

**D6 KEY PLAN**  
SCALE: 1/32" = 1'-0"  
PROJECT NORTH

**D2 MILLWORK ELEVATION**  
SCALE: 1/2" = 1'-0"

**D1 TYP. ADA TOILET DIMENSIONS**  
SCALE: =

**ACCESSIBILITY NOTES**

- ACCESS TO THESE FACILITIES SHALL BE PROVIDED AT PRIMARY ENTRANCES, AS REQUIRED BY ADA.
- WALKS & SIDEWALKS SHALL HAVE A CONTINUOUS COMMON SURFACE NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGES IN LEVEL EXCEEDING 1/2" AND SHALL BE A MIN. OF 36" IN WIDTH.
- SURFACES WITH A SLOPE OF LESS THAN 6% GRADIENT SHALL BE AT LEAST AS SLIP RESISTANT AS THAT DESCRIBED AS A MEDIUM SALTED FINISH.
- SURFACES WITH A SLOPE OF 6% GRADIENT OR GREATER SHALL BE SLIP RESISTANT.
- SURFACE CROSS SLOPES SHALL NOT EXCEED 1/4" PER FOOT.
- WALKS, SIDEWALKS & PEDESTRIAN WAYS SHALL BE FREE OF GRATINGS WHENEVER POSSIBLE. FOR GRATINGS LOCATED IN THE SURFACE OF ANY OF THESE AREAS, GRID OPENINGS IN THE GRATINGS SHALL BE LIMITED TO 1/2" IN THE DIRECTION OF TRAFFIC FLOW.
- WHEN THE SLOPE IN THE DIRECTION OF TRAVEL OF ANY WALK EXCEEDS 1 VERTICAL TO 20 HORIZONTAL, IT SHALL COMPLY WITH THE PROVISIONS OF A PEDESTRIAN RAMP.
- ABRUPT CHANGES IN LEVEL ALONG ANY ACCESSIBLE ROUTE SHALL NOT EXCEED 1/2" WHEN CHANGES IN LEVEL DO OCCUR, THEY SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2. EXCEPT THAT LEVEL CHANGES NOT EXCEEDING 1/4" MAY BE VERTICAL. WHEN CHANGES IN LEVELS GREATER THAN 1/2" ARE NECESSARY, THEY SHALL COMPLY WITH THE REQUIREMENTS FOR CURB OR PEDESTRIAN RAMPS.
- EVERY REQUIRED EXIT DOORWAY SHALL BE SIZED FOR A DOOR NOT LESS THAN 3 FT. WIDE BY NOT LESS THAN 6'-8" HIGH CAPABLE OF OPENING 90° AND MOUNTED SO THAT THE CLEAR WIDTH OF THE EXIT WAY IS 32" MIN.
- THRESHOLDS MAY BE A MAX. 1/2" ABOVE ADJACENT FINISH FLOOR.
- MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8 1/2 LBS. FOR EXTERIOR DOORS AND 5 LBS. FOR INTERIOR DOORS, SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY BE INCREASED TO THE MAXIMUM ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 LBS.
- THE BOTTOM 10" OF ALL DOORS, EXCEPT AUTOMATIC AND SLIDING, SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE.
- PROVIDE LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE THE HARDWARE. (34" TO 48" A.F.F.)
- PROVIDE 17" (MIN.) OR 19" (MAX.) FROM ADJACENT WALL TO CENTERLINE OF WATER CLOSET.
- PROVIDE A 30"x48" CLEAR SPACE WITHIN THE TOILET ROOM THAT DOES NOT ENCROACH INTO THE DOOR SWING.
- GRAB BARS LOCATED ON EACH SIDE, OR ONE SIDE AND THE BACK OF PHYSICALLY DISABLED TOILET COMPARTMENTS SHALL BE SECURELY ATTACHED 33" MIN. AND 36" MAX. FROM THE FINISHED FLOOR TO THE TOP OF THE GRAB BAR AND PARALLEL TO THE FLOOR. THE SPACE BETWEEN WALL-MOUNTED GRAB BARS AND THE WALL SHALL BE 1 1/2". GRAB BARS AT THE SIDE SHALL BE 42" LONG, AND THE BACK END SHALL BE LOCATED 12" FROM THE BACK WALL. GRAB BARS AT THE BACK SHALL BE NOT LESS THAN 36" LONG WITH THE END CLOSEST TO THE SIDE WALL MOUNTED 12" FROM THE CENTER OF THE WATER CLOSET. THE DIAMETER OR WIDTH OF THE GRIPPING SURFACES OF A GRAB BAR SHALL BE 1 1/4" TO 1 1/2" OR THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE.
- WATER CLOSET HEIGHT SHALL BE 17" (MIN.) OR 19" (MAX.) MEASURED TO THE TOP OF THE TOILET SEAT TO THE FINISHED FLOOR. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST. CONTROLS FOR FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS, NO MORE THAN 44" A.F.F. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. OF FORCE.
- IN FRONT OF LAVATORIES, PROVIDE A 30"x48" CLEAR SPACE LOCATED 25" (MAX.) FROM THE LEADING EDGE OF THE LAVATORY TOWARD THE MOUNTING WALL. KNEE CLEARANCE SHALL BE 11" DEEP (MIN.) AT 9" A.F.F. AND 8" DEEP (MIN.) AT 27" A.F.F. BETWEEN 9" AND 27" A.F.F. THE KNEE CLEARANCE SHALL BE PERMITTED TO REDUCE AT A RATE OF 1" IN DEPTH FOR EACH 6" IN HEIGHT.
- ALL ACCESSIBLE LAVATORIES SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO HIGHER THAN 34" A.F.F.
- HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
- FAUCET CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. LEVER-OPERATED, PUSH-TYPE, AND ELECTRONIC CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. SELF-CLOSING VALVES ARE ALLOWED IF THE FAUCET IS OPEN FOR AT LEAST 10 SECONDS.
- LOCATE PAPER TOWEL DISPENSERS, SOAP DISPENSERS, SANITARY NAPKIN DISPENSERS, AND WASTE RECEPTACLES WITH ALL OPERABLE PARTS BETWEEN 15" AND 48" A.F.F.
- LOCATE TISSUE DISPENSERS ON THE WALL 7" (MIN.) AND 9" (MAX.) FROM THE FRONT EDGE OF THE TOILET SEAT TO THE CENTERLINE OF DISPENSER WITH THE OUTLET BETWEEN 15" AND 48" A.F.F.
- ACCESSIBLE RESTROOMS SHALL BE PROVIDED WITH SIGNAGE DESIGNED AND LOCATED PER SECTION 703 OF THE ADA DESIGN GUIDELINES.
- DOORS IN ACCESSIBLE ROUTES SHALL BE DESIGNED TO MEET CLEARANCE REQUIREMENTS PER SECTION 404 OF THE ADA DESIGN GUIDELINES.
- WALKS, HALLS, CORRIDORS, PASSAGEWAYS, AISLES OR OTHER CIRCULATION SPACES SHALL HAVE 80" MINIMUM CLEAR HEADROOM.
- OBJECTS PROJECTING FROM WALLS WITH THEIR LEADING EDGES BETWEEN 27" AND 80" ABOVE THE FINISH FLOOR SHALL PROTRUDE NO MORE THAN 4" INTO WALKS, HALLS, CORRIDORS, PASSAGEWAYS OR AISLES. OBJECTS MOUNTED AT OR BELOW 27" ABOVE FINISH FLOOR MAY PROTRUDE ANY AMOUNT.
- OBJECTS THAT ARE BETWEEN 27" AND 80" A.F.F. AND MOUNTED ON POSTS MAY EXTEND BEYOND THE POSTS A MAXIMUM OF 12". OBJECTS MOUNTED BETWEEN POSTS, WHERE THE SPACE BETWEEN THE POSTS IS GREATER THAN 12", THE LOWEST EDGE OF THE OBJECT SHALL BE LOCATED 27" MAX. AND 80" MIN. A.F.F.
- IF CARPET OR CARPET TILE IS USED ON A GROUND OR FLOOR SURFACE IN A COMMON USE AREA, IT SHALL HAVE FIRM BACKING OR NO BACKING. THE MAXIMUM PILE HEIGHT SHALL BE 1/2". EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE EXPOSED EDGE, AND TRIM SHALL COMPLY WITH THE REQUIREMENTS FOR CHANGES IN LEVEL.

**PROJECT SUMMARY**  
THIS IS A NEW TENANT FINISH FOR A COMPANY THAT PLANS TO WAREHOUSE METAL PARTS SUCH AS CATALYTIC CONVERTERS FOR RECYCLING.

**LIFE SAFETY LEGEND**

OFFICE ROOM / SPACE NAME  
ROOM / SPACE NUMBER

34.5' 34.5' OCCUPANT LOAD AND WIDTH AT EXIT POINT

2A10BC FIRE EXTINGUISHER, DISTRIBUTE EXTINGUISHERS PER NFPA 101 SUCH THAT ONE CAN BE REACHED BY A TRAVEL DISTANCE OF NO MORE THAN 75' (IF TABLE 908.3(1)). MOUNT TOP OF EXTINGUISHERS 48" A.F.F. (MAX.) AND WITH STATE FIRE MARSHALL INSPECTION TAG ATTACHED. VERIFY FINAL SIZES AND LOCATIONS WITH THE REGULATORY BODY HAVING AUTHORITY.

KB KNOX BOX, MOUNT TOP OF BOX AT 60" - 78" ABOVE GRADE, AND VERIFY FINAL LOCATION WITH THE REGULATORY BODY HAVING AUTHORITY.

**DEFERRED SUBMITTALS:**

- AUTOMATIC FIRE ALARM SYSTEM CONSTRUCTION DRAWINGS, IF SYSTEM IS REQUIRED
- AUTOMATIC FIRE SPRINKLER SYSTEM CONSTRUCTION DRAWINGS, IF SYSTEM IS REQUIRED
- RACKING DESIGN FOR HIGH-PILED STORAGE, IF REQUIRED

**LIFE SAFETY / FIRE DEPARTMENT GENERAL NOTES**

- PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY THE FIRE DEPARTMENT FIELD INSPECTOR DURING CONSTRUCTION AND FOR COMPLETED PROJECT. EXTINGUISHERS SHALL ALSO BE COMPATIBLE WITH ANY CHEMICALS PRESENT IN THE SPACE.
- AN OCCUPANT LOAD SIGN SHALL BE POSTED IN EACH ASSEMBLY ROOM OR SPACE. THE SIGN IS TO BE POSTED CONSPICUOUSLY NEAR THE ENTRANCE. COORDINATE FINAL LOCATION OF SIGN WITH THE FIRE DEPARTMENT FIELD INSPECTOR. THE SIGN IS TO BE PROVIDED AND INSTALLED BY THE OWNER'S REPRESENTATIVE.
- PROVIDE INTERNALLY ILLUMINATED EXIT SIGNS ABOVE EXITS WITH 3/4" x 6" (MIN.) LETTERS LIGHTED ON CONTRASTING BACKGROUND. PROVIDE TWO (2) SEPARATE POWER SUPPLIES CONFORMING TO ADOPTED CODE. VERIFY FINAL LOCATIONS WITH THE BUILDING INSPECTOR.
- PROVIDE EMERGENCY EXIT LIGHTING LEVEL PER CODE (ONE FOOT-CANDLE AT FLOOR LEVEL - MINIMUM).
- FINISHES SHALL NOT EXCEED CLASS A, B, OR C AS INDICATED IN THE BUILDING CODE.
- UNLESS ALREADY EXISTING, AN APPROVED SET OF NUMERALS, MINIMUM 6" HIGH (4" FOR REAR ENTRANCE) WITH A STROKE WIDTH OF NOT LESS THAN 1/8" INCH, SHALL BE PLACED ON OR NEAR THE ENTRANCE. THE NUMBERING SHALL BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. SAID NUMERALS SHALL CONTRAST WITH THEIR BACKGROUND. VERIFY REQUIREMENTS WITH THE REGULATORY BODY HAVING AUTHORITY.
- GENERAL CONTRACTOR SHALL SECURE PERMITS AND INSPECTION APPROVALS REQUIRED BY THE FIRE DEPARTMENT PRIOR TO OCCUPANCY OF THIS BUILDING.
- STORAGE, DISPENSING, OR USE OF ANY FLAMMABLE AND/OR COMBUSTIBLE LIQUIDS, FLAMMABLE AND COMPRESSED GASES AND OTHER HAZARDOUS MATERIALS SHALL COMPLY WITH ADOPTED BUILDING CODE REGULATIONS.
- IF AN AUTOMATIC FIRE SPRINKLER SYSTEM OR FIRE ALARM SYSTEM IS REQUIRED, THE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ADOPTED BUILDING CODE. SYSTEM DESIGN DRAWINGS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR REVIEW PRIOR TO INSTALLATION. THIS INCLUDES DETECTION AND SUPPRESSION SYSTEMS FOR KITCHEN HOODS.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY AND COORDINATE DEFERRED SUBMITTALS.
- CODE-REQUIRED SMOKE DETECTORS IN RETURN AIR DUCTS SHALL HAVE REMOTE INDICATORS IF IN CONCEALED SPACES OR MORE THAN 17' ABOVE THE FINISHED FLOOR. SMOKE DETECTORS MUST BE READILY VISIBLE TO THE FIRE DEPARTMENT PERSONNEL.
- INSTALL A NO SMOKING SIGN PER LOCAL ORDINANCES CONSPICUOUSLY POSTED AT EVERY ENTRANCE, AS REQUIRED.

**MIN. # OF REQ'D PLUMBING FIXTURES (2902.1)**

WATER CLOSETS			
BUSINESS (1/25 FOR FIRST 50, 1/50 FOR SECOND 50)			
OCCUPANTS: 5	MEN (5.0)	WOMEN (5.0)	
REQUIRED:	0.20	0.20	
STORAGE (1/100)			
OCCUPANTS: 35	MEN (17.5)	WOMEN (17.5)	
REQUIRED:	.175	.175	
TOTALS:	0.375	0.375	
PROVIDED:	1	1	

LAVATORIES			
BUSINESS (1/40 FOR FIRST 80, 1/80 FOR SECOND 80)			
OCCUPANTS: 5	MEN (5.0)	WOMEN (5.0)	
REQUIRED:	0.125	0.125	
STORAGE (1/100)			
OCCUPANTS: 35	MEN (17.5)	WOMEN (17.5)	
REQUIRED:	.175	.175	
TOTALS:	0.30	0.30	
PROVIDED:	1	1	

**SERVICE SINK**

REQUIRED / PROVIDED	1 / 1
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**DRINKING FOUNTAIN**

REQUIRED / PROVIDED*	1 / 0
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\*AS AN ALTERNATIVE, THE TENANT SHALL PROVIDE BOTTLED WATER ON SITE.

**CODE ANALYSIS**

**APPLICABLE GOVERNING CODES**

2018	INTERNATIONAL BUILDING CODE
2018	INTERNATIONAL PLUMBING CODE
2018	INTERNATIONAL MECHANICAL CODE
2018	INTERNATIONAL FIRE CODE
2017	NATIONAL ELECTRICAL CODE
CURRENT	ICC / ANSI A117.1 - 2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

**OCCUPANCY CLASSIFICATION**

NONSEPARATED MIXED USE OCCUPANCY (508.3)

GROUP S-1 MODERATE HAZARD STORAGE (311.2) - WAREHOUSING

GROUP B BUSINESS (304) - OFFICE

**TYPE OF CONSTRUCTION**

II-B (602.2)

**BUILDING HEIGHT LIMITATIONS**

GROUP S-1 (S) - MOST RESTRICTIVE	ALLOWABLE HEIGHT IN FEET (TABLE 504.3)	75'
	ACTUAL HEIGHT IN FEET	31'
	ALLOWABLE # OF STORIES (TABLE 504.4)	3
	ACTUAL # OF STORIES	1
GROUP B (S)	ALLOWABLE HEIGHT IN FEET (TABLE 504.3)	75'
	ACTUAL HEIGHT IN FEET	31'
	ALLOWABLE # OF STORIES (TABLE 504.4)	4
	ACTUAL # OF STORIES	1

**BUILDING AREA LIMITATIONS**

GROUP B (S1)	ALLOWABLE AREA (TABLE 506.2)	92,000 SF
GROUP S-1 (S1) - MOST RESTRICTIVE	ALLOWABLE AREA (TABLE 506.2)	70,000 SF
	ALLOWABLE AREA INCREASE (EQUATION 5-5)	
	DUPLICATE FRONTAGE	52,500 SF*
	ADJUSTED ALLOWABLE AREA	122,500 SF*
	*EQUATION 5-5:	
	(1,650 / 1,650 - 0.25) 3030 = .75	
	.75 x 70,000 = 52,500	
	ACTUAL AREA	78,345 SF

**TENANT AREA**

TENANT SPACE AREA:	18,096 SF
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**FIRE RESISTANCE**

RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601)

ELEMENT	RATING (HRS)
PRIMARY STRUCTURAL FRAME	0
BEARING WALLS	
EXTERIOR	0
INTERIOR	0
NONBEARING WALLS & PARTITIONS - EXTERIOR (TABLE 602)	
FIRE SEPARATION DISTANCE = X (FEET)	
X < 5	2
5 <= X < 10	1
10 <= X < 30	0
X >= 30	0
NONBEARING WALLS & PARTITIONS - INTERIOR	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0
AUTOMATIC SPRINKLER SYSTEM (903.2.9)	
REQUIRED:	YES
PROVIDED:	YES

**MEANS OF EGRESS**

OCCUPANT LOAD (TABLE 1004.5)		
MAXIMUM FLOOR ALLOWANCE PER OCCUPANT		
SPACE	AREA / LOAD FACTOR	OCCUPANTS
WAREHOUSE	17,384 SF / 500 GROSS	34.8
OFFICE	712 SF / 150 GROSS	4.7
TOTAL		40

**EXITS (CHAPTER 10)**

EGRESS WIDTH (1005.3.2)	
MINIMUM REQUIRED (40 OCCUPANTS x 0.2'):	8.0'
PROVIDED (4 DOORS x 34.5' CLR. WIDTH/DOOR):	136.0'
COMMON PATH OF EGRESS TRAVEL (TABLE 1006.2.1)	
MAXIMUM ALLOWED	100'
PROVIDED	<100'
NUMBER OF EXITS (TABLE 1006.2.1)	
MINIMUM REQUIRED	2
PROVIDED	4
EXIT ACCESS TRAVEL DISTANCE (1017.2)	
MAXIMUM ALLOWED	250'
PROVIDED	<250'

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Project Type: TENANT FINISH  
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Issue: Date:  
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KEY PLAN  
CODE INFORMATION  
A-001

# HARDWARE SETS

- 1 1/2 PAIR BUTT HINGES, 1" PUSH / PULL SET, KEYED CYLINDER LOCK, SURFACE-MOUNTED CLOSER, ALUMINUM THRESHOLD, SWEEP AND PILE WEATHERSEAL SET. KEYPAD ENTRY BY TENANT.
- 2 1/2 PAIR BUTT HINGES, LEVER-HANDLE OFFICE FUNCTION LOCKSET, WALL STOP
- 3 1/2 PAIR BUTT HINGES, CLOSER, LEVER-HANDLE PRIVACY FUNCTION LOCKSET, WALL STOP.
- 1/2 PAIR BUTT HINGES, LEVER-HANDLE ENTRY FUNCTION LOCKSET, SURFACE-MOUNTED CLOSER, ALUMINUM THRESHOLD, SWEEP AND WEATHERSEAL SET
- 5 BY MANUFACTURER
- 6 BY MANUFACTURER (WITH A REMOTE OPERATOR)
- 7 1/2 PAIR BUTT HINGES, LEVER-HANDLE CLASSROOM FUNCTION LOCKSET, CLOSER, WALL STOP

# DOOR NOTES

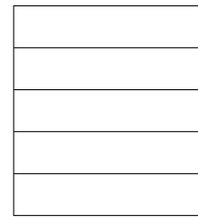
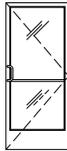
## DOORS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. ALL DOOR HANDLES TO BE LEVER TYPE.
2. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
3. PROVIDE DOOR STOPS OF APPROPRIATE TYPE FOR ALL INTERIOR DOORS, MATCH ADJACENT HARDWARE FINISH.
4. DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES WILL BE 5 SECONDS MINIMUM.
5. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8 1/2 POUNDS FOR EXTERIOR DOORS AND 5 POUNDS FOR INTERIOR DOORS, SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY BE INCREASED TO THE MAXIMUM ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
6. THE BOTTOM 10" OF ALL DOORS EXCEPT AUTOMATIC DOORS, POWER ASSISTED DOORS, AND SLIDING DOORS SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.
7. EXIT DOORS IN ASSEMBLY AND EDUCATION OCCUPANCIES SERVING AN OCCUPANT LOAD OF 50 OR MORE SHALL BE EQUIPPED WITH PANIC HARDWARE, WITH THE EXCEPTION BELOW (NOTE 7).
8. MAIN EXIT DOORS HAVING KEY-OPERATED LOCKING DEVICES ON THE EGRESS SIDE IN GROUP A OCCUPANCIES (SERVING 300 OCCUPANTS OR LESS), GROUPS B, F, M, S, AND PLACES OF RELIGIOUS WORSHIP SHALL HAVE DURABLE SIGNAGE ABOVE THE DOOR IN 1" HIGH LETTERS ON CONTRASTING BACKGROUND STATING: "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED". LOCKING DEVICES SHALL BE READILY DISTINGUISHABLE AS LOCKED.
9. LATCHING AND LOCKING DEVICES THAT ARE HAND ACTIVATED AND WHICH ARE IN THE PATH OF TRAVEL SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE. LOCKABLE EXIT DOORS SHALL OPERATE AS ABOVE IN EGRESS DIRECTION.
10. HAND-ACTIVATED DOOR OPENING HARDWARE TO BE CENTERED BETWEEN 34" AND 44" ABOVE THE FLOOR.
11. EVERY DOORWAY WHICH IS LOCATED WITHIN AN ACCESSIBLE PATH OF TRAVEL SHALL BE OF A SIZE AS TO PERMIT THE INSTALLATION OF A DOOR NOT LESS THAN 3'-0" IN WIDTH AND NOT LESS THAN 6'-8" IN HEIGHT. WHEN INSTALLED, EXIT DOORS SHALL BE CAPABLE OF OPENING SO THAT THE CLEAR WIDTH OF THE EXIT IS NOT LESS THAN 32", MEASURED BETWEEN THE FACE OF THE OPENED DOOR AND THE OPPOSITE STOP.
12. MINIMUM MANEUVERING CLEARANCES AT DOORS SHALL BE AS REQUIRED BY THE ICC/ANSI A117.1 ACCESSIBILITY CODE. THE FLOOR OR GROUND AREA WITHIN THE REQUIRED CLEARANCES SHALL BE LEVEL AND CLEAR. THE FLOOR OR LANDING SHALL BE NOT MORE THAN 1/2" LOWER THAN THE THRESHOLD OF THE DOORWAY.
13. DOORS SHALL NOT PROJECT MORE THAN 7" INTO THE REQUIRED CORRIDOR WIDTH WHEN FULLY OPENED OR MORE THAN ONE HALF INTO THE REQUIRED WIDTH WHEN IN ANY POSITION.
14. WHERE A PAIR OF DOORS IS UTILIZED, AT LEAST ONE OF THE DOORS SHALL PROVIDE A CLEAR, UNOBSTRUCTED OPENING WIDTH OF 32" WITH THE LEAF POSITIONED AT AN ANGLE OF 90° FROM ITS CLOSED POSITION.
15. EXIT DOORS SHALL SWING IN THE DIRECTION OF EXIT TRAVEL WHEN SERVING 50 OR MORE OCCUPANTS.

# DOOR SCHEDULE

DOOR NO.	DOOR			FRAME			DETAILS			HARDWARE	COMMENTS		
	TYPE	SIZE	MATERIAL	PUSH FINISH	PULL FINISH	MATERIAL	PUSH FINISH	PULL FINISH	HEAD			JAMB	THRESHOLD
108.0A	B	1 3/4" X 3'-0" X 7'-0"	HM	-	-	HM	-	-	-	-	-	④	DOOR & HARDWARE - EXISTING TO REMAIN
108.0B	D	9'-0" WIDE X 10'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑤	DOOR & HARDWARE - EXISTING TO REMAIN
108.0C	C	12'-0" WIDE X 14'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑥	DOOR & HARDWARE - EXISTING TO REMAIN
108.0D	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	①	DOOR & HARDWARE - EXISTING TO REMAIN
109.0A	B	1 3/4" X 3'-0" X 7'-0"	HM	-	-	HM	-	-	-	-	-	④	DOOR & HARDWARE - EXISTING TO REMAIN
109.0B	D	9'-0" WIDE X 10'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑤	DOOR & HARDWARE - EXISTING TO REMAIN
109.0C	C	12'-0" WIDE X 14'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑥	DOOR & HARDWARE - EXISTING TO REMAIN
109.0D	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	①	DOOR & HARDWARE - EXISTING TO REMAIN
110.0A	B	1 3/4" X 3'-0" X 7'-0"	HM	-	-	HM	-	-	-	-	-	④	DOOR & HARDWARE - EXISTING TO REMAIN
110.0B	D	9'-0" WIDE X 10'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑤	DOOR & HARDWARE - EXISTING TO REMAIN
110.0C	C	12'-0" WIDE X 14'-0" HIGH	STL	-	-	-	-	-	-	-	-	⑥	DOOR & HARDWARE - EXISTING TO REMAIN
110.1	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	①	DOOR & HARDWARE - EXISTING TO REMAIN
110.2	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	③	
110.3	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	③	
110.4	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	⑦	
110.5	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	②	
110.6	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	②	

# DOOR TYPES



TYPE 'A'

TYPE 'B'

TYPE 'C'

TYPE 'D'

# DOOR SYMBOLS

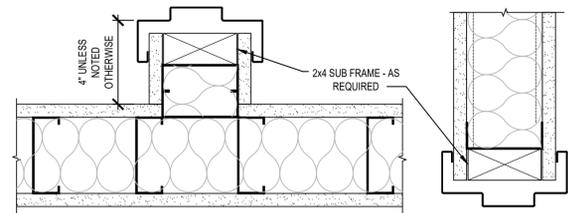


DOOR NUMBER

# ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR MATERIAL	BASE MATERIAL	WALL FINISH (NORTH)	WALL FINISH (EAST)	WALL FINISH (SOUTH)	WALL FINISH (WEST)	CEILING		COMMENTS
								MATERIAL	FINISH	
108.0	WAREHOUSE	SC	-	-	-	-	-	EXP	-	
109.0	WAREHOUSE	SC	-	-	-	-	-	EXP	-	
110.0	WAREHOUSE	SC	RCB	-	PNT	PNT	-	EXP	-	1., 2.
110.1	HALL	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	
110.2	TOILET	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	1.
110.3	TOILET	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	1.
110.4	BREAK ROOM	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	
110.5	OFFICE	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	
110.6	OFFICE	SC	RCB	PNT	PNT	PNT	PNT	ACT-1	-	

COMMENT #1: WALLS WITHIN 2' OF SERVICE SINKS, URINALS, AND WATER CLOSETS MUST BE PAINTED WITH EPOXY-BASED PAINT UP TO A MINIMUM OF 4' A.F.F., IF NOT COVERED WITH FRP.  
COMMENT #2: PAINT AND INSTALL RUBBER COVE BASE ON WAREHOUSE SIDE OF OFFICE AREA (GYPSUM BOARD WALLS).



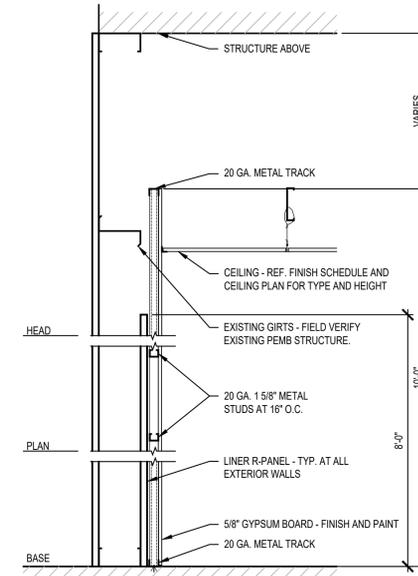
HOLLOW METAL DOOR FRAME JAMB DETAIL

HOLLOW METAL DOOR FRAME HEAD DETAIL

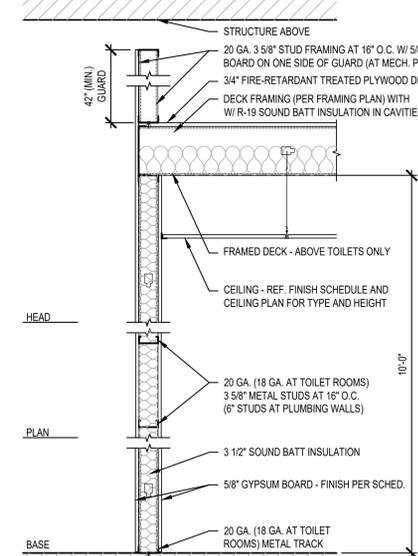
# FINISH LEGEND

ITEM	DESCRIPTION
ETR	EXISTING TO REMAIN
VCT	VINYL COMPOSITION TILE*
LVT	LUXURY VINYL TILE*
LVP	LUXURY VINYL PLANK*
RCB	4" RUBBER COVE BASE*
PNT	PAINT*
ACT-1	ACOUSTIC CEILING TILE
ACT-2	ACOUSTIC CEILING TILE (VINYL)
FRP	FIBER REINFORCED PLASTIC*
EXP	EXPOSED TO STRUCTURE
ANOD	ANODIZED
GYP	GYPSUM BOARD
HRDWD	HARDWOOD
SS	STAINLESS STEEL
ST	STAIN
CPT	CARPET
SC	SEALED CONCRETE
PC	POLISHED CONCRETE
CONC	CONCRETE

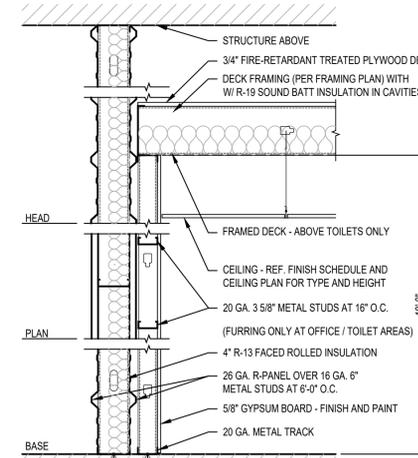
\*MANUF. AND COLOR TO BE SELECTED BY OWNER



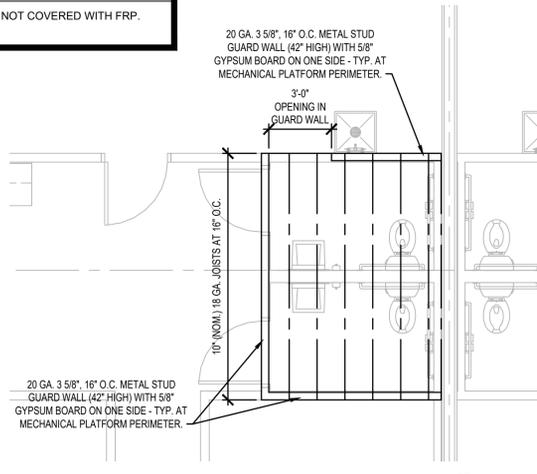
PARTITION TYPE C-1



PARTITION TYPE B-1



PARTITION TYPE A-1



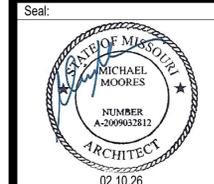
D1 MECH. PLATFORM FRAMING  
SCALE: 1/4" = 1'-0"  
PROJECT NORTH

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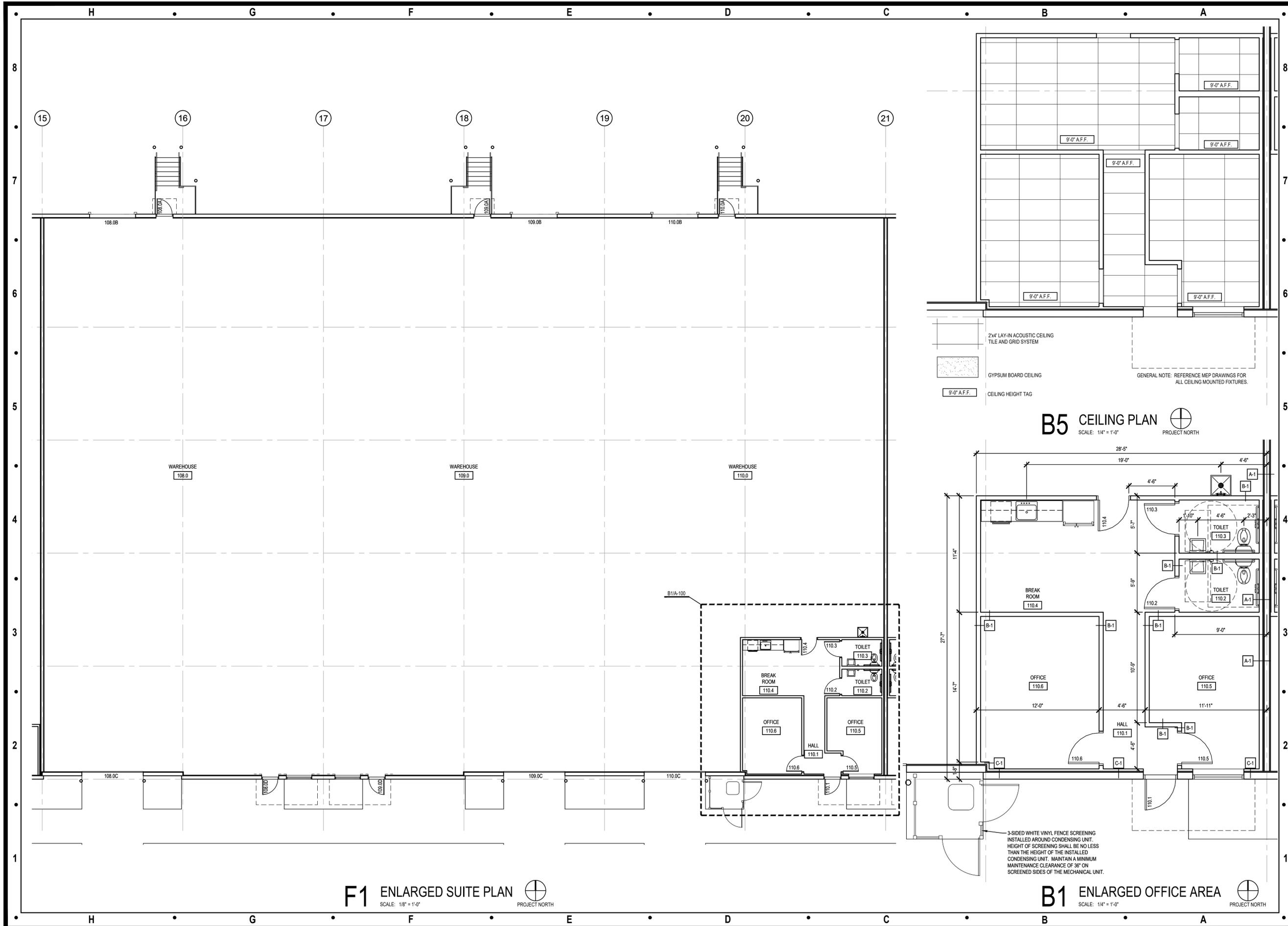


Michael Moores, MO Architect #2009032812  
Project Number: 2601  
Project Type: TENANT FINISH  
Project Name and Address:

PGM  
636 NE Maguire Blvd  
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Issue: Date:  
Permit Set 02.10.26

Sheet Title:  
DOOR AND FINISH SCHEDULES  
PARTITION TYPES  
A-002



**F1 ENLARGED SUITE PLAN**  
 SCALE: 1/8" = 1'-0"  
 PROJECT NORTH

**B5 CEILING PLAN**  
 SCALE: 1/4" = 1'-0"  
 PROJECT NORTH

**B1 ENLARGED OFFICE AREA**  
 SCALE: 1/4" = 1'-0"  
 PROJECT NORTH

2x4' LAY-IN ACOUSTIC CEILING TILE AND GRID SYSTEM  
 GYPSUM BOARD CEILING  
 9'-0" A.F.F. CEILING HEIGHT TAG  
 GENERAL NOTE: REFERENCE MEP DRAWINGS FOR ALL CEILING MOUNTED FIXTURES.

3-SIDED WHITE VINYL FENCE SCREENING INSTALLED AROUND CONDENSING UNIT. HEIGHT OF SCREENING SHALL BE NO LESS THAN THE HEIGHT OF THE INSTALLED CONDENSING UNIT. MAINTAIN A MINIMUM MAINTENANCE CLEARANCE OF 36" ON SCREENED SIDES OF THE MECHANICAL UNIT.

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Sheet Title:  
 ENLARGED PLANS  
 CEILING PLAN  
**A-100**

# MECHANICAL SPECIFICATIONS

1. **GENERAL PROVISIONS:**
  - A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE MECHANICAL SYSTEMS OUTLINED.
  - B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
  - C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
  - D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
  - E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
  - F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
  - G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
  - H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
  - I. FOR THE PURPOSE OF CLARITY AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
  - J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
  - K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
  - L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
  - M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.
2. **OPERATION AND MAINTENANCE MANUALS:**
  - A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
  - B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
  - C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER AND CONTRACTORS.
3. **MANUFACTURERS:**
  - A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
  - B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. **PIPING**
  - A. CONDENSATE DRAIN AND INDIRECT WASTE (ABOVEGROUND)
    1. PVC DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
    2. INSTALL AT 1/8" PER FOOT SLOPE.
  - B. REFRIGERANT
    1. ASTM B 280, TYPE ACR, HARD DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
    2. WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS, BRAZED JOINTS, AWS A 5.8 CLASSIFICATION (BAG-1) (SILVER).
    3. TUBING TO BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
    4. SIZE AND INSTALLATION OF PIPING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. **INSULATION AND DUCT LINING:**
  - A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
    1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER IN-HR-°SQ-FT-°F OR LESS. FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOULDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
    2. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
    3. INSULATION SCHEDULE:
      - a. REFRIGERANT SUCTION: 1-1/2" FOR PIPING UP TO 1-1/2" Ø, 2" FOR PIPING 1-1/2" Ø AND LARGER.
  - B. DUCTWORK INSULATION:
    1. DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING. THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DUCT COVERING SHALL BE MINIMUM R-6.
      - a. SUPPLY AIR DUCT: 2"
      - b. RETURN AIR DUCT: 2"
      - c. OUTDOOR AIR / MAKEUP AIR DUCT: 2"
6. **TESTING, BALANCING AND CLEANING:**
  - A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
  - B. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
    1. BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
    2. WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELLED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.
7. **DUCTWORK:**
  - A. ALL DUCTWORK UNLESS OTHERWISE INDICATED SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
  - B. DUCTWORK METAL GAUGES, REINFORCING, ETC SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2" WATER GAUGE STATIC PRESSURE.
  - C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.
  - D. RECTANGULAR DUCT:
    1. ELBOWS, UNLESS INDICATED OTHERWISE, SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOWS WITH DOUBLE WALL STREAMLINE ELBOWS.
    2. TAKE-OFF FITTINGS: BRANCH DUCT TAKE-OFF FITTINGS FOR SUPPLY AND EXHAUST DIFFUSER/REGISTERS SHALL INCLUDE AN INTEGRAL MANUAL VOLUME DAMPER WITH LOCKING QUADRANT, DAMPER NOT REQUIRED ON RETURN AIR. FOR RECTANGULAR TO ROUND TAKE-OFFS, UTILIZE A "BUCKLEY" MODEL 3300 & 3300D OR EQUAL. RETURN AIR ACOUSTIC ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
    3. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE A MINIMUM 1 TO 3.
  - E. ROUND DUCT (SEE INSULATION SECTION FOR SPIRAL DUCT):
    1. PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION UNLESS SPECIFICALLY DETAILED OTHERWISE. USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
    2. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
    3. ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS.
  - F. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASED CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW:
    - (1) UNCONDITIONED SPACES: CLASS B CLASS C CLASS B CLASS B
    - (2) CONDITIONED SPACES (PLENUM): CLASS C CLASS C EXHAUST RETURN
  - G. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEET METAL SIZES. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
  - H. WHETHER SHOWN ON PLANS OR NOT, PROVIDE MANUAL VOLUME DAMPERS IN EACH RUNOUT TO EACH SUPPLY DIFFUSER OR REGISTER. PROVIDE ACCESS PANELS TO DAMPERS LOCATED ABOVE HARD CEILINGS.
  - I. PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
  - J. WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
  - K. WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAUGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.
8. **FLEXIBLE DUCT:**
  - A. ATCO #086 (R-6), OR EQUAL.
  - B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.
  - C. MAXIMUM LENGTH OF 6'-0".
9. **FLUES AND ACCESSORIES:**
  - A. FLUE FOR GAS FIRED CONDENSING WATER HEATER OR FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40 PVC OR CPVC PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS. PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.
  - B. FLUES FOR HEATERS SHALL BE DOUBLE WALL TYPE B EQUAL TO METALBESTOS. PROVIDE MANUFACTURER'S STANDARD FITTING AND ACCESSORIES (ROOF THIMBLE, STORM COLLAR, COUNTER FLASHING, ETC.) AS REQUIRED FOR A COMPLETE INSTALLATION.
10. **EXHAUST FANS:**
  - A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.
11. **FURNACE AND CONDENSING UNIT:**
  - A. CONDENSING FURNACES:
    1. GAS FIRED FURNACE SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF SHEET METAL CASING, SUPPLY FAN, GAS FIRED HEAT EXCHANGER, AND CONTROLS. CAPACITY SHALL BE AS SCHEDULED.
    2. THE PRIMARY HEAT EXCHANGER SHALL BE ALUMINIZED STEEL CONSTRUCTION WITH A STAINLESS STEEL SECONDARY HEAT EXCHANGER.
    3. THE FURNACE SHALL BE OF THE CONDENSING TYPE, UTILIZING A SEALED COMBUSTION CHAMBER. UNIT SHALL INCLUDE FINNED CAST IRON HEAT EXCHANGER, ALUMINIZED STEEL EXHAUST DECOUPLER SECTION AND FINNED STAINLESS STEEL TUBE CONDENSER SECTION.
    4. THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24V CONTROL TRANSFORMER, AUTOMATIC SPARK IGNITION, AUTOMATIC GAS VALVE TRAIN, HIGH TEMPERATURE LIMIT SWITCH, AND FAN TIMED DELAY RELAY.
    5. RETURN AIR INLET ON UNIT SHALL BE PROVIDED WITH 1" THROWAWAY TYPE FILTER AND SLIDE IN FRAME, MOUNTED ON THE UNIT.
    6. FAN SHALL BE A DIRECT DRIVE MULTI-SPEED BLOWER, RESILIENTLY MOUNTED IN THE CASING. MOTOR SHALL BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION.
    7. FURNACE SHALL BE ASA APPROVED.
  - B. CONDENSING UNIT SHALL BE FACTORY ASSEMBLED AND TESTED AIR-COOLED CONDENSING UNIT CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REFRIGERANT RESERVOIR, AND VIBRATION CONTROLS. ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED.
    1. COMPRESSOR: HERMETICALLY SEALED WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES. INTERNAL HIGH PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE.
    2. COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS; COMPLETE WITH LIQUID ACCUMULATOR AND LIQUID SUBCOOLER. UNIT SHALL INCLUDE FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVE, LIQUID LINE SERVICE VALVE, AND REFRIGERANT PIPING EXTENDED TO EXTERIOR OF CASING.

# MECHANICAL SYMBOLS

**HVAC EQUIPMENT & DUCTWORK**

**SENSORS:** [XX] ON WALL @+48", UNO [XX] ON CEILING [XX] ON JBX

CD CONTROL DAMPER  
CO2 CARBON DIOXIDE SENSOR  
HS HUMIDITY SENSOR  
SP STATIC PRESSURE SENSOR  
TS TEMPERATURE SENSOR  
H HUMIDISTAT  
T THERMOSTAT

RIGID BRANCH DUCT SAME SIZE AS DIFFUSER NECK. MARK 10" Ø CSD-1 450 AIRFLOW (CFM)

CEILING DIFFUSER W/FLEX DUCT (SEE SPECS)  
NECK SIZE (INCHES)  
RETURN GRILLE  
EXHAUST GRILLE / FAN

**ABBREVIATIONS**

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM	MIN	MINIMUM
BD	BACKDRAFT	CA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	RA	RETURN AIR
DDC	DIRECT DIGITAL CONTROL	SA	SUPPLY AIR
DV	DRYER VENT	SD	SMOKE DETECTOR
DX	DIRECT EXPANTION	TFA	TO FLOOR ABOVE
EA	EXHAUST AIR	TFB	TO FLOOR BELOW
FFA	FROM FLOOR ABOVE	TYP	TYPICAL
FFB	FROM FLOOR BELOW	UNO	UNLESS NOTED OTHERWISE
IN WC	INCHES OF WATER COLUMN	(E)	EXISTING WORK TO REMAIN
MAX	MAXIMUM	(EL)	EXISTING LOCATION OF DEVICE TO BE RELOCATED
MBH	1000 BTU PER HOUR	(N)	NEW DEVICE OR EQUIPMENT
		(NL)	NEW LOCATION OF RELOCATED DEVICE

**STANDARD MOUNTING HEIGHTS**

(AFF. UNLESS NOTES OTHERWISE)

TERMOSTATS	48"
CONTROLS	48"

**ANNOTATION**

# PLAN WORK NOTE  
RTU MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)  
CONNECTION POINT OF NEW WORK TO EXISTING  
A M1 DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER  
1 M1 SECTION CUT DESIGNATION

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Project Number: 25-014  
Project Type: TENANT FINISH

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636 NE MAGUIRE BLVD  
LEES SUMMIT, MO 64064

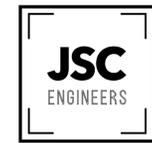
Issue: REVIEW SET Date: 02/10/2026

**REVISIONS**

#	DESCRIPTION	DATE

Sheet Title:  
**MECHANICAL SPECIFICATIONS**

**M001**



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Seal:



Project Number: 25-014

Project Type: TENANT FINISH

Project Name and Address:

PGM  
636 NE MAGUIRE BLVD  
LEES SUMMIT, MO 64064

Issue: REVIEW SET Date: 02/10/2026

REVISIONS		
#	DESCRIPTION	DATE
1		
2		

Sheet Title:

MECHANICAL PLAN

M100

### CONDENSING UNIT SCHEDULE

NOTES:  
1. SET TIME DELAY ON COMPRESSOR RE-START KIT, CRANKCASE HEATER AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35°F.  
2. ON MINIMUM 6" HIGH, LEVEL CONCRETE EQUIPMENT PAD.  
3. WITH LENNOX CK40CT COILS.

TAG	MAKE	MODEL	CAPACITY	ELECTRICAL	MOC	MCA	FLA	NOTES
AC-1	LENNOX	XC20-048	4 TONS	208 V, 3 Ø, 4.683 VA	30 A	18 A	13 A	1-3

### GAS FURNACE SCHEDULE

NOTES:  
1. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH MINIMUM 5°F DEADBAND, SETBACK RANGE BETWEEN 55°F - 85°F & 2 HOUR OCCUPANT OVERRIDE.  
2. PROVIDE MANUFACTURER'S CONCENTRIC VENT KIT, SIZE AND INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS WHILE ADHERING TO LENGTH AND FITTING LIMITATIONS.  
3. PROVIDE RETURN FILTER KIT.

TAG	MAKE	MODEL	AIR FLOW	OUTSIDE AIR	E.S.P.	GAS INPUT	HEAT OUTPUT	POWER	MOC	FLA	WEIGHT	NOTES
F-1	LENNOX	EL297UH090XV48C	1,200 CFM	100 CFM	0.8 in-wg	88,000 Btu/h	86,000 Btu/h	120 V, 1 Ø, 1.212 VA	15 A	10.1 A	157 lbf	1-3

### MECHANICAL KEYNOTES

#	DESCRIPTION
1	PROVIDE CONCENTRIC VENT FOR FURNACE WITH MANUFACTURER'S SPECIFIED SIZE AND LENGTH LIMITATIONS. LOCATE VENT A MINIMUM OF 10'-0" FROM OUTSIDE AIR INTAKE. ROUTE TO NEAREST WALL OR ROOF AND COORDINATE FINAL LOCATION WITH GENERAL CONTRACTOR.
2	PROVIDE RUSKIN CDR25 ROUND CONTROL DAMPER WITH 24V SPRING RETURN ACTUATOR FOR CONTROL OF OUTDOOR AIR SUPPLY. INTERLOCK WITH FURNACE CONTROLS SO THAT DAMPER IS OPEN WHEN THE FURNACE IS ON AND CLOSED WHEN THE FURNACE IS OFF.
3	LOCATE DISCHARGE A MINIMUM OF 3'-0" FROM DOOR OPENING AND 10'-0" FROM INTAKE LOUVER.

### LOUVER SCHEDULE

NOTES:  
1. PROVIDE WITH ALUMINUM MESH BIRD-INSECT SCREEN.  
2. PAINT LOUVER COLOR TO MATCH BUILDING. COORDINATE COLOR WITH GC.

TAG	DESCRIPTION	MAKE	MODEL	SIZE	NOTES
L-1	WALL EXHAUST LOUVER	RUSKIN	ELF637SDX	12" x 12"	1,2
L-2	WALL INTAKE LOUVER	RUSKIN	ELF637SDX	12" x 12"	1,2

### AIR TERMINAL SCHEDULE

NOTES:  
1. FRAME TYPE TO MATCH CEILING/WALL CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.  
2. NECK SIZE SHOWN ON DRAWINGS.  
3. BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE, U.N.O.  
4. COLOR BY ARCHITECT.  
5. TRUJAIRE IS AN APPROVED ALTERNATE.

TAG	MAKE	MODEL	FACE TYPE	MOUNTING	FACE SIZE	MAX N.C.	NOTES
CRG1	TITUS	50F	EGG CRATE	LAY-IN	24" x 24"	25	1-5
CSD1	TITUS	OMNI	PLAQUE	LAY-IN	24" x 24"	25	1-5
CSD2	TITUS	OMNI	PLAQUE	LAY-IN	12" x 12"	25	1-5

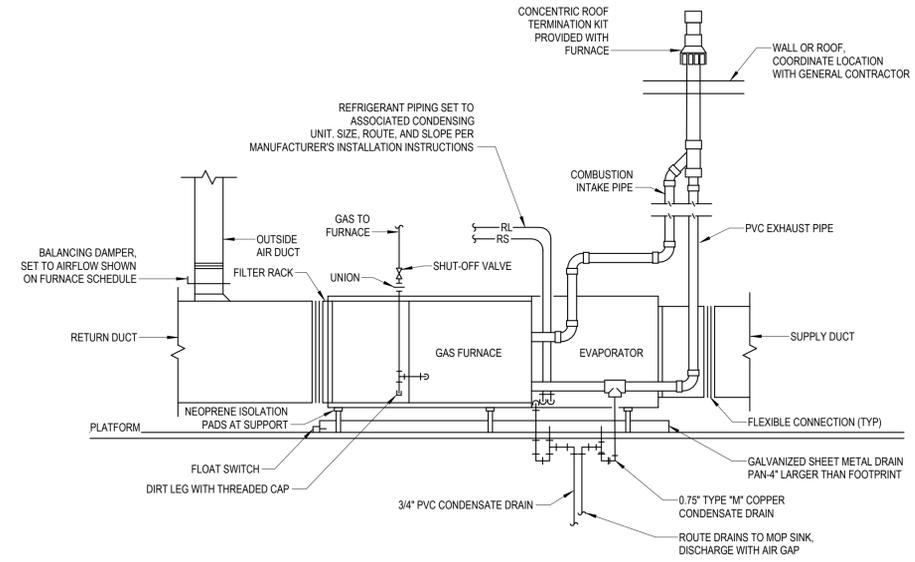
### EXHAUST FAN SCHEDULE

NOTES:  
1. WITH FACTORY MOUNTED DISCONNECT SWITCH.  
2. WITH FAN SPEED CONTROL.  
3. INTERLOCK WITH WALL SWITCH MOUNTED AT 54" A.F.F.  
4. PROVIDE AMCA TYPE 'B' SPARK RESISTANT EXPLOSION PROOF EXHAUST FAN.  
5. INTERLOCK CONTROLS TO OPERATE WITH LIGHTING.

TAG	MAKE	MODEL	AIR FLOW	E.S.P.	ELECTRICAL	WEIGHT	COUNT	NOTES
EF-1	PANASONIC	RG-C811H	80 CFM	0.10 in-wg	120 V, 1 Ø, 11 VA	12 lbf	2	5

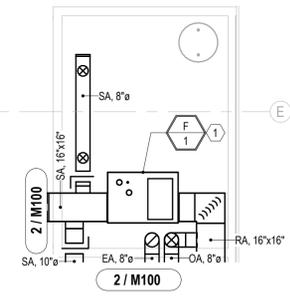
### OUTDOOR AIR CALCULATIONS

UNIT	ROOM	AREA (SQ-FT)	OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY, PEOPLE/1000 SQ-FT	OUTDOOR AIRFLOW RATE PER PERSON (Rp), CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE (Ra), CFM/SQ-FT	ZONE DISTRIBUTION EFFECTIVENESS (Ez)	REQUIRED AIR FLOW, CFM
F-1	OFFICE	316	OFFICE	5	5	0.06	1	26.9
	HALL	75	CORRIDOR	-	-	0.06	1	4.5
	BREAKROOM	207	SHOWROOM	50	5	0.06	1	64.2
TOTAL								95.5

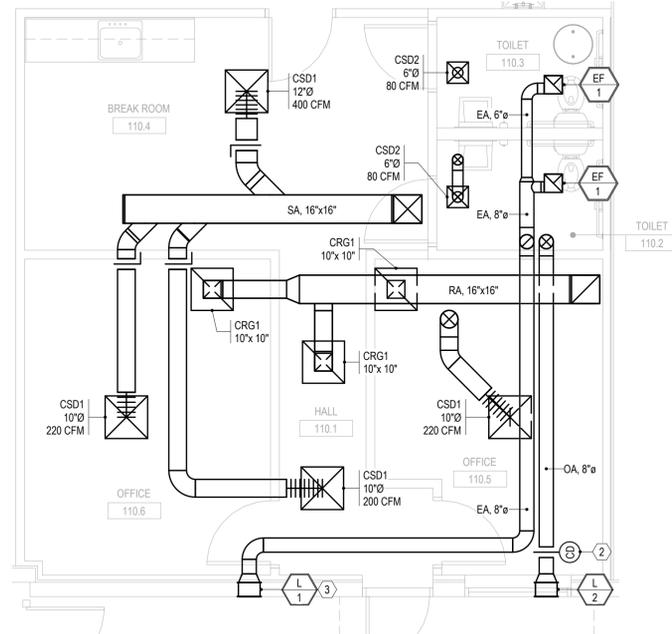


NOTE: FIELD COORDINATE EXACT LOCATION WITH LIGHT FIXTURES, PIPING, ETC. TO PROVIDE MINIMUM 36" CLEARANCE IN FRONT OF COMPLETE SERVICE SIDE OF FURNACE.

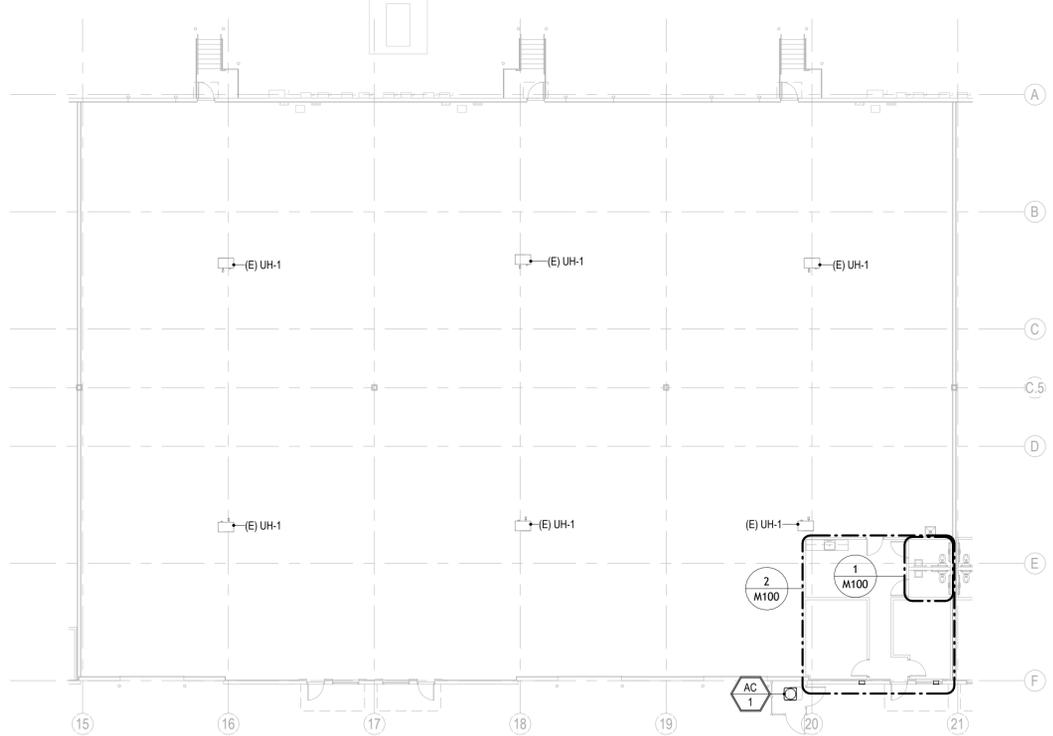
GAS FURNACE, HORIZONTAL 4



ENLARGED MECHANICAL PLAN, PLATFORM 1  
1/4" = 1'-0"



ENLARGED MECHANICAL PLAN, OFFICE 2  
1/4" = 1'-0"



OVERALL MECHANICAL PLAN 3  
1/16" = 1'-0"

# PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:
  - A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING SYSTEMS OUTLINED.
  - B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
  - C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
  - D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
  - E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERINGS SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
  - F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
  - G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
  - H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
  - I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
  - J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
  - K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
  - L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.
2. OPERATION AND MAINTENANCE MANUALS:
  - A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPIL OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
  - B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
  - C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER AND CONTRACTORS.
3. MANUFACTURERS:
  - A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
  - B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. PLUMBING:
  - A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
  - B. ALL EXPOSED PIPE IN FINISHED AREAS SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
  - C. PROVIDE CLEANOUTS AT EACH CHANGE IN DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
  - D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
  - E. CLEANOUTS:
    1. VINYL TILE FLOOR (FCO); JR SMITH #4140, OR EQUAL.
    2. QUARRY TILE FLOOR (FCO); JR SMITH #4200, OR EQUAL.
    3. WALL (WCO); JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
  - F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
    1. INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
    2. INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
  - G. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTION TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED); PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION JOINTS.
5. PIPING
  - A. DOMESTIC COLD, HOT (ABOVEGROUND):
    1. TYPE L HARD DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERED FITTINGS.
    2. GATE VALVE: CRANE #428 OR EQUAL.
    3. GLOBE VALVE: CRANE #7 OR EQUAL.
    4. BALL VALVE: CRANE #932 OR EQUAL.
    5. (NOT ALLOWED IN RETURN AIR PLENUM) PEX, HIGH DENSITY CROSS-LINKED POLYETHYLENE TUBING IS PERMITTED FOR USE. TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATING FROM THE PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-403. PEX MECHANICAL, CRIMP/INSERT FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZE SHOWN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZES. INCREASE PEX PIPING SIZE AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE SIZE INSIDE DIAMETER.
  - B. SANITARY SEWER AND VENTS:
    1. DRAIN AND VENT PIPE AND FITTINGS, THROUGHOUT THE BUILDING SHALL BE ASTM D2665 POLYVINYL CHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
    2. SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO ENSURE DRAINAGE.
  - C. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ANVIL. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
  - D. SLEEVES
    1. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
  - E. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.
6. INSULATION:
  - A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
  - B. PIPE INSULATION (ABOVE GRADE):
    1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER INHR\*SQ-FT\*\*F OR LESS.
    2. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
    3. INSULATION SCHEDULE:
      - a. DOMESTIC HOT WATER: 1"
7. TESTING, BALANCING AND CLEANING:
  - A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
  - B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
  - C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
  - D. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH THE HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION SAMPLES OF WATER FROM THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
8. EXPANSION TANK:
  - A. DIAPHRAGM-TYPE EXPANSION TANK: SIZE AS INDICATED ON THE DRAWINGS, CONSTRUCTED OF CARBON STEEL FOR 125 PSIG WORKING PRESSURE, 375°F MAXIMUM OPERATING TEMPERATURE. SEPARATE AIR CHARGE FROM THE WATER BY A FLEXIBLE DIAPHRAGM SECURELY SEALED INTO THE TANK. PROVIDE TAPS FOR PRESSURE GAGE AND AIR CHARGING FITTING, AND A DRAIN VALVE. SUPPORT TANK FROM WALL WITH STRUCTURAL STEEL FRAME ADEQUATELY SIZED TO SUPPORT THE WEIGHT. TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH, TESTED, AND LABELED ASME PRESSURE CODE, SECTION VIII, DIVISION I.

# PLUMBING SYMBOLS

SYMBOL	DESCRIPTION
— SS —	SANITARY SEWER (ABOVE GRADE)
--- SS ---	SANITARY SEWER (BELOW GRADE)
--- GW ---	GREASE WASTE (BELOW GRADE)
— CD —	CONDENSATE DRAIN
--- V ---	VENT PIPING
— G —	G = GAS PIPING LESS THAN 2 PSI
— MPG —	MPG = GAS PIPING 2 PSI
—	GAS PIPE ON ROOF, G OR MPG
--- CW ---	COLD WATER PIPING
--- HW ---	HOT WATER PIPING
--- HWR ---	RECIRCULATING HOT WATER
— CA —	COMPRESSED AIR
—	PIPE ELBOW DOWN
—	PIPE ELBOW UP
—	GATE VALVE
—	BACKFLOW PREVENTER
—	CHECK VALVE
—	BALL VALVE
—	STRAINER
—	PRESSURE REDUCING VALVE
—	PLUG VALVE
—	CONTROL VALVE
—	FLOOR CLEANOUT (FCO)
—	CLEANOUT AT GRADE (GCO)
—	WALL CLEANOUT (WCO)
—	FLOOR DRAIN
—	FLOOR SINK
—	CAPPED PIPE
+	HOSE BIBB, CW, HW STUB

## STANDARD MOUNTING HEIGHTS

(AFF, AFG, UNLESS NOTED OTHERWISE)

REFER TO ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE MOUNTING HEIGHTS. UNO, INSTALL PLUMBING FIXTURES WITH THE MOUNTING HEIGHTS AS LISTED BELOW WITH FINAL APPROVAL BY THE ARCHITECT.

ADA ACCESSIBLE LAVATORIES	34" FLOOR TO RIM
ADA ACCESSIBLE WATER CLOSET	17" TO 19" FLOOR TO TOP OF SEAT
JANITOR'S SINK FAUCET FITTINGS	42" FLOOR TO CENTERLINE

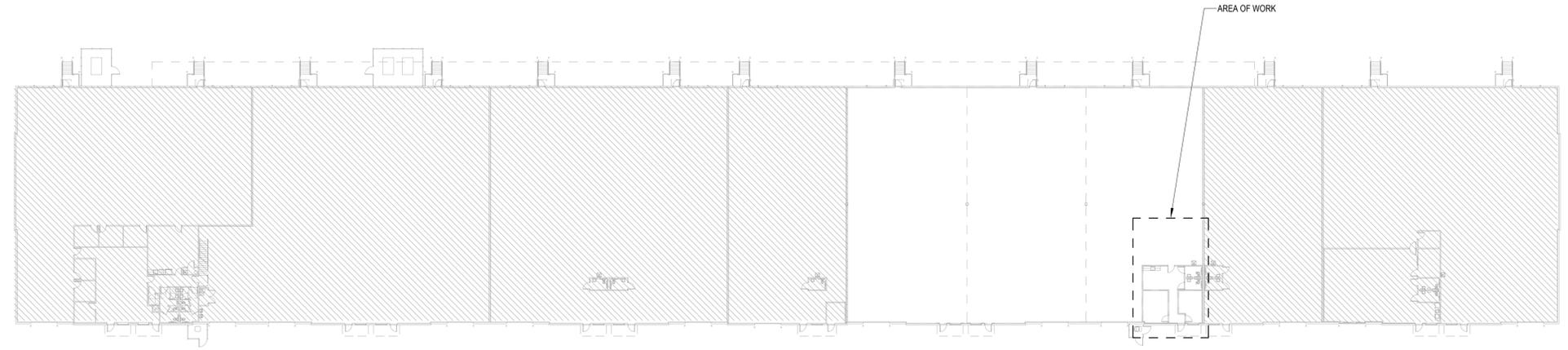
## ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	N/C	NORMALLY CLOSED
AFG	ABOVE FINISHED GRADE	N/O	NORMALLY OPEN
AHU	AIR HANDLING UNIT	ORD	OVERFLOW ROOF DRAIN
BFF	BELOW FINISHED FLOOR	PDJ	PLUMBING DRAINAGE INSTITUTE
BFG	BELOWS FINISHED GRADE	PVC	POLYVINYL CHLORIDE
BOP	BOTTOM OF PIPE	PRV	PRESSURE REDUCING VALVE
BOS	BOTTOM OF STRUCTURE	RPM	REVELUTIONS PER MINUTE
BTU	BRITISH THERMAL UNIT	SF	SQUARE FEET, SUPPLY FAN
DN	DOWN	TDH	TOTAL DYNAMIC HEAD
DFU	DRAINAGE FIXTURE UNIT	TFA	TO FLOOR ABOVE
ETR	EXISTING TO REMAIN	TFB	TO FLOOR BELOW
FD	FLOOR DRAIN	UL	UNDERWATER LABORATORIES
FFA	FROM FLOOR ABOVE	UNO	UNLESS NOTED OTHERWISE
FFB	FROM FLOOR BELOW	V	VOLT(S)
FF	FINISHED FLOOR	VCP	VITRIFIED CLAY PIPE
FLA	FULL LOAD AMPS	VS	VENT STACK
GPM	GALLON PER MINUTE	VTR	VENT THROUGH ROOF
IE	INVERTED ELEVATION	WC	WATER COLUMN
IN WC	INCHES OF WATER COLUMN	WS	WATER STACK
MBH	1000 BTU PER HOUR	WSFU	WATER SUPPLY FIXTURE UNIT

(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE DEMOLISHED
(EL)	EXISTING LOCATION TO BE RELOCATED
(NL)	NEW LOCATION OF RELOCATED ITEM
(N)	NEW WORK

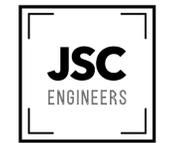
## ANNOTATION

- # PLAN WORK NOTE
- RTU 1 MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- PLUMBING FIXTURE DESIGNATION
- CONNECTION POINT OF NEW WORK TO EXISTING
- A M1 DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 M1 SECTION CUT DESIGNATION



PLUMBING KEY PLAN 1

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Project Number: 25-014  
Project Type: TENANT FINISH  
Project Name and Address:

PGM  
636 NE MAGUIRE BLVD  
LEES SUMMIT, MO 64064

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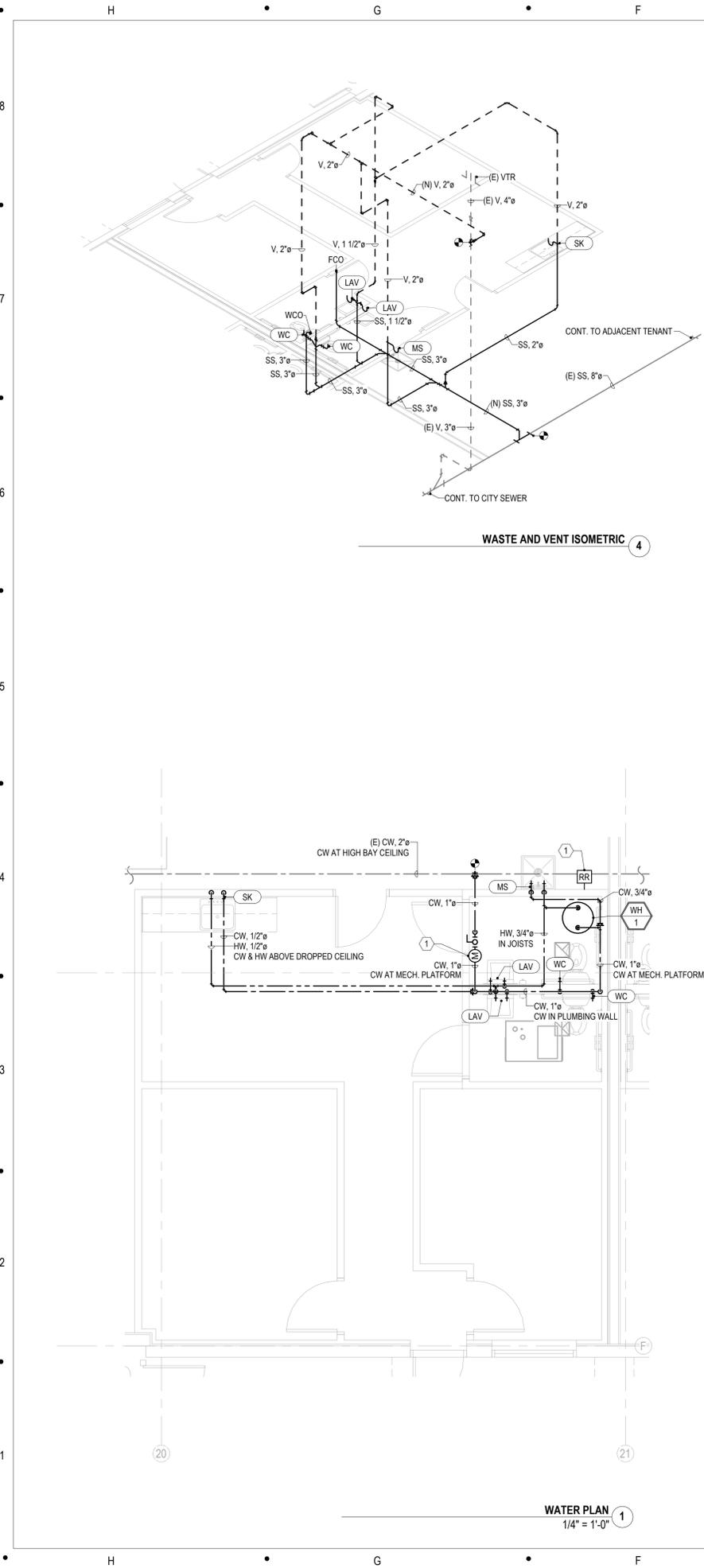
## REVISIONS

#	DESCRIPTION	DATE

Sheet Title:

PLUMBING SPECIFICATIONS

P001



### PLUMBING FIXTURE SCHEDULE

NOTES:  
1. ADA CHAIR HEIGHT 17" TO TOP OF SEAT.  
2. WITH GARBAGE DISPOSER.

TAG	DESCRIPTION	MAKE	MODEL	COLD W.	HOT W.	WASTE	VENT	TRAP	COUNT	NOTES
LAV	LAVATORY	KOHLER	BASIN: K-5400 FAUCET: K27389-4	1/2"	1/2"	1 1/2"	1 1/2"	1 1/4"	2	
MS	MOP SINK	BASIN: PROFLOW FAUCET: AMERICAN STANDARD	BASIN: PFM82424 FAUCET: 8354 112	3/4"	3/4"	3"	2"	3"	1	
SK	BREAKROOM SINK	KOHLER	BASIN: VAULT K-3822-3-NA FAUCET: EDALYN K-28360-CP	1/2"	1/2"	2"	2"	1 1/2"	1	2
WC	WATER CLOSET ADA	AMERICAN STANDARD	CADET FLOWISE	1/2"		3"	2"		2	1

### PLUMBING KEYNOTES

#	DESCRIPTION
1	PROVIDE WATER METER WITH UNIONS ON EACH SIDE FOR REMOVAL & REPLACEMENT. LOCATE REMOTE READER AT GROUND LEVEL. VERIFY FINAL LOCATION WITH ARCHITECT PRIOR TO CONSTRUCTION.
2	PROVIDE TEMPERATURE AND PRESSURE RELIEF VALVE AT WATER HEATER WITH 3/4" DISCHARGE PIPING AND ROUTE TO MOP SINK.

### PLUMBING EQUIPMENT SCHEDULE

NOTES:  
1. PROVIDE THERMAL EXPANSION TANK, AMTROL ST-5 OR EQUAL. ADJUST PRE-CHARGE TO EQUAL THE INCOMING WATER PRESSURE.

TAG	DESCRIPTION	MAKE	MODEL	TANK SIZE	TEMP. RISE	FLOW AT RISE	ELECTRICAL	NOTES
WH-1	ELECTRIC STORAGE	AO SMITH	DEL-30-3KW-208V	30.0 gal	60 °F	20 gal/h	208 V, 1 Ø, 3,000 VA	1

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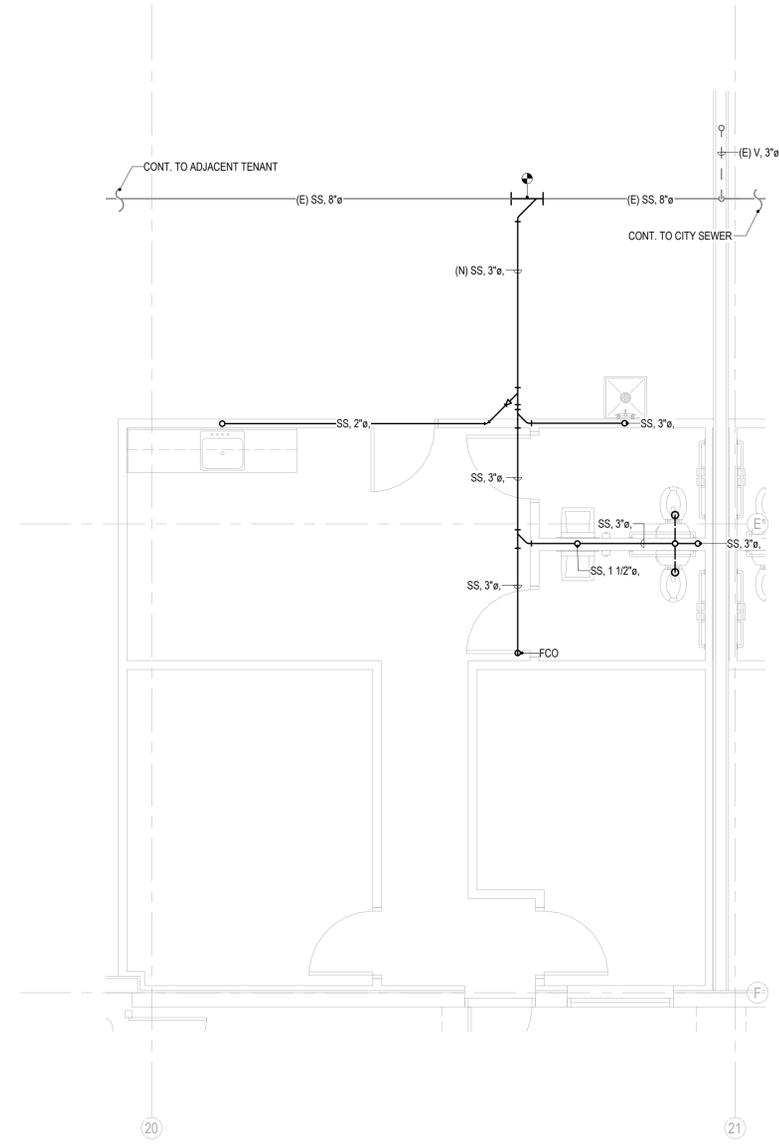
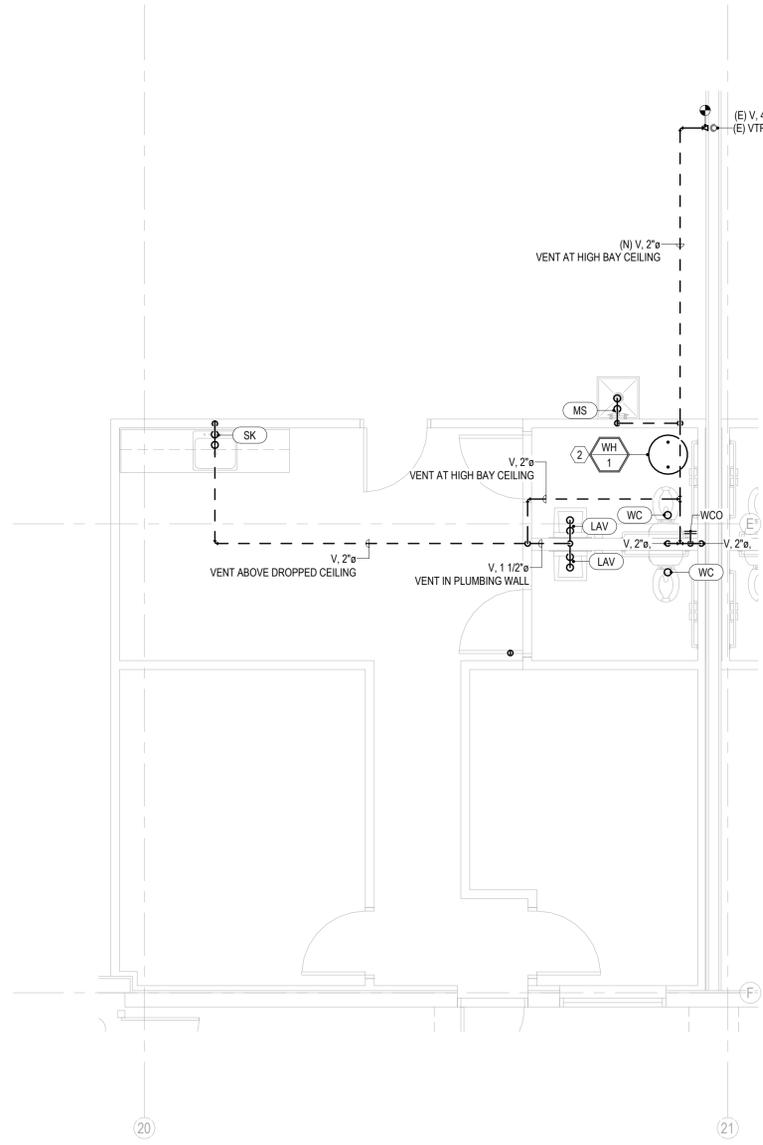
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#	DESCRIPTION	DATE

Sheet Title:  
**PLUMBING PLAN**

P100



# ELECTRICAL SPECIFICATIONS

## PART I - GENERAL

### A. GENERAL

- FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS OR AS SPECIFIED HEREIN INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS:
  - LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS.
  - ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT.
- OBTAIN AND REVIEW ALL OTHER DRAWINGS INCLUDING REFLECTED CEILING PLAN, INTERIOR AND EXTERIOR ELEVATIONS, FURNITURE PLANS AND ALL MILL WORK DRAWINGS. COORDINATE INSTALLATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT PRIOR TO ROUGH-IN.
- OBTAIN SUBMITTAL AND SHOP DRAWINGS FROM OTHER TRADES AND EQUIPMENT TO COORDINATE INSTALLATION ACCORDINGLY.
- INSTALLATION SHALL COMPLY WITH ALL CURRENT APPLICABLE CODES AND GOVERNING AGENCIES HAVING JURISDICTION.
- PROVIDE FIRE STOP ON ALL PIPING THAT PENETRATES RATED WALLS. METHOD OF FIRE STOP SHALL MEET WALL RATING. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE RATED WALLS. THIS CONTRACTOR SHALL PROVIDE FIRE RATED ENCLOSURES AROUND ALL ROUGH-IN BOXES, PANELS, ETC. THAT ARE LOCATED IN FIRE RATED WALLS AND SHALL FIRE CAULK ALL OPENINGS IN RATED ASSEMBLIES.

### B. CODES, REGULATIONS, AND STANDARDS

- THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND THE REQUIREMENTS OF THE POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.
- THE LATEST EDITIONS OF THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS:
  - THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION STANDARDS.
  - THE NATIONAL ELECTRICAL CODE INCLUDING LOCAL AMENDMENTS.
  - UNDERWRITER LABORATORIES INCORPORATED STANDARDS.
  - AMERICAN NATIONAL STANDARDS INSTITUTE.
  - INTERNATIONAL BUILDING CODE.

### C. INSPECTION OF SITE

- PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUANT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.
- ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS.

### D. STORAGE AND HANDLING OF MATERIAL

- DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER, AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.
- ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.
- COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

### E. CLEANUP

- KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN.

### F. DRAWINGS

- THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK. DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF THE CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.

### G. COOPERATION WITH OTHER CONTRACTORS

- COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE VERIFIED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.
- CAREFULLY VERIFY THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED BY THE INSTALLATION OF MATERIALS OF OTHER TRADES.
- COORDINATE THE LOCATION OF THE TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.
- COORDINATE HVAC AND PLUMBING EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC AND PLUMBING CONTRACTORS.

### H. RECORD DRAWINGS

- THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.
- AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL RECORD CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.

## PART II - PRODUCTS AND EXECUTION

### A. MATERIALS

- ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

### B. SHOP DRAWINGS AND APPROVALS

- THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE OF EQUIPMENT, PRIOR TO BIDDING. AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.
- THE CONTRACTOR SHALL SUBMIT (3) IDENTICAL BOUND SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS TO THE G.C.:
  - LIGHTING FIXTURE CUTS AND PERFORMANCE DATA.
  - OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD, LOAD CENTERS, AND DISTRIBUTION PANELS.
  - OUTLINE DRAWINGS OF ALL SWITCH GEAR COMPONENTS.
  - WIRING DEVICES AND COVERPLATES.
  - ALL CIRCUIT BREAKERS INSTALLED IN PANELBOARDS, LOAD CENTERS, AND DISTRIBUTION PANELS.

### C. SYSTEM GROUNDING

- GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDING CONDUCTOR OF THE WIRING SYSTEM SHALL BE GROUNDING.
- A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL DISTRIBUTION PANELS AND PANELBOARDS. PROPER TORQUE ON GROUND BUS SHALL BE VERIFIED, PER MANUFACTURER'S RECOMMENDATIONS, PRIOR TO ENERGIZING EQUIPMENT.
- GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, LOAD CENTERS, PANELBOARDS, AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE.
- WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FROM GROUND BUSING SHALL NOT AFFECT THE GROUND SYSTEM.
- RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO INSURE A CONTINUOUS GROUNDING PATH.
- IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.
- IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.

## PART II - PRODUCTS AND EXECUTION CONTINUED

### D. WIRE

- CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE WHWH OR SERVICE FEEDER OR BRANCH CIRCUITS LARGER THAN 4 AWG, TYPE THHN/THWN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER.
- ALUMINUM CONDUCTORS MAY BE UTILIZED FOR SERVICE ENTRANCE AND PANEL FEEDERS. CONDUCTORS SHALL BE ALUMINUM ALLOY AA-8000 SERIES.
- THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE 120V-WHITE, 277V-GREY, LIVE WIRES 480Y/277V SHALL BE BROWN (PHASE A), ORANGE (PHASE B), AND YELLOW (PHASE C); AND LIVE WIRES 208Y/120V SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C).
  - ALL CONDUCTORS SHALL BE RATED 600 VOLT.
- SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE WEATHERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- PROVIDE SOLID CONDUCTOR FOR 10 AWG AND SMALLER.
- NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC NO. 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.
- MC CABLE WITH COPPER CONDUCTORS AND GROUND WIRE MAY BE USED WHERE PERMITTED.

### E. CONDUIT

- ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED IN OTHER SECTIONS. RIGID GALVANIZED STEEL, WITH A 20 MIL PVC COATING MAY BE USED WHEN IN CONTACT WITH EARTH. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH THE EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LENGTHS NOT TO EXCEED 72". LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 48".
- WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES OR CABINETS, FIRMLY FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR CONDUIT LOCKETS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED THROAT CONNECTORS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT, T & B OR APPLETON, OR EQUAL).
- COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED SPIRAL WRAPPED, 1/2 LAPPED TO PROVIDE 20 MIL THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER N.E.C. 300-5. MAKE EXPOSED JOINTS WITH COMPOUND TO BE WATERTIGHT.
- SCHEDULE 40 PVC CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH FLOOR SLABS AND BENDS GREATER THAN 22" SHALL BE WRAPPED RIGID GALVANIZED STEEL ELBOWS.
- FITTINGS AND CONDUIT BODIES SHALL BE STEEL. DIECAST FITTINGS ARE NOT ACCEPTABLE.
- CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED.
- ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 200 LB. TEST NYLON PULL STRING TO FACILITATE INSTALLATION OF FUTURE WIRE.
- WIRING, CONDUITS, AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE. EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS.
- CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT.
- CONDUITS SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE STRUCTURE WALLS.

### F. OUTLET, PULL, AND JUNCTION BOXES

- EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET, SHALL BE PROVIDED WITH A CODE SIZED, STEEL OUTLET BOX. JUNCTION AND PULL BOXES SHALL BE METAL AND CODE SIZED.

### G. WIRING DEVICES (COMMERCIAL)

- WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A 120/277 VOLT.
- RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE, NEMA 5-20R, 20 AMPERE, 120VOLT GROUND TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS, MOUNT WITH THE GROUND DOWN. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED.
- RECEPTACLES IN OUTDOOR AND WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED AND U.L. LISTED SUITABLE FOR WET LOCATIONS WHILE IN USE, EQUAL TO TAYMAC SPECIFICATION GRADE.

### H. PANEL BOARDS

- WIRE TERMINATION FOR PANEL BOARDS AND CIRCUIT BREAKERS SHALL BE LISTED AS SUITABLE FOR 75 DEGREES C.
- PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED, INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL, SECURED TO DOOR.
- THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANEL BOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE, AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE.

### I. LIGHTING FIXTURES

- PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. REPLACEABLE LAMPS SHALL BE BY THE SAME MANUFACTURER. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. CEILING CONSTRUCTION, ARCHITECTURAL ACCESSORIES, VOLTAGE, AND DRIVERS TO MEET THE EXISTING CEILING CONDITION.

### J. LIGHTING CONTROL

- FURNISH AND INSTALL TIME SWITCHES, PHOTOCELLS, CONTRACTORS AND FULL LIGHTING CONTROL SYSTEMS AS REQUIRED FOR LIGHTING CONTROLS INDICATED ON THE DRAWINGS.
- TIME SWITCHES SHALL BE EQUAL TO NLIGHT, PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED.

### K. GUARANTEE

- GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

### L. REMODELING WORK

- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERRABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS.
- CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS.
- DEMOLITION, DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- PROTECT MATERIALS INDICATED TO REMAIN.

# ELECTRICAL SYMBOLS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS NECESSARILY USED ON THE DRAWINGS.

## LIGHTING FIXTURES AND EMERGENCY (EM) SHADING

- WALL MOUNTED    ○ CEILING MOUNTED
- ⊙ SUSPENDED PENDANT    ◁ ACCENT/DIRECTIONAL
- △ TRACK    ◡ DECORATIVE WALL SCORCE
- ⊕ EXIT SIGN WITH FACE AND DIRECTIONAL ARROWS AS INDICATED
- ⊕ EXIT SIGN WITH BUG EYES    ⊕ EMERGENCY BUG EYES
- ⊕ ELEVATOR PIT

## CLASS 1 LIGHTING CONTROLS

- ⊕ SWITCH, WALL MOUNTED @48", UNO
- abc SWITCHBANK WITH SWITCH-LEG INDICATED
- os OCCUPANCY SENSOR
- osd OCCUPANCY SENSOR WITH DIMMING
- ovr OVERRIDE SWITCH
- vs VACANCY SENSOR
- D DIMMER
- 3 3-WAY
- 3d 3-WAY WITH DIMMING
- 4 4-WAY
- at ASTRONOMICAL TIMER

## CLASS 2 POWER LIMITED LIGHTING CONTROLS

- ⊕ ON WALL @48", UNO    ⊕ ON CEILING    ⊕ ON JBOX
- abc SWITCHBANK WITH SWITCH-LEG INDICATED
- D1,D2,D4 DIMMING & ON/OFF WITH #-ZONE INDICATED
- K KEYPAD
- os OCCUPANCY SENSOR
- pc PHOTO CELL SENSOR
- lr LIGHTING RELAY, 16 AMPS
- \$1,\$2,\$4 ON/OFF WITH #-ZONE INDICATED
- tc TIME CLOCK
- ts TOUCH SCREEN
- vs VACANCY SENSOR

## POWER DISTRIBUTION EQUIPMENT

- SWITCHBOARDS AND PANELS:
- 277/480V, 3 PHASE, 4 WIRE
- 120/208V OR 120/240V, 3 PHASE, 4 WIRE
- 120/240V, 1 PHASE, 3 WIRE
- TRANSFORMER WITH GROUND ELECTRODE
- 480V    208V/3Ø    208V/1Ø
- SAFETY SWITCH (SS), WITH RATINGS:
- 100 AS AMP RATING OF SWITCH
- 80 AF AMP RATING OF FUSE
- NF NOT FUSED
- NEMA 3R WEATHER RESISTANCE DESIGNATION
- ⊕ FUSED DISCONNECT SWITCH
- ⊕ COMBINATION STARTER AND DISCONNECT SWITCH
- ⊕ VARIABLE FREQUENCY DRIVE

## SINGLE LINE DIAGRAM SYMBOLS AND NOTES

- CIRCUIT BREAKER:    FUSED DISCONNECT:    INLINE METER, 200 AMP MAX.
- ⊕ PICK-UP RATING, AMPS    AS SWITCH SIZE, AMPS    ⊕ METER WITH CTs (CURRENT TRANSFORMERS)
- #P NUMBER OF POLES    AF FUSE SIZE, AMPS    #P NUMBER OF POLES

## DISTRIBUTION EQUIPMENT:

- ⊕ BUS SIZE, AMPS
- MLO MAIN LUGS ONLY
- MCB MAIN CIRCUIT BREAKER
- V, Ø, W VOLTAGE, PHASE AND # WIRES

## DISTRIBUTION EQUIPMENT:

- M \$ MOTOR RATED TOGGLE SWITCH
- ⊕ DUPLEX RECEPTACLE
- ⊕ CONTROLLED RECEPTACLE
- ⊕ DUPLEX MOUNTED 12" ABOVE COUNTER, U.N.O.
- ⊕ SINGLE RECEPTACLE
- ⊕ QUAD RECEPTACLE
- ⊕ SPECIAL RECEPTACLE WITH NEMA TYPE
- ⊕ LINE AT BASE, SURFACE MOUNT
- ⊕ WALL MOUNTED AT 18" U.N.O.
- ⊕ CEILING MOUNTED
- ⊕ FLOOR BOX
- ⊕ POKE THROUGH
- ⊕ PEDESTAL
- AFCI ARC FAULT CIRCUIT INTERRUPTER
- EM EMERGENCY, RED RECEPT.
- IG ISOLATED GROUND, ORANGE RECEPT.
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- WPC WEATHER PROOF COVER
- +XX" MOUNTING HEIGHT ABOVE FINISHED FLOOR

## CLASS 1 POWER DEVICE SYMBOLS AND MODIFIERS

- ⊕ ON WALL @48", UNO    ⊕ ON CEILING    ⊕ ON JBOX
- ⊕ LINE AT BASE, SURFACE MOUNT
- ⊕ WALL MOUNTED AT 18" U.N.O.
- ⊕ CEILING MOUNTED
- ⊕ FLOOR BOX
- ⊕ POKE THROUGH
- ⊕ PEDESTAL
- C CONTACTOR
- JB JUNCTION BOX
- PL PLUS LOAD CONTROLLER, CLASS 2 TO CLASS 1 RELAY
- R RELAY
- TC TIME CLOCK
- TR CLASS 1 TO CLASS 2 TRANSFORMER

## CLASS 2 POWER LIMITED DEVICE SYMBOLS AND MODIFIERS

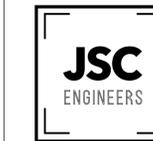
- ▽ DATA PORT
- ▽ TELEPHONE PORT
- ▽ COMBINED DATA & TELEPHONE
- ⊕ SMOKE DETECTOR
- ⊕ DUCT SMOKE DETECTOR
- ⊕ HEAT DETECTOR
- ⊕ AUXILIARY SYSTEM TERMINAL CABINET
- ⊕ ON WALL @48", UNO    ⊕ ON CEILING    ⊕ ON JBOX
- CR CARD READER
- CCTV CLOSED CIRCUIT TELEVISION CAMERA
- DB DOOR BELL
- KP KEY PAD
- RTS REMOTE TEST STATION
- RR REMOTE READER
- SP SPEAKER
- TV TELEVISION
- WAP WIRELESS ACCESS POINT

## GENERAL

- ⊕ MECHANICAL EQUIPMENT CONNECTION, SEE SCHEDULE ON MECHANICAL PLANS
- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT RUN BELOW FLOOR OR GRADE
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- P1-3,5,7 HOMERUN WITH PANELBOARD AND CIRCUIT #S. CIRCUIT CONDUCTOR(S) ARE #12 AWG COPPER (CU) WITH #12 GROUND AWG CU, UNO
- CONNECTION POINT OF NEW WORK TO EXISTING

- (E) EXISTING TO REMAIN
- (D) EXISTING TO BE DEMOLISHED
- (EL) EXISTING LOCATION TO BE RELOCATED
- (NL) NEW LOCATION OF RELOCATED ITEM
- (N) NEW WORK
- UNO UNLESS NOTED OTHERWISE
- AIC AMP INTERRUPTING CAPACITY
- CU COPPER

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## REVISIONS

#    DESCRIPTION    DATE

Sheet Title:

ELECTRICAL  
SYMBOLS AND  
SPECIFICATIONS

E001

**EXISTING SWITCH: SS-MAIN-2**

LOCATION: EXTERIOR - SUPPLY FROM: UTILITY MOUNTING: SURFACE  
 DISTRIBUTION SYSTEM: 480/277V, 3Ø ENCLASURE: NEMA 3R A.I.C. RATING: EXISTING  
 TYPE: FUSED SWITCH RATING: 800 A FUSE RATING: 800 A

NOTES:

CKT	DESCRIPTION	NOTES	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	NOTES	DESCRIPTION	CKT
1	(E) SS-644A		200 A	3	0	0		3	200 A		(E) SS-644A	2
3	--		--	--				--	--		--	4
5	--		--	--				--	--		--	6
7	(E) SS636A		200 A	3	7,317	0		3	200 A		(E) SS640A	8
9	--		--	--		6,190	0	--	--		--	10
11	--		--	--			5,654	0	--		--	12
					LOAD VA:	7,317 VA	6,190 VA	5,654 VA				
					LOAD AMPS:	27 A	23 A	20 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
RECEPTACLE	4,140 VA	100.00%	4,140 VA	
NON-CONTINUOUS	8,473 VA	100.00%	8,473 VA	CONNECTED VA: 19,161 VA
CONTINUOUS	3,348 VA	125.00%	4,185 VA	DEMAND VA: 19,678 VA
GENERAL LOADS (220/240)	0 VA	0.00%	0 VA	CONNECTED AMPS: 23 A
KITCHEN EQUIPMENT	3,200 VA	90.00%	2,880 VA	DEMAND AMPS: 24 A

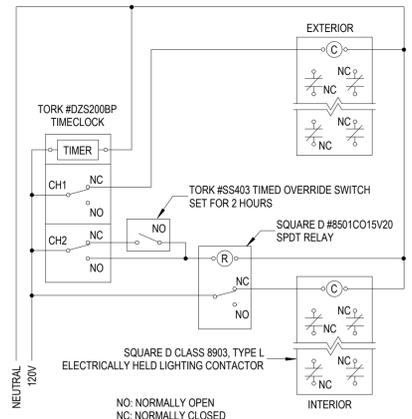
**EXISTING SWITCH: SS-MAIN-1**

LOCATION: EXTERIOR - SUPPLY FROM: UTILITY MOUNTING: SURFACE  
 DISTRIBUTION SYSTEM: 480/277V, 3Ø ENCLASURE: NEMA 3R A.I.C. RATING: EXISTING  
 TYPE: FUSED SWITCH RATING: 800 A FUSE RATING: 800 A

NOTES:

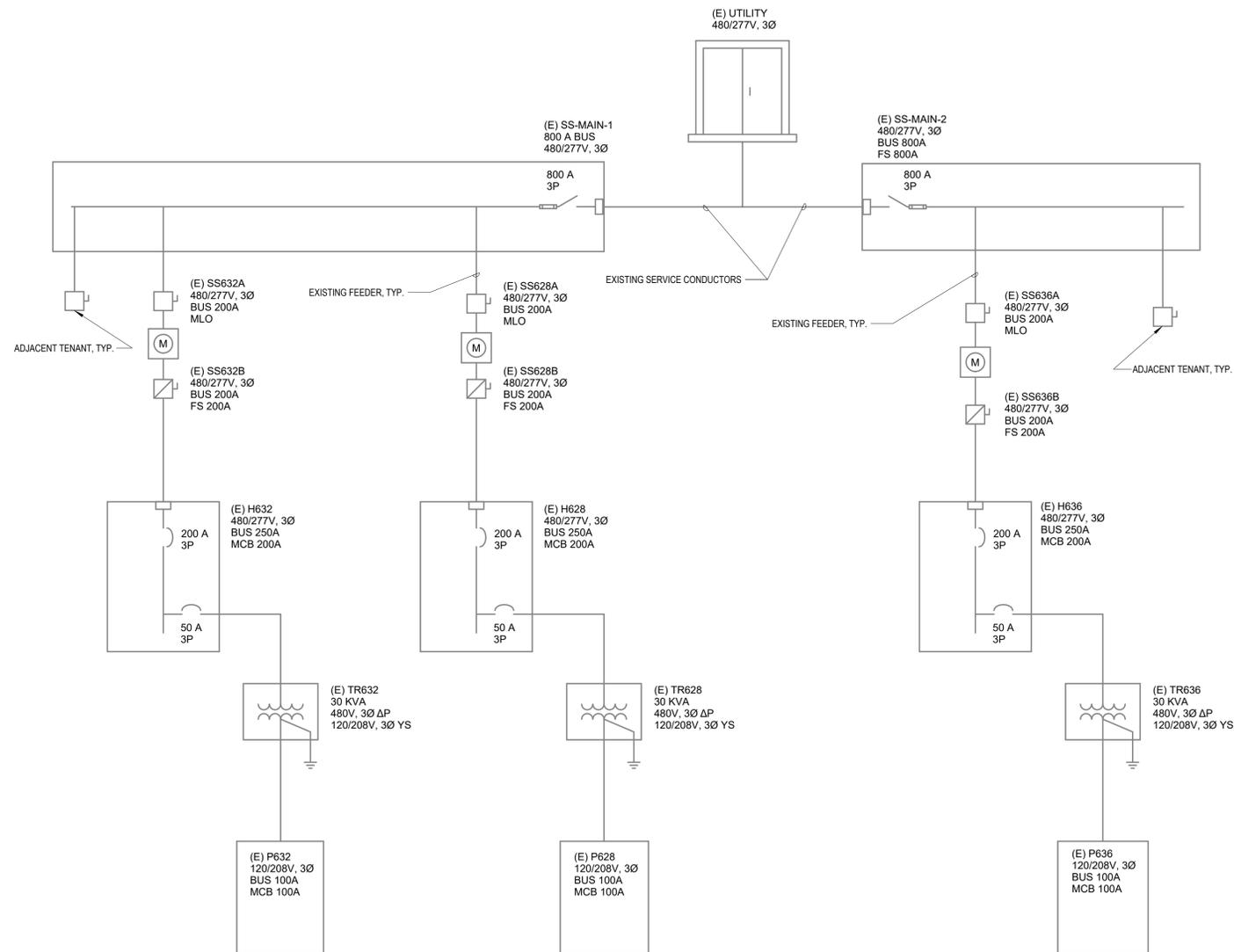
CKT	DESCRIPTION	NOTES	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	NOTES	DESCRIPTION	CKT
1	(E) SS620A		200 A	3	0	0		3	200 A		(E) SS624A	2
3	--		--	--		0	0	--	--		--	4
5	--		--	--				--	--		--	6
7	(E) SS628A		200 A	3	918	1,080		3	200 A		(E) SS632A	8
9	--		--	--		653	653	--	--		--	10
11	--		--	--			653	--	--		--	12
					LOAD VA:	1,998 VA	1,306 VA	1,306 VA				
					LOAD AMPS:	7 A	5 A	5 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
RECEPTACLE	1,980 VA	100.00%	1,980 VA	
NON-CONTINUOUS	2,612 VA	100.00%	2,612 VA	CONNECTED VA: 4,610 VA
CONTINUOUS	18 VA	125.00%	23 VA	DEMAND VA: 4,615 VA
				CONNECTED AMPS: 6 A
				DEMAND AMPS: 6 A

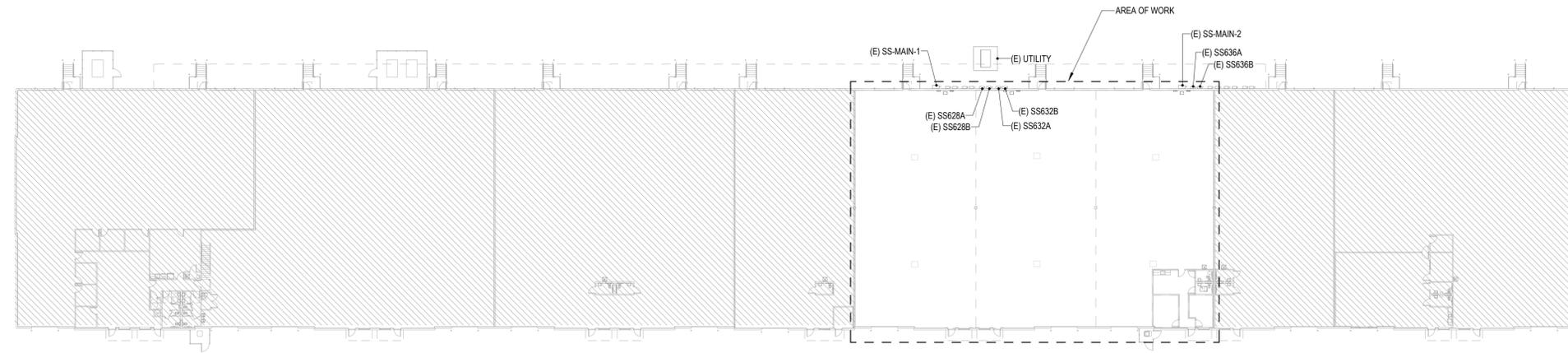


- NOTES:
- SEE PANEL SCHEDULES FOR CIRCUITS THAT ARE TO BE CONTROLLED BY TIMECLOCK AND CONTACTORS.
  - ANY LOCAL SWITCHING INDICATED ON THE PLANS SHALL BE ON THE LOAD SIDE OF THE CONTACTOR.
  - THE ELECTRICAL CONTRACTOR SHALL PROGRAM ALL TIMECLOCKS AND INDIVIDUAL DIGITAL TIMECLOCK CHANNELS. COORDINATE ALL ON, OFF, AND HOLIDAY SETTINGS WITH THE OWNER. INTERIOR CONTROL ZONES SHALL HAVE THE ASTRONOMIC FUNCTION FOR THE CHANNEL TURNED OFF.
  - MOUNT TIMECLOCK, RELAYS, AND CONTACTORS ADJACENT TO THE ASSOCIATED PANELBOARD(S). ALL CONTACTORS AND RELAYS SHALL BE PROVIDED WITH INDIVIDUAL ENCLOSURES. AT THE CONTRACTOR'S OPTION, OPEN RELAYS AND CONTACTORS ARE PERMITTED WHEN MOUNTED WITHIN A COMMON ENCLOSURE. COORDINATE MOUNTING LOCATION OF OVERRIDE SWITCH WITH THE OWNER.
  - PROVIDE TO THE OWNER A VOLUNTARY BID ALTERNATE TO UTILIZE A RELAY PANEL WITH A DIGITAL TIMECLOCK AND LOW VOLTAGE OVERRIDE SWITCH IN LIEU OF THE COMPONENTS SHOWN WITHIN THIS DETAIL.

**TIMECLOCK AND CONTACTOR, 2 CHANNEL** 3



**EXISTING SINGLE LINE DIAGRAM, SHOWN FOR REFERENCE ONLY** 2



**ELECTRICAL SITE PLAN** 1  
1/32" = 1'-0"

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Seal:

Project Number: 25-014  
 Project Type: TENANT FINISH  
 Project Name and Address:

**PGM**  
 636 NE MAGUIRE BLVD  
 LEE'S SUMMIT, MO 64064

Issue: \_\_\_\_\_ Date: \_\_\_\_\_

2 REVIEW SET 02/10/2026

REVISIONS		
#	DESCRIPTION	DATE

Sheet Title:  
**ELECTRICAL SINGLE LINE & SITE PLAN**

**E002**

EXISTING PANEL: H628

LOCATION: WAREHOUSE 108.0
SUPPLY FROM: SS628B
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 480/277V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 250 A
MAIN BREAKER: 200 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.
2. NEW CIRCUIT IN EXISTING PANEL.

Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (E) TR628, (N) EMERGENCY LIGHTING, and various SPACE ONLY entries.

LOAD VA: 918 VA, 653 VA, 653 VA
LOAD AMPS: 3 A, 2 A, 2 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, and CONTINUOUS load categories.

PANEL NOTES:

EXISTING PANEL: H632

LOCATION: WAREHOUSE 109.0
SUPPLY FROM: SS632B
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 480/277V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 250 A
MAIN BREAKER: 200 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.

Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (E) TR632, (N) EMERGENCY LIGHTING, and various SPACE ONLY entries.

LOAD VA: 1,080 VA, 653 VA, 653 VA
LOAD AMPS: 4 A, 2 A, 2 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, and CONTINUOUS load categories.

PANEL NOTES:

EXISTING PANEL: H636

LOCATION: WAREHOUSE 110.0
SUPPLY FROM: SS636B
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 480/277V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 250 A
MAIN BREAKER: 200 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.
2. NEW CIRCUIT IN EXISTING PANEL.

Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (E) TR636, (N) EMERGENCY LIGHTING, and various SPACE ONLY entries.

LOAD VA: 7,317 VA, 6,190 VA, 5,654 VA
LOAD AMPS: 27 A, 23 A, 20 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, CONTINUOUS, and KITCHEN EQUIPMENT load categories.

PANEL NOTES:

EXISTING PANEL: P628

LOCATION: WAREHOUSE 108.0
SUPPLY FROM: TR628
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 120/208V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 100 A
MAIN BREAKER: 100 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.
2. NEW CIRCUIT IN EXISTING PANEL.

Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (N) WAREHOUSE RECEP.TS., (E) UNIT HEATER UH-1, and various SPACE ONLY entries.

LOAD VA: 900 VA, 653 VA, 653 VA
LOAD AMPS: 8 A, 5 A, 5 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, and CONTINUOUS load categories.

PANEL NOTES:

EXISTING PANEL: P632

LOCATION: WAREHOUSE 109.0
SUPPLY FROM: TR632
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 120/208V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 100 A
MAIN BREAKER: 100 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.
2. NEW CIRCUIT IN EXISTING PANEL.

Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (N) WAREHOUSE RECEP.TS., (E) UNIT HEATER UH-1, and various SPACE ONLY entries.

LOAD VA: 1,080 VA, 653 VA, 653 VA
LOAD AMPS: 9 A, 5 A, 5 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, and CONTINUOUS load categories.

PANEL NOTES:

EXISTING PANEL: P636

LOCATION: WAREHOUSE 110.0
SUPPLY FROM: TR636
MOUNTING: SURFACE

DISTRIBUTION SYSTEM: 120/208V, 3Ø
ENCLOSURE: TYPE 1
A.I.C. RATING: EXISTING

MAINS TYPE: MCB
BUS RATING: 100 A
MAIN BREAKER: 100 A
FEED THROUGH LUGS:

CIRCUIT NOTES:
1. EXISTING CIRCUIT TO REMAIN.
2. NEW CIRCUIT IN EXISTING PANEL.
3. 'GFCI' TYPE CIRCUIT BREAKER.
4. WITH HANDLE PADLOCK ACCESSORY.
5. ROUTE VIA TIMECLOCK.

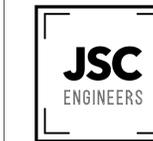
Table with columns: CKT, DESCRIPTION, NOTES, TRIP, POLES, A (VA), B (VA), C (VA), POLES, TRIP, NOTES, DESCRIPTION, CKT. Rows include (N) BATHROOM RECEP.TS., (N) BREAKROOM RECEP.TS., (N) REFRIGERATOR, (N) GARBAGE DISPOSER, (N) DISHWASHER, (N) OFFICE RECEP.TS., (N) WAREHOUSE RECEP.TS., (E) UNIT HEATER UH-1, (E) UNIT HEATER UH-1, (N) FURNACE F-1, (N) OFFICE LIGHTING, (N) FRONT ENTRY SIGN, (N) AUTOMATIC CONTROL DAMPER, (N) WATER METER & REMOTE READER, and SPARE.

LOAD VA: 7,293 VA, 6,190 VA, 5,654 VA
LOAD AMPS: 61 A, 52 A, 47 A

Table with columns: LOAD CLASSIFICATION, CONNECTED LOAD, DEMAND FACTOR, DEMAND LOAD, TOTALS. Includes RECEPTACLE, NON-CONTINUOUS, CONTINUOUS, and KITCHEN EQUIPMENT load categories.

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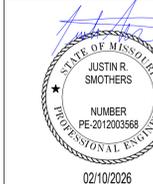
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Seal:



Project Number: 26-014

Project Type: TENANT FINISH

Project Name and Address:

Table with columns: Issue, Date, #, DESCRIPTION, DATE. Includes REVISIONS table.

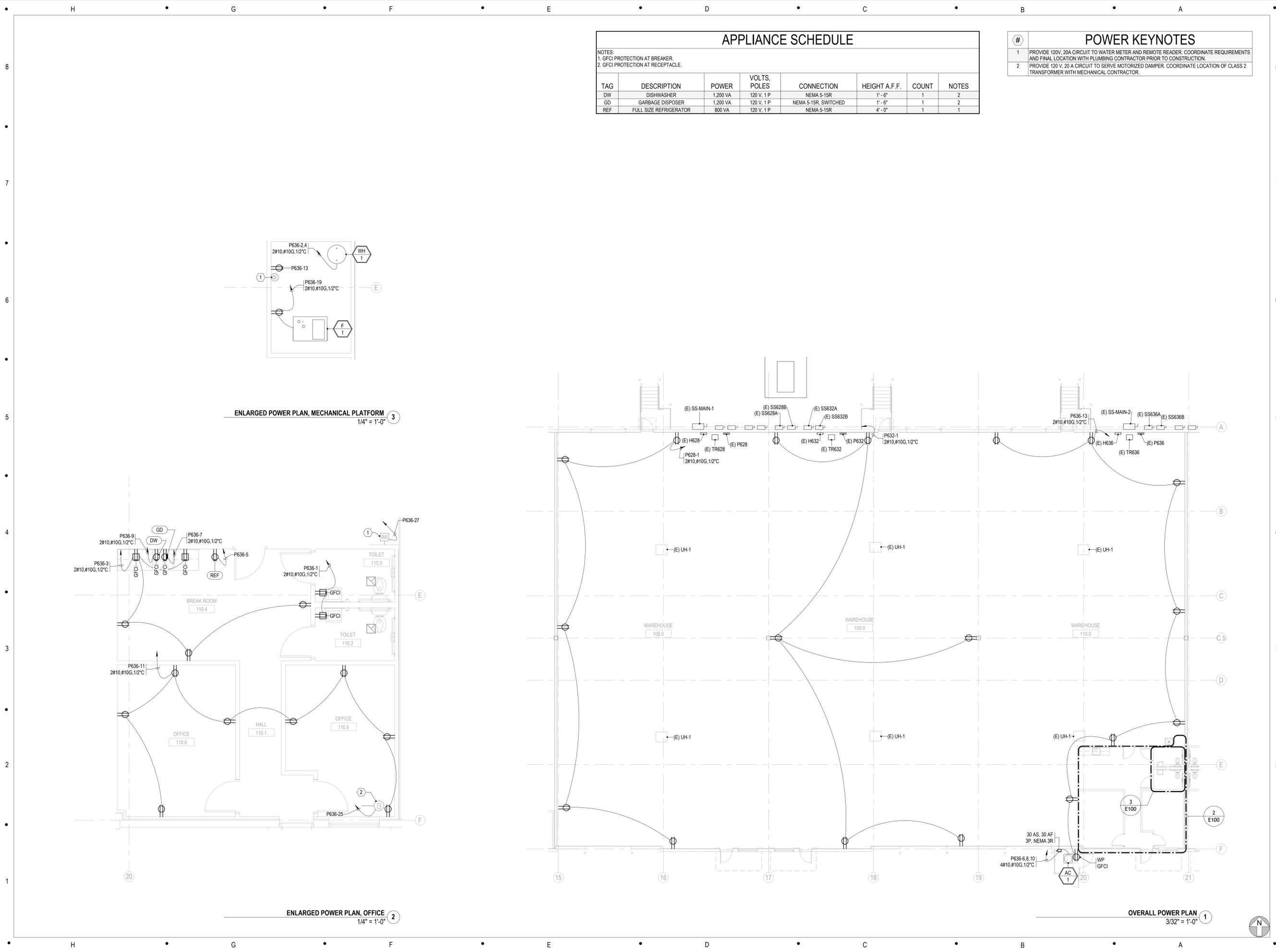
Issue: REVIEW SET Date: 02/10/2026

Sheet Title: PANEL SCHEDULES

636 NE MAGUIRE BLVD
LEES SUMMIT, MO 64064

PGM

E003



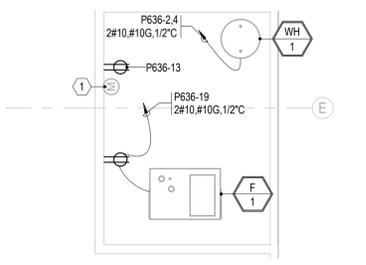
### APPLIANCE SCHEDULE

NOTES:  
 1. GFCI PROTECTION AT BREAKER.  
 2. GFCI PROTECTION AT RECEPTACLE.

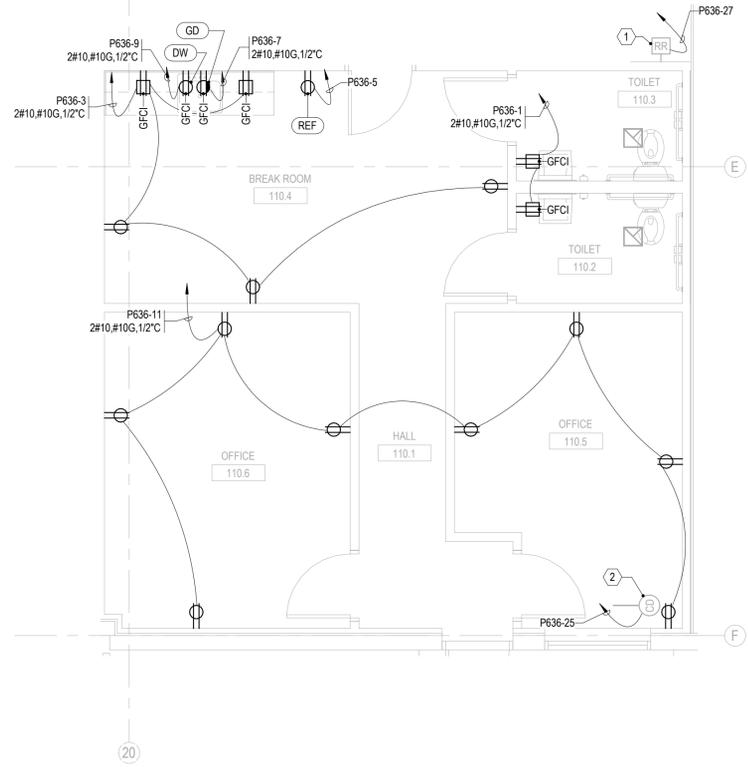
TAG	DESCRIPTION	POWER	VOLTS, POLES	CONNECTION	HEIGHT A.F.F.	COUNT	NOTES
DW	DISHWASHER	1,200 VA	120 V, 1 P	NEMA 5-15R	1'-6"	1	2
GD	GARBAGE DISPOSER	1,200 VA	120 V, 1 P	NEMA 5-15R, SWITCHED	1'-6"	1	2
REF	FULL SIZE REFRIGERATOR	800 VA	120 V, 1 P	NEMA 5-15R	4'-0"	1	1

### POWER KEYNOTES

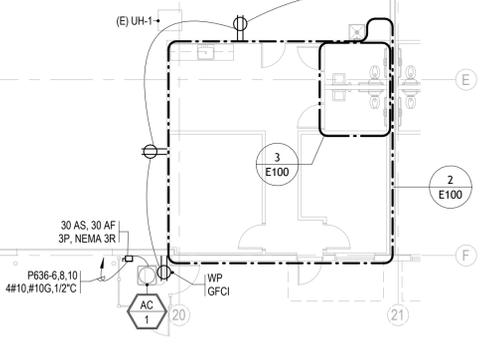
- | # | DESCRIPTION  |
|---|--|
| 1 | PROVIDE 120V, 20A CIRCUIT TO WATER METER AND REMOTE READER. COORDINATE REQUIREMENTS AND FINAL LOCATION WITH PLUMBING CONTRACTOR PRIOR TO CONSTRUCTION. |
| 2 | PROVIDE 120 V, 20 A CIRCUIT TO SERVE MOTORIZED DAMPER. COORDINATE LOCATION OF CLASS 2 TRANSFORMER WITH MECHANICAL CONTRACTOR.                          |



ENLARGED POWER PLAN, MECHANICAL PLATFORM  
 1/4" = 1'-0" 3



ENLARGED POWER PLAN, OFFICE  
 1/4" = 1'-0" 2



OVERALL POWER PLAN  
 3/32" = 1'-0" 1

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Seal:

Project Number: 25-014  
 Project Type: TENANT FINISH  
 Project Name and Address:

**PGM**  
 636 NE MAGUIRE BLVD  
 LEE'S SUMMIT, MO 64064

Issue: REVIEW SET Date: 02/10/2026

#	REVISIONS DESCRIPTION	DATE
1		
2		
3		

Sheet Title:  
**POWER PLAN**

**E100**

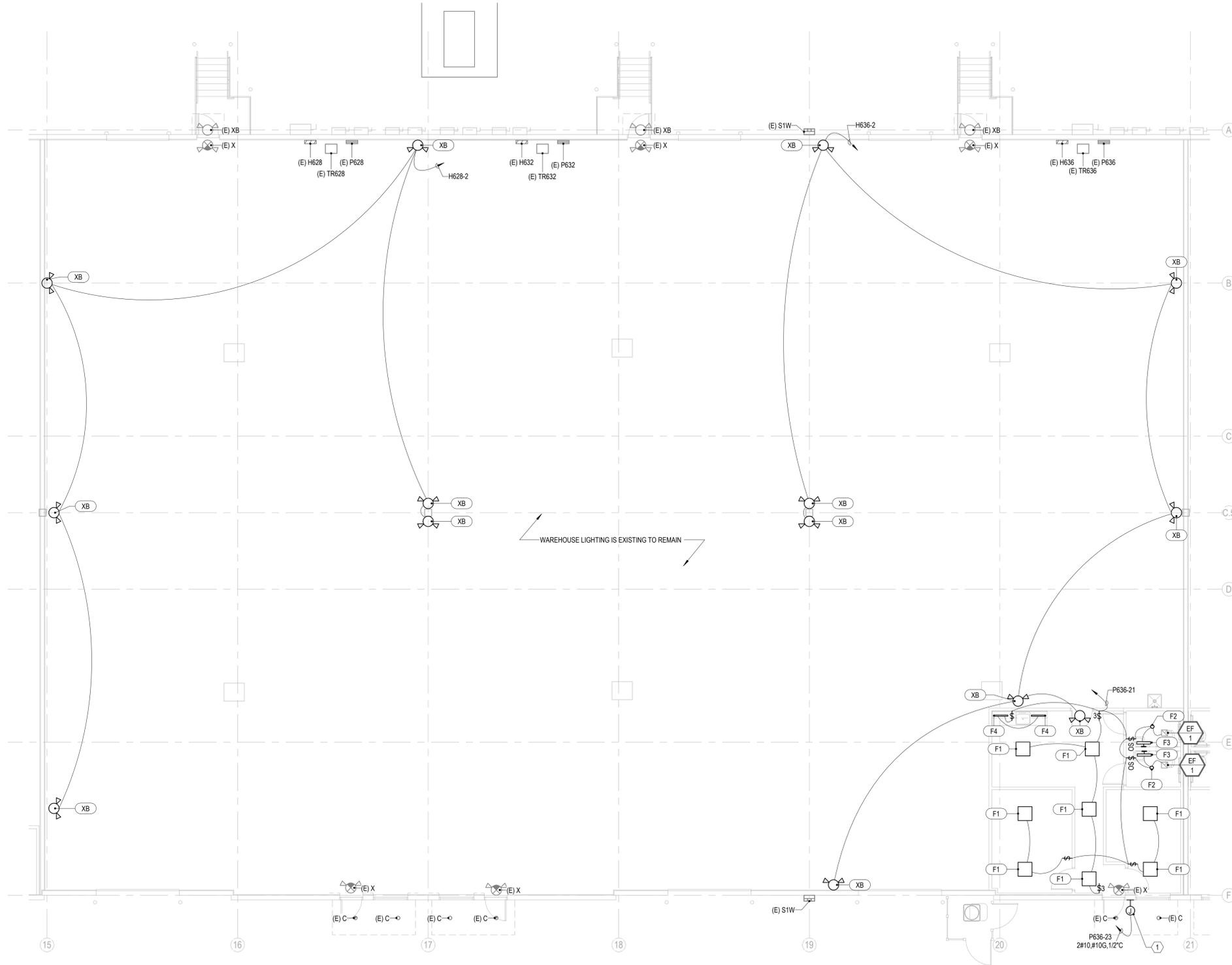
### LUMINAIRE SCHEDULE

NOTES:  
 1. 4000K COLOR TEMPERATURE.  
 2. 90 MINUTE EMERGENCY BATTERY BACKUP POWER.  
 3. COORDINATE FINISH WITH ARCHITECT PRIOR TO ORDERING.

TAG	DESCRIPTION	MAKE	MODEL	LUMENS	WATTS	VOLTS	COUNT	NOTES
F1	2x2' PANEL	LITHONIA	CPX - 2X2 - 3200LM - 80CRI - 50K - A12 - MIN1 - MVOLT	3200 lm	28 W	120 V	1	1
F2	6"Ø RECESSED	LITHONIA	LDN6 - 40K - 20LM - L06 - WR - LD - TRW - MVOLT - GZ1	2000 lm	23 W	120 V	2	1
F3	2' VANITY WALL SCONCE	LITHONIA	FMVCCLS - 24IN - MVOLT - 50K - 90CRI - FINISH	1690 lm	27 W	120 V	2	1,3
F4	22" UNDERCABINET LIGHT	KELVIX	UC22 - 3040 - 010V - 120277 - WH	900 lm	12 W	120 V	2	1
XB	BUG EYE 'EMERGENCY'	LITHONIA	ELM4L		3 W	277 V	14	2

### LIGHTING KEYNOTES

#	DESCRIPTION
1	COORDINATE FINAL LOCATION OF SIGN WITH VENDOR PRIOR TO CONSTRUCTION.



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

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Project Number: 25-014

Project Type: TENANT FINISH

Project Name and Address:

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 636 NE MAGUIRE BLVD  
 LEE'S SUMMIT, MO 64064

Issue: REVIEW SET Date: 02/10/2026

#	DESCRIPTION	DATE

Sheet Title:

LIGHTING PLAN

E200