

MANAGER'S OFFICE DUAL SENSOR SWITCHING DETAIL

NOT TO SCALE
300

GAP - EMS SCOPE AND RESPONSIBILITIES

CONVENTIONAL HEAT PUMP - HVAC EQUIPMENT

MECHANICAL CONTRACTOR RESPONSIBILITIES

- THE FOLLOWING ARE RESPONSIBILITIES OF THE MECHANICAL CONTRACTOR DURING THE CONSTRUCTION PHASE:
 - WHERE REQUIRED, VALVES WITH ACTUATORS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. ACTUATOR MUST ACCEPT A 2-10VDC OR 4-20mA CONTROL SIGNAL.
 - MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL CO2 SENSORS AS NEEDED. SEE MECHANICAL PLANS FOR LOCATIONS.

ELECTRICAL CONTRACTOR RESPONSIBILITIES

- THE FOLLOWING ARE RESPONSIBILITIES OF THE ELECTRICAL INSTALLER DURING THE CONSTRUCTION PHASE:
 - ELECTRICAL INSTALLER SHALL PROVIDE AND INSTALL CONDUIT WHEN REQUIRED.
 - PROVIDE ONE DUAL OUTLET IN CLOSE PROXIMITY OF NETWORK CONNECTION FOR CONNECTION OF QD2040.
 - PROVIDE 15 AMP, 3-PHASE POWER TO DTS-310 PULSE METER. ELECTRICIAN MUST USE SAME VOLTAGE AS BEING METERED.

EMS INSTALLER RESPONSIBILITIES

- THE FOLLOWING ARE RESPONSIBILITIES OF THE EMS INSTALLER DURING THE CONSTRUCTION PHASE:
 - 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.
 - EMS INSTALLER SHALL INSURE THAT SITE IS ON-LINE THROUGH THE UBQUITY 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.
 - EMS INSTALLER SHALL MOUNT QD2040 AT START OF INSTALLATION TO CONFIRM ACCESS TO UBQUITY.
 - PULL 3-CONDUCTOR 22 GAUGE TWISTED SHIELDED WIRE FROM SPACE WHERE EQUIPMENT IS LOCATED, TO BE TERMINATED ON USB RS485 COMMUNICATION CENTER QD2040.
 - PULL 2-CONDUCTOR 18 GAUGE TWISTED SHIELDED WIRE FROM PULSE ENERGY METER SE1000 PULSE TRANSDUCER AND PULL 3-CONDUCTOR 22 GAUGE TWISTED SHIELDED WIRE FROM QD2040 TO BE TERMINATED ON USB RS485 COMMUNICATION CENTER QD2040. CONNECT CURTAIN TRANSDUCERS TO APPROPRIATE LINE VOLTAGE FOR MONITORING.
 - MOUNT P01008 EMPLOYEE LIGHTS OVERRIDE SWITCH (IF APPLICABLE, SEE E FLOOR PLAN). PULL 2 CONDUCTOR 18 GAUGE WIRE FROM P01008 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.
 - CONNECT STORE LIGHTING SCENES (UP TO 4 SCENES) TO CORRESPONDING DIGITAL OUTPUT ON SL2105 LIGHTING CONTROLLER. CONTACTOR(S) FOR LIGHTING SCENES ARE LINE VOLTAGE. EMS INSTALLER TO BE RESPONSIBLE FOR RELAYS BETWEEN SL2105 AND LIGHTING CONTACTORS IF NEEDED. (SEE EXTERIOR PHOTOCELL (BY ELECTRICIAN)) INTO RELAY AND CONNECT TO DIGITAL INPUT ON SL2105 LIGHTING CONTROLLER.
 - IF HVAC EQUIPMENT IS HEAT PUMP OR CONVENTIONAL, PROGRAMMING FOR OUTPUTS MUST BE DONE THROUGH KEYPAD ON S2 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.
 - EMS INSTALLER SHALL MAKE ALL FINAL CONNECTIONS OF COMMUNICATIONS WIRING AND SENSOR WIRING.

ENERGY MANAGEMENT SYSTEM NOTES

- 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 UBQUITY BUILDING MANAGEMENT SYSTEM.
- 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.
- CERTAIN WORK IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR DURING THE CONSTRUCTION PHASE. SEE ELECTRICAL PLAN.
- THE FOLLOWING MATERIALS WILL BE PROVIDED BY TCS BASYS UNDER SEPARATE CONTRACT:
 - QD2040 COMMUNICATIONS CENTER
 - CELLULAR MODEM
 - MANAGER'S OVERRIDE TWIST TIMER IF APPLICABLE (SEE M PLAN)
 - 5 CHANNEL LIGHTING CONTROLLER WITH REMOTE OVERRIDE SWITCH
 - RELAYS FOR LIGHTING CONTROLS AND PHOTOCELL
 - LINE POWERED DTS-310 PULSE POWER METER
- 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 (6AM - MIDNIGHT ADJUSTABLE):

LIGHTS OFF (HIGH AMBIENT LIGHT OUTSIDE): TIMECLOCK NORMALLY CLOSED CONTACT OPEN BASED ON ASRONOMICAL TIME. PHOTOCELL NORMALLY CLOSED CONTACT OPEN. SCENE 4 CONTACTOR(S) DE-ENERGIZED. CONTACTOR(S) NORMALLY CLOSED CONTACTS OPEN AND DE-ENERGIZE LIGHTS.

LIGHTS ON (LOW AMBIENT LIGHT OUTSIDE): TIMECLOCK NORMALLY CLOSED CONTACT CLOSED BASED ON ASRONOMICAL TIME. PHOTOCELL NORMALLY CLOSED CONTACT CLOSED. SCENE 4 CONTACTOR(S) ENERGIZED. CONTACTOR(S) NORMALLY CLOSED CONTACTS CLOSE AND ENERGIZE LIGHTS.

LIGHTS OFF (MIDNIGHT-6AM ADJUSTABLE):

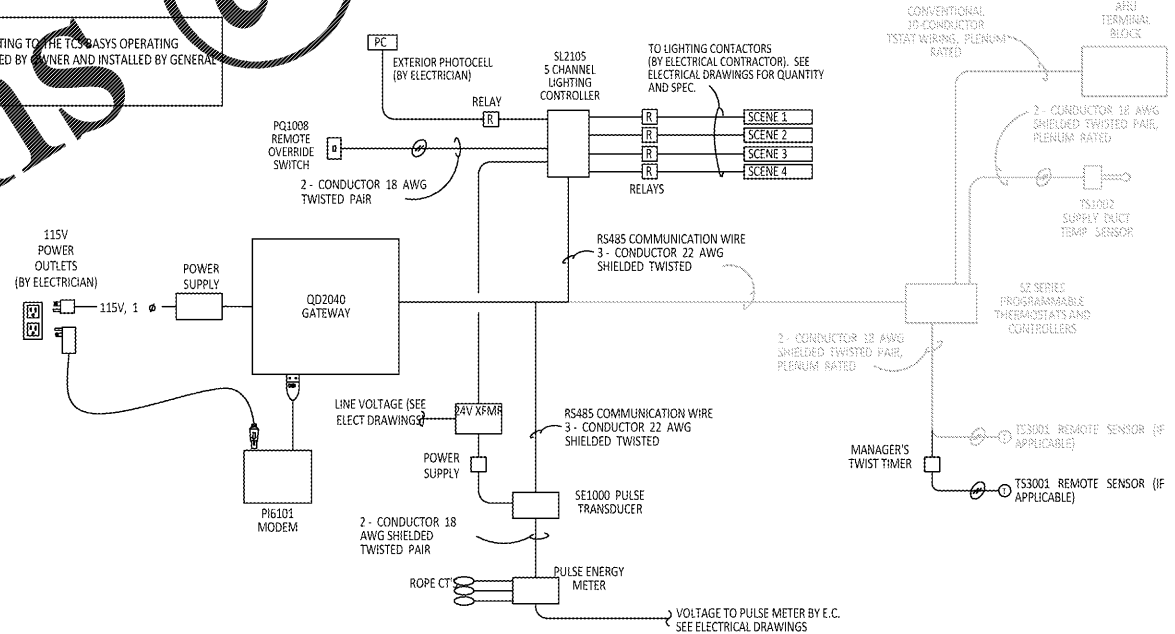
TIMECLOCK NORMALLY CLOSED CONTACT OPEN. SCENE 4 CONTACTOR(S) DE-ENERGIZED. CONTACTOR(S) NORMALLY CLOSED CONTACTS OPEN AND DE-ENERGIZE LIGHTS.

TCS BASYS CONTROLS CONTACT

CONTRACTOR IS NOT REQUIRED TO HIRE TCS BASYS TO INSTALL THE EQUIPMENT. IF CONTRACTOR WOULD LIKE TO GET A QUOTE FROM TCS BASYS, THEY MAY CONTACT:

ANDREW NORMINGTON, PROJECT MANAGER - PH: 800-288-9383 EXT. 9069
 EMAIL: anormington@tcsbasys.com
 TCS TECHNICAL SUPPORT: 800-288-9383 EXT. 8010

ALL CONTROLS RELATING TO THE TCS BASYS OPERATING SYSTEM ARE FURNISHED BY OWNER AND INSTALLED BY GENERAL CONTRACTOR



EMS SCHEMATIC (GRAYED LINES ARE EXISTING TO REMAIN)
 SCALE: N.T.S.

HVAC SEQUENCE OF OPERATIONS SPLIT SYSTEM HEAT PUMP WECONOMIZER

SYSTEM DESCRIPTION
 THE MECHANICAL SYSTEM CONSISTS OF A HEAT PUMP CONDENSING UNIT, AIR HANDLER, AIR-SIDE ECONOMIZER, AND ELECTRIC DUCT HEATERS. THE SYSTEM IS CONTROLLED BY A STAGED, PROGRAMMABLE THERMOSTAT.

SCHEDULE
 THE AHU SHALL OPERATE IN THE OCCUPIED MODE PER THE SCHEDULE AND WHEN THE THERMOSTAT OVERRIDE BUTTON HAS BEEN PRESSED. THE OCCUPANCY SCHEDULE, WHICH IS BASED ON EMPLOYEE ARRIVAL AND DEPARTURE TIMES, SHALL BE PROVIDED BY THE GAP, INC. PROJECT MANAGER. MODIFY THE SCHEDULE BELOW TO REFLECT THE GIVEN SCHEDULE. IF SPECIFIC TIMES ARE NOT PROVIDED, USE THE FOLLOWING SCHEDULE FOR OCCUPIED MODE.
 EVERYDAY, 8AM TO 10PM

OCCUPIED MODE
 THE OUTSIDE AIR DAMPER SHALL OPEN TO THE MINIMUM O/A SETPOINT. THE SUPPLY FAN SHALL START TO PROVIDE HEATING OR COOLING TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

OCCUPIED MODE COOLING
 THE COMPRESSORS SHALL START AND STAGE ON AND OFF AS REQUIRED TO MAINTAIN TEMPERATURE SETPOINT OF 75 DEGREES FAHRENHEIT. ADJUSTABLE UP OR DOWN BY 2 DEGREES AT THE THERMOSTAT. THE INTEGRAL ECONOMIZER LOGIC BOARD SHALL DETERMINE WHEN ECONOMIZER COOLING IS APPLICABLE. THE RELIEF AIR DAMPER CONTROL SHALL BE TIED TO THE EXHAUST FAN CONTACTS OF THE ECONOMIZER. THE RELIEF AIR DAMPERS SHALL OPEN WHEN THE OUTSIDE AIR DAMPER OPENS TO ALLOW 50% DESIGN AIR FLOW. THE SUPPLEMENTAL ELECTRIC DUCT HEATERS (IF INSTALLED) SHALL REMAIN OFF UNTIL THE HEAT PUMP CAN NOT PROVIDE ADEQUATE HEATING.

OCCUPIED MODE HEATING
 THE COMPRESSORS SHALL START AND STAGE ON AND OFF AS REQUIRED TO MAINTAIN TEMPERATURE SETPOINT OF 68 DEGREES FAHRENHEIT, ADJUSTABLE UP OR DOWN BY 2 DEGREES AT THE THERMOSTAT. THE ELECTRIC DUCT HEATERS SHALL STAGE ON AND OFF AS REQUIRED TO MAINTAIN TEMPERATURE SETPOINT OF 68 DEGREES.

UNOCCUPIED MODE
 THE OUTSIDE AIR DAMPER SHALL CLOSE AND REMAIN CLOSED DURING THE UNOCCUPIED MODE. THE SUPPLY FAN SHALL START AND OPERATE ONLY IF THERE IS A CALL FOR COOLING OR HEATING. THE ELECTRIC DUCT HEATERS SHALL REMAIN OFF.

UNOCCUPIED MODE COOLING
 THE COMPRESSORS SHALL START AND STAGE ON AND OFF AS REQUIRED TO MAINTAIN TEMPERATURE SETPOINT OF 85 DEGREES FAHRENHEIT. THE ELECTRIC DUCT HEATERS SHALL REMAIN OFF.

UNOCCUPIED MODE HEATING
 THE COMPRESSORS SHALL START AND STAGE ON AND OFF AS REQUIRED TO MAINTAIN TEMPERATURE SETPOINT OF 62 DEGREES FAHRENHEIT. THE ELECTRIC DUCT HEATERS SHALL REMAIN OFF.

UNOCCUPIED MODE HEATING RECOVERY
 DURING UNOCCUPIED MODE PRIOR TO ENTERING THE OCCUPIED MODE, IF THE SPACE TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE SET POINT, RAMP THE SPACE TEMPERATURE SET POINT AT A RATE OF 4 DEGREES FAHRENHEIT PER HOUR PRIOR TO ENTERING THE OCCUPIED MODE. ON MILD NIGHTS, THIS WILL ALLOW THE SPACE TEMPERATURE TO REACH SET POINT WITHOUT USING STAGE TWO HEATING.

OVERRIDE
 THE AHU SHALL OPERATE IN THE OCCUPIED MODE FOR A PERIOD OF 120 MINUTES.

SMOKE DETECTOR SAFETY
 SHOULD THE SMOKE DETECTOR TRIP, THE SHUTDOWN SEQUENCE WILL COMMENCE.

LIQUID SENSOR SAFETY
 SHOULD THE LIQUID SENSOR DETECT WATER IN THE SECONDARY DRAIN PAN, THE SHUTDOWN SEQUENCE WILL COMMENCE.

SHUTDOWN SEQUENCE
 THE FAN AND COMPRESSORS WILL SHUTDOWN, AND THE OUTSIDE AIR DAMPER ACTUATOR WILL FAIL CLOSE.

REMODEL STORE



GAP, INC.
 STORE DEVELOPMENT
 FOLSOM STREET
 SAN FRANCISCO, CA 94105

REPS. I.D.: 00000131847
 STORE NUMBER: 5724
 STORE LOCATION: BUCKHEAD STATION
 1 BUCKHEAD LOOP NE
 ATLANTA, GA 30326

DESIGN TYPE: P3
 GENERATION: 18012
 PROTOTYPING DATE: 08/31/17
 OPENING: 2018

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ISSUE TYPE:
 BID/PERMIT 01/05/18

REVISIONS:

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TITLE SHEET:
 CONTROLS SCHEMATIC
 SHEET NUMBER:
M8-0