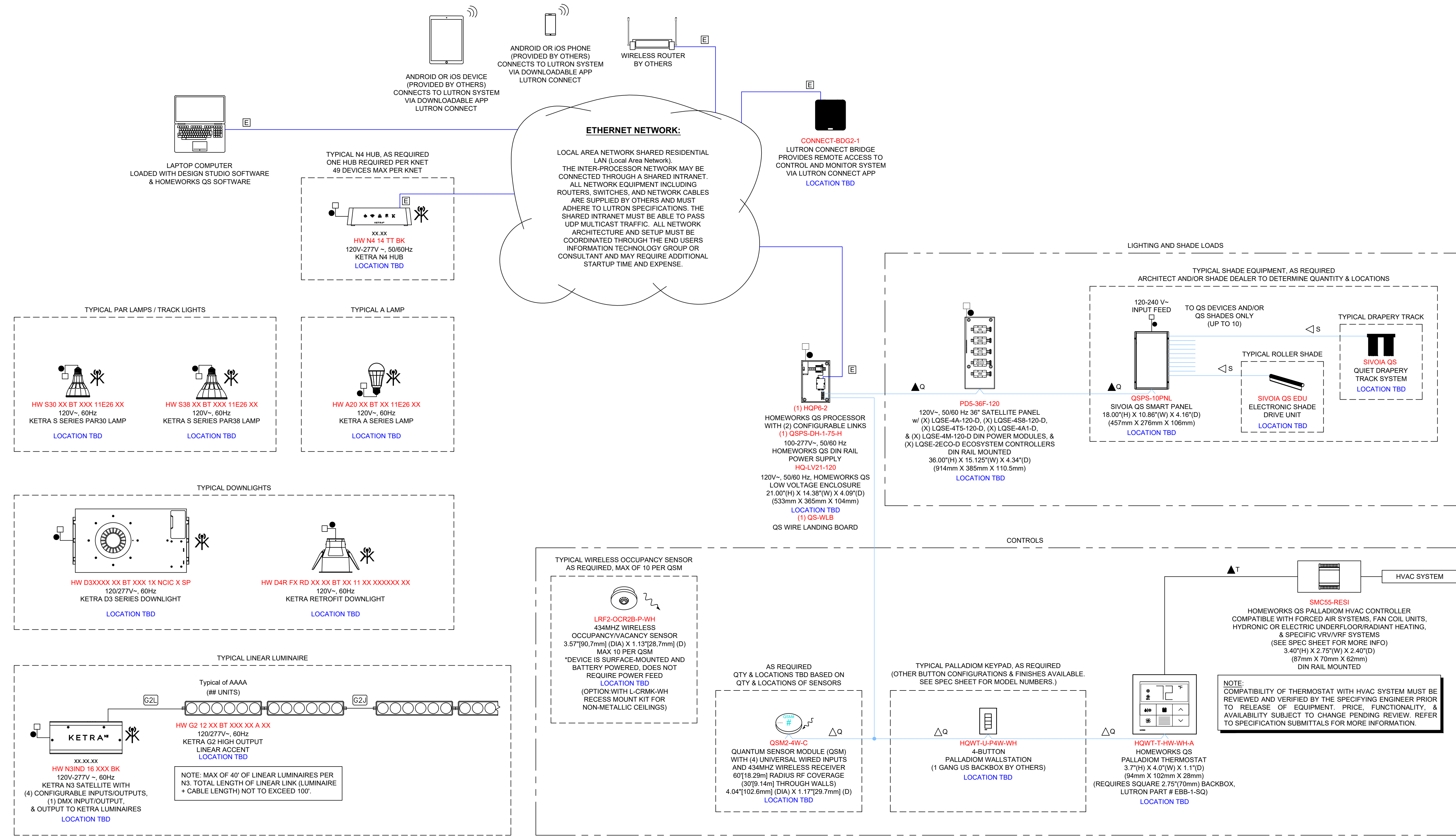


**LUTRON NOTES:**  
 - E.E. TO CONFIRM ALL CIRCUITING REQUIREMENTS.  
 - ARCHITECT TO VERIFY QUANTITY, LOCATION & FINISH OF ALL CONTROLS.



**Typical Homeworks QS System with Ketra Luminaires**

**CONCEPT DRAWING NOT FOR CONSTRUCTION**

**WIRING LEGEND:**

- △ QS CONTROL LINK (SEE WIRE DESCRIPTION BELOW)
- ▲ QS CONTROL LINK (SEE WIRE DESCRIPTION BELOW) (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE # 2)
- ▲ THERMOSTAT CONTROL LINK (SEE WIRE DESCRIPTION BELOW) (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE # 2)

QS WIRING AS REQUIRED BY CONTROL LINK LENGTH (REFER TO QS SMART PANEL POWER SUPPLY WIRING GUIDE FOR SHADE WIRING NOTES):

TOTAL CONTROL LINK LENGTH	WIRE GAUGE	AVAILABLE FROM LUTRON IN ONE CABLE:
LESS THAN 500ft (153 m)	POWER (TERMINALS 1&2): 1 PAIR 18 AWG (1.0 mm²)	GRX-CBL-346S OR GRX-PCBL-346S
	DATA (TERMINALS 3&4): 1 PAIR 22 AWG (0.5 mm²), TWISTED AND SHIELDED*	
500ft (153 m) TO 2,000ft (600 m)**	POWER (TERMINALS 1&2): 1 PAIR 12 AWG (4 mm²)	GRX-CBL-46L OR GRX-PCBL-46L
	DATA (TERMINALS 3&4): 1 PAIR 22 AWG (0.5 mm²), TWISTED AND SHIELDED*	

\*ALTERNATE DATA-ONLY CABLE: USE APPROVED DATA LINK CABLE (22 AWG [0.5 mm²] TWISTED/SHIELDED) FROM BELDEN (MODEL # 9461).  
 \*\*TOTAL LENGTH OF THE QS LINK MUST NOT EXCEED 2,000 ft (600 m).

▲ R RF CONTROL LINK (SEE WIRE DESCRIPTION BELOW)  
 ▲ R RF CONTROL LINK (SEE WIRE DESCRIPTION BELOW) (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE # 2)  
 LUTRON CABLE GRX-CBL-46L (5 CONDUCTOR NON-PLENUM) OR GRX-PCBL-46L (5 CONDUCTOR PLENUM RATED). OTHERWISE USE 2 #12 AWG (4 mm²), 1 BELDEN #9461.

**QS SMART PANEL POWER SUPPLY (QSPS-10PNL) SHADE WIRING GUIDE**

MAXIMUM DEVICES PER ONE OUTPUT	MAXIMUM DISTANCE PER ONE OUTPUT BASED ON WIRE GAUGE
SHADES + CONTROLS	
1 SIVOSIA QS SHADE OR DRAPERY	500 ft (150 m)
2 SIVOSIA QS ROLLER SHADE™, ≤ 30 FT (9.1 m) EACH	200 ft (60 m)
3 SIVOSIA QS ROLLER SHADE™, ≤ 20 FT (6.1 m) EACH	75 ft (20 m)
2 SIVOSIA QS ROLLER SHADE™, ≤ 50 FT (15.2 m) EACH	50 ft (15 m)

- INPUT POWER (NORMAL)
- 2 #12AWG (4 mm²)
- KETRA G2 LEADER CABLE
- KETRA G2 JUMPER CABLE
- CAT5E OR BETTER CABLE FOR LUTRON NETWORK - TERMINATED WITH RJ45 CONNECTORS (TO BE PROVIDED BY OTHERS). 328 FT (100 m) MAXIMUM RUN.
- 1-WAY RF COMMUNICATION
- 2-WAY RF COMMUNICATION
- KETRANET MESH WIRELESS NETWORK

**WIRING NOTES:**

**HWQS QS LINK RULES**  
 THE FOLLOWING LINK RULES MUST BE OBSERVED FOR PROPER OPERATION:

- THIS IS A TOPOLOGY-FREE LINK (T-TAP, HOME-RUN, ETC. IS OK); REFER TO TABLE BELOW FOR WIRE RUN LIMITS.
- IF WIRED DIFFERENTLY THAN WHAT IS SHOWN, POWER DRAW UNIT REQUIREMENTS NEED TO BE CONFIRMED; SEE POWER DRAW UNITS (PDUs) SPECIFICATION SHEET INCLUDED IN THIS SUBMITTAL.
- MAXIMUM OF 512 OUTPUTS (BALLASTS, SHADES, CONTACT CLOSURES, ETC).
- MAXIMUM OF 100 OCCUPANCY SENSORS AND 100 RADIO WINDOW SENSORS AND 100 WIRELESS PDCS.
- MAXIMUM OF 100 QS DEVICES (SUCH AS A GRAFIK EYE® QS, SEETOUCH® QS KEYPAD, SMART PANEL POWER SUPPLY [QSPS-10PNL], ESN, OR SIVOSIA® QS SHADE / DRAPERY DRIVE UNIT).
- HWQS PROCESSOR COUNTS AS 1 DEVICE PER LINK.
- THE 10 OUTPUTS ON A QSPS-10PNL CANNOT EXCEED A COMBINED LENGTH OF 2,000 ft (600 m).

**HWQS WIRELESS LINK RULES**  
 THE FOLLOWING LINK RULES MUST BE OBSERVED FOR PROPER OPERATION:

- 15 WIRELESS LINKS MAXIMUM
- 4 REPEATERS PER WIRELESS LINK
- 95 DEVICES PER WIRELESS LINK, IN ADDITION TO WIRELESS REPEATERS.
- 100 SWITCH LEGS PER WIRELESS LINK
- 2500 FT² (762 M²) COVERAGE PER REPEATER
- 90 FT (0 m) FROM ANY NON-REPEATER TO REPEATER
- 60 FT (18 M) BETWEEN REPEATERS
- DAISY CHAIN WIRE RUN BETWEEN PROCESSOR AND/OR REPEATERS CANNOT EXCEED 1000 FT (305 M)
- REPEATERS CAN BE WIRED TOGETHER, BUT MUST BE DAISY-CHAINED.
- AT LEAST (1) WIRELESS REPEATER MUST BE PHYSICALLY WIRED BACK TO THE LINK ON THE PROCESSOR.

CONCEPT DRAWING NOTES:  
 CONTROL SYSTEM DRAWING IS PROVIDED FOR CONCEPTUAL PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION. EXACT EQUIPMENT REQUIREMENTS, INCLUDING LOCATIONS AND QUANTITIES, SHOULD BE VERIFIED IN ACCORDANCE WITH THE MOST UP-TO-DATE LIGHTING/ELECTRICAL REFLECTED CEILING PLANS, LIGHTING FIXTURE SCHEDULES, PANEL SCHEDULES, CONTROL INTENT AND SPECIFICATIONS. SHADE EQUIPMENT SHOULD BE VERIFIED IN ACCORDANCE WITH ARCHITECTURAL PLANS, SPECIFICATIONS AND WINDOW SCHEDULES/DETAILS.

LED DIMMING REQUIRES AN EXACT MATCH BETWEEN THE LED ARRAY, DRIVER AND CONTROL. LUTRON CANNOT GUARANTEE COMPATIBILITY OR PERFORMANCE WITHOUT TESTING THIS COMBINATION.

TO CONFIRM WHAT PRODUCTS LUTRON HAS AVAILABLE OR WHAT INTERFACES MAY BE REQUIRED, CALL 1-877-DM4LED8 OR CHECK LUTRON'S PRODUCT COMPATIBILITY MATRIX ON-LINE AT WWW.LUTRON.COM/LED.

TO REQUEST THE TESTING OF AN LED PRODUCT BY LUTRON MANUFACTURERS CAN FILL OUT AN LED EVALUATION REQUEST FORM ON-LINE AT WWW.LUTRON.COM/LED OR CONTACT LED@LUTRON.COM.

LUTRON CAN GUARANTEE COMPATIBILITY AND PERFORMANCE OF LUTRON HI-LUME A-SERIES LED DRIVERS USED WITH APPROPRIATE LUTRON CONTROLS. THE HI-LUME A-SERIES LED DRIVER CAN BE USED ON PRODUCTS UNDER 40 WATTS WITH SUITABLE MOUNTING LOCATIONS. PLEASE REFER TO THE SPECIFICATION SUBMITTAL SHEET FOR FURTHER INFORMATION.  
 IF USING UNTESTED, NON-LUTRON LED DRIVERS REQUIRING 0-10V CONTROL, PERFORMANCE AND COMPATIBILITY CANNOT BE GUARANTEED BY LUTRON. PRODUCTS FOLLOWING THE IEC STANDARD 60929 ARE MORE LIKELY TO PROVIDE ACCEPTABLE PERFORMANCE RESULTS. DETERMINATION OF RESULT ACCEPTABILITY IS UP TO THE USER'S DISCRETION.  
 IF USING UNTESTED, NON-LUTRON LED DRIVERS REQUIRING PHASE CONTROL, PERFORMANCE AND COMPATIBILITY CANNOT BE GUARANTEED BY LUTRON. A-SERIES OR ELV PRODUCTS PROVIDING HIGH END AND LOW END TRIM ADJUSTMENTS ARE MORE LIKELY TO PROVIDE ACCEPTABLE PERFORMANCE RESULTS. DETERMINATION OF RESULT ACCEPTABILITY IS UP TO THE USER'S DISCRETION.

Project Number: #####  
 Drawn By: CMT  
 Drawing Revision: 0  
 Drawing Date: 02.13.19  
 Sheet: 1 OF 1

