

GAP - EMS SCOPE AND RESPONSIBILITIES

CONVENTIONAL / HEAT PUMP - HVAC EQUIPMENT

MECHANICAL CONTRACTOR RESPONSIBILITIES

1. THE FOLLOWING ARE RESPONSIBILITIES OF THE MECHANICAL CONTRACTOR DURING THE CONSTRUCTION PHASE:
 - a. INSTALL TEMPORARY THERMOSTATS AS PART OF STANDARD SCOPE OF WORK. THESE THERMOSTATS SERVE AS A CONSTRUCTION STAT UNTIL NETWORK IS AVAILABLE AND EMS INSTALLER IS ON SITE.
 - b. WHERE REQUIRED, VALVES WITH ACTUATORS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. ACTUATOR MUST ACCEPT A 2-10VDC OR 4-20mA CONTROL SIGNAL.
 - c. MECHANICAL CONTRACTOR TO PROVIDE CO2 SENSORS AS NEEDED. SEE MECHANICAL PLANS FOR LOCATIONS.

ELECTRICAL CONTRACTOR RESPONSIBILITIES

1. THE FOLLOWING ARE RESPONSIBILITIES OF THE ELECTRICAL INSTALLER DURING THE CONSTRUCTION PHASE:
 - a. ELECTRICAL INSTALLER SHALL PROVIDE AND INSTALL CONDUIT WHEN REQUIRED.
 - b. PROVIDE ONE DUAL OUTLET IN CLOSE PROXIMITY OF NETWORK CONNECTION FOR CONNECTION OF QD2040.

EMS INSTALLER RESPONSIBILITIES

1. THE FOLLOWING ARE RESPONSIBILITIES OF THE EMS INSTALLER DURING THE CONSTRUCTION PHASE.
 - a. PROPER COMMISSIONING OF EMS CONTROLS REQUIRES THE ETHERNET PORT CONNECTION OR OPTIONAL CELL MODEM FOR QD2040 TO BE INSTALLED AND ACTIVATED PRIOR TO EMS INSTALLATION.
 - b. EMS INSTALLER SHALL INSURE THAT SITE IS ON-LINE THROUGH THE UBIQUITY SERVER AND PERFORM ALL FINAL COMMISSIONING, SCHEDULING AND PROGRAMMING FUNCTIONS. INSTALLER MUST CONTACT ANDREW NORMINGTON (PH: 800-288-9383 EXT.9069) TO PERFORM COMMISSIONING DUTIES. ALLOW UP TO 2 HOURS PER UNIT FOR COMMISSIONING.
 - c. MOUNT TS1002 DISCHARGE AIR SENSOR IN HVAC SUPPLY AIR DUCT LOCATION AS INDICATED ON MEPS. PULL 2-CONDUCTOR 18 GAUGE TWISTED/SHIELDED WIRE FROM TS1002 SENSOR TO WALL WHERE EACH SZ SERIES THERMOSTAT WILL BE MOUNTED.
 - d. PULL 10-CONDUCTOR STANDARD THERMOSTAT WIRE FROM HVAC UNIT TO WALL WHERE EACH SZ SERIES THERMOSTAT WILL BE MOUNTED.
 - e. MOUNT TS3001 IN OCCUPIED SPACE (IF APPLICABLE, SEE M FLOOR PLAN). PULL 2-CONDUCTOR 18 GAUGE TWISTED/SHIELDED WIRE FROM TS3001 REMOTE SENSOR TO WALL WHERE SZ SERIES THERMOSTAT WILL BE MOUNTED.
 - f. PULL 2-CONDUCTOR 18 GAUGE TWISTED WIRE FOR 2-POSITION DAMPER ACTUATORS OR 4-CONDUCTOR 18 GAUGE TWISTED WIRE FOR MODULATING DAMPER ACTUATORS FROM HVAC DAMPER ACTUATOR LOCATION AS INDICATED ON MEPS TO WALL WHERE CORRESPONDING SZ SERIES THERMOSTAT WILL BE MOUNTED.
 - g. PULL 3-CONDUCTOR 22 GAUGE TWISTED/SHIELDED WIRE FROM SPACE WHERE EACH SZ STAT IS LOCATED, TO BE TERMINATED ON USB/RS485 COMMUNICATION CENTER QD2040.
 - h. PULL 2-CONDUCTOR 18 GAUGE TWISTED/SHIELDED WIRE FROM PULSE ENERGY METER TO SE1000 PULSE TRANSDUCER AND PULL 3-CONDUCTOR 22 GAUGE TWISTED/SHIELDED WIRE FROM SE1000 TO BE TERMINATED ON USB/RS485 COMMUNICATION CENTER QD2040.
 - i. MOUNT PQ1008 EMPLOYEE LIGHTING OVERRIDE SWITCH (IF APPLICABLE, SEE E FLOOR PLAN). PULL 2 CONDUCTOR 18 GAUGE WIRE FROM PQ1008 TO CORRESPONDING DIGITAL INPUT ON SL2105 LIGHTING CONTROLLER. PULL 3-CONDUCTOR 22 GAUGE TWISTED/SHIELDED WIRE FROM SL2105 TO BE TERMINATED ON USB/RS485 COMMUNICATION CENTER QD2040.
 - j. CONNECT STORE LIGHTING SCENES (UP TO 5 SCENES) TO CORRESPONDING DIGITAL OUTPUT ON SL2105 LIGHTING CONTROLLER. IF CONTACTORS FOR LIGHTING SCENES ARE LINE VOLTAGE, EMS INSTALLER TO PROVIDE 24V PILOT RELAYS BETWEEN SL2105 AND LIGHTING CONTACTORS.
 - k. IF HVAC EQUIPMENT IS HEAT PUMP OR CONVENTIONAL, PROGRAMMING FOR OUTPUTS MUST BE DONE THROUGH KEYPAD. ON SZ SERIES THERMOSTATS WITH HEAT PUMP OPTION, FACTORY DEFAULT IS A HEAT PUMP THERMOSTAT WITH O/B TERMINALS USED FOR REVERSING VALVE. IF UNITS ARE CONVENTIONALLY WIRED, KEYPAD PROGRAMMING MUST BE SET TO CONVENTIONAL.
1. EMS INSTALLER SHALL MAKE ALL FINAL CONNECTIONS OF COMMUNICATIONS WIRING AND SENSOR WIRING.

ENERGY MANAGEMENT SYSTEM NOTES

1. HVAC SYSTEMS SHALL BE CONTROLLED AND MONITORED BY A LOCAL ENERGY MANAGEMENT SYSTEM UTILIZING TCS BASYS COMMUNICATING THERMOSTATS, CONTROLLERS, AND COMPONENTS AS DESCRIBED BELOW. THE SYSTEM SHALL INCLUDE COMMUNICATIONS INTERFACE, WHICH WILL CONNECT THE LOCAL BUILDING AUTOMATION SYSTEM TO GAP MULTI-SITE UBIQUITY BUILDING MANAGEMENT SYSTEM.
2. CERTAIN MATERIALS AND SERVICES SHALL BE PROVIDED BY TCS BASYS UNDER SEPARATE CONTRACT WITH THE OWNER OR CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WORK OF THIS PROJECT WITH WORK TO BE PROVIDED BY EMS INSTALLER IN ORDER TO PROVIDE A COMPLETE AND OPERABLE ENERGY MANAGEMENT SYSTEM. THE NOTES AND THE BAS SYSTEM SCHEMATIC ON THIS SHEET ARE INTENDED TO CLARIFY THE CONTRACTOR'S RESPONSIBILITIES.
3. CERTAIN WORK IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR DURING THE CONSTRUCTION PHASE. SEE ELECTRICAL PLAN.
4. THE FOLLOWING MATERIALS WILL BE PROVIDED BY TCS BASYS UNDER SEPARATE CONTRACT:
 - QD2040 COMMUNICATIONS CENTER
 - PI6100 CELLULAR MODEM
 - MULTI-STAGE PROGRAMMABLE THERMOSTATS WITH RS485 COMMUNICATIONS
 - DUCT TEMPERATURE SENSORS FOR RTU SUPPLY AIR TEMPERATURE
 - REMOTE ROOM TEMPERATURE SENSORS IF APPLICABLE (SEE M PLAN)
 - 5 CHANNEL LIGHTING CONTROLLER WITH REMOTE OVERRIDE SWITCH
 - DAMPER ACTUATORS
 - FLOAT SWITCH
 - LINE POWERED PULSE POWER METER
5. INSTALLATION OF FIRE/SMOKE SYSTEMS OR CONNECTIONS TO LINE VOLTAGE ARE NOT INCLUDED IN THE TCS CONTROLS PACKAGE.

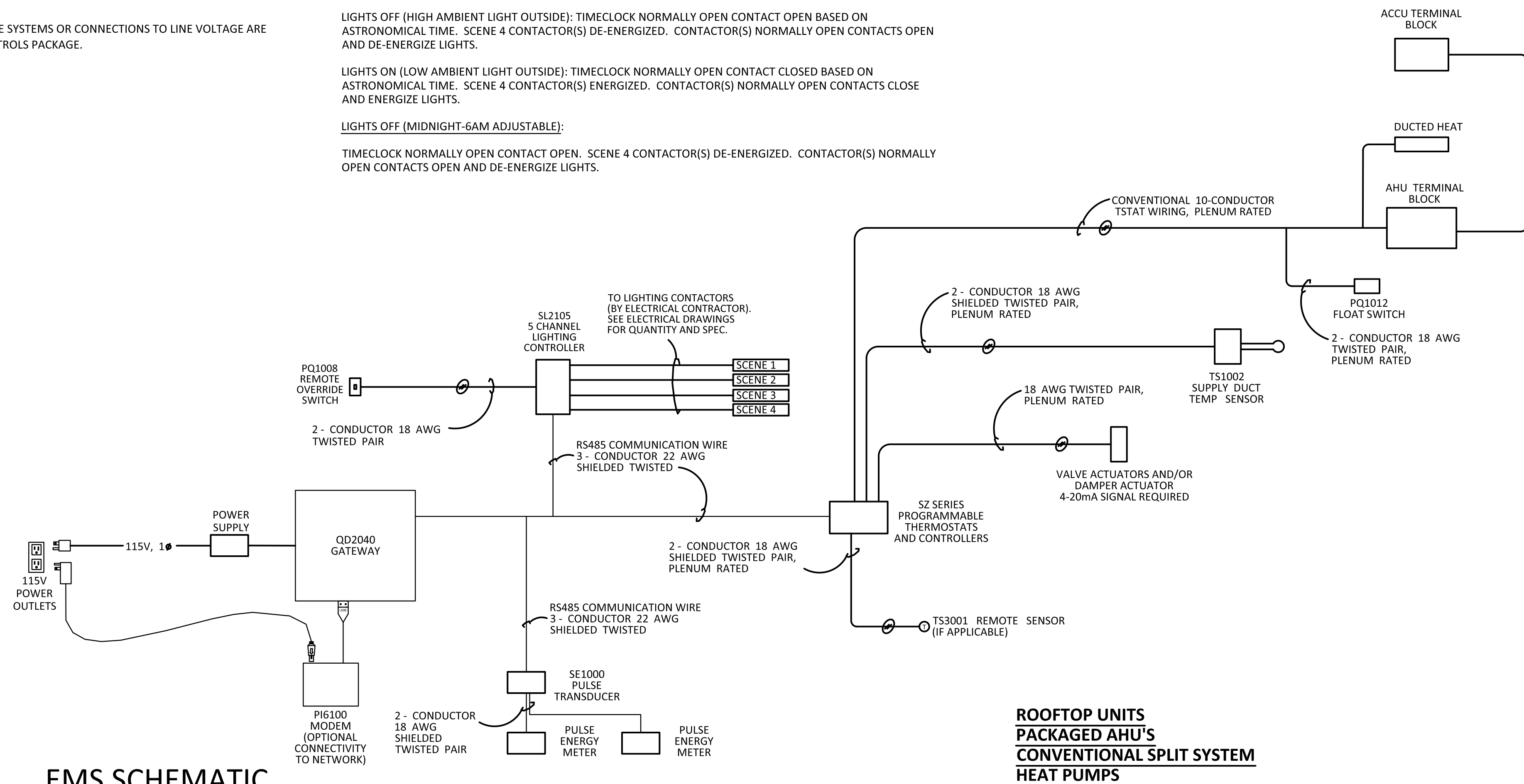
SEQUENCE OF OPERATIONS FOR LIGHTING

- SCENE 1 - ALL STORE LIGHTS TIMECLOCK**
- LIGHTS ON (10AM- 9PM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT OPENS AND DE-ENERGIZES SCENE 1 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS CLOSE AND ENERGIZE LIGHTS.
- LIGHTS OFF (9PM - 10AM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT CLOSSES AND ENERGIZES SCENE 1 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS OPEN AND DE-ENERGIZE LIGHTS.
- SCENE 2 - EMPLOYEE LIGHTS TIMECLOCK**
- LIGHTS ON (8AM- 11PM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT OPENS AND DE-ENERGIZES SCENE 2 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS CLOSE AND ENERGIZE LIGHTS.
- LIGHTS OFF (9PM - 10AM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT CLOSSES AND ENERGIZES SCENE 2 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS OPEN AND DE-ENERGIZE LIGHTS.
- BYPASS BUTTON FOR SCENE 2**
- BYPASS BUTTON ENABLED: BYPASS BUTTON CLOSSES AND ENERGIZES BYPASS RELAY. RELAY NORMALLY CLOSED CONTACT OPENS AND DE-ENERGIZES SCENE 2 CONTACTOR(S) NORMALLY CLOSED CONTACTS CLOSSES AND ENERGIZES LIGHTS.
- SCENE 3 - SPECIALTY LIGHTS TIMECLOCK**
- LIGHTS ON (8AM- 11PM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT OPENS AND DE-ENERGIZES SCENE 3 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS CLOSE AND ENERGIZE LIGHTS.
- LIGHTS OFF (11PM - 8AM ADJUSTABLE): TIMECLOCK NORMALLY CLOSED CONTACT CLOSSES AND ENERGIZES SCENE 3 CONTACTOR(S). CONTACTOR(S) NORMALLY CLOSED CONTACTS OPEN AND DE-ENERGIZE LIGHTS.
- SCENE 4 - OUTSIDE LIGHTS TIMECLOCK**
- LIGHTS ON OR OFF (6AM-MIDNIGHT ADJUSTABLE):**
- LIGHTS OFF (HIGH AMBIENT LIGHT OUTSIDE): TIMECLOCK NORMALLY OPEN CONTACT OPEN BASED ON ASTRONOMICAL TIME. SCENE 4 CONTACTOR(S) DE-ENERGIZED. CONTACTOR(S) NORMALLY OPEN CONTACTS OPEN AND DE-ENERGIZE LIGHTS.
- LIGHTS ON (LOW AMBIENT LIGHT OUTSIDE): TIMECLOCK NORMALLY OPEN CONTACT CLOSED BASED ON ASTRONOMICAL TIME. SCENE 4 CONTACTOR(S) ENERGIZED. CONTACTOR(S) NORMALLY OPEN CONTACTS CLOSE AND ENERGIZE LIGHTS.
- LIGHTS OFF (MIDNIGHT-6AM ADJUSTABLE):**
- TIMECLOCK NORMALLY OPEN CONTACT OPEN. SCENE 4 CONTACTOR(S) DE-ENERGIZED. CONTACTOR(S) NORMALLY OPEN CONTACTS OPEN AND DE-ENERGIZE LIGHTS.

TCS BASYS CONTROLS CONTACT

TCS BASYS CONTROLS IS AN APPROVED GAP EMS INSTALLER. IF YOU HAVE ANY QUESTIONS REGARDING TCS BASYS CONTROLS OR INSTALLATION SERVICES CONTACT: ANDREW NORMINGTON, PROJECT MANAGER - PH: 800-288-9383 EXT. 9069 EMAIL: anormington@tcsbasys.com

NOTE: IF EMS INSTALLATION IS NOT PERFORMED BY TCS BASYS CONTROLS, EMS INSTALLER SHALL CONTACT TCS BASYS CONTROLS FOR A QUOTE TO CONDUCT REQUIRED COMMISSIONING AND PROGRAMMING.



EMS SCHEMATIC

SCALE: N.T.S.

**ROOFTOP UNITS
PACKAGED AHU'S
CONVENTIONAL SPLIT SYSTEM
HEAT PUMPS**

NEW STORE



GAP INC.
CORPORATE ARCHITECTURE
1 HARRISON STREET
SAN FRANCISCO, CA 94105

STORE NO.: 7641

STORE NAME:
PORTLAND

STORE LOCATION:
152 MIDDLE STREET
PORTLAND, ME 04101

PROJ. I.D.: 0000053405

PROTOTYPE DATE: 09/4/15
PROTOTYPE VERSION 4.1

CONSULTANT INFO:



PROFESSIONAL STAMP:

ARCHITECT INFO:



HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED IN MY OFFICE AND UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THEY COMPLY WITH ALL LAWS, RULES, REGULATIONS AND ORDINANCES OF PORTLAND, ME RELATING TO STRUCTURES AND BUILDINGS.

ISSUE TYPE:
100% CD CHECKSET 5/20/16
PERMIT / BID
LL APPROVAL

DRAWN BY: DG
A&E JOB NO.: 16-5433

SHEET TITLE:
TCS BASYS WIRING
DIAGRAM

SHEET NUMBER:

M8-0