ELECTRIC DESIGN CRITERIA

TESTING/COMMISSIONING FOR LIGHTING CONTROLS

LIGHTING CONTROL DEVICES AND SYSTEMS SHALL BE TESTED TO ENSURE THE HARDWARE AND SOFTWARE IS CALIBRATED, PROGRAMMED, AND IN PROPER WORKING ORDER. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSTALLATION CERTIFICATES AND SHALL PROVIDE MANUALS FOR LIGHTING CONTROL DEVICES TO OWNER PRIOR TO PROJECT CLOSE-OUT. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING WITH APPROPRIATE PARTIES TO ARRANGE FOR TESTING/COMMISSIONING OF THE LIGHTING CONTROL SYSTEMS AND SHALL BE RESPONSIBLE FOR ENSURING ALL REQUIRED FUNCTIONAL TESTING FORMS ARE COMPLETED AND SUBMITTED TO THE OWNER AND LOCAL AHJ PRIOR TO PROJECT CLOSE-OUT.

UTILITY COORDINATION

COORDINATE UTILITY SERVICE WORK CONTAINED WITHIN THIS DRAWING SET WITH RESPECTIVE LOCAL UTILITY COMPANY. KLH HAS STARTED THIS COORDINATION PROCESS WITH UTILITY COMPANY REPRESENTATIVE LISTED BELOW AS PART OF THE DESIGN PHASE. CONTINUE THIS COORDINATION PROCESS PRIOR TO STARTING ANY WORK AND CONTINUE THROUGHOUT CONSTRUCTION PHASE.

OBTAIN AND COMPLY WITH UTILITY INSTALLATION DETAILS AND STANDARDS.

CONTACT 811 "CALL BEFORE YOU DIG" SERVICE PRIOR TO COMMENCING ANY UNDERGROUND WORK.

ELECTRIC SERVICE	
UTILITY COMPANY	VIRGINIA POWER
UTILITY CONTACT	JEFFERY SIMMONS
PHONE NUMBER	804-771-3000
EMAIL ADDRESS	Jeffrey.T.Simmons@dom.com
DATE(S) CONTACTED	10/8/2018
KLH CONTACT	JACOB DALL

ELECTRICAL SECONDARY SERVICE (OWNER-PURCHASED SECONDARY)		
TRANSFORMER		
OWNERSHIP	UTILITY	
NEW OR EXISTING	NEW	
SECONDARY VOLTAGE (V)	480/277V	
MAX NUMBER OF CONDUITS IN SECONDARY COMPARTMENT	8	
AVAILABLE FAULT CURRENT AT SECONDARY LUGS (A)	UNKNOWN AT BID	
TRANSFORMER CLEARANCES		
MINIMUM DISTANCE FROM BUILDING	3FT.	
MINIMUM DISTANCE FROM EMERGENCY GENERATOR	10FT.	
MAXIMUM DISTANCE FROM DRIVABLE SURFACE	10FT.	
WORKING CLEARANCE		
FRONT	10 FT.	
SIDE	3 FT.	
REAR	3 FT.	
METERING		
CURRENT TRANSFORMER (CT) LOCATION	TRANSFORMER	
RESPONSIBILITY MATRIX (X = FURNISH AND INSTALL)	**UTILITY**	**DIVISION 26 CONTRACTOR**
TRANSFORMER	X	
TRANSFORMER PAD		X
PRIMARY CONDUIT		X
PRIMARY CABLE	X	
TERMINATE PRIMARY CABLE	X	
SECONDARY CONDUIT		X
SECONDARY CONDUCTORS		X
TERMINATE SECONDARY CONDUCTORS		X
METER SOCKET		X
CT CABINET		X

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
DOOR OPERATORS/DEVICES	
	DOOR BELL WITH TRANSFORMER & PUSHBUTTONS
	FLUSH PUSHBUTTON FOR DOOR CHIME OR BELL
MISCELLANEOUS	
T TS	LOW VOLTAGE THERMOSTAT (LEFT) AND TEMPERATURE SENSOR (RIGHT)
	INDICATES DIRECT CONNECTION TO EQUIPMENT
$ $MS $MSR	MOTOR RATED TOGGLE SWITCH, MANUAL STARTER WITH PILOT LIGHT, AND MANUAL STARTER WITH PILOT LIGHT WITH EXTERNAL RELAY FOR CONTROL OR MONITORING RESPECTIVELY - ALL MAY BE KEYED "K"
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED) (LEFT) HEAVY DUTY DISCONNECT SWITCH (FUSED) (RIGHT)
	EMERGENCY-POWER-OFF (EPO) PUSHBUTTON STATION WITH DESCRIPTIVE ENGRAVED PLATE AND MEANS TO PREVENT ACCIDENTAL ACTIVATION
	CONTROL STATION WITH DESCRIPTIVE ENGRAVED PLATE
	HAND DRYER
FRONT	ELECTRICAL SWITCHBOARD OR SWITCHGEAR (DIMENSIONS MAY VARY)
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED)
FRONT	DRY TYPE TRANSFORMER
PAD POLE	OIL FILLED TRANSFORMER

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
LIGHTING AND LIGHTING CONTROLS	
	LUMINAIRE (REFER TO THE LUMINAIRE SCHEDULE) NOTE THAT OTHER SHAPES MAY ALSO BE USED TO REPRESENT LUMINAIRES
	SHADED LUMINAIRES DENOTE THOSE CONNECTED TO EMERGENCY OR STANDBY POWER AS APPLICABLE (UNSWITCHED LUMINAIRES ARE EGRESS LIGHTS AND/OR NIGHT-LIGHTS THAT OPERATE 24/7)
	TRACK LIGHTING IN LENGTH SHOWN AND WITH NUMBER OF LUMINAIRE HEADS AS INDICATED PROVIDE ALL REQUIRED ACCESSORIES (FITTINGS, END CAPS, POWER FEEDS, ETC.)
A NL a EL	A = LUMINAIRE TYPE (REFER TO THE LUMINAIRE SCHEDULE), NL = NIGHT-LIGHT (UNSWITCHED), a = SWITCHING DESIGNATION, EL = EGRESS LUMINAIRE (UNSWITCHED OR AUTO-ON DURING UTILITY OUTAGE)
$	LIGHTING SWITCH (KEYS: 2 = 2-POLE, 3 = 3-WAY, 4 = 4-WAY, D=DIMMER, K=KEYED, LV = LOW VOLTAGE M = MOMENTARY-CONTACT 1PDT W/CENTER-REST, P = SWITCH W/PILOT LIGHT, T = TIMER SWITCH)
TYPE	CEILING-MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR" = INFRARED, TYPE "US" = ULTRASONIC
TYPE#	WALL-MOUNTED OCCUPANCY SENSOR SWITCH. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR"=INFRARED, TYPE "US"=ULTRASONIC, "V"=VACANCY SENSOR, "#" = CONTROLLED CIRCUITS.
RECEPTACLES AND MISCELLANEOUS OUTLETS	
	SINGLE ("SIMPLEX"), DUPLEX, AND DOUBLE DUPLEX ("QUAD") RECEPTACLE RESPECTIVELY
	RECEPTACLES WITH USB OUTLETS
TYPE	FLOOR OUTLET - POWER AND / OR TECHNOLOGY
	SPECIAL PURPOSE RECEPTACLE
H C T 42" W SW L	RECEPTACLE ATTRIBUTES 42" = MOUNT RECEPTACLE AT THIS HEIGHT ABOVE GRADE / FINISHED FLOOR C = INSTALL ABOVE COUNTER AND BACKSPLASH H = INSTALL RECEPTACLE HORIZONTALLY L = LIT (PROVIDE ILLUMINATED FACE OR INDICATOR LIGHT TO INDICATE THERE IS POWER TO RECEPTACLE) SW = SPLIT WIRED T = TAMPER-RESISTANT W = WEATHER PROOF WHILE IN USE COVER AND WEATHER RESISTANT RECEPTACLE

ENERGY MANAGEMENT SYSTEM (EMS) LEGEND

(APPLIES ONLY FOR EMS DRAWING SHEETS)

SYMBOL	DESRIPTION	NOTE	CABLE/CONDUCTORS
D1	BRANCH DEFROST CONDUIT	PROVIDE OUTLET BOX AT CASE. PROVIDE WIRING FROM CASE TO RESPECTIVE 3-PHASE DEFROST CONNECTION POINT PER RISD-13 (WHERE APPLICABLE), OR DIRECTLY TO PROTOCOL UNIT. SEE DEFROST WIRING SCHEDULE. PROVIDE WIRING IN 1" CONDUIT FOR ALL OTHER APPLICATIONS. PROVIDE 1" CONDUIT FOR KLIXON UNITS. KLIXON UNITS TO BE WIRED IN SERIES PER REFRIGERATION CIRCUIT WITH A SINGLE HOME RUN TO "RC" PER CIRCUIT.	SEE 1-PHASE DEFROST WIRING SCHEDULE ON EMS SHEETS. REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
D3	DEFROST CONDUIT	PROVIDE OUTLET BOX AT CASE. PROVIDE WIRING FROM CASE TO RESPECTIVE DANFOSS "RC" PANEL. SEE DEFROST WIRING SCHEDULE. PROVIDE WIRING IN CONDUIT FOR WALK-IN COOLERS/FREEZERS AND ALL OTHER APPLICATIONS. IN ADDITION, PROVIDE 1" CONDUIT FOR KLIXON UNITS. KLIXON UNITS TO BE WIRED IN SERIES PER REFRIGERATION CIRCUIT WITH A SINGLE HOME RUN TO "RC" PER CIRCUIT.	SEE 3-PHASE DEFROST WIRING SCHEDULE ON EMS SHEETS. REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
CF	208V COOLING COIL FAN	PROVIDE POWER WIRING IN 1" EMT CONDUIT FROM RESPECTIVE DANFOSS "RC" PANEL TO FIRST COIL FAN IN MEAT COOLER & EACH WALK-IN FREEZER, AND FROM FIRST FAN TO OTHER FANS/IF APPLICABLE. SEE 208V COOLING COIL FAN WIRING SCHEDULE.	SEE 208V COOLING COIL FAN WIRING SCHEDULE ON THIS SHEET.
SS	SUCTION STOP SOLENOID	PROVIDE OUTLET BOX AT CASE. PROVIDE CABLE IN 1" CONDUIT FROM SOLENOID TO RESPECTIVE "RC" CONTROL PANEL. SOLENOID SHALL BE FURNISHED & INSTALLED BY REFRIGERATION CONTRACTOR.	SEE 208V COOLING COIL FAN WIRING SCHEDULE ON THIS SHEET.
EPR	[illegible]	PROVIDE OUTLET BOX AT CASE. PROVIDE CABLE IN 1" CONDUIT FROM EPR TO RESPECTIVE "RC" CONTROL PANEL. EPR SHALL BE FURNISHED & INSTALLED BY REFRIGERATION CONTRACTOR.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
DS	DOOR SENSOR	PROVIDE OUTLET BOX AT COOLER/FREEZER DOOR AS DIRECTED BY REFRIGERATION CONTRACTOR. PROVIDE CABLE IN 1" EMT CONDUIT FROM SENSOR TO RESPECTIVE "RC" PANEL. SENSOR SHALL BE FURNISHED & INSTALLED BY REFRIG. CONTRACTOR.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
FH	UNDERFLOOR HEATING CABLES	PROVIDE SELF-REGULATING HEATING CABLE (WITH CONDUIT STUB-UPS) BELOW FREEZER FLOOR AS INDICATED ON DETAIL ESD-7 ON E5-SERIES DRAWINGS.	SEE DETAIL ESD-7 ON E5-SERIES DRAWINGS.
TS	TEMPERATURE SENSOR (REFRIGERATION)	PROVIDE OUTLET BOX AT CASE. PROVIDE CABLE FROM SENSOR TO RESPECTIVE "RC" CONTROL PANEL. PROVIDE 1" CONDUIT TO JOIST SPACE OR ABOVE CEILING, THEN FREE-WIRED TO JOIST SPACE. CABLE IN JOIST SPACE TO BE FREE-WIRED.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION. REFER TO REFRIGERATION INSTALLATION SPECS FOR FREE-WIRED REQUIREMENTS.
RC	DANFOSS AK-SC 255 (REFRIGERATION) CONTROLLER 080Z2500	PROVIDE CABLE IN 1" EMT CONDUIT FROM CONTROL PANEL TO CONTROL PANEL USING A LOOP CONFIGURATION (NOT RADIAL).	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
BC	DANFOSS AK-SC 255 (BUILDING) CONTROLLER 080Z2501		
T S R	TEMPERATURE SENSOR (HVAC)	PROVIDE OUTLET BOX MOUNTED ON COLUMN AT 7'-6" ABOVE FINISHED FLOOR. PROVIDE CABLE IN 3/4" EMT CONDUIT FROM TEMPERATURE SENSOR TO "BC" CONTROL PANEL. SEE DETAIL ESD-46 ON E5-SERIES DRAWINGS.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
HS	HUMIDITY SENSOR	PROVIDE OUTLET BOX MOUNTED ON COLUMN AT 7'-6" ABOVE FINISHED FLOOR. PROVIDE CABLE IN 3/4" EMT CONDUIT FROM HUMIDITY SENSOR TO "BC" CONTROL PANEL. SEE DETAIL ESD-46 ON E5-SERIES DRAWINGS.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
RU	ROOF TOP UNIT	PROVIDE CABLE IN 3/4" EMT CONDUIT BETWEEN ROOFTOP HVAC UNITS AND FROM RTU's TO "BC" CONTROL PANEL AS SHOWN.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
CU	CONDENSING UNIT	PROVIDE CABLE IN 3/4" EMT CONDUIT BETWEEN ROOFTOP HVAC UNITS AND FROM RTU's TO "BC" CONTROL PANEL AS SHOWN.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
UH	UNIT HEATER	PROVIDE CABLE IN 3/4" EMT CONDUIT BETWEEN UNIT HEATERS AND FROM UNIT HEATER(S) TO "BC" CONTROL PANEL AS SHOWN.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.
RT	RECLAIM TANK	PROVIDE CABLE IN 3/4" EMT CONDUIT BETWEEN DOMESTIC HOT WATER RECLAIM TANKS AND FROM TANK(S) TO "BC" CONTROL PANEL AS SHOWN.	REFER TO SPECIFICATION 26.05.19 FOR CABLING REQUIREMENTS AND ADDITIONAL INFORMATION.

WHERE REFRIGERATION EQUIPMENT IS SERVED FROM A PROTOCOL UNIT, ROUTE TO RESPECTIVE PROTOCOL UNIT'S "RC" CONTROL PANEL.

IN THE NOTES STATED ABOVE, PROVIDE SHALL MEAN FURNISH AND INSTALL.

PROVIDE AND WIRE ALL ADDITIONAL CONTACTORS, RELAYS AND ADDITIONAL ENCLOSURES NECESSARY FOR A FULLLY FUNCTIONAL DEFROST SYSTEM. REFER TO HUSSMAN EQUIPMENT SCHEDULES FOR PROTOCOL SYSTEMS AS THESE ARE TYPICALLY PROVIDED WITH THE PROTOCOL.

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
SINGLE LINE DIAGRAM	
	ELECTRIC UTILITY COMPANY METER AND ASSOCIATED CURRENT TRANSFORMERS
HD	CUSTOMER ELECTRIC METER AND ASSOCIATED CURRENT TRANSFORMERS HD = HIGH DENSITY METERING CABINET/BANK MOUNTED TO TIGHTLY GROUP ALL METERS TOGETHER
	GROUNDING ELECTRODE PER NFPA 70 ARTICLE 250 MINIMUM
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED)(LEFT) (FUSED)(RIGHT) SIZES MAY BE SHOWN ONLY IN SCHEDULE
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD
	ELECTRICAL SWITCHBOARD OR SWITCHGEAR
	AUTOMATIC TRANSFER SWITCH
	SURGE PROTECTIVE DEVICE
WIRE / CABLE / RACEWAY	
LPA-1,3	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER(S)
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	CABLE TRAY
	JUNCTION BOX ABOVE ACCESSIBLE CEILING JUNCTION BOX AT OVERHEAD STRUCTURE [illegible]EAS WITH [illegible]EILING
	SERVICE [illegible] - POWER AND TECHNO[illegible] APPLICA[illegible]
UP DN	CONDUIT UP OR DOWN

ABBREVIATIONS

[illegible]	RELOCATE FIXTURE, EQUIPMENT [illegible]VICE	[illegible]	ISOLATED GROUND
42"	DISTANCE ABOVE FINISHED FLOOR [illegible]DE / PAVEMENT	[illegible]	LEGALLY REQUIRED STANDBY
AF	AMP FRAME OF FUSED SWITCH OR CIR[illegible] BREAKER	LI	LONG - INSTANTANEOUS
		LSI	LONG - SHORT - INSTANTANEOUS
		LSIG	LONG - SHORT - INSTANTANEOUS - GROUND FAULT
AFCI	A[illegible]C-FAULT CIRCUIT INTERRU[illegible]TER		
AIC	[illegible]RT CIRCUIT AMPS INTRR[illegible]TING RA[illegible]NG		
AT	[illegible]RIP OF FUSED SWITCH [illegible]R CIRCUIT B[illegible]ER	MCB	MAIN CIRCUIT BREAKER
		MFR	MANUFACTURER
[illegible]TS	AU[illegible]TIC TRANSFER S[illegible]CH	MLO	MAIN LUGS ONLY
		MTS	MANUAL TRANSFER SWITCH
[illegible]	BUIL[illegible] AUTOMA[illegible]N SYSTEM	MW	MICROWAVE OVEN
[illegible]	WORK [illegible] DIVISION 27 OR 28 AS APPLIC[illegible]	NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
C/B	CIRCU[illegible] BREAKER	NTS	NOT TO SCALE
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE		
DW	DISHWASHER	OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
E	EMERGENCY	OS	OPTIONAL STANDBY
E.C.	WORK UNDER DIVISION 26		
EMS	ENERGY MANAGEMENT SYSTEM	P.C.	WORK UNDER DIVISION 22
EPO	EMERGENCY POWER OFF		
ER	EQUIPMENT ROOM	S.C.	WORK UNDER DIVISION 21
ERM	ENERGY REDUCTION MAINTENANCE SWITCH	SPD	SURGE PROTECTIVE DEVICE
ETR	EXISTING TO REMAIN	ST	SHUNT TRIP
EWC	ELECTRIC WATER COOLER		
EX.	EXISTING	TAAC	TO ABOVE ACCESSIBLE CEILING
		TR	TAMPER RESISTANT
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.	TTB	TELEPHONE TERMINAL BOARD
		TYP	TYPICAL
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.	UCR	UNDER COUNTER REFRIGERATOR
FP	RECEPTACLE TO BE USED FOR A FLAT PANEL DISPLAY.	UL	UNDERWRITER'S LABORATORY
		U.L.S.E.	LISTED FOR SERVICE ENTRANCE
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.	UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
GD	GARBAGE DISPOSAL	VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
GFEP	GROUND FAULT EQUIPMENT PROTECTION	VIF	VERIFY IN FIELD
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE	VM	VENDING MACHINE
GND	GROUND	VP	VANDAL PROOF
H.C.	WORK UNDER DIVISION 23	WG	WIRE GUARD
H.O.A.	"HAND - OFF - AUTO" SWITCH	WR	WEATHER RESISTANT

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
(UNLESS OTHERWISE INDICATED)

GENERAL ELECTRICAL PROJECT NOTES

A. PROVIDE ALL JUNCTION BOXES, CONDUIT, WIRE, INSTALLATIONS, TERMINATIONS, ETC. AS NECESSARY FOR COMPLETE OPERATIONAL INSTALLATION OF KROGER-FURNISHED MATERIALS.
B. ELECTRICAL CONTRACTOR RESPONSIBILITIES FOR KROGER SUPPLIED MATERIALS SHALL BE AS FOLLOWS.
  a. RECEIVE, UNLOAD, STORE AND PROTECT PRODUCT ON SITE.
  b. INSPECT PRODUCTS UPON RECEIPT FOR SHORTAGES, DAMAGES OR DEFECTS AND NOTIFY SUPPLIER WITHIN 24 HOURS.
  c. NOTIFY SUPPLIER WITHIN 20 DAYS OF RECEIPT OF ANY HIDDEN DAMAGES FOR PRODUCTS REVIEWED.
C. NEATLY INSTALL ALL CONDUIT, CABLES, ETC. PARALLEL AND PERPENDICULAR TO BUILDING STEEL.
D. PROVIDE SWEEP BENDS, INSULATED THROAT FITTINGS (OR BUSHINGS) AND 200# DRAG LINE (PULL STRING) IN ALL EMPTY CONDUITS. "OVERHEAD JOIST SPACE" SHALL BE TAKEN TO MEAN AT THE BOTTOM CHORD OF JOISTS OF THE HIGH ROOF STRUCTURE, EVEN IF CONDUIT ORIGINATED IN AN AREA WITH A CEILING OR A LOWER ROOF STRUCTURE. INSTALL ALL CONDUITS CONCEALED WHEREVER POSSIBLE. FIELD COORDINATE ALL ROUTING AND TERMINATION DETAILS IN ADVANCE.
E. ALL ELECTRICAL DEVICES, OUTLETS, JUNCTION BOXES, ETC. THAT ARE SHOWN AGAINST A WALL SHALL BE FLUSH MOUNTED IN THE WALL (i.e. RECESSED IN WALL SO OPENING IS FLUSH WITH FINISHED WALL SURFACE). REFER TO EQUIPMENT SCHEDULE FOR MOUNTING HEIGHTS AND ADDITIONAL INFORMATION. ALSO SEE DETAILS ON SHEET E5-SERIES WHERE APPLICABLE.
F. INSTALL ELECTRICAL OUTLETS FOR REFRIGERATION ISLAND CASES IN A STRAIGHT LINE ALIGNED WITH THE HUB DRAWING. COORDINATE WITH PLUMBING DIMENSIONS SIGNED PLAN.
G. PROVIDE 10 FEET OF FLEXIBLE CONDUIT FOR REFRIGERATED CASES SERVED FROM WALL JUNCTION BOXES AND 6 FEET FOR ISLAND REFRIGERATED CASES FOR CONNECTION TO CASES BY THE PHASE II EQUIPMENT CONTRACTOR.
H. REGARDLESS OF WHERE JB's ARE SHOWN ON DRAWINGS, FEED CASES FROM WALL WHEREVER CASES ARE LOCATED AGAINST A WALL. INSTALL WALL OUTLET/JUNCTION BOXES FOR SUCH CASES SO THAT BOTTOMS OF BOXES ARE TWO (2) INCHES ABOVE TOP OF RESPECTIVE CASE (FIELD VERIFY).

ENERGY MANAGEMENT SYSTEM (EMS) LEGEND NOTES

A. # ROUTE INDICATED HOME-RUNS AS FOLLOWS. FIELD VERIFY ALL PANEL LOCATIONS.
B. WHERE REFRIGERATION EQUIPMENT IS SERVED FROM A "SYSTEM", ROUTE TO "RC" CONTROL PANEL IN REAR COMPRESSOR ROOM.
C. HERE REFRIGERATION EQUIPMENT IS SERVED FROM RACK "A", ROUTE TO RESPECTIVE RACK'S "RC" CONTROL PANEL IN REAR COMPRESSOR ROOM.
D. WHERE REFRIGERATION EQUIPMENT IS SERVED FROM A PROTOCOL UNIT, ROUTE TO RESPECTIVE PROTOCOL UNIT'S "RC" CONTROL PANEL.
E. IN THE NOTES STATED ABOVE, PROVIDE SHALL MEAN FURNISH AND INSTALL.
F. "BEC" TO REFER TO BUILDING ELECTRICAL CONTRACTOR BIDDING TO THE GENERAL CONTRACTOR, "FEC" TO REFER TO FIXTURING ELECTRICAL CONTRACTOR SEPARATELY BIDDING EQUIPMENT TO KROGER. FOR ALL

Electric Luminaire Schedule

Type	Description	Manufacturer / Series	Size	Housing / Mounting	Material	Lens Description	Lamp Qty	Lamp Type	Lamp Base	Ballast / Driver Qty	Ballast / Driver	Finish	Comments	Fixture Load	Voltage
4' TRACK	TRACK LIGHTING	COOPER (HALO) L651(MB)(P)(SL) - (BLACK)(WHITE)(SILVER)	4'x1-3/8x11/16"	SUSPENDED, COORDINATE TRACK HEIGHT WITH FIXTURE.			0	0W NONE		0	ELECTRONIC	MATCH TRACK HEAD COLOR		[illegible]	120 V
8' TRACK	TRACK LIGHTING	COOPER (HALO) L652(MB)(P)(SL) - (BLACK)(WHITE)(SILVER)	8'x1-3/8x11/16"	SUSPENDED, COORDINATE TRACK HEIGHT WITH FIXTURE.			0	0W NONE		0	ELECTRONIC	MATCH TRACK HEAD COLOR		0 VA	120 V
12' TRACK	TRACK LIGHTING	COOPER (HALO) L653(MB)(P)(SL) - (BLACK)(WHITE)(SILVER)	12'x 1-3/8"x11/16"	SUSPENDED, COORDINATE TRACK HEIGHT WITH FIXTURE.			0	0W NONE		0	ELECTRONIC	MATCH TRACK HEAD COLOR		0 VA	120 V
AA1	LINEAR FLUORESCENT	COOPER (METALUX) 8TICF-232-UNV-QHE4X32ISNSC	96"x12"x4-5/8	SUSPENDED 14'-0" SUSPENDED AROUND PERIMETER			4	28W F028/835/XP/SS/ECO		0	ELECTRONIC	WHITE ENAMEL FINISH	[illegible]WASH	[illegible]	277 V
ACN		COOPER ACN10PXX33X1X						LED					LDA51	185 VA	480 V
B10	FLUORESCENT HIGHBAY UPLIGHT	COOPER (METALUX) HBI-632-W-UNV-QHE4/2X32ISH-4LBIB2LBOB-UPL-U	48"x24"x4-3/4	SUSPENDED 16'-0"			6	14T8/48-3500 IF 10/1 DIM			ELECTRONIC		TUBE GU[illegible] REQUIRE[illegible] ABOVE UNWRAPPED FOOD (i.e. [illegible])		277 V
B11	FLUORESCENT HIGHBAY UPLIGHT	COOPER (METALUX) HBI-432-W-UNV-QHE2X32ISHSC-IBOB-UPL-U	48"x24"x4-3/4	SUSPENDED 16'-0"			4	14T8/48-3500 IF 10/1 DIM			ELECTRONIC		TUBE GUA[illegible]S ARE R[illegible] ABOVE UNWRAPPED FOOD (i.e. P[illegible]ODUCE)		277 V
C1	PRISMATIC	COOPER (METALUX) 2GR8-332A-UNV-QHE3X32ISNSC	3-3/4"x24"x48"	GRID MOUNTED			3	28W F028/835/XP/SS/ECO		0	ELECTRONIC			72 VA	277 V
C8	LED TROFFER	COOPER (METALUX) GR8-232A-UNV-QHE2X32ISNSC	48"x12"x5-5/8"	GRID MOUNTED, SURFACE MOUNTED IN RESTROOM			1	38W LED		0	ELECTRONIC			38 VA	277 V
CC1	LED TROFFER	COOPER (METALUX) 2GR8-317A-UNV-QHE3X32ISNSC	23-3/4"x23-3/4"x3-1/4"	CEILING GRID	STEEL		3	17W LED		0	ELECTRONIC	FLAT WHITE	FLAT STEEL DOOR FRAME	51 VA	277 V
CC2	LED TROFFER	COOPER (METALUX) 2EP3GX-317S33I-UNV-QHE3X32ISNSC	23-3/4"x23-3/4"x3-1/4"	CEILING GRID	STEEL	FROSTED #12 PATTERN ACRYLIC	3	17W LED		0	ELECTRONIC	FLAT WHITE	FLAT STEEL DOOR FRAME	33 VA	277 V
CL44	CURRENT LIMITER	COOPER (METALUX) LC901CB300												960 VA	120 V
CL60	CURRENT LIMITER	COOPER (METALUX) LC901CB300												1200 VA	120 V
D	LINEAR FLUORESCENT	COOPER (METALUX) 8TSSF-232-UNV-QHE4X32ISNSC	96"x4-1/4"x3-5/8"	SUSPENDED 12'6" OR JOIST BOTTOM			4	28W F028/835/XP/SS/ECO		0	ELECTRONIC			95 VA	277 V
D1	LINEAR FLUORESCENT	COOPER (METALUX) SSF-232-UNV-QHE2X32ISNSC	48"x4-1/4"x3-5/8"	CEILING			2	28W F028/835/XP/SS/ECO		0	ELECTRONIC	WHITE		56 VA	
J3	LINEAR FLUORESCENT	COOPER (METALUX) BC-232-UNV-QHE2X32ISNSC	48"x4-1/4"x4-1/4"	WALL MOUNTED AS NOTED ON PLAN			2	28W F028/835/XP/SS/ECO		0	ELECTRONIC			48 VA	277 V
K3(4')	LINEAR FLUORESCENT	COOPER (CORELITE) NB-SW-2T8-1C-UNV-AC120-ST-XX-DL1 CARDINAL SILVER	48"x9"x2-7/8"	SUSPENDED 7'-6"			2	28W F028/835/XP/SS/ECO		0	ELECTRONIC			64 VA	277 V
K3(8')	LINEAR FLUORESCENT	COOPER (CORELITE) NB-SW-2T8-1C-UNV-AC120-ST-XX-DL1 CARDINAL SILVER	96"x9"x2-7/8"	SUSPENDED 7'-6"			[illegible]	28W F028/835/XP/SS/ECO		0	ELECTRONIC			128 VA	277 V
K3(16')	LINEAR FLUORESCENT	COOPER (CORELITE) NB-SW-2T8-1C-UNV-AC120-ST-XX-DL1 CARDINAL SILVER	192"x9"x2-7/8"	SUSPENDED 7'-6"			8	28W F028/835/XP/SS/ECO		0	ELECTRONIC			256 VA	277 V
K3(24')	LINEAR FLUORESCENT	COOPER (CORELITE) NB-SW-2T8-1C-UNV-AC120-ST-XX-DL1 CARDINAL SILVER	288"x9"x2-7/8"	SUSPENDED 7'-6"			12	28W F028/835/XP/SS/ECO		0	ELECTRONIC			384 VA	277 V
K3(28')	LINEAR FLUORESCENT	COOPER (CORELITE) NB-SW-2T8-1C-UNV-AC120-ST-XX-DL1 CARDINAL SILVER	336"x9"x2-7/8"	SUSPENDED 7'-6"			14	28W F028/835/XP/SS/ECO		0	ELECTRONIC			448 VA	277 V
KVZ	LED ENCLOSED LINEAR VAPORTITE - ELEVATOR PIT	LITHONIA FEM ILP WTZ DAY-BRITE DWA LSI EG5 METALUX VT2 LUMAX LIGHTING VWBTLED	6"x4'x4-1/8"	WALL SURFA[illegible]	FIBE[illegible]	GASKET[illegible] [illegible]C LINEAL FROSTED DIFFUSER	1	31W LED, 3500K, 80 CRI	4000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE	IP67 RATING	31 VA	120 V
L18	LED DOWNLIGHT	COOPER (HALO) PD620[illegible]010-[illegible]35-61VH	6" DI[illegible]4"5-5/8"	RECE[illegible]D	[illegible]		1	21W LED		0	ELECTRONIC			21 VA	277 V
L19	LED DOWNLIGHT	COOPER (HALO) PD615ED010-PD[illegible]5-61VH	6" DIA[illegible]/4"x5-5/8"	RECE[illegible]	[illegible]		1	21W LED		0	ELECTRONIC			21 VA	277 V
LDA51		COOPER GLEON-AF-05-LED-VOLT-[illegible]						LED					LDA51	315 VA	480 V
LDC51		COOPER GLEON-AF-05-LED-VOLT-T3[illegible]						LED					LDC51	279 VA	480 V
LDG81		COOPER GLEON-AF-08-LED-VOLT-5WQ[illegible]						LED					LDG81	501 VA	480 V
LDG82		QTY (2) COOPER GLEON-AF-08-LED-VOLT-5WQ-BZ						LED					LDG82	890 VA	
LDG91		COOPER GLEON-AF-09-LED-VOLT-5WQ-BZ						LED					LDG91	501 VA	480 V
LDG101		COOPER GLEON-AF-10-LED-VOLT-5WQ-BZ						LED					LDG101	558 VA	480 V
LL9	LED DOWNLIGHT	COOPER ([illegible]LIO) PD6[illegible]ED[illegible]6A835-61VH	[illegible]13/[illegible]x6-1/2"	RECESSED	ALUMINUM	WIDE BEAM REFLECTOR	1	0W LED		0	ELECTRONIC	SPECULAR CLEAR		32 VA	277 V
LWB1	SCOUNCE LED	CO[illegible]WC-AF-01-LED-VOLT-T4FT-BZ		WALL			1			0	ELECTRONIC		EXTERIOR WALL MOUNTED FIXTURES		277 V
LWB2	SCOUNCE LED	[illegible]WC-AF-02-LED-VOLT-T4FT-BZ		WALL			1	113W LED included		0	ELECTRONIC		EXTERIOR WALL MOUNTED FIXTURES	113 VA	277 V
LWC1	SCOUN[illegible]	COOPE[illegible]C-AE-01-LED-VOLT-T2-BZ		WALL			1	58W LED included		0	ELECTRONIC		EXTERIOR WALL MOUNTED FIXTURES	58 VA	277 V
[illegible]	L[illegible]EAR [illegible]UORESCEN[illegible]	COOPER S[illegible]2-UNV-QHE2X32PSNTC	96"x4-1/4"x3-5/8"	CEILING		CLEAR LOW BRIGHTNESS ACRYLIC	2	F028/835/XP/SS/ECO		0	ELECTRONIC			120 VA	277 V
[illegible]	[illegible]NEAR [illegible]UORESCENT	COOPER (ME[illegible]) VT3-[illegible]32DR-UN[illegible]2ISHSC-WL-M4-TH-SSL	48"x6-15/16"x4-7/8"	CEILING			3	111W F32T8/XL/SP35/WM/ECO		0	ELECTRONIC			32 VA	277 V
[illegible]	[illegible]AR LED F[illegible]	COO[illegible]R LIGH[illegible] - METALUX VT[illegible]30DR-UNV-L840-CD1-WL-U	24"x5-7/8"x7"	CEILING			1	36W LED VAPORTIGHT		0	ELECTRONIC			36 VA	120 V
NN13	SCOU[illegible]ED	[illegible]ER (LUMARK) XTOR2A-4000K	6-5/8"x4"x8"	WALL			1	30W LED included		0	ELECTRONIC		EXTERIOR WALL MOUNTED FIXTURES	30 VA	277 V
PF	POWER E[illegible] FEED	COOPER (METALUX POWER END FEED												0 VA	120 V
TR19	[illegible]K HEAD	COOPER (HALO) L-806-HONF-8030-XX	REFER TO TRACK LIGHTING HEIGHT NOTES	TRACK, REFER TO TRACK LIGHTING HEIGHT NOTES			1	38W LED INCLUDED		0	ELECTRONIC			0 VA	120 V
[illegible]29	TRACK HEAD	COOPER (HALO) L80825NF903XX	REFER TO TRACK LIGHTING HEIGHT NOTES	TRACK, REFER TO TRACK LIGHTING HEIGHT NOTES			1	38W LED INCLUDED		0	ELECTRONIC			0 VA	120 V
TR30	TRACK HEAD	COOPER (HALO) L80815NF903XX	REFER TO TRACK LIGHTING HEIGHT NOTES	TRACK, REFER TO TRACK LIGHTING HEIGHT NOTES			1	24W LED INCLUDED		0	ELECTRONIC			24 VA	120 V
TT	LED DOWNLIGHT	MCGRAW-EDISON TT-C6-LED-E1-CQ-BK	18-3/8"x4-7/16"	SURFACE	ALUMINUM	LED	1	32W LED INCLUDED		0	ELECTRONIC		EXTERIOR CANOPY	32 VA	277 V

2" REFERENCE LINE

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OWNER

Kroger

DATE	ISSUE
10/23/2018	90% OWNER REVIEW
11/01/2018	100% BID/PERMIT

# DATE	REVISION

PROJECT TITLE
KROGER STORE
R543

MERCURY BLVD.
HAMPTON, VA

COMMISSION NO. 517315
ISSUE DATE 10/23/2018

SHEET TITLE
ELECTRICAL ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES

SHEET NO.
E0.1

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