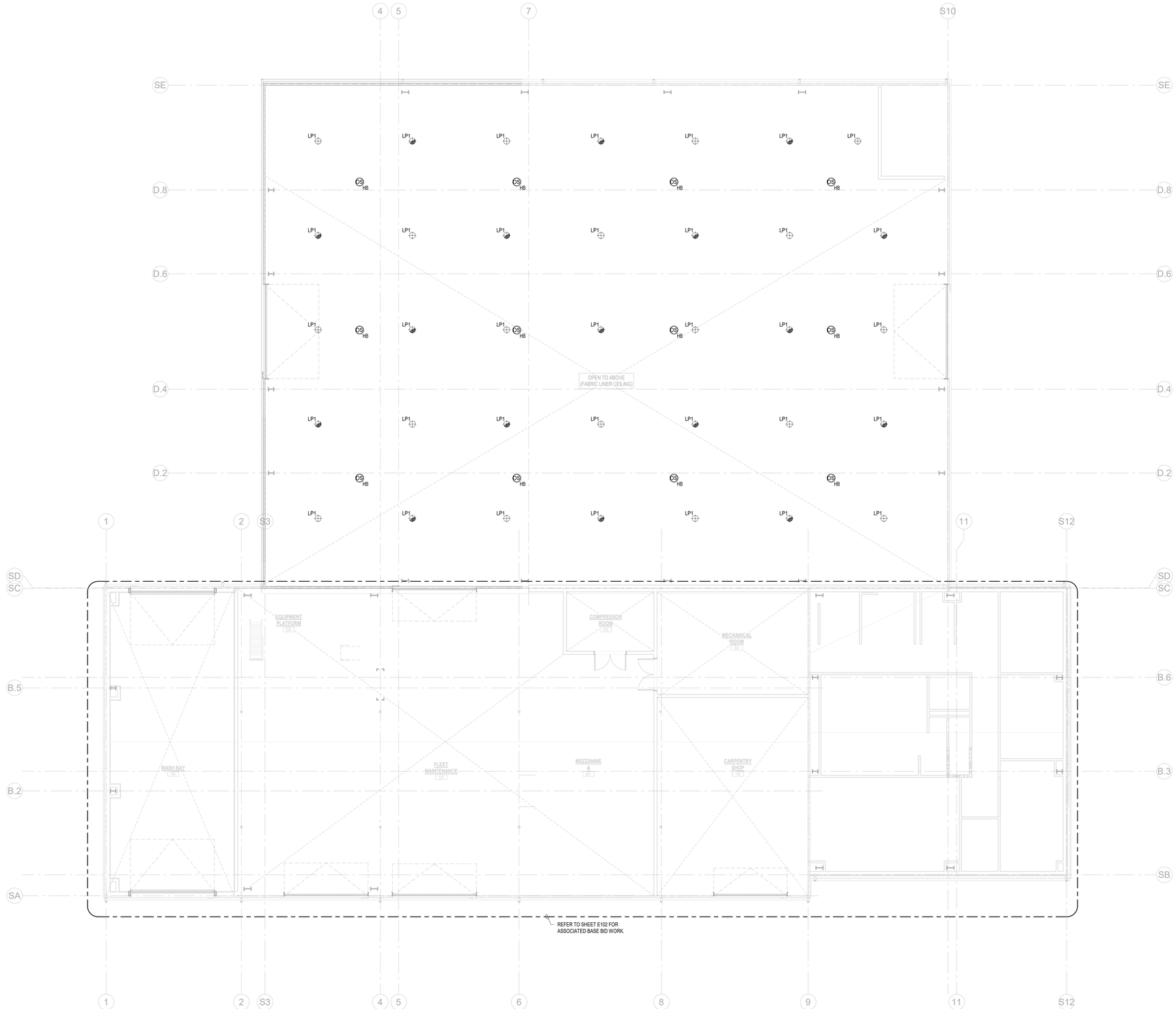
Drawing Title:

OVERALL MEZZANINE PLAN - BASE - LIGHTING

Sheet Number:

E102

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1 E102B 1 - MEZZANINE FLOOR PLAN - BID ALT 1 - LIGHTING
SCALE: 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

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4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES, ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
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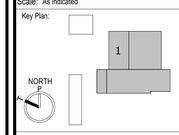
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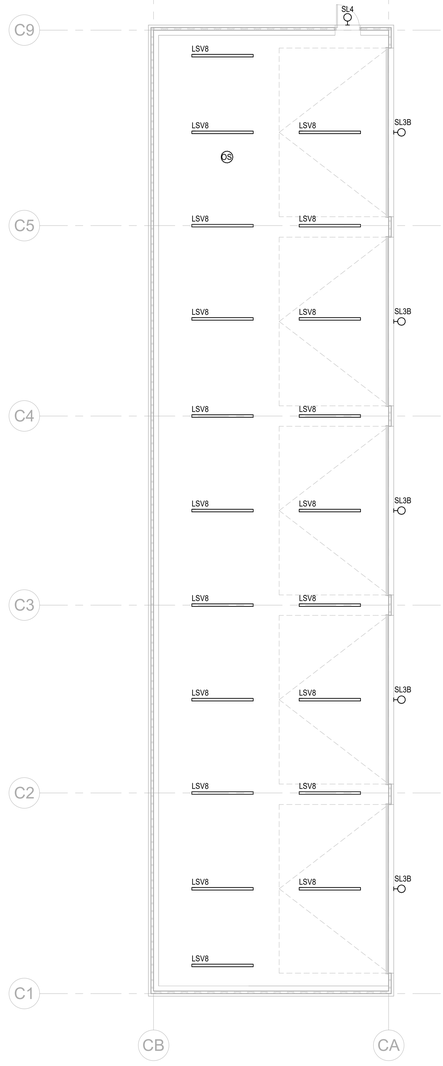
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OVERALL MEZZANINE PLAN - BID ALT 1 - LIGHTING

Sheet Number:

E102B

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1 E103 STORAGE BUILDING - LIGHTING (BID ALTERNATE #2)
SCALE: 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

1. EXACT LOCATIONS OF ALL FIXTURES AND DEVICES SHALL BE FULLY COORDINATED WITH ARCHITECTURAL PLANS, ELEVATIONS, SECTIONS AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
2. WIRING AND CONDUIT OR MC CABLE SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, SWITCHES, DIMMERS, SENSORS, POWER PACKS, RELAYS, AND OTHER AUXILIARY DEVICES. WIRING AND CONDUIT OR MC CABLE IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT AND CONTROL WIRING SYSTEM BE INSTALLED.
3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM # 12 AWG SIZE, THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES, ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
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7. ALL OCCUPANCY AND DAYLIGHT HARVESTING PHOTOSENSORS SHALL BE LOCATED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR EACH INDIVIDUAL SPACE. E.C. SHALL PROVIDE A CEILING PLAN LOCATING ALL SENSORS WHICH HAS BEEN FULLY COORDINATED WITH THE WORK OF OTHER TRADES FOR FINAL REVIEW AND APPROVAL. E.C. SHALL PROVIDE THE SENSOR VENDOR(S) WITH ALL INFORMATION REQUIRED TO FULLY UNDERSTAND THE CONDITIONS OF EACH SPACE.
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9. FIXTURES ON PLANS SHALL BE PROVIDED WITH 0-10V DIMMING DRIVER(S) OR LIGHT ENGINE(S) AS REQUIRED FOR LED SOURCES SPECIFIED TO BE CONTROLLED VIA A 0-10V SIGNAL FROM THE ALCS, DAYLIGHT HARVESTING PHOTOSENSORS, THEATRICAL DIMMING SYSTEM OR OTHER CONTROLS
10. REFER TO "AUTOMATED LIGHTING CONTROL SYSTEM (ALCS) - TYPICAL ONE LINE DIAGRAM" AND SPECIFICATIONS FOR DETAILED LIGHTING CONTROL REQUIREMENTS.
11. ALL EXTERIOR EQUIPMENT, FIXTURES, AND DEVICES SHALL BE RATED IP65 (MINIMUM) AND BE CONSTRUCTED OF STAINLESS STEEL AND/OR MARINE GRADE ALUMINUM SUITABLE FOR COASTAL ENVIRONMENT APPLICATION. PAINTED FINISHES SHALL HAVE PASSED A MINIMUM 5,000 HOUR SALT SPRAY TEST.

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Approved By:	Approver
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Drawing Title:

STORAGE BUILDING FLOOR PLAN - LIGHTING

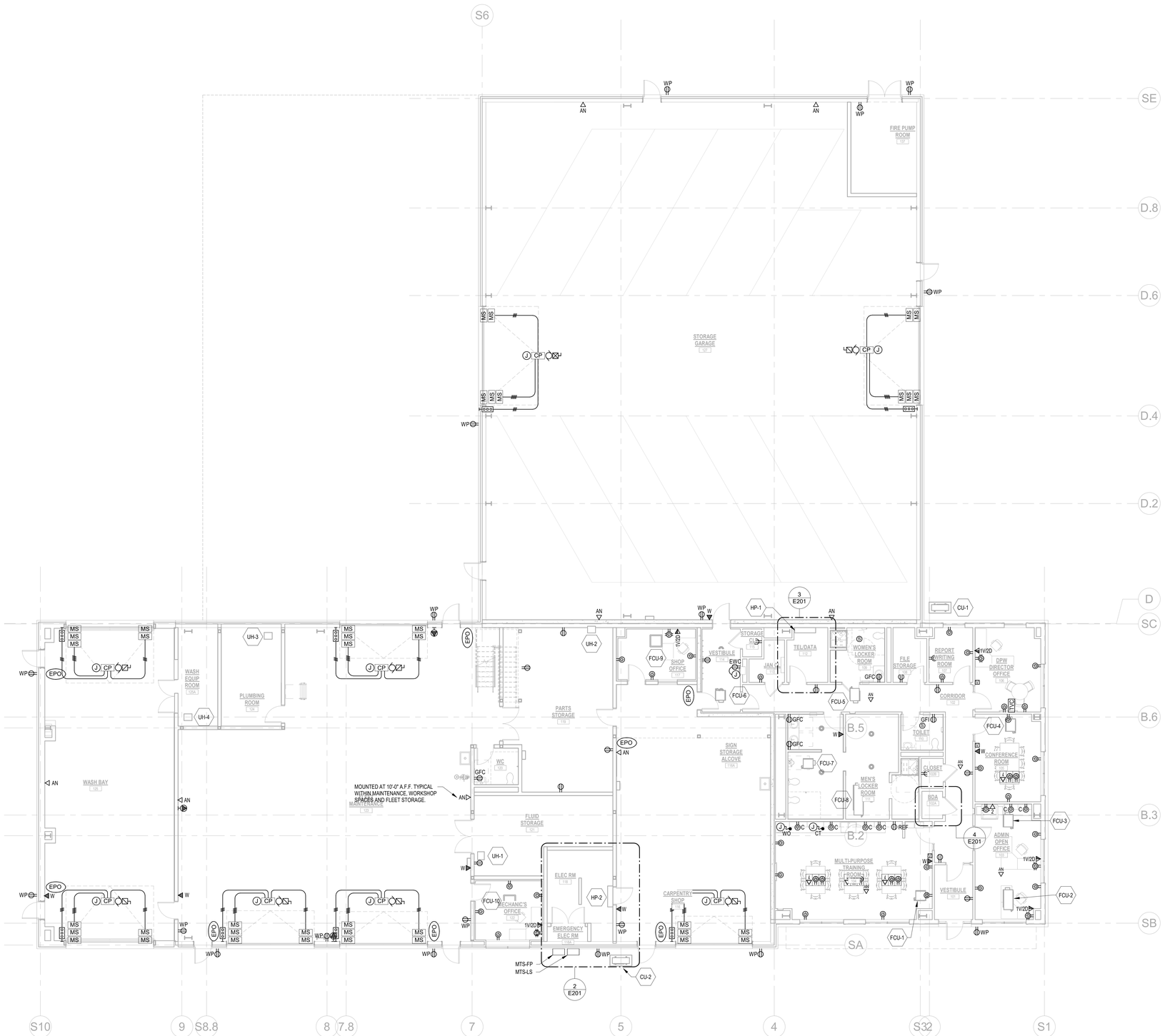
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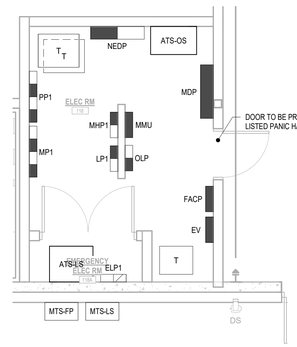
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GENERAL POWER NOTES:

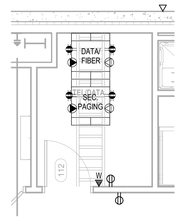
1. COORDINATE EXACT LOCATION OF ALL DEVICES AND EQUIPMENT WITH ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL HVAC EQUIPMENT.
3. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
4. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
5. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
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11. ALL OUTLETS ON EXTERIOR WALLS WITH CASEWORK SHALL BE MOUNTED 6" ABOVE CASEWORK. CONFIRM HEIGHT OF CASEWORK WITH HVAC AND ARCHITECT PRIOR TO ROUGHING.
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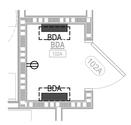
1 E201 0 - OVERALL FLOOR PLAN - BASE - POWER
SCALE: 1/8" = 1'-0"



2 E201 MAIN ELECTRICAL ROOM PART PLAN
SCALE: 1/4" = 1'-0"



3 E201 IDF ROOM PART PLAN
SCALE: 1/4" = 1'-0"



4 E201 BDA ROOM PART PLAN
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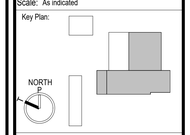
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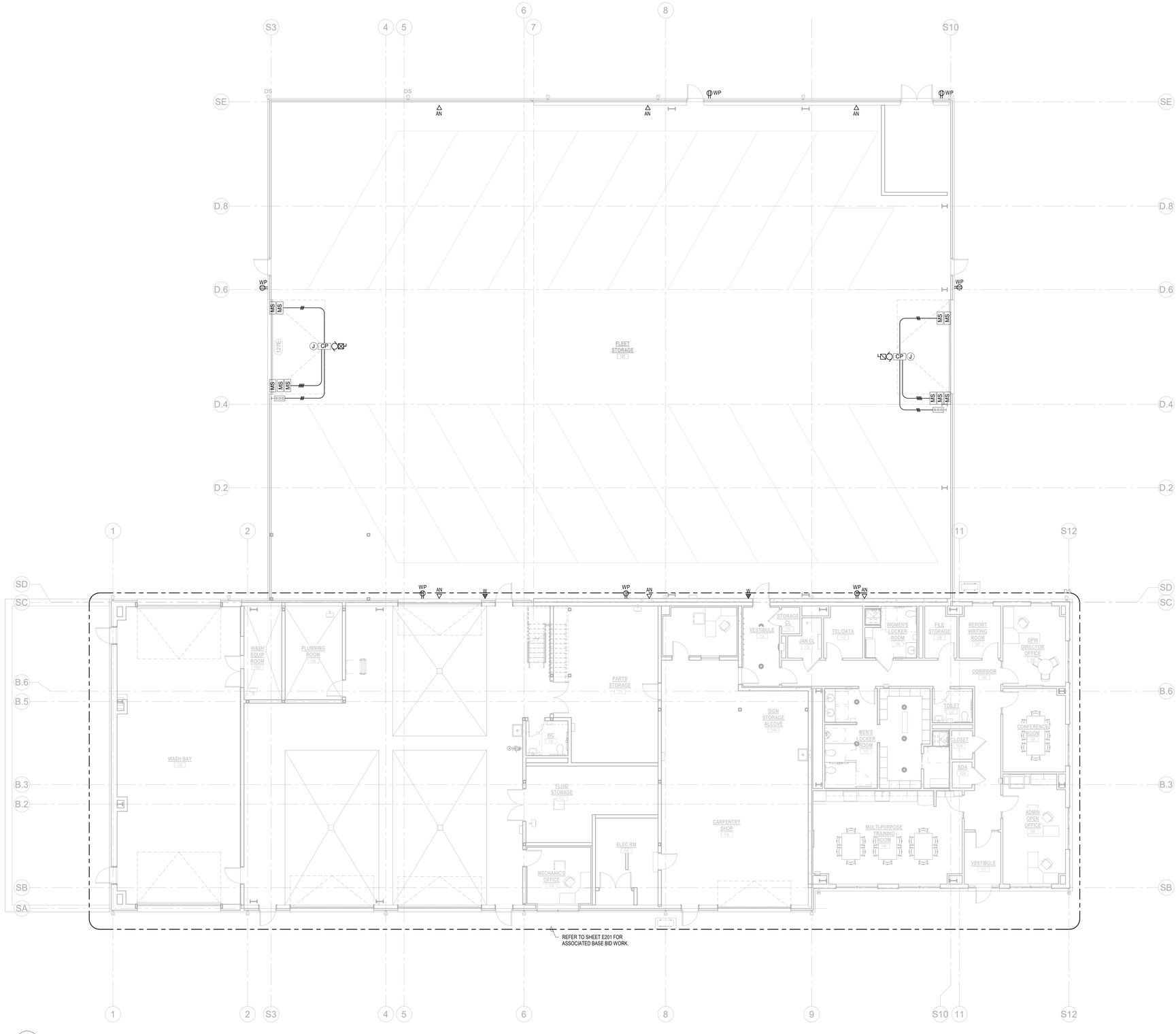
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OVERALL FLOOR PLAN - BASE - POWER

Sheet Number:

E201

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REFER TO SHEET E201 FOR ASSOCIATED BASE BID WORK.

1 / E201A — 0 - OVERALL FLOOR PLAN - BID ALT 1 - POWER
SCALE: 1/8" = 1'-0"

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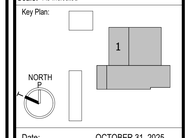
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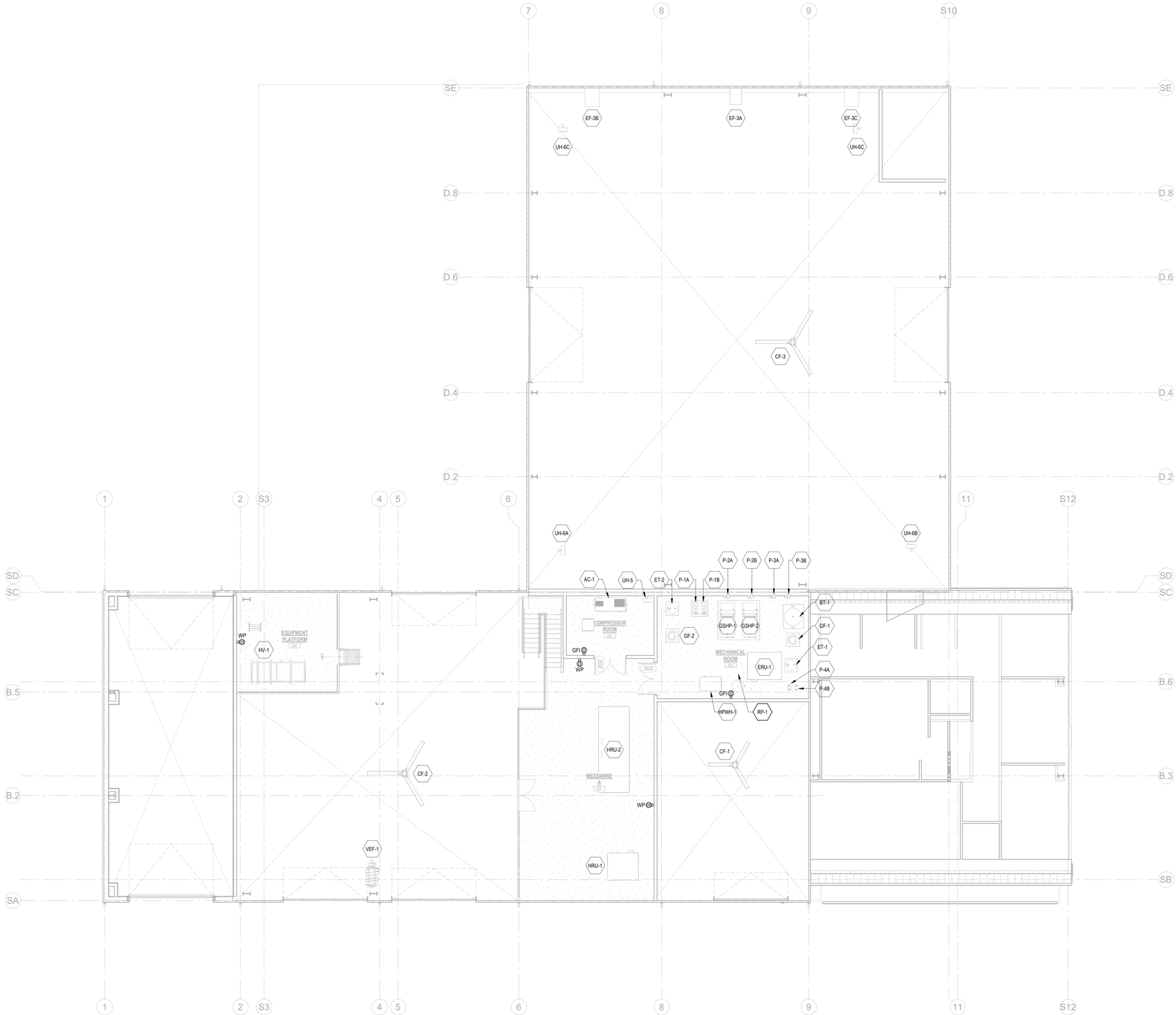
Drawing Title:

OVERALL FLOOR PLAN - BID ALT 1 - POWER

Sheet Number:

E201A

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1 E202 1 - MEZZANINE FLOOR PLAN - BASE - POWER
SCALE: 1/8" = 1'-0"

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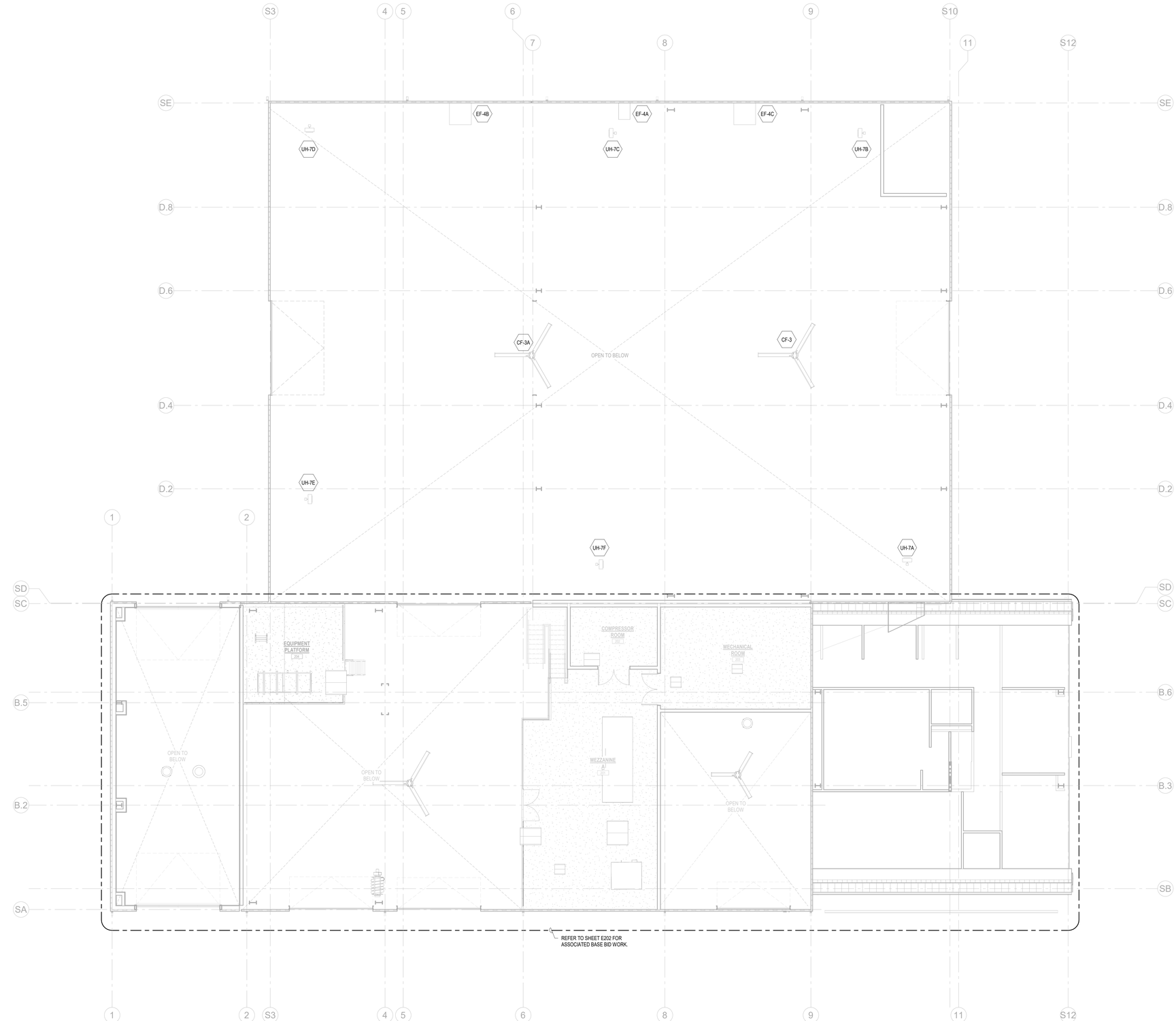
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Drawing Title:
OVERALL MEZZANINE PLAN - BASE - POWER

Sheet Number:
E202

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1 E202A 1 - MEZZANINE FLOOR PLAN - BID ALT 1 - POWER
SCALE: 1/8" = 1'-0"

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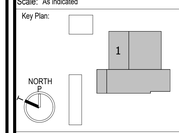
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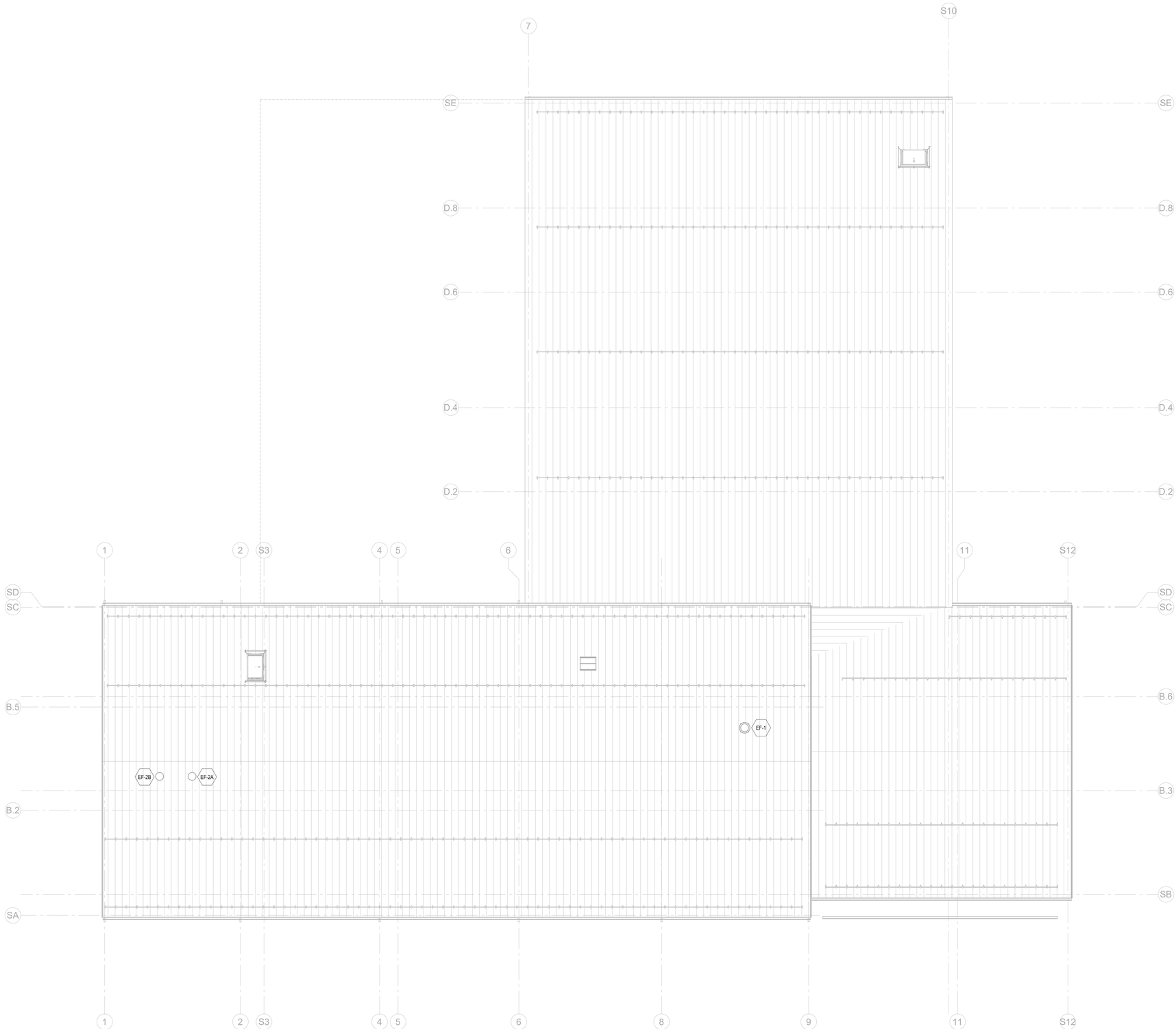
Drawing Title:

OVERALL MEZZANINE PLAN - BID ALT 1 - POWER

Sheet Number:

E202A

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1 / E203 2 - ROOF PLAN - POWER - BASE
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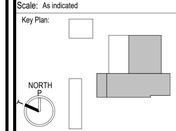
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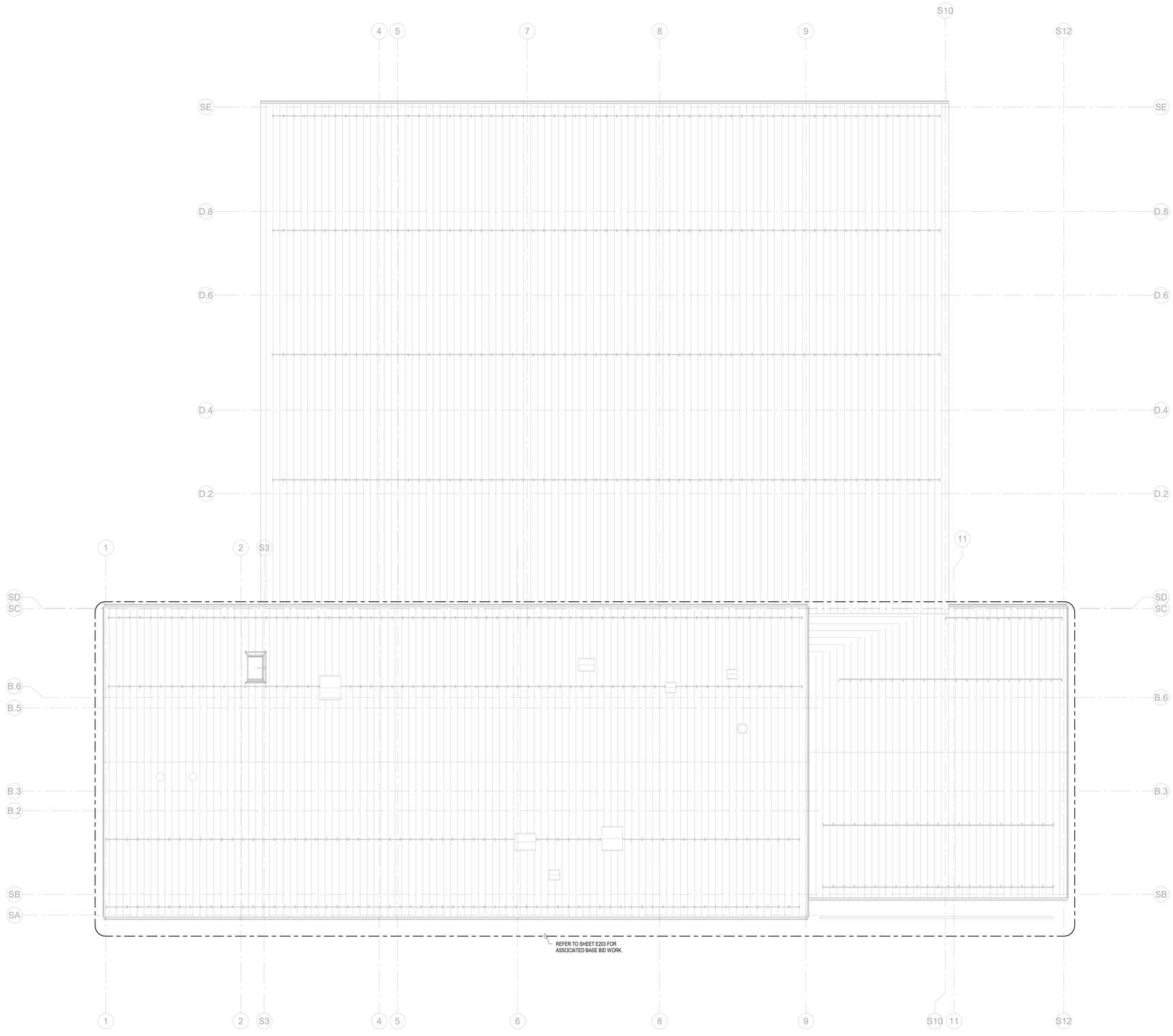
Drawing Title:

OVERALL ROOF PLAN - BASE

Sheet Number:

E203

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1 E203A 2 - ROOF PLAN - POWER - BID ALT 1
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8. DO NOT PENETRATE STAIRS WITH ANY UTILITIES EXCEPT FOR UTILITIES SPECIFICALLY SERVING THAT STAIR.
9. WHERE CONDUITS AND/OR BOXES CANNOT BE FLUSH MOUNTED IN BUILDING PROVIDE A SYSTEM OF SURFACE METAL RACEWAYS AND BOXES IN ACCORDANCE WITH ARTICLE 386, EQUAL TO WIREMOLD FOR ALL FINISH SPACES WHERE PUBLIC HAS ACCESS, INCLUDING CORRIDORS, CLASSROOMS, OFFICES, ETC.
10. CONFIRM RATINGS & FINAL LOCATIONS OF EQUIPMENT WITH OWNER PRIOR TO ROUGHING.
11. ALL OUTLETS ON EXTERIOR WALLS WITH CASEWORK SHALL BE MOUNTED 6" ABOVE CASEWORK. CONFIRM HEIGHT OF CASEWORK WITH HVAC AND ARCHITECT PRIOR TO ROUGHING.
12. TYPICALLY PROVIDE GROUND FAULT INTERRUPTER TYPE RECEPTACLES WITHIN 6 FEET OF WATER SOURCES.
13. PROVIDE ALL EMPTY CONDUITS WITH PULL-STRINGS.
14. TYPICALLY PROVIDE (2) 4" SLEEVES OVER EACH CORRIDOR DOOR.
15. PROVIDE (2) 2" THROUGH-WALL SLEEVE ABOVE CEILING OVER THE DOORS INTO EACH ROOM LEADING FROM THE CORRIDOR FOR COMMUNICATIONS/DATA WIRING.
16. LOCATE ALL WALL TELEPHONE OUTLETS 12 INCHES AWAY FROM ALL OTHER OUTLETS/DEVICES.
17. PROVIDE (2) 1" SLEEVES OVER EACH DOOR FOR TEL./DATA SECURITY AND SOUND SYSTEM WIRING. TEL./DATA SHALL BE DEDICATED TO (1) OF THE CONDUITS.
18. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL BOXES AND CONDUITS REQUIRED FOR AUDIO/VISUAL SYSTEMS SECTION 274100 DEVICES AS SHOWN ON AV DRAWINGS. ALL LOCATIONS OF POWER AND A/V OUTLET BOXES SHALL BE COORDINATED WITH ARCHITECT PRIOR TO ROUGHING.
19. E.C. SHALL PROVIDE EMERGENCY BOILER & WATER HEATER SHUT-OFF MOUNTED IN STOPPER II COVER. INTERLOCK w/ BOILER & WATER HEATER CONTROL PANELS. MOUNT @ 72" A.F.F. TYPICAL.
20. ALL 15 & 20 AMP RECEPTACLES MOUNTED BELOW 5' 6" A.F.F. SHALL BE TAMPER RESISTANT.

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NEW DEPARTMENT of PUBLIC WORKS FACILITY

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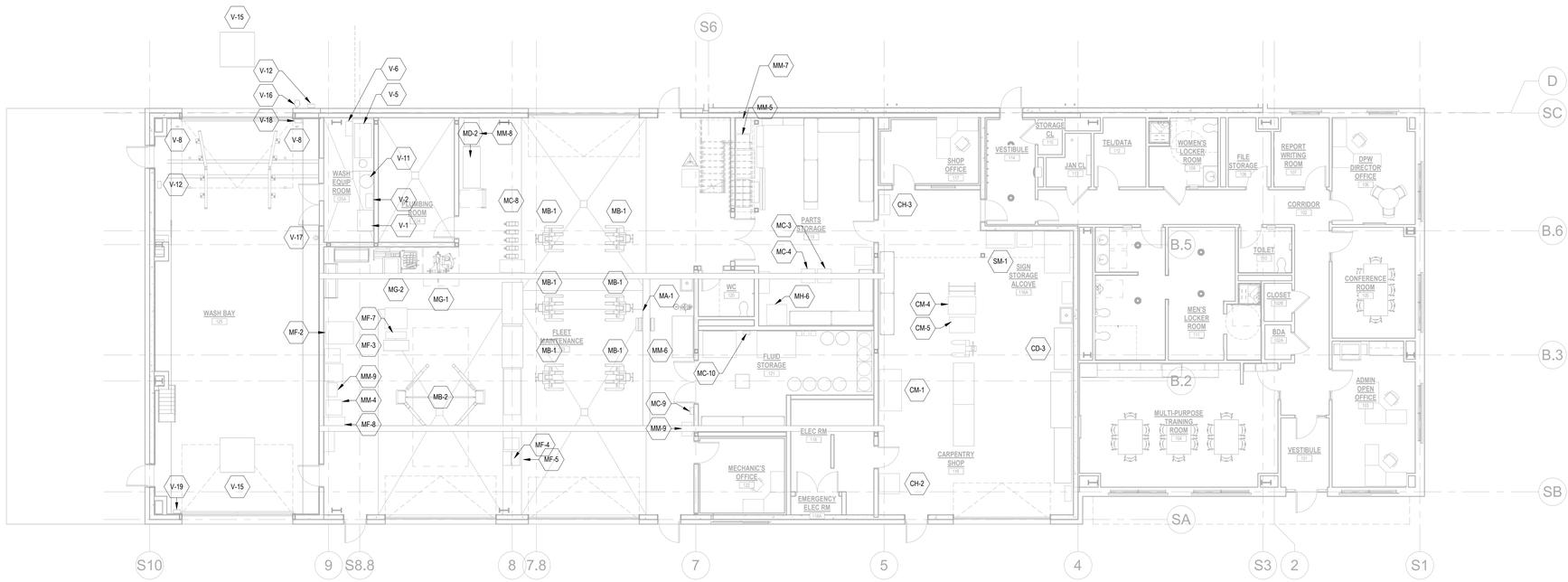
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
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W&S Project No.:	ENG24-1552
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Drawing Title:
OVERALL ROOF PLAN - BID ALT 1

Sheet Number:
E203A

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1 / E204 INDUSTRIAL EQUIPMENT FLOOR PLAN - FIRST FLOOR
SCALE: 1/8" = 1'-0"

2 / E204 INDUSTRIAL EQUIPMENT FLOOR PLAN - MEZZANINE
SCALE: 1/8" = 1'-0"

GENERAL POWER NOTES:

1. COORDINATE EXACT LOCATION OF ALL DEVICES AND EQUIPMENT WITH ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL HVAC EQUIPMENT.
3. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
4. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
5. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
6. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM #12 AWG SIZE. THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
7. REFER TO FIRE PROTECTION PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL FLOW SWITCH, TAMPER SWITCH, ETC.
8. DO NOT PENETRATE STAIRS WITH ANY UTILITIES EXCEPT FOR UTILITIES SPECIFICALLY SERVING THAT STAIR.
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11. ALL OUTLETS ON EXTERIOR WALLS WITH CASEWORK SHALL BE MOUNTED 6" ABOVE CASEWORK. CONFIRM HEIGHT OF CASEWORK WITH HVAC AND ARCHITECT PRIOR TO ROUGHING.
12. TYPICALLY PROVIDE GROUND FAULT INTERRUPTER TYPE RECEPTACLES WITHIN 6 FEET OF WATER SOURCES.
13. PROVIDE ALL EMPTY CONDUITS WITH PULL-STRINGS.
14. TYPICALLY PROVIDE (2) 4" SLEEVES OVER EACH CORRIDOR DOOR.
15. PROVIDE (2) 2" THROUGH-WALL SLEEVE ABOVE CEILING OVER THE DOORS INTO EACH ROOM LEADING FROM THE CORRIDOR FOR COMMUNICATIONS/DATA WIRING.
16. LOCATE ALL WALL TELEPHONE OUTLETS 12 INCHES AWAY FROM ALL OTHER OUTLETS/DEVICES.
17. PROVIDE (2) 1" SLEEVES OVER EACH DOOR FOR TEL./DATA SECURITY AND SOUND SYSTEM WIRING. TEL./DATA SHALL BE DEDICATED TO (1) OF THE CONDUITS.
18. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL BOXES AND CONDUITS REQUIRED FOR AUDIO/VISUAL SYSTEMS SECTION 274100 DEVICES AS SHOWN ON AV DRAWINGS. ALL LOCATIONS OF POWER AND A/V OUTLET BOXES SHALL BE COORDINATED WITH ARCHITECT PRIOR TO ROUGHING.
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20. ALL 15 & 20 AMP RECEPTACLES MOUNTED BELOW 5'-6" A.F.F. SHALL BE TAMPER RESISTANT.

ELECTRICAL SCHEDULE OF INDUSTRIAL EQUIPMENT

UNIT NO.	DESCRIPTION	LOCATION	LOAD CHARACTERISTICS	VOLT	PH	PANEL CIRCUIT	CIRCUIT BREAKER	FEEDER	EQUIPMENT AND CONNECTIONS											REMARKS
									TS					WP	J	S WP	VFD	E		
CD-3	ELECTRIC CHARGING WORKBENCH	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
CH-2	FLAMMABLE CABINET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		E.C. TO GROUND TO BUILDING STEEL
CH-3	FLAMMABLE CABINET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		E.C. TO GROUND TO BUILDING STEEL
CM-1	MITER SAW WITH STAND	-	-	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
CM-4	PORTABLE TABLE SAW	-	-	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
CM-5	PORTABLE DUST COLLECTOR	-	1.5 HP	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
MA-1	5 TON BRIDGE CRANE	-	52.9 A	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-1	18k MOBILE COLUMN	-	2.5 A	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MB-2	20k 2 POST LIFT	-	4 HP	208	3	-	-	-	-	X	-	X	-	-	X	-	-	-		-
MC-8	LUBE REEL BANK	-	-	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
MC-9	FLUID STORAGE ROOM SUMP ALARM	-	6.6 A	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-		-
MC-10	WASTE OIL HIGH LEVEL ALARM	-	6.6 A	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-		-
MD-2	ELECTRIC CHARGING WORKBENCH	-	-	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
ME-3	HYDRAULIC HOSE CHOP SAW	-	-	120	1	-	-	-	-	-	-	-	X	-	-	-	-	-		-
ME-4	HYDRAULIC HOSE CRIMPER	-	-	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA L14-30R
MF-2	LINCOLN AC225 ARC WELDER	-	-	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA 10-50R
MF-3	MILLER MILLERMATRIC 252	-	-	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA 6-50R
MF-4	METABO HPT HAMMER CART	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MF-5	THERMAL DYNAMICS WELDER	-	100A	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA 10-50R
MF-7	LINCOLN SP-170T ARC WELDER	-	22A	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA 10-30R
MF-8	DRILL PRESS	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MG-1	TIRE CHANGER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MG-2	TIRE BALANCER	-	-	208	1	-	-	-	-	-	-	-	X	-	-	-	-	-		NEMA 6-20R
MH-6	FLAMMABLE CABINET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		E.C. TO GROUND TO BUILDING STEEL
MM-4	CHOP SAW ON CART	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-5	SNAP-ON BATTERY CHARGER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-6	CHAIN SHARPENER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-7	HEATED CARPET EXTRACTOR	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-8	PARTS WASHER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-9	PEDESTAL GRINDER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
MM-9	PEDESTAL GRINDER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-
SM-1	VINYL EXPRESS PRINTER	-	-	120	1	-	-	-	-	-	-	-	-	X	-	-	-	-		-

INDUSTRIAL EQUIPMENT SCHEDULE GENERAL NOTES:

1. REFER TO ELECTRICAL FLOOR PLANS FOR EQUIPMENT LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

ELECTRICAL SCHEDULE OF WASH BAY EQUIPMENT

UNIT NO.	DESCRIPTION	LOCATION	LOAD CHARACTERISTICS	VOLT	PH	PANEL CIRCUIT	CIRCUIT BREAKER	FEEDER	EQUIPMENT AND CONNECTIONS											REMARKS
									TS				S D	WP	J	S WP	VFD	E		
V-1	MANUAL WASH PRESSURE PLANT	-	7.5 HP	480	3	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-2	MANUAL WASH CONTROL PANEL	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-4	MANUAL WASH ON/OFF SWITCH	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-5	UNDERCARRIAGE WASH PRESSURE PLANT	-	40 HP	480	3	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-6	UNDERCARRIAGE WASH CONTROL PANEL	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-8	AUTOMATIC UNDERCARRIAGE PHOTO-EYE	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-12	UNDERCARRIAGE WASH CONTROL STATION	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-15	LOOP DETECTOR	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-16	VEHICLE WASH ENTRY TRAFFIC LIGHT	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-17	UNDERCARRIAGE WASH STATUS LIGHT	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-18	ENTRANCE DOOR CONTROLLER	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
V-19	EXIT DOOR CONTROLLER	-	-	24V DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

WASH BAY EQUIPMENT SCHEDULE GENERAL NOTES:

1. REFER TO ELECTRICAL FLOOR PLANS FOR EQUIPMENT LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

Project:
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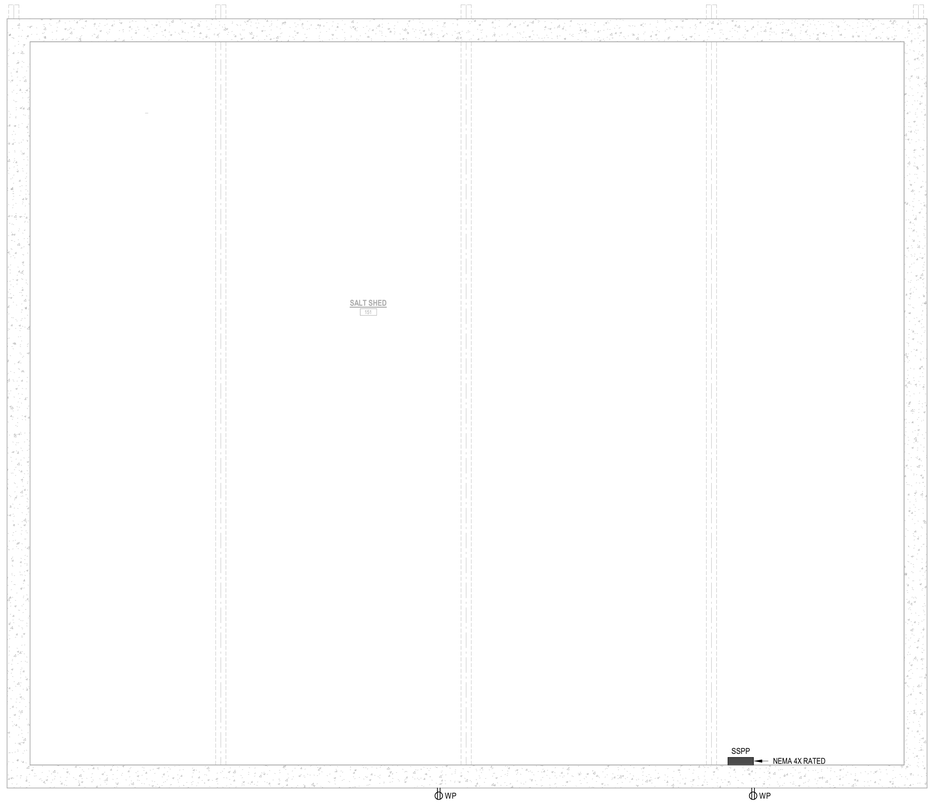
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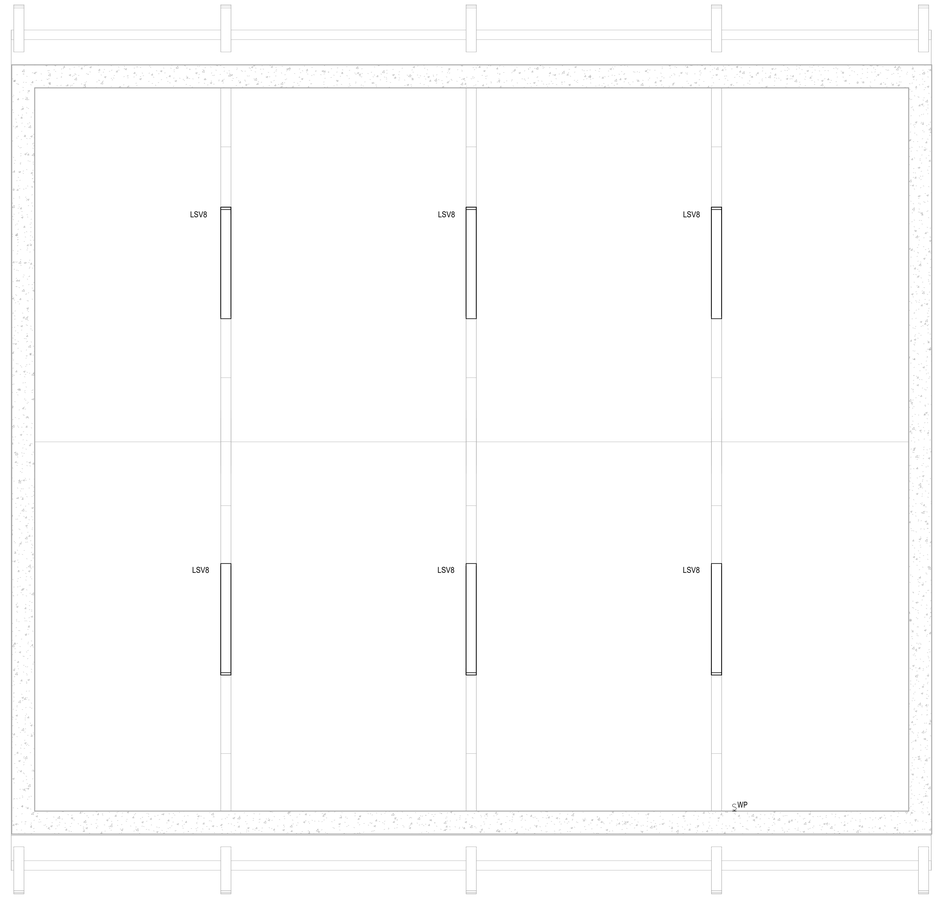
Drawing Title:
EQUIPMENT FLOOR PLAN AND SCHEDULES

Sheet Number:
E204

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1 E205 SALT SHED FLOOR PLAN - POWER
SCALE: 1/4" = 1'-0"



2 E205 SALT SHED FLOOR PLAN - LIGHTING
SCALE: 1/4" = 1'-0"

GENERAL LIGHTING NOTES:

1. EXACT LOCATIONS OF ALL FIXTURES AND DEVICES SHALL BE FULLY COORDINATED WITH ARCHITECTURAL PLANS, ELEVATIONS, SECTIONS AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
2. WIRING AND CONDUIT OR MC CABLE SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, SWITCHES, DIMMERS, SENSORS, POWER PACKS, RELAYS, AND OTHER AUXILIARY DEVICES. WIRING AND CONDUIT OR MC CABLE IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT AND CONTROL WIRING SYSTEM BE INSTALLED.
3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM # 12 AWG SIZE, THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
4. UTILITIES SHALL NOT PENETRATE STAIR ENCLOSURES. ELEVATOR SHAFTS, AND MACHINE ROOMS EXCEPT WHERE SPECIFICALLY SERVING THAT STAIR OR ELEVATOR.
5. METAL ROOF DECKS SHALL NOT BE TAPPED FOR SUPPORT OF ANY LIGHTING FIXTURES OR ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT OR OTHER SUPPLEMENTAL SUPPORT FITTINGS TO BE ATTACHED TO BUILDING STRUCTURAL FRAMING AS REQUIRED FOR SUPPORT OF ALL LIGHTING FIXTURES AND ELECTRICAL EQUIPMENT.
6. ALL EXPOSED CONDUITS, RACEWAYS, WIREWAYS, BOXES, FITTINGS AND SIMILAR COMPONENTS SHALL BE PAINTED TO MATCH SURROUNDING FINISH WITH EQUAL TYPE PRODUCT(S).
7. ALL OCCUPANCY AND DAYLIGHT HARVESTING PHOTOSENSORS SHALL BE LOCATED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR EACH INDIVIDUAL SPACE. E.C. SHALL PROVIDE A CEILING PLAN LOCATING ALL SENSORS WHICH HAS BEEN FULLY COORDINATED WITH THE WORK OF OTHER TRADES FOR FINAL REVIEW AND APPROVAL. E.C. SHALL PROVIDE THE SENSOR VENDOR(S) WITH ALL INFORMATION REQUIRED TO FULLY UNDERSTAND THE CONDITIONS OF EACH SPACE.
8. INDIRECT AND DIRECT/INDIRECT FIXTURES SHALL BE SUSPENDED WITH AIRCRAFT CABLE TO PROVIDE A MINIMUM CLEARANCE 18" FROM THE CEILING TO TOP OF EACH FIXTURE. FIELD CONDITIONS REQUIRING A SHORTER SUSPENSION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO COMMENCING WITH FIXTURE INSTALLATIONS.
9. FIXTURES ON PLANS SHALL BE PROVIDED WITH 0-10V DIMMING DRIVER(S) OR LIGHT ENGINE(S) AS REQUIRED FOR LED SOURCES SPECIFIED TO BE CONTROLLED VIA A 0-10V SIGNAL FROM THE ALCS, DAYLIGHT HARVESTING PHOTOSENSORS, THEATRICAL DIMMING SYSTEM OR OTHER CONTROLS
10. REFER TO "AUTOMATED LIGHTING CONTROL SYSTEM (ALCS) - TYPICAL ONE LINE DIAGRAM" AND SPECIFICATIONS FOR DETAILED LIGHTING CONTROL REQUIREMENTS.
11. ALL EXTERIOR EQUIPMENT, FIXTURES, AND DEVICES SHALL BE RATED IP65 (MINIMUM) AND BE CONSTRUCTED OF STAINLESS STEEL AND/OR MARINE GRADE ALUMINUM SUITABLE FOR COASTAL ENVIRONMENT APPLICATION. PAINTED FINISHES SHALL HAVE PASSED A MINIMUM 5,000 HOUR SALT SPRAY TEST.

GENERAL POWER NOTES:

1. COORDINATE EXACT LOCATION OF ALL DEVICES AND EQUIPMENT WITH ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL HVAC EQUIPMENT.
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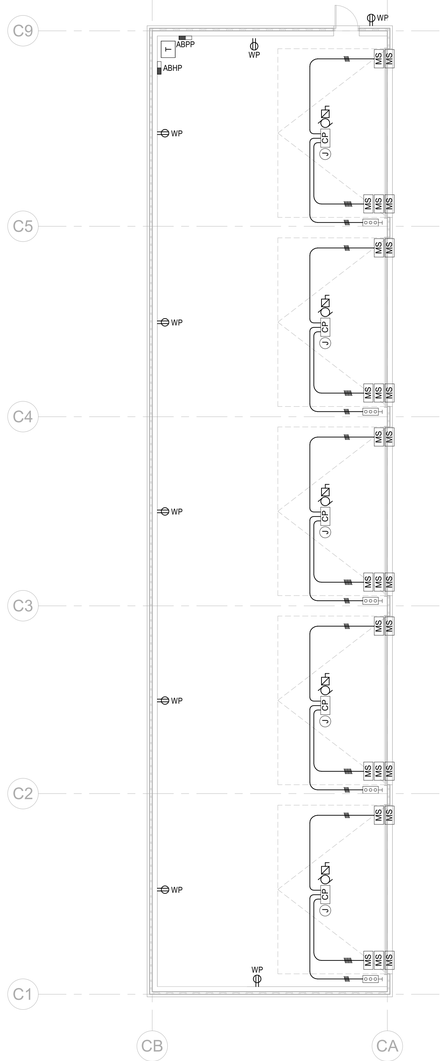
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SALT SHED FLOOR PLANS - POWER AND LIGHTING

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1 E206 3 - STORAGE BUILDING - POWER (BID ALTERNATE #2)
SCALE: 1/8" = 1'-0"



2 E206 4 - STORAGE BUILDING ROOF PLAN - POWER (BID ALTERNATE #2)
SCALE: 1/8" = 1'-0"

GENERAL POWER NOTES:

1. COORDINATE EXACT LOCATION OF ALL DEVICES AND EQUIPMENT WITH ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL HVAC EQUIPMENT.
3. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
4. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
5. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
6. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM #12 AWG SIZE, THWN/THHN INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.
7. REFER TO FIRE PROTECTION PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL FLOW SWITCH, TAMPER SWITCH, ETC.
8. DO NOT PENETRATE STAIRS WITH ANY UTILITIES EXCEPT FOR UTILITIES SPECIFICALLY SERVING THAT STAIR.
9. WHERE CONDUITS AND/OR BOXES CANNOT BE FLUSH MOUNTED IN BUILDING PROVIDE A SYSTEM OF SURFACE METAL RACEWAYS AND BOXES IN ACCORDANCE WITH ARTICLE 386, EQUAL TO WIREMOLD FOR ALL FINISH SPACES WHERE PUBLIC HAS ACCESS, INCLUDING CORRIDORS, CLASSROOMS, OFFICES, ETC.
10. CONFIRM RATINGS & FINAL LOCATIONS OF EQUIPMENT WITH OWNER PRIOR TO ROUGHING.
11. ALL OUTLETS ON EXTERIOR WALLS WITH CASEWORK SHALL BE MOUNTED 6" ABOVE CASEWORK. CONFIRM HEIGHT OF CASEWORK WITH HVAC AND ARCHITECT PRIOR TO ROUGHING.
12. TYPICALLY PROVIDE GROUND FAULT INTERRUPTER TYPE RECEPTACLES WITHIN 6 FEET OF WATER SOURCES.
13. PROVIDE ALL EMPTY CONDUITS WITH PULL-STRINGS.
14. TYPICALLY PROVIDE (2) 4" SLEEVES OVER EACH CORRIDOR DOOR.
15. PROVIDE (2) 2" THROUGH-WALL SLEEVE ABOVE CEILING OVER THE DOORS INTO EACH ROOM LEADING FROM THE CORRIDOR FOR COMMUNICATIONS/DATA WIRING.
16. LOCATE ALL WALL TELEPHONE OUTLETS 12 INCHES AWAY FROM ALL OTHER OUTLETS/DEVICES.
17. PROVIDE (2) 1" SLEEVES OVER EACH DOOR FOR TEL./DATA SECURITY AND SOUND SYSTEM WIRING. TEL./DATA SHALL BE DEDICATED TO (1) OF THE CONDUITS.
18. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL BOXES AND CONDUITS REQUIRED FOR AUDIO/VISUAL SYSTEMS SECTION 274100 DEVICES AS SHOWN ON AV DRAWINGS. ALL LOCATIONS OF POWER AND A/V OUTLET BOXES SHALL BE COORDINATED WITH ARCHITECT PRIOR TO ROUGHING.
19. E.C. SHALL PROVIDE EMERGENCY BOILER & WATER HEATER SHUT-OFF MOUNTED IN STOPPER II COVER. INTERLOCK w/ BOILER & WATER HEATER CONTROL PANELS. MOUNT @ 72" A.F.F. TYPICAL.
20. ALL 15 & 20 AMP RECEPTACLES MOUNTED BELOW 5' 6" A.F.F. SHALL BE TAMPER RESISTANT.

Project:
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Revisions:

No.	Date	Description

COA:

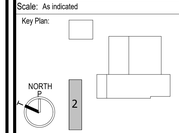
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DESIGN DEVELOPMENT

Scale: As indicated

Key Plan:



Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	Approver
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

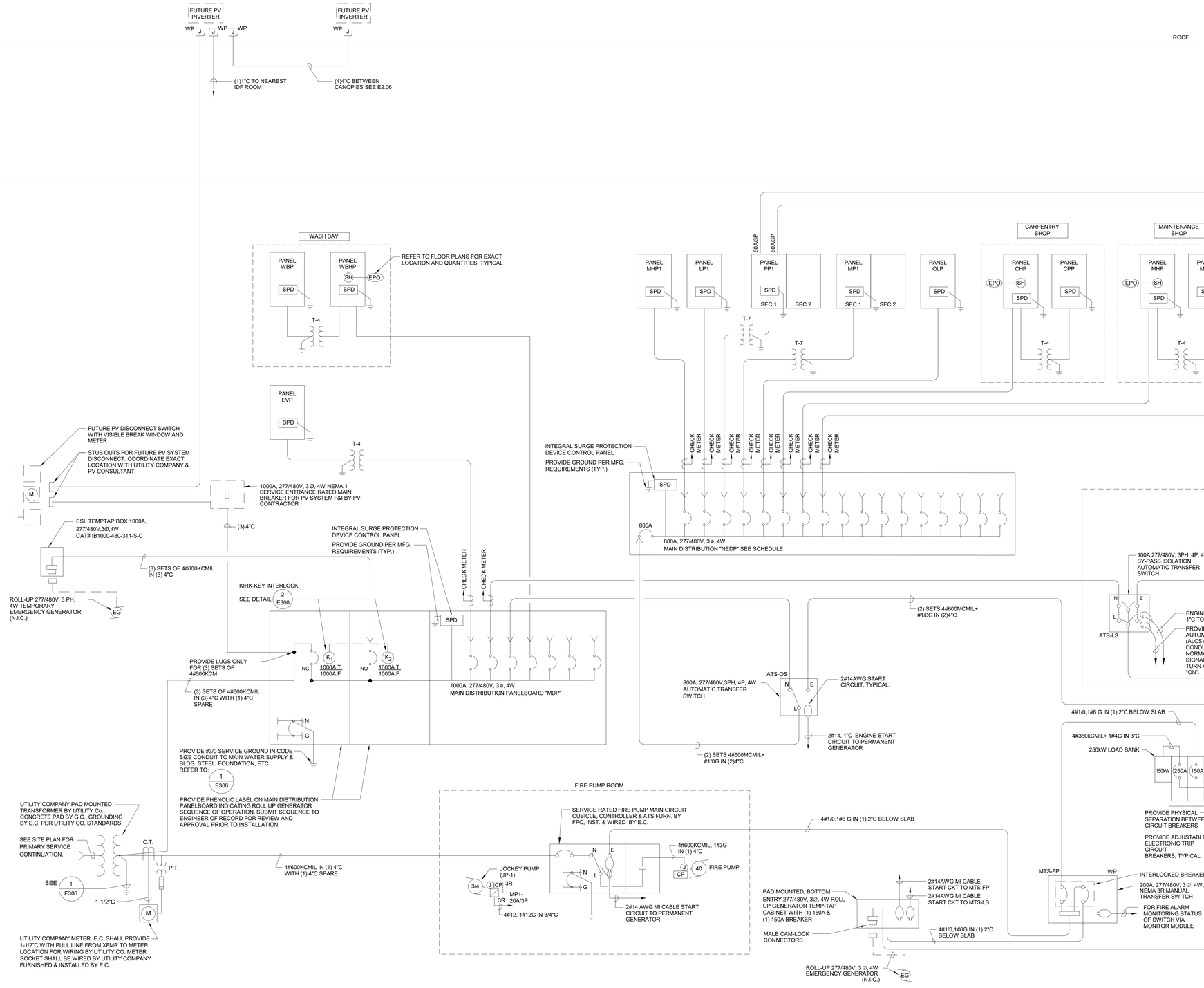
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STORAGE BUILDING FLOOR PLAN - POWER (BID ALTERNATE #2)

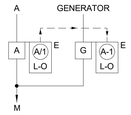
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E206

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TO PREVENT CLOSING THE GENERATOR BREAKER WHEN THE MAIN BREAKER IS CLOSED.



BREAKER A IS CLOSED TO SUPPLY LOAD M. KEY A-1 IS HELD IN THE L-O INTERLOCK ON BREAKER A. GENERATOR BREAKER G IS LOCKED OPEN AND CANNOT BE CLOSED UNTIL BREAKER A IS LOCKED OPEN.

TO TRANSFER LOAD M TO THE GENERATOR, PROCEED AS FOLLOWS:

1. OPEN BREAKER A.
2. TURN KEY A-1 IN L-O INTERLOCK ON BREAKER A TO LOCK OPEN. KEY A-1 IS NOW FREE.
3. INSERT KEY A-1 IN L-O INTERLOCK ON BREAKER G AND TURN TO UNLOCK. KEY A-1 IS NOW HELD.
4. CLOSE BREAKER G.

REVERSE SEQUENCE TO RESTORE SERVICE THROUGH BREAKER A.

2 / E300 — KIRK-KEY INTERLOCK LOGIC DETAIL

SCALE : N.T.S.

1 / E300 — ELECTRICAL ONE-LINE RISER

SCALE : NONE

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Drawing Title:

ONE-LINE RISER DIAGRAM

Sheet Number:

E300

1000 AMP, 277/480 V, 3 PHASE, 4W
AIC: 65,000
MCB

MAIN DISTRIBUTION PANEL "MDP" SCHEDULE

	OVER CURRENT DEVICES			CIRCUIT	FEEDER SIZE	COND. SIZE	REMARKS
	No.	TRIP	FRAME				
(4)	-	1000	1000	MAIN SERVICE BREAKER	SEE RISER	-	100% RATED MAIN BREAKER
(4)	-	1000	1000	TEMPORARY ROLL-UP GENERATOR	SEE RISER	-	100% RATED MAIN BREAKER
	-	-	-	SURGE PROTECTION DEVICE (SPD)	-	-	BUS MOUNTED
	1	800	800	ATS-OS (NEDP)	2 SETS: 4#600KCMIL + #1/0G	(2) 4"	-
(2)	2	100	100	ATS-LS (ELP1)	4#1 + #8G	2"	-
	3	60	100	PANEL EVP VIA T-4	(3)	(3)	REFER TO TRANSFORMER SCHEDULE
	4	200	225	PANEL WBHP	4#3/0 + #6G	2-1/2"	-
	5	15	100	SUBMETERING (BFM MODULE)	3#12 + #12G	3/4"	-
	6	100	100	SPARE	-	-	-
	7	200	225	SPARE	-	-	-
	8	-	100	SPACE - PROVISIONS ONLY	-	-	-
	9	-	225	SPACE - PROVISIONS ONLY	-	-	-
	10	-	225	SPACE - PROVISIONS ONLY	-	-	FUTURE BREAKER FOR PV SYSTEM @ END OF BUS

(1) UL LISTED SERIES RATED FOR 42,000A RMS @ RATED VOLTAGE WITH DOWNSTREAM BREAKERS IS ACCEPTABLE.
(2) PROVIDE CURRENT LIMITING BREAKER.
(3) SEE TRANSFORMER SCHEDULE FOR WIRE AND CONDUIT SIZE
(4) KIRK-KEY INTERLOCKED MAIN BREAKERS. REFER TO DETAIL 2 ON SHEET E301.

800 AMP, 277/480 V, 3 PHASE, 4W
AIC: 65,000
MCB

DISTRIBUTION PANEL "NEDP" SCHEDULE

	OVER CURRENT DEVICES			CIRCUIT	FEEDER SIZE	COND. SIZE	REMARKS
	No.	TRIP	FRAME				
	-	800	800	MAIN SERVICE BREAKER	SEE RISER	-	100% RATED MAIN BREAKER
	-	-	-	SURGE PROTECTION DEVICE (SPD)	-	-	BUS MOUNTED
	1	200	225	PANEL MHP1	4#3/0 + #6G	2-1/2"	-
(2)	2	100	100	PANEL LP1	4#1 & #8G	2"	-
	3	250	400	PANEL PP1 VIA T-6	(3)	(3)	REFER TO TRANSFORMER SCHEDULE
	4	250	400	PANEL MP1 VIA T-6	(3)	(3)	REFER TO TRANSFORMER SCHEDULE
	5	100	100	PANEL OLP	4#1 & #8G	2"	-
	6	200	225	PANEL CHP	4#3/0 + #6G	2-1/2"	-
	7	200	225	PANEL MHP	4#3/0 + #6G	2-1/2"	-
	8	100	100	PANEL ABHP	4#1 & #8G	2"	-
	9	100	100	SPARE	-	-	-
	10	200	225	SPARE	-	-	-
	11	-	100	SPACE	-	-	-
	12	-	225	SPACE	-	-	-

(1) UL LISTED SERIES RATED FOR 42,000A RMS @ RATED VOLTAGE WITH DOWNSTREAM BREAKERS IS ACCEPTABLE.
(2) PROVIDE CURRENT LIMITING BREAKER.
(3) SEE TRANSFORMER SCHEDULE FOR WIRE AND CONDUIT SIZE
(4) KIRK-KEY INTERLOCKED MAIN BREAKERS. REFER TO DETAIL 2 ON SHEET E301.

277/480V, 3 PHASE, 4W
AIC: 42,000

PANEL SCHEDULE

	PANEL NO.	LOCATION	MTG	MAIN BUS AMPS	MAIN CB	BRANCH CKT BREAKER (AMPS) 1 POLE 15	1 POLE 20	1 POLE 30	2 POLE 15	2 POLE 20	2 POLE 30	3 POLE 15	3 POLE 20	3 POLE 30	3 POLE 60	TOTAL POLES	OTHERS
	LP1	ELEC ROOM 118	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	ELP1	EM ELEC ROOM	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	OLP	ELEC ROOM 118	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	MHP1	ELEC ROOM 118	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
(3)	CHP	CARPENTRY SHOP	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
(3)	MHP	MAINTENANCE SHOP	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
	AHP	AUXILIARY BUILDING	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
(3)	WBHP	WASH BAY	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) SINGLE TUB PANEL BUT TALLER IN HEIGHT.
(2) DOUBLE TUB PANEL BUT TALLER IN HEIGHT.
(3) PROVIDE WITH SHUNT TRIP MAIN BREAKER WITH 120V COIL.

120/208V, 3 PHASE, 4W
AIC: 22,000

PANEL SCHEDULE

	PANEL NO.	LOCATION	MTG	MAIN BUS AMPS	MAIN CB	BRANCH CKT BREAKER (AMPS) 1 POLE 15	1 POLE 20	1 POLE 30	2 POLE 15	2 POLE 20	2 POLE 30	3 POLE 15	3 POLE 20	3 POLE 30	3 POLE 60	TOTAL POLES	OTHERS
(3) (4)	EVP	ELEC ROOM 118	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	PP1	ELEC ROOM 118	S	400	-	-	-	-	-	-	-	-	-	-	-	-	-
(3)	TEP	IDF CLOSET	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	MP1	ELEC ROOM 118	S	400	-	-	-	-	-	-	-	-	-	-	-	-	-
	CPP	CARPENTRY SHOP	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
	MPP	MAINTENANCE SHOP	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
	ABPP	AUXILIARY BUILDING	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBPP	WASH BAY	S	225	-	-	-	-	-	-	-	-	-	-	-	-	-
	SHPP	SALT SHED	S	100	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) SINGLE TUB PANEL BUT TALLER IN HEIGHT.
(2) DOUBLE TUB PANEL BUT TALLER IN HEIGHT.
(3) PROVIDE WITH SHUNT TRIP MAIN BREAKER WITH 120V COIL.
(4) PROVIDE LOCK-OFF DEVICES FOR EACH 40A/2P BREAKER @ PANEL EV.

THREE PHASE TRANSFORMER SCHEDULE (K13 RATED) COPPER CONDUCTORS

ID #	KVA	AMP	PRIMARY 480 VOLT WIRE (THHN)	PRIMARY C.	PRIMARY C.B.	PRIMARY FUSE	SECONDARY 208 VOLT AMP	SECONDARY WIRE (THHN)	SECONDARY C.	SECONDARY C.B.	SECONDARY FUSE	GROUNDING ELECTRODE CONDUCTOR (250-66)*
T-1	3	3.6	(3) #12 + (1) #12EG	1/2"	15/3	10	8.3	4#12+#12(EG)	1/2"	15/3	15	#8
T-2	9	10.8	(3) #12 + (1) #12EG	1/2"	20/3	20	25	4#10+#10(EG)	3/4"	30/3	30	#8
T-3	15	18	(3) #10 + (1) #10EG	1/2"	30/3	30	41.6	3#6(ø)+#3(N)+1#8(IG)+1#8(EG)	1 1/4"	50/3	50	#8
T-4	30	36	(3) #6 + (1) #10EG	3/4"	60/3	45	83.3	3#2(ø)+#3/0(N)+1#8(IG)+1#8(EG)	2"	100/3	100	#8
T-5	45	54.3	(3) #2 + (1) #8EG	1 1/4"	90/3	80	125	3#1/0(ø)+2#1/0(N) +1#6(IG)+1#6(EG)	2"	150/3	150	#6
T-6	75	90.2	(3) #1/0 + (1) #6EG	1 1/2"	150/3	150	208	3#250 KCMIL(ø)+2#250 KCMIL(N) +1#4(IG)+1#4(EG)	3"	250/3	250	#2
T-7	112.5	135.3	(3) #3/0 + (1) #6EG	2"	200/3	200	311	3#500 KCMIL(ø)+2#500 KCMIL(N) +1#3(IG)+1#3(EG)	4"	400/3	400	#1/0
T-8	150	180.6	(3) #350 + (1) #4EG	3"	300/3	300	416.8	2 SETS 3#250 KCMIL(ø)+2#250 KCMIL(N) +1#2(IG)+1#2(EG)	(2) 3"	500/3	500	#2/0
T-9	225	270.7	(3) #500 + (1) #4EG	3"	400/3	400	625	2 SETS 3#500 KCMIL(ø)+2#500 KCMIL(N) +1#1/0(IG)+1#1/0(EG)	(2) 4"	800/3	800	#2/0
T-10	300	360.8	2 SETS (3) #350 & (1) #1EG	(2) 3"	600/3	600	833	3 SETS 3#400KCMIL(ø)+2#400 KCMIL (N) +1#2/0(IG)+1#2/0(EG)	(3) 3"	1000/3	1000	#3/0

* RUN IN CODE SIZE CONDUIT TO CODE APPROVED GROUNDING ELECTRODE, i.e., BUILDING STEEL, ETC. "EG" INDICATES EQUIPMENT GROUNDING CONDUCTOR, "IG" INDICATES ISOLATED GROUNDING CONDUCTOR, "N" INDICATES NEUTRAL CONDUCTOR AND " ø" INDICATES PHASE CONDUCTOR.
** PROVIDE "IG" GROUNDING CONDUCTORS FOR PANELBOARDS DESIGNATED WITH "IG" BUS WHERE SHOWN ON PANEL SCHEDULE.
*** ALL PANELBOARDS FED FROM K-RATED TRANSFORMERS SHALL HAVE DOUBLE NEUTRALS.

SUB-METERING SCHEDULE

##	LOAD METERED	LOAD TYPE	VOLTAGE, PH, WIRE	AMPERE RATING	NOTES
1	MAIN SERVICE	MIXED	277/480V, 3PH, 4W	1000A	-
2	WBHP	MECHANICAL	277/480V, 3PH, 4W	200A	-
3	EVP	EV CHARGING	277/480V, 3PH, 4W	100A	-
4	MHP1	MECHANICAL	277/480V, 3PH, 4W	200A	-
5	LP1	LIGHTING	277/480V, 3PH, 4W	100A	-
6	PP1	PLUGLOAD	277/480V, 3PH, 4W	250A	-
7	OLP	LIGHTING	277/480V, 3PH, 4W	100A	-
8	CHP	PLUGLOAD	277/480V, 3PH, 4W	200A	-
9	MHP	PLUGLOAD	277/480V, 3PH, 4W	200A	-
10	ABHP	PLUGLOAD	277/480V, 3PH, 4W	100A	-
11	SSPP	PLUGLOAD	277/480V, 3PH, 4W	100A	-
12					
13					
14					
15					
16					
17					
18	SPARE	-	277/480V, 3PH, 4W	100A	-
19	SPARE	-	277/480V, 3PH, 4W	200A	-
20	SPARE	-	277/480V, 3PH, 4W	400A	-

SUB-METERING NOTES:

1. PROVIDE SATEC BFM-II SUB-METERING SYSTEM OR APPROVED EQUAL. SEE ELECTRICAL SPECIFICATIONS FOR COMPLETE SET OF SYSTEM REQUIREMENTS.
2. SINGLE BFM-II EXTENDED UNIT WITH VIM DUAL VOLTAGE INPUT MODULE CAN MONITOR UP TO 36 SINGLE PHASE / 12 THREE PHASE CURRENT CHANNELS. PROVIDE MULTIPLE BFM-II UNITS AS REQUIRED TO ACCOMMODATE LOADS AS SCHEDULED.
3. PROVIDE 15A/3P CIRCUIT BREAKER PER VOLTAGE SOURCE FOR EACH BFM-II UNIT FOR INPUT VOLTAGE REFERENCE.
4. PROVIDE NEMA-1 ENCLOSURE WITH HINGED COVER AND DIN RAIL MOUNTING PROVISIONS TO HOUSE BFM-II UNIT(S) AND ACCESSORY MODULES. COORDINATE EXACT DIMENSIONS WITH ACTUAL EQUIPMENT TO BE INSTALLED.
5. CURRENT TRANSFORMERS (C/T) SHALL BE SIZED FOR LOAD SCHEDULED WITH LEADS SELECTED BY METERING MANUFACTURER TO ALLOW FOR DISTANCE REQUIRED BETWEEN C/T'S AND METERING UNIT. PROVIDE EXTERNAL WIRING TROUGH AND/OR BOXES FOR INSTALLATION OF CURRENT TRANSFORMERS AROUND CONDUCTORS IF REQUIRED TO MAINTAIN CODE COMPLIANT PANELBOARD GUTTER FILL.
6. PROVIDE THREE (3) SPLIT / SOLID CORE CURRENT TRANSFORMERS FOR EACH THREE PHASE LOAD IN SCHEDULE. PROVIDE ONE (1) SPLIT/ SOLID CORE CURRENT TRANSFORMER FOR EACH SINGLE PHASE LOAD IN SCHEDULE.
7. PROVIDE ONE (1) CAT-6A CONNECTION FROM EACH BFM-II UNIT TO NEAREST MDF/IDF ROOM.

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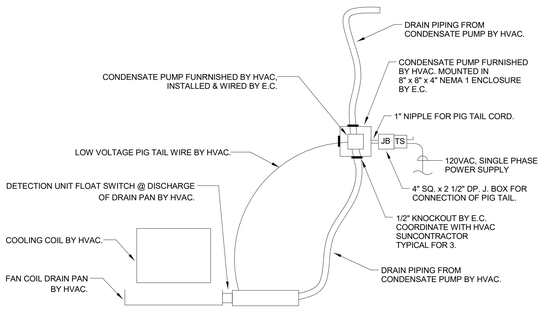
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ELECTRICAL SCHEDULES

Sheet Number:
E301

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ELECTRICAL SCHEDULE OF MECHANICAL EQUIPMENT

UNIT NO.	DESCRIPTION	LOCATION	LOAD CHARACTERISTICS	VOLT	PH	PANEL CIRCUIT	CIRCUIT BREAKER	FEEDER	EQUIPMENT AND CONNECTIONS											REMARKS
									TS				S D	WP	J	J S	WP	VFD	E	
HRU-1	HEAT RECOVERY UNIT	MEZZANINE	8.1 FLA	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
HRU-2	HEAT RECOVERY UNIT	MEZZANINE	16.6 FLA	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
ERU-1	ENERGY RECOVERY UNIT	MECHANICAL ROOM	8.1 FLA	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
FCU-1	FAN COIL UNIT	VESTIBULE	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-2	FAN COIL UNIT	ADMIN OPEN OFFICE	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-3	FAN COIL UNIT	CONFERENCE ROOM	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-4	FAN COIL UNIT	DPW DIRECTOR OFFICE	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-5	FAN COIL UNIT	CORRIDOR	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-6	FAN COIL UNIT	VESTIBULE	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-7	FAN COIL UNIT	MEN'S LOCKER ROOM	4.4 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-8	FAN COIL UNIT	MULTI-PURPOSE ROOM	8.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-9	FAN COIL UNIT	SHOP OFFICE	0.5 MCA	208	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
FCU-10	FAN COIL UNIT	MECHANIC'S OFFICE	0.5 MCA	208	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
HV-1	HEAT RECOVERY UNIT	EQUIPMENT PLATFORM	4.2 MCA	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
EF-1	EXHAUST FAN	ROOF	1/4 HP	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
EF-2A	EXHAUST FAN	ROOF	1/2 HP	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
EF-2B	EXHAUST FAN	ROOF	1/4 HP	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
EF-3A	EXHAUST FAN	VEHICLE STORAGE	1/2 HP	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
EF-3B	EXHAUST FAN	VEHICLE STORAGE	3/4 HP	208	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
EF-3C	EXHAUST FAN	VEHICLE STORAGE	3/4 HP	208	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
EF-4A	EXHAUST FAN	VEHICLE STORAGE	1/2 HP	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
EF-4B	EXHAUST FAN	VEHICLE STORAGE	2 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
EF-4C	EXHAUST FAN	VEHICLE STORAGE	2 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
CF-1	CEILING FAN	CARPENTRY SHOP	3.0 FLA	480	3	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
CF-2	CEILING FAN	MAINTENANCE SHOP	3.0 FLA	480	3	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
CF-3	CEILING FAN	VEHICLE STORAGE	3.0 FLA	480	3	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
CF-3A	CEILING FAN	VEHICLE STORAGE	3.0 FLA	480	3	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
GSHP-1	GROUND SOURCE HEAT PUMP	MECHANICAL ROOM	69 FLA / 125 MOCP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
GSHP-2	GROUND SOURCE HEAT PUMP	MECHANICAL ROOM	69 FLA / 125 MOCP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
GF-1	GLYCOL FEED UNIT	MECHANICAL ROOM	0.7 FLA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
GF-2	GLYCOL FEED UNIT	MECHANICAL ROOM	0.7 FLA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
P-1A	PUMP	MECHANICAL ROOM	7 1/2 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-1B	PUMP	MECHANICAL ROOM	7 1/2 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-2A	PUMP	MECHANICAL ROOM	1/2 HP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-2B	PUMP	MECHANICAL ROOM	1/2 HP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-3A	PUMP	MECHANICAL ROOM	1/2 HP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-3B	PUMP	MECHANICAL ROOM	1/2 HP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-4A	PUMP	MECHANICAL ROOM	5 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
P-4B	PUMP	MECHANICAL ROOM	5 HP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
CU-1	OUTDOOR CONDENSING UNIT	GRADE	19 MCA / 25 MOCP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
HP-1	INDOOR HEAT PUMP UNIT	TEL/DATA ROOM	-	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
CU-2	OUTDOOR CONDENSING UNIT	GRADE	19 MCA / 25 MOCP	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
HP-2	INDOOR HEAT PUMP UNIT	ELEC ROOM	-	208	1	-	-	-	-	X	-	X	-	-	X	-	-	-	-	-
UH-1	UNIT HEATER	FLUID STORAGE	1.0 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-2	UNIT HEATER	PARTS STORAGE	1.0 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-3	UNIT HEATER	PLUMBING ROOM	1.0 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-4	UNIT HEATER	WASH EQUIPMENT ROOM	1.0 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-5	UNIT HEATER	COMPRESSOR ROOM	1.0 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-6A	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-6B	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-6C	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-6D	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	-
UH-7A	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
UH-7B	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
UH-7C	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
UH-7D	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
UH-7E	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1
UH-7F	UNIT HEATER	VEHICLE STORAGE	1.8 MCA	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	-	PROVIDED AS PART OF BID ALTERNATE #1

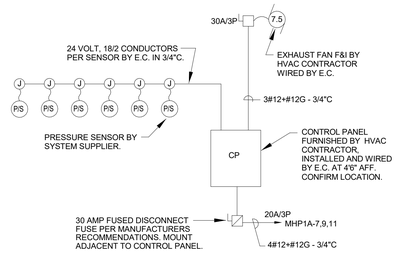


1 E302 CONDENSATE PUMP (CP-1 & CP-2) WIRING DETAIL

SCALE: N.T.S.

NOTE:

(1) WIRING MAY VARY BY MANUFACTURER. FIELD CONFIRM WITH APPROVED SHOP DRAWINGS PRIOR TO ROUGHING.



2 E302 VEHICLE EXHAUST RISER DIAGRAM (VEF-1)

SCALE: N.T.S.

MECHANICAL SCHEDULE GENERAL NOTES:

1. DUCT SMOKE DETECTORS SHALL BE PROVIDED ON SUPPLY DUCT FOR ALL MECHANICAL UNITS OVER 2000CFM. PROVIDE DUCT SMOKE ON RETURN AND SUPPLY DUCTWORK FOR ALL MECHANICAL UNITS OVER 15000 CFM. PROVIDE REMOTE TEST STATION WITH EACH DETECTOR. LOCATION OF TEST STATION SHALL BE ADJACENT TO THE FACP. DUCT SMOKES TO INITIATE ALARM.
2. PROVIDE FLEXIBLE CONNECTION TO EQUIPMENT REFER TO SPECIFICATIONS.
3. CONTROLLERS AND DISCONNECT DEVICES SHALL BE NRTL RATED FOR USE WITH A DESIGN E MOTOR WITH A HORSE POWER RATING NOT LESS THAN 1.4 TIMES THE MOTOR HORSE POWER. (REFER TO ELECTRICAL CODE ARTICLE 430).
4. TWO SPEED MOTORS SHALL HAVE TWO MOTOR BRANCH CIRCUITS AND SIX POLE DISCONNECTS.
5. WHERE INDICATED PROVIDE WEATHERPROOF DUPLEX RECEPTACLES AT MECHANICAL EQUIPMENT. PROVIDE 3/4"C. WITH 2#12+#12G AWG TO NEAREST PANEL AND CONNECT TO 20A/1P CIRCUIT BREAKER UNLESS OTHERWISE INDICATED.
6. TYPICALLY LOCATE STARTERS OR VFD'S IN ELECTRIC ROOM (NEAR PANEL).
7. ALL EXTERIOR MOUNTED DISCONNECT SWITCHES, JUNCTION/PULL BOXES, RACEWAYS, FLEXIBLE CONNECTION TO EQUIPMENT, ETC. SHALL BE NEMA "3R."
8. THE E.C. SHALL PROVIDE NEMA 7 DISCONNECT SWITCHES AND SEAL FITTINGS AT EXPLOSION PROOF FANS.
9. WHERE INDICATED PROVIDE 120 VOLT CIRCUIT FOR RECEPTACLE AND LIGHT FIXTURE TYPE "J" AT ROOF TOP UNIT AS NOTED. TYPICALLY CONNECT TO NEAREST 120 VOLT RECEPTACLE CIRCUIT UNLESS OTHERWISE INDICATED.
10. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF DUCT TYPE SMOKE DETECTORS AND CARBON MONOXIDE DETECTORS.
11. PROVIDE WEATHERPROOF DUPLEX RECEPTACLES AT MECHANICAL EQUIPMENT. PROVIDE 3/4"C. WITH 2#12+#12G AWG TO NEAREST PANEL AND CONNECT TO 20A/1P CIRCUIT BREAKER UNLESS OTHERWISE INDICATED.
12. ALL VFD'S SHALL BE PROVIDED WITH CONNECTIONS TO BACNET DATA COMMUNICATION PROTOCOL FOR BUILDING AUTOMATION AND CONTROL NETWORK. COORDINATE WITH ATC CONTRACTOR.

MECHANICAL SCHEDULE KEY NOTES:

(1) PROVIDE 3/4"CONDUIT W/PULL WIRE BETWEEN INDOOR UNIT & OUTDOOR UNIT FOR EACH SPLIT SYSTEM.

(2) PROVIDE HARD CONNECTION FOR CONDENSATE PUMP (CP-1 & CP-2). CONNECT TO NEAREST 120V, 1-PHASE BRANCH CIRCUIT UNLESS OTHERWISE INDICATED. PROVIDE THERMAL SWITCH AT UNIT. FIELD COORDINATE EXACT LOCATION WITH HVAC. SEE DETAIL 1/E302

(3) REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF CONDENSATE PUMPS CP-1 & CP-2.

(4) VFD FURNISHED INTEGRAL WITH UNIT BY HVAC EQUIPMENT SUPPLIER. SINGLE POINT CONNECTION BY E.C.

(5) REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF DUCT TYPE SMOKE DETECTORS.

(6) FINAL VAV BOX CONNECTION BY ATC CONTRACTOR. ALSO REFER TO MECHANICAL DRAWINGS FOR UNIT EXACT LOCATIONS AND QUANTITIES. COORDINATE WITH HVAC CONTRACTOR FOR EXACT LOCATION OF JUNCTION BOXES.

(7) POWER CONNECTION INCLUDES 82KW HEATER COIL.

(8) REFER TO HVAC DRAWINGS FOR EXACT UNIT LOCATIONS AND TOTAL QUANTITIES.

(9) FIELD CONFIRM WIRING WITH APPROVED SHOP DRAWINGS PRIOR TO ROUGHING.

(10) HVAC CONTRACTOR TO FURNISH 3-PHASE VOLTAGE MONITOR ICM450 OR EQUAL, INSTALLED AND WIRED BY E.C. POWER CONNECTION SHALL BE PROVIDED VIA VOLTAGE MONITOR LOCATED IN CONTROL PANEL INSTALLED IN MECHANICAL/WATER ROOM B112.

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MECHANICAL SCHEDULE AND DETAILS

Sheet Number:

E302

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ELECTRICAL SCHEDULE OF PLUMBING / CIVIL EQUIPMENT

UNIT NO.	DESCRIPTION	LOCATION	LOAD CHARACTERISTICS	VOLT	PH	PANEL CIRCUIT	CIRCUIT BREAKER	FEEDER	EQUIPMENT AND CONNECTIONS										REMARKS	
									TS			S D	WP	J	S WP	VFD	E			
HPWH-1	HEAT PUMP WATER HEATER	MECHANICAL ROOM	30.0 MCA / 50.0 MOCP	480	3	-	-	-	-	X	-	X	-	-	X	-	-	-	-	③
HT-1	HOLDING TANK	SITE	-	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	REFER TO DETAIL 1 ON SHEET E303.	③
HTCP-1	HEAT PUMP WATER HEATER	MAINTENANCE SHOP	-	120	1	-	-	-	X	-	-	X	-	-	X	-	-	-	REFER TO DETAIL 1 ON SHEET E303.	③

PLUMBING SCHEDULE KEY NOTES:

① PUMP WILL RUN V/A BMS (BUILDING MANAGEMENT SYSTEM) SYSTEM.

② AQUASTAT FURNISHED AND INSTALLED BY PC, 120V CONNECTION BY EC.

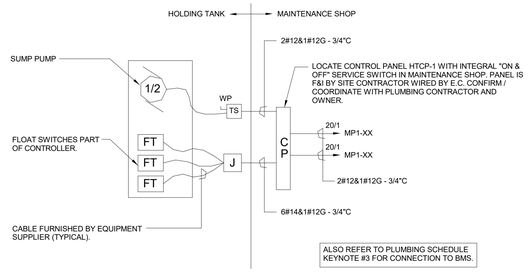
③ CONNECT TO BMS SYSTEM WITH 2#14AWG. COORDINATE WITH ATC CONTRACTOR FOR FINAL CONNECTION.

④ PROVIDE GFCI TYPE BREAKER TO FEED EQUIPMENT.

⑤ EMERGENGY BOILER SHUT OFF SWITCH LOCATED INSIDE EXTERIOR BOILER ROOM DOORS AND OUTSIDE INTERIOR BOILER ROOM DOORS. MOUNT IN STOPPER II COVER, INTERLOCK WITH BOILER CONTROL PANEL. MOUNT 72" AFF AND COORDINATE EXACT LOCATION IN FIELD WITH ARCHITECT. ALSO REFER TO DRAWING E2.02.

⑥ REFER TO PLUMBING DRAWINGS FOR EXACT UNIT LOCATIONS AND TOTAL QUANTITIES.

⑦ FIELD CONFIRM WIRING WITH APPROVED SHOP DRAWINGS PRIOR TO ROUGHING.



1 / E303 HOLDING TANK CONTROL PANEL (HT-1 / HTCP-1)

SCALE: N.T.S.

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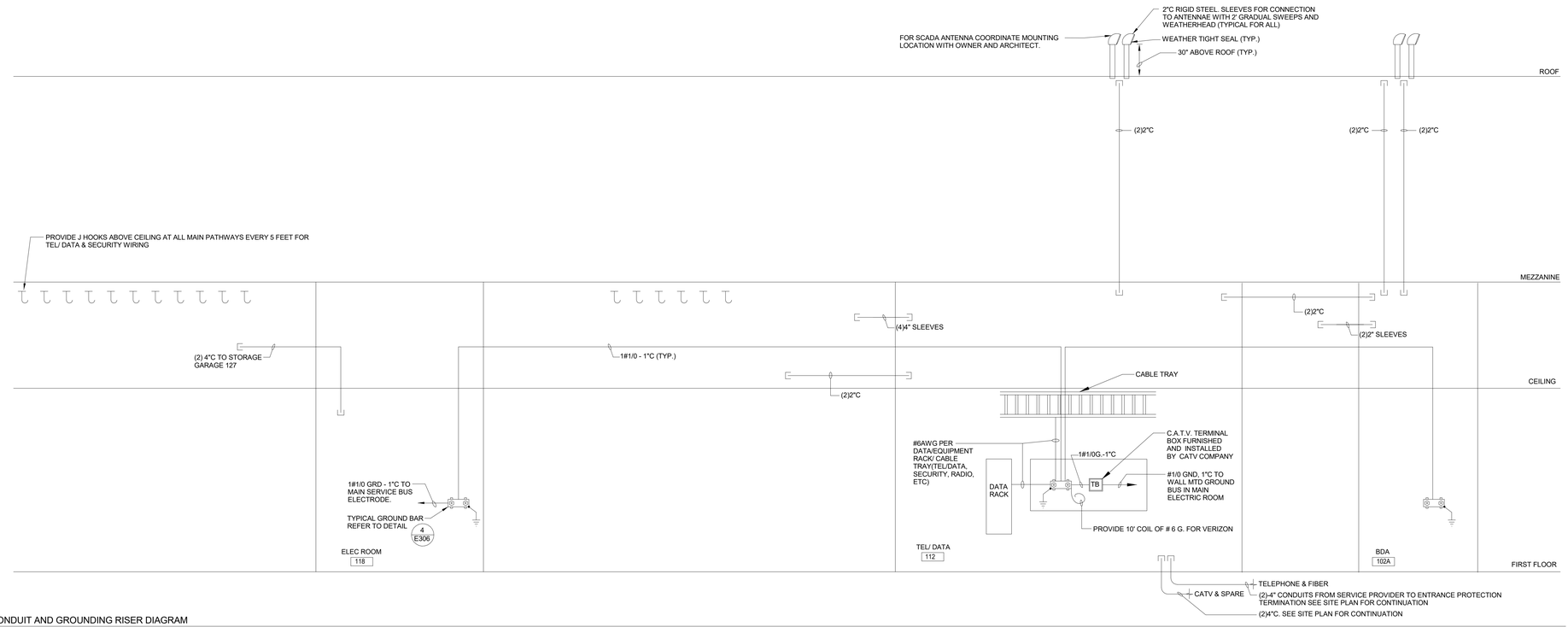
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PLUMBING / CIVIL SCHEDULE AND DETAILS

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E303

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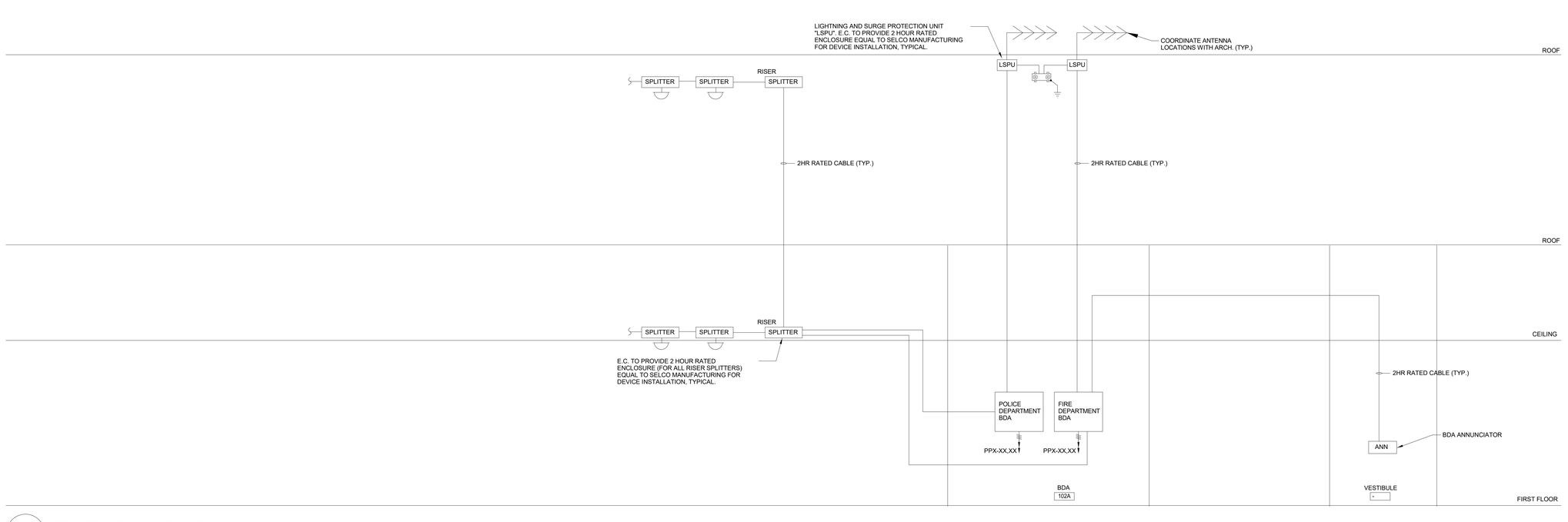


1 / E304 TELECOMMUNICATIONS CONDUIT AND GROUNDING RISER DIAGRAM

SCALE : N.T.S.

NOTES:

1. COORDINATE ALL SLEEVE LOCATIONS WITH TELECOMMUNICATIONS CONTRACTOR PRIOR TO INSTALLATION.
2. COORDINATE ALL CONDUIT ROUTING WITH TELECOMMUNICATIONS CONTRACTOR. PROVIDE PULL BOXES WHERE CONDUIT BEND EXCEEDS A TOTAL OF 180 DEGREES OR DISTANCE EXCEEDS 150'. ALWAYS ALIGN CONDUITS ON OPPOSITE ENDS OF PULL BOX.
3. PULL BOX SIZES FOR 4" CONDUITS SHALL BE MINIMUM 15" WIDE X 60" LONG X 8" DEEP. INCREASE WIDTH OF PULL BOX 8" FOR EVERY ADDITIONAL 4" CONDUIT.
4. ALL CONDUIT BENDS SHALL BE MINIMUM 36" RADIUS.
5. DO NOT RUN CONDUITS PARALLEL WITH POWER CONDUITS. MAINTAIN MINIMUM OF 4' CLEARANCE.
6. E.C. SHALL BOND ALL CABLE TRAY TO GROUNDING BAR IN RESPECTIVE DATA ROOM WITH #6 GROUND. THE CABLE TRAY SHALL BE ELECTRICALLY CONTINUOUS THROUGH. ENTIRE RUN INCLUDING ALL FITTINGS.



2 / E304 DISTRIBUTED ANTENNA SYSTEM RISER (BDA/DAS)

SCALE : N.T.S.

NOTES:

1. PROVIDE ALL BONDING HARDWARE REQUIRED FOR A COMPLETE GROUNDING SYSTEM TO ASSOCIATED PANELS, EQUIPMENT, SHELVES, RACKS, AND ANY OTHER METALLIC COMPONENTS TO ENSURE ELECTRICAL CONTINUITY BETWEEN METALLIC COMPONENTS AND THE GROUNDED RACK OR CABINET.
2. MAXIMUM FOUR ANTENNAE PER REMOTE DEVICE. PROVIDE AND LOCATE DEVICES IN SUFFICIENT QUANTITY TO PROVIDE A MINIMUM SIGNAL COVERAGE OF 95% AT NEG. 85dBM WITHIN THE BUILDING.
3. PRIORITY AREAS OF COVERAGE INCLUDE THE APPARATUS BAY, TURNOUT GEAR, LIVING QUARTERS, CAFETERIA, CORRIDORS, MAIN ENTRANCE LOBBY AND STAIR WELLS.
4. ALL COMPONENTS THAT REQUIRE 120V SHALL BE FED FROM CONDITIONED/UPS POWER NEAREST "PP2A" PANEL.
5. PUBLIC SAFETY BI-DIRECTIONAL AMPLIFIERS, ANTENNAE "POLICE" AND "FIRE" SHALL BE PROVIDED. COORDINATE EXACT FREQUENCIES WITH THE LOCAL FIRE STATION AUTHORITIES, AMPLIFIED DISTRIBUTION OF PUBLIC SAFETY FREQUENCIES SHALL BE OPERATIONAL AT SUBSTANTIAL COMPLETION OF THE PROJECT.
6. PROVIDE ADEQUATE RACK SPACE FOR FUTURE CELLULAR CARRIER BIDIRECTIONAL AMPLIFIERS, OWNER SHALL BE RESPONSIBLE FOR SELECTING AND NEGOTIATION WITH CELLULAR CARRIER.

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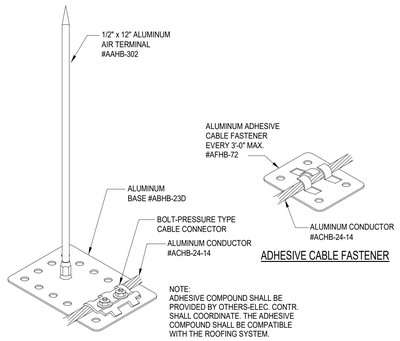
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GROUNDING AND BDA RISER DIAGRAM

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E304

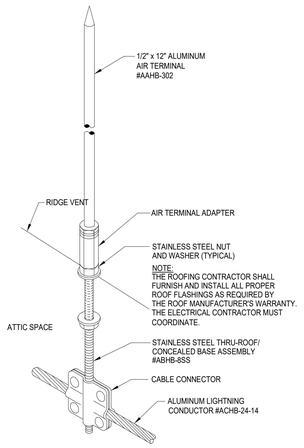
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ADHESIVE CABLE FASTENER

1 AIR TERMINAL BASE

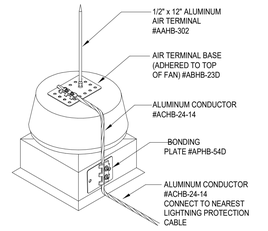
NTS SYMBOL A



2 CONCEALED AIR TERMINAL

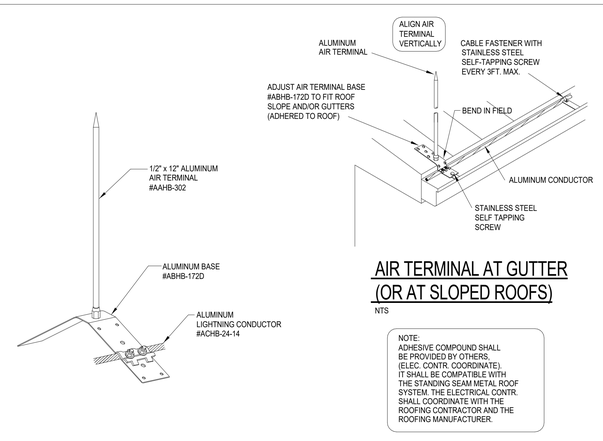
NTS SYMBOL C

NOTE: AIR TERMINALS ARE REQUIRED ON ROOF VENTILATORS/EXH. FANS THAT ARE NOT WITHIN A ZONE OF PROTECTION OR WHEN HIGHER THAN ADJACENT AIR TERMINALS.



3 AIR TERMINAL AT EXH. FAN

NTS SYMBOL F

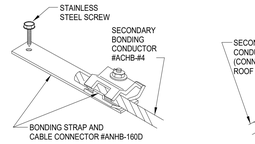


AIR TERMINAL AT GUTTER (OR AT SLOPED ROOFS)

NTS

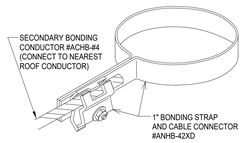
4 SADDLE AIR TERMINAL BASE

NTS SYMBOL S



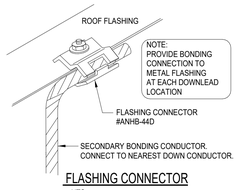
BONDING LUG (GUTTERS)

NTS



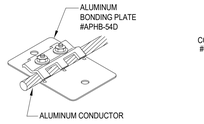
BONDING STRAP AT (VENT PIPES)

NTS



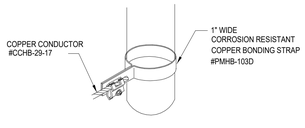
FLASHING CONNECTOR

NTS



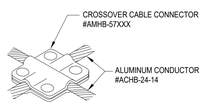
BONDING PLATE

NTS



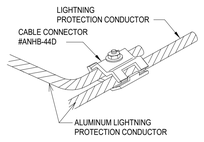
PIPE CLAMP (RAILINGS, ANTENNAS, ETC.)

NTS



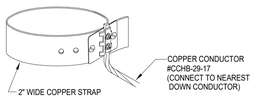
CROSSOVER CABLE CONNECTOR

NTS



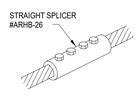
CABLE CONNECTOR

NTS



WATERLINE BONDING STRAP

NTS



STRAIGHT SPLICER

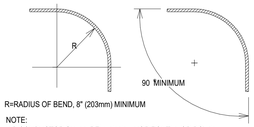
NTS

LIGHTNING PROTECTION NOTES

1. ALL MATERIALS & CAT. NUMBERS SHOWN ARE BASED ON HEARY BROS. LIGHTNING PROTECTION CO., INC. (BASES OF DESIGN)
2. THE LIGHTNING PROTECTION SYSTEM AS SHOWN ON DRAWING HAS BEEN DESIGNED IN ACCORDANCE WITH UL96 & NFPA-780 LIGHTNING PROTECTION SYSTEM STANDARDS.
3. CONDUCTORS SHALL MAINTAIN A HORIZONTAL OR DOWNWARD COURSE, FREE FROM "U" OR "V" (DOWN AND UP) POCKETS.
4. NO BEND OF CONDUCTOR SHALL FORM AN ANGLE OF LESS THAN 90° NOR SHALL HAVE A RADIUS OF BEND LESS THAN 8".
5. AIR TERMINALS SHALL BE SPACED EVERY 20'-0" MAXIMUM AROUND THE ROOF PERIMETER AND/OR ALONG ROOF RIDGES. AIR TERMINALS SHALL BE LOCATED WITHIN 2'-0" OF OUTSIDE CORNERS.
6. AIR TERMINALS SHALL BE SPACED EVERY 50'-0" MAXIMUM IN CENTER ROOF AREAS.
7. ACTUAL JOBSITE CONDITIONS MAY REQUIRE SLIGHT ALTERATIONS IN AIR TERMINAL, DOWN CONDUCTOR AND GROUND ROD LOCATIONS.
8. BARE COPPER MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM OR GALVALUM SURFACES, AND ALUMINUM MATERIALS SHALL NOT BE INSTALLED ON COPPER SURFACES.
9. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED EVERY 3'-0" MAX.
10. METALLIC BODIES OF INDUCTANCE SITUATED WITHIN 6'-0" OF A LIGHTNING CONDUCTOR OR ANOTHER BONDED METAL BODY SHALL BE INTERCONNECTED TO THE LIGHTNING CONDUCTOR SYSTEM, UNLESS INHERENTLY GROUNDED.
11. BOND TO ALL METAL BODIES OF CONDUCTANCE WITHIN 6'-0" OF THE MAIN LIGHTNING CONDUCTOR SUCH AS EXHAUST FANS, ROOF VENTS, METAL COOLING TOWERS, H.V.A.C. UNITS, LADDERS, RAILINGS, ANTENNAS, SKYLIGHTS, METAL STACKS AND ANY OTHERS LARGE METAL BODY WHOSE HEIGHT EXCEEDS THAT OF THE AIR TERMINAL IN USE, UNLESS PROTECTED BY HIGHER ROOF ELEVATIONS.
12. CONNECTIONS TO GROUND RODS SHALL BE MADE AT A POINT NOT LESS THAN 1'-0" BELOW FINISHED GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
13. BOND TO WATERLINES (DOMESTIC & FIRE).
14. A LIGHTNING ARRESTOR, PROTECTOR OR ANTENNA DISCHARGE UNIT SHALL BE INSTALLED ON EACH ELECTRIC AND TELEPHONE SERVICE AND RADIO AND TELEVISION ANTENNA LEAD-IN BY THE ELECTRICAL CONTRACTOR. IN ACCORDANCE WITH NFPA-70.
15. TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS) OF SERVICES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. (I.E. COMPUTERS, COPIERS, TELEPHONE, ETC.).
16. UPON COMPLETION OF INSTALLATION UL MASTER LABEL SHALL BE ISSUED.

LIGHTNING PROTECTION MATERIALS LIST

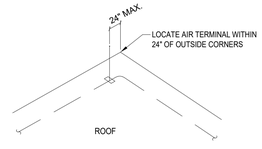
	ALUMINUM LIGHTNING PROTECTION MAIN CONDUCTOR	ACHB-24-14
	ALUMINUM LIGHTNING PROTECTION SECONDARY BONDING CABLE*	ACHB-#4
	COPPER LIGHTNING PROTECTION DOWN CONDUCTOR	CCHB-29-17
	BIMETAL CONNECTOR	MNHB-93
	CABLE FASTENERS (FASTEN CABLE EVERY 3FT. MAX.)	AFHB-72, 66, 64, CFHB-64
◦ A	1/2" x 12" ALUMINUM AIR TERMINAL AND ADHESIVE BASE	AAHB-302, ABHB-23D
◦ B	1/2" x 12" ALUMINUM AIR TERMINAL AND OFFSET BASE (AT PARAPETS)	AAHB-302, ABHB-32D
◦ F	1/2" x 12" ALUMINUM AIR TERMINAL AND ADHESIVE BASE (AT FANS)	AAHB-302, ABHB-23D
◦ S	1/2" x 12" ALUMINUM AIR TERMINAL AND SADDLE BASE	AAHB-302, ABHB-172D
	SECONDARY BONDING:	
	*FLASHING CONNECTOR	ANHB-44D
	*METAL ROOF DRAIN / GUTTER CONNECTOR	ANHB-160D
	*METAL VENT PIPE CONNECTOR	ANHB-42XD
	ALUMINUM BONDING PLATE (AT ALUM. RTU & FANS)	APHB-54D
	CORROSION RESISTANT COPPER BONDING PLATE (TO BASE OF STEEL AT EACH DOWNLEAD)	PPHB-54D
	PIPE CLAMP (ANTENNAS, RAILINGS, ETC.)	PMHB-103D
	CABLE CONNECTOR	ANHB-44D, CNHB-44D
	STRAIGHT SPLICER	ARHB-26
	CROSSOVER CABLE CONNECTOR	CMHB-57XXX
	WATERLINE CONNECTOR (FIRE WATER & DOMESTIC WATER)	CMHB-97D
	5/8" x 10'-0" COPPERWELD GROUND ROD AND CONNECTOR	CGHB-106GR, CGHB-57D



R=RADIUS OF BEND, 8" (203mm) MINIMUM

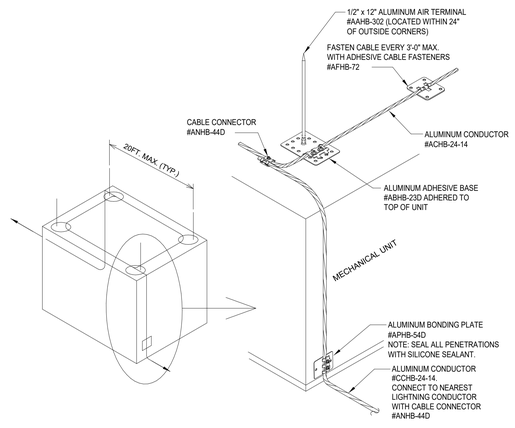
NOTE:
-LP CONDUCTOR SHALL REMAIN IN A HORIZONTAL OR DOWN-WARD PATH AVOIDING "U" & "V" POCKETS (DOWN & UP).
-NO BEND OF A CONDUCTOR SHALL FORM AN INCLUDED ANGLE OF LESS THAN 90° OR HAVE A RADIUS OF BEND LESS THAN 8".

8" MIN. RADIUS BEND IN CABLE



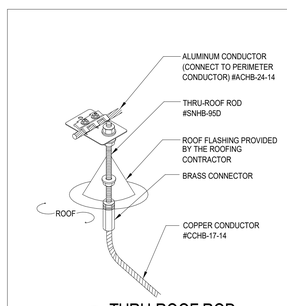
AIR TERMINALS SHALL BE LOCATED WITHIN 24" OF OUTSIDE CORNERS

NTS



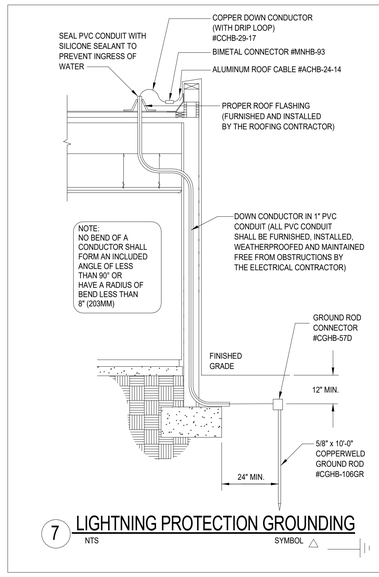
5 LIGHTNING PROTECTION AT ROOF TOP UNIT

NTS SYMBOL A



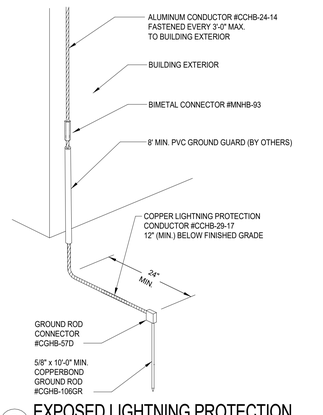
6 THRU-ROOF ROD

SYMBOL



7 LIGHTNING PROTECTION GROUNDING

NTS SYMBOL



8 EXPOSED LIGHTNING PROTECTION DOWN CONDUCTOR AND GROUNDING

NTS SYMBOL DN

Project:

TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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375 Corner Road, Suite D
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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

Scale:

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

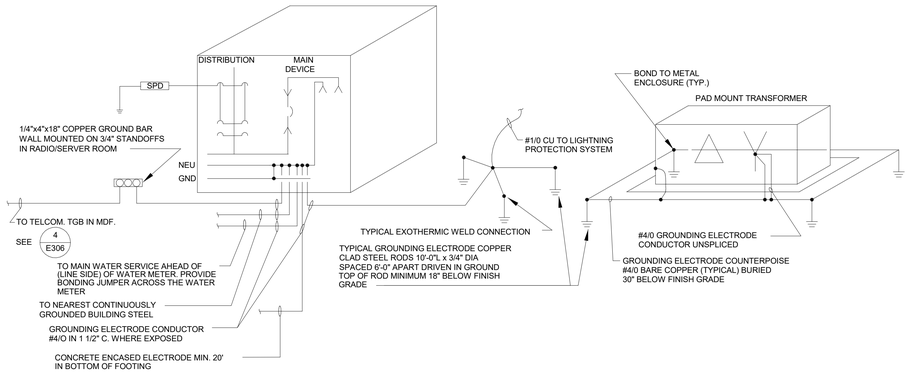
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LIGHTNING PROTECTION DETAILS

Sheet Number:

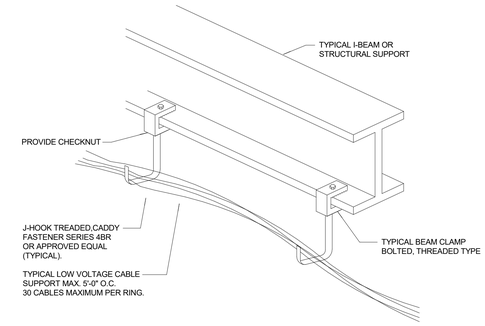
E305

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1 E306 MAIN SERVICE GROUNDING DETAIL

SCALE: NONE

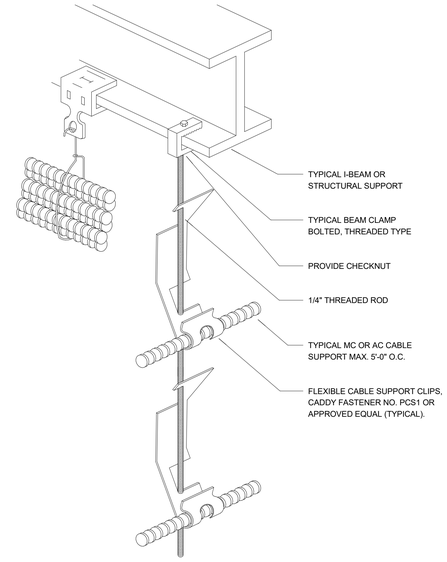


2 E306 TYPICAL LOW VOLTAGE CABLE SUPPORT DETAIL

SCALE: NONE

NOTES:

1. SUPPORTING CABLE IS ACCEPTABLE BELOW SUPPORT STEEL OR ABOVE STEEL. COORDINATE MOUNTING LOCATIONS WITH OTHER TRADES AND FIELD CONDITIONS. PROVIDE SUPPORT CLIPS AND THREADED RODS AS REQUIRED FOR A COMPLETE SUPPORT SYSTEM AS INDICATED.
2. SUPPORT CABLE EITHER PARALLEL OR PERPENDICULAR TO SUPPORT STEEL.

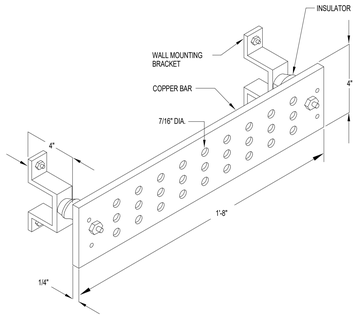


3 E306 TYPICAL MC CABLE SUPPORTING DETAIL

SCALE: NONE

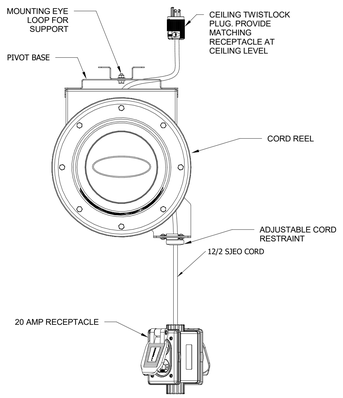
NOTES:

1. SUPPORTING CABLE IS ACCEPTABLE BELOW SUPPORT STEEL OR ABOVE STEEL. COORDINATE MOUNTING LOCATIONS WITH OTHER TRADES AND FIELD CONDITIONS. PROVIDE SUPPORT CLIPS AND THREADED RODES AS REQUIRED FOR A COMPLETE SUPPORT SYSTEM AS INDICATED.
2. SUPPORT CABLES FROM EITHER PARALLEL OR PERPENDICULAR SUPPORT STEEL.
3. BUNDLE A UP TO A MAXIMUM OF (6) SIX CABLES.



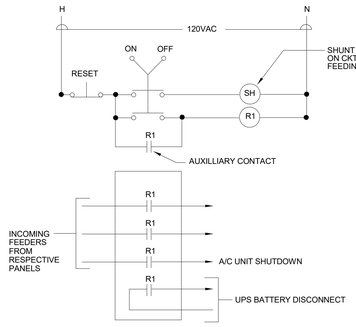
4 E306 TELECOM GROUND BAR DETAIL (TGB)

SCALE: NONE



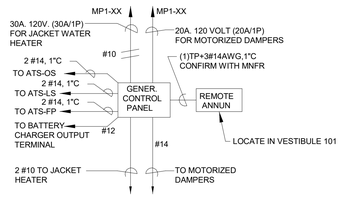
5 E306 CORD REEL DETAIL

SCALE: NONE



6 E306 TECH MDF ROOM SHUT DOWN DETAIL

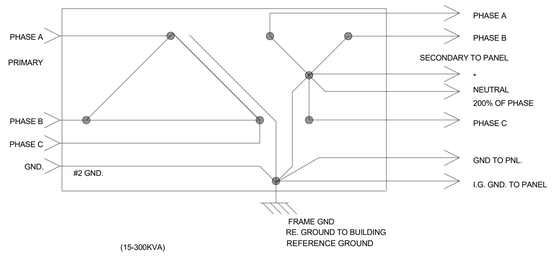
SCALE: NONE



7 E306 TYPICAL EMERGENCY GENERATOR CONTROL WIRING

SCALE: NONE

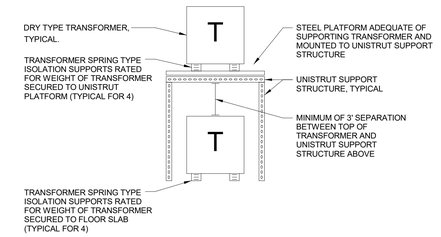
(NOTE: MAY VARY BY MANUFACTURER)



8 E306 TRANSFORMER CONNECTIONS WIRING DETAIL

SCALE: NONE

* NEUTRAL CONNECTORS #1/0 OR LARGER MAY BE PARALLELLED

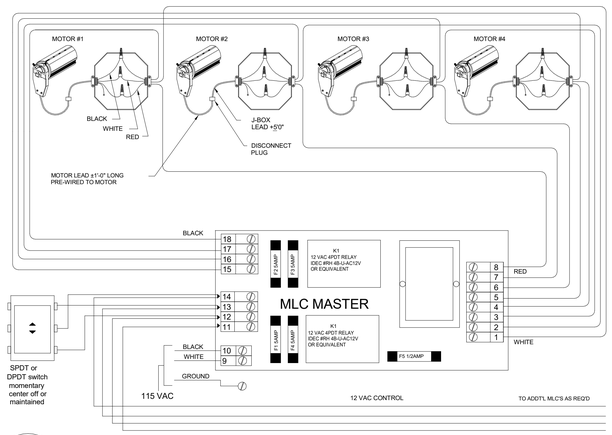


9 E306 RACK MOUNTED TRANSFORMER DETAIL

SCALE: NONE

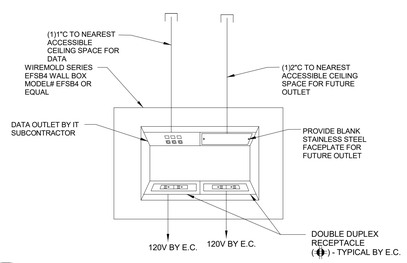
NOTES:

1. E.C. TO PROVIDE L BRACKETS FOR SECURING UNISTRUT SUPPORT STRUCTURE TO STRUCTURAL FLOOR AND STRUCTURAL WALL.



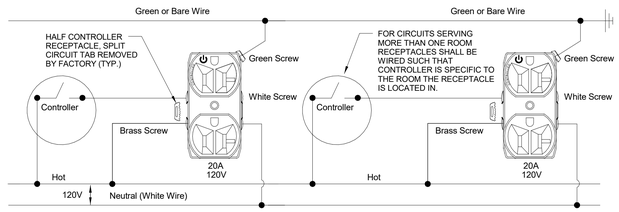
10 E306 MOTOR LOGIC CONTROLLER (MLC) WIRING DIAGRAM

SCALE: NONE



11 E306 TVE / TVC BOX AND CONDUIT PROVISION DETAIL

SCALE: NONE



12 E306 PLUG LOAD CONTROLLED RECEPTACLE DETAIL

SCALE: N.T.S.

Project:
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NEW DEPARTMENT of PUBLIC WORKS FACILITY
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Revisions:

No.	Date	Description

COA:

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DESIGN DEVELOPMENT

Scale:

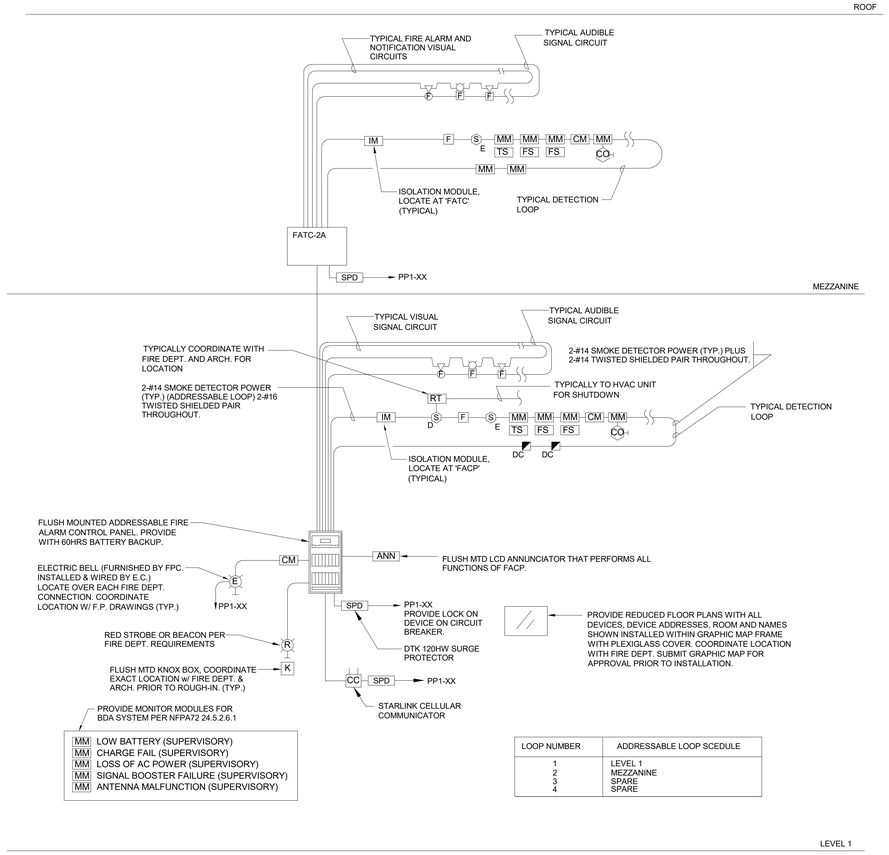
Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
W&S File No.:	XXX

Drawing Title:
ELECTRICAL DETAILS

Sheet Number:
E306

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LOOP NUMBER	ADDRESSABLE LOOP SCEDULE
1	LEVEL 1
2	MEZZANINE
3	SPARE
4	SPARE

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

NOTES:

1. COORDINATE SEQUENCE OF OPERATIONS WITH FIRE DEPT PRIOR TO PROGRAMING.
2. COORDINATE SEQUENCE OF OPERATIONS WITH FIRE DEPT PRIOR TO SUBMITTAL OF SHOP DRAWINGS.

		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE DEDICATED CO ALARM SIGNAL	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	ACTUATE DISTINCT "CO ALARM" SIGNAL (TEMPORAL 4)	ACTUATE ELECTRIC BELL	TRANSMIT DISTINCT "CO ALARM" SIGNAL TO FIRE DEPT	TRANSMIT FIRE ALARM SIGNAL TO FIRE DEPT	TRANSMIT SUPERVISORY SIGNAL TO FIRE DEPT	TRANSMIT TROUBLE SIGNAL TO FIRE DEPT	RELEASE MAGNETICALLY HELD DOORS	RECALL ELEVATORS TO RECALL FLOOR	RECALL ELEVATORS TO ALTERNATE RECALL FLOOR	ACTIVATE WARNING TO ELEVATOR CABS	CLOSE ALL SMOKE DAMPERS	UNLOCK EXITS AND CONTROL DOORS	TURN OFF POWER TO GAS SOLENOID	MUTE LOCAL SOUND SYSTEMS	SHUT DOWN RESPECTIVE AIR HANDLING UNIT	ACTIVATE HOOD EXHAUST FAN	DISABLE HOOD MAKE-UP AIR FAN		
		FACP ANNUNCATION					NOTIFICATION							REQUIRED FIRE SAFETY CONTROL																	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
1	FIRE ALARM SYSTEM AC POWER FAILURE					X		X								X													1
2	FIRE ALARM SYSTEM LOW BATTERY					X		X									X												2
3	OPEN CIRCUIT					X		X									X												3
4	GROUND FAULT					X		X									X												4
5	NOTIFICATION APPLIANCE DEVICE SHORT					X		X									X												5
6	BUILDING MANUAL PULL STATIONS	X	X						X	X	X				X			X					X						6
7	CORRIDOR SMOKE DETECTOR	X	X						X	X	X				X			X	X			X	X		X				7
8	AREA SMOKE DETECTOR	X	X						X	X	X				X			X	X			X	X		X				8
9	HVAC AIR DUCT SMOKE DETECTOR			X	X				X							X										X			9
10	AREA HEAT DETECTORS	X	X						X	X	X				X			X	X			X	X		X				10
11	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	X	X						X	X	X				X			X	X			X	X	X			X		11
12	SPRINKLER TAMPER SWITCH			X	X				X				X			X													12
13	SPRINKLER WATER FLOW SWITCH	X	X						X	X	X		X		X			X	X			X	X		X				13
14	SYSTEM CARBON MONOXIDE DETECTOR	X					X		X			X		X															14
15	KITCHEN CARBON MONOXIDE DETECTOR	X					X		X			X		X									X				X		15
16	BI DIRECTIONAL ANTENNA SYSTEM			X	X				X							X													16

ROOM SPACING FOR CEILING-MOUNTED VISIBLE APPLIANCES

MAXIMUM ROOM SIZE	MAXIMUM LENS HEIGHT	MINIMUM REQUIRED LIGHT OUTPUT (EFFECTIVE INTENSITY) ; ONE LIGHT (cd)
20' x 20'	10	15
30' x 30'	10	30
40' x 40'	10	60
44' x 44'	10	75
50' x 50'	10	95
53' x 53'	10	110
55' x 55'	10	115
59' x 59'	10	135
63' x 63'	10	150
68' x 68'	10	177
70' x 70'	10	185
20' x 20'	20	30
30' x 30'	20	45
44' x 44'	20	75
46' x 46'	20	80
50' x 50'	20	95
53' x 53'	20	110
55' x 55'	20	115
59' x 59'	20	135
63' x 63'	20	150
68' x 68'	20	177
70' x 70'	20	185
20' x 20'	30	55
30' x 30'	30	75
50' x 50'	30	95
53' x 53'	30	110
55' x 55'	30	115
59' x 59'	30	135
63' x 63'	30	150
68' x 68'	30	177
70' x 70'	30	185

ROOM SPACING FOR WALL-MOUNTED VISIBLE APPLIANCES

MAXIMUM ROOM SIZE	MINIMUM REQUIRED LIGHT OUTPUT EFFECTIVE INTENSITY (cd) ONE LIGHT PER ROOM (CEILING HEIGHT)	TWO LIGHTS PER ROOM (LOCATED ON OPPOSITE WALLS)	FOUR LIGHTS PER ROOM ONE LIGHT PER WALLS
20' x 20'	15	NA	NA
28' x 28'	30	UNKNOWN	NA
30' x 30'	34	15	NA
40' x 40'	60	30	15
45' x 45'	75	UNKNOWN	19
50' x 50'	94	60	30
54' x 54'	110	UNKNOWN	30
55' x 55'	115	UNKNOWN	28
60' x 60'	135	95	30
63' x 63'	150	UNKNOWN	37
68' x 68'	177	UNKNOWN	43
70' x 70'	184	95	60
80' x 80'	240	135	60
90' x 90'	304	185	95
100' x 100'	375	240	95
110' x 110'	455	240	135
120' x 120'	540	305	135
130' x 130'	635	375	185

1 E400 FIRE ALARM RISER DIAGRAM

N.T.S.

NOTES

1. E.C. SHALL REFER TO SPECIFICATIONS AND DRAWINGS FOR QUANTITY OF DEVICES, SPARE CAPACITY, PARTS, ETC.
2. E.C. SHALL REFER TO HVAC DRAWINGS FOR EXACT LOCATION OF UNITS AND FOR LOCATIONS OF DUCT MOUNTED SMOKE DETECTORS. DUCT DETECTORS FURNISHED AND WIRED BY E.C.; INSTALLED BY HVAC.
3. TYPICALLY FIRE ALARM SYSTEM SIGNAL CONDUCTORS SHALL BE #14 AWG MINIMUM, TYPE THHN SOLID. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT. MC CABLE IS ALLOWED WHERE CONCEALED AND ALLOWED BY CODE.
4. TYPICALLY ALL SPEAKER/STROBE UNITS SHALL BE WIRED SO THAT THE SPEAKER/STROBES ARE SILENCED SIMULTANEOUSLY.
5. ALL SPEAKER/STROBES WITHIN ALL CLASSROOMS . SHALL BE MULTI-TAPPED TYPE. E.C. SHALL OWN dB ADJUSTING DURING FIRE DEPARTMENT TESTING.
6. ALL SPEAKER/STROBES SHALL BE MOUNTED IN ACCORDANCE WITH ADA ROOM SPACING ALLOCATION TABLES FOR VISUAL SIGNALING DEVICES.
7. PROVIDE CONTROL MODULES TO OVERRIDE MAGLOCKS FOR CARD ACCESS. REFER TO SECURITY FLOOR PLANS FOR EXACT LOCATION AND QUANTITIES.
8. ALL DEVICES SHALL BE LABELED WITH CLEAR TAPE WITH BLACK INK. LABEL SHALL IDENTIFY LOOP# AND DEVICE NUMBER.
9. ALL REMOTE TEST STATIONS SHALL BE KEYED AND MOUNTED NEAR HVAC UNIT OR AS DIRECTED BY LOCAL FIRE DEPT. LABEL EACH UNIT.DUCT SMOKES SHALL TRANSMIT ALARM PER FIRE DEPT.
10. PULL STATIONS SHALL BE DOUBLE ACTION. PROVIDE TAMPER RESISTANT PLASTIC COVERS ON ALL PULL STATIONS WITH LOCAL ALARM.
11. A/V DEVICES SHALL NOT BE INSTALLED WITHIN WHITEBOARDS. COORDINATE EXACT LOCATION OF ALL A/V DEVICES W/ARCH. PRIOR TO INSTALLING.
12. SPRINKLER FLOW SWITCHES SHALL BE PROGRAMMED AS GENERAL ALARM CONDITION UPON ACTIVATION.TRANSMIT SIGNAL TO FIRE DEPT. AND ALARM BUILDING.
13. PRIOR TO SUBMITTING SHOP DRAWINGS, COORDINATE WITH LOCAL FIRE DEPT. FOR EXACT REQUIREMENTS. OBTAIN FIRE PREVENTION RULES AND REGULATIONS WHEN AVAILABLE AND COMPLY IN FULL.
14. COORDINATE WITH SELECTED SYSTEM MANUFACTURER FOR WIRING REQUIREMENTS.
15. ALL DETECTION & SIGNAL WIRING SHALL BE CLASS "A".
16. SUBMIT AS PART OF SHOP DRAWINGS COMPLETE FLOOR PLANS & RISERS WITH ALL DEVICES SHOWN AND WITH DEVICE ADDRESSES.
17. PROVIDE ISOLATION MODULE FOR EVERY 25 DEVICES, TYPICAL.
18. PROVIDE INTERFACE WITH SECURITY SYSTEM SO THAT ACTUATION OF FIRE ALARM SYSTEM WILL NOTIFY SECURITY SYSTEM TO UNLOCK SECURED DOORS REQUIRED BY THE FIRE DEPT. PROVIDE CONTROL MODULE AT EACH ELECTRIFIED DOOR.
19. PROVIDE CONTACT CLOSURE INTERFACE TO AUTOMATED LIGHTING CONTROL SYSTEM (ALCS) VIA A SINGLE PAIR OF 2#18 CONDUCTORS. WHEN FIRE ALARM SYSTEM GOES INTO ALARM A SIGNAL SHALL BE ISSUED TO ALLOW THE ALCS TO TURN ALL INTERIOR AND EXTERIOR LIGHTING "ON".
20. PROGRAMMING OF ADDRESSES SHALL BE COORDINATED WITH THE FIRE DEPARTMENT TO MATCH THE LOCAL FIRE DEPT. LABELING PROTOCOL. DEVICE ADDRESS DESCRIPTIONS TO BE ISSUED TO THE ARCHITECT AND FIRE DEPT. FOR APPROVAL PRIOR TO FINAL PROGRAMMING.
21. TYPICALLY PROVIDE (1) MONITOR MODULE FOR EACH CARBON MONOXIDE DETECTOR. PROGRAM CARBON MONOXIDE DETECTORS WITH EXCEPTION OF KITCHEN AS ALARM PER FIRE DEPT.. KITCHEN 1ST CO DETECTOR TO TRANSMIT SUPERVISORY, 2ND CO TO TRANSMIT ALARM.

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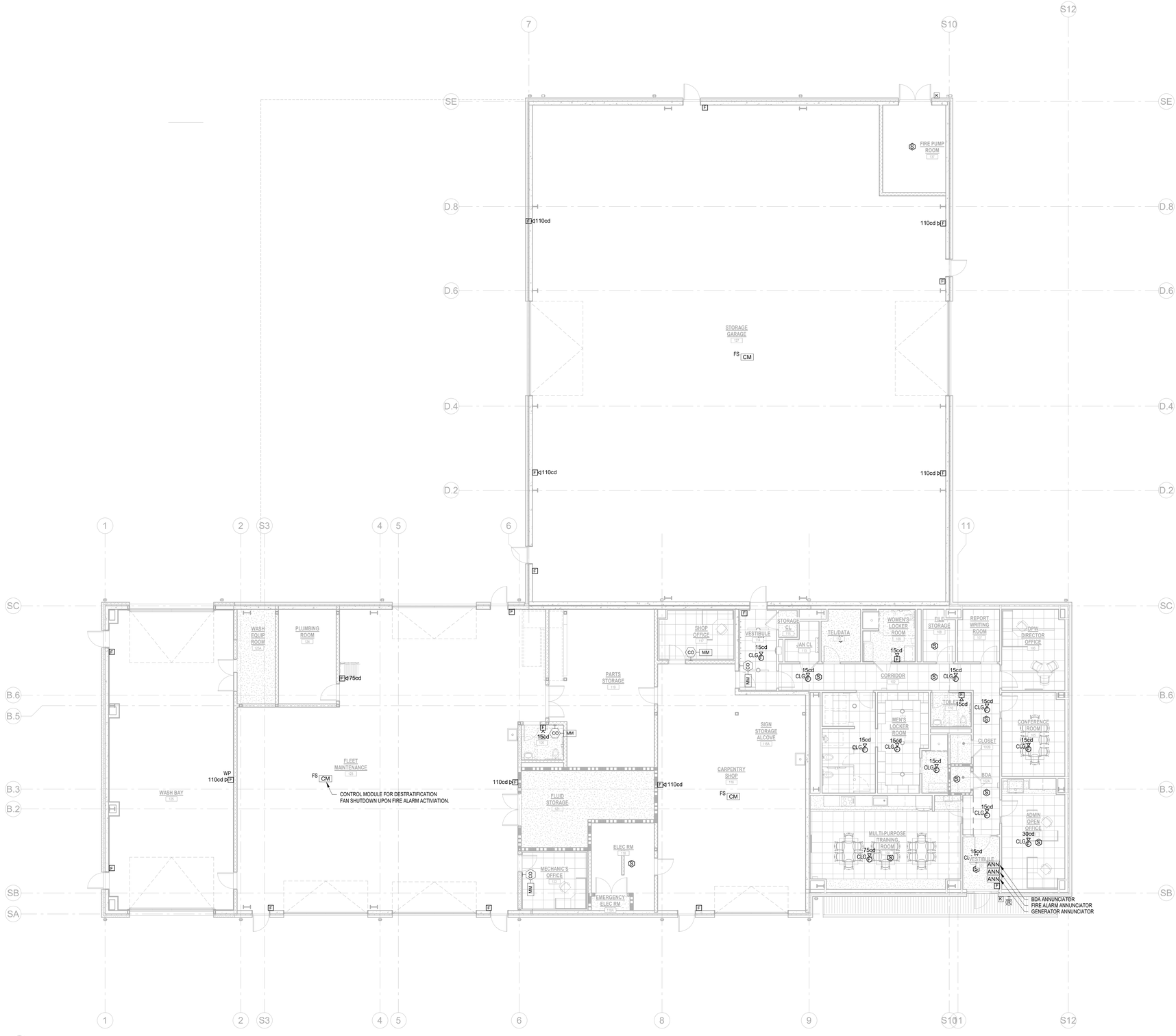
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Drawing Title:
FIRE ALARM RISER DIAGRAM

Sheet Number:
E400

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1 E401 0 - OVERALL FLOOR PLAN - BASE - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL FIRE ALARM NOTES:

1. E.C. SHALL REFER TO SPECIFICATIONS AND DRAWINGS FOR QUANTITY OF DEVICES, SPARE CAPACITY, PARTS, ETC.
2. E.C. SHALL REFER TO HVAC DRAWINGS FOR EXACT LOCATION OF HVAC UNITS AND FOR LOCATIONS OF DUCT MOUNTED SMOKE DETECTORS. DUCT DETECTORS FURNISHED AND WIRED BY E.C.; INSTALLED BY HVAC.
3. PROVIDE EACH FIRE ALARM TERMINAL CABINET AND FIRE ALARM CONTROL PANEL WITH AN ADA POWER SUPPLY TO SERVE ALL SPEAKER/STROBE UNITS ON RESPECTIVE FLOORS.
4. TYPICALLY FIRE ALARM SYSTEM POWER CONDUCTORS SHALL BE #14 AWG, TYPE THHN SOLID. ALL WIRING SHALL BE INSTALLED IN CONDUIT OR SURFACE METAL RACEWAY. MC CABLE IS ALLOWED WHERE CONCEALED.
5. TYPICALLY ALL SPEAKER/STROBE UNITS SHALL BE WIRED IN A FASHION THAT THE SPEAKER & STROBE IS SILENCED SIMULTANEOUSLY.
6. ALL ELECTRICAL ROOMS ARE (2) HOUR RATED. FIREPROOF PENETRATIONS AS REQUIRED.
7. TYPICALLY REFER TO DOOR HARDWARE, SCHEDULES & DRAWINGS FOR LOCATIONS & QUANTITIES OF HARDWARE EQUIPMENT AFFECTING THIS SECTION. PROVIDE ALL WORK AS REQUIRED.
8. COORDINATE FINAL LOCATIONS OF MAGNETIC DOOR HOLDERS AND OTHER HARDWARE DEVICES WITH HARDWARE SUPPLIER PRIOR TO ROUGHING.
9. TYPICALLY PROVIDE (1) MONITOR MODULE FOR EACH CARBON MONOXIDE DETECTOR. ALSO CONNECT CO DETECTORS TO SECURITY SYSTEM FOR REMOTE CENTRAL STATION REPORTING.
10. MECHANICAL EQUIPMENT, MOTORIZED FIRE/SMOKE DAMPER - FURNISHED & INSTALLED BY HVAC CONTRACTOR, WIRED BY E.C.. FIRE ALARM INTERLOCK WIRING BY E. C. PROVIDE A CONTROL MODULE FOR EACH UNIT AND INTERLOCK EACH DAMPER SO THAT DAMPER IS POWERED OPEN AND IS SPRING CLOSED. LOCATE CONTROL MODULES ADJACENT TO DAMPERS. REFER TO HVAC DRAWINGS FOR DAMPER LOCATIONS. CONNECT TO THE NEAREST 120 VOLT BRANCH CIRCUIT.
11. ALL PULL STATIONS TO BE PROVIDED WITH TAMPERPROOF COVERS WITH LOCAL ALARM.
12. CONNECT CONTROL MODULE TO FIRE SHUTTER CONTROL PANEL TO RELEASE UPON ANY FIRE ALARM CONDITION OR AS DIRECTED BY FIRE DEPT. COORDINATE LOCATIONS OF FIRE SHUTTERS WITH ARCHITECT.
13. SMOKE DETECTORS WITH (*) SHALL BE LOCATED WITHIN 5' OF HVAC DIFFUSER SERVING THE ROOM VIA DUCT-WORK WITH FIRE/SMOKE DAMPER INSTALLED WITHIN IT.
14. E.C. SHALL FURNISH DUCT TYPE SMOKE DETECTOR FOR INSTALLATION BY HVAC. E.C. SHALL WIRE FOR ACTUATION OF ADJACENT SMOKE DAMPER PER INTERNATIONAL MECHANICAL CODE (IMC) 2009, 607.3.3.2.1.
15. FINAL LOCATIONS OF ALL SPRINKLER SYSTEM FLOW AND TAMPER SWITCHES ETC.., SHALL BE COORDINATED WITH THE FIRE PROTECTION CONTRACTOR PRIOR TO ROUGH-IN.

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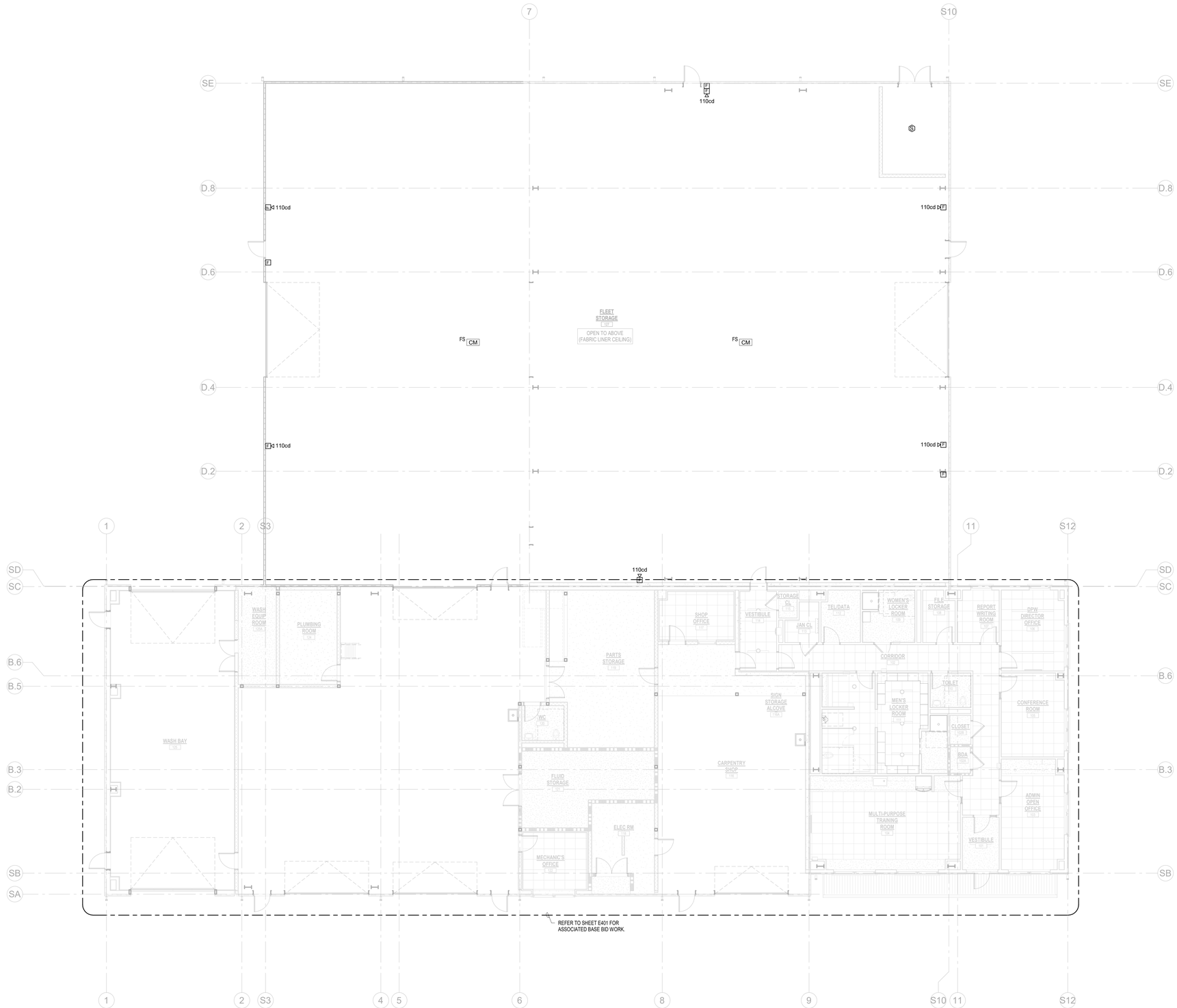
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OVERALL FLOOR PLAN - BASE - FIRE ALARM

Sheet Number:
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1 E401A 0 - OVERALL FLOOR PLAN - BID ALT 1 - FIRE ALARM
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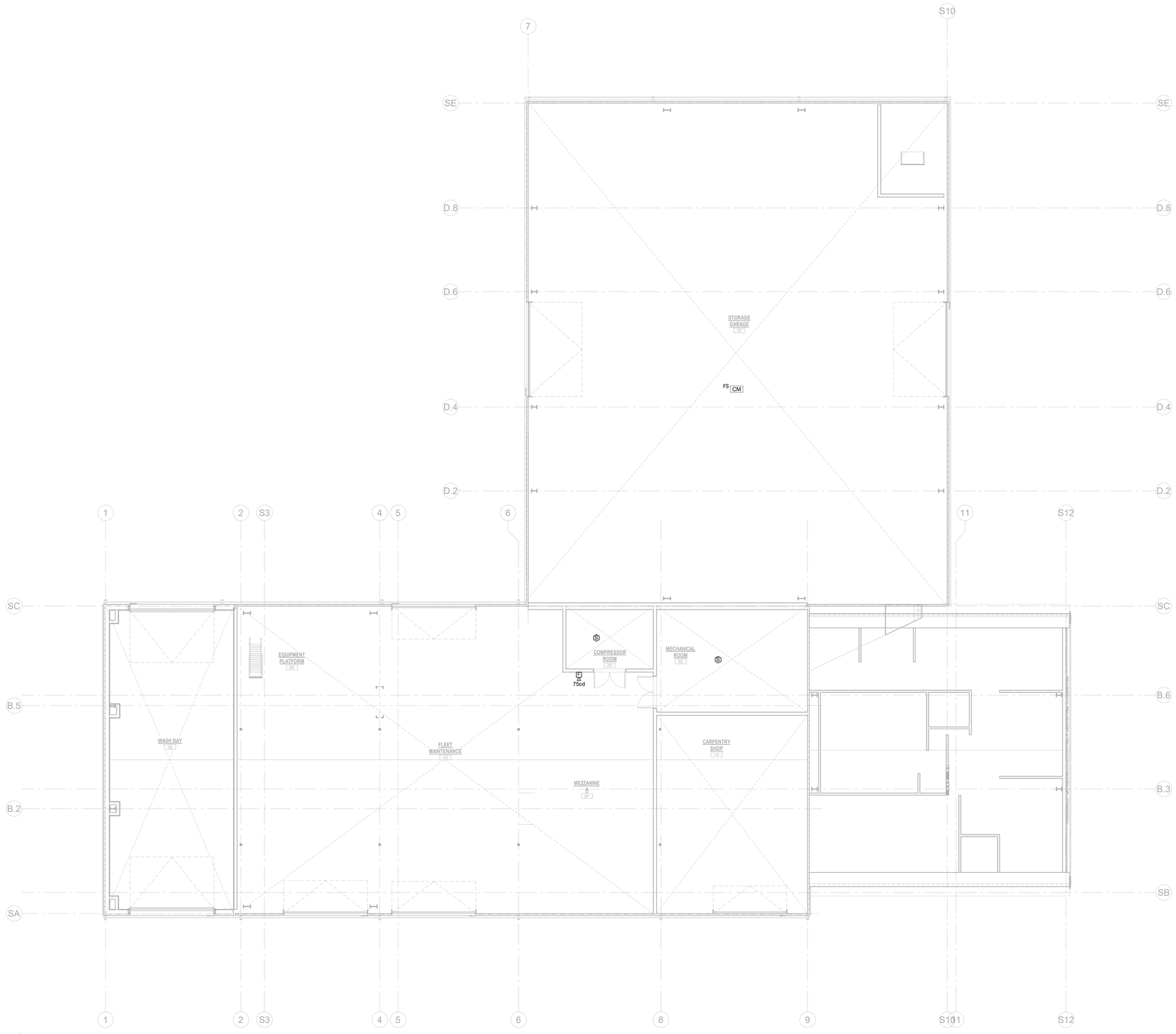
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1 / E402 1 - MEZZANINE FLOOR PLAN - BASE - FIRE ALARM
SCALE: 1/8" = 1'-0"

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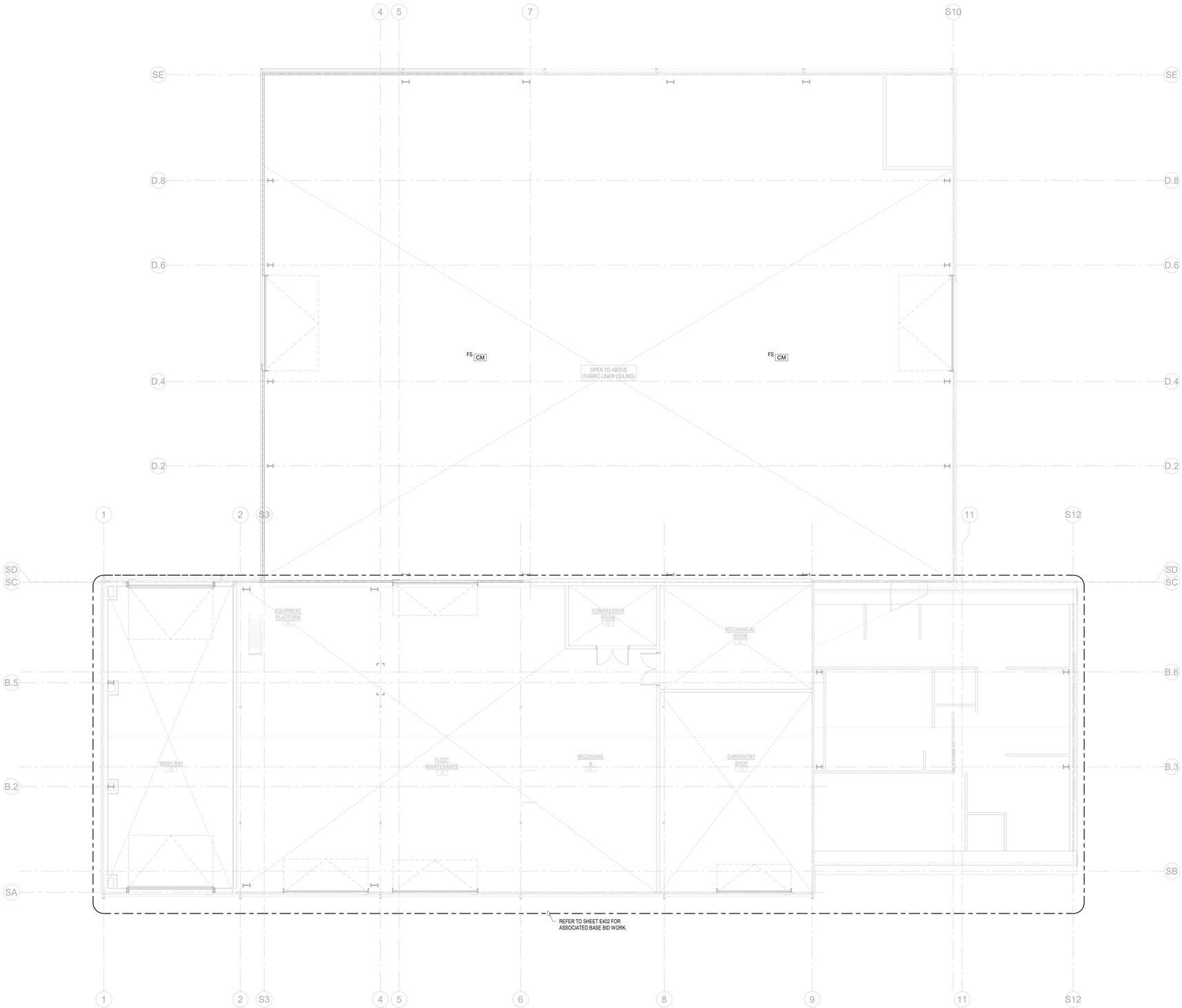
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OVERALL MEZZANINE PLAN - BASE - FIRE ALARM

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1 E402A 1 - MEZZANINE FLOOR PLAN - BID ALT 1 - FIRE ALARM
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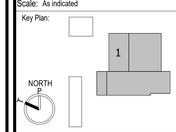
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OVERALL MEZZANINE PLAN - BID ALT 1 - FIRE ALARM

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SYMBOL LIST

LEGEND NOTES:

A. THIS SHEET IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS AND SHALL BE USED AS A DICTIONARY TO DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT. ALL EQUIPMENT IS TO BE PROVIDED UNDER THIS SECTION UNLESS SPECIFICALLY INDICATED OTHERWISE.

SECURITY SYSTEM

DOME HIGH RESOLUTION IP CAMERA BY SECURITY SUBCONTRACTOR. E.C. TO PROVIDE SINGLE GANG OPENING AND 4"SQ.X2 1/2"DP. J.B. & 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE ABOVE CEILING SPACE AT EACH LOCATION.
WP=WEATHERPROOF
360°= 360 DEGREE MULTISENSOR CAMERA
M=MICROPHONE
C=CELL CORNER MOUNT CAMERA

REX — REQUEST TO EXIT PANIC DEVICE SHALL BE CRASH BAR W/BUILT IN MICROSWITCH. CRASH BAR FURNISHED AND INSTALLED BY DOOR HARDWARE CONTRACTOR AND WIRED BY SECURITY SUBCONTRACTOR PROVIDE 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

CR — COMBINATION PROXIMITY READER AND KEYPAD BY SECURITY SUBCONTRACTOR. 4"SQ x 2 1/2" DP JB FURNISHED AND INSTALLED BY E.C. 3/4" CONDUIT W/PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

CC CR — COMBINATION PROXIMITY READER AND KEYPAD BY SECURITY SUBCONTRACTOR. 4"SQ x 2 1/2" DP JB FURNISHED AND INSTALLED BY E.C. 3/4" CONDUIT W/PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.. 'CC' DESIGNATES CELL CHECK READER.

DC — RECESSED MAGNETIC DOOR CONTACT PROVIDED BY SECURITY SUBCONTRACTOR IN DOOR AND DOORFRAME. EQUAL TO GE/SENTROL 1076DB DOUBLE POLE DEVICE ONE POLE TO ACCESS CONTROL, SECOND POLE TO CAD SYSTEM IN HEADEND ROOM. TERMINATION TO CAD SYSTEM BY OWNER'S VENDOR. 'OH' INDICATES OVERHEAD DOOR CONTACT. 'C' INDICATES CELL DOOR STATUS SWITCH FURNISHED BY OTHERS. E.C. TO PROVIDE 3/4"C w/PULL STRING TO NEAREST ACCESSIBLE CEILING.

PT — POWER SUPPLY FOR ELECTRIC LOCKS FURNISHED AND INSTALLED BY DIVISION 08. 120V WIRING BY E.C. INTERFACE LOW VOLTAGE WIRING BY DIVISION 08.

CCTV — CLOSED CIRCUIT, CCTV SYSTEM SERVER. SEE SPECIFICATIONS FOR REQUIREMENTS.

EL — ELECTRIC LOCK FURNISHED AND INSTALLED BY HARDWARE CONTRACTOR, WIRED BY SECURITY SUBCONTRACTOR. 4"SQ.X2 1/2"DP. J.B. WITH 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

ML — MAGLOCK FURNISHED BY DOOR HARDWARE AND INSTALLED BY ELECTRICAL CONTRACTOR

IESS — INTEGRATED ELECTRONIC SAFETY & SECURITY SYSTEM HEADEND

B — BLUE SECURITY ALARM BEACON, WEATHERPROOF, PROVIDED BY SECURITY SUBCONTRACTOR.

IOS — DOUBLE POLE DOUBLE THROW INTERVIEW ROOM RECORDING SYSTEM AUDIO ON/OFF SWITCH BY SECURITY SUBCONTRACTOR, 4" SQ. x 2 1/2" DP. J.B. WITH 3/4" CONDUIT AND PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

ACP — WALL MOUNTED ACCESS CONTROLLER BY SECURITY SUBCONTRACTOR. E.C. SHALL PROVIDE 20A EMERGENCY CIRCUIT AND DOUBLE DUPLEX RECEPTACLE.

DJ — 4"SQ. DOOR JUNCTION BOX BY E.C.

SM — SECURITY MODULE BY SECURITY SUBCONTRACTOR FOR HANDICAP PUSH BUTTON OVERRIDE. 4" SQ. x 2 1/2" DP. JB WITH 3/4" CONDUIT AND PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

DR — CELL DOOR RELEASE FURNISHED AND INSTALLED BY OTHERS, WIRED BY SECURITY SUBCONTRACTOR TO BE RELEASED FROM DISPATCH.

EH — ELECTRIC HINGE OR ELECTRONIC POWER TRANSFER BETWEEN DOOR AND FRAME. FURNISHED AND INSTALLED BY DOOR HARDWARE CONTRACTOR (SEE DOOR HARDWARE SECTIONS FOR DETAILS), WIRED BY SECURITY SUBCONTRACTOR. 4"SQ.X2 1/2"DP. J.B. WITH 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

8 — DURESS VISUAL ALARM APPLIANCE BY SECURITY SUBCONTRACTOR. 4"SQ.X2 1/2"DP. J.B. WITH 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. SL401B 12VDC COLOR BLUE OR EQUAL.

SNS — SECURITY NETWORK SWITCH/PATCH PANEL. SEE SPECIFICATIONS.

ACS — ACCESS CONTROL SERVER

TVM — CLOSED CIRCUIT FLAT PANEL MONITOR W/ WALL/CEILING MOUNT BRACKET BY SECURITY SUBCONTRACTOR, E.C. TO PROVIDE 120 VAC EMERGENCY POWER RECEPTACLE, & 1 1/4" CONDUIT IN 4"SQx1 1/2"DPJB W/ PULL STRING. MOUNT OUTLET AND BOX AT 96" A.F.F. U.N.O. " * " INDICATES WITH TV TUNER BUILT-IN.

KVM — RACK MOUNTED MONITOR AND KVM SWITCH

SWC — POE NETWORK SWITCH WITH FIBER OPTIC MODULES AND GBIC MODULES. AS REQUIRED (SEE SPECS)

S — FLUSH CEILING SPEAKER BY SECURITY SUBCONTRACTOR. BACK BOX FURNISHED BY SECURITY SUBCONTRACTOR AND INSTALL BY E.C. 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

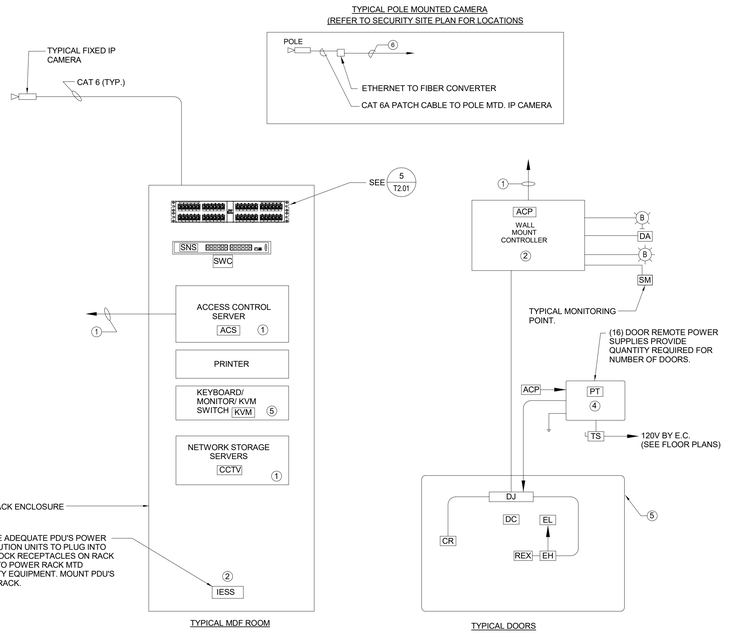
SECURITY PANIC BUTTON, PROVIDED BY SECURITY SUBCONTRACTOR. SINGLE GANG BOX, 3/4" CONDUIT & PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

UD DA — UNDER DESK SECURITY SYSTEM PUSH BUTTON (DURESS ALARM). E.C. TO PROVIDE SINGLE GANG OPENING AND 4"SQ.X2 1/2"DP. J.B. & 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE ABOVE CEILING SPACE AT EACH LOCATION.

WM DA — WALL MOUNTED SECURITY SYSTEM PUSH BUTTON (DURESS ALARM). E.C. TO PROVIDE SINGLE GANG OPENING AND 4"SQ.X2 1/2"DP. J.B. & 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE ABOVE CEILING SPACE AT EACH LOCATION.

KEY NOTES

1. INTERFACE IESS TO NETWORK TO ALLOW ANY NETWORKED PC w/ CREDENTIALS TO VIEW ALARM EVENTS, LIVE OR RECORDED VIDEO AND SYSTEM SCHEDULES.
2. PROVIDE SUFFICIENT QUANTITY OF SYSTEM INPUTS/OUTPUTS TO ACCOMIDATE DEVICES SHOWN ON FLOORPLANS PLUS 25% SPARE.
3. TYPICAL DOORS PROVIDED WITH EQUIPMENT DEPICTED. SEE DRAWINGS FOR QUANTITY OF DEVICES.
4. FIRE ALARM INTERFACE. PROVIDE FIRE ALARM OVERRIDE AS REQUIRED, (2#18GAUGE WIRES BY E.C.)
5. RACK MOUNTED FLAT PANEL MONITOR AND KEYBOARD WITH KVM SYSTEM SELECTOR SWITCH.
6. 2 STRAND OUTSIDE PLANT SINGLE MODE FIBER OPTIC CABLE

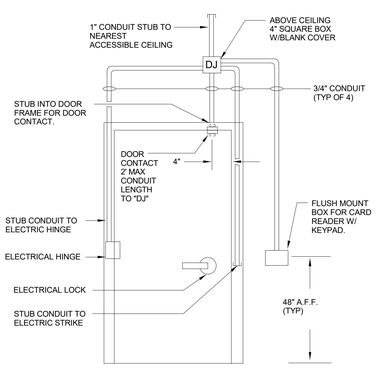


1 / E500 — INTEGRATED ELECTRONIC SECURITY SYSTEM (IESS) RISER DIAGRAM

SCALE: NONE

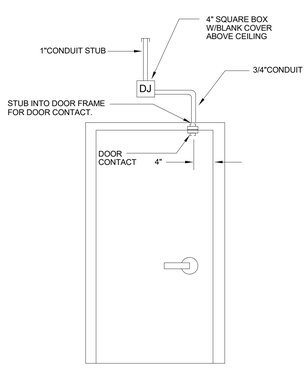
NOTES

1. ALL BACK BOX AND CONDUIT PROVISIONS FOR SECURITY SYSTEM WILL BE PROVIDED BY ELECTRICAL SUBCONTRACTOR.
2. THIS RISER DIAGRAM IS DIAGRAMATIC REFER TO FLOOR PLANS FOR QUANTITIES & LOCATIONS OF EQUIPMENT UNLESS SPECIFICALLY INDICATED ON THIS PLAN.
3. INTEGRATOR SHALL SYNC ALL TIMES WITH OWNER'S ATOMIC CLOCK OR TIME SERVER.



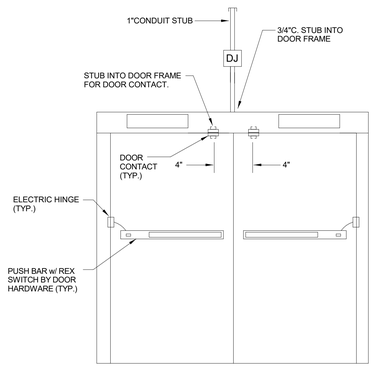
2 / E500 — TYPICAL DOOR WITH ACCESS CONTROL

SCALE: N.T.S.



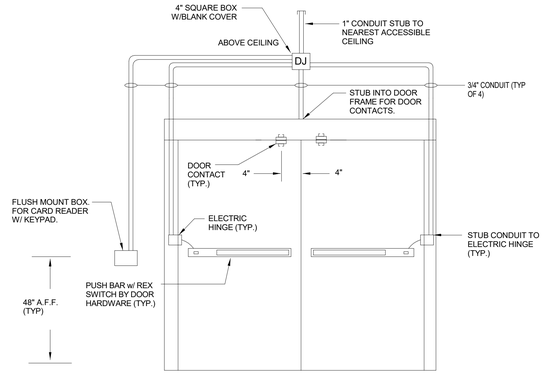
3 / E500 — TYPICAL DOOR WITHOUT ACCESS CONTROL

SCALE: N.T.S.



4 / E500 — TYPICAL DOOR WITHOUT ACCESS CONTROL

SCALE: N.T.S.



5 / E500 — TYPICAL EXTERIOR DOOR W/ ACCESS CONTROL

SCALE: N.T.S.

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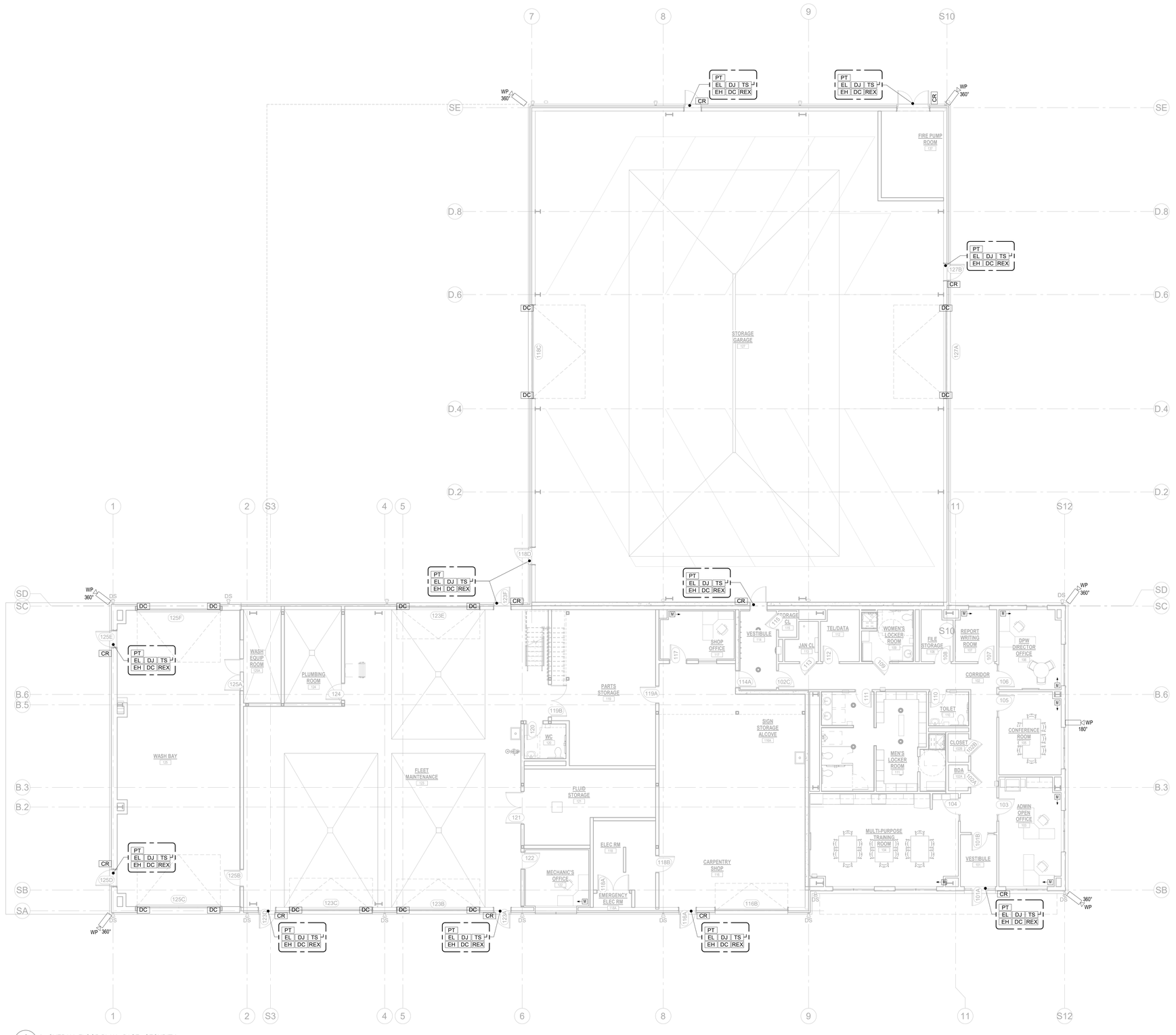
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SECURITY SYMBOL LIST AND DETAILS

Sheet Number:
E500

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GENERAL SECURITY NOTES:

1. PROVIDE CORNER MOUNTED MOTION SENSOR WHENEVER POSSIBLE
2. ESS TO COORDINATE FINAL SECURITY ZONES WITH OWNER. PROGRAM PER OWNER'S DIRECTIONS.
3. COORDINATE FINAL LOCATIONS OF MAGNETIC DOOR HOLDERS AND OTHER HARDWARE DEVICES WITH HARDWARE SUPPLIER PRIOR TO ROUGHING.
4. SECURITY PANIC SWITCH. DOOR SHALL REMAIN SECURED UPON ACTIVATION OF PANIC STATION. SECURITY PERSONEL SHALL BE NOTIFIED.
5. INTERFACE HANDICAP DOOR CONTROLLER WITH RESPECTIVE ACCESS CONTROL HARDWARE AT EACH DOOR WITH EITHER POWER ASSIST OR HANDICAP PUSH PLATE.



1 / E501 0 - OVERALL FLOOR PLAN - BASE - SECURITY
SCALE: 1/8" = 1'-0"

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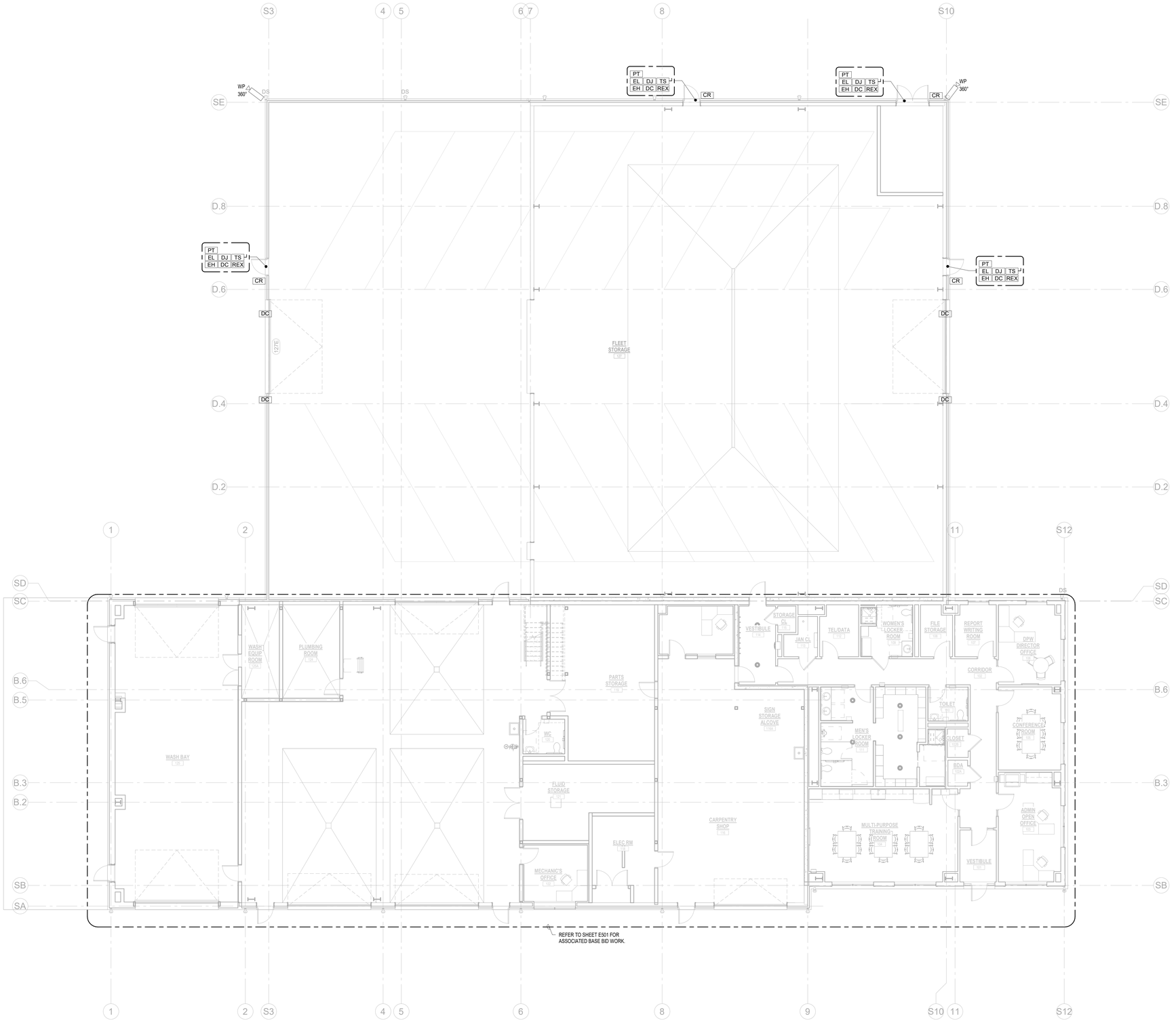
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OVERALL FLOOR PLAN - BASE - SECURITY

Sheet Number:

E501

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REFER TO SHEET E501 FOR ASSOCIATED BASE BID WORK.

1 / E501A 0 - OVERALL FLOOR PLAN - BID ALT 1 - SECURITY
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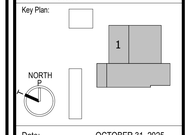
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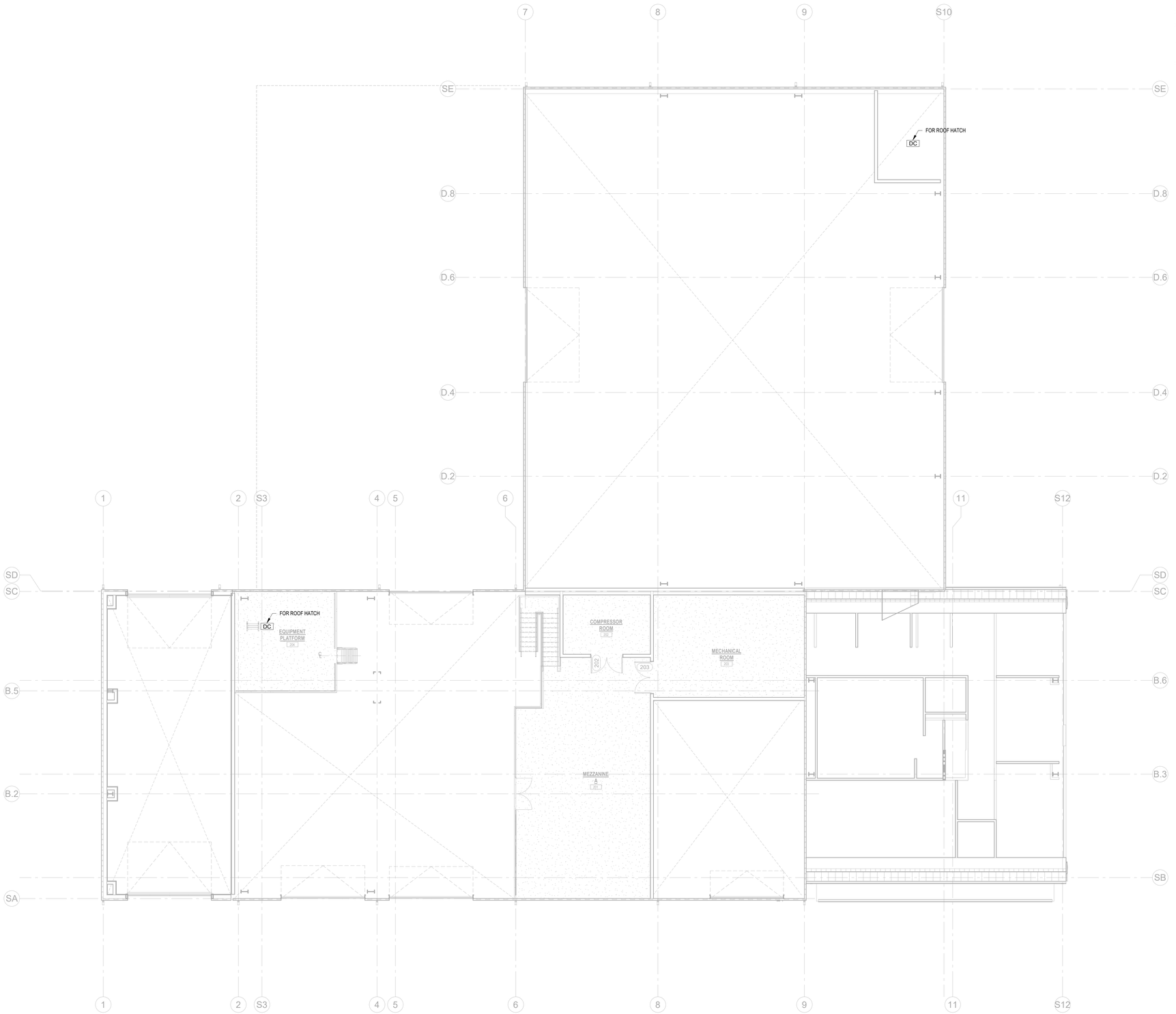
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1 E502 1 - MEZZANINE FLOOR PLAN - BASE - SECURITY
SCALE: 1/8" = 1'-0"

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OVERALL MEZZANINE PLAN - BASE - SECURITY

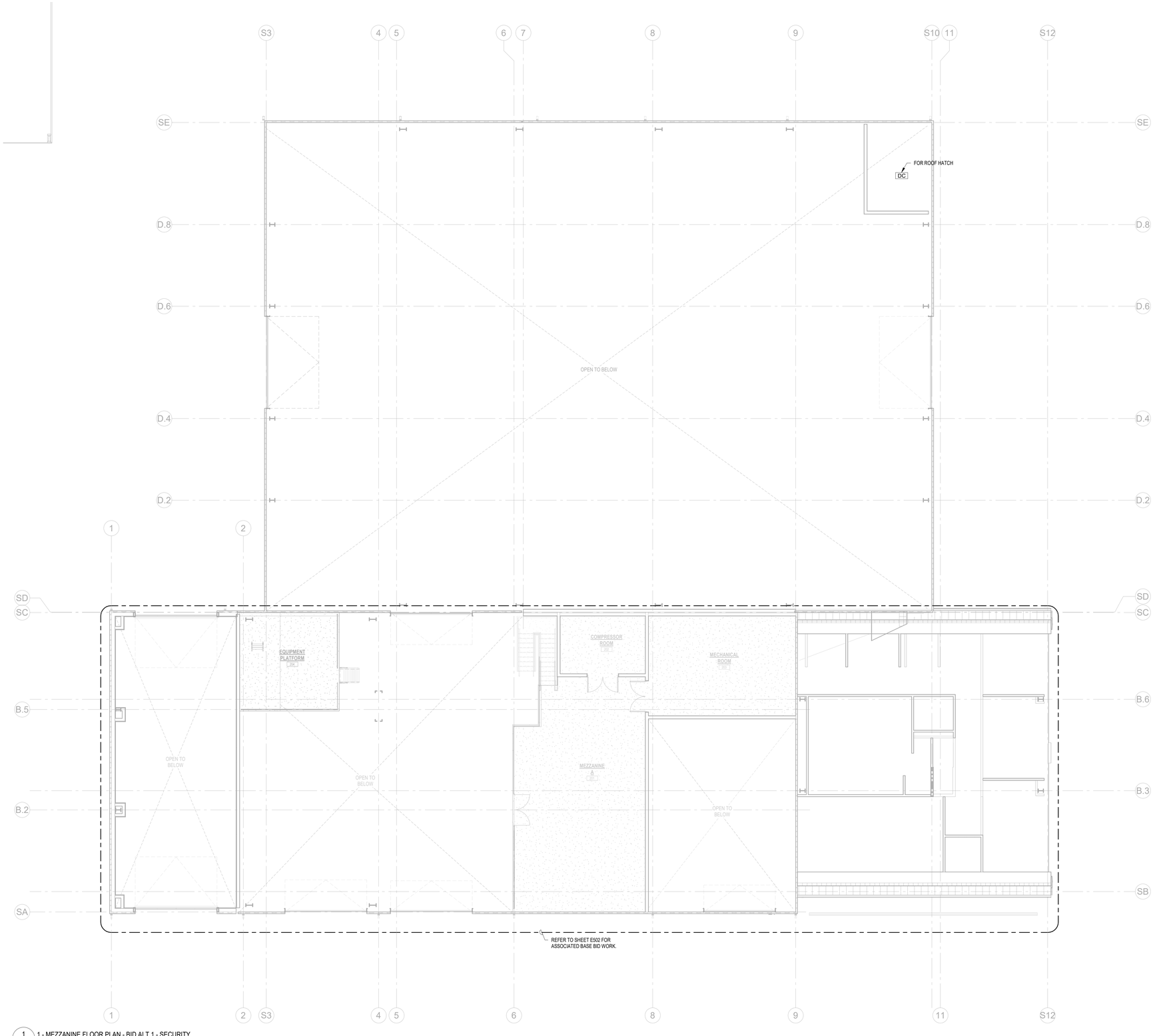
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1 E502A 1 - MEZZANINE FLOOR PLAN - BID ALT 1 - SECURITY
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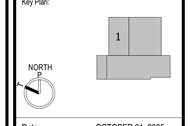
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E502A

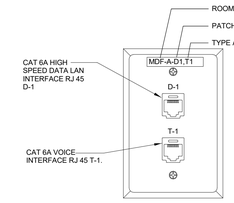
SYMBOL LIST

TEL/DATA OUTLETS

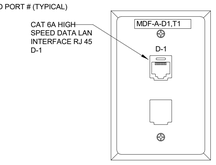
W ▼	WALL MOUNTED TELEPHONE OUTLET @ 48" A.F.F. REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS. COVER PLATES SHALL BE STAINLESS STEEL.
# ▽	WALL MOUNTED DATA OUTLET @ 18" A.F.F REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS. NUMERAL INDICATES NUMBER OF RJ45 JACKS ON SAME FACEPLATE. COVER PLATES SHALL BE STAINLESS STEEL.
#V/#D ▽	COMBINATION TEL/DATA OUTLET @ 18" A.F.F. #V INDICATES NUMBER OF RJ45 VOICE JACKS, #D INDICATES NUMBER OF RJ45 DATA JACKS ON SAME FACEPLATE. (1) VOICE & (1) DATA IF #V/#D IS NOT SHOWN (TYPICAL). REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS. COVER PLATES SHALL BE STAINLESS STEEL.
AN ▽	WIRELESS ACCESS NODE - DATA REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS. COVER PLATES SHALL BE STAINLESS STEEL. MOUNTED ABOVE CEILING U.N.O.
TVC	VIDEO OUTLET **REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS** **COVER PLATES SHALL BE STAINLESS STEEL.** **MOUNTED @ 18" A.F.F. U.N.O.**
TVE	VIDEO OUTLET REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS. COVER PLATES SHALL BE STAINLESS STEEL. CEILING MOUNTED U.N.O.
T ▶	TECH STATION REFER TO TEL/DATA RISER FOR WIRING REQUIREMENTS COVER PLATES SHALL BE STAINLESS STEEL. MOUNTED @ 18" A.F.F. U.N.O.
SRP	SMART RESCUE PHONE
ARA	AREA OF RESCUE ASSISTANCE BUTTON
ZT	ZETRON HOUSE LIGHT TIMER. DEVICE BY OWNER'S ZETRON, WIRING AND CONDUIT BY E.C.
ZSB	ZETRON SCROLLING MESSAGE BOARD. DEVICE BY OWNER'S ZETRON, WIRING AND CONDUIT BY E.C.
ZRR	ZETRON REMOTE RADIO. DEVICE BY OWNER'S ZETRON, WIRING AND CONDUIT BY E.C.
IDF	INTERMEDIATE DISTRIBUTION FRAME
MDF	MAIN DISTRIBUTION FRAME

ABBREVIATIONS

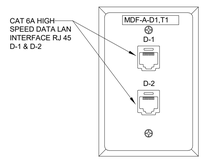
A.F.F.	ABOVE FINISHED FLOOR	P.C.	PLUMBING CONTRACTOR
A.F.G.	ABOVE FINISHED GRADE	M.H.	MOUNTING HEIGHT
APC	ANGLE POLISHED CONNECTOR	W.P.	WEATHER PROOF
ARCH.	ARCHITECT	U.N.O.	UNLESS NOTED OTHERWISE
A.T.C.	AUTO-TEMP CONTROL CONTRACTOR	WG	WIRE GUARD
℄	CENTERLINE	CATV	CABLE TELEVISION
CLG.	CEILING	DH	DOOR HOLDER
E.C.	ELECTRICAL CONTRACTOR	F.A.C.P.	FIRE ALARM CONTROL PANEL
F&I	FURNISHED AND INSTALLED	PAC	PUBLIC ACCESS COMPUTER
F.P.C.	FIRE PROTECTION CONTRACTOR	MAC	MACINTOSH COMPUTER
G.C.	GENERAL CONTRACTOR	I.T.	INFORMATION TECHNOLOGY
H.V.A.C.	HEATING, VENTILATION, AND AIR CONDITIONING CONTRACTOR	IESS	INTEGRATED ELECTRONIC SECURITY SYSTEM INTEGRATOR



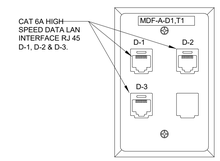
1 T001 TYPICAL WALL MTD VOICE/DATA OUTLET (▼/▽) DETAIL
SCALE: NTS



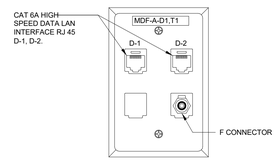
2 T001 TYPICAL DATA OUTLET (▽) DETAIL
SCALE: NTS



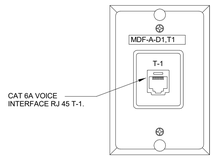
3 T001 TYPICAL DATA OUTLET (2▽) DETAIL
SCALE: NTS



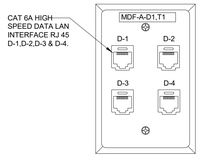
4 T001 TYPICAL DATA OUTLET (3▽) DETAIL
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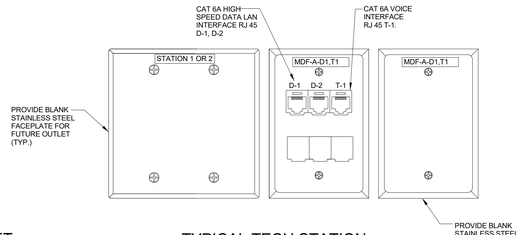
5 T001 TYPICAL CABLE/DATA JACK OUTLET (TVC) DETAIL
SCALE: NTS



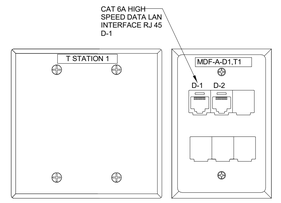
6 T001 TYPICAL WALL PHONE OUTLET (W ▼) DETAIL
SCALE: NTS



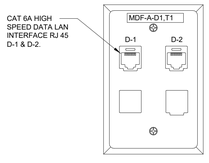
7 T001 TYPICAL DATA OUTLET (4▽) DETAIL
SCALE: NTS

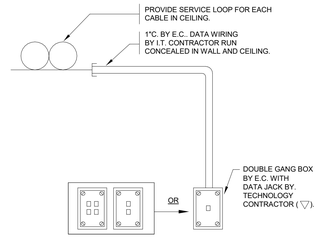


8 T001 TYPICAL TECH STATION OUTLET(T ▼) DETAIL
SCALE: NTS



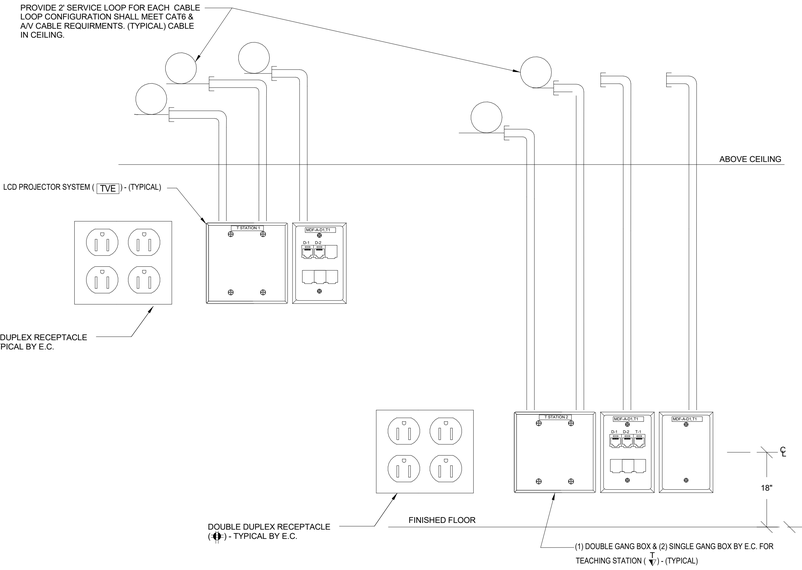
9 T001 LCD PROJECTOR JACK OUTLET(TVE) DETAIL
SCALE: NTS

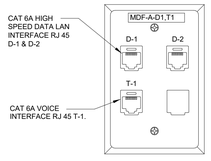




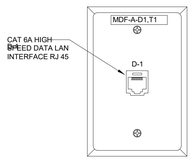
10 T001 TYPICAL OUTLET (AN ▽) DETAIL
SCALE: NTS

11 T001 DATA OUTLET DETAIL
SCALE: NTS



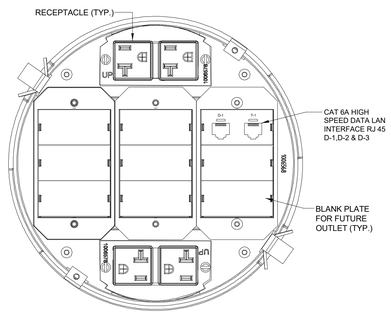


12 T001 TYPICAL DATA OUTLET (1V/2D ▼) DETAIL
SCALE: NTS

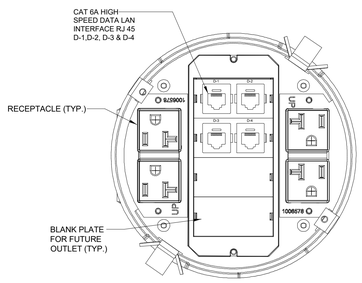


13 T001 TYPICAL DATA OUTLET FOR ZETRON DEVICE (ZT , ZSB & ZRR) DETAIL
SCALE: NTS

NOTE:
DATA WIRING BY IT SUBCONTRACTOR AND ZETRON DEVICE BY OWNER'S ZETRON VENDOR.



15 T001 TYPICAL 8" POKE THRU DATA & VOICE OUTLET (T ▼ /) DETAIL
SCALE: NTS



16 T001 TYPICAL 6"POKE THRU DATA & VOICE OUTLET (2 , 4) DETAIL
SCALE: NTS

Project:
TOWN of TRURO, MA
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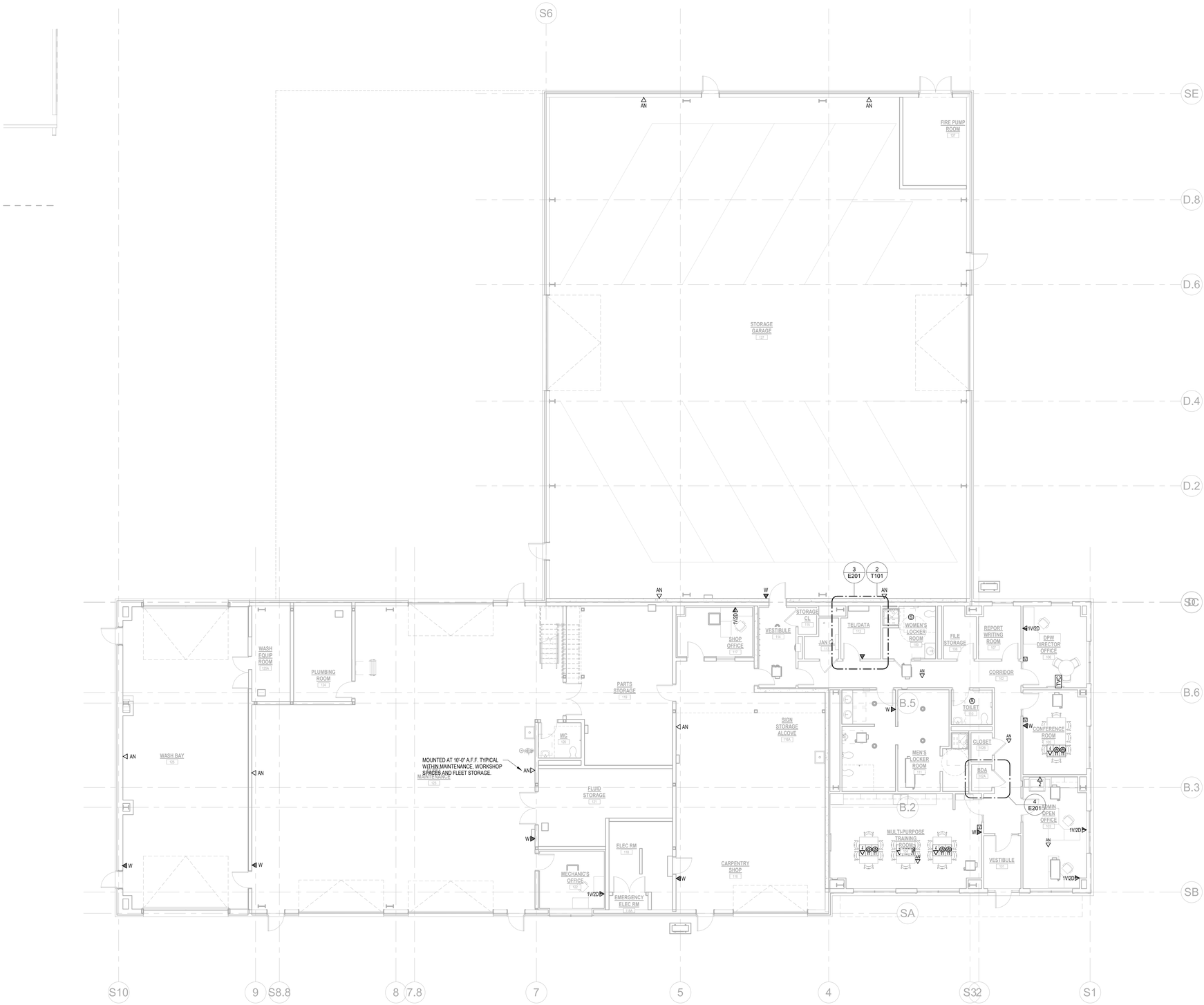
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TECHNOLOGY SYMBOL LIST AND DETAILS

Sheet Number:
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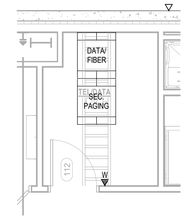
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GENERAL TECHNOLOGY NOTES:

1. COMMUNICATIONS OUTLETS ARE SHOWN FOR REFERENCE PURPOSES. EXACT LOCATIONS WILL BE AS SHOWN ON ELECTRICAL DRAWINGS. COORDINATE INSTALLATION OF ALL CABLING WITH ELECTRICAL SUBCONTRACTOR.
2. KEEP COMMUNICATIONS CABLING AT LEAST 12" AWAY FROM POWER WIRING.
3. ALL CONDUITS AND JUNCTION BOXES TO BE PROVIDED UNDER DIVISION 260000. CONDUITS SHOWN ARE FOR REFERENCE ONLY.



1 T101 0 - OVERALL FLOOR PLAN - BASE - TECHNOLOGY
SCALE: 1/4" = 1'-0"



2 T101 IDF ROOM PART PLAN - TECHNOLOGY
SCALE: 1/4" = 1'-0"

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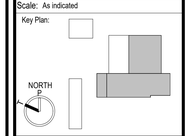
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Drawing Title:

OVERALL FLOOR PLAN - BASE - TECHNOLOGY

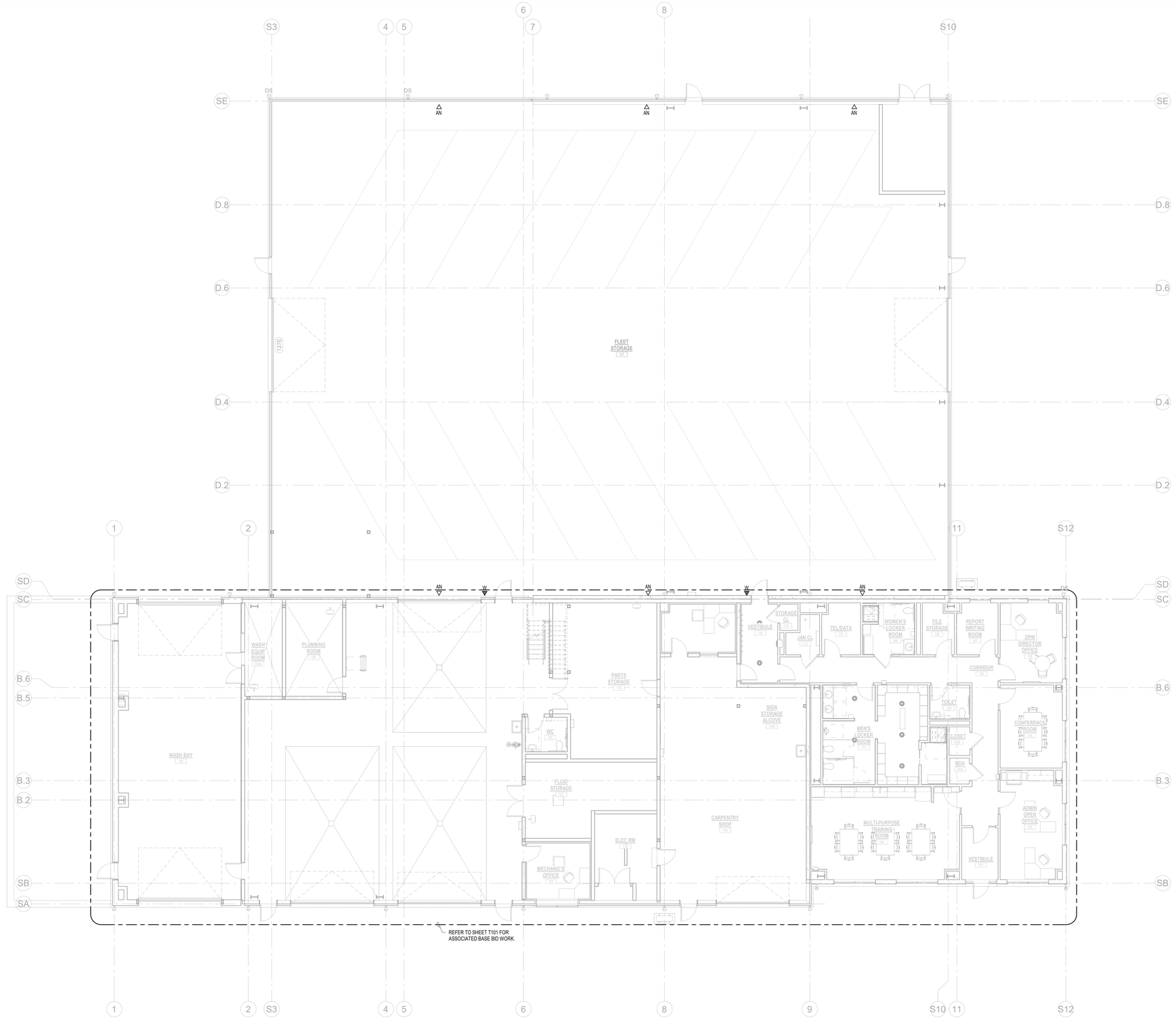
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3. ALL CONDUITS AND JUNCTION BOXES TO BE PROVIDED UNDER DIVISION 260000. CONDUITS SHOWN ARE FOR REFERENCE ONLY.



1 / T101A 0 - OVERALL FLOOR PLAN - BID ALT 1 - TECHNOLOGY
SCALE: 1/8" = 1'-0"

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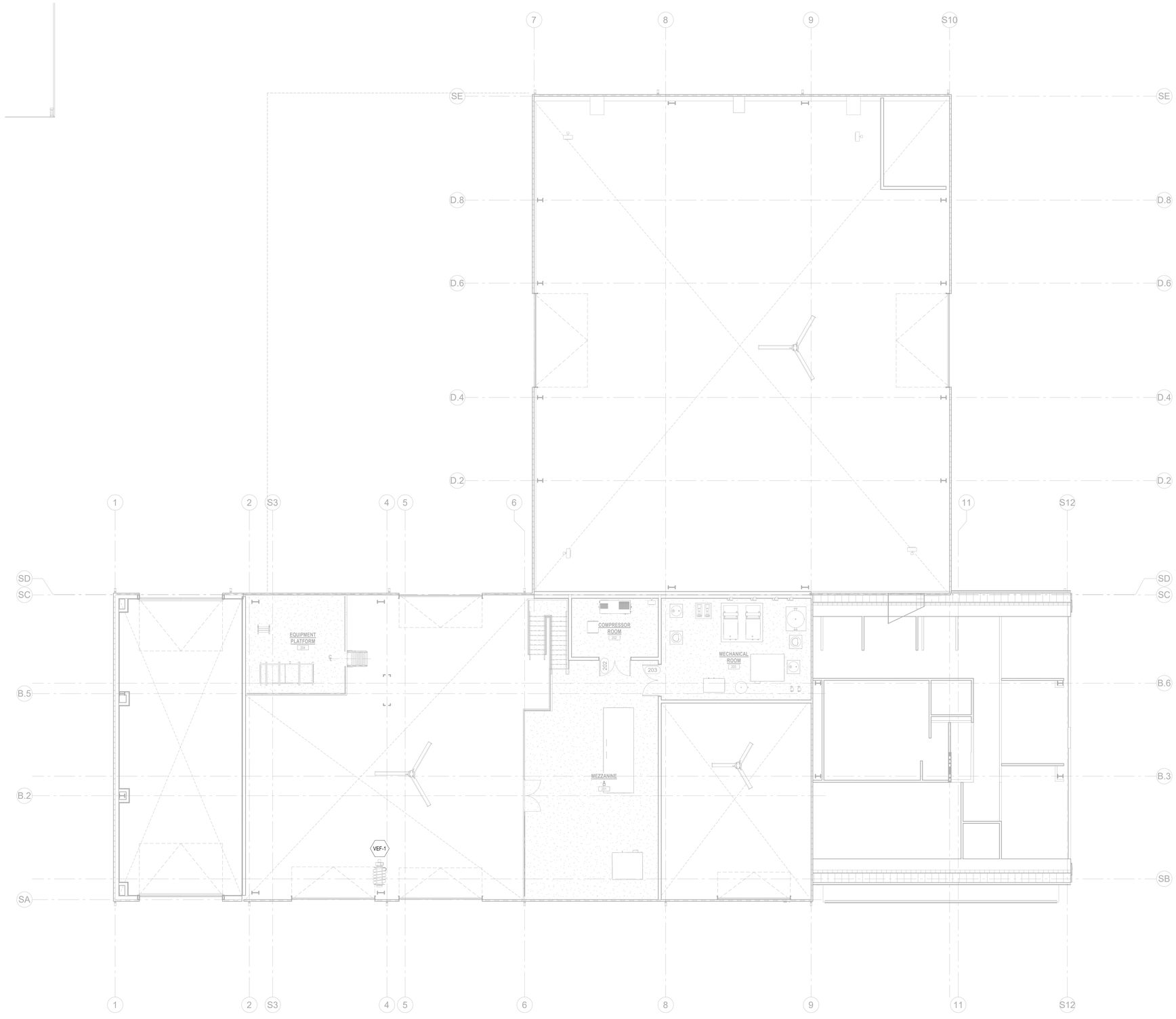
OVERALL FLOOR PLAN - BID ALT 1 - TECHNOLOGY

Sheet Number:

T101A

GENERAL TECHNOLOGY NOTES:

1. COMMUNICATIONS OUTLETS ARE SHOWN FOR REFERENCE PURPOSES. EXACT LOCATIONS WILL BE AS SHOWN ON ELECTRICAL DRAWINGS. COORDINATE INSTALLATION OF ALL CABLING WITH ELECTRICAL SUBCONTRACTOR.
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3. ALL CONDUITS AND JUNCTION BOXES TO BE PROVIDED UNDER DIVISION 260000. CONDUITS SHOWN ARE FOR REFERENCE ONLY.



1 / T102 1 - MEZZANINE FLOOR PLAN - BASE - TECHNOLOGY
SCALE: 1/8" = 1'-0"

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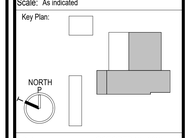
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OVERALL MEZZANINE FLOOR PLAN - BASE - TECHNOLOGY

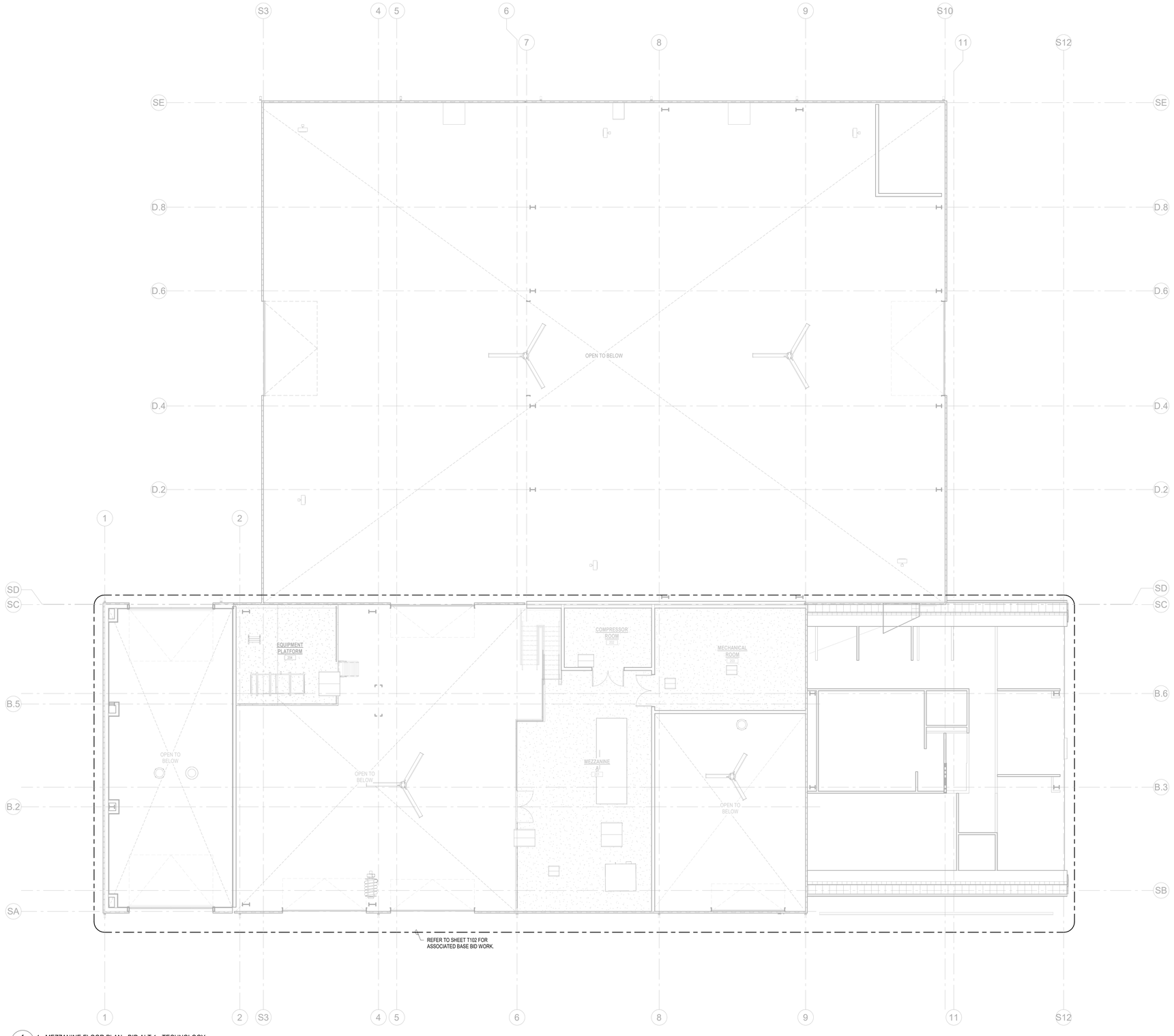
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GENERAL TECHNOLOGY NOTES:

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2. KEEP COMMUNICATIONS CABLING AT LEAST 12" AWAY FROM POWER WIRING.
3. ALL CONDUITS AND JUNCTION BOXES TO BE PROVIDED UNDER DIVISION 260000. CONDUITS SHOWN ARE FOR REFERENCE ONLY.



1 T102A 1 - MEZZANINE FLOOR PLAN - BID ALT 1 - TECHNOLOGY
SCALE: 1/8" = 1'-0"

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W&S File No.:	XXX

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OVERALL MEZZANINE FLOOR PLAN - BID ALT 1 - TECHNOLOGY

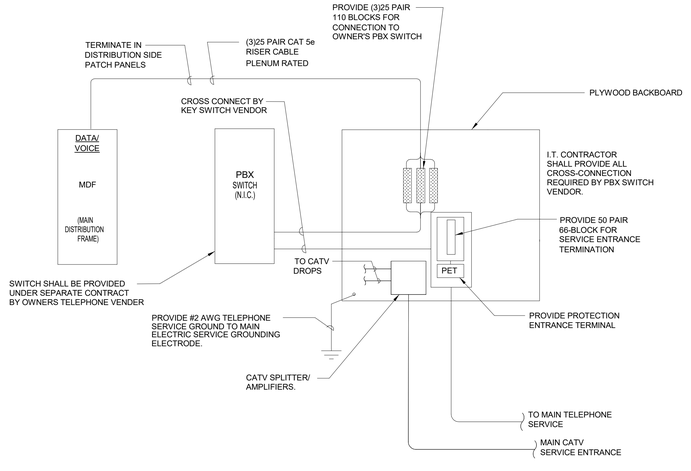
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ROOF

MEZZANINE



FIRST FLOOR

NOTES:

1. - (1) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKED AREA (TYPICAL)
2. - (2) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKED AREA (TYPICAL)
3. - (3) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKED AREA (TYPICAL)
4. - (4) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKD AREA
5. - (2) CAT 6A UTP CABLES PLENUM RATED TO MDF DATA RACK IN BLOCKD AREA
   - (1) RG-6 QUAD SHIELD PLENUM RATED TO MDF/IDF CATV SPLITTER IN BLOCKED AREA
6. - (6) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKD AREA
7. - (2) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF DATA RACK IN BLOCKED AREA & (1) CAT 6A UTP CABLES PLENUM RATED TO IDF/MDF VOICE RACK IN BLOCKED AREA
8. - (1) CAT 6A UTP CABLE PLENUM RATED TO IDF/MDF VOICE RACK IN BLOCKED AREA (TYPICAL)
9. - (1) CAT 6A UTP CABLES PLENUM RATED TO MDF VERIZON 66 BLOCKS (TYPICAL)

A. 12 STRAND OM4 LASER OPTIMIZED MULTI-MODE FIBER CABLE TO MDF. INSTALL PLENUM RATED INNER-DUCT.

B. 6 STRAND SINGLE MODE 8/9 MICRON FIBER CABLE TO MDF. INSTALL PLENUM RATED INNER-DUCT.

NOTE:

1. THIS CONTRACTOR SHALL PROVIDE FOR A COMPLETE INSTALLATION. FURNISH ALL EQUIP., LABOR, WIRING AND OUTLETS REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM.
2. ALL WIRING SHALL BE IN ACCORDANCE WITH EQUIPMENT SUPPLIER. COORDINATE ALL WIRING REQUIREMENTS PRIOR TO ROUGHING-IN.
3. PROVIDE APPROPRIATE QUANTITIES OF DATA PATCH PANELS TO ACCOMODATE ALL RESPECTIVE DATA CIRCUITS.
4. PROVIDE CAT 6A PATCH CORDS TO MATCH TOTAL QUANTITY OF PATCH PANEL PORTS. AT BOTH MDF/IDF AND WORK STATION.

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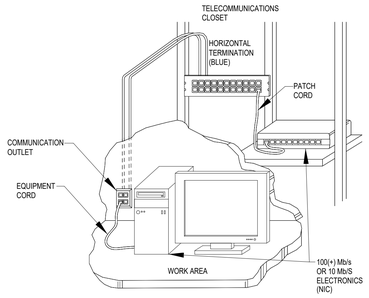
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TECHNOLOGY RISER DIAGRAM

Sheet Number:

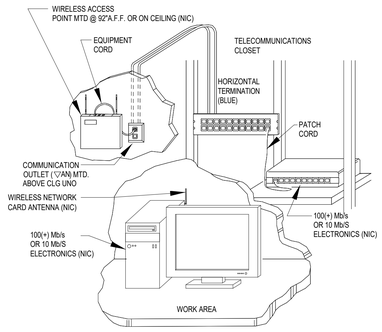
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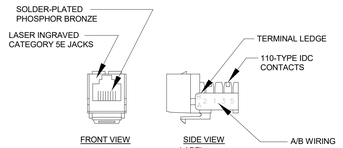
1 T201 TYPICAL INTERCONNECTION ARCHITECTURE

NOT TO SCALE



2 T201 TYPICAL WIRELESS INTERCONNECTION ARCHITECTURE

NOT TO SCALE

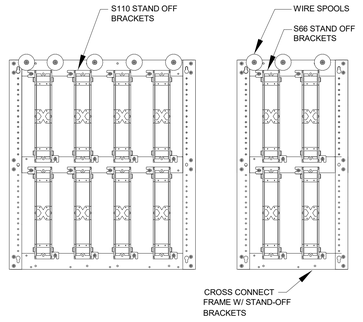


NOTE

PANELS SHALL BE UL LITSED; MEET NATIONAL ELECTRICAL CODE REQUIREMENTS AND SPECIFICATIONS FOR UL 1863; AND FULLY COMPLY WITH FCC PART 68 AND TIA-568-A CATEGORY 6.

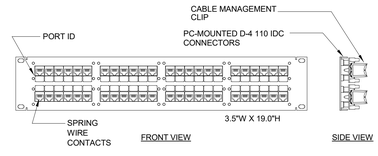
3 T201 RJ45 CONNECTION DETAILS

NOT TO SCALE



4 T201 TYPICAL CROSS CONNECT

NOT TO SCALE

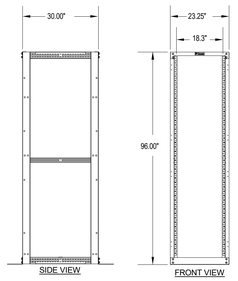


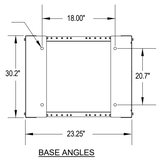
5 T201 48 PORT CAT 6A PATCH PANEL

SCALE: N.T.S.

NOTE

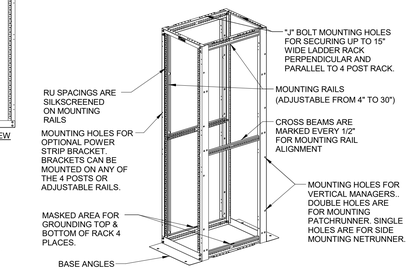
1. PANELS SHALL BE UL LISTED; MEET NATIONAL ELECTRICAL CODE REQUIREMENTS AND SPECIFICATIONS FOR UL 1863; AND FULLY COMPLY WITH FCC PART 68 AND TIA-568-A CATEGORY 6A.





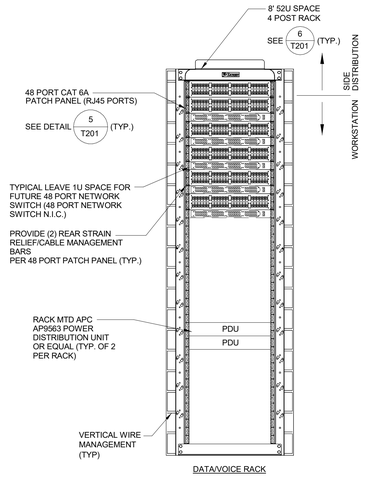
NOTES:

1. CAN BE USED WITH ANY EIA STANDARD COMPONENT IN ADDITION TO ALL PANDUIT HORIZONTAL CABLE MANAGEMENT AND PATCH PANEL PRODUCTS.
2. 52 AVAILABLE RACK SPACES.
3. RU SPACING NUMBERS ARE CLEARLY PRINTER ON MOUNTING RAILS.
4. EASY ASSEMBLY, ONE WRENCH NEEDED TO INSTALL BOLTS INTO WELDNUTS IN ALL 8 CORNERS.
5. FULLY BONDED STRUCTURE WHEN ASSEMBLED PER INSTRUCTIONS.
6. LOAD RATING - 2000 LBS.



6 T201 4 POST RACK

NOT TO SCALE



7 T201 TYPICAL MDF (MDF) DETAIL

NOT TO SCALE

QUANTITY OF DEVICES

MDF XXX (MDF)

DEVICES	DATA (CAT 6A)	VOICE (CAT 6A)	CATV
▽ = -	-	-	-
2 ▽ = -	-	-	-
4 ▽ = -	-	-	-
6 ▽ = -	-	-	-
AN ▽ = -	-	-	-
1V/2D ▼ = -	-	-	-
W ▼ = -	-	-	-
V ▼ = -	-	-	-
T ▼ = -	-	-	-
TVC = -	-	-	-
TVE = -	-	-	-
TOTAL	-	-	-

MAIN DISTRIBUTION FRAME MDF

LOCATION: MDF XXX (MDF)

CAT 6A (RJ45) VOICE PORT				CAT 6A (RJ45) DATA PORTS		
USED	SPARE	PATCH PANEL SIZE		USED	SPARE	PATCH PANEL SIZE
-	-	DISTRIBUTION	(-)48 PORT	-	-	(-)48 PORT
		WORKSTATION	(-)48 PORT			

CABLE/FIBER SCHEDULE

1. FIBER OPTIC MULTIMODE LIU (LIGHTGUIDE INTERFACE UNIT) PATCH PANEL (12 PORT - LC CONNECTORS) - PREMISES DISTRIBUTION
2. FIBER OPTIC SINGLEMODE LIU (LIGHTGUIDE INTERFACE UNIT) PATCH PANEL (6 PORT - LC CONNECTORS) - PREMISES DISTRIBUTION
3. FIBER OPTIC MULTIMODE LIU (LIGHTGUIDE INTERFACE UNIT) PATCH PANEL (2 PORT - LC CONNECTORS) - PREMISES DISTRIBUTION

Project:

TOWN of TRURO, MA
NEW DEPARTMENT of PUBLIC WORKS FACILITY

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Revisions:

No.	Date	Description

COA:

Seal:

Issued For:

DESIGN DEVELOPMENT

Scale:

Key Plan:

Date:	OCTOBER 31, 2025
Drawn By:	JGD
Reviewed By:	DMP
Approved By:	DMP
W&S Project No.:	ENG24-1552
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Drawing Title:

TECHNOLOGY DETAILS

Sheet Number:

T201

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