For Service & Support call CPC's
CVS Account Project Manager
Call: (770) 425-2724
Reference CPC p/n 850-3050
www.cpcus.com

Control power input:
120 Vac, 60 Hz, single phase.

Upstream branch circuit protection (MCCB, 20 A max), field supplied, is required.

Type 1 enclosure.

⚠ CAUTION! ⚠

All power must be shut off prior to wiring, installation, or service.

More than one disconnect may be required to de-energize this panel.

Tighten all connections to recommend specifications before applying power.

Use recommended field conductor wire sizes. Copper conductors only.

Field conductor wire sizes 24–10 AWG for input terminals TB1. Tighten connections to 0.6 – 0.8 Nm.

Field conductor wire sizes 24–8 AWG for all TB2 and TB3 terminals except 4–01 thru 4–04. Tighten connections to 1.5 – 1.8 Nm.

Field conductor wire sizes 20–6 AWG for TB2 and TB3 terminals 4–01 thru 4–04. Tighten connections to 1.5 – 1.8 Nm.

Contactor rating:

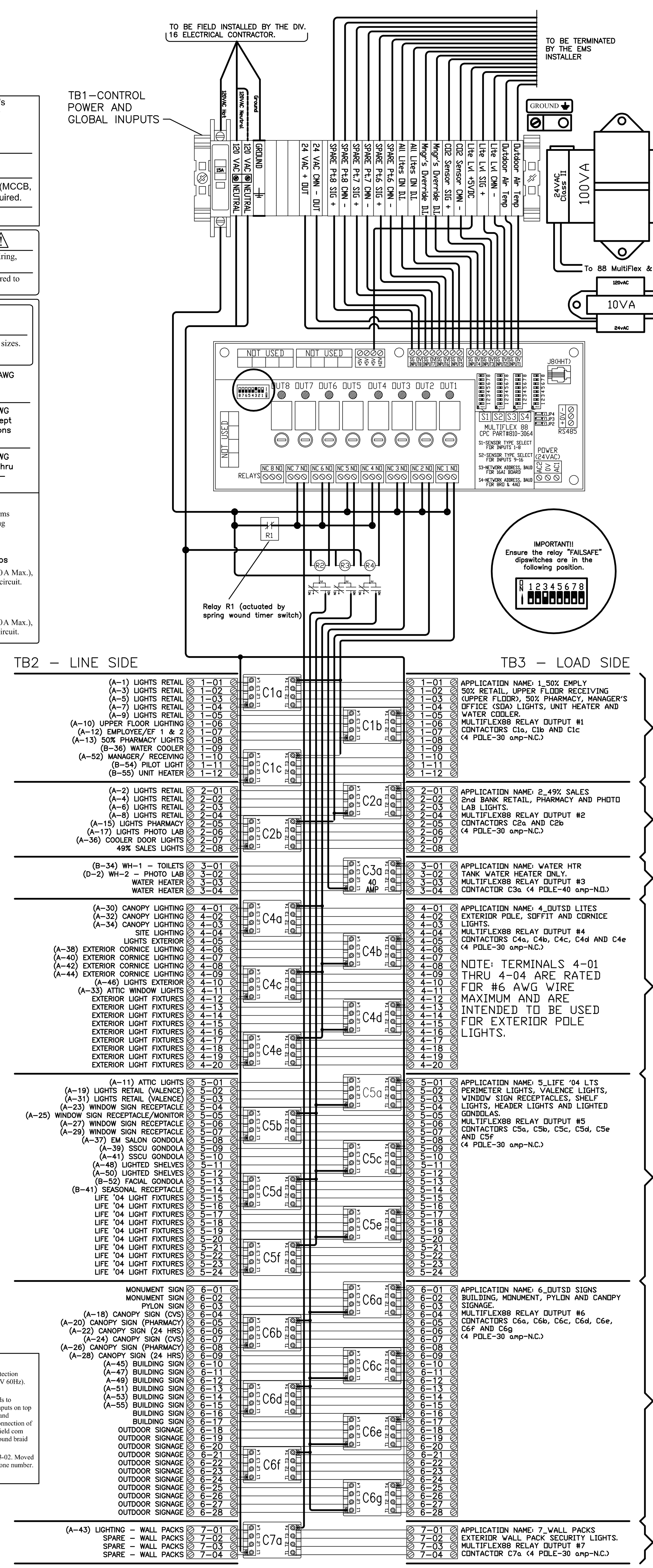
Maximum short circuit current 5 KA rms symmetrical, 120/240V, for all lighting contactor/power circuits

C1a–C2b and C4a–C7a :
20A Tungsten / Ballast Lamps

Upstream branch circuit protection (MCCB, 20 A Max.), field supplied, is required for each lighting circuit.

C3a :
40A General Purpose

Upstream branch circuit protection (MCCB, 40 A Max.), field supplied, is required for each power circuit.



These 12 terminals (TB3:1–01 THRU TB3: 1–12) are designated for the first half of interior lighting and operate to a time schedule only. These are the only lights activated by the system occupancy override pushbutton.

These 8 terminals (TB3: 2–01 thru TB3: 2–08) are designated for the second half of interior lighting and operate to a time schedule only. These lights ARE NOT activated by the system occupancy override pushbutton.

These 4 terminals (TB3: 3–01 thru TB3: 3–04) are designated for the water heaters and are operated to a time schedule only. This contactor (C3a) is 40amp – N.O. – general purpose and is not rated for lighting loads.

These 20 terminals (TB3: 4–01 thru TB3: 4–20) are designated for exterior site and building lighting to include pole lights, cornice lights and soffit lights and operate to a combination of the outdoor photo sensor and a time schedule.

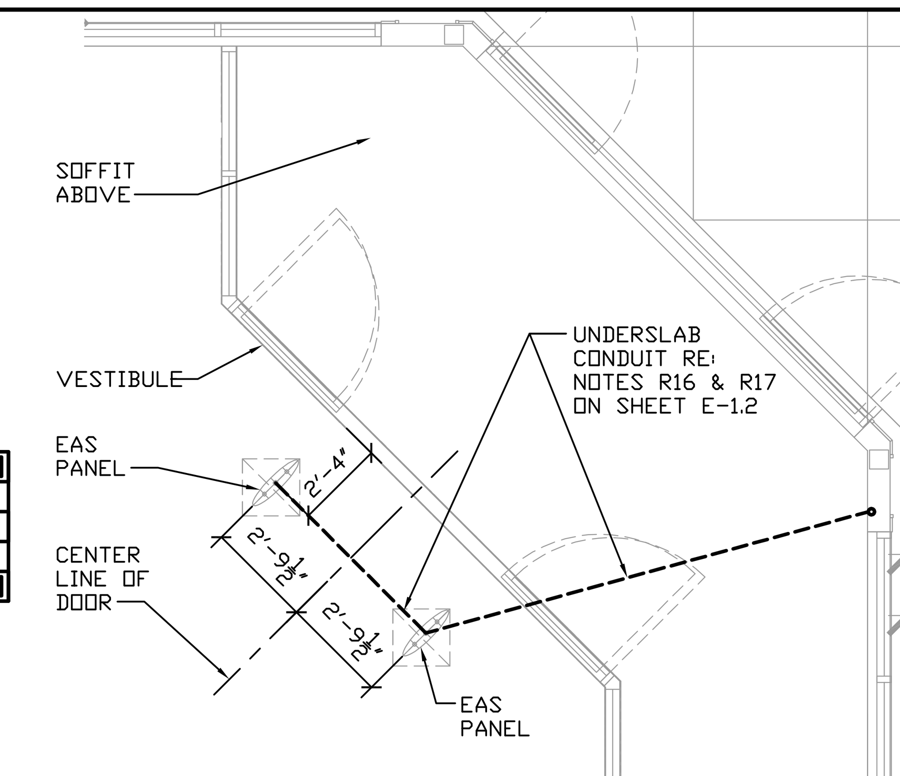
These 24 terminals (TB3: 5–01 thru TB3: 5–24) are designated for the "Life '04" lighting fixtures and are operated to a time schedule only. These lights ARE NOT activated by the system occupancy override pushbutton.

These 28 terminals (TB3: 6–01 thru TB3: 6–28) are designated for the exterior building signs and operate to a combination of the outdoor photo sensor and a time schedule.

These 4 terminals (TB3: 7–01 thru TB3: 7–04) are designated for the security "wall packs" and operate to the outdoor photo sensor only (ON from sunset to sunrise).

Revision History:
A - 1/21/2005 Initial Release
B - 5/9/2006 Added labeling per UL (branch circuit protection requirement, enclosure type 1, control power input 120V 60Hz). Reformated existing text into boxes.
C - 8/7/2007 Updated per ECNP 07-0017. Added grounds to backplate for board power and com. Rotated board so inputs on top and close to terminal block. Rearranged terminal block and transformer locations for shorter wire runs. Removed connection of 485 to terminal block, added "com in" label at board. Field com wiring now lands on board at "com in". Added door ground braid connection.
D - 8/22/2007 Removed InstaWater heater from circuit 3-02. Moved logo and updated revision history. Corrected service phone number. Per ECNP07-0019. Added revision "clouds".

1 E-2.3 EMS RELAY CABINET WIRING DIAGRAM
SCALE: NOT TO SCALE



3 E-2.3 EAS – CONDUIT PLAN
SCALE: 1/4" = 1'-0"

GENERAL CONTRACTOR RESPONSIBILITIES

1. THE LOW VOLTAGE COMMUNICATIONS LOOP SHOWN IN THE ELECTRICAL PLANS. THE DIVISION 16 CONTRACTOR SHOULD INSTALL A #22TSP CABLE BETWEEN THE ROOFTOP UNITS AND THE CPC MAIN PANEL (EINSTEIN PANEL) AND ANY CONDUIT SHOWN ON THE ELECTRICAL DRAWINGS.

2. THE SIGNAL WIRE FOR THE MANAGER'S OVERRIDE BUTTON. THIS IS SHOWN ON THE ELECTRICAL PLANS.

3. THE LIGHTING CONTACTOR PANEL SHOWN IN THE ELECTRICAL PLANS. THIS IS PROVIDED BY CPC UNDER SEPARATE CONTRACT WITH THE JOB ELECTRICAL CONTRACTOR. THIS IS A SEPARATE ITEM THAT IS SPECIFIED AND PROVIDED UNDER THE DIVISION 16 PLANS AND SPECIFICATIONS.

4. TEMPORARY THERMOSTATS FOR THE ROOFTOP UNITS ARE PROVIDED BY THE HVAC CONTRACTOR. PLEASE BE CERTAIN THAT THESE TEMPORARY THERMOSTATS ARE MOUNTED IN THE PROPER LOCATIONS

5. ANY SMOKE DETECTORS, SMOKE DAMPERS, FIRE DAMPERS, OR ASSOCIATED INTERLOCK WIRING FOR THESE LISTED. THIS WORK IS SPECIFIED TO BE DONE BY THE DIVISION 16 CONTRACTOR.

6. ANY ELECTRIC ZONE DAMPERS OR CONTROLS FOR SAME (IF SHOWN ON THE MECHANICAL CONSTRUCTION DRAWINGS). THIS EQUIPMENT IS FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR.

ELECTRICAL (LOW VOLTAGE) WIRING NOTES:

(WORK OUTLINED BELOW SHALL BE THE RESPONSIBILITY OF THE DIVISION 16 ELECTRICAL CONTRACTOR, UNLESS SPECIFICALLY STATED OTHERWISE.)

LV–1 EACH HVAC UNIT HAS A 10 CONDUCTOR, 18 GAUGE THERMOSTAT CABLE RUNNING FROM THE LOW VOLTAGE TERMINAL STRIP IN THE UNIT, TO THE THERMOSTAT LOCATION, WITH A 15' LOOP OF WIRE COILED ABOVE THE DROP CEILING AT THE THERMOSTAT LOCATION. TEMPORARY THERMOSTAT AND CABLE (RESPONSIBILITY OF MECHANICAL CONTRACTOR) SHALL BE MOUNTED AT THE COLUMN LOCATIONS SHOWN ON THE DRAWINGS AND WIRED PROPERLY.

LV–2 ON "BUILT-UP" OR SPLIT SYSTEMS, THERE MUST BE A 10 CONDUCTOR, 18 GAUGE CABLE RUN BETWEEN ALL INDEPENDENT COMPONENTS (I.E. FROM AIR HANDLER TO DUCT FURNACE, FROM AIR HANDLER TO ECONOMIZER, ETC.)

LV–3 BELDEN 8641 OR EQUIVALENT 2 CONDUCTOR, 24 GAUGE SHIELDED CABLE SHALL BE PULLED FROM THE CPC LIGHTING RELAY PANEL (LEAVING A 5' LOOP) TO A RECESSED SINGLE GANG SWITCH BOX, LOCATED IN THE SOA, 30" DIRECTLY ABOVE THE SWITCH FOR THE OVERHEAD LIGHTS. CABLE TO BE LABELED "EMS O/R".

LV–4 BELDEN 8641 OR EQUIVALENT 2 CONDUCTOR, 24 GAUGE SHIELDED CABLE SHALL BE PULLED CONTINUOUS FROM THE CPC LIGHTING RELAY PANEL TO EACH HVAC UNIT IN TURN (DAISY CHAIN) STARTING WITH THE REAR-MOST UNIT. WIRE NEEDS TO BE PULLED INTO THE HVAC UNIT'S CONTROL PANEL NEAR THE THERMOSTAT WIRING TERMINAL STRIP, LEAVING APPROX. A 5 FOOT LOOP. LABEL BOTH ENDS OF THIS CABLE AS "EMS COMM".

LV–5 BELDEN 8641 OR EQUIVALENT 2 CONDUCTOR, 24 GAUGE SHIELDED CABLE SHALL BE PULLED FROM THE EMS PANEL TO THE ELECTRICAL SECTION OF THE REAR MOST HVAC UNIT. THIS CABLE IS TO BE LABELLED "OAT" (OUTSIDE AIR TEMPERATURE)

LV–6 BELDEN 8771 OR EQUIVALENT 3 CONDUCTOR, 22 GAUGE SHIELDED CABLE SHALL BE PULLED FROM THE EMS PANEL TO THE ELECTRICAL SECTION OF THE REAR MOST HVAC UNIT. THIS CABLE IS TO BE LABELLED "LIGHT LEVEL".

LV–7 BELDEN 8729 OR EQUIVALENT 4 CONDUCTOR, 22 GAUGE SHIELDED CABLE SHALL BE PULLED FROM THE EMS PANEL TO THE COLUMN NEAREST RTU1 (ADJACENT TO THE RTU1 T-STAT LOCATION). THIS CABLE IS TO BE LABELLED "CO2 SENSOR".

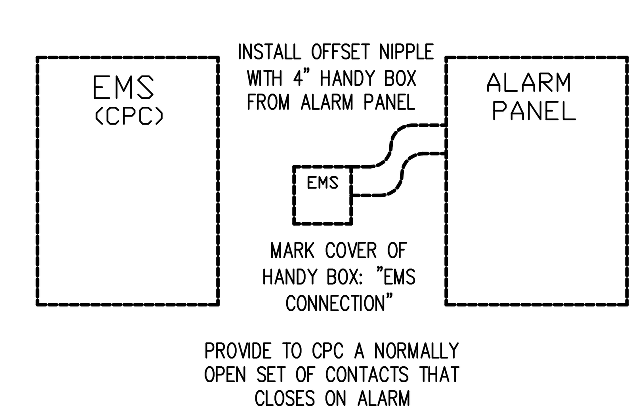
LV–8 ELECTRICAL CONTRACTOR SHALL COORDINATE WITH SECURITY CONTRACTOR AND WIRE SYSTEM COMPLETE.

LV–9 BELDEN 8641 OR EQUIVALENT SHALL BE RUN FROM THE CPC LIGHTING RELAY PANEL (LEAVE A 5' COIL) TO THE ALARM COMPANY'S HANDY BOX LABELED "EMS" (LEAVE A 5' COIL). LABEL THE CABLE "EMS ALARM INTERFACE". CPC (COMPUTER PROCESS CONTROLS) IS RESPONSIBLE FOR CONNECTION INSIDE THE HANDY BOX AND THE CPC LIGHTING RELAY PANEL.
CPC CONTACTS: CVS ACCT. PROJECT MANAGER 770–425–2724

IF THE HANDY BOX IS NOT ON SITE CONTACT THE APPROPRIATE VENDOR:
AFA = ART CANOLE @ 866–232–6285
ADT = MARY TOLOSKO @ 781–278–1777
GUARDIAN = MIKE EDWARDS @ 248–423–1000

LV–10 CABLE RUNS TO BE INSTALLED IN APPROPRIATELY SIZED CONDUIT, IF REQUIRED BY LOCAL CODE. LOCAL ELECTRICAL CODE REQUIREMENTS SHALL DETERMINE WHETHER CABLE SHALL BE INSTALLED IN CONDUIT, PLENUM CABLE, OR STANDARD PVC SHEATHED CABLE. DIVISION 16 CONTRACTOR IS RESPONSIBLE FOR MEETING LOCAL CODE REQUIREMENTS. IF CONDUIT IS REQUIRED, ALL EMS SYTEM SENSORS (EXCEPT OAT AND LIGHT LEVEL) WILL REQUIRE SINGLE GANG SWITCH BOXES MOUNTED AND PIPED AT THE APPROPRIATE LOCATIONS.

FOR PRICING, QUESTIONS AND INFORMATION RELATING TO THIS EMS PANEL CALL "CPC" AT (800) 829–2724.



2 E-2.3 BURGLAR ALARM / EMS CONNECTION
SCALE: NOT TO SCALE

CH#	CHANNEL DESCRIPTION	"ON" EVENT	"OFF" EVENT
1	50% EMPLOYEE LIGHTS	"ON" AT 15 MINUTES PRIOR TO STORE OPENING	"OFF" AT 30 MINUTES AFTER STORE CLOSING
2	49% SALES LIGHTS	"ON" AT 5 MINUTES PRIOR TO STORE OPENING	"OFF" AT 15 MINUTES AFTER STORE CLOSING
3	WATER HEATERS	"ON" AT 1 HOUR PRIOR TO STORE OPENING	"OFF" AT STORE CLOSING
4	OUTSIDE LIGHTS	"ON" AFTER STORE OPENING { AND } WHEN LIGHT LEVEL < 35.0 FTC	"OFF" AT STORE CLOSING { OR } WHEN LIGHT LEVEL IS >45.0 FTC
5	LIFE '04 LIGHTS	"ON" AT STORE OPENING	"OFF" AT STORE CLOSING
6	OUTSIDE SIGNAGE	"ON" AFTER STORE OPENING { AND } WHEN LIGHT LEVEL < 30.0 FTC	"OFF" AT STORE CLOSING { OR } WHEN LIGHT LEVEL IS >40.0 FTC
7	WALL PACK LIGHTS	ACTIVE 24/7 – "ON" WHEN LIGHT LEVEL < 25.0 FTC	ACTIVE 24/7 – "OFF" WHEN LIGHT LEVEL > 35.0 FTC

Panel Dimensions: 22.25" Wide x 56" High x 6.5 Deep

EMS SPECIFICATIONS

ENERGY MANAGEMENT SYSTEM
A. CVS/PHARMACY HAS ENTERED INTO A NATIONAL ACCOUNT AGREEMENT WITH CPC FOR FURNISHING THE ENERGY MANAGEMENT SYSTEM SPECIFIED IN THIS SECTION. FOR PRICING QUOTATIONS, PLACING ORDERS, AND FURTHER INFORMATION, CALL CPC AT (800) 829–2724.

QUALITY ASSURANCE
A. STANDARDS: COMPLY WITH APPLICABLE INDUSTRY STANDARDS.

B. INSTALLER QUALIFICATIONS: CONTRACTOR SHALL ENTER INTO A CONTRACT WITH CPC FOR COMPLETE INSTALLATION OF THE ENERGY MANAGEMENT SYSTEM.

DELIVERY, STORAGE AND HANDLING
A. PROTECT MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

ENERGY MANAGEMENT SYSTEM
A. PROVIDE COMPONENTS INCLUDING, BUT NOT NECESSARILY LIMITED TO, CONTROLLERS, SENSORS, EMS PANEL, CONTROL BOARDS, AND MISCELLANEOUS ACCESSORIES, AS REQUIRED AND AS STANDARD WITH THE MANUFACTURER FOR THE OWNER.

INSPECTION
A. INSPECT INSTALLATION AREAS FOR READINESS OF SYSTEM INCLUDING MATERIALS FOR ELECTRICAL WIRING AND CONNECTIONS.
B. PROCEED WITH INSTALLATON ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

INSTALLATION
A. COMPLY WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR A COMPLETE INSTALLATION.
B. PROVIDE PROPER SUPPORT AS STANDARD WITH THE MANUFACTURER AND ANCHOR SECURELY TO SURROUNDING CONSTRUCTION WITH APPROVED FASTENERS.
C. COORDINATE INSTALLATION WITH OTHER COMPONENTS OF THE WORK.
1. REPAIR ABRADED AREAS OF FACTORY APPLIED FINISHES.

CLEANING
A. CLEAN SURFACES PROMPTLY AFTER INSTALLATION. EXERCISE CARE TO AVOID DAMAGE TO THE FINISH. REMOVE EXCESS DIRT AND OTHER SUBSTANCES.

PROTECTION
A. INITIATE AND MAINTAIN PROTECTION AND OTHER PRECAUTIONS REQUIRED THROUGH THE REMAINDER OF THE CONSTRUCTION PERIOD TO ENSURE THAT, PUBLIC ADDRESS AND MUSIC SYSTEM WILL BE FREE OF DAMAGE OR DETERIORATION AT THE TIME OF SUBSTANTIAL COMPLETION.

TESTING
A. ENGAGE A FACTORY–AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM TESTING AND TO TRAIN OWNER'S MAINTENANCE PERSONNEL AS SPECIFIED BELOW:
1.TEST AND ADJUST CONTROLS AND EQUIPMENT. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
2.TRAIN OWNER'S MAINTENANCE PERSONNEL ON PROCEDURES AND SCHEDULES RELATED TO STARTUP, TROUBLESHOOTING, SERVICING, AND PREVENTIVE MAINTENANCE.
3.REVIEW DATA IN MAINTENANCE MANUALS. REFER TO DIVISION 1 SECTION "CLOSEOUT PROCEDURES".
4.SCHEDULE TRAINING WITH OWNER, THROUGH ARCHITECT, WITH AT LEAST SEVEN (7) DAY'S ADVANCE NOTICE.

GENERAL ELECTRICAL NOTES

1. PERFORM ALL ELECTRICAL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES.
2. PROVIDE ALL NEW MATERIAL THAT CONFORM'S TO THE STANDARDS OF THE UNDERWRITER'S LABORATORIES, INC., AND THE NATIONAL MANUFACTURERS ASSOCIATION.
3. OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.
4. DRAWINGS ARE DIAGRAMMATIC ONLY AND INDICATE ONLY THE GENERAL ARRANGEMENT. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
5. GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR EFFECTIVE THE DAY THE PROJECT IS ACCEPTED BY THE OWNER.
6. MAKE ALL ELECTRICAL POWER CONNECTIONS TO HVAC, PLUMBING AND OTHER EQUIPMENT AS REQUIRED.
7. PROVIDE AND INSTALL A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH ARTICLE 250 OF THE N.E.C. AND AS SHOWN ON THE DRAWINGS.
8. PROVIDE THE CUTTING AND PATCHING OF WALLS AND FLOORS REQUIRED FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT.
9. PROVIDE ONLY COPPER CONDUCTORS RATED AT NOT LESS THAN 600 VOLTS. PROVIDE #12 AWG MINIMUM, UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE STRANDED CONDUCTORS FOR ALL WIRE #8 AWG AND LARGER. PROVIDE SOLID CONDUCTORS #10 AND SMALLER, UNLESS OTHERWISE NOTED.
10. PROVIDE BRANCH CIRCUIT CONDUCTORS THAT ARE TYPE THHN OR THWN AS REQUIRED. MC CABLE CAN BE USED FOR LIGHT FIXTURE TO LIGHT FIXTURE.
11. PROVIDE A PULL WIRE IN ALL EMPTY CONDUITS.
12. PROVIDE A TYPED DIRECTORY IN ALL PANEL BOARDS CLEARLY DESCRIBING THE LOCATION OF AND TYPE OF LOAD BEING SERVED FOR ALL CIRCUITS.
13. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANEL BOARDS AND DISCONNECT SWITCHES, WHITE LETTERS ON BLACK BACKGROUND.
14. VERIFY ALL REQUIREMENTS AND COORDINATE EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START UP. NOTIFY ENGINEER OF ANY CHANGES.
15. PROVIDE, PROPERLY INSTALL, AND IDENTIFY ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC. FOR USE WITH THE MATERIAL (CU) OF THE CONDUCTOR, AND RATED FOR 60/75°C.
16. PROTECT ALL ELECTRICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.).
17. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE–RESISTIVE WALL, FLOOR, OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL, TELEPHONE, TELEVISION, OR LOCAL COMMUNICATION AND/OR SIGNALING CIRCUITS, PROVIDE FIRE STOPPING AROUND THE OPENING OF THE RACEWAY PER THE STATE BUILDING CODE. MAINTAIN COORDINATION WITH THE GENERAL CONTRACTOR TO INSURE THAT THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED ASSEMBLIES SUCH AS THE FOLLOWING: CONDUIT PENETRATIONS OF 1 & 2 HOUR GYP BOARD WALLS – U.L.#WL1001, CONDUIT PENETRATIONS OF 1 & 2 HOUR CONCRETE OR BLOCK WALLS – U.L.#CAJ1001, CONDUIT PENETRATIONS OF 1 & 2 HOUR CONCRETE FLOORS – U.L.#CAJ1001.
18. PROTECT REQUIRED FIRE RATED WALLS, PARTITIONS, AND OPENINGS FOR INSTALLATION OF BOXES THAT ARE GREATER THAN 16 SQUARE INCHES AS REQUIRED BY U.L. COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR TO INSURE THE INTEGRITY OF THE U.L. RATING IS MAINTAINED.
19. PROVIDE CONDUIT FOR ALL WIRING, INCLUDING BUT NOT LIMITED TO CONTROL AND POWER WIRING. COORDINATE INSTALLATION AND ROUTING REQUIREMENTS WITH APPROPRIATE INSTALLER(S).
20. INSTALL WIRING IN GALVANIZED RIGID METAL CONDUIT, ELECTRICAL METAL TUBING, RIGID NON–METALLIC CONDUIT, FLEXIBLE METAL CONDUIT AND LIQUID–TIGHT FLEXIBLE METAL CONDUIT. EMT SHALL NOT BE USED IN OR UNDER CONCRETE SLABS OR IN MASONRY WALLS. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE. CONDUIT MAY BE SUBSTITUTED BY METAL–CLAD (MC) CABLE PER NEC ARTICLE #334 AND AS ALLOWED BY THE LOCAL AUTHORITY HAVING JURISDICTION. METAL–CLAD OR CABLE SHALL NOT BE USED FOR HOME RUNS.

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PORTLAND, MAINE

DEVELOPER:
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5 MILITIA DRIVE
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REVISIONS:

DRAWING BY: HYZ
DATE: 8/31/09
JOB NUMBER: 209017
TITLE: ELECTRICAL NOTES & EMS DIAGRAM
SHEET NUMBER: E–2.3
COMMENTS: ISSUED FOR CONSTRUCTION