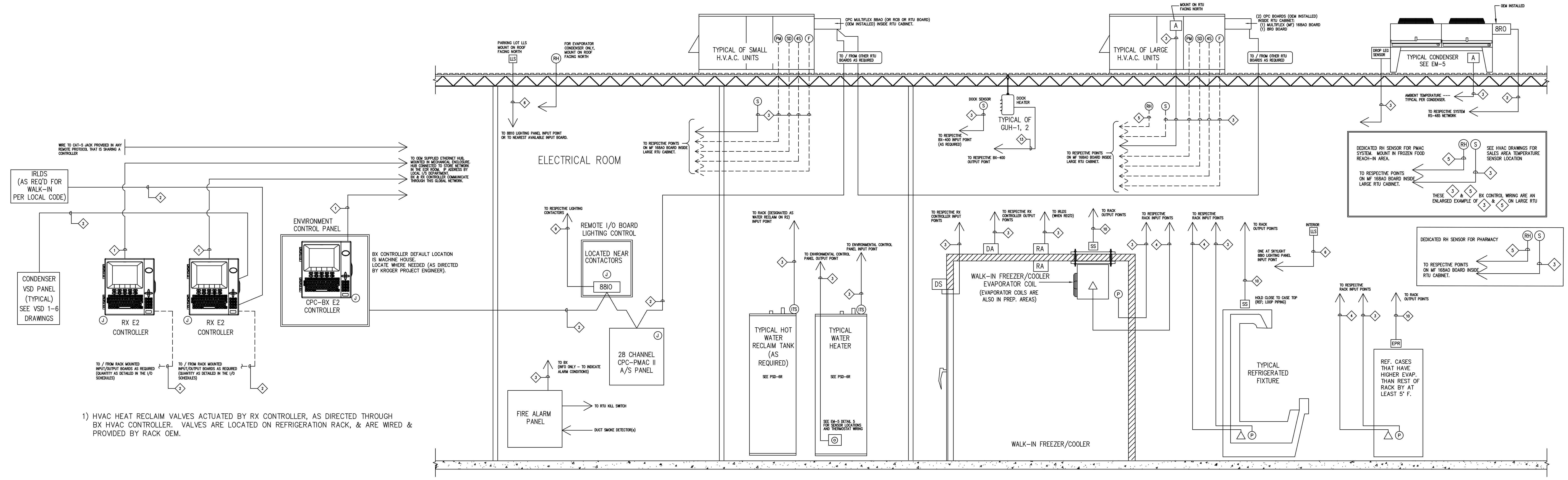


- - - - - - - - - - - -	OEM INSTALLED WIRING
————————	FIELD INSTALLED WIRING

EQUIPMENT NOTE

REFER TO CPC INSTRUCTION MANUALS OR CPCUS.COM FOR INFORMATION REGARDING CPC CONTROL COMPONENTS (I.E. INPUT/OUTPUT BOARDS, ELECTRICAL REQUIREMENTS, ETC.).

RTU'S ARE SHUT DOWN, VIA THE FIRE ALRM PANEL, UPON SIGNAL FROM SMOKE DETECTORS.

1 ENERGY MANAGEMENT SYSTEM REQUIREMENTS

SCALE: NONE

CPC CONTROLS TAKEOFF			
REFRIGERANT LEAK DETECTION			
Kroger Item #	Description	Supplier Part ID	Qty
K-0008846	2-8RO board wired 24V out and enclosure	810-2016	1
K-0008848	24V Transformer, 56VA 120/208/240V Center Tap - Class 2	640-0056	1
K-0052368	Bacharach 16Ch HGM MZ, 5x 1,000' Tubing,10 High Flow Fittings, 2 & 3 way splitter connections with line end filter assembly, Machine room binder with technical bulletins and parts guide (Includes Filter Ends)	3015-KIT	1
K-0052371	Washdown J-box for filter ends.	3015-5748	4
K-0052370	Tubing- 1,000' roll (Not for NH3)	TG100	EXTRA IF REQ'D
K-0052372	Line End Filter Assembly (Includes filter & tubing connection)	3015-3420	EXTRA IF REQ'D
K-0052397	TYPE BLUE HORN STROBE AC/DC 24V 868STRB-AQ	BLUE HORN STROBE	1 FOR OFFICES, 1 NEAR LDU, 1 PER MECH ROOM, 1 PER BOX (CODE MAY REQUIRE 2 PER BOX, INSIDE AND OUTSIDE)
LIGHTING CONTACTOR CONTROL			
Kroger Item #	Description	Supplier Part ID	Qty
K-0038612	2-MultiFlex 88 boards and 13x11 enclosure, 2 light level sensors	810-1013	1
K-0019685	24V Transformer, 80VA 120/208/240V Center Tap - Class 2	640-0080	1
LIGHTING DIMMING CONTROL			
Kroger Item #	Description	Supplier Part ID	Qty
K-0008853	1- 88AO board and enclosure	810-1100	1
K-0037680	Flourescent Dimmer Kit,board,xfmr,lsltr	604-0400	2
K-0019685	24V Transformer, 80VA 120/208/240V Center Tap - Class 2	640-0080	1
BUILDING CONTROL			
Kroger Item #	Description	Supplier Part ID	Qty
K-0008729	E2E BX400-No Cards (For upgrade of older E1 and RMCC Units)	845-2400	AS REQ'D
K-0008718	E2E RX400-No Cards (For upgrade of older E1 and RMCC Units)	845-1400	AS REQ'D
K-0008822	Indoor Humidity Sensor (2%, 12VDC)	203-5751	2
K-0008821	Single Gang Box Space Temp Sensor	809-6590	1 PER RTU
K-0008720	Indoor CO2 0-2000 PPM w/o Display 24VAC	510-2001	2
K-0008852	ImmersionTemp probe, 8 inch length 3/4 inch-14 threads, SS	501-2008	1
K-0008860	PMAC II 28 Channel, 16 Amp per Channel (APPLIED WHEN ANTI-SWEATS ARE SEPARATED AT THE CASE, AND STORE HAS AN EXISTING CPC)	851-1004	1
K-0008819	20' Green General Purpose Temp Sensor	501-1122	1 PER BOX

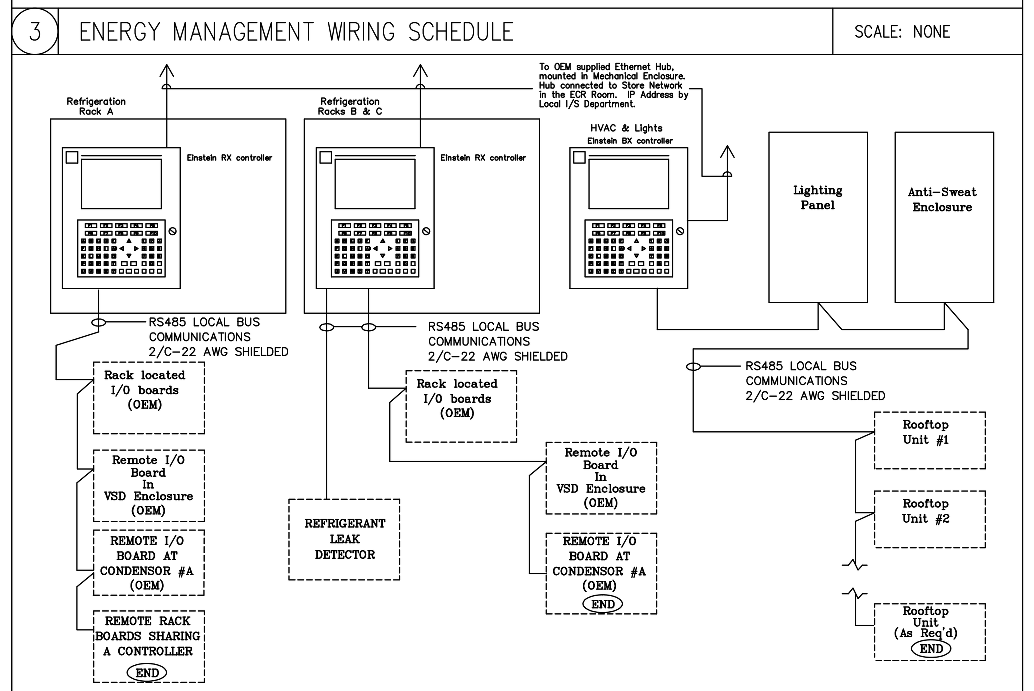
2 CONTROLS TAKEOFF

SCALE: NONE

KEY NOTE	DESCRIPTION	WIRE TYPE PLENUM	WIRE TYPE NON-PLENUM
1	W.A.N. CONNECTION	BELDEN #1533P #24-8 CATEGORY-5 CABLE OR APPROVED EQUAL	BELDEN #1533R #24-8 CATEGORY-5 CABLE OR APPROVED EQUAL
2	RS-485 NETWORK	BELDEN #88641 #22-2 SHEILDED CABLE OR APPROVED EQUAL	BELDEN #8641 #22-2 SHEILDED CABLE OR APPROVED EQUAL
3	ANALOG/DIGITAL TEMPERATURE SENSOR/INPUT:	BELDEN #88761 #22-2 SHIELDED CABLE OR APPROVED EQUAL	BELDEN #8761 #22-2 SHIELDED CABLE OR APPROVED EQUAL
4	DEFROST TERMINATION SENSOR:	BELDEN #88761 #22-2 SHIELDED CABLE OR APPROVED EQUAL	BELDEN #8761 #22-2 SHIELDED CABLE OR APPROVED EQUAL
5	RELATIVE HUMIDITY SENSOR:	BELDEN #83553 #22-3 SHIELDED CABLE OR APPROVED EQUAL	BELDEN #8771 #22-3 SHIELDED CABLE OR APPROVED EQUAL
6	LIGHT LEVEL SENSOR:	BELDEN #83554 #22-3 SHIELDED CABLE OR APPROVED EQUAL	BELDEN #8729 #22-4 SHIELDED CABLE OR APPROVED EQUAL
7	OUTDOOR TEMPERATURE SENSOR /DROP LEG SENSOR	BELDEN #88761 #22-2 SHIELDED CABLE OR APPROVED EQUAL	BELDEN #8761 #22-2 SHIELDED CABLE OR APPROVED EQUAL
8	NOT USED		
9	LIGHTING CONTROL	#14 TWISTED PAIR PER LIGHTING CONTACTOR (PLENUM RATED)	#14 TWISTED PAIR PER LIGHTING CONTACTOR
10	REFRIGERATION SOLENOID VALVE	BELDEN #87760 #18-2 SHIELDED CABLE (PLENUM RATED)	BELDEN #87760 #18-2 SHIELDED CABLE
11	NOT USED		
12	HVAC STAGING CONTROL	2-#16-10 MULTI-CONDUCTOR CABLE (PLENUM RATED)	2-#16-10 MULTI-CONDUCTOR CABLE
13	UNIT HEATER CONTROL	#14 TWISTED PAIR (PLENUM RATED)	#14 TWISTED PAIR
14	LINE VOLTAGE IN CONDUIT	PER NEC & MANUFACTURE'S GUIDLINES	

3 ENERGY MANAGEMENT WIRING SCHEDULE

SCALE: NONE



NOTES:

1. QUANTITY OF RTU'S, REFRIGERATION RACKS AND CONTROL PANELS WILL VARY FROM STORE TO STORE.
2. CONTRACTOR TO INSTALL AND TERMINATE RS485 & NETWORK. RS485 NETWORK SHALL BE DAISY-CHAINED AND TERMINATED AT BOTH ENDS OF THE NETWORK.
3. CPC CONTROLLER TO BE THE BEGINNING TERMINATION POINT OF THE DAISY CHAIN. LAST BOARD ON DAISY CHAIN TO BE THE ENDING TERMINATION POINT. EACH BOARD HAS A SET OF TERMINATING RESISTANCE JUMPERS LABELED JP2, JP3 AND JP4. ALL THREE TERMINATION JUMPERS TO BE SET TO THE OUT (TOWARD THE LEFT EDGE OF THE BOARD) POSITION.

EINSTEIN CONTROL SYSTEM
TYPICAL REFRIGERATION/HVAC CONTROL CONFIGURATION

4

SCALE: NONE

- FOR REFERENCE ONLY -

CONSTRUCTION GUIDELINES

SCALE: NONE

SYMBOL	DESCRIPTION	PNET #
⬡	REFRIGERATION CIRCUIT DESIGNATION	-----
△	DEFROST TERMINATION THERMOSTAT	OEM
(P)	ANALOG TEMPERATURE SENSOR	OEM
(S)	ANALOG TEMPERATURE SENSOR (HVAC)	(CPC) 060-00040609
(RH)	ANALOG RELATIVE HUMIDITY SENSOR	(CPC) 060-00040610 (INDOOR) (CPC) 060-00040617 (OUTDOOR)
LLS	LIGHT LEVEL SENSOR	(CPC) (INDOOR & OUTDOOR) 060-00040607
A	AMBIENT TEMPERATURE SENSOR / SHIELD	060-00040606 / 060-00040615
DS	DOOR SWITCH	OEM
(PM)	PHASE MONITOR	OEM
(SD)	SMOKE DETECTOR	OEM
(J)	CLEAN POWER FIELD INSTALLED BY EC	-----
◇1	KEY NOTE SYMBOL	-----
DA	LOCAL DOOR ALARM	-----
RA	LOCAL REFRIGERATION ALARM	-----
ITS	IMMERSABLE TEMPERATURE SENSOR NUMBER	(CPC) 060-00040730
4S	(4) INTERNAL RTU MIXED AIR TEMPERATURE SENSORS	N/A SUPPLIED BY RTU VENDOR
2S	(2) INTERNAL RTU MIXED AIR TEMPERATURE SENSORS	N/A SUPPLIED BY RTU VENDOR
F	AIR FLOW/ SAIL PROOFING SWITCH	N/A SUPPLIED BY RTU VENDOR
SS	SUCTION STOP SOLENOID	-----
EPR	EVAPORATOR PRESSURE REGULATOR	-----

7 GENERAL SYMBOLS

SCALE: NONE

1. THE EMS-C SHALL BE RESPONSIBLE FOR SUPERVISING THE COMPLETE INSTALLATION OF THE ENERGY MANAGEMENT SYSTEM (EMS). THIS SHALL INCLUDE, BUT NOT BE LIMITED TO THE START-UP, PUNCHDOWN AND PROGRAMMING ADJUSTMENT OF THE ENTIRE CPC CONTROL SYSTEM, INCLUDING REFRIGERATION, HVAC AND LIGHTING CONTROL.
2. THE EMS-C SHALL PROVIDE ALL COORDINATION BETWEEN THE VARIOUS TRADES, INCLUDING REFRIGERATION, HVAC AND ELECTRICAL TO ENSURE THAT ALL EQUIPMENT IS PROPERLY CONTROLLED AND THAT ALL CONTROL POINTS HAVE BEEN ACCOMMODATED. THIS SHALL INCLUDE VERIFYING ALL HVAC EQUIPMENT TO BE CONTROLLED, VERIFYING ALL STAGES OF HEATING, COOLING, HEAT RECLAIM, TWO SPEED FANS, ETC. AND ENSURING THAT ADEQUATE SENSORS HAVE BEEN SUPPLIED TO ENABLE PROPER CONTROL OF SAME.
3. UPON COMPLETION OF THE EMS INSTALLATION, THE EMS-C SHALL PROVIDE ACCURATE AND COMPLETE AS-BUILT DOCUMENTATION TO THE OWNER AND THE ENGINEER. THIS DOCUMENTATION MUST INCLUDE AN 8 1/2" x 11" PLAN INDICATING THE LOCATIONS OF ALL OF THE CASE CONTROLLERS, PROBES, SENSORS, RELAYS, REMOTE I/O BOARDS, CONTROLLERS, MODEM AND REFRIGERANT LEAK SENSORS FOR THE ENTIRE EMS INSTALLATION INCLUDING REFRIGERATION, HVAC AND LIGHTING. THE EMS-C SHALL ALSO FURNISH AND INSTALL AN 8 1/2" x 11" DRAWING SHOWING THE LOCATIONS OF ALL THE REFRIGERATION CIRCUITS. THIS DRAWING SHALL BE MOUNTED ADJACENT TO THE CONTROL PANEL. FURTHER, THIS DOCUMENT SHALL INCLUDE A COMPLETE PRINTOUT SHOWING TERMINATION POINTS, BOARD LAYOUTS AND INITIAL CONTROL SET POINTS FOR REFRIGERATION, HVAC AND LIGHTING CONTROL.
4. ONCE THE NEW CONTROL SYSTEM HAS BEEN INSTALLED AND THE HVAC SYSTEMS ARE READY TO BE BROUGHT ON LINE, THE HVAC-C MUST PROVIDE THE NECESSARY SUPERVISION FOR STARTUP OF THE CONTROL SYSTEM AND COORDINATE START-UP WITH CPC ON SITE. THE HVAC-C MUST ENSURE THAT ALL THE HVAC SYSTEMS ARE OPERATING CORRECTLY AND PROVIDE ANY FINE TUNING OF THE SYSTEM THAT IS REQUIRED.
5. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO CONVEY INSTALLATION REQUIREMENTS REGARDING THE ENERGY MANAGEMENT CONTROL SYSTEM. THIS DRAWING IS PICTORIALLY DRAWN FOR CLARIFICATION PURPOSES ONLY, DO NOT SCALE. THIS DRAWING IS GENERIC AND NOT ALL COMPONENTS SHOWN ARE REQUIRED FOR INSTALLATION. REFER TO RESPONSIBILITY CHARTS FOR FINAL EQUIPMENT AND INSTALLATION REQUIREMENTS.
6. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENERGY MANAGEMENT ISSUES REGARDING REFRIGERATED CASES, EVAPORATOR COILS, REFRIGERATION CONDENSERS, PREP ROOM REFRIGERATION, COMPRESSOR RACKS AND HOT WATER RECLAIM. IT SHALL BE THE RESPONSIBILITY OF THE REFRIGERATION CONTRACTOR TO ENSURE A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL #2 FOR MORE INFORMATION REGARDING CONTRACTOR RESPONSIBILITIES.
7. LOW VOLTAGE EMS CONTROL WIRING BY EMS-C. ALL OTHER HIGH VOLTAGE WIRING SHALL BE BY THE GENERAL CONTRACTORS ELECTRICAL CONTRACTOR AND CONNECTED BY CPC (UNLESS OTHERWISE NOTED).
8. REFER TO REFRIGERATION LEGENDS FOR INFORMATION REGARDING FIXTURE, WALK-IN COOLER/FREEZERS, EVAPORATORS, CONDENSERS AND RECLAIM REQUIREMENTS.

8 ENERGY MANAGEMENT NOTES

SCALE: NONE

ATTENTION DESIGN ENGINEERS:

THIS DRAWING REPRESENTS A TYPICAL STORE, AND SERVES AS A TEMPLATE FOR DEVELOPING JOB SPECIFIC DRAWINGS. YOUR DRAWINGS SHALL REFLECT THE DESIGN REQUIREMENTS FOR YOUR SPECIFIC STORE, AND SHALL USE THE LAYOUT ESTABLISHED BY THIS TEMPLATE. USE OF THE TEMPLATE IS NECESSARY TO SUPPORT THE DESIGN, AND PROCUREMENT SYSTEMS WITHIN THE KROGER COMPANY.

issued for:		
	BIDS AND PERMITS	03/06/2024
	DIRECT BUY QUOTE	02/19/2024
	90% OWNER REVIEW	01/25/2024

PROPOSED MINOR INTERIOR REMODEL FOR:

Kroger

STORE NO. D-711
7084 MILLER ROAD
SWARTZ CREEK, MI 48473

THE KROGER CO. OF MICHIGAN

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ENERGY MGMT RISER AND NOTES

project no.	sheet no.
23086	EM-1

PLOT FULL SIZE @ 30"x42"

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