

ELECTRICAL LEGEND

ABBREVIATIONS	A12 ALPHANUMERIC LABEL INDICATES PANEL AND CIRCUIT TO WHICH ITEM IS CONNECTED (I.E. PANEL A, CIRCUIT 12)
AF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
CC	CIRCUIT
C.P.	COVER PLATE
E.C.	ELECTRICAL (SUB) CONTRACTOR
EXTG.	EXISTING
F.B.O.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
G.C.	GENERAL (SUB) CONTRACTOR
HP	HORSEPOWER
L.D.	LOCATE AS DIRECTED
MAX	MAXIMUM
M.C.	MECHANICAL (HVAC, PLBG, FP, OR TC) (SUB) CONTRACTOR
MH	MOUNTING HEIGHT TO BOTTOM OF DEVICE, BOX, OR FIXTURE, UNO
MIN	MINIMUM
OREQ	OR EQUAL
PAF	PAINTED AFTER FABRICATION
REV	REVIEW
R/M	REMOVE
R/L	RELOCATE/RELOCATED
TWK	TWIST/TURN TO LOCK TYPE RECEPT/PLUG
UNO	UNLESS NOTED OTHERWISE
W/	COMPLETE WITH
WG	WITH WIRE GUARD
WP	WEATHERPROOF DEVICE, ENCLOSURE OR COVER PLATE.
XP	EXPLOSION-PROOF DEVICE OR ENCLOSURE, RATED FOR CLASS DIV 1, UNO
(Z)	INDICATES NOTE-SEE TABULATION ON SAME SHEET
(E)	INDICATES MECHANICAL OR HEATING EQUIPMENT ITEM, SEE MECHANICAL EQUIPMENT SCHEDULE
(S)	LED SURFACE/RECESSED FIXTURE-SEE SCHEDULE-SHOWN TO SCALE (APPROX.)
(SP)	LOCAL SWITCH-1 POLE-20A-120V-W/PILOT LT. HANDLE & C.P.- COLOR SELECTED BY ARCHITECT - M.H. 44" HUBBELL #HBL1221PL OREQ.
(/)	WIRE TICKS INDICATE BRANCH CIRCUIT PHASE, NEUTRAL, & GROUND WIRES, RESPECTIVELY
(J)	JUNCTION BOX-REQUIRED WHERE SHOWN
(C)	CONDUIT-CONCEALED IN CEILING, WALL OR FLOOR OF NEW CONSTRUCTION. CONCEALED WHEREVER POSSIBLE IN EXISTING CONSTRUCTION (1/2" OR 3/4" DIA. MIN.)
(H)	HOMERUN TO PANEL OR LOCATION NOTED
(U)	INDICATES CONCEALED CONDUIT UNDERGROUND/UNDERFLOOR - 3/4" MIN.
(S)	SURFACE MOUNTED RACEWAY-W/MATCHING FITTINGS, BOXES, ACCESSORIES, ETC. WIREMOLD #V700 SERIES, HUBBELL #HBL75010W SERIES OREQ
(C)	INDICATES LOCAL SWITCHING OR CONTROL FUNCTION
(L)	INDICATES LOW VOLT CABLING ROUTED THRU PLENUM OR ATTIC SPACE.
(S)	FUSED SAFETY SWITCH-AMP SIZE AS NOTED-VOLTAGE AS REQD-NEMA 1 ENCLOSURE U.N.O.-MH 6'0" TO TOP UNO (NF=NON-FUSED); 3R=NEMA 3R ENCL; GK=NEMA 12 GASKETED ENCL; 4X=NEMA 4X STAINLESS STEEL ENCL)
(S)	DISCONNECT SWITCH-HP RATED-TOGGLE TYPE-20 AMP-1 TO 3 POLES AS REQUIRED FOR EQPT-600 VOLT-NEMA 1 ENCLOSURE U.N.O.-LOCATE ADJACENT TO EQUIPMENT SERVED. (WP=WEATHERPROOF ENCLOSURE) SQUARE D CLASS 2510 SERIES OREQ
(S)	PRE-WIRED CONTROL PANEL WITH MAGNETIC STARTERS, CONTACTORS, ETC., PROVIDED WITH EQUIPMENT. WITH OR WITHOUT DISCONNECT AS SHOWN. POWER FEED WIRING BY E.C.
(S)	TEMPERATURE ALARM SYSTEM - FURNISHED BY REFRIGERATION SUPPLIER, INSTALLED BY ELECTRICAL CONTRACTOR.
(S)	EXISTING INC. OR HID. FIXTURE-TO REMAIN
(S)	EXISTING FLUORESCENT FIXTURE-TO REMAIN
(S)	EXISTING MOTOR OR MOTORIZED EQUIPMENT OR APPLIANCE, FOR REMOVAL BY OTHERS.
(S)	EXISTING PANEL
(S)	EXISTING ITEMS ARE TO REMAIN-UNO
(S)	EXISTING SPEAKER-DIRECTIONAL HORN W/DRIVER TO REMAIN-UNO
(S)	EXISTING FIRE ALARM SIGNAL-SPEAKER W/STROBE LIGHT-TO REMAIN-UNO
(S)	EXISTING ITEMS SHOWN DASHED ARE TO BE REMOVED-UNO
(S)	INDICATES EXISTING ITEM SHALL BE REMOVED INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE

(EXISTING CIRCUITING)

1 PANELBOARD SCHEDULE											
NOTES:											
PANEL: EXTG. LP-B											
MAINS: 225A M.L.O.											
VOLTS: 120/208V-3ø-4W-SN											
MOUNTING: RECESSED											
<input type="checkbox"/> GFCI BREAKER <input type="checkbox"/> 30 MILLIAMP EQUIPMENT <input type="checkbox"/> ARC FAULT <input type="checkbox"/> KAIC RATING <input type="checkbox"/> GROUND FAULT TRIP <input type="checkbox"/> SWITCHED NEUTRAL <input type="checkbox"/> NON-CONSEQUENT LOAD <input type="checkbox"/> SHUNT TRIP <input type="checkbox"/> MOTOR OPERATED <input type="checkbox"/> RELAY CONTROLLED											
LOAD DESCRIPTION	NOTES	VOLT AMPS	C.B. AMP	A	B	C	C.B. P AMP	VOLT AMPS	NOTES	LOAD DESCRIPTION	
1 REF. COLD PANS/FLR RCP.		960	20 1	1460			1 20	500		MOBILE CASHIER STAND	2
3 REF. COLD PANS/FLR RCP.		960	20 1		1960		1 20	1000		SLICER PLUG	4
5 REF. COLD PANS/FLR RCP.		960	20 1			1960	1 20	1000		CRES-COR CABINET PLUG	6
7 KITCH. CLG. LTS.		800	20 1	1300			1 20	500		S.K WALL PLUG	8
9 COOLER, LTS., NIGHT LITE		800	20 1		1300		1 20	500		WALL PLUGS	10
11 UNIT HTR UV#3		1000	20 1			1800	1 20	800		FREEZER LIGHT & RECP.	12
13 KITCHEN ROOF EXH. FAN		1200	20 3	2400			3 20	1200		DISPOSAL	14
15 -		1200	20 3		2400		3 20	1200		-	16
17 -		1200	20 3			2400	3 20	1200		-	18
19 MIXER		1200	20 3	2700			3 30	1500		ELEC CAB HTR/HALL HTR	20
21 -		1200	20 3		2700		3 30	1500		-	22
23 -		1200	20 3			2700	3 30	1500		-	24
25 REFR. COMP.		850	20 3	2650			2 20	1800		3-DOOR FREEZER	26
27 -		850	20 3		2650		2 20	1800		-	28
29 -		850	20 3			2682	3 20	1832		FREEZER	30
31 UNKNOWN		1500	30 1	3332			3 20	1832		-	32
33 UNKNOWN		1500	30 1		3332		3 20	1832		-	34
35 SPACE		0			0			0		SPACE	36
37 SPACE		0		0				0		SPACE	38
39 SPACE		0		0				0		SPACE	40
41 SPACE		0		0				0		SPACE	42
<input type="checkbox"/> HANDLE TIE				13842	14342	11542					
<input type="checkbox"/> HANDLE LOCK				BALANCE							
				106%	108%	87%					
TOTAL LOAD:				39726			TOTAL AMPS: 110.4				

(NEW CIRCUITING)

2 PANELBOARD SCHEDULE											
NOTES:											
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VOLTS: 120/208V-3ø-4W-SN											
MOUNTING: RECESSED											
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5 REF. COLD PANS/FLR RCP.		960	20 1			1960	1 20	1000		CRES-COR CABINET PLUG	6
7 KITCH. CLG. LTS.		800	20 1	1300			1 20	500		S.K WALL PLUG	8
9 COOLER, LTS., NIGHT LITE		800	20 1		1300		1 20	500		WALL PLUGS	10
11 UNIT HTR UV#3		1000	20 1			1750	1 20	750		FRZ LIS DOOR HTR/120V FS	12
13 KITCHEN ROOF EXH. FAN		1200	20 3	2400			3 20	1200		DISPOSAL	14
15 -		1200	20 3		2400		3 20	1200		-	16
17 -		1200	20 3			2400	3 20	1200		-	18
19 MIXER		1200	20 3	2700			3 30	1500		ELEC CAB HTR/HALL HTR	20
21 -		1200	20 3		2700		3 30	1500		-	22
23 -		1200	20 3			2700	3 30	1500		-	24
25 COOLER COND./COMP.		924	20 3	2724			2 20	1800		3-DOOR FREEZER	26
27 -		924	20 3		2724		2 20	1800		-	28
29 -		924	20 3			2352	3 20	1428		FREEZER COND./COMP.	30
31 UNKNOWN		1500	30 1	2928			3 20	1428		-	32
33 UNKNOWN		1500	30 1		2928		3 20	1428		-	34
35 COOLER EVAP./LTS		266	20 1		1316	2 20	2 20	1050		FREEZER EVAPORATOR	36
37 SPACE		0		1050			2 20	1050		-	38
39 SPACE		0			0			0		SPACE	40
41 SPACE		0			0			0		SPACE	42
<input type="checkbox"/> HANDLE TIE				14562	14012	12478					
<input type="checkbox"/> HANDLE LOCK				BALANCE							
				106%	102%	91%					
TOTAL LOAD:				41052			TOTAL AMPS: 114.0				

PANEL SCHEDULE NOTES

- PANEL DIRECTORIES REFLECT INFORMATION OBSERVED FROM FIELD PICTURES. EXISTING BRANCH CIRCUIT LOADS ARE ESTIMATED. FIELD VERIFY CIRCUIT DESIGNATIONS ASSOCIATED WITH RENOVATIONS AND FIELD VERIFY LOAD FOR ANY CIRCUIT MODIFIED OR EXTENDED AS PART OF THIS PROJECT. MAINTAIN BRANCH CIRCUIT WIRING CONTINUITY TO EXISTING DEVICES REMAINING.
- UPDATE PANEL DIRECTORY AT COMPLETION OF PROJECT.
- PROVIDE CIRCUIT BREAKER TO MATCH EXISTING IN AVAILABLE SPACES. NEW BREAKERS TO MATCH EXISTING IN TYPE, STYLE, MANUFACTURER, AND AIC RATING.

FIXTURE SCHEDULE

MARK	LAMP CATEGORY	LAMP QTY/TYP	VOLTS	DESCRIPTION	MFR. AND CATALOG SERIES	VA
A	LED	NOM 149W 24,628 LUMENS 4000K COLOR	277	LED 1X4 HIGH-PRESSURE HOSE-DOWN LUMINAIRE, FIBER GLASS HOUSING, GASKET, POLYCARBONATE CLEAR DIFFUSER, ELECTRONIC DRIVER, SURFACE MOUNTED.	LITHONIA FHE-148-24L-PCL-MD-MVOLT-40K-80CRI-RMKSS-REV OR APPROVED EQUAL BY EATON, CREE, ETC.	165

"EXISTING 800AMP SERVICE" LOAD SUMMARY

LOAD TYPE	CONNECTED VA	DEMAND FACTOR	DEMAND VA
EXISTING **	NEC 220.87	105735	125%
REMOVED LOAD		-8996	100%
LIGHTING LOAD	NEC 220.42	330	100%
GENERAL RECEPTACLE	NEC 220.141	180	100%
DEDICATED LOAD	NEC 220.14A	10092	100%
TOTAL LOAD IN VA		107341	133775
TOTAL AMPS @ 208VOLT-3PHASE		298	372

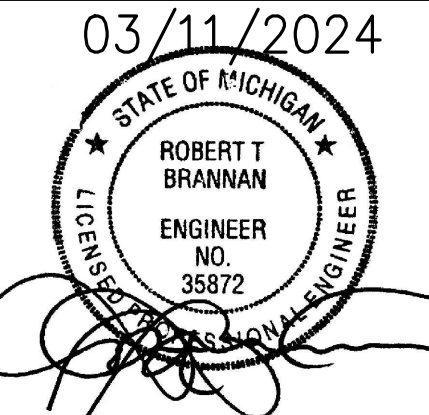
** EXISTING LOAD CONSIST OF HIGHEST ELECTRICAL DEMAND RECORDED IN AUGUST, 2023.



KOHLER ARCHITECTURE
1110 WEST FRONT STREET
MONROE, MICHIGAN 46161
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Mechanical, Electrical, Plumbing, Fire Protection
415 Conant St. - Maumee, OH 43551 - 419.891.0022



DATE	DESCRIPTION
03.18.2024	BIDDING & STATE REVIEW

COOLER / FREEZER REPLACEMENT & RELATED WORK
AT
ARBORWOOD SOUTH ELEMENTARY
1008 RIVERVIEW AVENUE, MONROE, MI 48162
FOR
MONROE PUBLIC SCHOOLS
1275 N. MACOMB STREET, MONROE, MI 48162

BRANCH CIRCUIT CONDUCTOR SIZING CHART

MAX. CIRCUIT LENGTH TO FARTHEST OUTLET	CIRCUIT VOLTAGE	MINIMUM BRANCH CIRCUIT SIZE
100 FEET	120	#12 AWG
165 FEET	120	#10 AWG
265 FEET	120	#8 AWG
400 FEET	120	#6 AWG
250 FEET	277	#12 AWG
400 FEET	277	#10 AWG
550 FEET	277	#8 AWG
750 FEET	277	#6 AWG

CONCRETE/MASONRY FLOOR & WALLS

CONDUIT/CABLE PENETRATIONS THROUGH RATED ASSEMBLIES

- N.T.S.
- GENERAL NOTES:**
- CABLE AND CONDUIT PENETRATION DETAILS ARE BASED ON A U.L. LISTED FIRE RATED ASSEMBLY (MINIMUM) UTILIZING SFI FIRE STOP PRODUCTS. MANUFACTURER'S SHALL BE SFI, HILTI, 3M OR APPROVED EQUAL. REFER TO MANUFACTURER'S SPECIFICATIONS AND INSTALLATION DETAILS FOR EXACT INSTALLATION METHODS.
 - PACKING AND SEALANT DEPTHS SHALL BE PER MANUFACTURER'S SPECIFICATIONS FOR U.L. ASSEMBLY RATING COMPLIANCE.
 - ALL FIRE STOP LOCATIONS SHALL BE LABELED AT POINT OF PENETRATION LABEL SHALL IDENTIFY FIRE STOPPING MATERIAL, U.L. LISTING NUMBER AND HOUR RATING OF WALL/FLOOR

ELECTRICAL DRAWING LIST

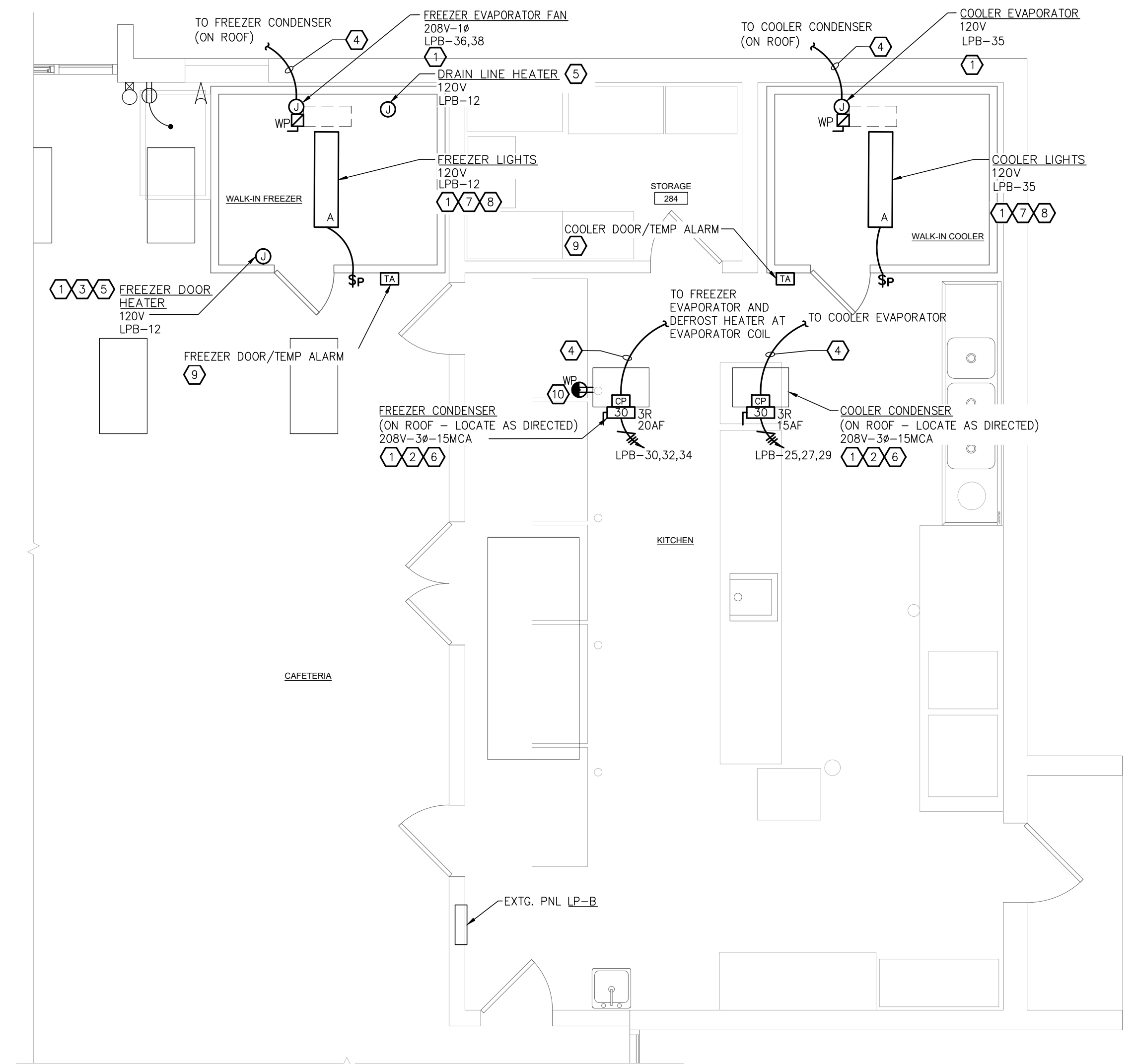
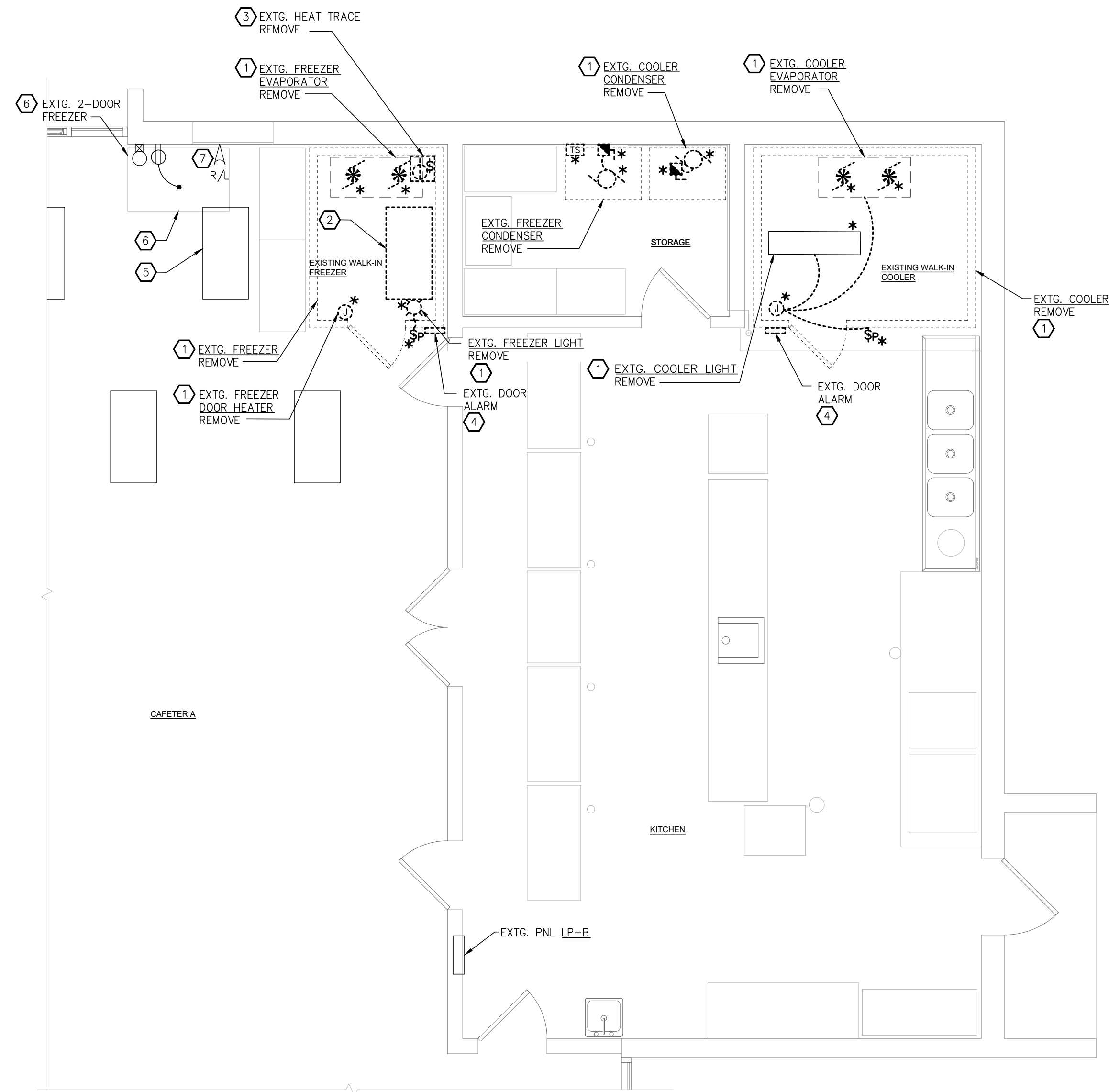
DWG NO.	TITLE	FILE NO.
E1.01	ELECTRICAL LEGEND, PANEL SCHEDULES & DETAILS	24003612E1.01.dwg
E3.01	ELECTRICAL POWER & SYSTEMS PLAN	24003612E3.01.dwg

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY ROBERT TIMOTHY BRANNAN, PE. USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED, AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

JOB # 24103

ELECTRICAL LEGEND,
PANEL SCHEDULES
& DETAILS
E1.01

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ELECTRICAL POWER & SYSTEMS PLAN – DEMOLITION

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

PLAN NOTES

- 1 EQUIPMENT INDICATED FOR REMOVAL SHALL BE REMOVED WITH CARE. EXISTING BRANCH CIRCUIT WIRING SHALL BE REMOVED BACK TO SOURCE. ASSUMED SOURCE IS THE EXISTING PANEL LP-B.
- 2 EXISTING 2'x4' FIXTURE ABOVE FREEZER TO BE REMOVED.
- 3 FIELD VERIFY EXISTING CIRCUIT SERVING FREEZER HEAT TRACE AND LIGHTS FROM PANEL LP-B-12 FOR RE-USE. REWORK EXISTING CONDUIT AND EXISTING CONDUCTORS AS NECESSARY. SEE THIS SHEET FOR NEW BRANCH CIRCUIT.
- 4 REMOVE ALARM SYSTEM. EXISTING CABLING INTENDED TO REMAIN AND MAY BE RE-USED. EXTEND/REWORK AND RECONNECT TO NEW EQUIPMENT AS NOTED ON NEW PLAN.
- 5 RELOCATE EXISTING FIXTURE ONE TILE LEFT TO ACCOMMODATE NEW WALK-IN FREEZER. EXTEND EXISTING CONDUCTORS AND CONTROL CABLING AS NECESSARY. REFER TO PLAN THIS SHEET FOR NEW LIGHTING LOCATION.
- 6 EXISTING 2-DOOR FREEZER TO BE RELOCATED. REFER TO PLAN ON THIS SHEET FOR NEW LOCATION.
- 7 CAREFULLY DISCONNECT SPEAKER AND WIREMOLD FOR RELOCATION AND RE-USE. EXTEND/REWORK SPEAKER CABLING AS NECESSARY.

GENERAL NOTES:

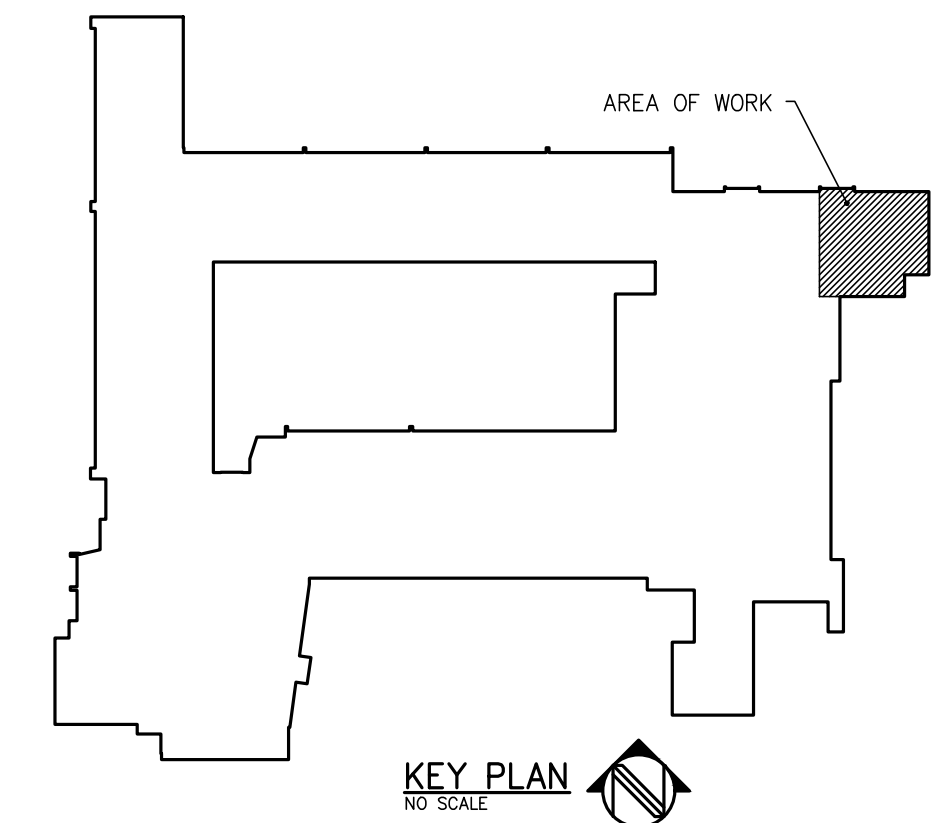
VERIFY ELECTRICAL REQUIREMENTS, CONNECTIONS, AND EXACT LOCATION OF CONNECTIONS. COORDINATE WITH EQUIPMENT SUPPLIER/CONTRACTOR.

ELECTRICAL POWER & SYSTEMS PLAN

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

PLAN NOTES

- 1 FINAL EQUIPMENT CONNECTION REQUIREMENTS SHALL BE VERIFIED BY ELECTRICAL CONTRACTOR PRIOR TO ELECTRICAL ROUGH-IN. VERIFY WIRE SIZE WITH EQUIPMENT SUPPLIER.
- 2 FUSE EQUIPMENT DISCONNECT PER EQUIPMENT NAMEPLATE RATING.
- 3 PROVIDE ROUGH-IN AND FINAL CONNECTION TO COOLER/FREEZER DOOR. FIELD VERIFY LOCATION. COORDINATE WITH G.C. AND COOLER/FREEZER MANUFACTURER.
- 4 POWER, CONTROL AND INTERLOCK WIRING UP TO COMPRESSOR/CONDENSER.
- 5 W/30MA GFCI CIRCUIT PROTECTION
- 6 PROVIDE ROUGH-IN AND FINAL CONNECTION TO COOLER/FREEZER COMPRESSOR. COORDINATE LOCATION WITH G.C. AND COOLER/FREEZER MANUFACTURER. LOCATION OF CONDENSING UNITS MUST BE WITHIN 25' OF EXISTING EQUIPMENT RECEPTACLE, SHOWN ON PLAN, IN ACCORDANCE WITH NEC 210.63.
- 7 UTILIZE EXISTING BRANCH CIRCUIT FROM REMOVED EQUIPMENT ON DEMO PLAN THIS SHEET. INTERCEPT AND REWORK CONDUIT AND REPLACE EXISTING CONDUCTORS FOR NEW EQUIPMENT IF NEEDED.
- 8 LIGHTING SHALL BE INSTALLED BY E.C. FURNISHED BY EQUIPMENT MANUFACTURER. COORDINATE LIGHTING LAYOUT AND QUANTITY WITH EQUIPMENT MANUFACTURER.
- 9 COORDINATE AND UTILIZE EXISTING LOW VOLTAGE CABLING FOR NEW DOOR/TEMP ALARM BACK TO EXISTING SECURITY PANEL. NEATLY LABEL DEVICE AS DOOR ALARM AT COMPLETION OF PROJECT. COORDINATE WITH REFRIGERATION MANUFACTURER AND HABITEC SECURITY BEFORE ROUGH-IN. CONTRACT WITH HABITEC TO COMPLETE DOOR ALARM. CONTACT INFORMATION: HABITEC SECURITY, TONY ADAMS (419) 346-5505 AND NICK WERT (419)205-1147.
- 10 INTERCEPT EXISTING RECEPTACLE BRANCH CIRCUIT IN THE SAME AREA AND REWORK CONDUIT AS NECESSARY FOR OUTDOOR WEATHERPROOF RECEPTACLE.



KEY PLAN
NO SCALE

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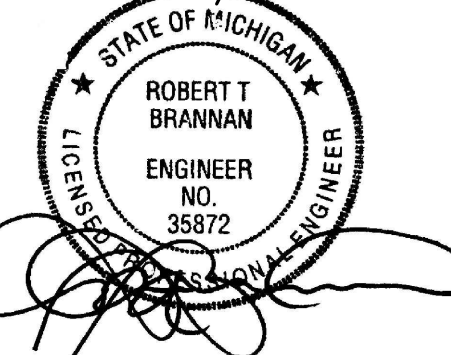


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ELECTRICAL
POWER & SYSTEMS
PLAN

E3.01