16000 - ELECTRICAL SPECIFICATIONS

SECTION 16000 – ELECTRICAL REQUIREMENTS

CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER & PERMANENT LOCATIONS.

GENERAL REQUIREMENTS

A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING CODE, NATIONAL ELECTRICAL CODE, NFPA, CODES AS ADOPTED BY CITY, COUNTY, STATE & ALL OTHER APPLICABLE CODES.
B. ALL MATERIALS & EQUIPMENT SHALL BE NEW & SHALL BEAR U.L. LABEL WHERE APPLICABLE. PROVIDE WATERPROOF EQUIPMENT ENCLOSURES WHERE REQUIRED.
C. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL MAKE ARRANGEMENTS FOR MODIFICATIONS TO ELECTRICAL CONNECTIONS TO BUILDING AS REQUIRED.
D. CONTRACTOR SHALL PROVIDE ALL LABOR & MATERIALS REQUIRED TO HAVE COMPLETE FUNCTIONING ELECTRICAL LIGHTING & POWER SYSTEMS TOGETHER W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS.
E. WHERE AN ELECTRICAL DEVICE IS REQUIRED BY CODE BUT NOT SHOWN, IT SHALL BE PROVIDED AS THOUGH FULLY SHOWN & SPECIFIED.
F. CONTRACTOR SHALL VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION FOR ANY ERROR OR NEGLIGENCE ON CONTRACTOR'S PART.
G. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL EQUIPMENT INSTALLED UNDER THESE SPECIFICATIONS.
H. WARRANT TO OWNER QUALITY OF MATERIALS, EQUIPMENT, WORKMANSHIP & OPERATION OF EQUIPMENT PROVIDED UNDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER.
I. ALL MATERIALS INSTALLED IN PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE FLAME/SMOKE INDEX OF NO MORE THAN 25/50 IN ACCORDANCE W/ ASTM E 84.

SECTION 16100 – CONDUIT & CONDUCTORS

A. FOLLOW CIRCUITING SHOWN ON PLANS. USE NO CONDUIT SMALLER THAN 3/4" & NO CONDUCTORS SMALLER THAN #12 GA. UNLESS NOTED OTHERWISE. ALL CONDUCTORS STRANDED.
B. WIRE SHALL BE IN NON-FLEXIBLE METALLIC CONDUIT (EMT, IMC OR RMC) FOR ALL CIRCUITS AND FEEDERS GREATER THAN 30A. LIGHT SWITCH RISERS, KITCHEN CIRCUITS & POWER SUPPLY.
C. MC CABLE ACCEPTABLE FOR FEEDING BRANCH CONVENIENCE CIRCUITS AND LIGHTING CIRCUITS IN EXISTING WALLS NOT TO BE OPENED DUE TO CONSTRUCTION ONLY. DO NOT DAISY CHAIN LIGHT FIXTURES.
D. POWER & LIGHTING CIRCUITS SHALL BE COPPER THWN/THHN 600 VOLT, 75 DEG C, COLOR CODED AS DESCRIBED UNDER APPLICABLE CODES. NO ROMEX, PLASTIC FLEX TUBING ETC PERMITTED. LIGHT FIXTURE WIRE INSULATION SHALL HAVE TEMP RATING NOT LESS THAN INDIVIDUAL FIXTURE MANUF RECOMMENDED RATING.
E. CIRCUITS W/ NO. 8 OR LARGER CONDUCTORS, MOTOR CIRCUITS, POWER & FEEDER CIRCUITS & BUILDING SERVICE FEEDERS SHALL BE COPPER THWN/THHN 600 VOLT, 75 DEG C.
F. ALL CONDUIT, JUNCTION BOXES, ETC. ABOVE CEILINGS SHALL BE SUPPORTED FROM STRUCTURE. PIPE SLEEVES, HANGERS & SUPPORTS SHALL BE FURNISHED & SET &

SECTION 16200 – GROUNDING

A. SUPPLEMENT GROUNDED NEUTRAL OF SECONDARY DISTRIBUTION SYSTEM W/ EQUIPMENT GROUNDING SYSTEM, INSTALLED SO THAT METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT & OTHER CONDUCTIVE ITEMS OPERATE CONTINUOUSLY AT GROUND POTENTIAL & PROVIDE LOW IMPEDANCE PATH FOR GROUND FAULT CURRENTS.
B. PROVIDE EQUIPMENT GROUND BUS IN BASE OF LOW VOLTAGE, SWITCHGEAR BRAZED OR OTHERWISE ADEQUATELY CONNECTED BY AN APPROVED METHOD TO GROUND RODS.
C. PROVIDE IN CONDUIT GREEN INSULATED COPPER GROUND CONDUCTOR TO MAIN METALLIC WATER SERVICE ENTRANCE & CONNECT BY MEANS OF ADEQUATE GROUND CLAMPS.
D. EQUIPMENT GROUNDING CONDUCTORS FOR BRANCH CIRCUIT HOME RUNS SHOWN ON DRAWINGS SHALL INDICATE AN INDIVIDUAL & SEPARATE GROUND CONDUCTOR FOR THAT BRANCH CIRCUIT WHICH SHALL BE TERMINATED AT BRANCH CIRCUIT PANELBOARD, SWITCHBOARD, OR OTHER DISTRIBUTION EQUIPMENT.
E. GROUNDING CONDUCTORS SHALL BE AS SHOWN ON PLANS OR IF NOT SPECIFICALLY SHOWN SHALL BE NO SMALLER THAN THAT REQUIRED BY NEC.

SECTION 16300 – ELECTRICAL EQUIPMENT

PANELBOARDS

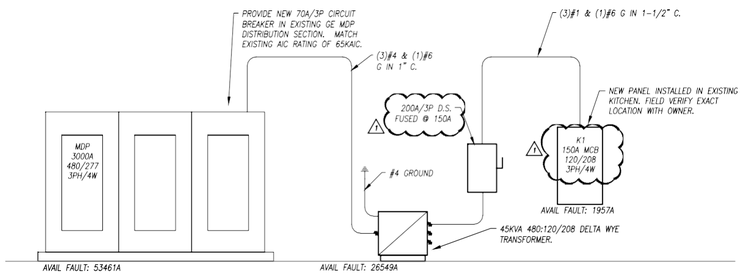
A. BRANCH CIRCUIT 208/240V PANELS SHALL BE CAPACITY SHOWN W/ TIN PLATED COPPER BUSSING & BRACED FOR MINIMUM OF 10,000A AIC OR AS OTHERWISE NOTED OR REQUIRED (SERIES RATED ACCEPTABLE). BOLT ON CIRCUIT BREAKERS. 480V PANELS SAME EXCEPT 14,000A AIC MIN. MINIMUM 20" WIDE W/ GALV STEEL ENCLOSURE W/ HINGED DOOR & KEYED LOCK. COORD TRIM WITH MOUNTING LOCATION. PANELS TO BE RECESSED WHENEVER POSSIBLE.
B. DISTRIBUTION PANELS SHALL BE CAPACITY SHOWN & SHALL BE SQUARE D I-LINE W/ TIN PLATED COPPER BUSSING, 65KAIC MIN OR AS OTHERWISE NOTED/REQ'D. BOLT ON CIRCUIT BREAKERS (SERIES RATED ACCEPTABLE). GALV STEEL ENCLOSURE.
C. EQUIVALENT BY SQUARE D, SIEMENS, CUTLER HAMMER, OR GE.

TRANSFORMERS

A. DRY-TYPE AS SCHEDULED. SOUND LEVEL SHALL NOT EXCEED DB PER ANSI C89.2 & NEMA TR-1, (2)2-1/2% TAPS BELOW & (2)2-1/2% TAPS ABOVE PRIMARY VOLTAGE. ALUMINUM WINDINGS. 150 DEG C. MINIMUM IMPEDANCE OF 2.5%. VENTILATED ENCLOSURE. SUSPEND AS REQ'D.

SECTION 16350 – ELECTRICAL IDENTIFICATION

A. MANUFACTURED LABELS FOR EACH PANELBOARD & TRANSFORMER. TYPEWRITTEN PANEL SCHEDULES MOUNTED IN PANELS
B. PRINTED TAPE STYLE LABEL FOR EACH RECEPTACLE INDICATING PANEL & CIRCUIT #.
C. MANUFACTURED LABELS FOR ALL DISCONNECT SWITCHES INDICATING EQUIPMENT SERVED.
D. BRANCH CIRCUITS – IDENTIFY EACH CIRCUIT W/ WIRE MARKERS WHEN ENCLOSURE LABEL AND WIRE COLORS DO NOT PROVIDE ENOUGH INFORMATION TO IDENTIFY EACH CIRCUIT WITHOUT TRACING. FEEDERS & BRANCH CIRCUIT HOME RUNS W/ WIRE MARKER W/ PANEL & CKT #. BOX COVERS ABOVE LAY-IN CEILINGS NEATLY MARKED W/ INDELIBLE MARKER.



ELECTRICAL RISER DIAGRAM

NTS

SINGLE-SECTION PANELBOARD SCHEDULE

PANEL DESIGNATION: **K1**
MOUNTING: RECESSED
LOCATION: KITCHEN
MAIN LUG AMPS: 225
MAIN BREAKER: 150
VOLTAGE: 208/120
PHASE/WIRE: 3Ø, 4W
SCCR RATING (AIC): 10,000

DESCRIPTION	PHASE A	PHASE B	PHASE C	C/B TRIP	C/B POLE	CIRCUIT #		C/B POLE	C/B TRIP	PHASE A	PHASE B	PHASE C	DESCRIPTION
	5600					1	2						KITCHEN EQUIPMENT/SPARE
FRYER		5600		60	3	3	4	1	20	1000			KITCHEN EQUIPMENT/SPARE
			5600			5	6	1	20		1000		KITCHEN EQUIPMENT/SPARE
SHUNT TRIP	–			–	1	7	8	1	20			1000	KITCHEN EQUIPMENT/SPARE
RANGE/HOT PLATE		2000		25	2	9	10	1	20	1000			KITCHEN EQUIPMENT/SPARE
			2000			11	12	1	20		1000		KITCHEN EQUIPMENT/SPARE
SHUNT TRIP	–			–	1	13	14	1	20			1000	KITCHEN EQUIPMENT/SPARE
SPARE		1500		20	1	15	16	1	20	1000			KITCHEN EQUIPMENT/SPARE
SALAD BAR			1000	20	1	17	18	1	20		1000		KITCHEN EQUIPMENT/SPARE
FRFTZFR	1000			20	1	19	20	1	20			1000	KITCHEN EQUIPMENT/SPARE
COLD COUNTER		1000		20	1	21	22	1	20	–			KITCHEN EQUIPMENT/SPARE
REACH IN FREEZER			1000	20	1	23	24	1	20		–		KITCHEN EQUIPMENT/SPARE
FRFTZFR	1000			20	1	25	26	1	20			–	KITCHEN EQUIPMENT/SPARE
		1440				27	28	1	20	–			SPACE
RETRIC CASE			1440	20	2	29	30	1	▬		–		SPACE
SPACE	–			–	1	31	32	1	▬			–	SPACE
SPACE		–		–	1	33	34	1	▬	–			SPACE
SPACE			–	–	1	35	36	1	▬		–		SPACE
SPACE	–			–	1	37	38	1	▬			–	SPACE
SPACE		–		–	1	39	40	1	▬	–			SPACE
SPACE			–	–	1	41	42	1	▬		–		SPACE
SPACE TOTALS				–	1			1	–			–	TOTALS SPACE
	7600	11540	11040							3000	3000	3000	

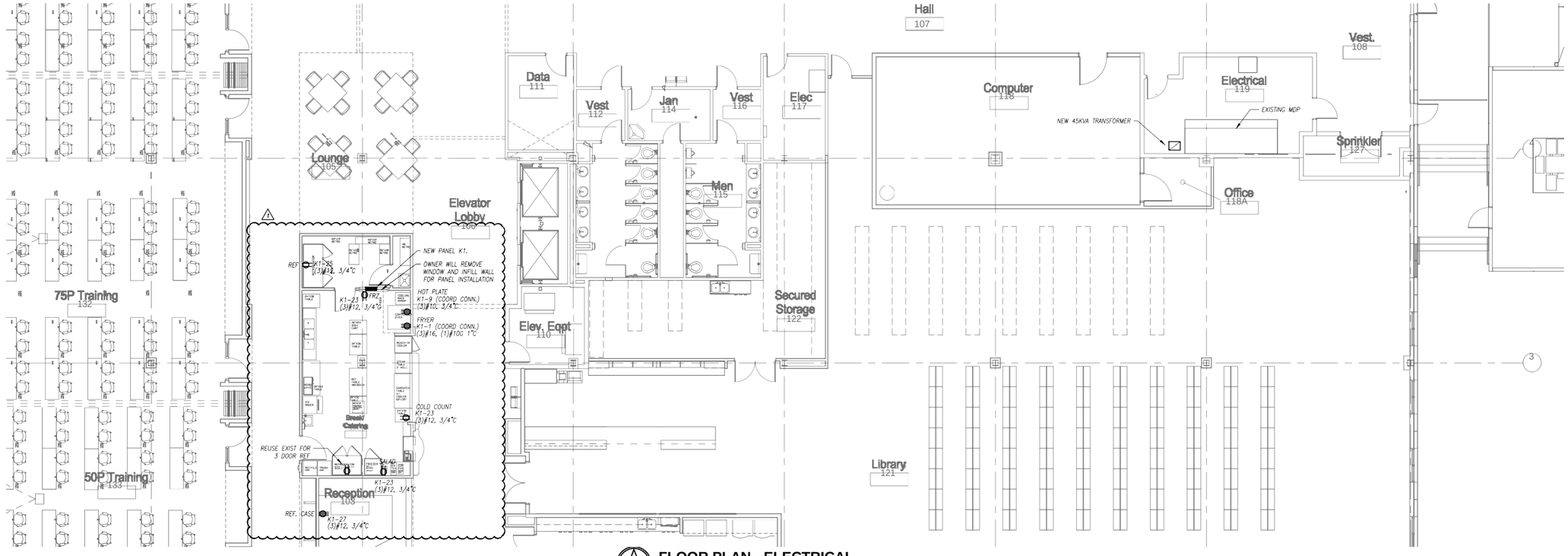
PANELBOARD SIZING LOAD

LOAD DESCRIPTION	CONNECTED	DEMAND	CODE MIN. (VA)
LIGHTS	0	1.25	0
RECEPTACLES	0	10KVA + 50% REST	0
MOTORS	0	1.25 x LARGEST + SUM OF REST	0
AIR CONDITIONING	0	1.00	0
SPACE HEATING	0	0.00	0
CONTINUOUS	0	1.25	0
NON-CONTINUOUS	0	1.00	0
KITCHEN EQUIPMENT	35,180	0.65	22,867
MISC. LOADS 2	0	1.00	0
		SIZING LOAD	22,867
		SIZING LOAD (AMPS)	63

CONNECTED PHASE LOADS

PHASE	VA	AMPS
A	10,600	88.3
B	14,540	121.1
C	14,040	116.9
TOTALS	39,180	108.8

REMARKS:
1. CUTLER HAMMER POW-R-LINE 1A OR EQUAL.
2.
3.
4.
5.



FLOOR PLAN - ELECTRICAL

1/8" = 1'-0"

WILLIAM H. KENT LICENSED 14924 KANSAS PROFESSIONAL ENGINEER 10/14/19

pkmr ENGINEERS
PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
13300 W 98TH STREET LENEXA, KS66215
913.492.2400 WWW.PKMRENG.COM

KCK SCHOOL DISTRICT CENTRAL OFFICE ELECTRICAL IMPROVEMENTS

2010 N 59TH STREET
KANSAS CITY, KS 66104

ISSUED FOR:

	DESCRIPTION	DATE
1	ADD #1	10/14/19
2		
3		

DRAWN BY:
CHECKED BY:

SHEET TITLE: ELECTRICAL WORK

DATE: 09.16.19
PKMR PROJECT: 19.427

SHEET NUMBER: **E1**