

SECTION 26 09 43

LIGHTING CONTROLS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. This section of the specification includes the furnishing, installation, connection and testing of a complete lighting control system for both interior and exterior lighting. Provide all equipment required to form a complete, operative, and coordinated system as shown on the drawings and specified herein. Components of the Lighting Control System shall include, but are not limited to, the following:
 - 1. Lighting Control Panel.
 - 2. Occupancy Sensors.
 - 3. Exterior Photocell.

1.2 RELATED SECTIONS

- A. Section 26 00 00 - Electrical General Requirements.
- B. Section 26 05 19 – Building Wire and Cable.
- C. Section 26 05 33 – Conduit and Boxes.

1.3 QUALITY ASSURANCE

- A. All system materials shall be UL-listed for their intended duty.

1.4 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 1 and Section 16950.
- B. Shop Drawings and Product Data:
 - 1. Submit complete and at one time. Provide manufacturer’s catalog information showing dimensions, colors, and configurations. Isolated items will not be considered for approval, except by prior authorization.
 - 2. A technical data sheet from the manufacturer should be included with the response for each product proposed. This data sheet shall include the physical specifications as well as the electrical characteristic.
 - 3. The following is required for approval, prior to fabrication and installation:
 - a. Catalog Data Sheets of all manufactured items, including manufacturer and model number.
 - b. Wiring diagrams indicating proposed connections of all equipment and indicating equipment types and model numbers.

LUMINATO – PORTLAND, MAINE

1.5 TRAINING

- A. Provide sufficient training to personnel selected by the Owner on operation and basic maintenance of all systems and equipment.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit record documents under provisions of Division 1 and Section 26 00 00.
- B. Accurately record location of all equipment items.

1.7 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.
- C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.8 OPERATION AND MAINTENANCE DATA

- A. Submit data under provisions of Section 26 00 00.
- B. Include operating instructions, maintenance and repair procedures.

PART 2 – MATERIALS

2.1 MANUFACTURERS

- A. Lighting systems equipment shown on the Drawings and specified herein is based on equipment as manufactured by *Hubbell Building Automation*. Equivalent products by other manufacturers will be considered.

2.2 NETWORK LIGHTING CONTROL PANEL

- A. The Lighting Control panel shall be *Hubbell Building Automation* model CX-04-2-S-04-2N-N, or approved equal.
- B. Lighting Control Panel Features:
 1. Relays: Four (4) 20-ampere, 1-pole electrically held, N.O. 120-277V
 2. User Interface: LCD with keypad
 3. Programming: 365 day programming with 64 schedules
 4. Time Clock: Astronomic and real time
 5. Contacts: six (6) programmable dry contacts
 6. Inputs: Accept low voltage switches, photocells, or motion sensors

LUMINATO – PORTLAND, MAINE

7. Cabinet: NEMA 1 surface
8. Electrical Input: 120-277 volts
9. Listing: UL916, UL924

C. Relays shall be controlled by a building mounted photocell.

LIGHTING CONTROL PANEL RELAY SCHEDULE – BUILDING A			
Lighting Control Panel	Relay Number	Lights Controlled	Ltg. Ckt. Numbers Controlled
LC1	1	Building Mounted Lights	HP1 #2
LC1	2	Roof Deck Lights	EL1 #18
LC1	3	Spare Relay	
LC1	4	Spare Relay	

2.3 OCCUPANCY SENSORS

- A. Occupancy sensors to control lighting shall be as follows:
1. Type 1 Sensors: *Hubbell* Model OMNIDT2000, or approved equal. Ceiling mounted, dual-technology, passive infrared and ultrasonic motion sensor with coverage pattern extending up to 64 feet. Sensor shall have time delay adjustment from 8 to 30 minutes.
 2. Type 2 Sensors: *Hubbell* Model OMN11R, or approved equal. Ceiling mounted, passive infrared motion sensor with 360 degree coverage pattern extending up to 22 feet. Sensor shall have time delay adjustment from 8 to 30 minutes.
- B. Occupancy sensor power packs shall be *Hubbell* model UVPP.
1. Power packs shall include an integral transformer and relay designed for switching 20-ampere loads. Power packs shall be capable of being installed within a standard 4-inch square electrical box.
 - a. Input Voltage: 100-277VAC
 - b. Output Rating: 24VDC, 150 mA

PART 3 – EXECUTION

3.1 GENERAL

- A. Do not install equipment and materials that have not been reviewed by the Architect-Engineer. Equipment and materials that are installed without the Architect-Engineer's review or without complying to comments issued with the review shall be removed from the project when so instructed by the Architect-Engineer. No payment will be made for unapproved or removal if it is ordered removed. The Installer shall be responsible for any ancillary costs incurred because of its removal and the installation of the correct equipment and materials.
- B. Obtain detailed information on installation requirements from the manufacturers of all equipment to be furnished, installed or provided. At the start of construction check all

LUMINATO – PORTLAND, MAINE

Contract Documents, including all Drawings and all Sections of the specifications for equipment requiring electrical connections and service and verify electrical characteristics of equipment prior to roughing.

- C. Equipment and systems shall not be installed without first coordinating the location and installation of equipment and systems with the General Contractor and all other Trades.
- D. Any and all material installed or work performed in violation of above requirements shall be re-adjusted and corrected by the Installer without charge.
- E. Refer to all Drawings associated with the project, prior to the installation or roughing-in of the electrical boxes, conduit and equipment, to determine the exact location of all outlets.
- F. After installation, equipment shall be protected to prevent damage during the construction period. Openings in conduits and boxes shall be closed to prevent the entrance of foreign materials.
- G. Install all systems in strict accordance with the manufacturer's instructions.

3.2 WORK

- A. Any ceilings, walls, floors, furniture, equipment, furnishings, etc., damaged by the work of this Section shall be replaced, or at the Owner's option, repaired with similar materials, workmanship and quality.
- B. Work includes field survey of existing conditions, systems, equipment and tracing of existing circuits in order to determine scope of work.
- C. Clean and touch up all equipment, materials and work sites at the completion of work in each area.

3.3 TERMINATIONS

- A. All conductors of every cable shall be completely terminated at both ends.

3.4 SYSTEM INSTALLATION

- A. Provide occupancy sensors as follows:
 - 1. Type 1 Sensors:
 - a. Lounge 311
 - 2. Type 2 Sensors:
 - a. All sensors shown in areas not described as Type 1 sensors.
- B. Provide all equipment and cabling for a complete installed operating system.
- C. All cables shall be installed in a neat and workman-like manner. Cables shall be installed parallel and perpendicular to building elements. Cables to be installed in exposed finished areas shall be installed in conduit. All other cables shall be concealed in partitions or above

LUMINATO – PORTLAND, MAINE

ceilings.

- D. Connect one lamp in corridor and stair A and Stair B light fixtures to Type 3 sensors. The second lamp in these light fixtures shall operate continuously as night lights.

3.5 SYSTEM TESTING

- A. Upon completion of the lighting control system, all components shall be tested to confirm their operation according to specification requirements and manufacturer's instructions.

3.6 CLEANING UP

- A. Upon completion of all work, and testing, thoroughly inspect all exposed portions of the installation and completely remove all exposed labels, markings, and foreign material.
- B. The interior of all boxes and cabinets shall be left clean; exposed surfaces shall be cleaned and plated surfaces polished.
- C. Repair damage to finish surfaces resulting from work under this Section.
- D. Remove material and equipment from areas of work and storage areas.
- E. All equipment shall be clean from dirt, dust, and fingerprints prior to final acceptance.

END OF SECTION