

GENERAL NOTES

- THESE GENERAL NOTES ARE APPLICABLE TO ALL FIRE PROTECTION DRAWINGS.
- CONTRACTOR SHALL SUBMIT (2) SEPARATE HYDRAULIC CALCULATIONS THE FIRST CALCULATION IS FOR FIRE PUMP & SPRINKLER SYSTEM. THE SECOND IS FOR THE STANDPIPE SYSTEM FROM THE FDC TO THE MOST REMOTE FHV COMPLYING WITH NFPA-14 (100PSI).
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHOW THE GENERAL INTENT OF WORK. SEE DETAILS, RISERS, AND SPECIFICATION FOR ADDITIONAL INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR A COMPLETE SYSTEM FOR FULL BUILDING COVERAGE. ADDITIONAL SPRINKLERS AND PIPING MAY BE REQUIRED TO ACCOMMODATE CONDITIONS SUCH AS SOFFITS, DUCTWORK, STRUCTURE, LIGHTING, EQUIPMENT, BOOK STACKS, ETC. THE CONTRACTOR SHALL PROVIDE A COMPLETE SPRINKLER INSTALLATION IN CONFORMANCE WITH NFPA 13, NFPA 14, FEDERAL AND STATE CODES AND THEIR APPLICABLE SUPPLEMENTS, AND THE REQUIREMENTS OF THE OFFICE OF THE STATE FIRE MARSHAL.
- REFER TO NFPA 13 FOR EXACT SPACING, DENSITY, AND LOCATION REQUIREMENTS. CONTRACTOR SHALL INSTALL QUICK RESPONSE TYPE SPRINKLER IN ENTIRE BUILDING. USE OF EXTENDED COVERAGE, QUICK RESPONSE, TYPE SPRINKLER MAY BE USED WITH THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION.
- SPRINKLERS IN FINISHED LAYIN TILE CEILING AREAS SHALL ALWAYS BE LOCATED IN THE CENTER OF CEILING TILES UNLESS INDICATED OTHERWISE.
- REVIEW THE ARCHITECTURAL, REFLECTED CEILING, ELEVATION AND SECTION PLANS AS PART OF THIS CONTRACT FOR ADDITIONAL INFORMATION SUCH AS CEILING HEIGHTS, TYPES, SOFFITS AND OR OTHER DEVICE LOCATIONS.
- REVIEW THE ELECTRICAL DIVISION DRAWINGS AND COORDINATE THE FIRE PROTECTION WORK WITH LOCATIONS OF LIGHT, AND CEILING MOUNTED DEVICES WHICH MAY INTERFERE WITH SPRINKLER LOCATIONS OR SPRAY PATTERNS.
- REVIEW THE HVAC DIVISION DRAWINGS AND COORDINATE THE FIRE PROTECTION WORK WITH LOCATIONS OF CEILING MOUNTED DEVICES SUCH AS DIFFUSERS, GRILLS, REGISTERS, AND ALSO THE LOCATIONS OF HEAT PRODUCING EQUIPMENT AND DUCTWORK REQUIRING SPRINKLER PROTECTION BELOW IT.
- MAKE PROVISIONS FOR DRAINING THE ENTIRE SYSTEM PER NFPA 13.
- UNOCCUPIED SPACES WITHOUT CEILINGS SHALL BE PROVIDED WITH UPRIGHT SPRINKLERS.
- SPRINKLERS SHALL BE INSTALLED UNDER FIXED OBSTRUCTIONS OVER 4 FEET (1.2M) WIDE PER NFPA 13. THE CONTRACTOR SHALL VERIFY ALL DUCTWORK DIMENSIONS IN THE FIELD AND INSTALL SPRINKLERS AS REQUIRED.
- VERIFY THE DISTANCE BETWEEN CEILING AND BOTTOM OF STRUCTURAL BEAMS IN ALL AREAS WITH REFLECTIVE CEILINGS.
- ALL HORIZONTAL PIPING SHALL BE LOCATED ABOVE THE CEILING OR IN SOFFIT SPACES UNLESS NOTED OTHERWISE.
- VERIFY AND COORDINATE VALVE IDENTIFICATION REQUIREMENTS WITH OWNER STANDARDS IN THE FIELD.
- THE SPRINKLER EQUIPMENT ROOM AND FIRE PROTECTION EQUIPMENT COMPONENTS (E.G. VALVES, PIPING, TAMPER SWITCHES, FLOW ALARMS, ECT.) SHALL REQUIRE PROPER IDENTIFICATION AS PER THE REQUIREMENT OF NFPA13.
- THE SUBMISSION OF AUTOMATIC FIRE SUPPRESSION (SPRINKLER) SYSTEM SHOP DRAWINGS (E.G. INFORMATION RELATIVE TO SPRINKLERS, FITTINGS, CHECK VALVES, EXPOSURE TO HAZARDS, EXTENT OF SYSTEM COVERAGE, SUPPRESSION SYSTEM DESIGN CRITERIA, WATER SUPPLY SOURCE, SUPPLY AND EXTINGUISHING AGENTS, LOCATION AND METHOD OF OPERATION FOR DETECTION AND ALARM DEVICES, ECT.) SHALL BE REQUIRED FOR REVIEW AND EVALUATION AS PER IBC, 2009; THE STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (NFPA-13) AND THE HUD MAP CHAPTER 5 GUIDELINES.

FIRE PROTECTION CONSTRUCTION PROCEDURES

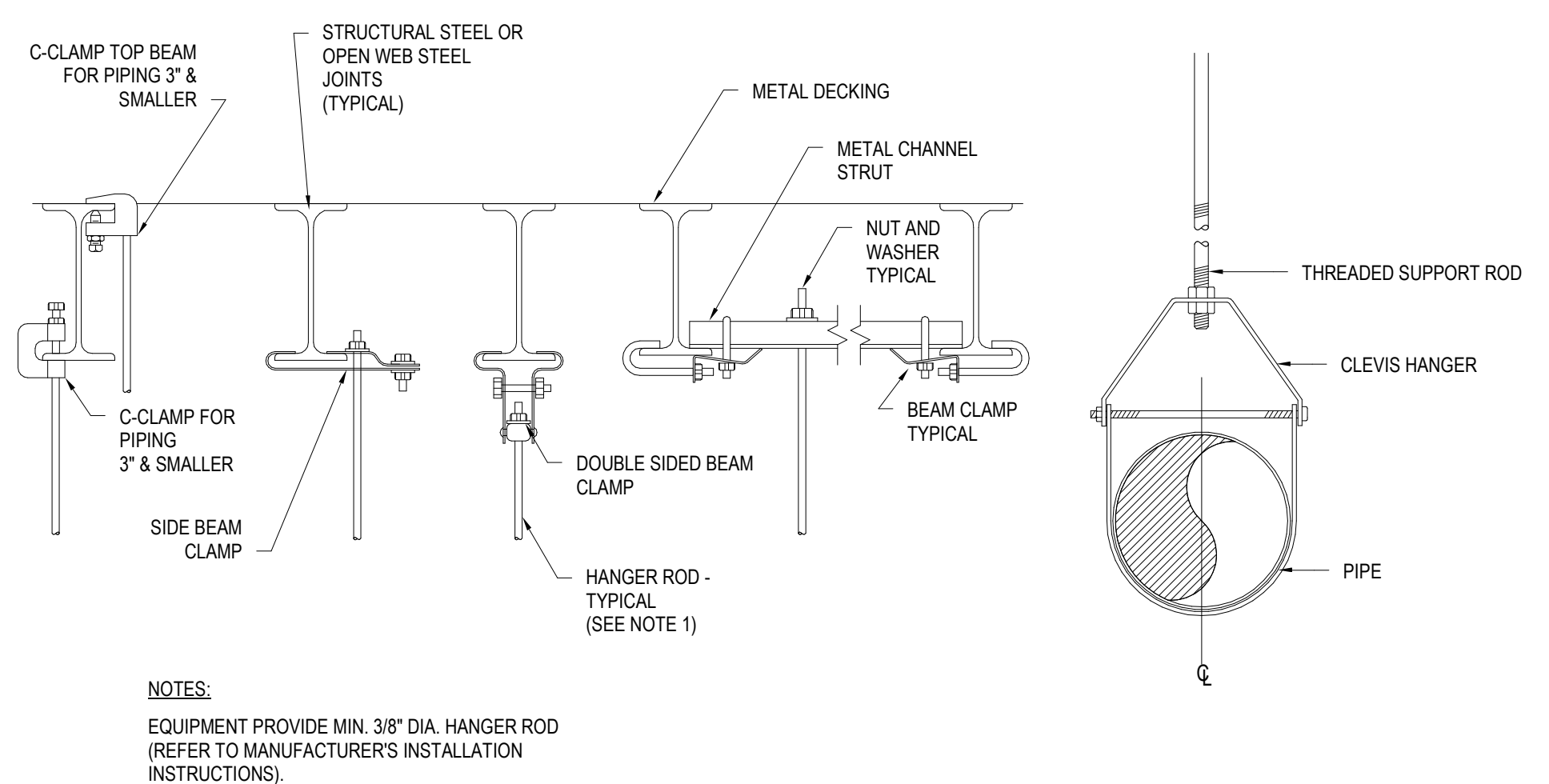
- IT IS SOLELY THE FIRE PROTECTION CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL OF SHOP DRAWINGS FROM THE OWNERS INSURANCE CARRIER AND THE AUTHORITY HAVING JURISDICTION. ANY INSTALLATION OF THE SPRINKLER SYSTEM WITHOUT APPROVED PLANS SHALL BE AT THE SOLE RISK AND EXPENSE OF THE CONTRACTOR.
- THE FIRE PROTECTION CONTRACTOR MUST CONTACT THE OWNERS CONSTRUCTION COORDINATOR AND REQUEST WHENEVER THE SPRINKLER MAIN IS TO BE ISOLATED AND/OR DRAINED. THIS PROCEDURE MUST BE ADHERED TO WHEN PRESSURE TESTING AND/OR PLACING ANY PORTION OF SYSTEM IN OR OUT OF SERVICE.
- THE OWNERS CONSTRUCTION COORDINATOR AND THE AUTHORITY HAVING JURISDICTION SHALL WITNESS ALL SYSTEM PRESSURE TESTS. CONTRACTOR MAKING THE TEST SHALL PROVIDE 24 HOURS NOTICE TO ALL REQUIRED TO BE IN ATTENDANCE.
- ALL WORK SHALL MEET THE REQUIREMENTS OF NFPA STANDARDS. INSTALLATION PROCEDURES SHALL COMPLY WITH THE SAFETY RULES OF OSHA AND THE STATE OF PENNSYLVANIA FIRE SAFETY CODE.
- THE FIRE PROTECTION CONTRACTOR MUST PROVIDE A FIRE WATCH WHENEVER ANY WELDING IS DONE WITHIN THE AREA BEING WORKED, DURING THE WELDING OPERATION, AND FOR ONE HOUR AFTER WELDING IS COMPLETE.
- NO STOCK OF FURNISHINGS SHALL BE ALLOWED IN THE AREAS BEING WORKED UNTIL THE ENTIRE SYSTEM IS COMPLETED IN ACCORDANCE WITH THE ABOVE NOTES AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- PROVIDE A MATERIAL TEST AND CERTIFICATION FORM TO THE AUTHORITY HAVING JURISDICTION AND OWNERS INSURANCE CARRIER SO AS TO CERTIFY THAT THE SPRINKLER SYSTEM WAS INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, SPECIFICATIONS, FEDERAL, STATE, AND LOCAL CODES AND PROCEDURES.
- UPON COMPLETION OF SYSTEM INSTALLATION, PERFORM A HYDROSTATIC TEST ON ALL PIPING AND ATTACHED APPURTENANCES IN THE PRESENCE OF AN AUTHORITY HAVING JURISDICTION. THE SYSTEM SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF 200 PSI AND SHALL MAINTAIN THAT PRESSURE WITHOUT LOSS FOR 2 HOURS. TEST FAILURE SHALL BE DETERMINED BY A DROP IN GAUGE PRESSURE OR VISUAL LEAKAGE. THE TEST PRESSURE SHALL READ FROM A GAUGE LOCATED AT THE LOWEST ELEVATION POINT OF THE SYSTEM OR PORTION BEING TESTED. ALL TESTING THE SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 13 AND NFPA 25.
- CONSTRUCTION PHASING OF THE PROJECT. THE EXISTING AREAS OF FIRE PROTECTION MUST BE MAINTAINED. THE FIRE PROTECTION CONTRACTOR IS TO PROVIDE SERVICE TO THESE AREAS FROM THE NEW FIRE PROTECTION SERVICE AS REQUIRED.

ABBREVIATIONS

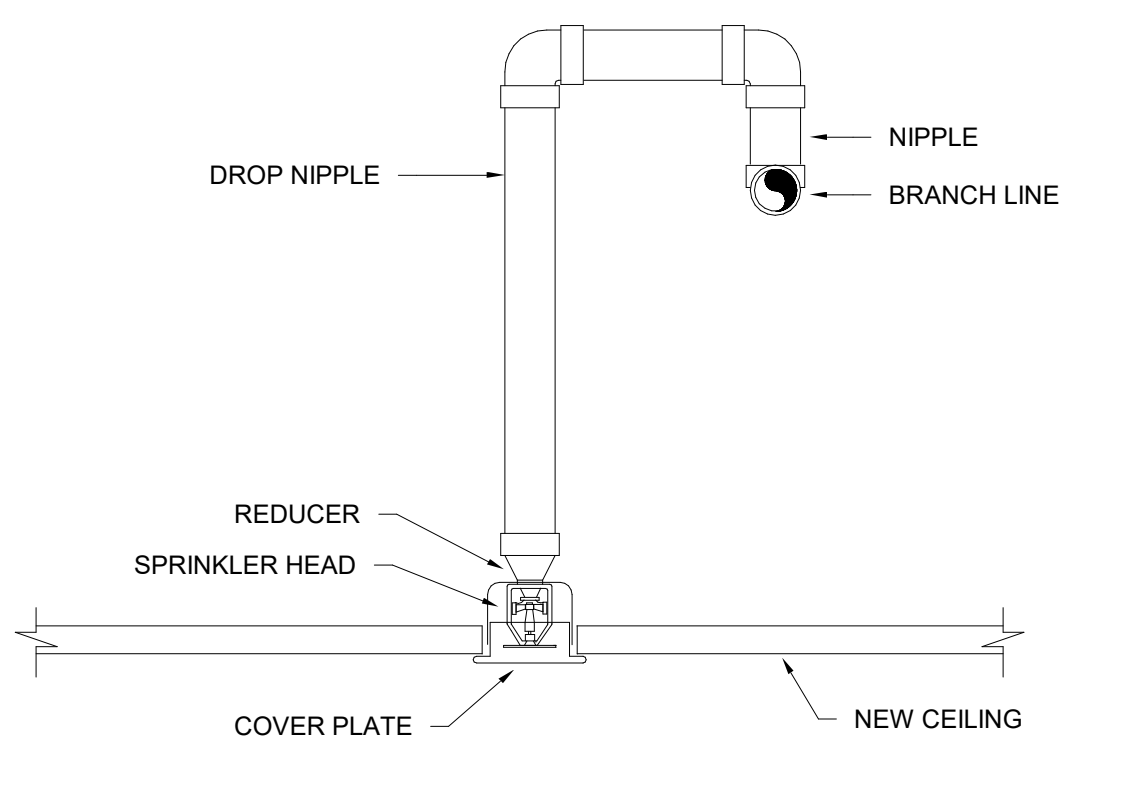
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH (FIRE PUMP)
BFP	BACKFLOW PREVENTOR
CTE	CONNECT TO EXISTING
DCVA	DOUBLE CHECK VALVE ASSEMBLY
EC	EXTENDED COVERAGE (SPRINKLER)
ELEV	ELEVATION
(E)	EXISTING
FP	FIRE PUMP
FS	FLOW SWITCH
FDC	FIRE DEPARTMENT CONNECTION
FHC	FIRE HOSE COBINET
FHR	FIRE HOSE RACK WITH HOSE
FHV	FIRE HOSE VALVE
FPC	FIRE PUMP CONTROLLER
FVC	FIRE VALVE CABINET
FHVC	FIRE HOSE VALVE CABINET
FPTH	FIRE PUMP TEST HEADER
G	CAGE GUARD (SPRINKLER)
GPM	GALLONS PER MINUTE
HT	HIGH TEMPERATURE (SPRINKLER)
IT	INTERMEDIATE TEMPERATUR (SPRINKLER)
JP	JOCKEY PUMP
JPC	JOCKEY PUMP CONTROLLER
LPS	LOW PRESSURE SWITCH
NIC	NOT IN CONTRACT
PV	POST INDICATOR VAVLE
PRFHV	PRESSURE REDUCING FIRE HOSE VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
(R)	PIPING TO BE REMOVED
SV	SUPERVISORY VALVE
TS	TAMPER SWITCH
TYP	TYPICAL
VIF	VERIFY IN FIELD
WSP	WET STANDPIPE

SPRINKLER SYSTEM DESIGN CRITERIA SYMBOLS

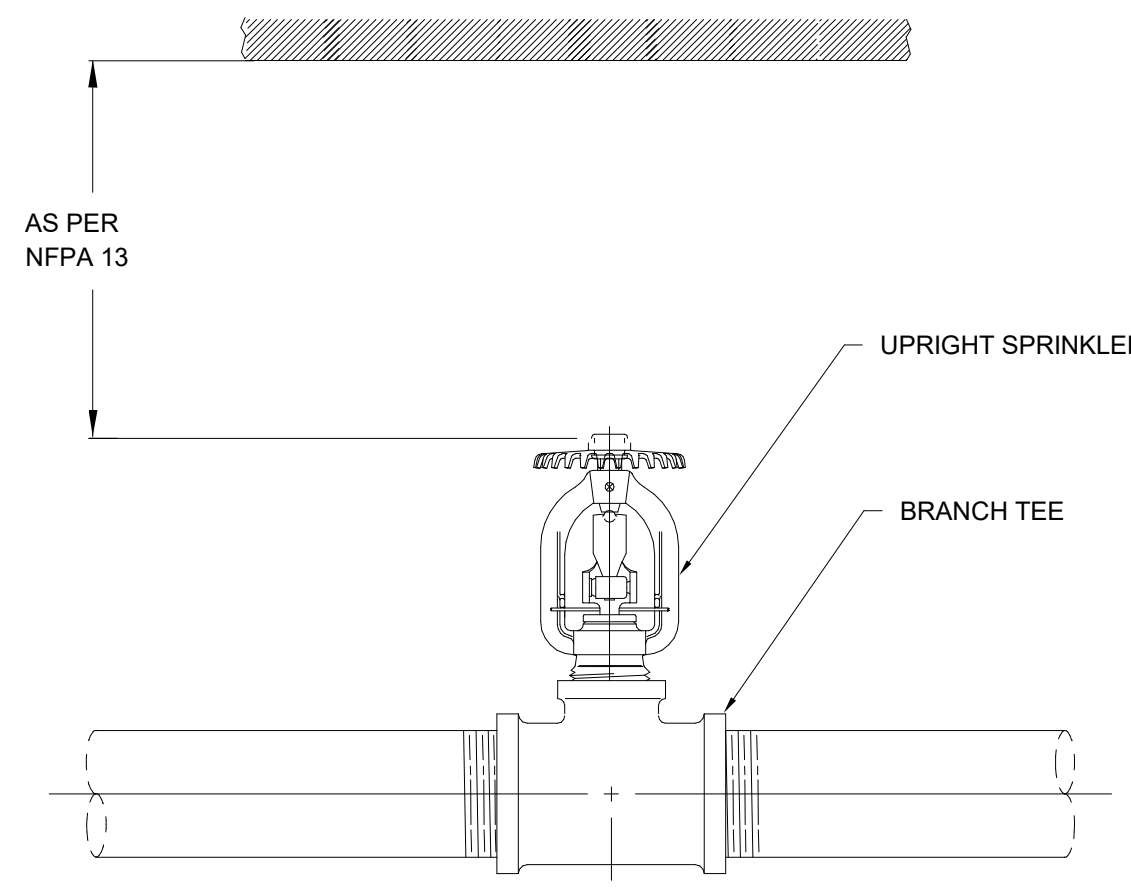
SYSTEM TYPE	HAZARD	HAZARD CLASSIFICATION
DESIGN DENSITY	MIN. AREA	REMOTE DESIGN AREA
SPR. TEMP.	MAX. SPND	MAXIMUM SQ. FT. SPRINKLER



1 PIPE HANGER DETAIL
NTS



2 CONCEALED SPRINKLER TYPE DETAIL
NTS



3 UPRIGHT SPRINKLER DETAIL
NTS

LEGEND

FIRE SERVICE PIPING	F
SPRINKLER PIPING	SPR
FIRE PUMP TEST HEADER PIPING	FPTH
FIRE DEPARTMENT CONNECTION PIPING	FDC
WET STANDPIPE	WSP
COMBINATION SPRINKLER / STANDPIPE	SPR/WSP
DRY STANDPIPE	DSP
CONTROL VALVE W/ SUPERVISORY SWITCH	TS
DOUBLE CHECK DETECTOR ASSEMBLY (DCDA)	DCDA
EXISTING SPRINKLER	○
EXISTING SIDE WALL TYPE SPRINKLER	◊
SIDE WALL TYPE SPRINKLER	◄
CONCEALED SIDE WALL SPRINKLER	◄
PENDENT TYPE SPRINKLER	○
CONCEALED TYPE PENDENT SPRINKLER	◊
UPRIGHT TYPE SPRINKLER	●
DRY TYPE SPRINKLER	●
REMOVE EXISTING SPRINKLER	⊗
EXTENT OF DEMOLITION	⊗
VALVE	GATE BALL
BACKFLOW PREVENTION DEVICE	CBP
FIRE DEPARTMENT CONNECTION	FD
CAPPED OUTLET	CO
CHECK VALVE	CV
PRESSURE GAUGE	PG
WATER TIGHT PIPE SLEEVE	WTPS
PIPE BREAK	PB
PIPE DROP	PD
PIPE UP OR DOWN	PU/D
FIRE HOSE VALVE	FHV
NEW CONNECTION SYMBOL	NC

FIRE PROTECTION SHEET LIST

FP00-01	COVER SHEET
FP20-01	OVERALL FIRE PROTECTION PLAN - FIRST FLOOR
FP20-02	OVERALL FIRE PROTECTION PLAN - SECOND FLOOR

This drawing has been prepared solely for the use of COUNTY OF DELAWARE DEPARTMENT OF PUBLIC WORKS and there are no representations of any kind made by NORR to any party with whom NORR has not entered into a contract.

This drawing shall not be used for construction purposes until the seal appearing hereon is signed and dated by the Architect or Engineer.

Design Team
Architecture: NORR
Structural: NORR
Mechanical: NORR
Electrical: NORR

Seal

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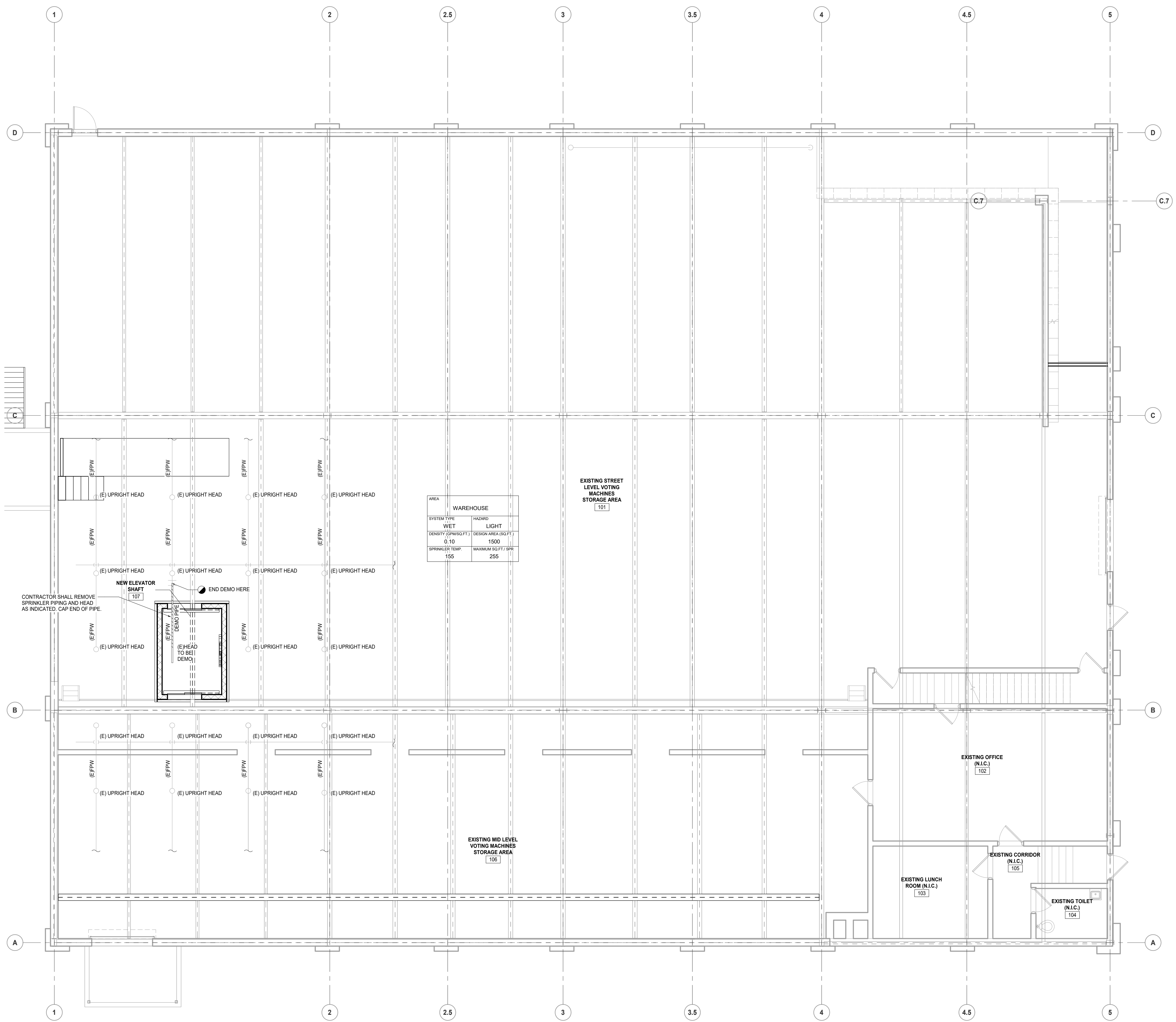
Project Manager: BM
Project Architect: CP
Client: COUNTY OF DELAWARE DEPARTMENT OF PUBLIC WORKS
105 W 3RD ST, MEDIA, PA 19063

Project: VOTING MACHINE WAREHOUSE ELEVATOR ADDITION
403 EAST 24TH STREET, CHESTER, PA 19013
Drawing Title: COVER SHEET

Project No.: IN2325-0323
Drawing No.: FP00-01
ARCH E Title Block - © 2023 - Rev (Sep/23) - Copyright © 2023

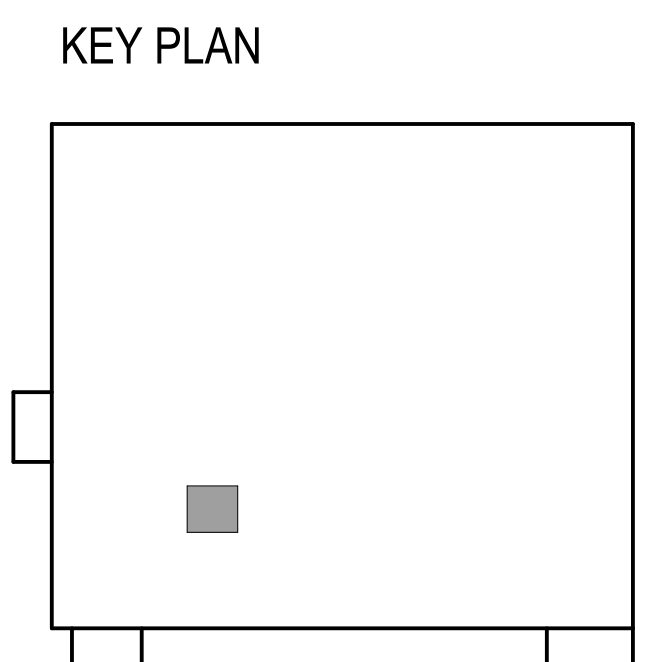
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Autodesk Docs (DWG) - Voting Machine Warehouse Elevator Addition (IN2325-0323_MEP_DWG_VotingMachineWarehouseElevatorAddition_v24.rvt)



CONTRACTOR SHALL MODIFY SPRINKLER HEAD DROPS AS NEEDED FOR NEW ELEVATOR LOCATION. CONTRACTOR SHALL ADD HEADS TO MAINTAIN COVERAGE

AREA	
WAREHOUSE	
SYSTEM TYPE	WET
HAZARD	LIGHT
DENSITY (GPM/SQ.FT.)	0.10
DESIGN AREA (SQ.FT.)	1500
SPRINKLER TEMP.	155
MAXIMUM SQ.FT./SPR.	255



OVERALL FIRE PROTECTION PLAN -FIRST FLOOR
SCALE: 3/16" = 1'-0"

DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A

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Electrical: NORR

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Project Architect CP	Checked ZHI

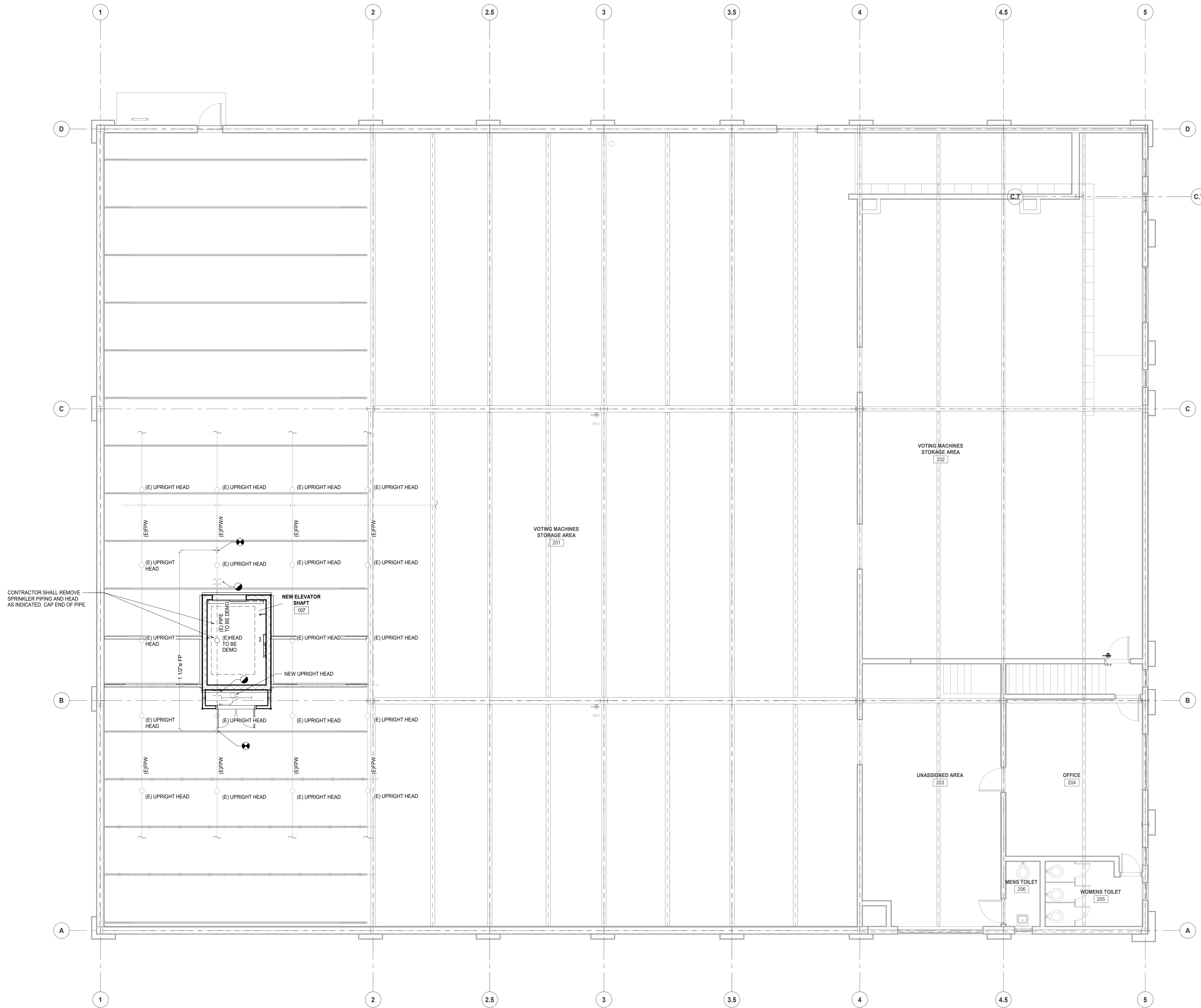
Client
**COUNTY OF DELAWARE
DEPARTMENT OF PUBLIC
WORKS**
105 W 3RD ST, MEDIA, PA 19063

Project
**VOTING MACHINE
WAREHOUSE ELEVATOR
ADDITION**
403 EAST 24TH STREET, CHESTER, PA 19013

Drawing Title
**OVERALL FIRE
PROTECTION PLAN - FIRST
FLOOR**

Project No.
IN2325-0323
Drawing No.
FP20-01

DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A



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 Structural: NORR
 Mechanical: NORR
 Electrical: NORR

Seal

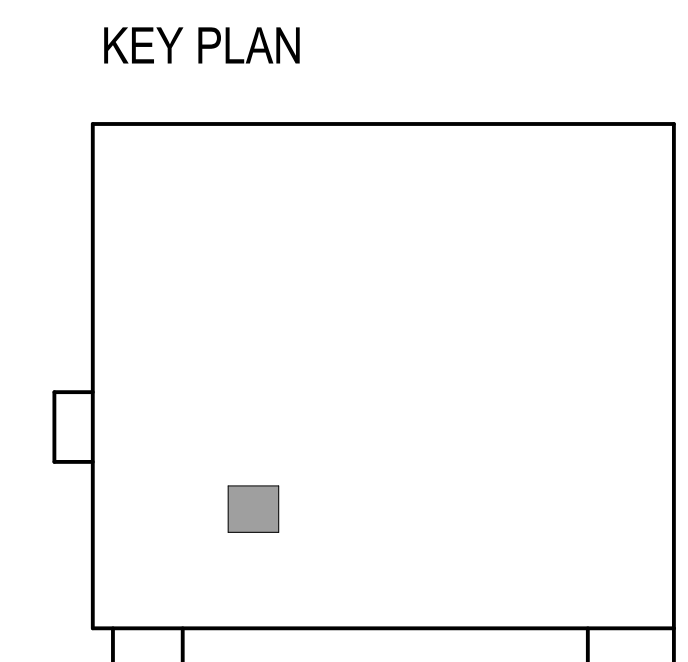
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Project: VOTING MACHINE WAREHOUSE ELEVATOR ADDITION
 403 EAST 24TH STREET, CHESTER, PA 19013
 Drawing Title: OVERALL FIRE PROTECTION PLAN -SECOND FLOOR

Project No.: IN2325-0323
 Drawing No.: FP20-02
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FIRE PROTECTION PLAN - LEVEL 2
 SCALE: 3/16" = 1'-0"

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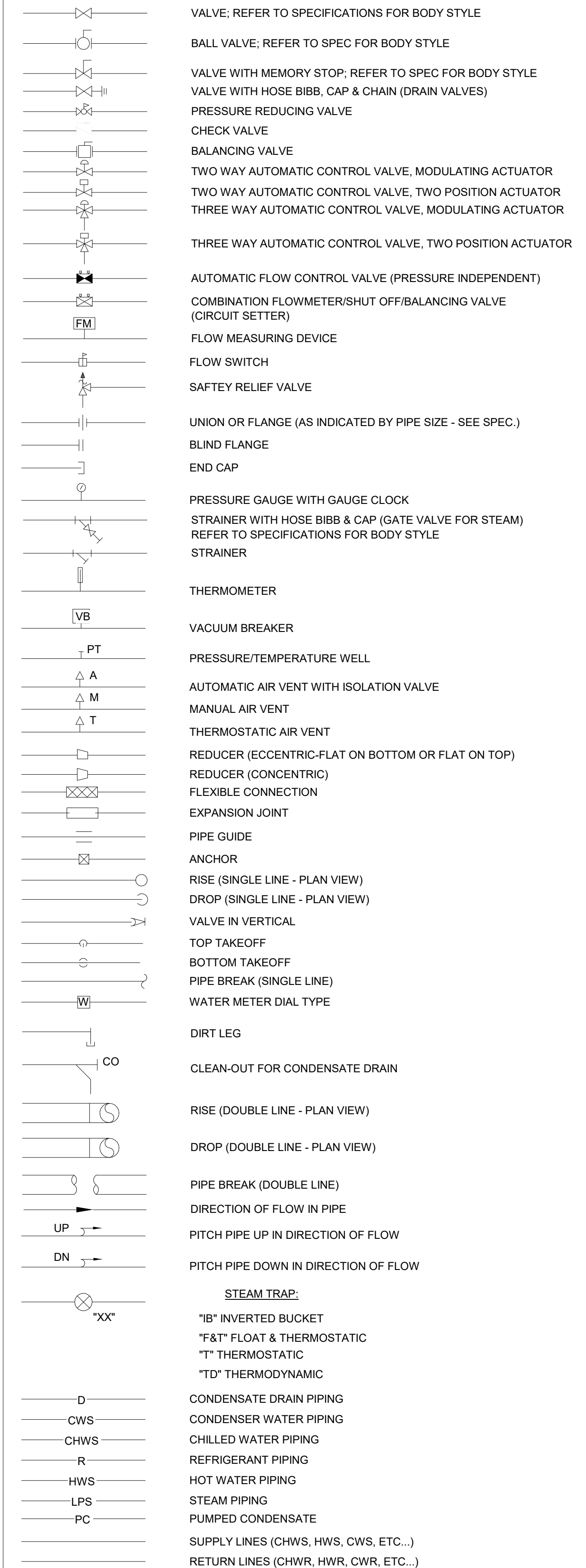
Architect: One Penn Center - Voting Machine Warehouse Elevator Addition (IN2325-0323) - ME - Detail - Warehouse Elevator Addition - 2/24/25

PLUMBING SPECIFICATIONS

- PART 1 - GENERAL**
- 1.1 SCOPE OF WORK**
- A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE PLUMBING SYSTEMS AS INDICATED ON DRAWINGS.
- 1.2 RELATED DOCUMENTS**
- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS DRAWING SPECIFICATIONS.
- 1.3 REGULATIONS**
- A. ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF MUNICIPAL, STATE AND FEDERAL AUTHORITIES.
- B. THE CONTRACTOR SHALL MAKE TESTS FOR ACCEPTANCE AND APPROVAL AS REQUIRED BY THE CODE AND THE OWNER'S REPRESENTATIVE.
- 1.4 PERMITS**
- A. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, APPROVALS AND PAY ALL RELATED FEES AS REQUIRED BY THE LOCAL MUNICIPALITY.
- 1.5 PROTECTION**
- A. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM DUST, DIRT, AND DAMAGE UNTIL FINAL ACCEPTANCE.
- 1.6 SAFETY**
- A. DURING CONSTRUCTION, THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR PROVIDING ALL HIS EMPLOYEES WITH SAFE AND HEALTHFUL WORKING CONDITIONS AS PRESCRIBED IN THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION OF THE U.S. DEPARTMENT OF LABOR.
- 1.7 GUARANTEE**
- A. ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR ONE (1) YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 1.8 COORDINATION**
- A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
- B. ANY CHANGES AND/OR MODIFICATIONS MUST BE REVIEWED AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
- 1.9 SHOP DRAWINGS**
- A. THE CONTRACTOR(S) SHALL SUBMIT THE REQUIRED COPIES OF SHOP DRAWINGS FOR ALL SYSTEM COMPONENTS TO OWNER'S REPRESENTATIVE FOR APPROVAL.
- B. PROVIDE A STAMP ON EACH SUBMITTAL INDICATING CONTRACTOR'S REVIEW AND APPROVAL IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 1.10 DRAWINGS**
- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT, GENERAL CHARACTER AND LOCATION OF THE WORK INCLUDED. OFFSETS OR CHANGES IN DIRECTION TO AVOID STRUCTURAL OR OTHER INTERFERENCES, AND WORK INDICATED BUT HAVING MINOR DETAILS OBVIOUSLY OMITTED SHALL BE PROVIDED WITHOUT EXTRA COST.
- B. FINAL PIPING CONNECTIONS TO FIXTURES, EQUIPMENT, PIPING BY OTHERS, ETC., WHERE NOT SPECIFICALLY SHOWN, SHALL BE INCLUDED AT NO ADDITIONAL COST.
- 1.11 RECORD DRAWINGS**
- A. DURING CONSTRUCTION, THE CONTRACTOR(S) SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS, AND DETAILS.

- B. AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL FORWARD THESE PRINTS TO OWNER.**
- 1.12 GENERAL REQUIREMENTS**
- A. THE CONTRACTOR(S) SHALL FIELD COORDINATE WITH MECHANICAL, ELECTRICAL CONTRACTORS.
- B. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- C. CONTRACTOR(S) SHALL PROVIDE ALL ITEMS, ASSEMBLIES, FITTINGS, SUPPLIES, AND ACCESSORIES REQUIRED FOR THE INSTALLATION OF THEIR WORK.
- D. FURNISH AND INSTALL SUITABLE AND SUBSTANTIAL HANGERS AND SUPPORTS FOR ALL HORIZONTAL AND VERTICAL PIPING. HANGERS MAY BE DIRECTLY MOUNTED TO BEAMS OF BUILDING CONSTRUCTION. THE INTENTION IS TO PROVIDE SUPPORTS WHICH IN EACH CASE SHALL BE AMPLY STRONG AND RIGID FOR THE LOAD BUT WHICH SHALL NOT WEAKEN OR UNDULY STRESS THE BUILDING CONSTRUCTION.
- E. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THEIR RESPECTIVE WORK.
- F. DEMOLITION SHALL INCLUDE COMPLETE REMOVAL OF EXISTING PLUMBING SYSTEMS OR BRANCH PIPING INDICATED. CAP WASTE PIPING AND WATER PIPING BEHIND WALLS, BELOW FLOORS OR OUT OF VIEW. WORK IN THE CEILING SPACE BELOW THE FLOOR FOR REMOVAL OF WATER AND WASTE PIPING SHALL BE COORDINATED WITH THE BUILDING MANAGER OR OWNER.

PIPING



PROJECT NOTES:

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 WITH THEMSELVES OR WITH CODES AND REGULATIONS, PROVIDE THE HIGHER QUANTITY AND QUALITY AND FOLLOW THE STRICTER REQUIREMENTS.

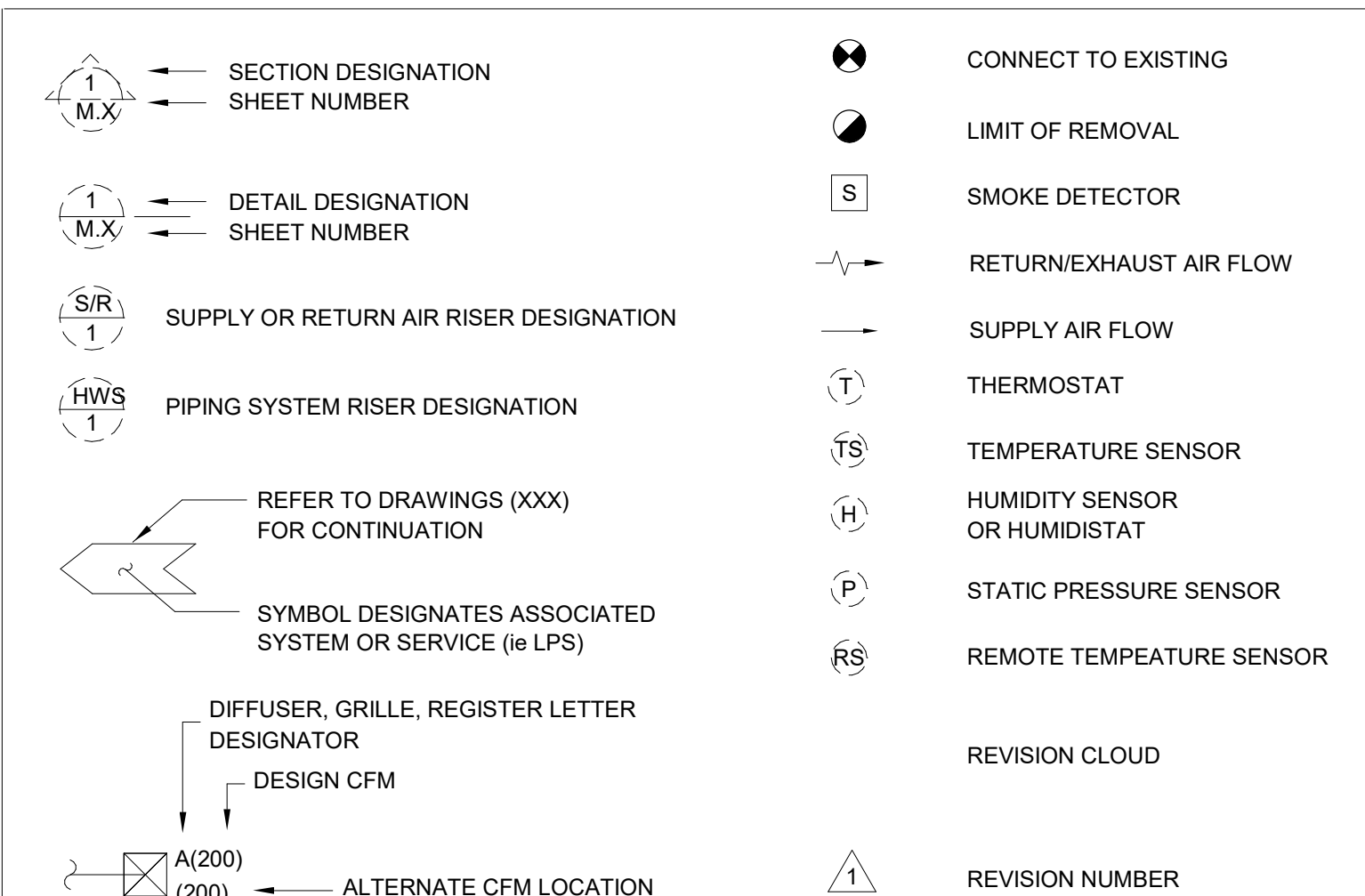
ALL MOUNTING HEIGHTS ARE TO BOTTOM UNLESS OTHERWISE INDICATED.

IF EXACT MOUNTING OR RACEWAY ROUTINGS ARE NOT INDICATED (LOCATION OR HEIGHT) COORDINATE WITH OTHER TRADES AND REQUEST CLARIFICATION PRIOR TO ROUGHING, OR INSTALLATION.

GENERIC HVAC ABBREVIATIONS

'F	DEGREES FAHRENHEIT	HR	HOUR
'C	DEGREES CELSIUS	HZ	HERTZ
Ø	DIAMETER	HX	HEAT EXCHANGER
ACV	AUTOMATIC CONTROL VALVE	ID	INSIDE DIAMETER
AD	ACCESS DOOR	IN	INCHES
AFF	ABOVE FINISHED FLOOR	INSUL	INSULATION
AFG	ABOVE FINISHED GRADE	KW	KILOWATT
AP	ACCESS PANEL	KVA	KILOVOLT AMPERE
ARCH	ARCHITECT	L	LENGTH
ATC	AUTOMATIC TEMPERATURE CONTROL	LB	POUND
AS	AIR SEPARATOR	LD	LINEAR DIFFUSER
AVG	AVERAGE	LF	LINEAR FEET
BAS	BUILDING AUTOMATION SYSTEM	LVG	LEAVING
BELOW	BELOW FINISHED FLOOR	M	ONE THOUSAND
BHP	BRAKE HORSEPOWER	MAX	MAXIMUM
BLDG	BUILDING	MBH	THOUSAND BRITISH THERMAL UNITS / HR
BLR	BOILER	MCA	MINIMUM CIRCUIT AMPS
BOD	BOTTOM OF DUCT	MCC	MOTOR CONTROL CENTER
BOF	BOTTOM OF PIPE	MCC	MECHANICAL
BSMT	BASEMENT	MEZZ	MEZZANINE
BTU	BRITISH THERMAL UNIT PER HOUR	MFR	MANUFACTURER
BTUH	BRITISH THERMAL UNIT PER HOUR	MIN	MINIMUM
CF	CEILING FAN	MTD	MOUNTED
CL	CENTERLINE	MU	MAKEUP WATER
CLG	CEILING	OD	OUTSIDE DIAMETER
CO	CLEAN-OUT	OV	OPEN DRIP PROOF
COL	COLUMN	PCF	POUNDS PER CUBIC FOOT
CONC	CONCRETE	PD	PRESSURE DROP
CONTR	CONTRACTOR	PH	PHASE
CORR	CORRIDOR	PLBG	PLUMBING
CUR	CUBIC FEET	PRESS	PRESSURE
CUH	CABINET UNIT HEATER	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
D	DRAIN	PSIG	POUNDS PER SQUARE INCH GAUGE
DB	DRY BULB TEMPERATURE	PVC	POLYVINYL CHLORIDE
DDC	DIRECT DIGITAL CONTROL	(RE)	RELOCATED EXISTING
DIA	DIAMETER	RET	RETURN
DN	DOWN	REQD	REQUIRED
DWG	DRAWING	RH	RELATIVE HUMIDITY
(E)	EXISTING	RM	ROOM
EA	EACH	RPM	REVOLUTIONS PER MINUTE
EAT	ENTERING AIR TEMPERATURE	SPECS	SPECIFICATIONS
EFF	EFFICIENCY	SOFT	SQUARE FEET
ECUH	ELECTRIC CABINET UNIT HEATER	SS	STAINLESS STEEL
ELEC	ELECTRICAL	STD	STANDARD
ELEV	ELEVATION	STDBY	STANDBY
ENT	ENTERING	SUP	SUPPLY
EQUIP	EQUIPMENT	TEMP	TEMPERATURE
(ER)	EXISTING TO BE REMOVED	TOD	TOP OF DUCT
EUH	ELECTRIC UNIT HEATER	TOP	TOP OF PIPE
EXH	EXHAUST	TYP	TYPICAL
FTR	FINNED TUBE RADIATION	UH	UNIT HEATER
FCV	FLOW CONTROL VALVE	V	VENT
FLEX	FLEXIBLE	VEL	VELOCITY
FLR	FLOOR	VFD	VARIABLE FREQUENCY DRIVE
FP	FIRE PROTECTION	VTR	VENT THROUGH ROOF
FFM	FEET PER MINUTE	W	WIDTH
FT	FEET	WI	WITH
FT/SEC	FEET PER SECOND	WO	WITHOUT
FURN	FURNISHED	WB	WET BULB TEMPERATURE
G	GAS	WG	WATER GAUGE
GAL	GALLONS		
GALV	GALVANIZED		
GC	GENERAL CONTRACTOR		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
GWB	GYPSPUM WALL BOARD		
H	HEIGHT		
HD	HEAD		
HP	HORSEPOWER		

CALL OUT SYMBOLS



HYDRONIC SYSTEM SPECIFIC ABBREVIATIONS

AS	AIR SEPARATOR	ET	EXPANSION TANK
AAV	AUTOMATIC AIR VENT	EWT	ENTERING WATER TEMPERATURE
CH	CHILLER	HB	HOSE BIBB CONN W/HAINED CAP
CHW	CHILLED WATER	HW	HOT WATER
CHWR	CHILLED WATER RETURN	HWR	HOT WATER RETURN
CHWS	CHILLED WATER SUPPLY	HWS	HOT WATER SUPPLY
CT	COOLING TOWER	LWT	LEAVING WATER TEMPERATURE
CTK	COMPRESSION TANK	MAV	MANUAL AIR VENT
CTBD	COOLING TOWER BLOW DOWN	NPSH	NET POSITIVE SUCTION HEAD
CWR	CONDENSER WATER RETURN	P	PUMP
CWS	CONDENSER WATER SUPPLY	PHX	PLATE HEAT EXCHANGER
CR	COOLING WATER RETURN	PCHWR	PRIMARY CHILLED WATER RETURN
CS	COOLING WATER SUPPLY	PCHWS	PRIMARY CHILLED WATER SUPPLY
DOV	DRAIN OFF VALVE		

HVAC GENERAL NOTES

INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL UNITS PLUMB AND LEVEL. FIRMLY ANCHORED IN LOCATIONS INDICATED, AND MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES.

ALL MATERIAL SHALL BE SUBMITTED TO THE A/E VERIFYING IT IS ADEQUATE FOR INSTALLATION PER THE SPECIFICATIONS AND DRAWING. VERIFY DIMENSIONS AND CLEARANCES AT BUILDING BEFORE COMMENCING WORK.

MECHANICAL CONTRACTOR SHALL PROVIDE TWO FILTER CHANGES PRIOR TO GRAND OPENING.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACTUAL LOCATION OF EXISTING STRUCTURAL MEMBERS AND COORDINATE INSTALLATION OF THE EQUIPMENTS ACCORDINGLY.

THE CONTRACTOR SHALL FULFILL ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS AND SHALL COMPLETE THE IMPROVEMENTS SHOWN ON THE DRAWINGS. ALL SYSTEMS SHALL BE FINISHED, TESTED, AND BALANCED, ADJUSTED, AND PROVEN FULLY OPERATIONAL AND USEABLE.

EXCEPT WHERE SPECIFICALLY SHOWN OR SPECIFIED OTHERWISE, EXISTING WORK IS TO REMAIN.

WHERE PIPES, CONTROL DEVICES AND WIRING WHICH ARE TO REMAIN IN-SERVICE ARE DISCONNECTED FOR THE REMOVAL OR RELOCATION OF EQUIPMENT OR BECAUSE OF BUILDING ALTERATIONS, THEY SHALL BE RE-CONNECTED.

TRANSITION RECTANGULAR DUCTWORK ON BOTTOM AND SIDES. MAINTAIN TOP OF DUCTWORK LEVEL AND AS HIGH AS POSSIBLE. PROVIDE VOLUME DAMPER AT EACH BRANCH DUCTWORK.

CONTRACTOR SHALL COORDINATE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING.

MOUNT THERMOSTATS AND FAN SWITCHES WHERE INDICATED ON PLANS 48" AFF UNLESS NOTED OTHERWISE.

COORDINATE DUCTWORK AND PIPING WITH PLUMBING, FIRE PROTECTION AND ELECTRICAL.

MAKE OFFSETS AND TRANSITIONS TO COORDINATE WITH OTHER TRADES WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

PROVIDE FIRE DAMPERS OR FIRE SMOKE DAMPERS WHERE INDICATED ON THE PLANS. PROVIDE DUCT ACCESS PANELS FOR SERVICING AND COORDINATE WITH ARCHITECT FOR WALL OR CEILING ACCESS PANEL LOCATIONS.

EXACT LOCATIONS OF ALL CEILING AIR DEVICES SHALL BE COORDINATED WITH LIGHT FIXTURES, SPRINKLER HEADS AND OTHER CEILING MOUNTED FIXTURES AT JOB SITE. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN.

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.

LEGEND	
STORM PIPE	STORM

DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A

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Design Team

Architecture:	NORR
Structural:	NORR
Mechanical:	NORR
Electrical:	NORR

Seal

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Project Manager	Drawn
BM	SO
Project Architect	Checked
CP	ZH

Client

**COUNTY OF DELAWARE
DEPARTMENT OF PUBLIC
WORKS**

105 W 3RD ST, MEDIA, PA 19063

Project

**VOTING MACHINE
WAREHOUSE ELEVATOR
ADDITION**

403 EAST 24TH STREET, CHESTER, PA 19013

Drawing Title

**MECHANICAL COVER
SHEET**

Project No.
IN2325-0323
Drawing No.
M00-01

DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A

PLUMBING EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	BASIS OF DESIGN	SYSTEM DESIGN CAPACITY	ELECTRICAL CHARACTERISTICS	REMARKS
SP-1	SUMP PUMP	ZOELLER 940-0013 OIL GUARD SYSTEM	PUMP 153, 50 GPM AT 20 FT TDH 3600 RPM, 1/2 HP	10.5 AMPS 115/1/60	
FCO	CLEAN OUT	JAY R. SMITH MODEL #4313			

TRANSFER FAN SCHEDULE

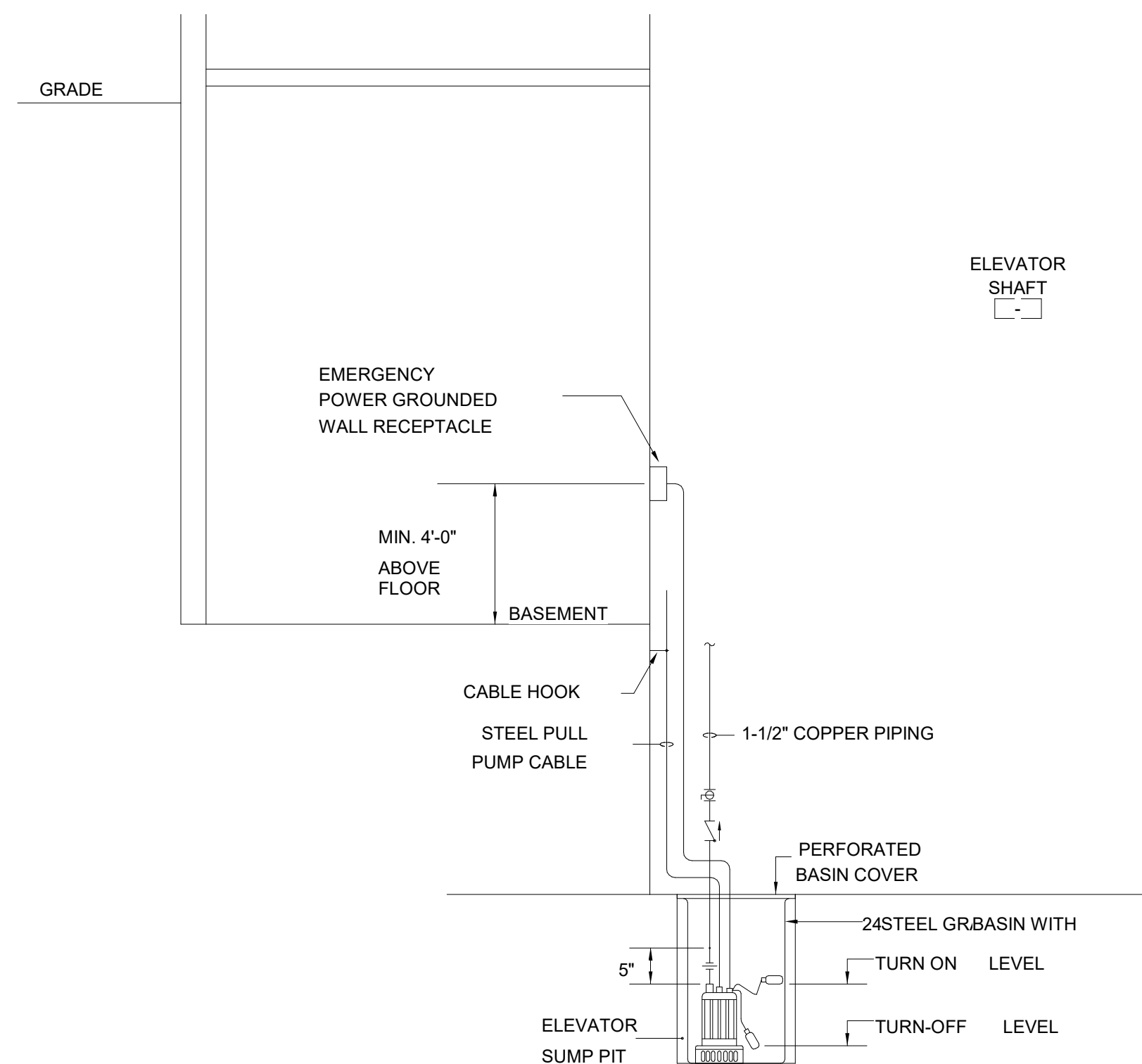
UNIT NO.	SERVICE	AIR FLOW (CFM) (ON/OFF)	EXTERNAL STATIC PRESSURE	HORSEPOWER	POWER	FAN WEIGHT	ROOF OR WALL CAP	MANUFACTURER & MODEL	NOTES
TF-1	ELEVATOR CONTROL RM	350	0.375"	1/8 HP	208/1	55 LBS	WALL	COOK 12XW32D17	1, 2, 3

NOTES:

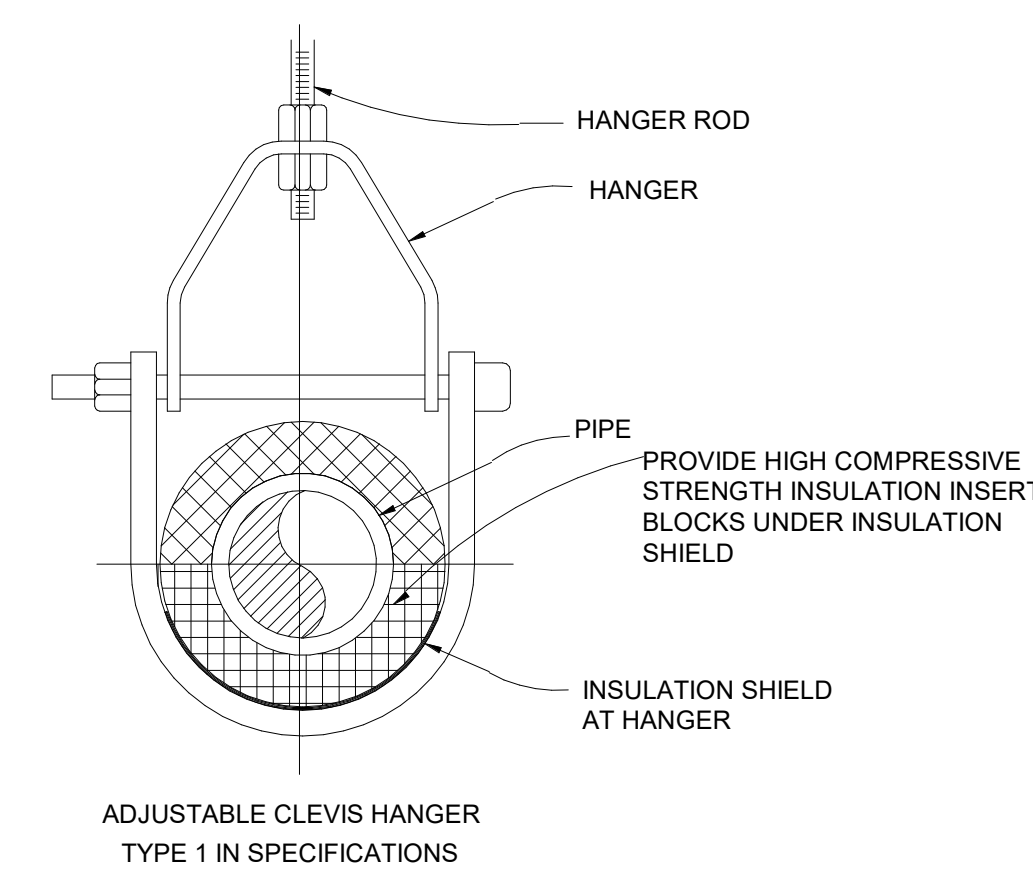
- UNIT TO BE INSTALLED LEVEL. ALL STARTERS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- PROVIDE UNIT MOUNTED SPEED CONTROLLER AND STANDARD DISCONNECT.
- FAN SHALL OPERATE VIA LINE VOLTAGE THERMOSTAT SET FOR 80 DEGREES

PIPE MATERIAL SCHEDULE

SERVICE	SIZE	MATERIAL	SCHEDULE/TYPE	INSULATION		REMARKS
				TYPE	THICK	
SANITARY AND VENT PIPING	ALL	CAST IRON	SERVICE WEIGHT	-	-	-



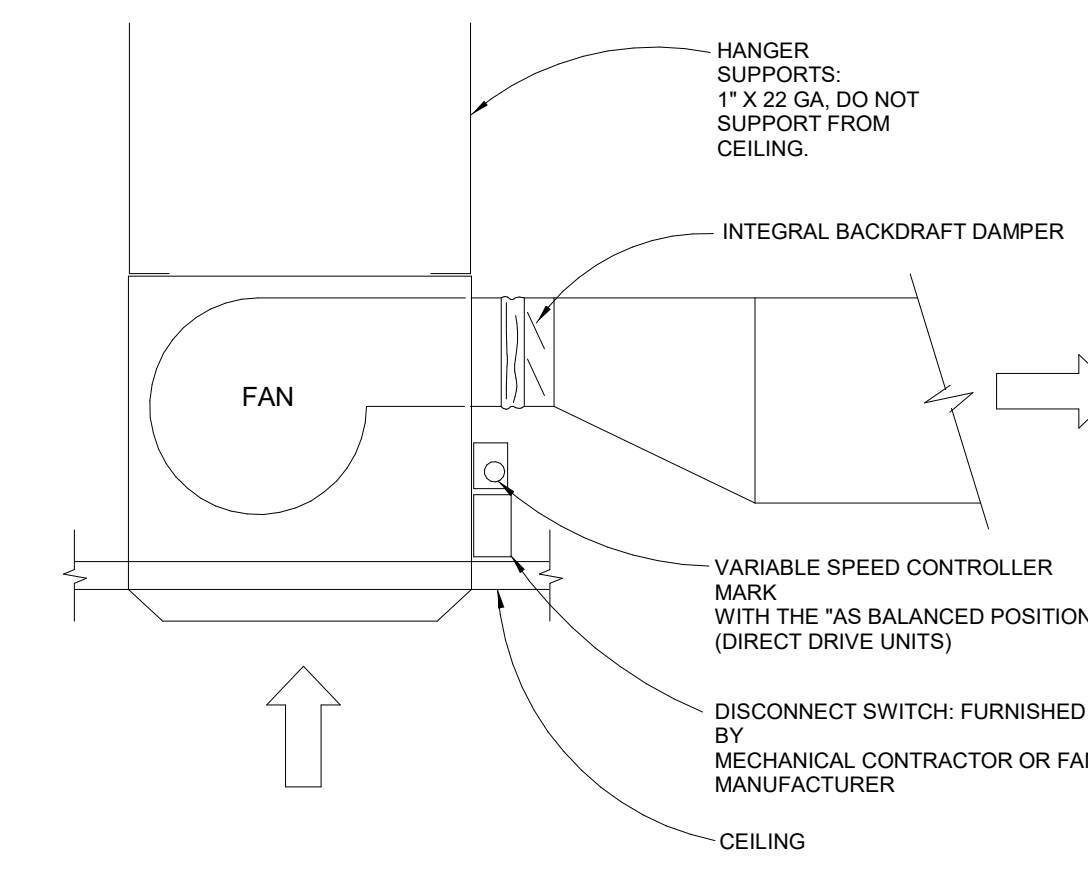
1 ELEVATOR SUMP PUMP DETAIL
NTS



MAXIMUM PIPE SUPPORT SPACING, FEET											
NOM. SIZE	THRU 3/4	1	1.25	1.5	2	2.5	3	4	5	6	8
PIPE	6 FT	6	6	10	10	10	10	10	10	10	10

MAXIMUM PIPE SUPPORT SPACING, FEET											
NOM. SIZE	THRU 3/4	1	1.25	1.5	2	2.5	3	4	5	6	8
PIPE	12 FT	12	12	12	12	12	12	12	12	12	12

3 PIPE HANGER DETAIL
NTS



2 TRANSFER FAN DETAIL
NTS

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Project Manager BM	Drawn SO
Project Architect CP	Checked ZHI

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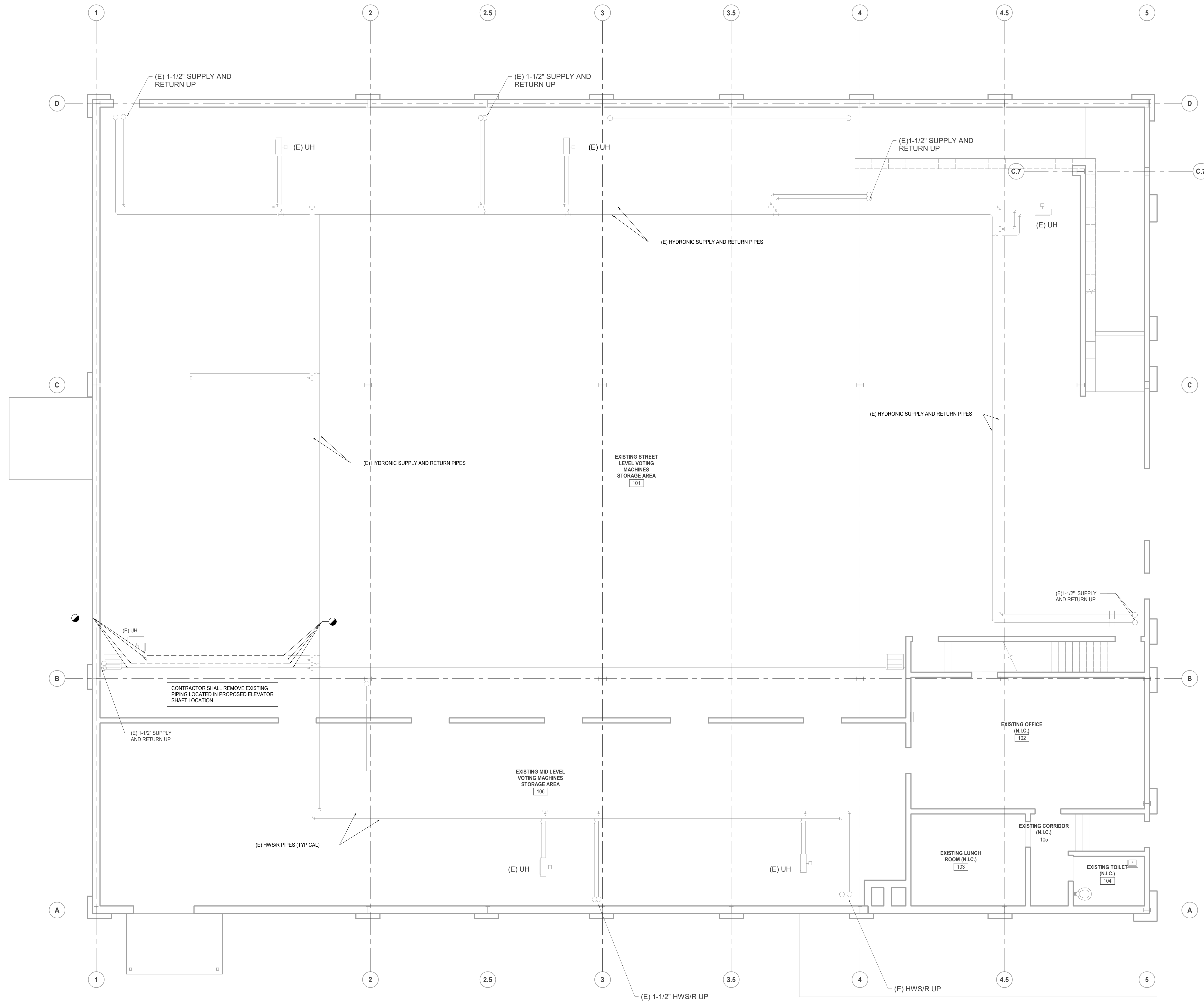
Project
**VOTING MACHINE
WAREHOUSE ELEVATOR
ADDITION**

403 EAST 24TH STREET, CHESTER, PA 19013

Drawing Title
SCHEDULES AND DETAILS

Project No.
IN2325-0323

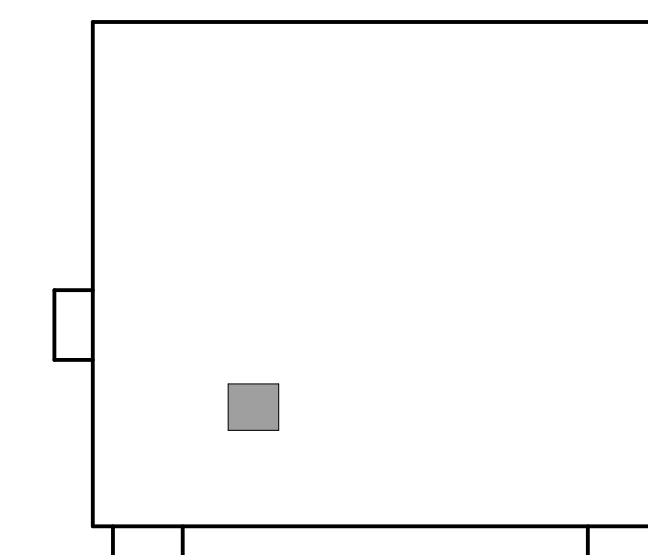
Drawing No.
M03-01



OVERALL MECHANICAL DEMOLITION PLAN -FIRST FLOOR

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

KEY PLAN



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**COUNTY OF DELAWARE
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105 W 3RD ST, MEDIA, PA 19063

Project

**VOTING MACHINE
 WAREHOUSE ELEVATOR
 ADDITION**

403 EAST 24TH STREET, CHESTER, PA 19013

Drawing Title

**OVERALL MECHANICAL
 DEMOLITION PLAN -FIRST
 FLOOR**

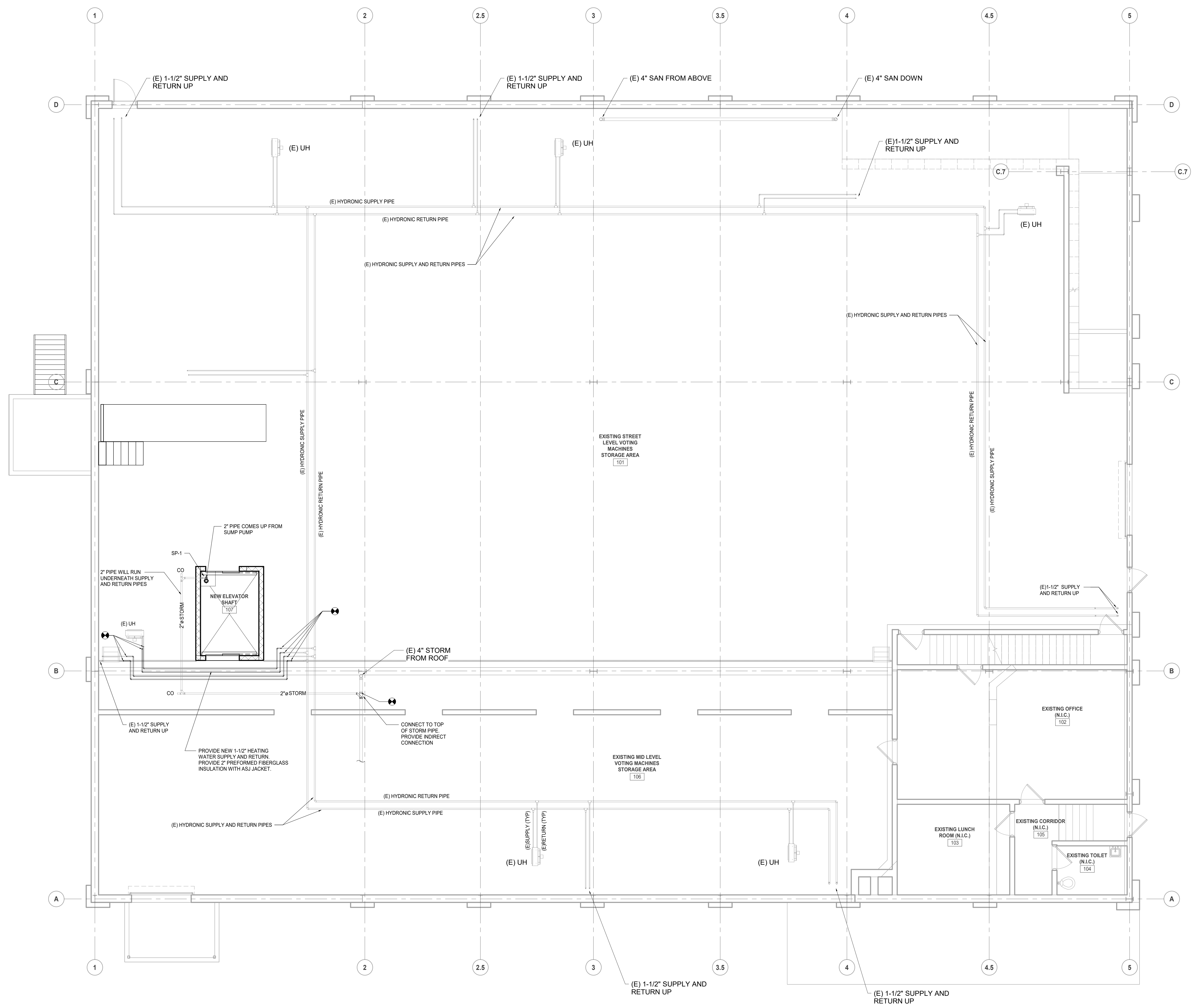
Project No.

IN2325-0323

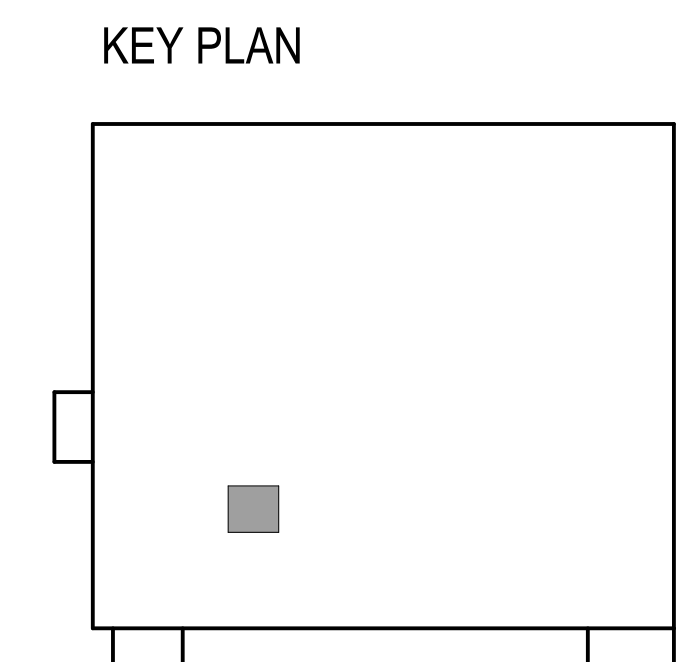
Drawing No.

MD20-01

DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A



1 OVERALL MECHANICAL PLAN - FIRST FLOOR
SCALE: 3/16" = 1'-0"



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Project Manager BM	Drawn SO
Project Architect CP	Checked ZHI

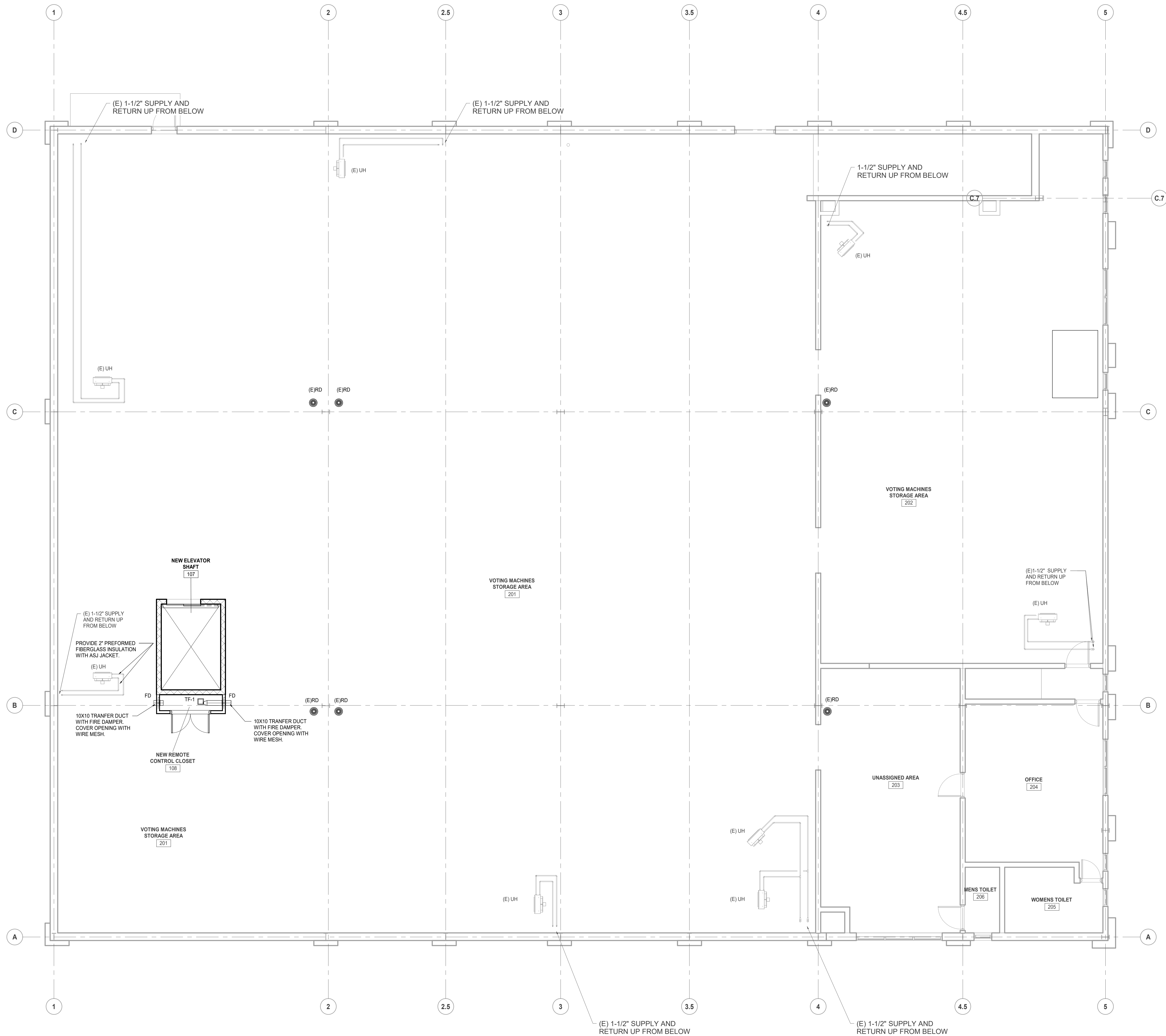
Client
**COUNTY OF DELAWARE
DEPARTMENT OF PUBLIC
WORKS**
105 W 3RD ST, MEDIA, PA 19063

Project
**VOTING MACHINE
WAREHOUSE ELEVATOR
ADDITION**
403 EAST 24TH STREET, CHESTER, PA 19013
Drawing Title
**OVERALL MECHANICAL
PLAN - FIRST FLOOR**

Project No.
IN2325-0323
Drawing No.
M20-01

3/2/2025 4:41:31 PM

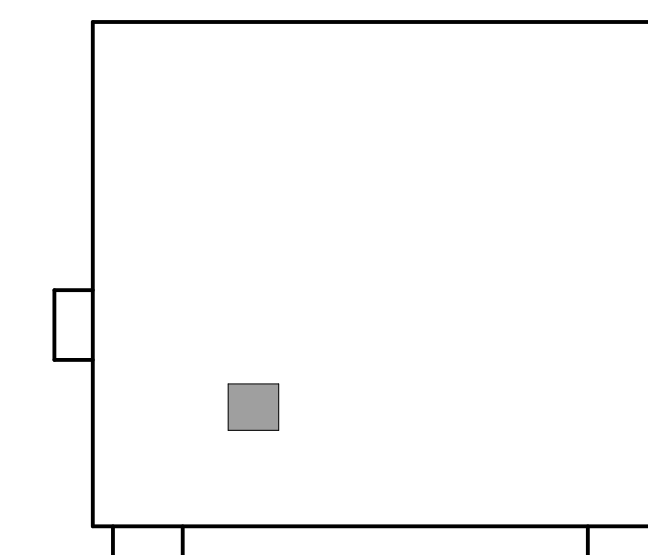
Architect: Oscar DeLuca - Voting Machine Warehouse Elevator Addition (IN2325-0323 - ME) (Date: WarehouseElevatorAddition_2/24/25)



OVERALL MECHANICAL PLAN - SECOND FLOOR

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

KEY PLAN



DATE	ISSUED FOR	REV
2026.03.04	BIDDING	A

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105 W 3RD ST, MEDIA, PA 19063

Project

**VOTING MACHINE
 WAREHOUSE ELEVATOR
 ADDITION**

403 EAST 24TH STREET, CHESTER, PA 19013

Drawing Title

**OVERALL MECHANICAL
 PLAN - SECOND FLOOR**

Project No.

IN2325-0323

Drawing No.

M20-02