

# DEPARTMENT OF STATE POLICE NORTHVILLE FORENSIC LABORATORY

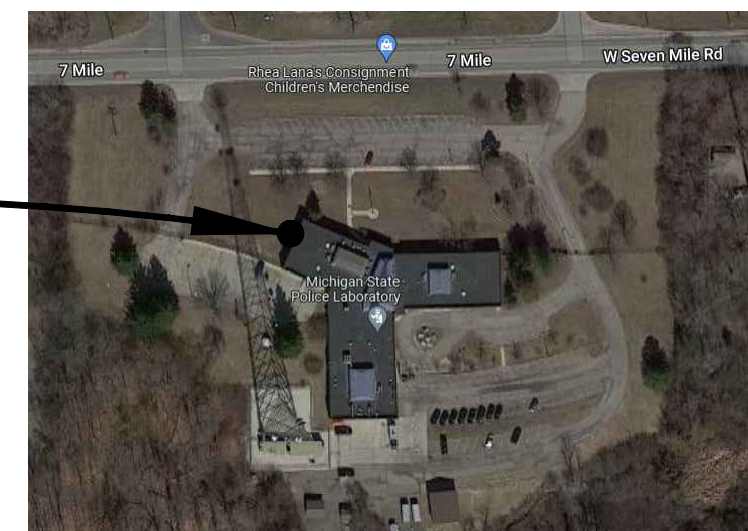
42145 West Seven Mile Road, Northville, Mi. 48167

# ELEVATOR REPLACEMENT

State Facilities Administration

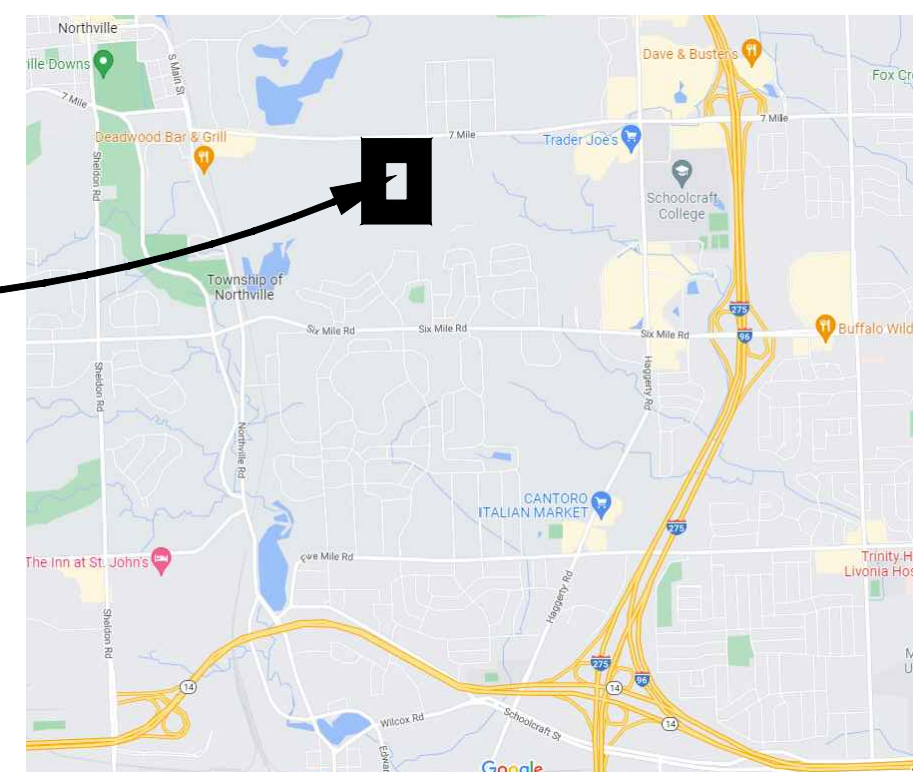
The Department of Technology, Management, and Budget  
The State of Michigan

PROJECT  
LOCATION



NORTH  
SITE LOCATION MAP  
SCALE - N.T.S.

PROJECT  
LOCATION



NORTH  
SITE VICINITY MAP  
SCALE - N.T.S.

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**ELEVATOR SPECIALIST**  
LERCH BATES ELEVATOR CONSULTING  
950 BOSTON STREET SE  
GRAND RAPIDS, MI 49507  
PH: (616) 216-2058



BIDS	08/18/23
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MSP  
NORTHVILLE LAB  
ELEVATOR  
REPLACEMENT  
42145 W SEVEN MILE RD,  
NORTHVILLE, MI 48167

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**LB Lerch Bates**  
950 Boston Street SE Grand  
Rapids MI 49507  
CONSULTANT

TITLE  
SHEET  
&  
INDEX

SHEET TITLE

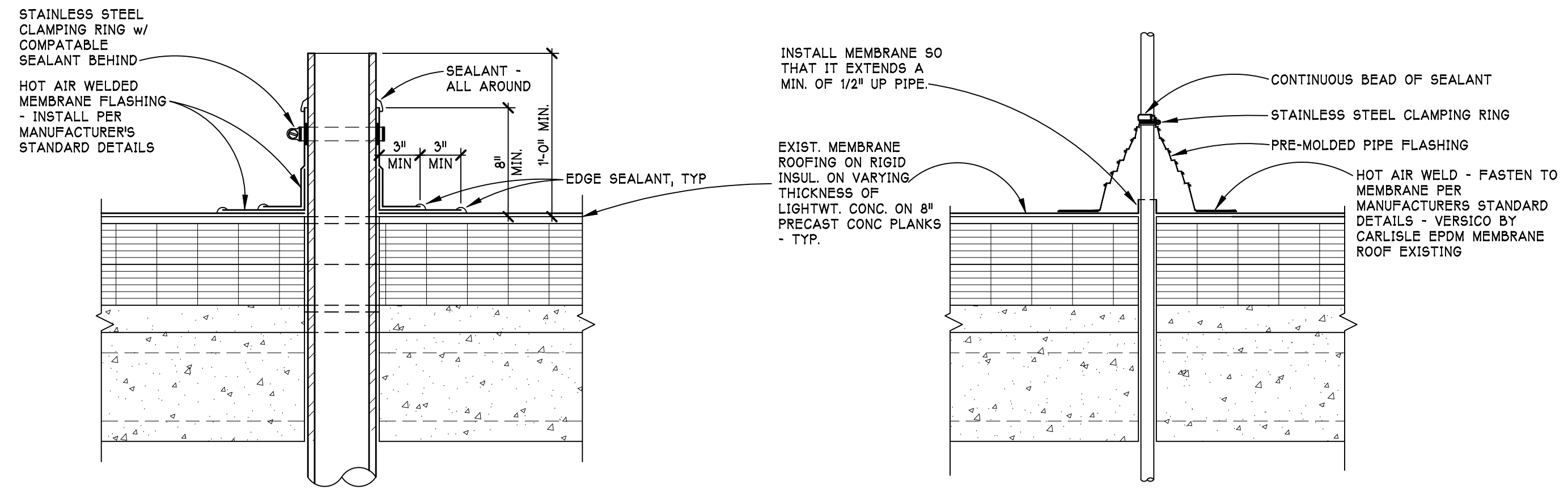
22300

PROJECT NUMBER

A-000

SHEET NUMBER





**H5 TYP. PLUMBING VENT**  
 SCALE - 1 1/2" = 1'-0"  
 R55114100

**F5 SINGLE PIPE / CONDUIT ROOF PENETRATION**  
 SCALE - 1 1/2" = 1'-0"  
 R55114100

**GENERAL NOTES:**

- ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE STATE OF MICHIGAN STANDARDS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:  
 2015 MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS  
 2015 MICHIGAN BUILDING CODE  
 2015 MICHIGAN MECHANICAL CODE  
 2015 MICHIGAN PLUMBING CODE  
 2015 MICHIGAN COMMERCIAL ENERGY CODE  
 2010 MICHIGAN DEPT OF LICENSING & REGULATORY AFFAIRS - MICHIGAN ELEVATOR RULES  
 ASME A17.1 - 2016 SAFETY CODE FOR ELEVATORS AND ESCALATORS  
 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
- ALL MATERIALS SHALL BE NEW UNLESS OTHERWISE NOTED.
- WORK IMPLEMENTED IN EXISTING FIRE-RATED PARTITIONS SHALL MAINTAIN THE RATING OF THE PARTITION. WHERE REQUIRED, PROVIDE ADDITIONAL LAYERS OF FIRE-RATED GYPSUM BOARD TO MAINTAIN THE EXISTING FIRE RATING OVERLAPPED AS REQUIRED BY UL STANDARDS.
- FURNISH AND INSTALL SHEET METAL OR FIRE TREATED WOOD BLOCKING IN AMENDED PARTITIONS TO PROPERLY ANCHOR WALL-ATTACHED ITEMS, FIXTURES, AND EQUIPMENT.
- FURNISH ALL COMPONENTS AND ACCESSORIES FOR ACCESSIBLE ROUTES REQUIRED BY FOR ADA (AMERICANS WITH DISABILITIES ACT) AND STATE OF MICHIGAN COMPLIANCE.
- DRAWINGS ARE PROVIDED FOR REFERENCE ONLY. FOLLOW ONLY PROVIDED DIMENSIONS AND DO NOT SCALE OFF DRAWINGS.
- DURING CONSTRUCTION, CONTRACTORS SHALL PROTECT EXISTING WORK AND SHALL TAKE PRECAUTIONS NOT TO DAMAGE ANY EXISTING MATERIALS, ITEMS, OR CONDITIONS. REPAIR AND /OR REPLACE ALL DAMAGED ITEMS TO APPEAR AS NEW WITHOUT EXTRA COST TO THE OWNER.
- SEAL ALL FLOOR / WALL PENETRATIONS AROUND ALL CONDUITS, DUCTS, OPENINGS, TO MAINTAIN EXISTING AND NEW WALL FIRE RATINGS.
- ALL WORK SHOWN SHALL BE INCLUDED IN THE SCOPE OF WORK, UNLESS OTHERWISE NOTED AS "NOT IN CONTRACT" OR "N.I.C."
- VERIFY ALL ELEVATOR HOISTWAY DIMENSIONS, DOOR OPENING CLEARANCES AND HEIGHTS. PROVIDE EQUIPMENT WHICH WILL FIT IN/THROUGH THE EXISTING OPENINGS AVAILABLE.
- ELEVATOR CAB TO BE IN ACCORDANCE SECTION 408.4.1 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.

**MICHIGAN REHAB CODE 2015**

CLASSIFICATION OF WORK  
 ALTERATION - LEVEL 1

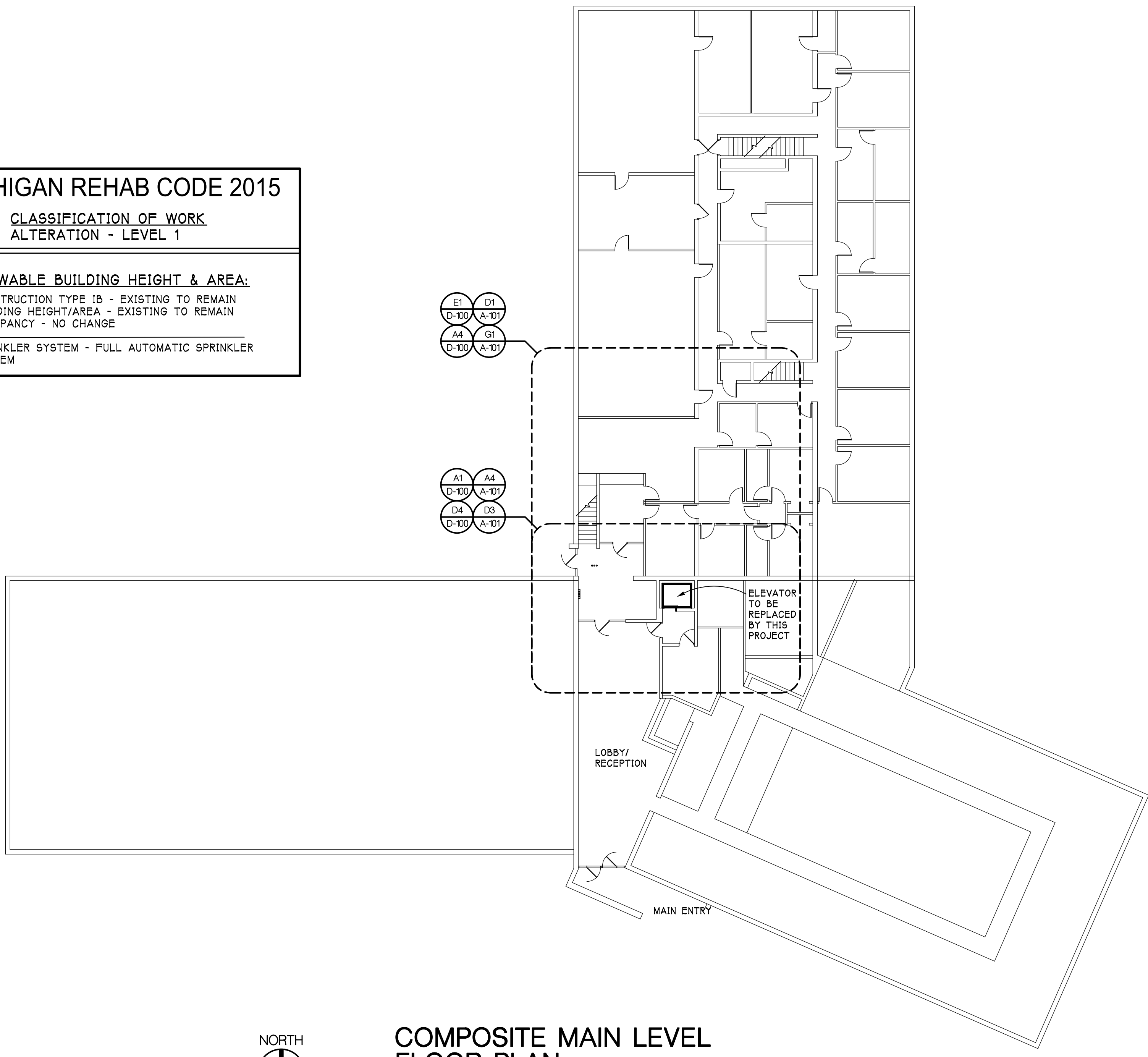
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ALLOWABLE BUILDING HEIGHT & AREA:

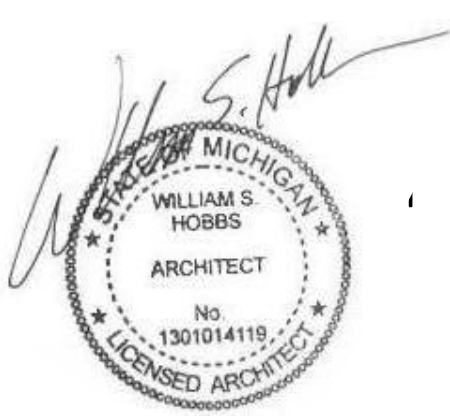
CONSTRUCTION TYPE 1B - EXISTING TO REMAIN  
 BUILDING HEIGHT/AREA - EXISTING TO REMAIN  
 OCCUPANCY - NO CHANGE

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SPRINKLER SYSTEM - FULL AUTOMATIC SPRINKLER SYSTEM



**COMPOSITE MAIN LEVEL FLOOR PLAN**  
 SCALE - 1/16" = 1'-0"  
 R55114100



BIDS	08/18/23
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PROJECT



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**COMPOSITE PLAN & NOTES & CODE INFORMATION**

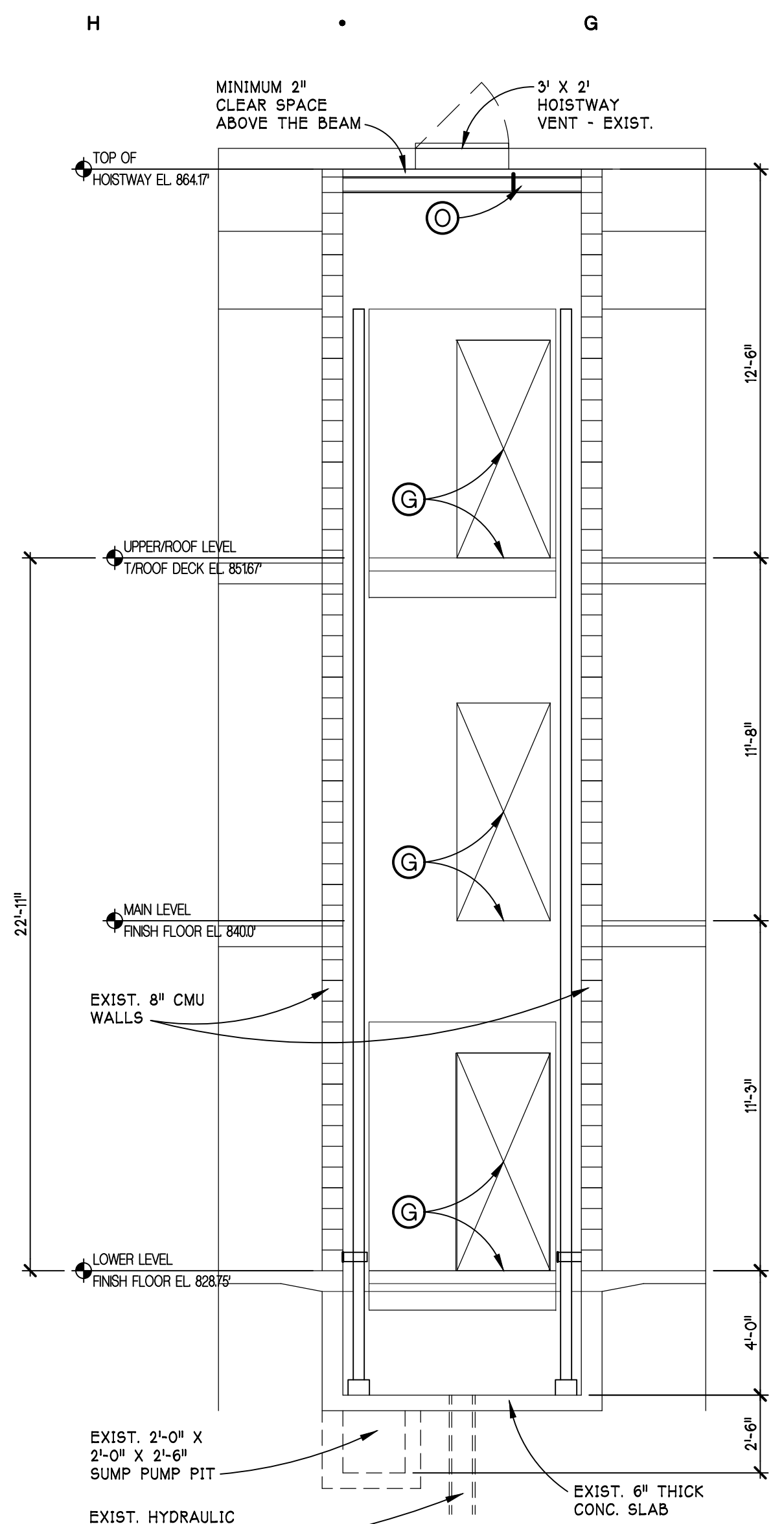
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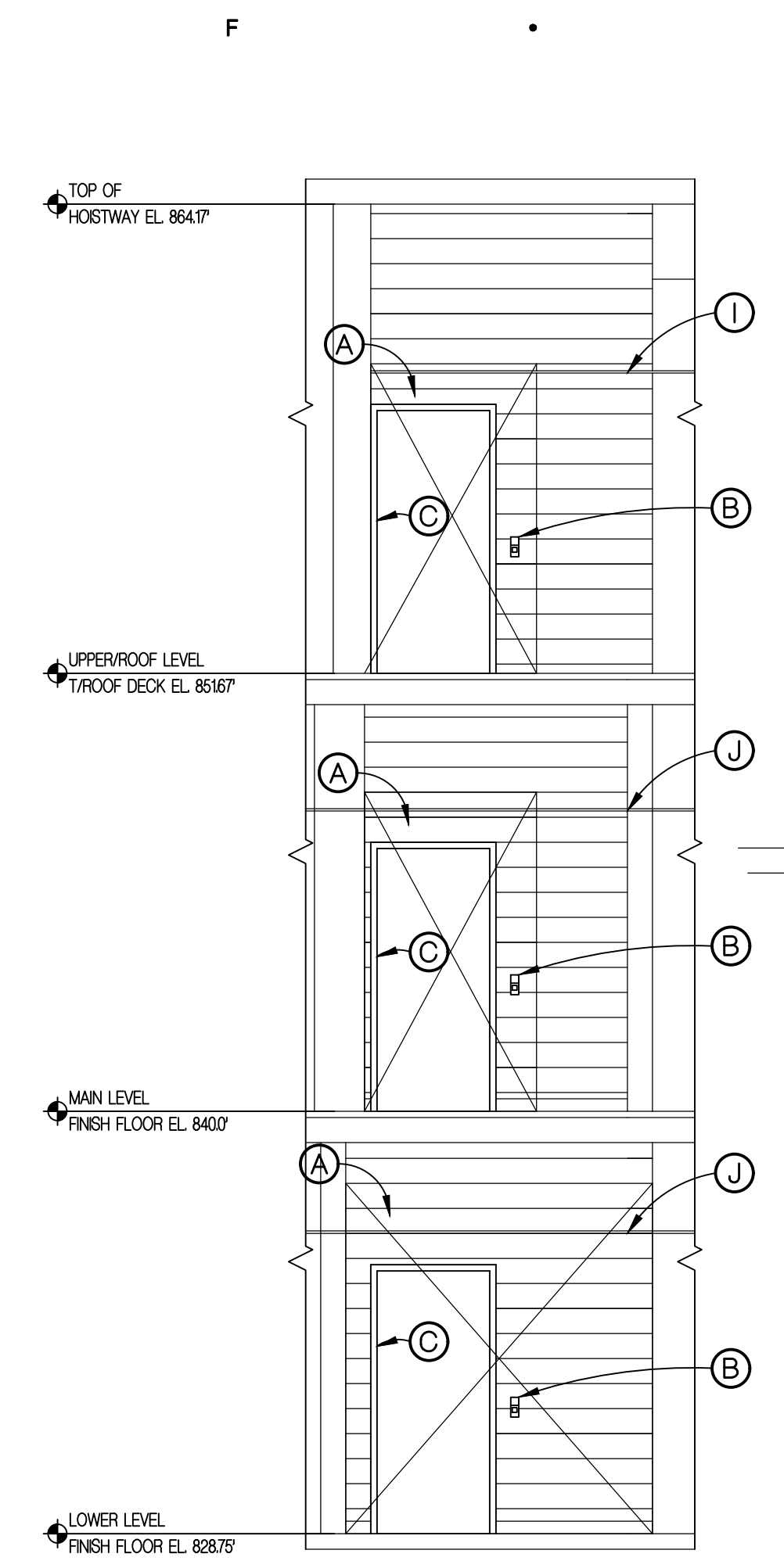
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 SHEET NUMBER

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 Plotted by: akohler

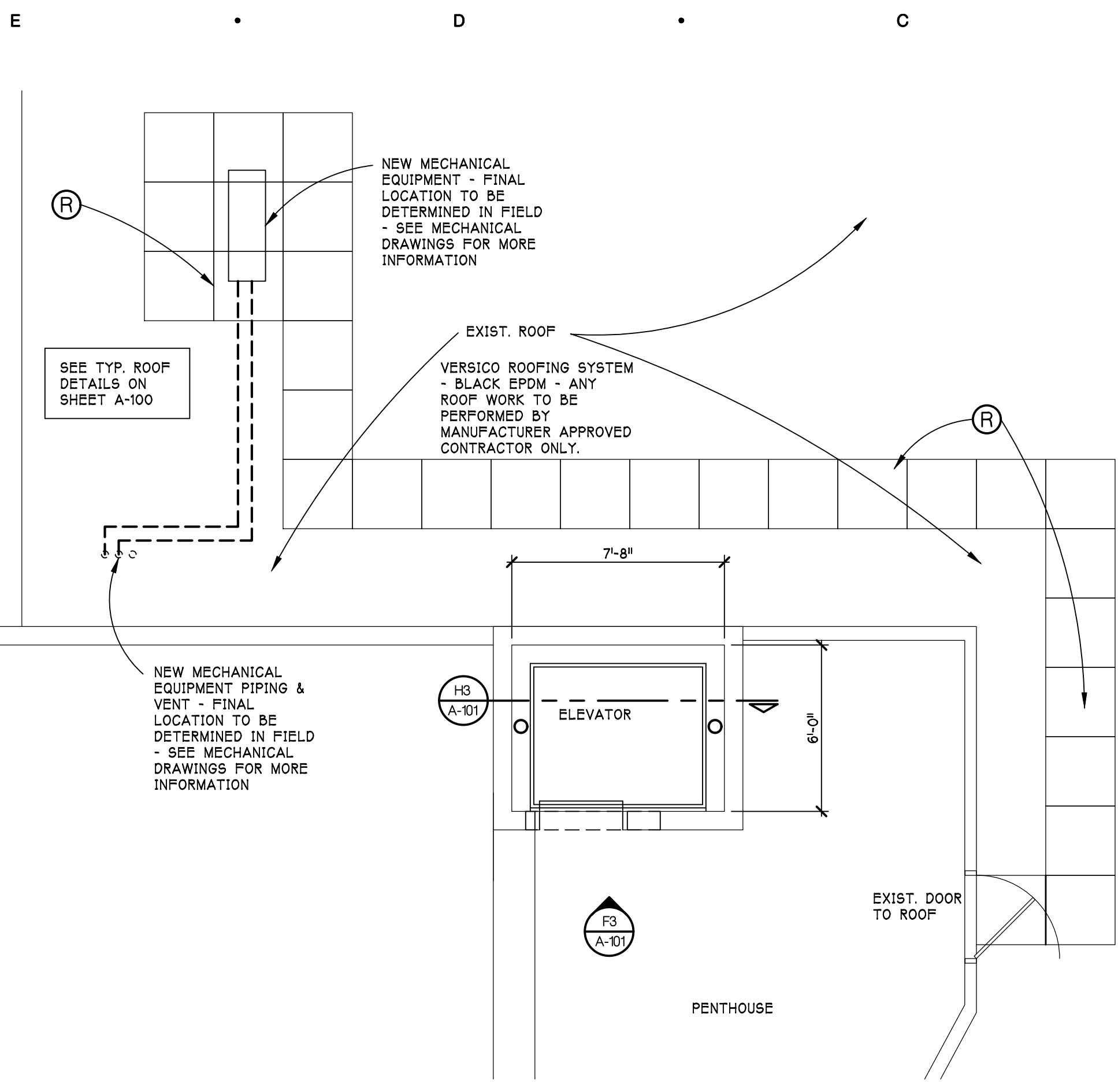




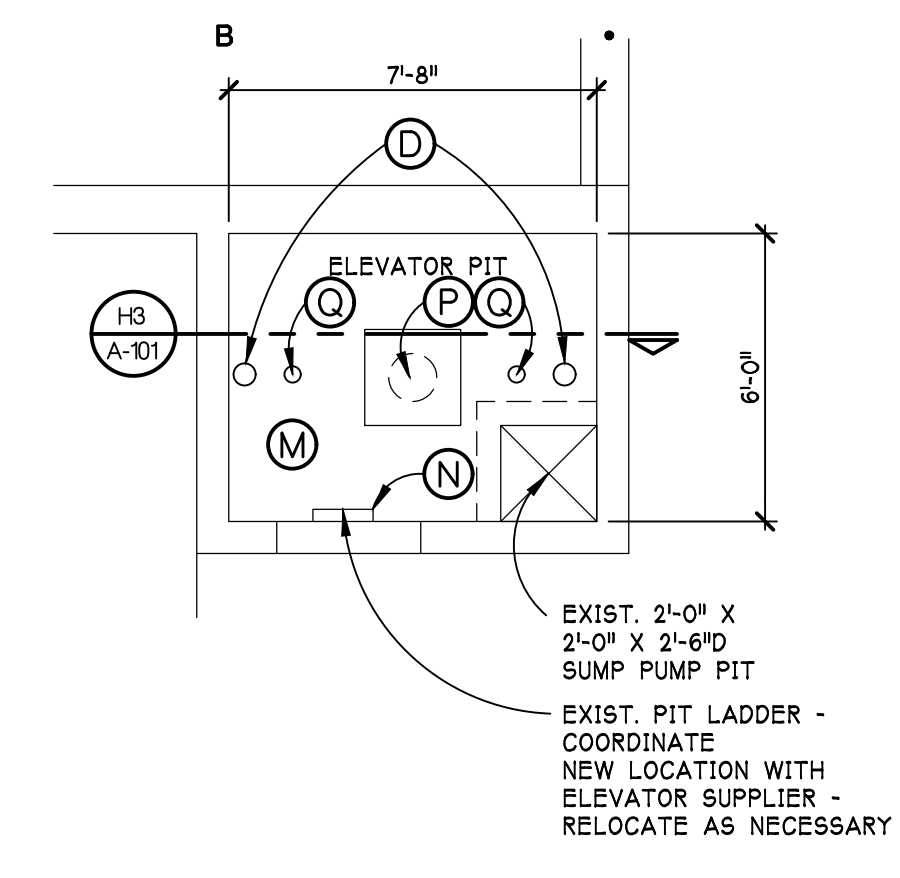
**SECTION THRU EXIST. ELEVATOR HOISTWAY & PIT**  
 H3 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD



**INTERIOR ELEVATION AT ELEVATOR ENTRANCE WALL**  
 F3 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD



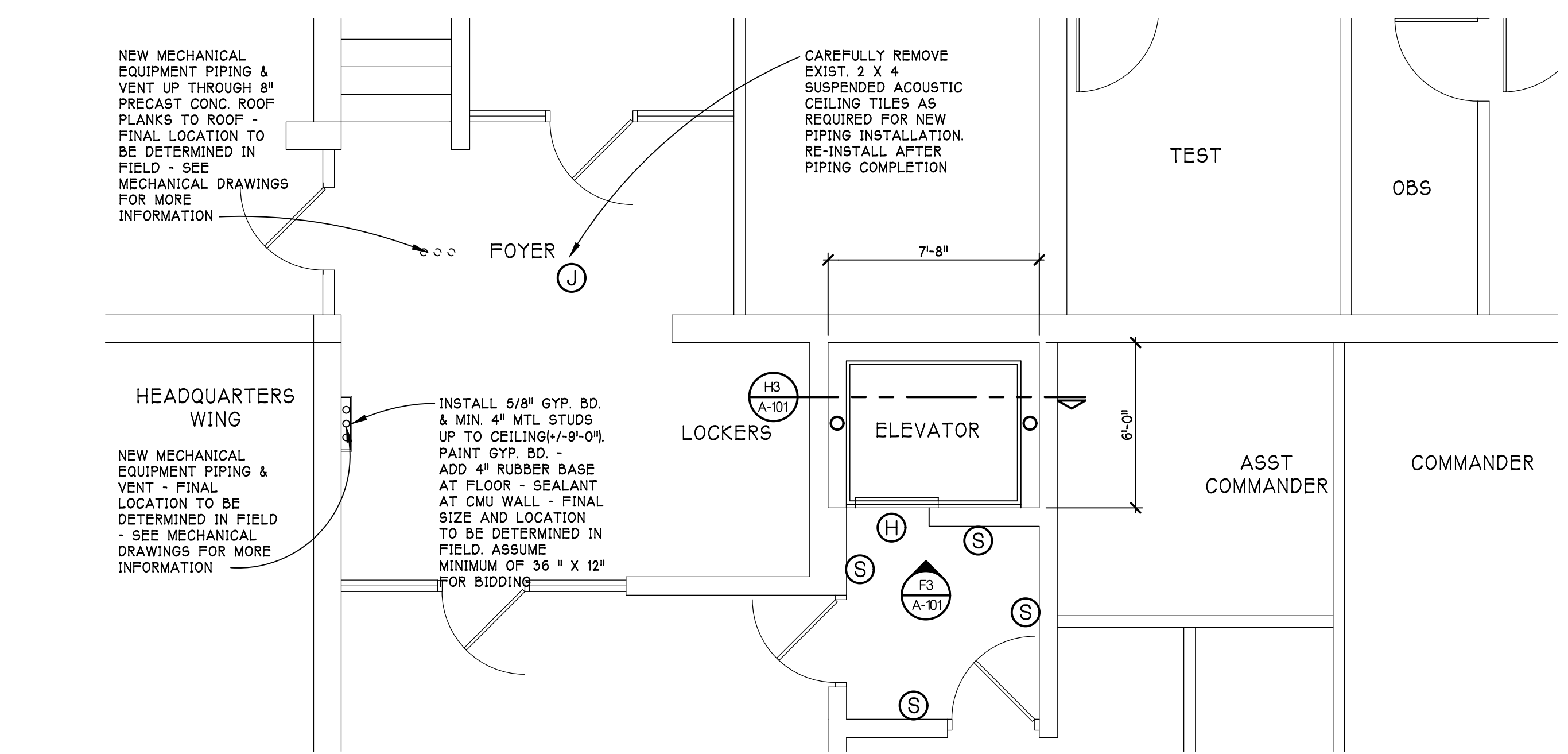
**PARTIAL FLOOR PLAN AT ROOF LEVEL**  
 NORTH D3 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD



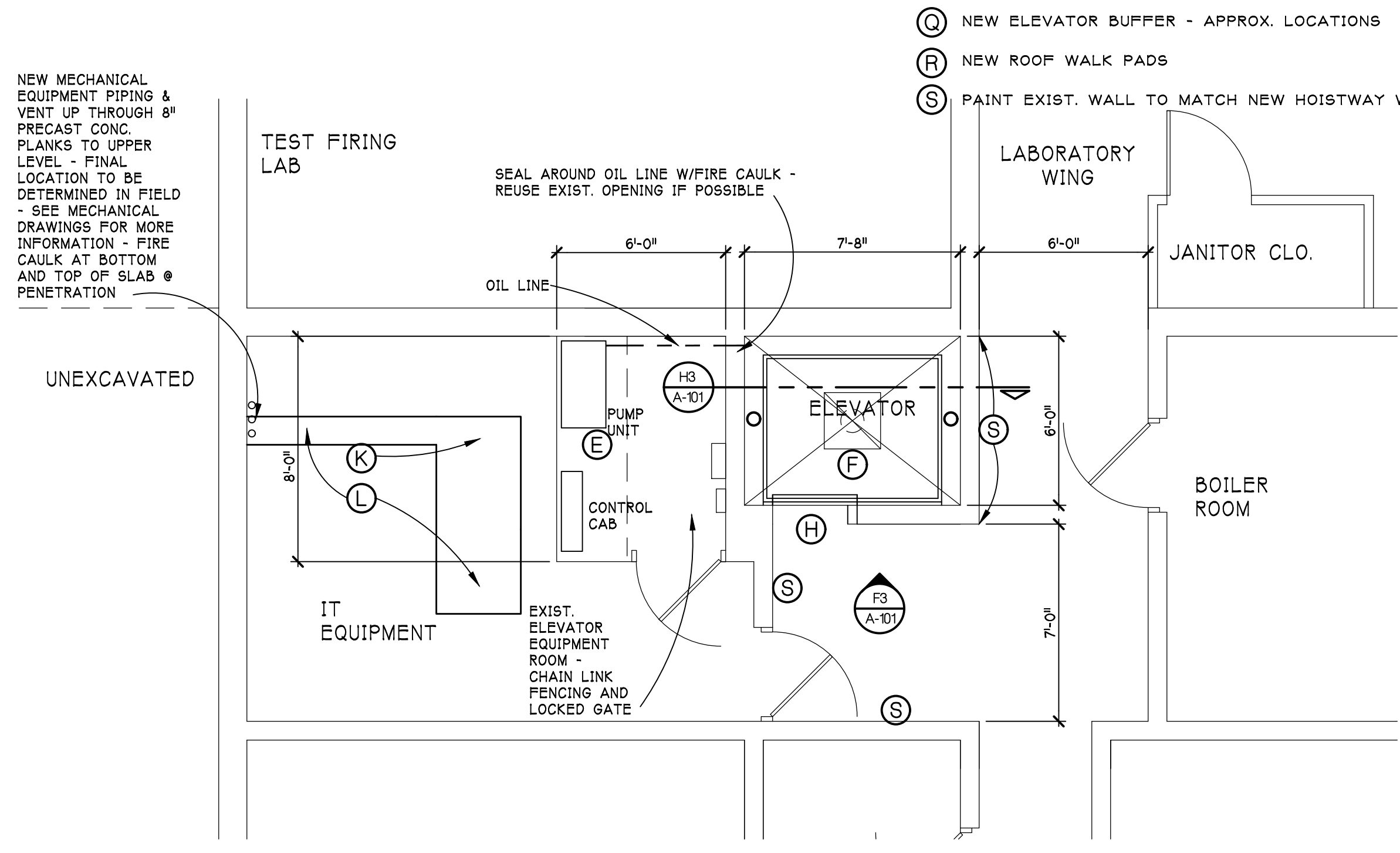
**PARTIAL FLOOR PLAN AT PIT LEVEL**  
 NORTH A4 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD

**NEW CONSTRUCTION KEY NOTES**

- (A) INSTALL NEW CMU WALL AND/OR CMU INFILL AROUND NEW JAMBS. PAINT CMU - SHERWIN WILLIAMS CITY LOFT #7631 PROVIDE CONCRETE OR CMU LINTELS - TYP. - REPLACE EXIST. VINYL BASE AS REQUIRED.
- (B) INSTALL NEW ELEVATOR CALL BUTTON PANEL
- (C) INSTALL NEW DOOR OPENING JAMBS - PAINT SHERWIN WILLIAMS INDIGO BATIK #7602
- (D) INSTALL NEW HYDRAULIC HOLE-LESS CYLINDERS - APPROX. LOCATIONS
- (E) INSTALL NEW ELEVATOR MACHINERY, PANELS ETC.
- (F) INSTALL NEW ELEVATOR CAR COMPLETELY - INTERIOR FINISHED OUT PER THE SPECIFICATIONS
- (G) INSTALL NEW ELEVATOR SILL & DOORS ETC.
- (H) PROTECT EXIST. FLOORING IN AREA IMMEDIATELY OUTSIDE OF THE NEW SILLS. IF TOO DAMAGED TO PATCH SATISFACTORILY, REPLACE WITH SAME MATERIAL
- (I) PATCH & PAINT GYP. BD. CEILING ABOVE AS REQUIRED
- (J) PATCH SUSPENDED ACOUSTIC CEILING ABOVE AS REQUIRED
- (K) INSTALL NEW IN-GROUND OIL INTERCEPTOR - SEE MECHANICAL
- (L) PATCH EXISTING CONCRETE FLOOR OVER/AROUND NEW OIL INTERCEPTOR & UG VENT. EXIST. CONC SLAB = 4" CONC SLAB W/4 X 4 10/10 WWF ON COMPACTED FILL.
- (M) CLEAN AND PAINT PIT FLOOR
- (N) CLEAN AND PAINT EXISTING PIT LADDER
- (O) INSTALL NEW HOIST BEAM - W8 X 24
- (P) SEAL CYLINDER CASING FLOOR OPENING
- (Q) NEW ELEVATOR BUFFER - APPROX. LOCATIONS
- (R) NEW ROOF WALK PADS
- (S) PAINT EXIST. WALL TO MATCH NEW HOISTWAY WALL/PATCH



**PARTIAL FLOOR PLAN AT MAIN LEVEL**  
 NORTH G1 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD



**PARTIAL FLOOR PLAN AT LOWER LEVEL**  
 NORTH D1 A-101 SCALE - 1/4" = 1'-0"  
 RSB/TAD

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**LB Lerch Bates**  
 BUILDING DESIGN  
 950 Boston Street SE Grand  
 Rapids MI 49507  
 CONSULTANT

**FLOOR PLANS, ELEVATION & SECTION**

SHEET TITLE  
 22300  
 PROJECT NUMBER  
 A-101  
 SHEET NUMBER



Drawing: F:\2022\22300\Drawings\CD\Arch\RSB\SH1A101.dwg  
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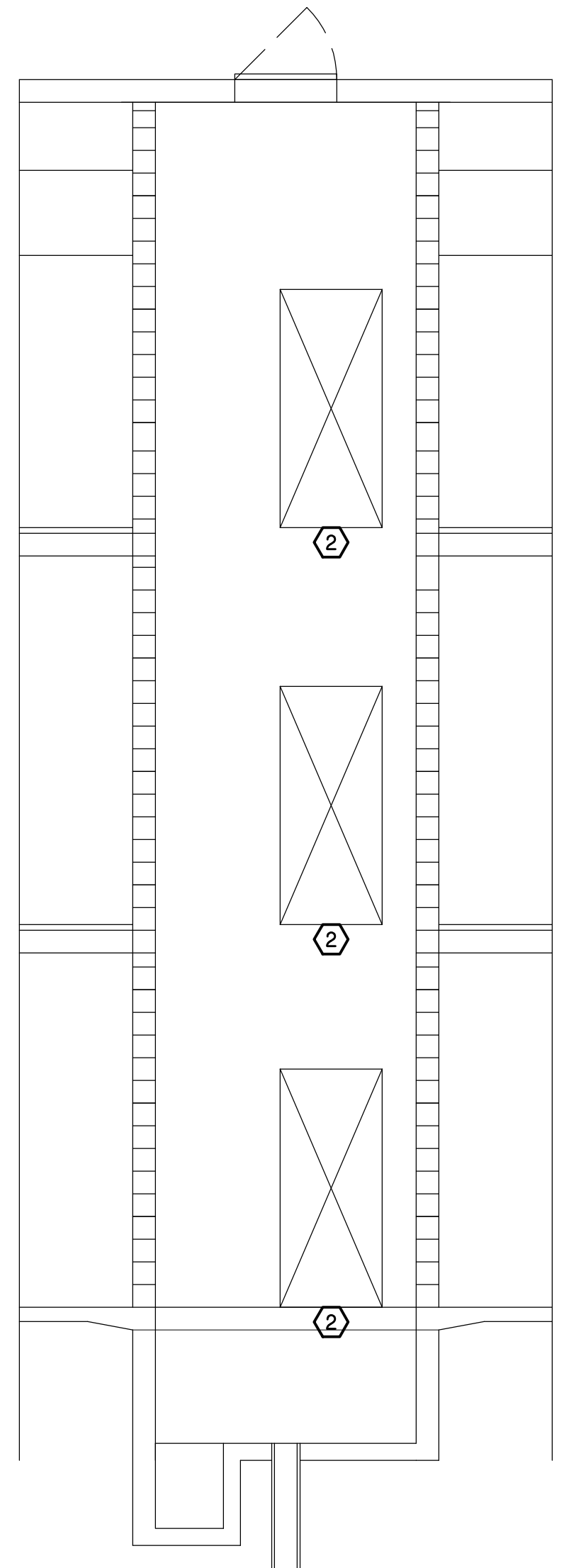
**LB** Lerch Bates  
 BUILDING DESIGN  
 950 Boston Street SE Grand  
 Rapids MI 49507  
 CONSULTANT

DEMOLITION  
 WORK

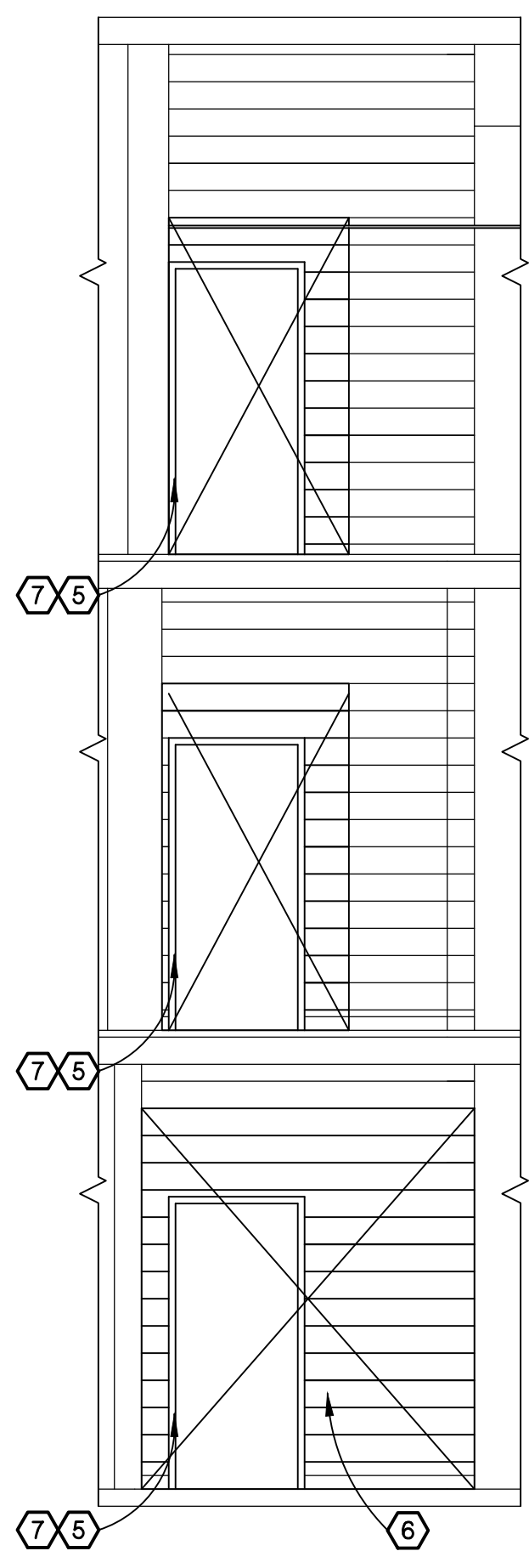
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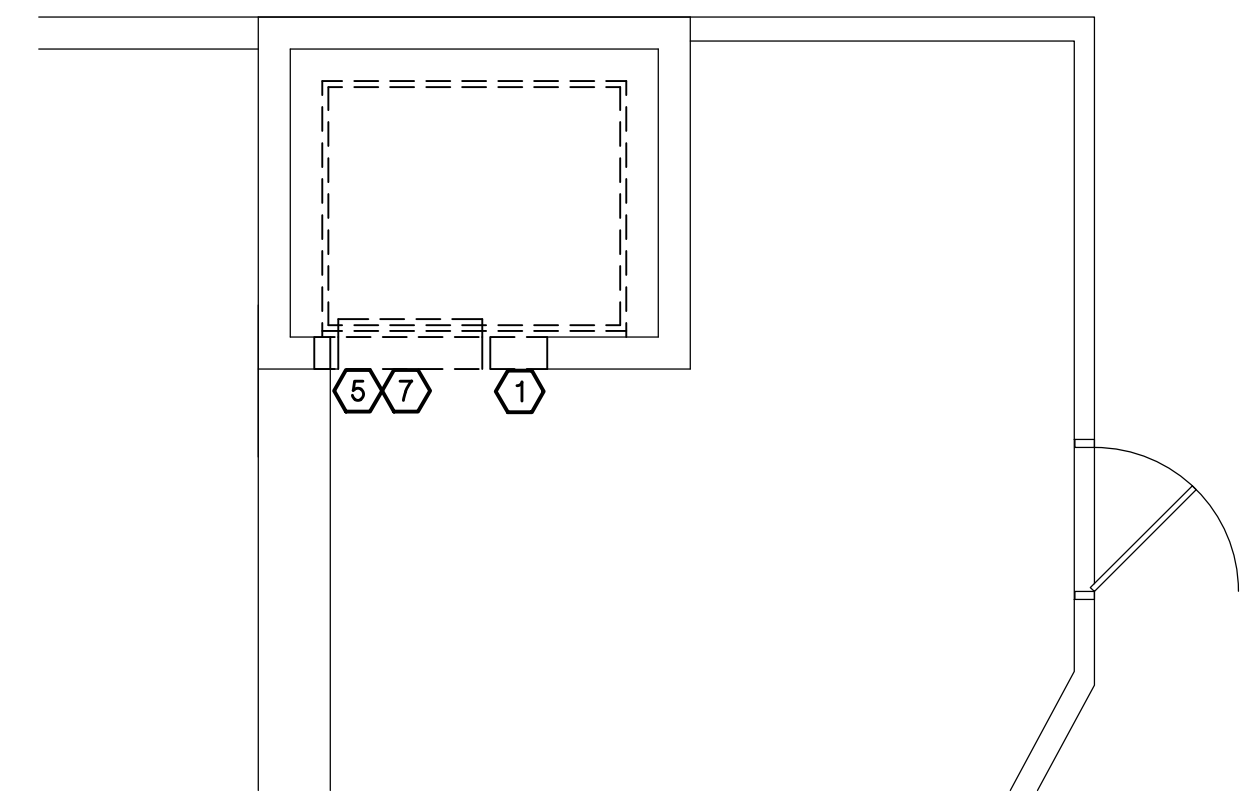
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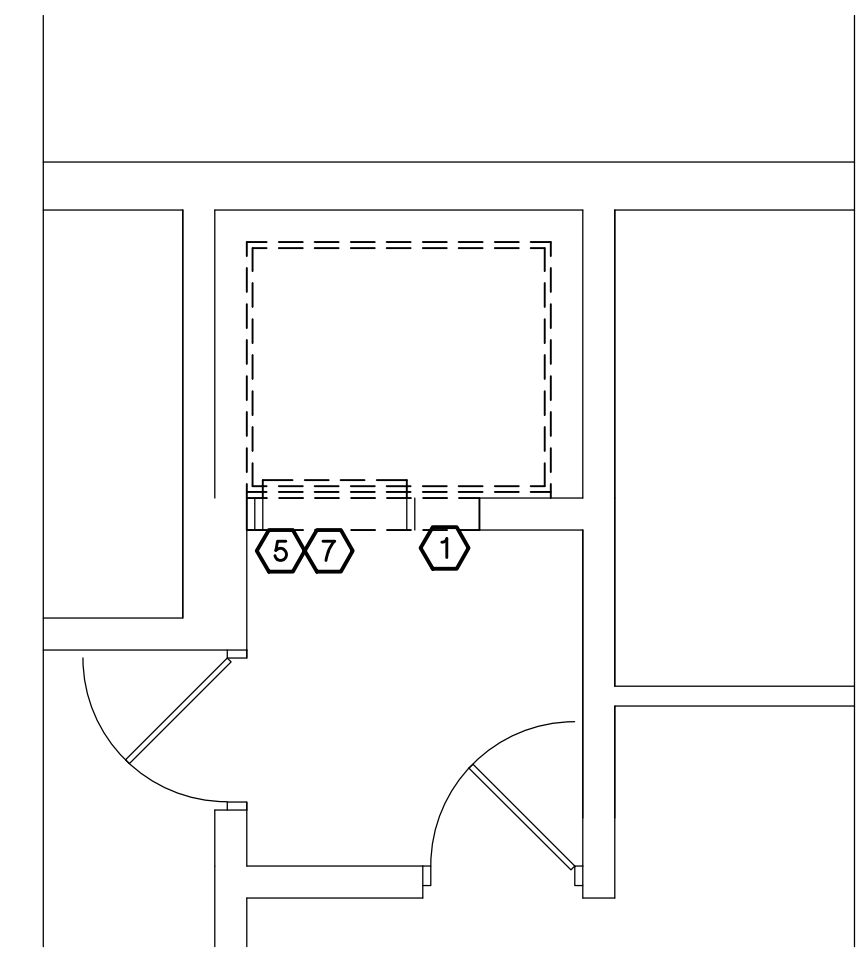
**DEMO SECTION AT EXIST. HOISTWAY**  
 H3  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD



**DEMO ELEVATION AT ELEVATOR ENTRANCE WALL**  
 F3  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD



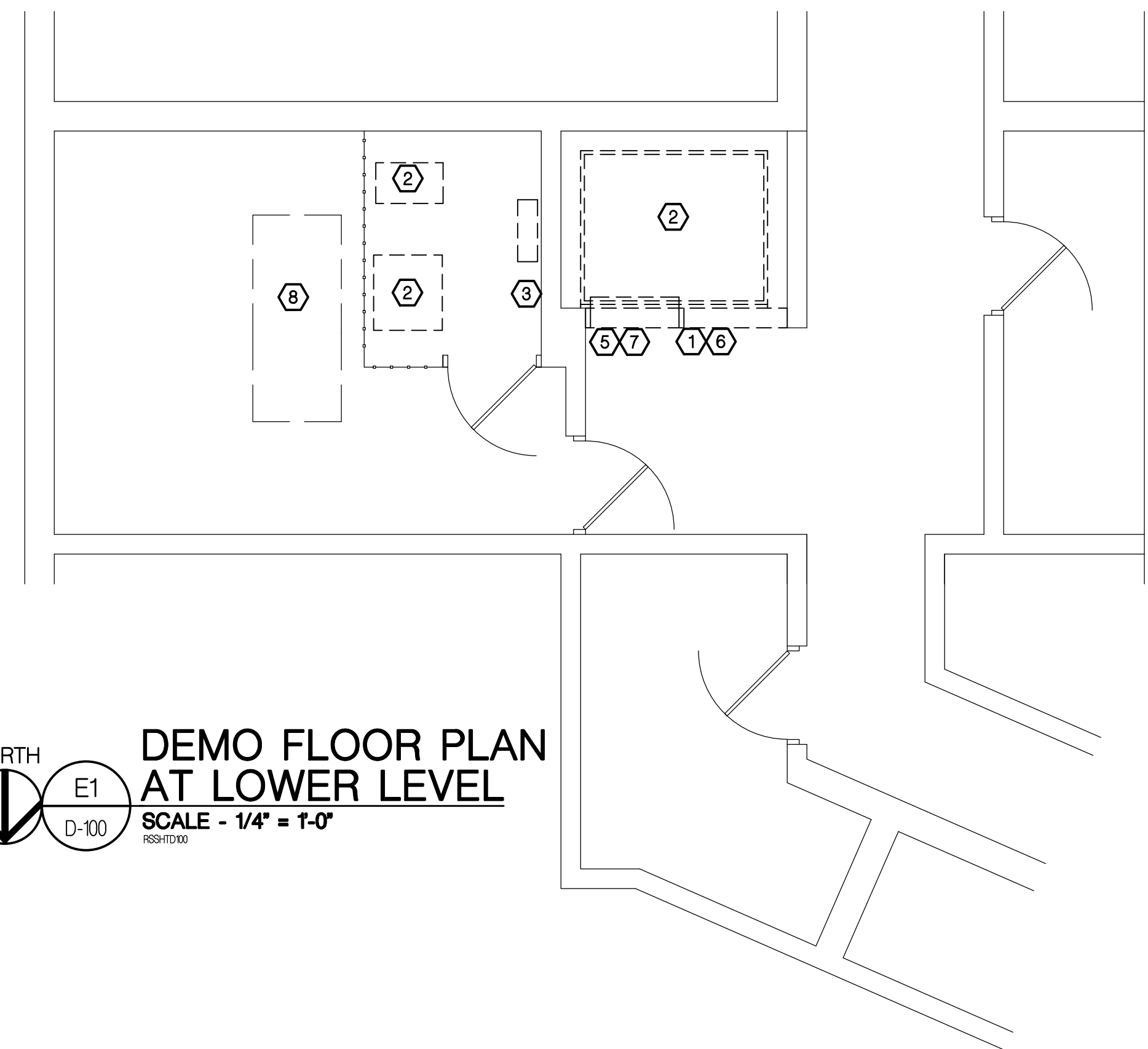
**DEMO FLOOR PLAN AT ROOF LEVEL**  
 NORTH  
 D4  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD



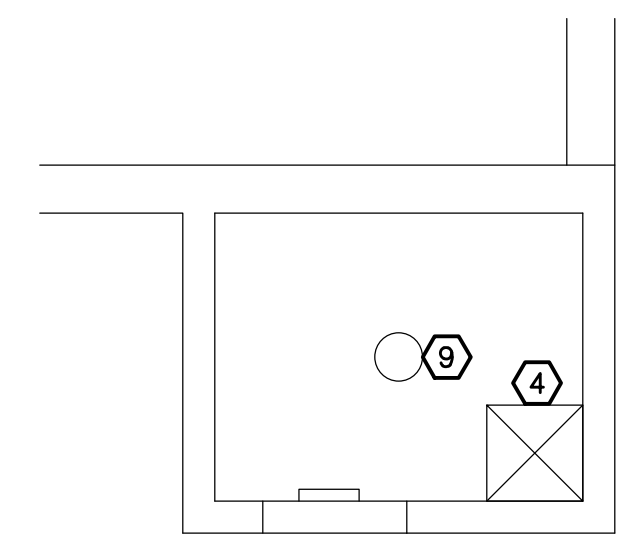
**DEMO FLOOR PLAN AT UPPER LEVEL**  
 NORTH  
 A4  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD

**DEMOLITION KEY NOTES**

- ① REMOVE EXISTING ELEVATOR CALL BUTTON PANEL
- ② REMOVE EXISTING ELEVATOR MACHINERY, RAILS, SILLS, DOORS, CAB ETC.
- ③ REMOVE EXISTING ELEVATOR ELECTRICAL EQUIPMENT - SEE ELECTRICAL DRAWINGS FOR TERMINATION INFORMATION
- ④ REMOVE EXISTING ELEVATOR RELATED MECHANICAL EQUIPMENT - SEE MECHANICAL DRAWINGS FOR MORE INFORMATION
- ⑤ REMOVE EXISTING ELEVATOR DOOR JAMBS
- ⑥ REMOVE EXISTING CMU AS REQUIRE FOR NEW CYLINDERS INSTALLATION
- ⑦ REMOVE EXISTING CMU AS REQUIRED TO INSTALL NEW DOOR JAMBS AND CALL BUTTONS
- ⑧ REMOVE EXISTING CONCRETE FLOOR AS REQUIRED TO INSTALL NEW OIL INTERCEPTOR AND SANITARY PIPING - SEE PLUMBING DRAWINGS FOR MORE DETAIL
- ⑨ REMOVE EXISTING HYDRAULIC CYLINDER - STEEL CASING TO REMAIN



**DEMO FLOOR PLAN AT LOWER LEVEL**  
 NORTH  
 E1  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD



**DEMO FLOOR PLAN AT PIT LEVEL**  
 NORTH  
 A1  
 D-100  
 SCALE - 1/4" = 1'-0"  
 RSB/HTD



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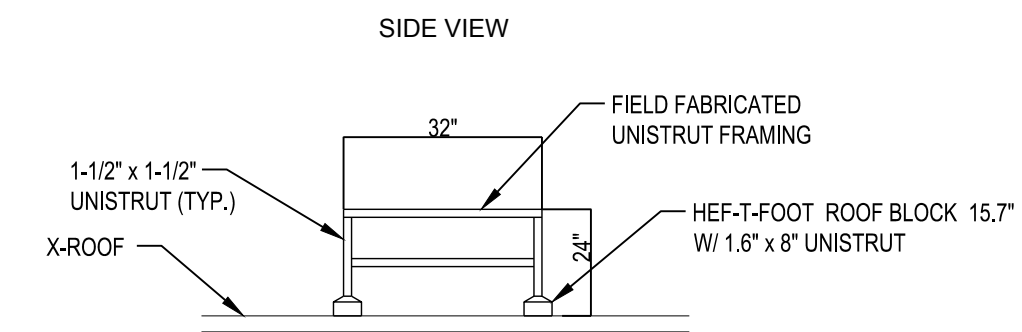
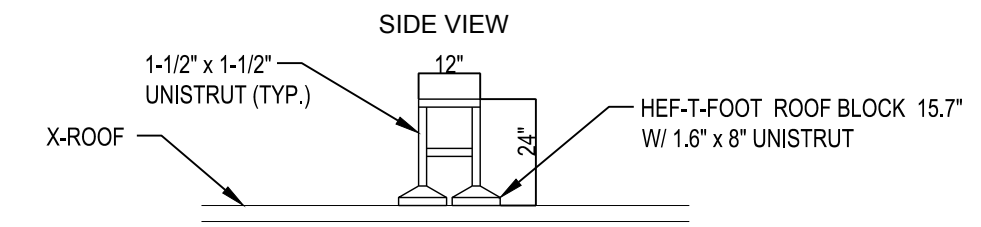


**MECHANICAL ABBREVIATIONS**

AFF	ABOVE FINISH FLOOR	ID	INSIDE DIAMETER
AC	AIR COMPRESSOR	I.E.	INVERT ELEVATION
AHU	AIR HANDLING UNIT	IAH	INTAKE HOOD
AS	AIR SEPARATOR	LAT	LEAVING AIR TEMPERATURE
A.T.C.	ARCHITECTURAL TRADES CONTRACTOR	LH	LATENT HEAT (MBH)
B	BOILER	LWT	LEAVING WATER TEMPERATURE
B.A.S.	BUILDING AUTOMATION SYSTEM	MAX	MAXIMUM
CAF	COMBUSTION AIR FAN	MBH	BTU PER HOUR (THOUSAND)
CC	COOLING COIL	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	M.T.C.	MECHANICAL TRADES CONTRACTOR
CHLR	CHILLER	N.C.	NOISE CRITERIA
CHP	CONSOLE HEAT PUMP	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CONV	CONVECTOR	NTS	NOT TO SCALE
CT	COOLING TOWER	P	PUMP
CU	CONDENSING UNIT	PCR	PUMPED CONDENSATE RETURN
CUH	CABINET UNIT HEATER	PD	PRESSURE DROP
CV	CONTROL VALVE	RCP	RADIANT CEILING PANEL
CWP	CHILLED WATER PUMP	REQD	REQUIRED
DB	DRY BULB	RG	RETURN GRILLE
DFU	DUCT FURNACE	RH	RELATIVE HUMIDITY
DIA	DIAMETER	RLH	RELIEF HOOD
DN	DOWN	RTU	ROOF TOP UNIT
DPR	DAMPER	SD	SUPPLY DIFFUSER
DS	DUCT SILENCER	SF	SUPPLY FAN
EAT	ENTERING AIR TEMPERATURE	SG	SUPPLY GRILLE
EF	EXHAUST FAN	SH	SENSIBLE HEAT (MBH)
EG	EXHAUST GRILLE	SM	SHEET METAL
E.T.C.	ELECTRICAL TRADES CONTRACTOR	SQ. FT.	SQUARE FEET
EVR	EVAPORATOR	SST	SATURATED SUCTION TEMPERATURE
EWT	ENTERING WATER TEMPERATURE	STR	STRAINER
EXH	EXHAUST	TC	TOTAL COOLING (MBH)
EXIST	EXISTING	TCL	TEMPERATURE CONTROL
FF	FINISH FLOOR	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
FFM	FEET PER MINUTE	TYP	TYPICAL
FT	FEET	UH	UNIT HEATER
FTR	FINNED TUBE RADIATION	VAV	VARIABLE AIR VOLUME BOX
FU	FURNACE	VRH	VARIABLE AIR VOLUME REHEAT BOX
GAL	GALLON	FP/VAV	FAN POWERED VARIABLE AIR VOLUME BOX
GFRH	GAS FIRED RADIANT HEATER	V.F.D	VARIABLE FREQUENCY DRIVE
GR	GRILLE	ZD	ZONE DAMPER
H	HUMIDIFIER	X-SA	EXISTING ITEM (EXISTING SUPPLY AIR DUCT)
HC	HEATING COIL		EXISTING
HD	HEAD (FT)		
HP	HORSE POWER		
HHP	HORIZONTAL HEAT PUMP		
HTG	HEATING		
HVAC	HEATING, VENTILATION, & AIR CONDITIONING		
HWP	HEATING WATER PUMP		
HX	HEAT EXCHANGER		

**GENERAL HVAC NOTES**

- NOTIFY OWNER OF ANY PIPING OR DUCTWORK DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO CONSTRUCTION TO AVOID CONFLICTS.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
- ALL WORK SHALL CONFORM TO MICHIGAN MECHANICAL CODE, LATEST APPLICABLE EDITION.
- ALL CONDENSATE DRAIN PIPING SET @ MIN. 1% SLOPE.
- ALL CONDENSATE DRAIN PIPING TO TERMINATE TO DRAIN VIA AIR GAP.
- IF THERE IS CONFLICTING INFORMATION IN THE PLANS OR SPECIFICATIONS THE MORE STRINGENT AND GREATER COST ITEM SHALL BE USED.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE. AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.



**1 CONDENSING UNIT SUPPORT FRAME DIAGRAM**  
 SCALE: NTS

**MECHANICAL SYMBOLS LEGEND**

**HVAC DUCTWORK SYMBOLS**

	SUPPLY AIR DUCT RISER
	RETURN AIR DUCT RISER
	OUTSIDE AIR DUCT RISER (AS NOTED)
	EXHAUST AIR DUCT
	INSULATED DUCTWORK (AS NOTED)
	SUPPLY AIR DIFFUSER (SQUARE)
	SUPPLY AIR DIFFUSER (INLINE)
	SURFACE MTD. GRILLE
	SUPPLY AIR DIFFUSER (ROUND)
	CONICAL TAKE-OFF
	CONICAL TAKE-OFF W/ DAMPER
	BALANCE DAMPER
	RETURN AIR DUCT BOOT
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	VERTICAL FIRE DAMPER
	HORIZONTAL FIRE DAMPER
	VERTICAL SMOKE DAMPER
	HORIZONTAL SMOKE DAMPER
	VERTICAL FIRE / SMOKE DAMPER
	HORIZONTAL FIRE / SMOKE DAMPER
	FIS
	FIS
	DUCT SMOKE DETECTOR, INSTALLED BY M.T.C., PROVIDED & WIRED BY E.T.C.
	UNIT HEATER
	CEILING EXHAUST FAN
	ROOF MOUNTED EXHAUST FAN
	DEMOLITION

**HVAC DUCTWORK & DIFFUSER TAGS**

SD-1	250	TAG	CFM
870		NECK	REMARKS
		SIZE	

**MISCELLANEOUS NOTES**

- POINT OF CONNECTION BETWEEN NEW AND EXISTING
- POINT OF EXISTING TO REMAIN AND EXISTING TO BE REMOVED
- INDICATES PLAN NOTE
- INDICATES DEMOLITION NOTE
- DETAIL BUBBLE**
- DETAIL NUMBER
- PAGE LOCATION INDICATES
- DIRECTION OF DETAIL SECTION

**HVAC PIPING**

	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSATE DRAIN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	COOLING TOWER WATER SUPPLY
	COOLING TOWER WATER RETURN
	DIRECT EXPANSION
	HEAT PUMP WATER SUPPLY
	HEAT PUMP WATER RETURN
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	SUCTION (REFRIGERANT)
	LIQUID (REFRIGERANT)
	SUCTION (DIRECT EXPANSION)
	LIQUID (DIRECT EXPANSION)
	LOW PRESSURE STEAM (0-20 LBS.)
	MEDIUM PRESSURE STEAM (21-75 LBS.)
	HIGH PRESSURE STEAM (76 LBS. & ABV.)
	STEAM CONDENSATE (GRAVITY)
	PUMPED STEAM CONDENSATE
	STEAM CONDENSATE BOILER FEED

**HVAC DUCTWORK**

	SUPPLY AIR DUCT
	EXIST SUPPLY AIR DUCT
	RETURN AIR DUCT
	EXIST RETURN AIR DUCT
	OUTSIDE AIR DUCT
	EXIST OUTSIDE AIR DUCT
	EXHAUST AIR DUCT
	EXIST EXHAUST AIR DUCT

**HVAC PIPING VALVES**

	GATE VALVE
	GAS COCK
	CHECK VALVE
	BALANCE COCK
	CIRCUIT SETTER
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	GLOBE VALVE
	BALL VALVE
	SOLENOID VALVE
	EXPANSION VALVE WITH THERMOSTATIC BULB
	PLUG VALVE
	BUTTERFLY VALVE
	RELIEF VALVE
	HOSE & DRAIN END VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	GAS PRESSURE REGULATOR
	STRAINER (BLOW-OFF)

**TEMPERATURE CONTROL SYMBOLS**

	THERMOSTAT
	PROGRAMMABLE THERMOSTAT
	THERMOSTAT (W/ NIGHT SETBACK)
	ROOM SENSOR
	HUMIDISTAT
	PRESSURE GAUGE
	DAMPER (ELECTRIC OPERATION)
	DAMPER (PNEUMATIC OPERATION)
	DAMPER BLADES

**HVAC PIPING SYMBOLS**

	FLOW DIRECTION
	PIPING DROP
	PIPING RISE
	INLINE PIPING DROP
	INLINE PIPING RISE
	PIPING TEE
	PIPING ELBOW
	THERMOMETER
	PUMP
	UNION
	PIPE ANCHOR
	PIPE GUIDE
	BACK FLOW PREVENTER
	PIPE CAP
	PIPE BREAK
	THERMOMETER WELL
	EXPANSION LOOP
	EXPANSION COMPENSATOR
	FLOAT & THERMOSTATIC STEAM TRAP
	INVERTED BUCKET STEAM TRAP

CASSETTE AIR CONDITIONING SCHEDULE								
TAG	SERVICE	MODEL	SUPPLY CFM	TC (BTUH)	ELECTRICAL			COMMENTS
					MCA	VOLTAGE	PHASE	
AC-1	ELEVATOR EQUIP ROOM	PLA-A12EA7	400	12,000	1	208	1	1,2,3,4,5,6

**NOTES:**  
 1. BASED ON MITSUBISHI ELECTRIC  
 2. ROUTE CONDENSATE TO FLOOR DRAIN  
 3. COOLING DESIGN BASED ON 80°F DB AND 67°F WB, 50% RH  
 4. FIELD FABRICATED UNISTRUT FRAME FOR CONDENSING UNIT  
 5. INDOOR UNIT IS POWERED BY THE OUTDOOR UNIT  
 6. DISCONNECT BY MANUFACTURER

CONDENSING UNIT SCHEDULE										
TAG	SERVES	MODEL	CAPACITY MBH	EER	ELECTRICAL					COMMENTS
					VOLTAGE	PHASE	MCA	DISC. BY	STARTER BY	
CU-1	ELEVATOR EQUIP ROOM	PUY-A12NKA7	12	16.4	230	1	11	EC	EC	1,2,3

**NOTES:**  
 1. BASED ON MITSUBISHI ELECTRIC  
 2. CONCRETE PAD BY MC  
 3. LOW AMBIENT FOR 0 DEG F AMBIENT TEMP.

**ELECTRICAL NOTES:**  
 EC - ELECTRICAL CONTRACTOR  
 MC - MECHANICAL CONTRACTOR  
 NR - NOT REQUIRED

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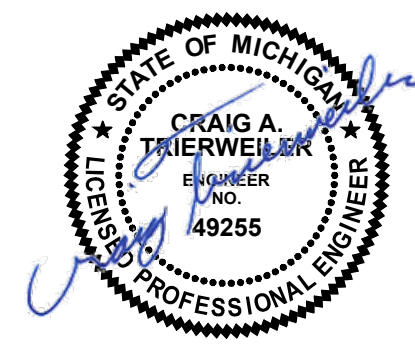


**MSP NORTHVILLE LAB ELEVATOR REPLACEMENT**  
 42145 W SEVEN MILE RD,  
 NORTHVILLE, MI 48167  
 PROJECT

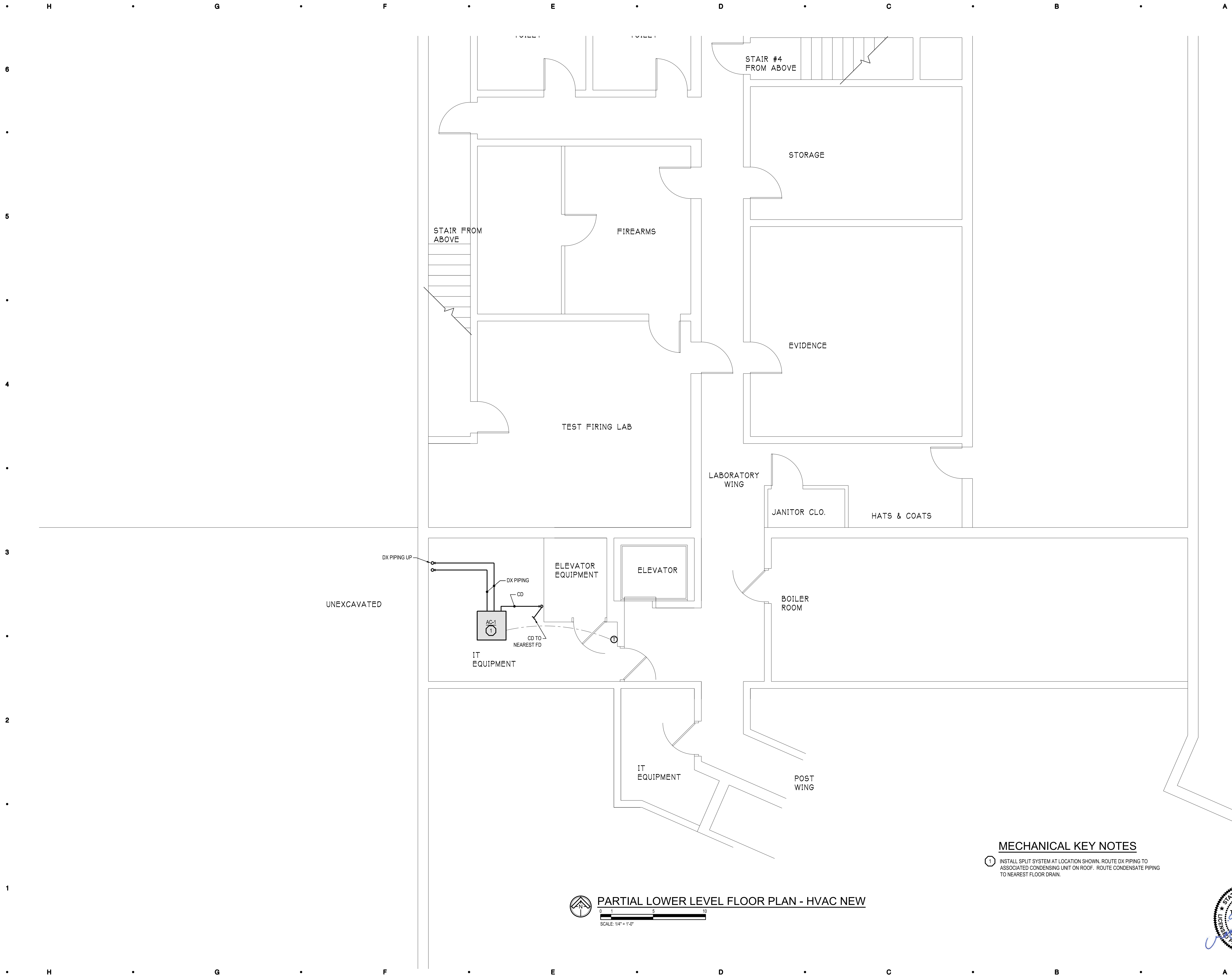


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 Rapids MI 49507  
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**MECHANICAL SYMBOLS, ABBREV, NOTES, SCHEDULES**







**MECHANICAL KEY NOTES**  
 ① INSTALL SPLIT SYSTEM AT LOCATION SHOWN, ROUTE DX PIPING TO ASSOCIATED CONDENSING UNIT ON ROOF. ROUTE CONDENSATE PIPING TO NEAREST FLOOR DRAIN.

**PARTIAL LOWER LEVEL FLOOR PLAN - HVAC NEW**  
 SCALE: 1/4" = 1'-0"

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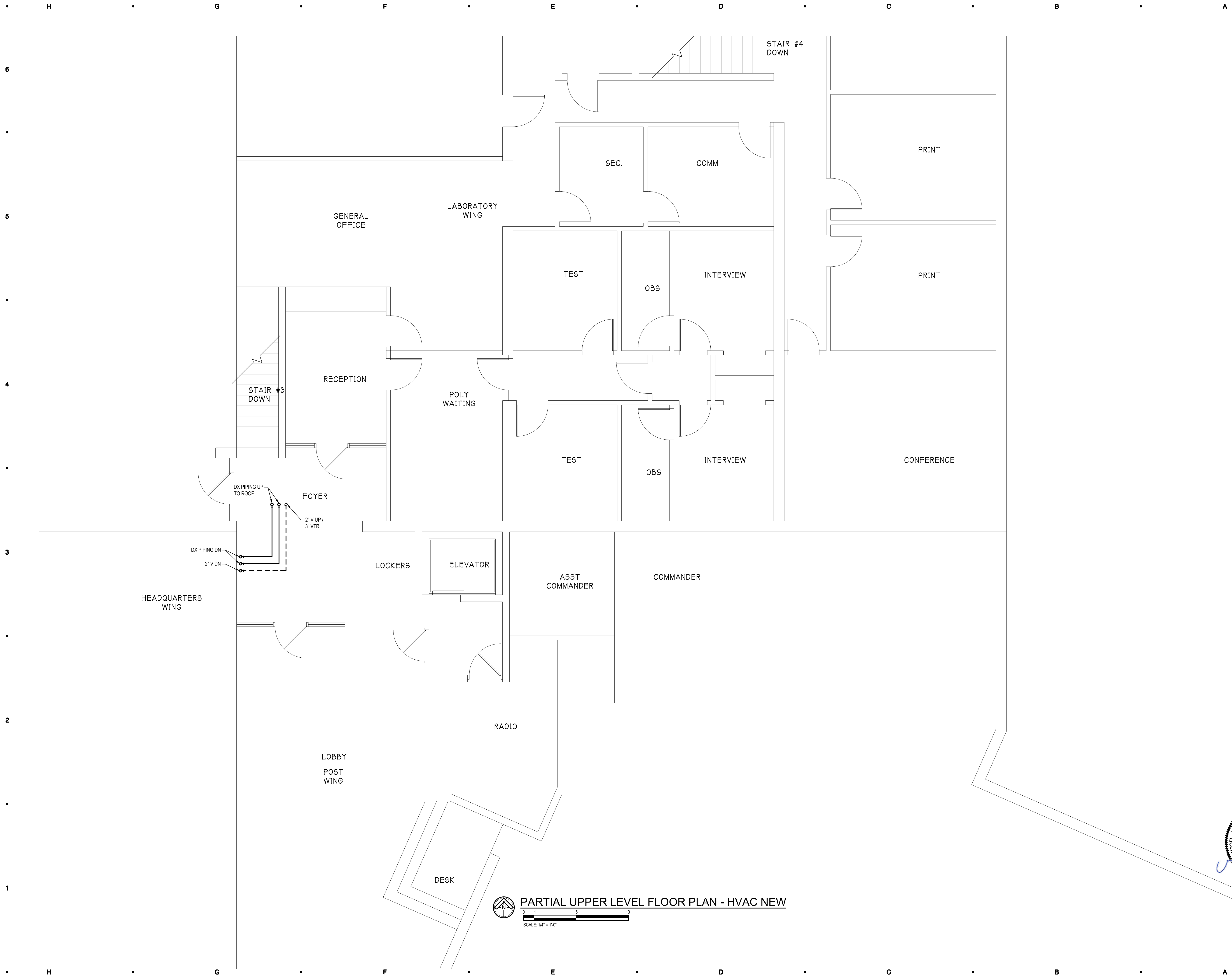
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**PARTIAL LOWER LEVEL FLOOR PLAN - HVAC NEW**



SHEET TITLE	22300
PROJECT NUMBER	M-400
SHEET NUMBER	





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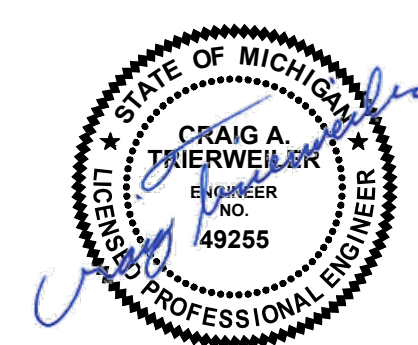
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 NORTHVILLE LAB  
 ELEVATOR  
 REPLACEMENT  
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 NORTHVILLE, MI 48167

PROJECT

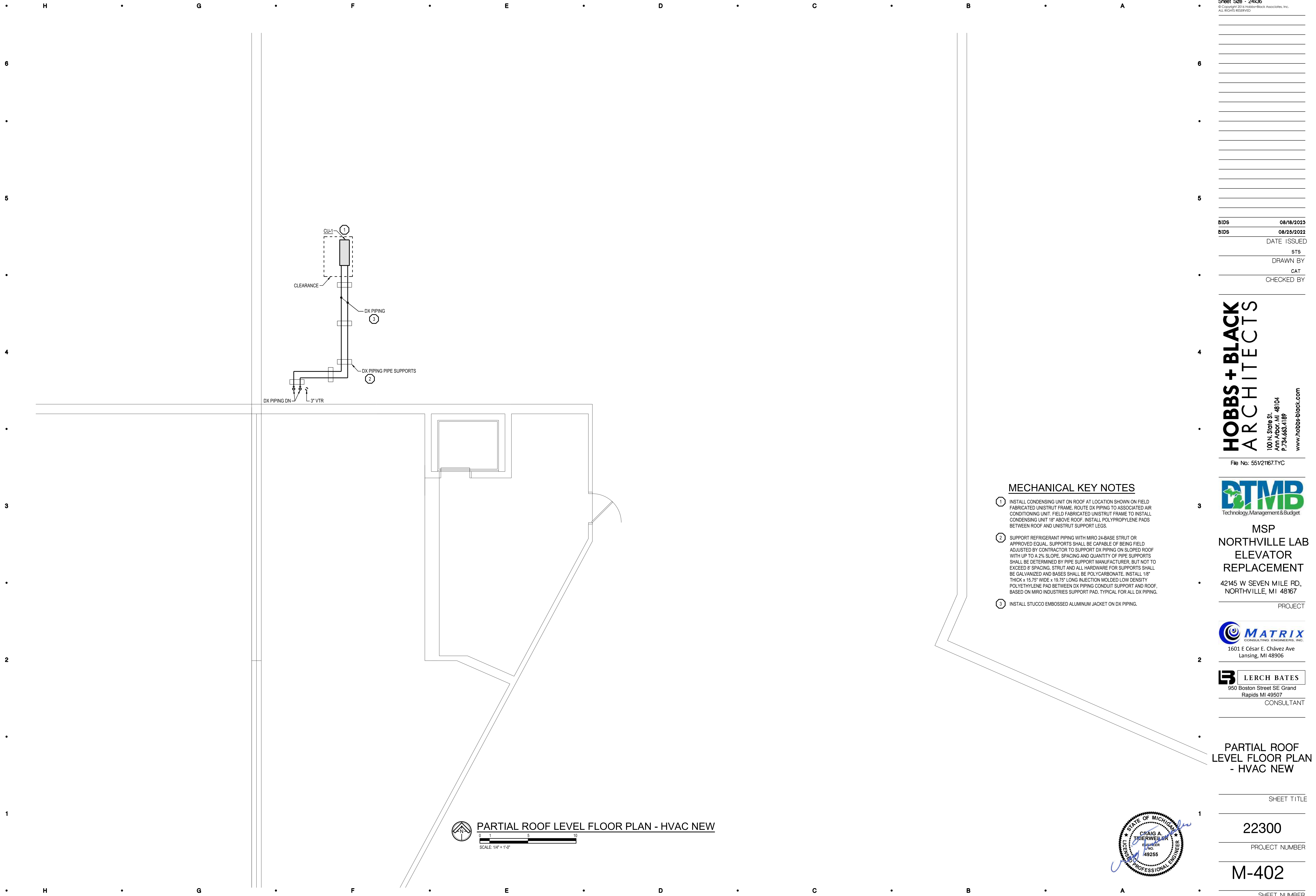


**PARTIAL UPPER LEVEL FLOOR PLAN - HVAC NEW**  
 SCALE: 1/4" = 1'-0"

**PARTIAL UPPER LEVEL FLOOR PLAN - HVAC NEW**

SHEET TITLE
22300
PROJECT NUMBER
M-401
SHEET NUMBER

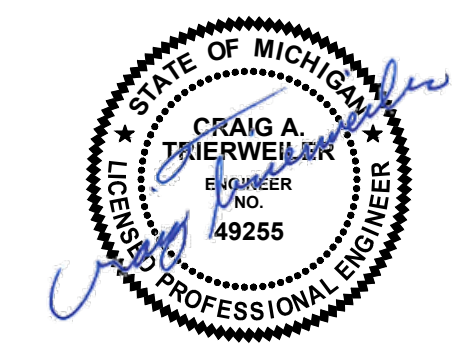




**MECHANICAL KEY NOTES**

- ① INSTALL CONDENSING UNIT ON ROOF AT LOCATION SHOWN ON FIELD FABRICATED UNISTRUT FRAME. ROUTE DX PIPING TO ASSOCIATED AIR CONDITIONING UNIT. FIELD FABRICATED UNISTRUT FRAME TO INSTALL CONDENSING UNIT 18" ABOVE ROOF. INSTALL POLYPROPYLENE PADS BETWEEN ROOF AND UNISTRUT SUPPORT LEGS.
- ② SUPPORT REFRIGERANT PIPING WITH MIRO 24-BASE STRUT OR APPROVED EQUAL. SUPPORTS SHALL BE CAPABLE OF BEING FIELD ADJUSTED BY CONTRACTOR TO SUPPORT DX PIPING ON SLOPED ROOF WITH UP TO A 2% SLOPE. SPACING AND QUANTITY OF PIPE SUPPORTS SHALL BE DETERMINED BY PIPE SUPPORT MANUFACTURER, BUT NOT TO EXCEED 6' SPACING. STRUT AND ALL HARDWARE FOR SUPPORTS SHALL BE GALVANIZED AND BASES SHALL BE POLYCARBONATE. INSTALL 1/8" THICK x 15.75" WIDE x 19.75" LONG INJECTION MOLDED LOW DENSITY POLYETHYLENE PAD BETWEEN DX PIPING CONDUIT SUPPORT AND ROOF, BASED ON MIRO INDUSTRIES SUPPORT PAD. TYPICAL FOR ALL DX PIPING.
- ③ INSTALL STUCCO EMBOSSED ALUMINUM JACKET ON DX PIPING.

**PARTIAL ROOF LEVEL FLOOR PLAN - HVAC NEW**  
 SCALE: 1/4" = 1'-0"



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**PARTIAL ROOF LEVEL FLOOR PLAN - HVAC NEW**

SHEET TITLE
22300
PROJECT NUMBER
M-402
SHEET NUMBER



### PLUMBING ABBREVIATIONS

AD	AREA DRAIN	NTS	NOT TO SCALE
ASR	AUTOMATIC SPRINKLER RISER	ORD	OVERFLOW ROOF DRAIN
BFS	BELOW FLOOR SLAB	OXY	OXYGEN
BWV	BACK WATER VALVE	P	PUMP
CB	CATCH BASIN	PD	PRESSURE DROP
CJ	CAST IRON	PVC	POLY-VINYL-CHLORIDE
CO	CLEAN OUT	RC	RAIN CONDUCTOR
CV	CONTROL VALVE	RD	ROOF DRAIN
DF	DRINKING FOUNTAIN	RI	ROUGH-IN
DIA	DIAMETER	REQ'D	REQUIRED
DN	DOWN	SAN	SANITARY
DWH	DOMESTIC WATER HEATER	SAN	SHOWER
E.T.C.	ELECTRICAL TRADES CONTRACTOR	SK	SINK
EWC	ELECTRIC WATER COOLER	SP	STAND PIPE
EXIST	EXISTING	SQ. FT.	SQUARE FEET
FD	FLOOR DRAIN	SS	SERVICE SINK
FC	FINAL CONNECTIONS	ST	STORM
FDC	FIRE DEPT. CONNECTION	SSW	STOP & WASTE
FF	FINISH FLOOR	STR	STRAINER
FHV	FIRE HOSE VALVE	SV	STACKED VENT
FT	FEET	TYP.	TYPICAL
GAL	GALLON	UR	URINAL
GD	GARBAGE DISPOSAL	VB	VACUUM BREAKER
GI	GREASE INTERCEPTOR	VS	VENT STACK
GPH	GALLONS PER HOUR	V.F.D	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
HB	HOSE BIB	W	WASTE
HD	HEAD (FT)	WB	WET BULB
HP	HORSE POWER	WC	WATER CLOSET
ID	INSIDE DIAMETER	WH	WALL HYDRANT
I.E.	INVERT ELEVATION	WS	WASTE STACK
LAV	LAVATORY	W&V	WASTE AND VENT
LT	LAUNDRY TRAY	EXIST.	EXIST. CW PIPING
MA	MEDICAL AIR	ITEM	ITEM
MAX	MAXIMUM	EXISTING	EXISTING
MGC	MEDICAL GAS CONSOLE		
MH	MAN HOLE		
MIN	MINIMUM		
MS	MOP SINK		
M.T.C.	MECHANICAL TRADES CONTRACTOR		

### GENERAL PLUMBING NOTES

- ALL PLUMBING WORK SHALL CONFORM TO MICHIGAN PLUMBING CODE, LATEST APPLICABLE EDITION.
- INSTALL ALL EQUIPMENT, MATERIALS, AND ACCESSORIES PER MANUFACTURERS WRITTEN INSTRUCTIONS.
- ALL PIPE SIZES SHOWN ARE SERVICE SIZE. SIZE SLEEVES FOR 1" CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLATION OF MECHANICAL SEAL.
- CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING WORK.
- CONTRACTOR SHALL DEMOLISH & REMOVE EXISTING PIPING, FITTINGS, & EQUIPMENT AS REQUIRED FOR NEW INSTALLATIONS. VALVE & CAP PIPING TO REMAIN.
- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- NOTIFY OWNER OF ANY PIPING DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
- MECHANICAL SEALS REQUIRED FOR BELOW GRADE WALL PENETRATIONS.
- ALL FLOOR SINKS TO BE EQUIPPED WITH TRAP PRIMERS OR TRAP SEAL DEVICES, UNLESS OTHERWISE NOTED.
- 1% SLOPE FOR ALL SANITARY PIPING.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
- DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CODES AND REGULATIONS ENFORCED BY LOCAL BUILDING OFFICIALS.
- IF THERE IS CONFLICTING INFORMATION IN THE PLANS OR SPECIFICATIONS THE MORE STRINGENT AND GREATER COST ITEM SHALL BE USED.

- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.

SUMP PUMP SCHEDULE														
TAG	MODEL	TYPE	GPM	FT. HEAD	DISCHARGE		BASIN			ELECTRICAL			COMMENTS	
					PIPE	SOLID	TYPE	DIA	DEPTH	HP	VOLTS	PHASE		RPM
SP-1	1413	SIMPLEX	50	25	2"	0.5"	EXISTING	EXISTING	EXISTING	1	120	1	1750	1,2,3

**NOTES:**  
 1. BASED ON: WEIL  
 2. PROVIDE CONTROL PANEL W/ INTERNAL DISCONNECT & STARTER  
 3. PROVIDE LEVEL CONTROL SYSTEM WITH HIGH LEVEL ALARM STROBE LIGHT

**ABBREVIATIONS:**  
 PCC = PRE-CAST CONCRETE

OIL INTERCEPTOR SCHEDULE									
TAG	MODEL	LOCATION	OIL HOLDING CAPACITY (LBS)	GPM	INLET/OUTLET	DIMENSIONS			COMMENTS
						WIDTH	DEPTH	HEIGHT	
OI-1	5400	STORAGE RM 156	82	50	4"	34	24	34	1,2

**NOTES:**  
 1. BASED ON WADE  
 2. PROVIDE EXTENSIONS AS REQUIRED FOR OIL INTERCEPTOR COVER TO BE FLUSH WITH FLOOR

PLUMBING FIXTURE SCHEDULE									
TAG	FIXTURE	ROUGH-IN CONNECTION SIZE				FAUCET TYPE	FIXTURE SIZE	ACCESSORIES AND COMMENTS	
		CW	HW	SAN	VENT				
HD-1	HUB DRAIN	-	-	-	-	-	12 x 12 TOP	SEE PLAN FOR SANITARY SIZE, 3/4" TOP GRATE	

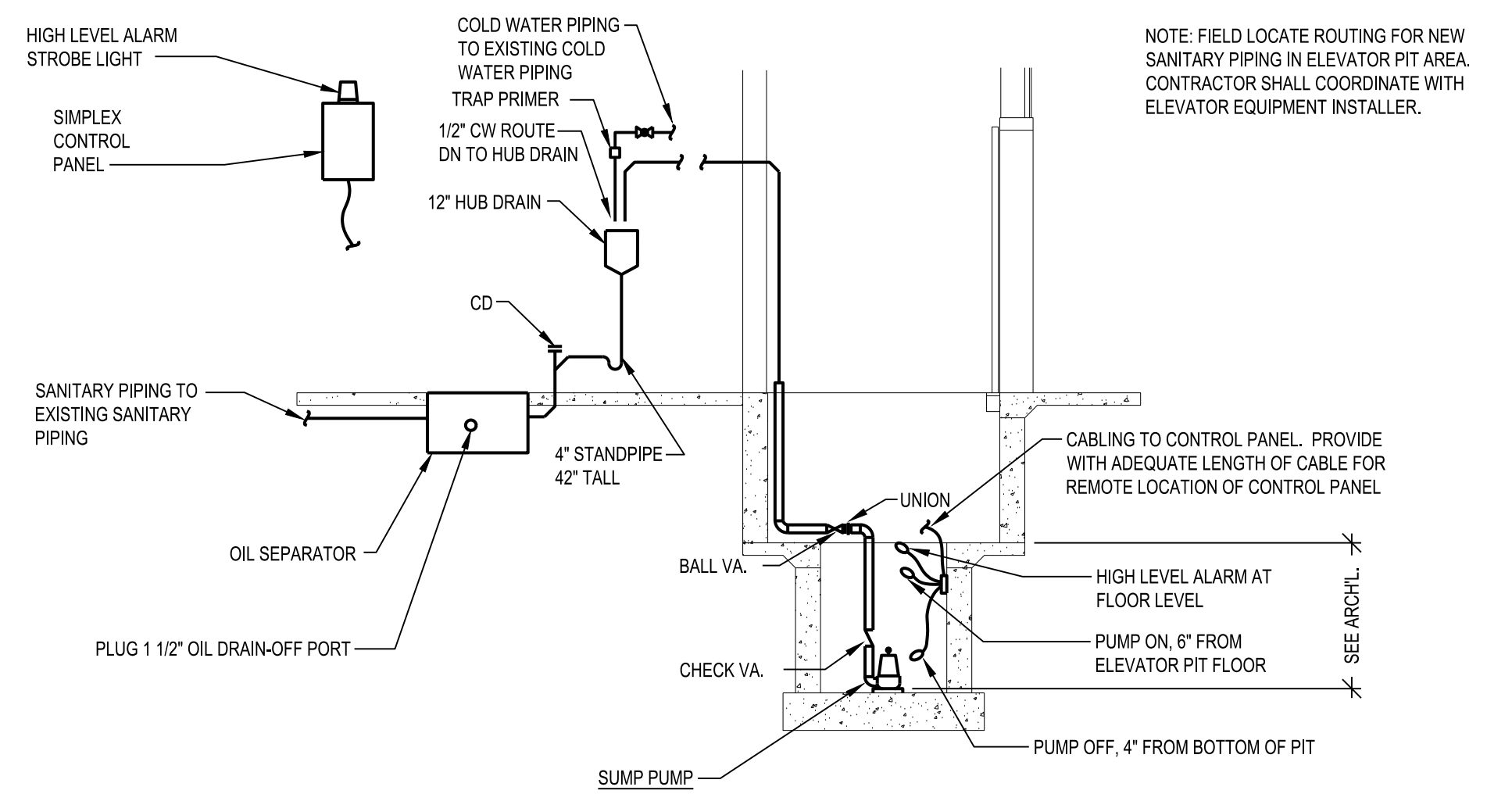
### PLUMBING SYMBOLS LEGEND

PLUMBING PIPING	
— CW ———	COLD WATER
- - CW - - - - -	COLD WATER BELOW FINISH SLAB
— HW ———	HOT WATER
- - HW - - - - -	HOT WATER BELOW FINISH SLAB
— HWR ———	HOT WATER RETURN
- - HWR - - - - -	HOT WATER RETURN BELOW FINISH SLAB
— SW ———	SOFTENED WATER
- - SW - - - - -	SOFTENED WATER BELOW FINISH SLAB
— SWR ———	SOFTENED WATER RETURN
- - SWR - - - - -	SOFTENED WATER RETURN BELOW FINISH SLAB
— TW ———	TEMPERED WATER
TW ———	TEMPERED WATER BELOW FINISH SLAB
— TWR ———	TEMPERED WATER RETURN
- - TWR - - - - -	TEMPERED WATER RETURN BELOW FINISH SLAB
— DI ———	DEIONIZED WATER
- - DI - - - - -	DEIONIZED WATER BELOW FINISH SLAB
— RO ———	REVERSE OSMOSIS WATER
- - RO - - - - -	REVERSE OSMOSIS WATER RETURN BELOW FINISH SLAB
— FP ———	FIRE PROTECTION
— G ———	GAS (NATURAL)
— LP ———	GAS (LIQUID PETROLEUM)
— ARV ———	ACID RESISTANT
— ARW ———	VENT ACID RESISTANT WASTE
— ARW ———	ACID RESISTANT WASTE BELOW FINISH SLAB
— RC ———	RAIN CONDUCTOR
— ST ———	STORM BELOW FINISH SLAB
— ORC ———	OVERFLOW RAIN CONDUCTOR
— ORC ———	OVERFLOW RAIN CONDUCTOR BELOW FINISH SLAB
— SAN ———	SANITARY WASTE
— SAN ———	SANITARY WASTE BELOW FINISH SLAB
— V ———	VENT PIPING
- - V - - - - -	VENT PIPING BELOW FINISH SLAB
— CA ———	COMPRESSED AIR
— O2 ———	OXYGEN
— NO ———	NITROUS OXIDE
— N2 ———	NITROGEN
— MA ———	MEDICAL AIR
— VAC ———	VACUUM
- - - - -	DEMOLITION

PLUMBING EQUIPMENT	
→	FLOW DIRECTION
—○—	PIPING DROP
—○—	PIPING RISE
—○—	FLOOR CLEANOUT
—○—	INLINE PIPING DROP
—○—	INLINE PIPING RISE
—○—	PIPING TEE
—○—	PIPING ELBOW
—○—	INLINE CLEANOUT
—○—	PLUMBING TRAP
—○—	THERMOMETER
—○—	CONNECTION
—○—	PUMP
—○—	UNION
—○—	PIPE ANCHOR
—○—	PIPE GUIDE
—○—	FLOOR DRAIN & FLOOR SINK
—○—	BACK FLOW PREVENTER
—○—	FLANGE END CONNECTION
—○—	WALL HYDRANT & HOSE BIBB
—○—	REGULAR & OVERFLOW ROOF DRAIN
—○—	PIPE CAP
—○—	PIPE BREAK
—○—	WATER METER
—○—	GAS METER
—○—	PRESSURE GAUGE
—○—	FIRE HYDRANT
—○—	SPRINKLER HEAD (PENDANT)
—○—	SPRINKLER HEAD (UPRIGHT)
—○—	SPRINKLER HEAD (SIDEWALL)
—○—	FIRE DEPARTMENT CONNECTION
—○—	PIPING FLEXIBLE CONNECTOR
—○—	SIGHT GLASS
—○—	PIPE EXPANSION
—○—	COMPENSATOR FLOW SENSOR DEVICE
—○—	FLOW METER
—○—	FLOW SWITCH
—○—	PRESSURE SWITCH
—○—	SUPERVISORY SWITCH INVERTED
—○—	BUCKET TRAP
—○—	FLOAT & THERMOSTATIC TRAP

PLUMBING VALVES	
—○—	GATE VALVE
—○—	GAS COCK
—○—	CHECK VALVE
—○—	BALANCE COCK
—○—	CIRCUIT SETTER
—○—	TWO-WAY CONTROL VALVE
—○—	THREE-WAY CONTROL VALVE
—○—	GLOBE VALVE
—○—	BALL VALVE
—○—	OS&Y VALVE
—○—	SOLENOID VALVE
—○—	EXPANSION VALVE WITH THERMOSTATIC BULB
—○—	PLUG VALVE
—○—	BUTTERFLY VALVE
—○—	RELIEF VALVE
—○—	HOSE & DRAIN END VALVE
—○—	PRESSURE RELIEF VALVE
—○—	PRESSURE REDUCING VALVE
—○—	TRIPLE DUTY VALVE
—○—	GAS PRESSURE REGULATOR
—○—	STRAINER (BLOW-OFF)

- ### MISCELLANEOUS NOTES
- POINT OF CONNECTION BETWEEN NEW AND EXISTING
  - POINT OF EXISTING TO REMAIN AND EXISTING TO BE REMOVED
  - INDICATES PLAN NOTE
  - INDICATES DEMOLITION NOTE
  - DETAIL BUBBLE
  - DETAIL NUMBER
  - PAGE LOCATION INDICATES
  - DIRECTION OF DETAIL SECTION



1 ELEVATOR PUMPING SYSTEM DETAIL  
SCALE: NTS



6  
5  
4  
3  
2  
1

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**DTMB**  
 Technology, Management & Budget

MSP  
 NORTHVILLE LAB  
 ELEVATOR  
 REPLACEMENT

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 NORTHVILLE, MI 48167

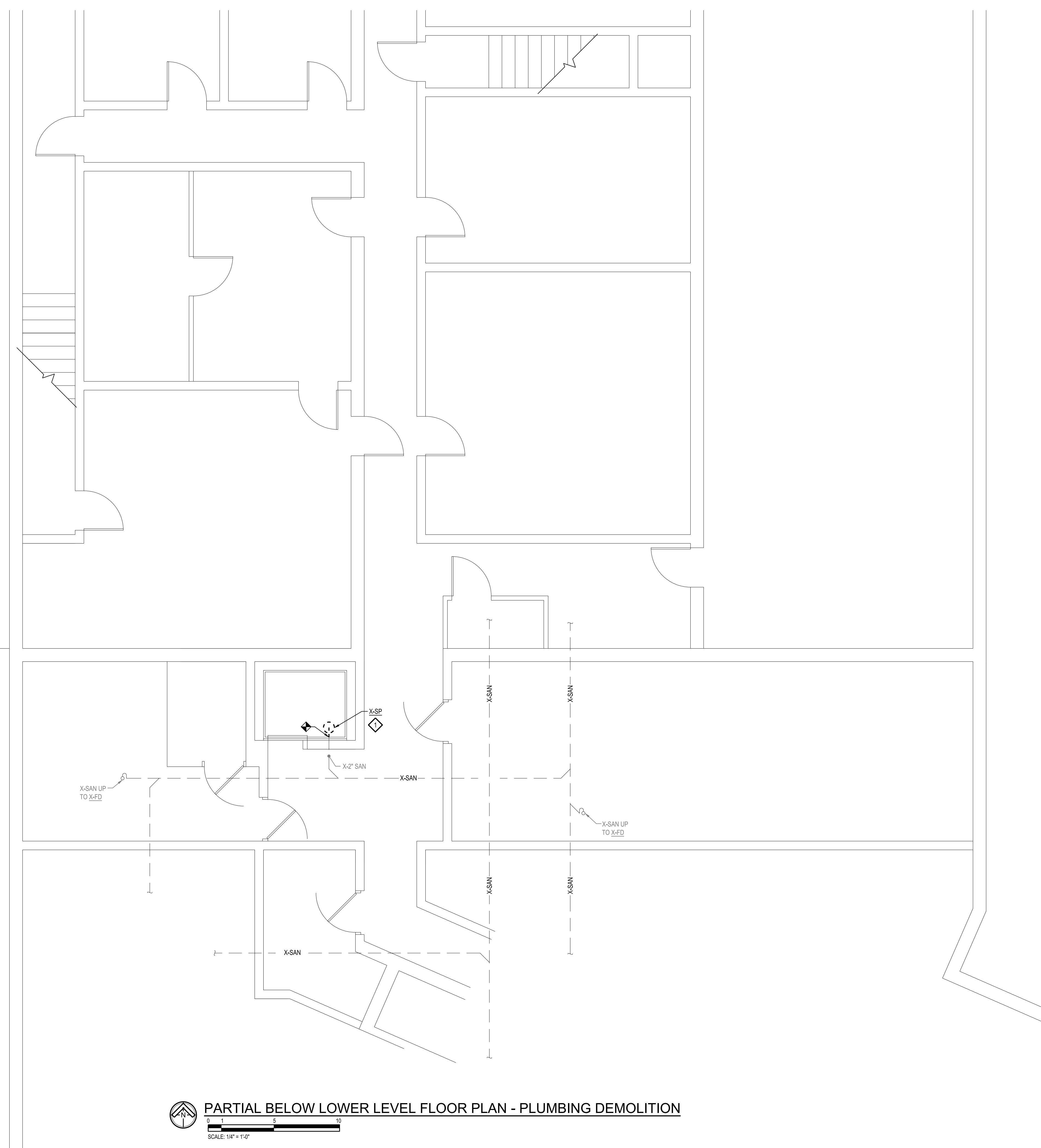
PROJECT

**MATRIX**  
 CONSULTING ENGINEERS, INC.  
 1601 E César E. Chávez Ave  
 Lansing, MI 48906

**LERCH BATES**  
 950 Boston Street SE Grand  
 Rapids MI 49507  
 CONSULTANT

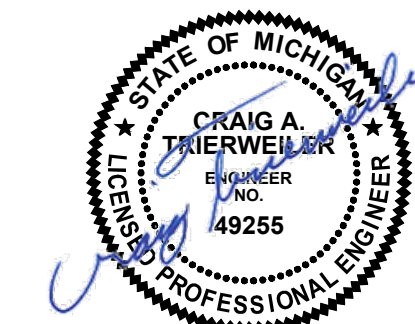
PLUMBING  
 SYMBOLS, ABBREV,  
 NOTES, SCHEDULES

SHEET TITLE  
 22300  
 PROJECT NUMBER  
 P-100  
 SHEET NUMBER



**PARTIAL BELOW LOWER LEVEL FLOOR PLAN - PLUMBING DEMOLITION**  
 SCALE: 1/4" = 1'-0"

**DEMOLITION NOTES**  
 DISCONNECT, REMOVE, AND DEMO EXISTING SUMP PUMP.  
 DEMO ASSOCIATED SANITARY PIPING BACK TO WALL AND  
 CAP. EXISTING SUMP PIT TO REMAIN.



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LOWER LEVEL  
 FLOOR PLAN-  
 PLUMBING  
 DEMOLITION

SHEET TITLE

22300

PROJECT NUMBER

P-300

SHEET NUMBER



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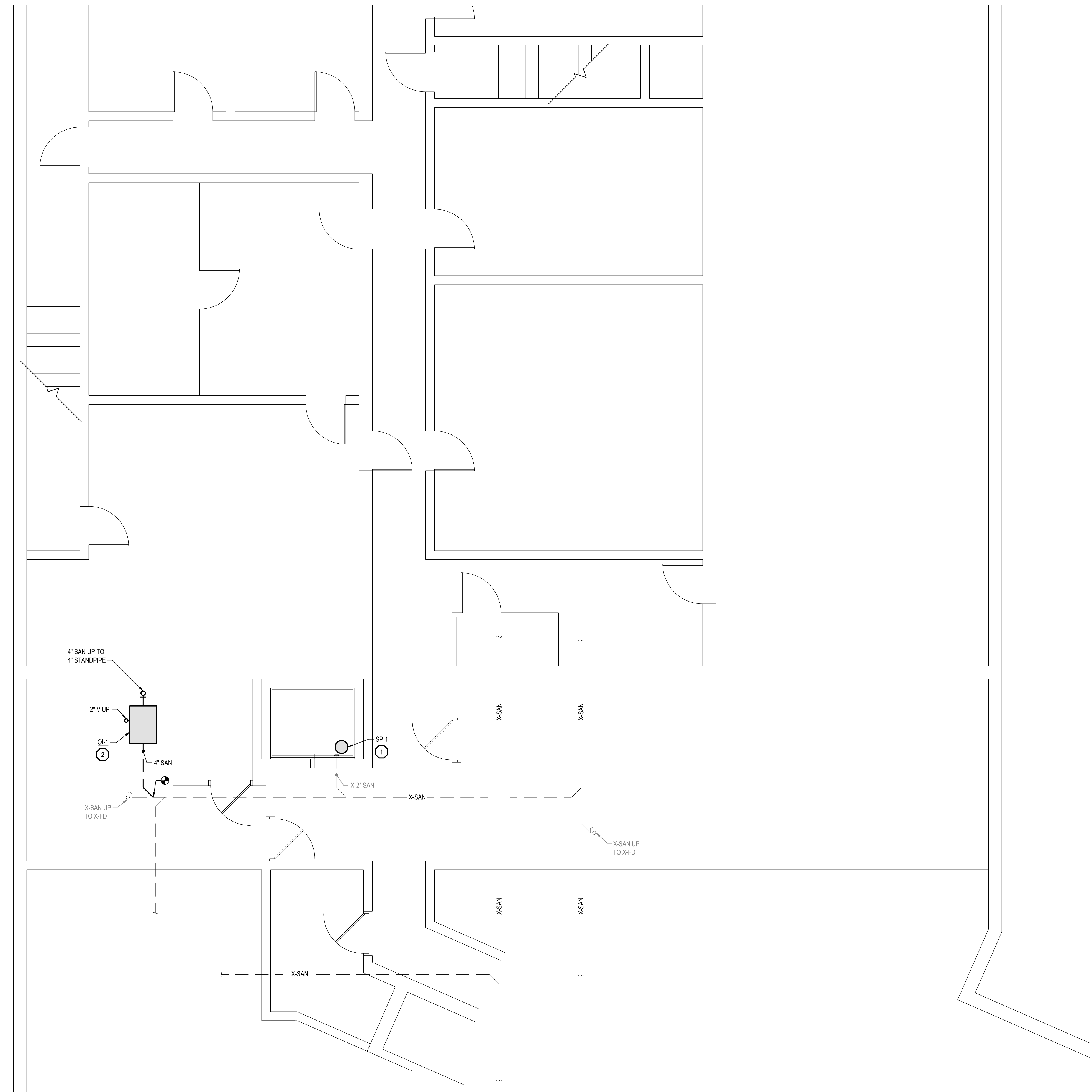
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PARTIAL BELOW  
 LOWER LEVEL  
 FLOOR PLAN -  
 PLUMBING NEW

SHEET TITLE

22300  
 PROJECT NUMBER

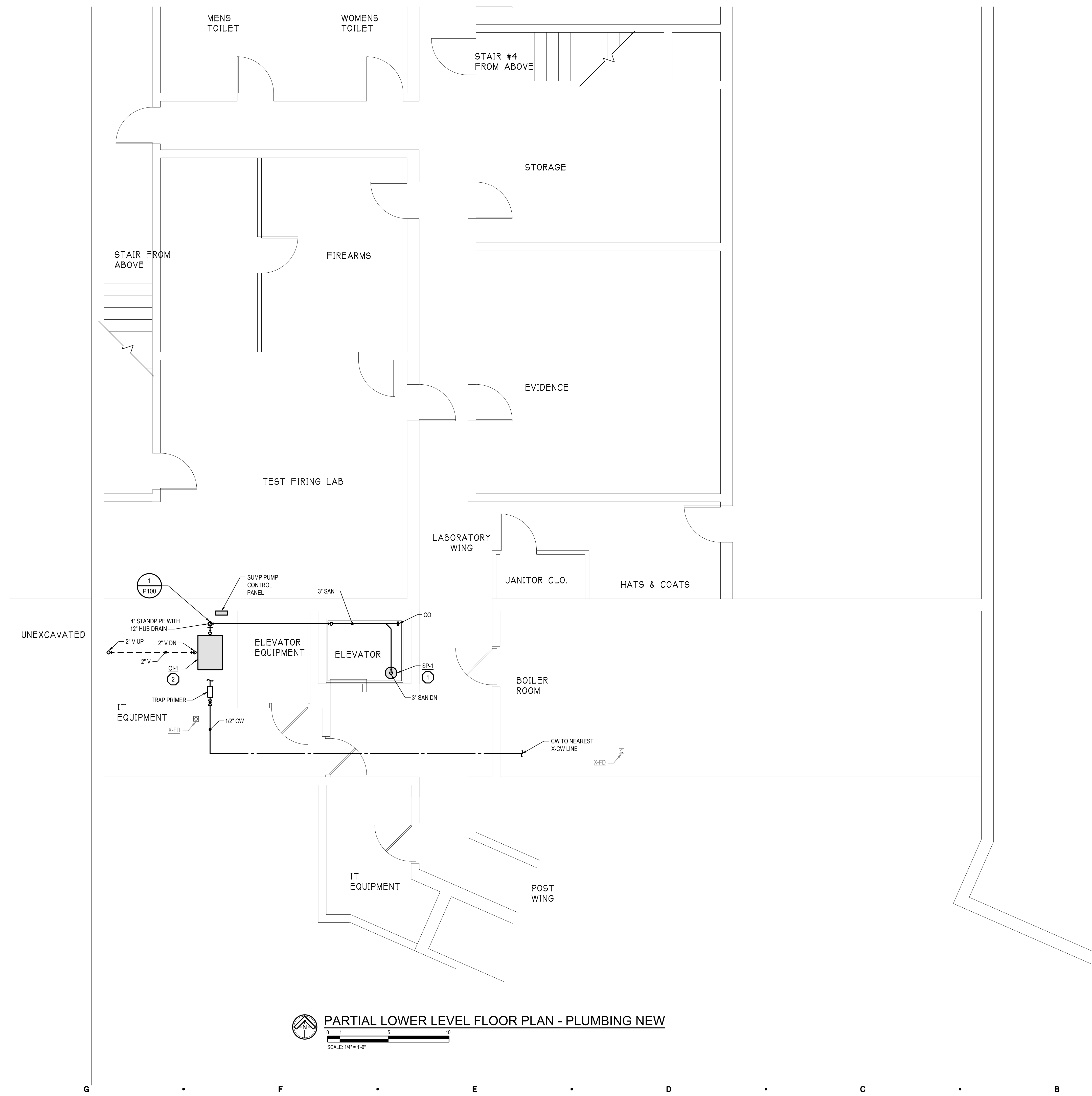
P-400  
 SHEET NUMBER



- PLUMBING KEY NOTES**
- INSTALL SUMP PUMP AT LOCATION SHOWN. ROUTE SANITARY PIPING AS SHOWN TO CONNECT TO EXISTING SANITARY PIPING.
  - INSTALL OIL INTERCEPTOR AT LOCATION SHOWN. ROUTE SANITARY PIPING AS SHOWN TO CONNECT TO EXISTING SANITARY PIPING.

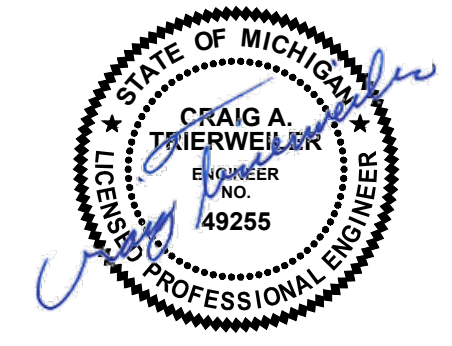
**PARTIAL BELOW LOWER LEVEL FLOOR PLAN - PLUMBING NEW**  
 SCALE: 1/4" = 1'-0"





- PLUMBING KEY NOTES**
- ① INSTALL SUMP PUMP AT LOCATION SHOWN. ROUTE SANITARY PIPING AS SHOWN TO DROP SANITARY NEXT TO FLOOR DRAIN.
  - ② INSTALL OIL INTERCEPTOR AT LOCATION SHOWN. ROUTE SANITARY, AND VENT PIPING AS REQUIRED.

**PARTIAL LOWER LEVEL FLOOR PLAN - PLUMBING NEW**  
 SCALE: 1/4" = 1'-0"



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 PROJECT



**PARTIAL LOWER LEVEL FLOOR PLAN - PLUMBING NEW**

SHEET TITLE	
PROJECT NUMBER	22300
SHEET NUMBER	P-401



**ELECTRICAL SYMBOLS LEGEND**

<p><b>OUTLETS</b></p> <p>⊕ SINGLE RECEPTACLE (120 VOLT)                  ⊕ DUPLEX RECEPTACLE                  ⊕ EMERGENCY RECEPTACLE                  ⊕ DOUBLE DUPLEX RECEPTACLE                  ⊕ F FLUSH FLOOR BOX                  ⊕ S SURFACE FLOOR BOX                  ⊕ SPECIAL EQUIPMENT RECEPTACLE                  ⊕ TELEPHONE OUTLET                  ⊕ DATA OUTLET                  ⊕ TELEPHONE / DATA OUTLET                  ■ PP POWER POLE                  ⊕ JUNCTION BOX                  ⊕ WALL JUNCTION BOX                  ⊕ PULL (JUNCTION) BOX                  ⊕ UNDERFLOOR JUNCTION BOX                  ⊕ CEILING MOUNTED WIFI</p> <p><b>SWITCHES</b></p> <p>⊕ SINGLE-POLE SWITCH                  ⊕ THREE-WAY SWITCH                  ⊕ FOUR-WAY SWITCH                  ⊕ SWITCH WITH PILOT LIGHT                  ⊕ THERMAL OVERLOAD SWITCH                  ⊕ MANUAL MOTOR SWITCH                  ⊕ KEY SWITCH                  ⊕ TIME SWITCH                  ⊕ DIMMER SWITCH</p> <p><b>MECHANICAL</b></p> <p>⊕ SINGLE PHASE MOTOR                  ⊕ THREE PHASE MOTOR                  ⊕ RESISTANCE HEATER, KW SHOWN                  ⊕ PIPE TRACE HEATER                  ⊕ ELECTRIC UNIT HEATER                  ⊕ ELECTRIC WATER HEATER</p> <p><b>NURSE CALL</b></p> <p>⊕ NURSE CALL CONTROLLER                  ⊕ MASTER STATION                  ⊕ EMERGENCY PULL STATION                  ⊕ EMERGENCY PUSH STATION                  ⊕ CODE BLUE STATION                  ⊕ PENDENT INTERFACE                  ⊕ BED / LIGHT INTERFACE                  ⊕ SINGLE BED STATION                  ⊕ DUAL BED STATION                  ⊕ DOME LIGHT                  ⊕ STAFF REGISTER STATION                  ⊕ STAFF STATION                  ⊕ DUTY STATION</p> <p><b>DESIGNATIONS</b></p> <p>⊕ DEMOLITION NOTE                  ⊕ PLAN NOTE                  ⊕ ADDENDUM NOTE</p>	<p><b>FIXTURES</b></p> <p>⊕ LIGHT FIXTURE                  ⊕ STRIP FIXTURE                  ⊕ EMERGENCY LIGHT FIXTURE                  ⊕ IN-GRADE LIGHT FIXTURE                  ⊕ SPOTLIGHT (number of heads shown)                  ⊕ EXIT SIGN (face &amp; direction as shown)                  ⊕ WALL MOUNT LIGHT FIXTURE                  ⊕ CEILING LIGHT FIXTURE                  ⊕ TRACK &amp; FIXTURE                  ⊕ STREET TYPE POLE FIXTURE                  ⊕ POLE MOUNTED LIGHT FIXTURE                  ⊕ EXTERIOR WALL MOUNT LIGHT FIXTURE                  ⊕ WALLPACK LIGHT FIXTURE                  ⊕ SPECIAL PURPOSE LIGHT FIXTURE                  ⊕ HIGH BAY LIGHT FIXTURE                  ⊕ EMERGENCY EGRESS LIGHT FIXTURE (number of heads shown)                  ⊕ DOCK LIGHT FIXTURE</p> <p><b>CIRCUITRY and RACEWAYS</b></p> <p>— CONDUIT INSTALLED (by E.C.)                  — CONDUIT INSTALLED (by others)                  — CONDUIT STUB UP                  — CONDUIT STUB DOWN                  — HOME RUN (with circuit numbers)                  — END OF CONDUIT RUN                  — END OF CONDUIT RUN, CAP AND STAKE                  — *CONDUIT RUN CONTINUES* INDICATION                  — FLEXIBLE PIGTAILS/CONNECTIONS                  — WM WIREMOLD AS SPECIFIED                  — PM PLUGMOLD AS SPECIFIED                  — BD BUS DUCT                  — UFD UNDERFLOOR DUCT</p> <p><b>SOUND and SIGNAL</b></p> <p>⊕ SPEAKER                  ⊕ WALL MOUNTED SPEAKER                  ⊕ WALL MOUNTED SPEAKER / CLOCK COMBO                  ⊕ SINGLE FACE CLOCK                  ⊕ DUAL FACE CLOCK                  ⊕ VIDEO INPUT                  ⊕ AUDIO / VIDEO INPUT                  ⊕ BELL                  ⊕ VOLUME CONTROL                  ⊕ BUZZER                  ⊕ CHIME                  ⊕ TELEVISION OUTLET                  ⊕ MICROPHONE OUTLET                  ⊕ INTERCOM OUTLET                  ⊕ CAMERA                  ⊕ DOOR CONTACT                  ⊕ MOTION DETECTOR                  ⊕ BEAM DETECTOR                  ⊕ KEY PAD                  ⊕ SECURITY SYSTEM CONTROL PANEL                  ⊕ CCTV CONTROL PANEL                  ⊕ CARD READER                  ⊕ STUDENT STATION                  ⊕ ADMINISTRATION STATION                  ⊕ TEACHER STATION                  ⊕ GLASS BREAK</p>	<p><b>SERVICE and EQUIPMENT</b></p> <p>⊕ TRANSIENT VOLTAGE SURGE SUPPRESSION                  ⊕ VARIABLE FREQUENCY DRIVE                  ⊕ TRANSFORMER                  ⊕ DISCONNECT SWITCH                  ⊕ MAGNETIC STARTER                  ⊕ COMB. STARTER                  ⊕ PANELBOARD, SURFACE MOUNTED                  ⊕ PANELBOARD, FLUSH MOUNTED                  ⊕ WEATHERHEAD                  ⊕ UTILITY METER, AS REQUIRED                  ⊕ DIGITAL EQUIPMENT METER, AS REQUIRED                  ⊕ CURRENT TRANSFORMERS                  ⊕ GENERATOR, KW SHOWN                  ⊕ TELEPHONE TERMINAL BOARD                  ⊕ GROUND CONNECTION PER N.E.C.                  ⊕ WIREWAY                  ⊕ TRANSFER SWITCH                  ⊕ ENCLOSED CIRCUIT BREAKER                  ⊕ CAPACITOR</p> <p><b>CONTROL</b></p> <p>⊕ THERMOSTAT                  ⊕ HUMIDISTAT                  ⊕ PHOTOCELL (voltage as required)                  ⊕ TIME CLOCK (24 hour U.O.N.)                  ⊕ PUSHBUTTON STATION (number of buttons indicated)                  ⊕ CONTROL TRANSFORMER                  ⊕ LIGHTING CONTACTOR                  ⊕ IRRIGATION CONTROLLER (120 volt xxVA connection by x/C)</p> <p>⊕ WALL MOUNT DUAL TECHNOLOGY SENSOR                  ⊕ OCCUPANCY SENSOR / PHOTOCELL                  ⊕ ULTRASONIC SENSOR - 360° - 2 CIRCUIT                  ⊕ DUAL TECHNOLOGY SENSOR - 360° - 1000 SQ FT                  ⊕ DUAL TECHNOLOGY SENSOR - 360° - 500 SQ FT                  ⊕ SWITCH STYLE OCCUPANCY SENSOR</p> <p>⊕ POWER PACK</p> <p>⊕ DIGITAL TIME SWITCH</p> <p><b>FIRE ALARM</b></p> <p>⊕ SMOKE DETECTOR                  ⊕ HEAT DETECTOR                  ⊕ DUCT SMOKE DETECTOR                  ⊕ DUCT SMOKE DETECTOR                  ⊕ HORN                  ⊕ HORN &amp; LIGHT                  ⊕ SPEAKER                  ⊕ SPEAKER &amp; LIGHT                  ⊕ PULL STATION                  ⊕ FIRE ALARM CONTROL PANEL                  ⊕ ANNUNCIATOR PANEL                  ⊕ END OF LINE DEVICE                  ⊕ REMOTE INDICATING LIGHT, WALL MTD.                  ⊕ REMOTE INDICATING LIGHT, CLG. MTD.                  ⊕ MAGNETIC DOOR HOLDER                  ⊕ FIREFIGHTER COMMUNICATION JACK                  ⊕ FLOW SWITCH (furnished by FP/C)                  ⊕ TAMPERS SWITCH (furnished by FP/C)                  ⊕ VISUAL ONLY UNIT                  ⊕ FIRE CONTROL POWER SUPPLY                  ⊕ MONITOR MODULE                  ⊕ CONTROL MODULE                  ⊕ CARBON MONOXIDE DETECTOR</p>
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**GENERAL ELECTRICAL NOTES**

- ALL WALL AND FLOOR PENETRATIONS ARE TO BE SEALED TO MAINTAIN ORIGINAL RATING.
- ALL CONDUITS TO BE FIELD ROUTED ALONG EXISTING PIPING AND STRUCTURAL STEEL.
- THE DIVISION 26 CONTRACTORS SHALL VISIT THE PROJECT AND DETERMINE THE EXACT EXTENT OF THE DEMOLITION WORK REQUIRED BEFORE BIDDING THE PROJECT.
- REMOVE ALL EXISTING OBSOLETE EXPOSED CONDUIT, WIRE AND UNUSED EQUIPMENT WHERE WORK IS BEING DONE EXCEPT ITEMS NOTED OTHERWISE.
- WHERE BUILDING SURFACES ARE DAMAGED BY THE REMOVAL OF OLD WORK, SURFACES SHALL BE PATCHED TO MATCH ADJACENT.
- EXISTING WORK WHICH IS PRESENTLY CONCEALED AND WHICH WILL REMAIN CONCEALED AND DOES NOT INTERFERE WITH ANY NEW WORK OF ANY TRADE NEED NOT BE REMOVED. HOWEVER, ALL CONDUIT SHALL BE CAPPED BELOW FINISH SURFACE AND THEN PATCHED TO MATCH, OR AS NOTED.
- EXISTING OPENINGS, WHICH ARE TO BE REUSED, SHALL BE MODIFIED OR ENLARGED TO SUIT THE NEW SYSTEMS AS REQUIRED. PROVIDE ALL REQUIRED CUTTING AND PATCHING.
- IF ASBESTOS IS PRESENT, IT WILL BE REMOVED OR RENDERED HARMLESS UNDER SEPARATE CONTRACT BY THE OWNER.
- THE DIVISION 26 CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING THE EXISTING WALLS TO MATCH THE ADJACENT SURFACES BEHIND ALL SURFACE MOUNTED EQUIPMENT.
- CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT VOLTAGES AND LOADS PRIOR TO INSTALLING SERVICE TO EQUIPMENT.
- DRAWINGS ARE BASED ON EXISTING RECORD DOCUMENT AND CASUAL FIELD OBSERVATION. REPORT ANY DISCREPANCIES TO ENGINEER FOR CLARIFICATION.
- CONTRACTOR SHALL KEEP CURRENT-CARRYING CONDUCTORS OF DIFFERENT LOAD TYPES IN SEPARATE CONDUITS. LOAD TYPES CONSIST OF, BUT ARE NOT LIMITED TO: RECEPTACLES, MOTORS, EQUIPMENT, AND LIGHTING.
- CONTRACTOR SHALL KEEP DIFFERENT VOLTAGE CIRCUITS IN SEPARATE CONDUITS. 120V, 208V, 240V, 277V, AND 480V CIRCUITS SHALL NOT BE COMBINED.

**ABBREVIATIONS LEGEND**

<p>A AMPS                  AC ABOVE COUNTER                  ACU- AIR CONDITIONING UNIT                  AFF ABOVE FINISHED FLOOR                  AHJ AUTHORITY HAVING JURISDICTION                  AHU- AIR HANDLING UNIT                  AIC AMPS INTERRUPTING CAPACITY                  AS ABOVE SHELF                  ATS AUTOMATIC TRANSFER SWITCH</p> <p>B- BOILER                  BC BELOW COUNTER                  BLDG BUILDING</p> <p>CHLR- CHILLER                  CND (C) CONDUIT                  CKT CIRCUIT                  CKT BKR CIRCUIT BREAKER                  CT- COOLING TOWER                  CU- CONDENSING UNIT                  CUH- CABINET UNIT HEATER</p> <p>DFU- DUCT FURNACE                  DISC DISCONNECT                  DWG DRAWING                  DWH- DOMESTIC WATER HEATER</p> <p>EBB- ELECTRIC BASEBOARD                  EC ELECTRICAL CONTRACTOR                  EF- EXHAUST FAN                  EM EMERGENCY                  EMT ELECTRICAL METALLIC TUBING                  EWC ELECTRIC WATER COOLER                  EXIST (E) EXISTING</p> <p>FLA FULL LOAD AMPS                  FLEX FLEXIBLE CONDUIT                  FLR FLOOR                  FLUOR FLUORESCENT                  FSES FOOD SERVICE EQUIP. SUPPLIER                  F/S FIRE/SMOKE                  FU FURNACE</p>	<p>GC GENERAL CONTRACTOR                  GFI GROUND FAULT INTERRUPTER                  GND GROUND</p> <p>H- HUMIDIFIER                  HID HIGH INTENSITY DISCHARGE                  HOA HAND-OFF-AUTO SELECTOR SWITCH                  HP HORSEPOWER                  HR HOUR                  HVAC HEATING/VENTILATING/AIR CONDITIONING</p> <p>IG ISOLATED GROUND                  IMC INTERMEDIATE METAL CONDUIT</p> <p>JB JUNCTION BOX</p> <p>LC LIGHT CONTROL                  LT LIGHT                  LTG LIGHTING                  LT FLEX LIQUID TIGHT FLEXIBLE METAL CONDUIT</p> <p>MAX MAXIMUM                  MC MECHANICAL CONTRACTOR                  MCC MOTOR CONTROL CENTER                  MIN MINIMUM                  MLO MAIN LUG ONLY                  MOUNT MOUNTED                  MTD MOUNTING                  MTG MAKE-UP AIR UNIT</p> <p>NC NORMALLY CLOSED                  NIC NOT IN CONTRACT                  NL NIGHT LIGHT                  NO NORMALLY OPEN                  NTS NOT TO SCALE</p>	<p>P POLE                  P- PUMP                  PB PULL BOX                  PNL PANEL                  PRV- POWER ROOF VENTILATOR                  PVC POLY VINYL CHLORIDE                  PWR POWER</p> <p>RECEPT RECEPTACLE                  RGC RIGID GALVANIZED STEEL CONDUIT                  RTU- ROOF TOP UNIT</p> <p>SE- SUPPLY FAN                  SPEC SPECIFICATIONS                  SW SWITCH                  SWBD SWITCHBOARD</p> <p>TCC TEMPERATURE CONTROL CONTRACTOR                  TR TAMPER PROOF RECEPTACLE                  TS TAMPER PROOF SWITCH                  TYP TYPICAL</p> <p>UF UNDER FLOOR                  UH- UNIT HEATER                  UL UNDERWRITERS' LABORATORIES, INC.                  UNO UNLESS NOTED OTHERWISE</p> <p>V VOLTS                  VL VERIFY LOCATION WITH OWNER</p> <p>W WATTS                  W/ WITH                  W/O WITHOUT                  WP WEATHER PROOF</p> <p>XFMR TRANSFORMER</p>
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**LIGHTING FIXTURE SCHEDULE**

TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION AND COMMENTS	DIMMING INFO	FIXTURE MOUNTING HEIGHT	LAMPS
LA	COLUMBIA LIGHTING OR EQUAL	HEM4-50ML-DF-A-EU	LED 4' WALL-MOUNTED, GASKETED FIXTURE.	-	USE EXISTING HEIGHT	4850 LUMENS 47W, 5000K LED

**FIRE ALARM NOTES**

- ALL POWER CABLE SHALL BE IN MINIMUM 3/4" CONDUIT UNLESS OTHERWISE SPECIFIED.
- EXISTING FIRE ALARM SYSTEM IS HONEYWELL XLS1000.
- FIRE ALARM CABLE CAN BE INSTALLED FREE AIR ABOVE CEILINGS.
- PROVIDE RACEWAY WHERE SURFACE MOUNT DEVICES ARE REQUIRED. CONDUIT SHALL BE 3/4" MINIMUM.
- ALL CABLE SHALL BE INSTALLED PER FIRE ALARM MANUFACTURER'S SPECIFICATIONS.
- FIRE ALARM REMOTE POWER SUPPLY SHALL BE MONITORED.
- PROVIDE SMOKE DETECTOR ABOVE ALL FIRE ALARM PANELS AND REMOTE POWER SUPPLIES.
- REFER TO DRAWINGS FOR DEVICE QUANTITIES AND LOCATIONS. BRING TO THE ENGINEER'S ATTENTION DISCREPANCIES PRIOR TO BIDDING PROJECT.
- UPON ALARM OF SMOKE DETECTORS, FIRE ALARM SYSTEM TO RELEASE DOOR HOLDERS.
- POWER SUPPLIES IN BOTH FACP AND FCPS SHALL HAVE 25% SPARE CAPACITY.
- TRUE PEER TO PEER NETWORK FOR FIRE ALARM SYSTEM.
- FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR ALL CANDELA RATINGS OF VISUAL UNITS TO COMPLY WITH NFPA 72. STROBE CANDELA SETTINGS SHALL BE SET DURING INSTALLATION OF THE DEVICE.
- REPLACE ALL EXISTING DUCT DETECTORS AS SHOWN ON PRINTS. ANY DUCT DETECTORS THAT ARE DISCOVERED AND NOT SHOWN SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
- PROVIDE REMOTE TEST STATIONS FOR EACH DUCT DETECTOR.
- INSTALLATION METHODS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 760.
- 120V AC POWER FOR FIRE ALARM SYSTEM ENCLOSURES SHALL NOT SHARE CONDUIT RACEWAY WITH FIRE ALARM SYSTEM CIRCUITS.
- FIRE ALARM SYSTEM DEVICES SHALL BE MOUNTED TO ELECTRICAL BOXES AS REQUIRED AND REFLECTED ON DEVICE INSTALLATION SHEET.
- STROBE CANDELA SETTINGS SHALL BE SET DURING INSTALLATION OF THE DEVICE.
- AREA SMOKE DETECTORS SHALL NOT BE PLACED WITHIN 36-INCHES OF AIR DISTRIBUTION DIFFUSERS OR RETURN GRILLS.

**FIRE ALARM SEQUENCE OF WORK**

- SUBMIT SHOP DRAWINGS, WIRING DIAGRAMS, BATTERY CALCULATION TO ENGINEER ON LIGHTING AND FIRE ALARM SYSTEM.
- SUBMIT FIRE ALARM SHOP DRAWINGS TO FIRE MARSHAL AFTER ENGINEER APPROVAL. INSTALL NEW LIGHTING PER DRAWINGS.
- PROVIDE AND INSTALL FIRE ALARM SYSTEM PER APPROVED FIRE MARSHAL SUBMITTAL. TAG NEW DEVICES 'OUT OF SERVICE' UNTIL NEW SYSTEM HAS BEEN APPROVED BY THE FIRE MARSHAL.
- PROVIDE FIRE WATCH WHEN SWITCHING THE TAMPERS AND FLOW SWITCHES TO NEW SYSTEMS.
- NEW FIRE ALARM SYSTEM SHALL BE CERTIFIED BY NICET LEVEL 3 FIRE ALARM SUPPLIER.
- ENGINEER WILL PROVIDE PUNCH LIST ON LIGHTING AND FIRE ALARM SYSTEM.
- OBTAIN FIRE MARSHAL APPROVAL FOR NEW FIRE ALARM SYSTEM. OBTAIN ELECTRICAL INSPECTION APPROVAL ON LIGHTING AND POWER FOR PROJECT.
- TRAIN OWNER ON NEW SYSTEM.
- SUBMIT ALL O & E MANUALS AND AS-BUILTS TO ENGINEER FOR APPROVAL.
- ONCE THE NEW SYSTEM HAS BEEN APPROVED, DEMO EXISTING FIRE ALARM SYSTEM. REMOVE ALL EXPOSED WIREMOLD, CONDUIT, AND WIRE. PATCH AND PAINT AS REQUIRED. REMOVE TAGS ON NEW FIRE ALARM DEVICES. TURN OVER O & E MANUALS AND AS-BUILTS TO OWNER.

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**DTMB**  
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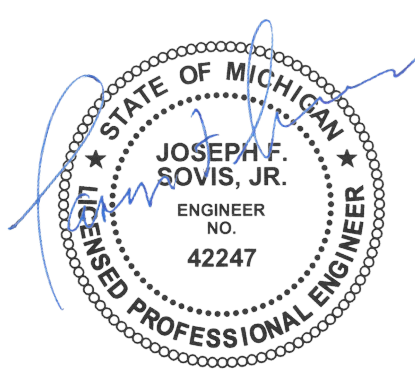
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 NORTHVILLE, MI 48167

PROJECT

**MATRIX**  
 CONSULTING ENGINEERS, INC.  
 1601 E. César E. Chávez Ave  
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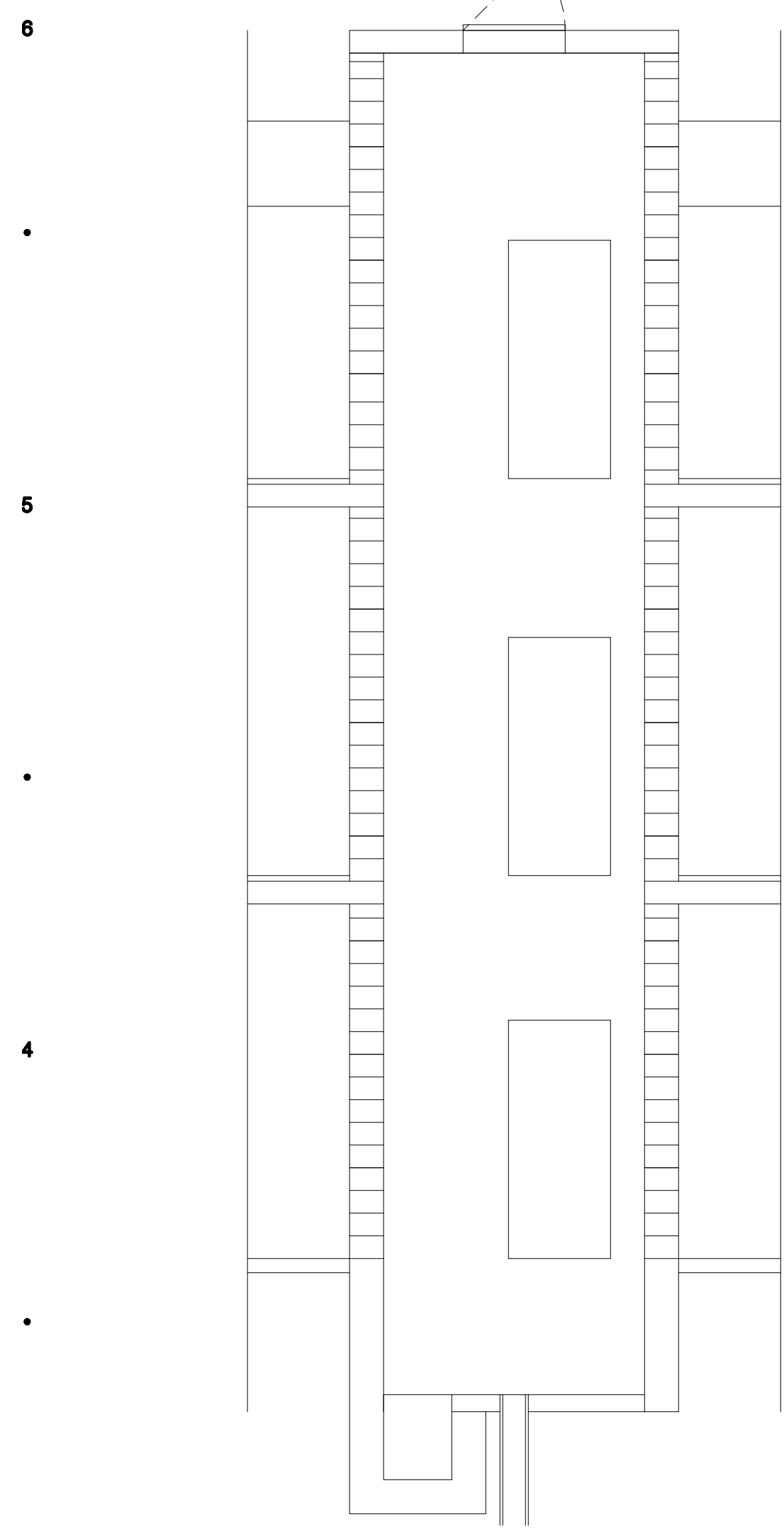
**LERCH BATES**  
 950 Boston Street SE Grand  
 Rapids MI 49507  
 CONSULTANT

**ELECTRICAL SYMBOLS, ABBREV, NOTES, SCHEDULES**



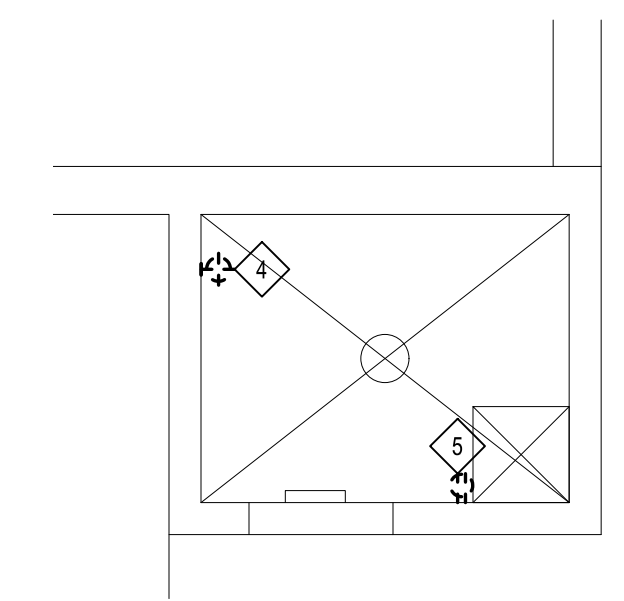


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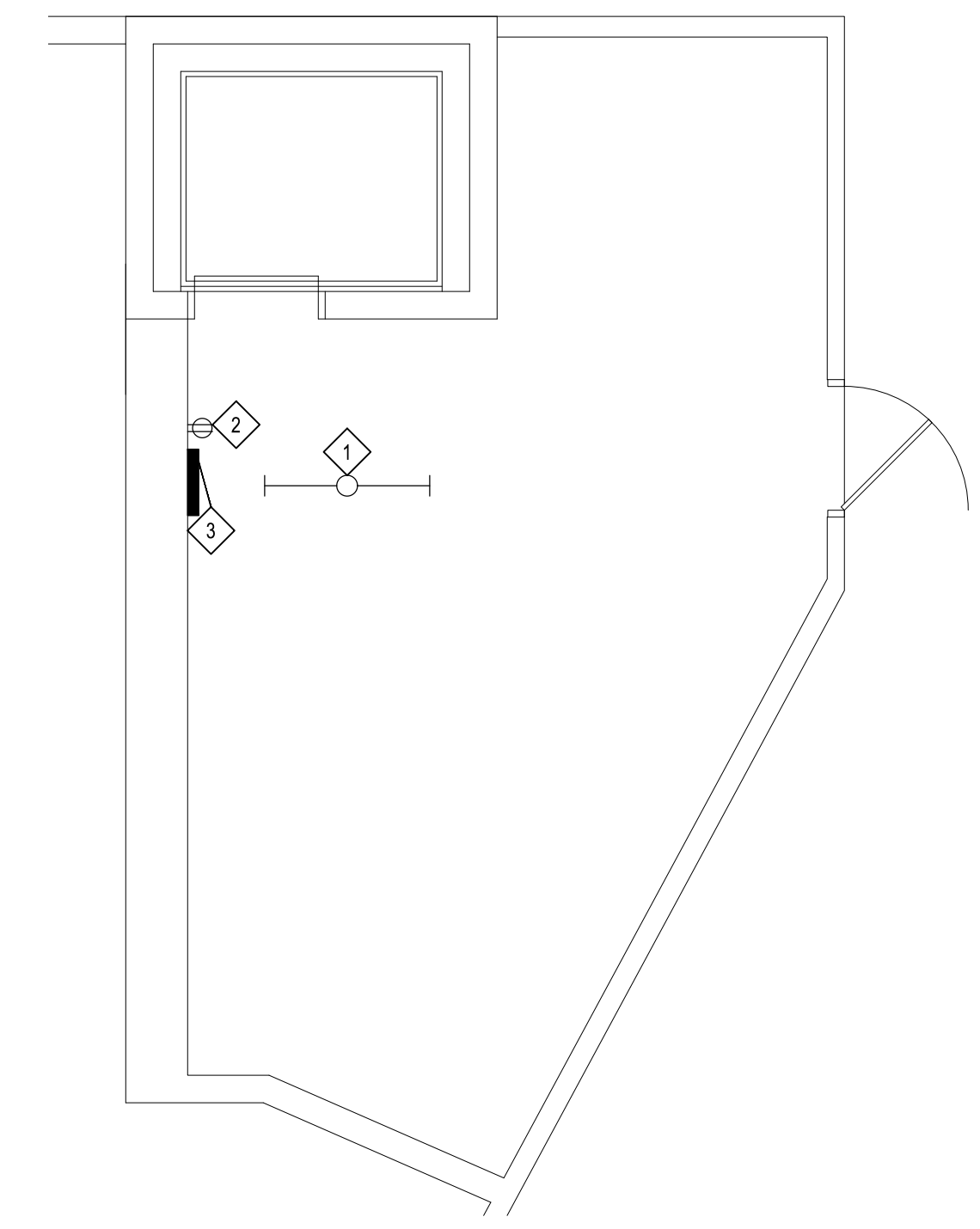


**ELECTRICAL - HOISTWAY SECTION DEMOLITION**  
 SCALE: 1/4" = 1'-0"

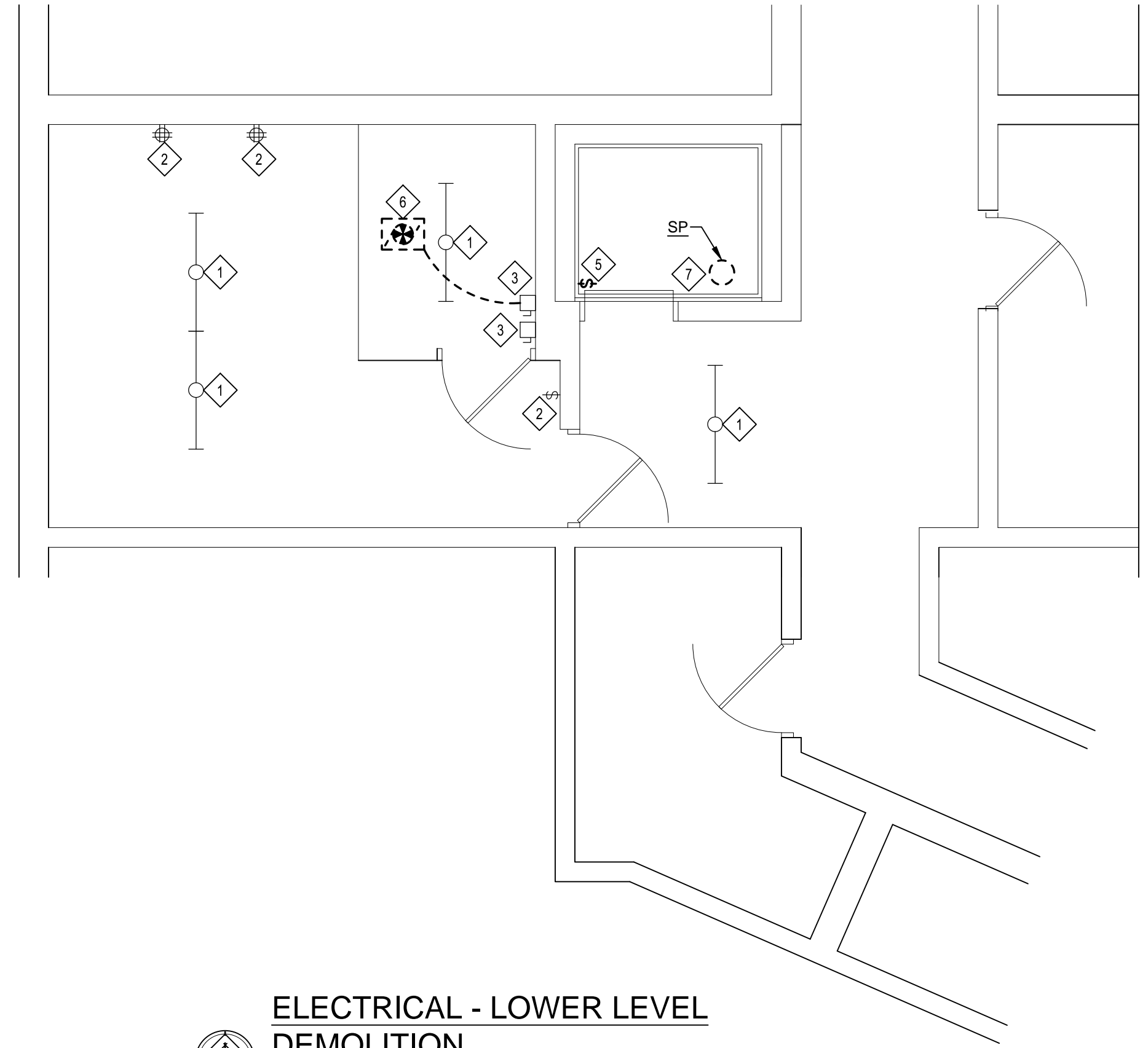
- DEMOLITION NOTES**
- 1 EXISTING LIGHT FIXTURE TO REMAIN.
  - 2 EXISTING DEVICE TO REMAIN.
  - 3 EXISTING EQUIPMENT TO REMAIN.
  - 4 DISCONNECT & REMOVE EXISTING LIGHT FIXTURE. REMOVE ASSOCIATED CONDUIT & WIRE.
  - 5 DISCONNECT & REMOVE EXISTING DEVICE. REMOVE ASSOCIATED CONDUIT & WIRE.
  - 6 DISCONNECT EQUIPMENT FOR REMOVAL BY OTHERS. REMOVE ASSOCIATED CONDUIT & WIRE.
  - 7 DISCONNECT & REMOVE EXISTING EQUIPMENT. ASSOCIATED CONDUIT & WIRE TO REMAIN FOR NEW EQUIPMENT.



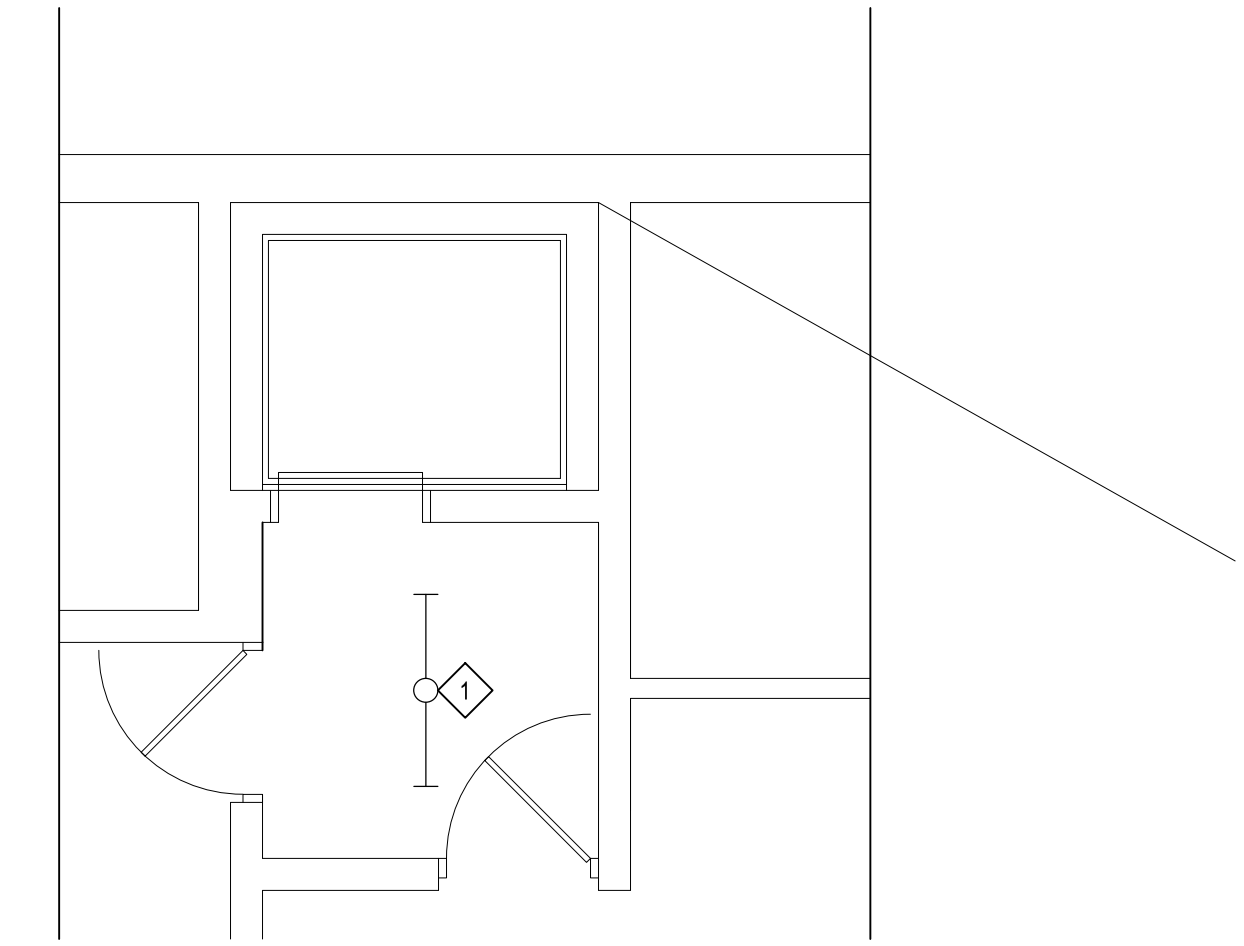
**ELECTRICAL - PIT LEVEL DEMOLITION**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - ROOF LEVEL DEMOLITION**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - LOWER LEVEL DEMOLITION**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - MAIN LEVEL DEMOLITION**  
 SCALE: 1/4" = 1'-0"

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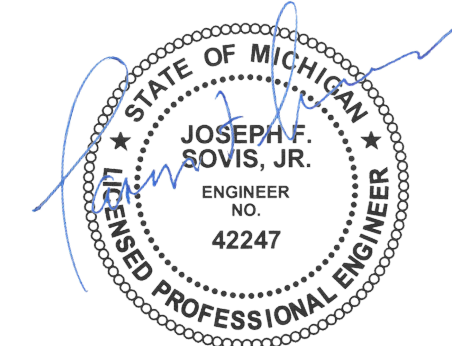
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**ELECTRICAL DEMOLITION FLOOR PLANS**

SHEET TITLE

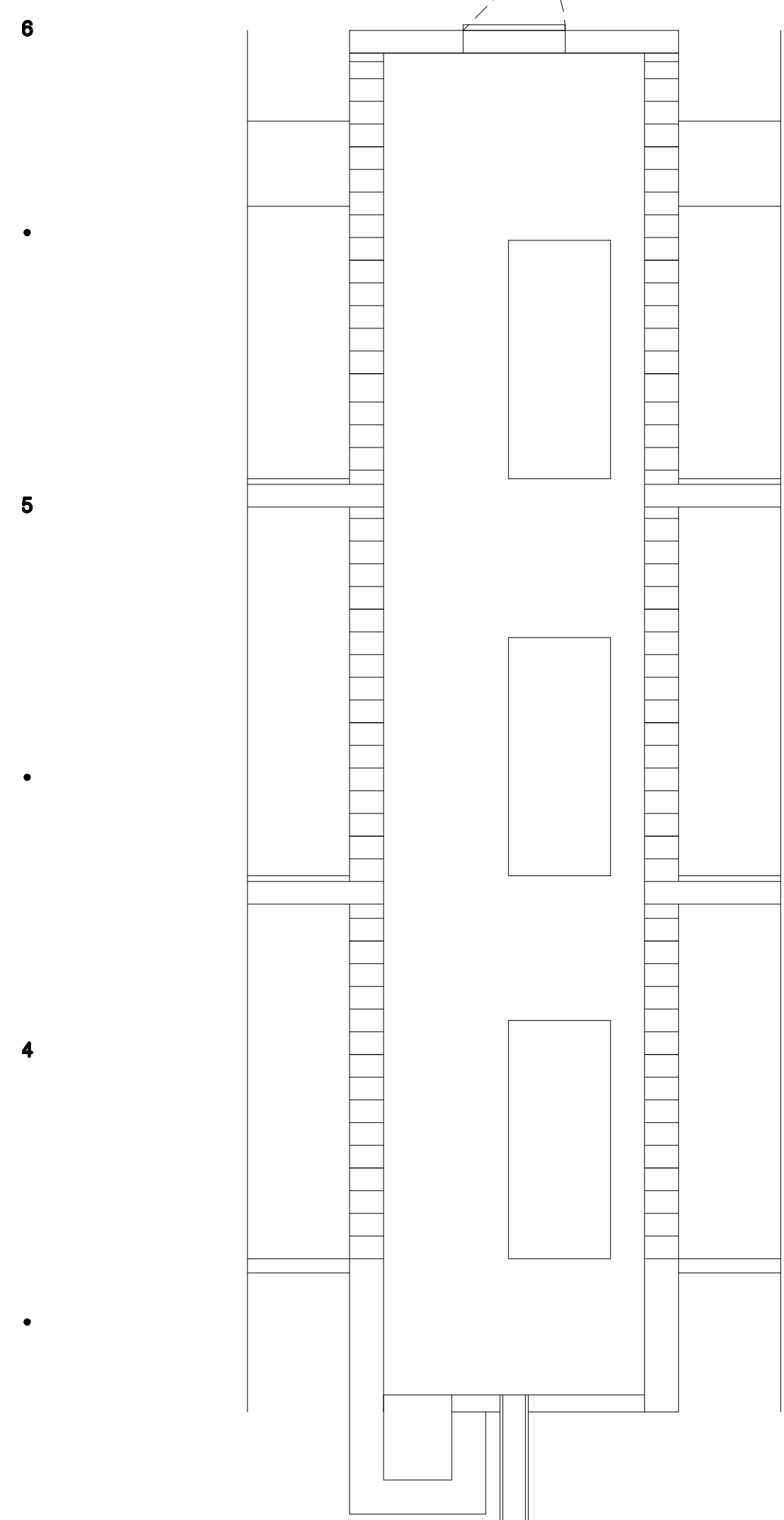
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 SHEET NUMBER





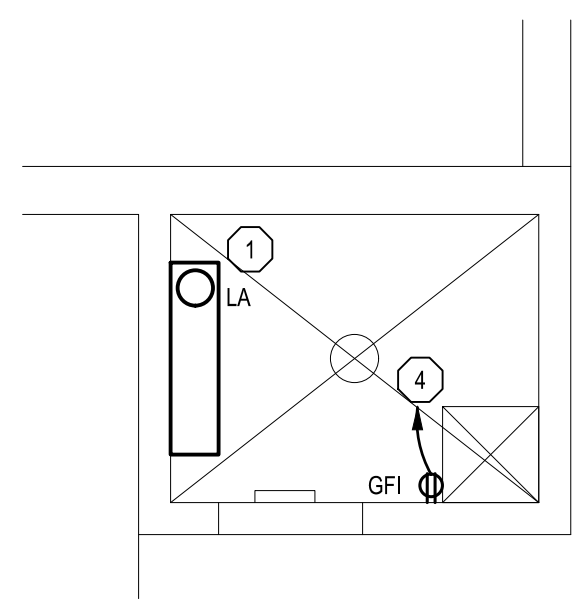
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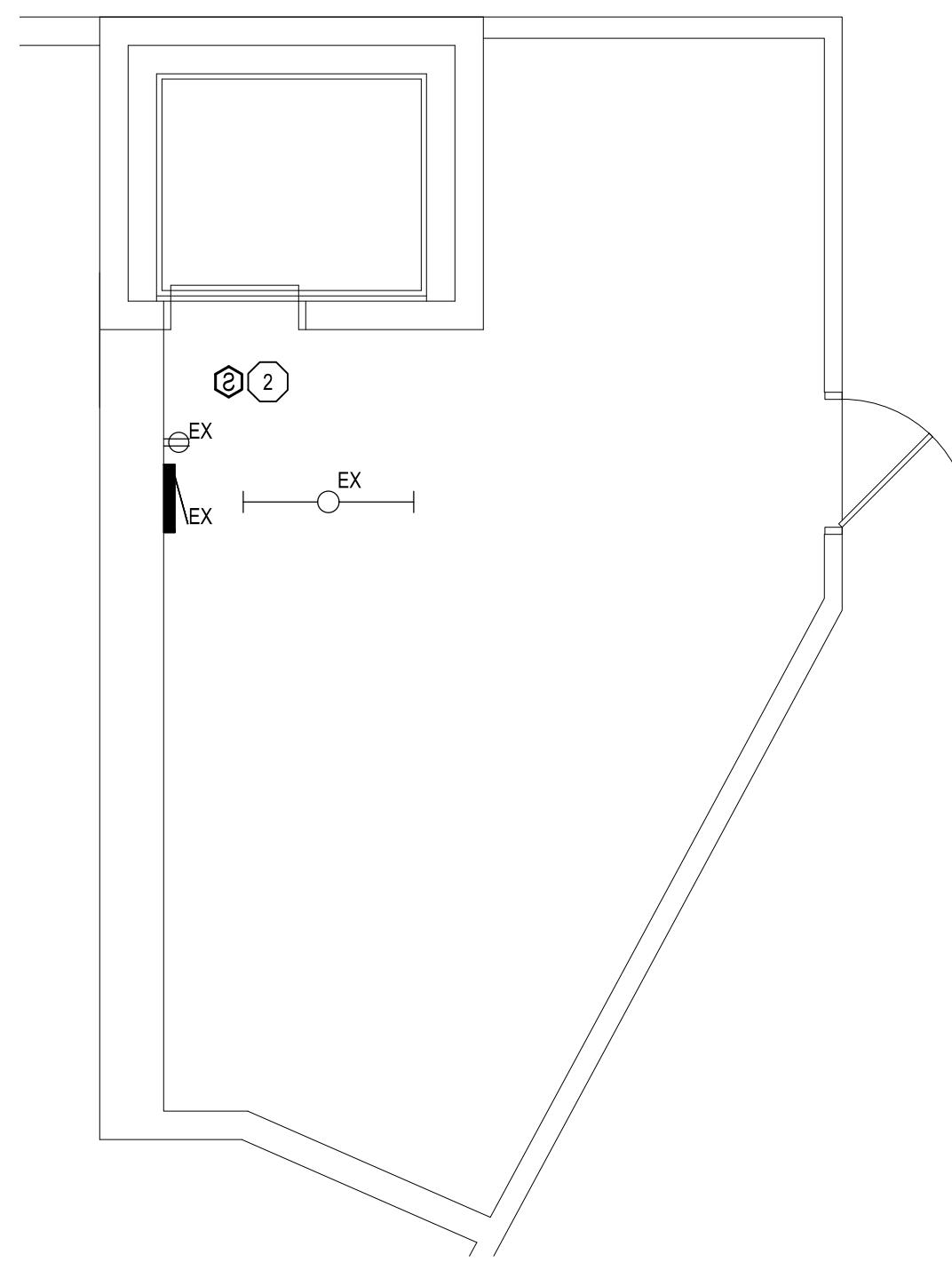
**ELECTRICAL - HOISTWAY SECTION POWER**  
 SCALE: 1/4" = 1'-0"

**ELECTRICAL KEY NOTES**

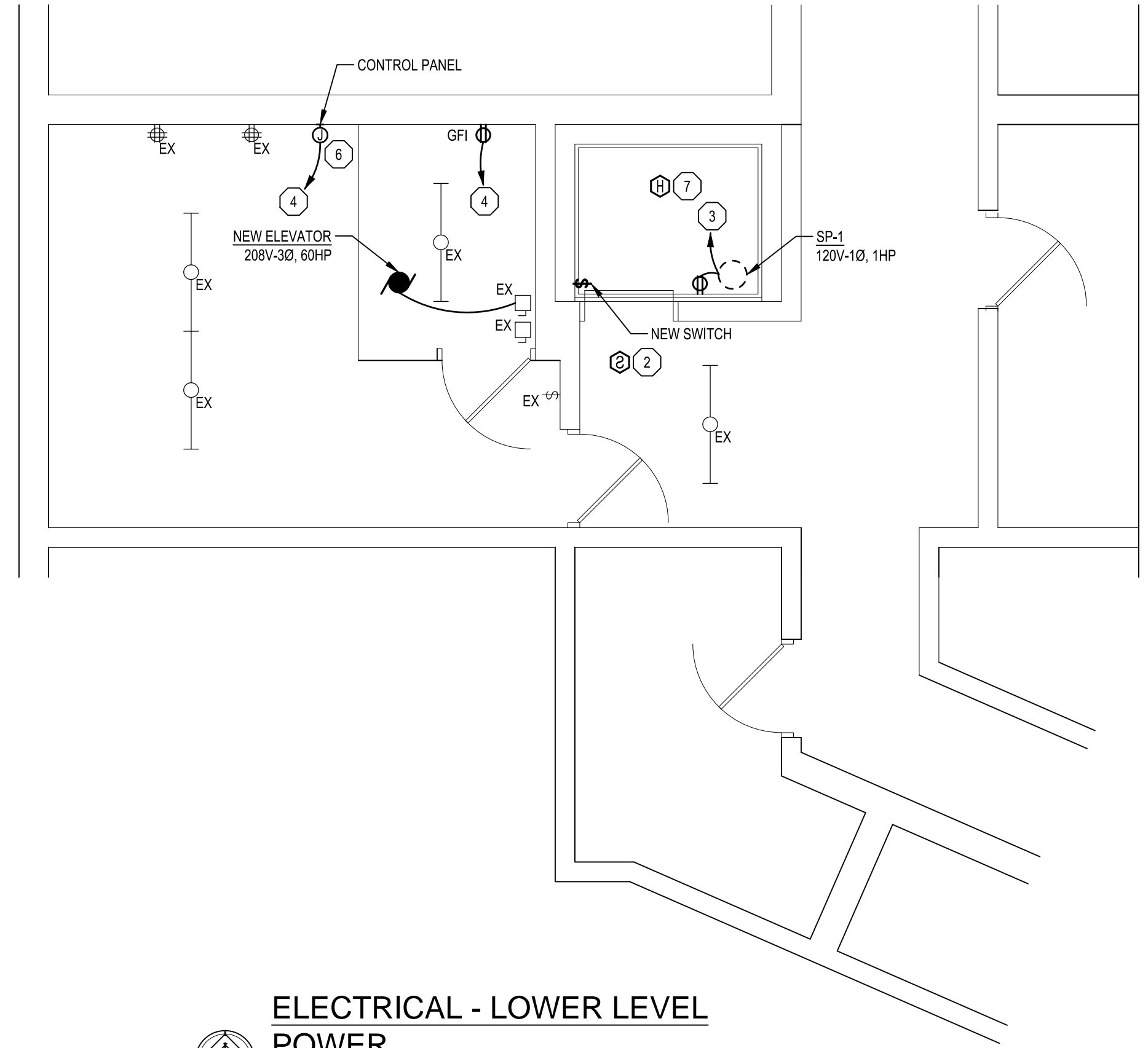
- 1 CONTRACTOR SHALL REUSE EXISTING CIRCUIT FOR LIGHT.
- 2 NEW SMOKE DETECTOR SUPPLIED BY OWNER. CONTRACTOR SHALL INCLUDE RELAYS TO MANAGE ELEVATOR RECALL SYSTEM. TIE DEVICE INTO EXISTING FIRE ALARM SYSTEM. DEVICE SHALL BE PROGRAMMED BY FIRE ALARM MANUFACTURER.
- 3 CONTRACTOR SHALL REUSE EXISTING CIRCUIT FOR NEW EQUIPMENT.
- 4 CONTRACTOR SHALL CIRCUIT TO NEAREST AVAILABLE 120V-1P BREAKER. IF NO EXISTING BREAKERS ARE AVAILABLE, CONTRACTOR SHALL PROVIDE AND INSTALL NEW BREAKER IN EXISTING PANEL. NEW BREAKER SHALL MATCH EXISTING BREAKER TYPE.
- 5 NOT USED.
- 6 COORDINATE FINAL LOCATION OF CONTROL PANEL WITH SUMP PUMP LOCATION.
- 7 NEW HEAT DETECTOR SUPPLIED BY OWNER. CONTRACTOR SHALL INCLUDE RELAYS TO MANAGE ELEVATOR RECALL SYSTEM. TIE DEVICE INTO EXISTING FIRE ALARM SYSTEM. DEVICE SHALL BE PROGRAMMED BY FIRE ALARM MANUFACTURER.



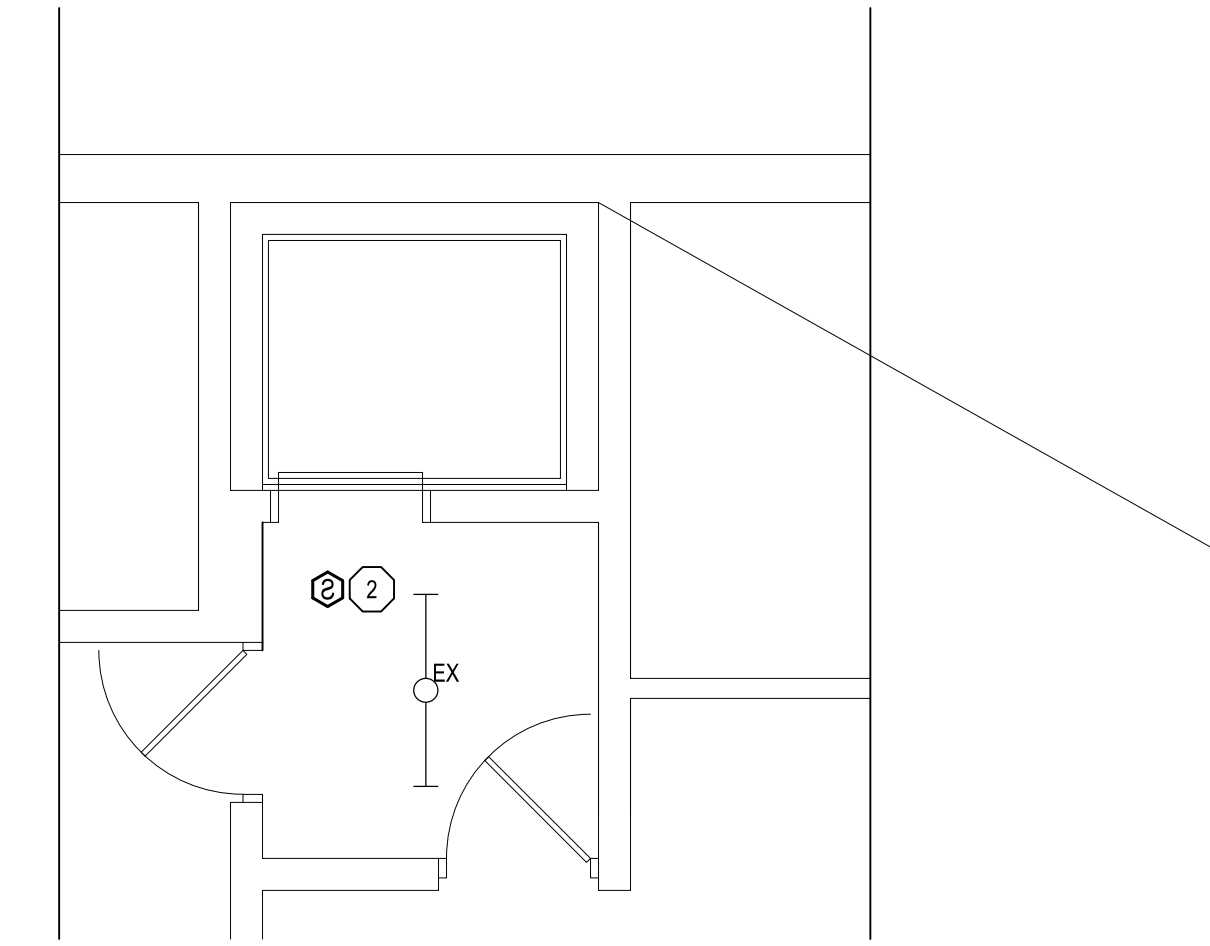
**ELECTRICAL - PIT LEVEL POWER**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - ROOF LEVEL POWER**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - LOWER LEVEL POWER**  
 SCALE: 1/4" = 1'-0"



**ELECTRICAL - MAIN LEVEL POWER**  
 SCALE: 1/4" = 1'-0"

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 NORTHVILLE, MI 48167

PROJECT



**LERCH BATES**  
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 CONSULTANT

**ELECTRICAL POWER FLOOR PLANS**

SHEET TITLE

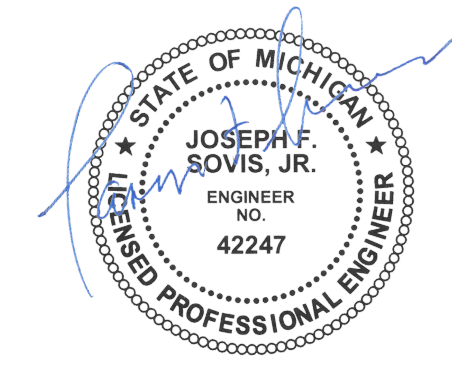
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PROJECT NUMBER

E-500

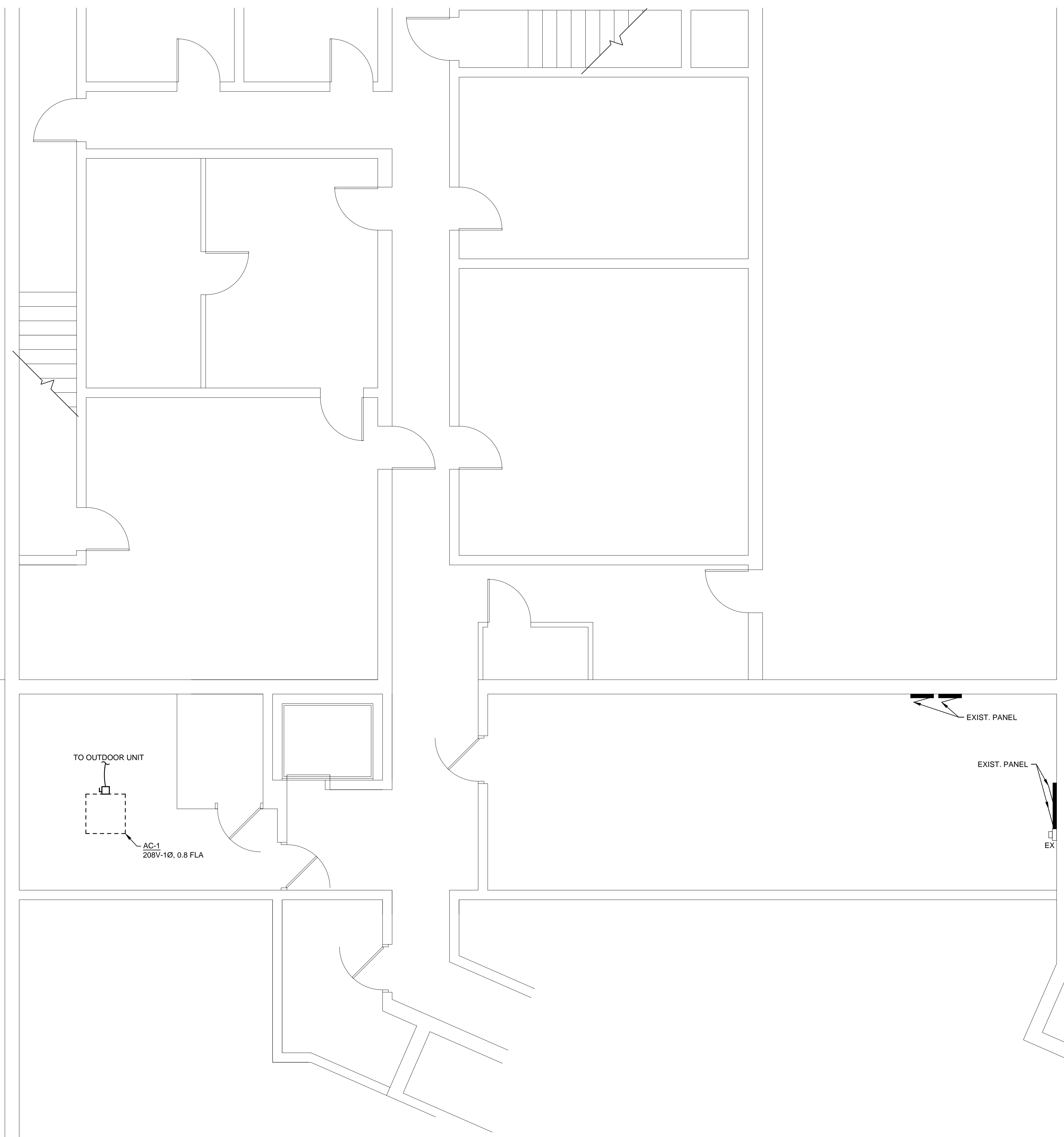
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**ELECTRICAL KEY NOTES**

- ① NOT USED.
- ② NOT USED.
- ③ NOT USED.
- ④ NOT USED.
- ⑤ NOT USED.
- ⑥ NOT USED.
- ⑦ NOT USED.



**PARTIAL LOWER LEVEL FLOOR PLAN - ELECTRICAL NEW**



BIDS	08/18/2023
BIDS	08/25/2022
DATE ISSUED	BTT
DRAWN BY	J5F
CHECKED BY	

**HOBBS + BLACK**  
**ARCHITECTS**  
 100 N. State St., 48104  
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File No: 5512167.TYC



MSP  
**NORTHVILLE LAB**  
**ELEVATOR**  
**REPLACEMENT**  
 42145 W SEVEN MILE RD,  
 NORTHVILLE, MI 48167  
 PROJECT



**PARTIAL**  
**LOWER LEVEL**  
**FLOOR PLAN**  
**ELECTRICAL**

SHEET TITLE

**22300**

PROJECT NUMBER

**E-501**

SHEET NUMBER





**ELECTRICAL KEY NOTES**

- ① NOT USED.
- ② NEW SMOKE DETECTOR SUPPLIED BY OWNER. CONTRACTOR SHALL INCLUDE RELAYS TO MANAGE ELEVATOR RECALL SYSTEM. TIE DEVICE INTO EXISTING FIRE ALARM SYSTEM. DEVICE SHALL BE PROGRAMMED BY FIRE ALARM MANUFACTURER.
- ③ NOT USED.
- ④ CONTRACTOR SHALL CIRCUIT TO NEAREST AVAILABLE 120V-1P BREAKER. IF NO EXISTING BREAKERS ARE AVAILABLE, CONTRACTOR SHALL PROVIDE AND INSTALL NEW BREAKER IN EXISTING PANEL. NEW BREAKER SHALL MATCH EXISTING BREAKER TYPE.
- ⑤ CONTRACTOR SHALL CIRCUIT TO NEAREST AVAILABLE 208V-1P BREAKER. IF NO EXISTING BREAKERS ARE AVAILABLE, CONTRACTOR SHALL PROVIDE AND INSTALL NEW BREAKER IN EXISTING PANEL. NEW BREAKER SHALL MATCH EXISTING BREAKER TYPE.
- ⑥ NOT USED.
- ⑦ NOT USED.

**PARTIAL ROOF PLAN - ELECTRICAL NEW**  
 SCALE: 1/4" = 1'-0"

BIDS	08/18/2023
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File No: 55121167.TYC



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 42145 W SEVEN MILE RD,  
 NORTHVILLE, MI 48167  
 PROJECT



**PARTIAL ROOF PLAN ELECTRICAL**

SHEET TITLE

**22300**  
 PROJECT NUMBER

**E-502**  
 SHEET NUMBER

