LANE COMMUNITY COLLEGE DOWNTOWN CAMPUS

Electrical Basis of Design

PRESENTED TO: Lane Community College

PRESENTED BY: Brett Cournoyer, PE, LEED BC+D
Building Power System

Power Monitoring

Lighting Design Strategies
## ELECTRICAL

### Design Criteria

<table>
<thead>
<tr>
<th></th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting power densities (W/sf)</td>
<td>20% below code (0.8W/sf)</td>
</tr>
<tr>
<td>Lighting power energy use (kWh/yr)</td>
<td>50% less than a typical building</td>
</tr>
<tr>
<td>Plug load power density (W/sf)</td>
<td>~2W/sf</td>
</tr>
<tr>
<td>Plug load energy use</td>
<td>70% less than a typical building</td>
</tr>
</tbody>
</table>
ELECTRICAL BASIS OF DESIGN

Power System
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Power System: Academic Infrastructure
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ENLARGED PLAN - LEVEL ONE ELECTRICAL ROOM
ELECTRICAL BASIS OF DESIGN

Power System: Residential Infrastructure
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Power System: PV Installation
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Photovoltaic Array

Image courtesy of SRG Partnership
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Metering System
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Lighting System
ELECTRICAL BASIS OF DESIGN

Academic Strategies and Control
## ELECTRICAL BASIS OF DESIGN

### Academic Strategies and Control

### CML LIGHTING CONTROL UNITS

<table>
<thead>
<tr>
<th>Room/Area</th>
<th>Switch Plate/Input</th>
<th>Switch Description</th>
<th>Control Unit ID</th>
<th>Relay</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>A-112</td>
<td>Photo Cell</td>
<td>-</td>
<td>112</td>
<td>X X</td>
<td>3.</td>
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<tr>
<td></td>
<td></td>
<td>Manual On/Auto Off</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LV112a</td>
<td>S112a</td>
<td>Relay Dim, Raised, lower</td>
<td>112</td>
<td>X</td>
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<tr>
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<td>X X</td>
<td>3.</td>
</tr>
<tr>
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**Notes:**

1. Occupancy Sensor shall control HVAC system with Auto On/Auto Off sequence.
2. Occupancy Sensor to turn Off all lights. Presets unaffected.
3. Photocell shall Dim or Switch fixtures as indicated on floor plans as fixtures within daylighting zone.
4. When rooms divisions are collapsed by room control station shown on EL101.5 switch shall control relay of same designation in adjoining space. When room dividers are in place, switch shall resume control of local relay only. Provide Q button present wall station at each switch bank.
5. Provide control wiring from relay indicated to shade controller. Coordinate controller location in field with system provider.
ELECTRICAL BASIS OF DESIGN

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NOTES:
1. OPEN LOOP PHOTOCELL. MOUNT IN SKYLIGHT WELL.
2. MOUNT ABOVE REFLECTOR PER ARCHITECTURAL DETAIL.
3. MULTI-ZONE CONTROLLER DIMMER STATION.
4. DAYLIGHT HARVEST DIMMING ZONE.
ELECTRICAL BASIS OF DESIGN

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NOTES:
1. REFER TO LIGHT BOX SECTION DETAILS AS INDICATED ON PLAN.
2. FIXED WALL MOUNT DISPLAY.
3. FIXED DOWNLIGHT DISPLAY.
4. Plug strips located above suspended ceilings for demonstration luminaires. Refer to LCP-L for scheduling of circuiting and control.
5. Half of wall to be wired to receive (25) lamp ballast displays.
6. Provide power and circuiting for 24 zones of control with a low voltage wall station for independent control of each zone. Provide in lithium re-locatable connections in ceiling. Refer to LCP-L for scheduling of circuiting and control. Provide RG-6U cable and connections as required.
7. Lighting control panel LCP-L. Refer to schedule on E7021-1.
8. Provide large format LCD or plasma display screen here.
9. Type L device needs required cabling from solar collector on roof type 89. Refer to E7025-2 for location.
10. Low voltage switch bank with the following switches:

   - Slu 900
   - Slu 910
   - Slu 920
   - Slu 930
   - Slu 940
   - Slu 950
   - Slu 960
   - Slu 970
   - Slu 980
   - Slu 990

GENERAL NOTES:
1. RELAY DESIGNATIONS REFER TO LCP-L.
2. Exit sign luminaires fed from panels E7024, circuit 13.
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ELECTRICAL BASIS OF DESIGN

Any questions?