Ashman Library Lighting Upgrade

Sheetl	Sheetlist Construction Documents									
Sheet Number	Sheet Name									
G 001	Cover									
CR 100	Lighting Levels and Emergency Lighting									
EL 200	Demolition									
EL 210	Lighting									
EL 300	Details and Schedules									

General Conditions:

valve will be required for each such device.

		lengths and other amounts may be incorrect and owner is not liable for mismatch.
	2.	Notes applied to single items may apply to all like items on view.
	3.	Before bidding contractor shall familiarize with existing conditions, scope of work and means and methods required. Contractor shall inquire about any missing or apparently incomplete details and specifications
		before bidding.
	4.	Entire contract includes all specifications, plan sheets and other documents issued by owner. Bid documents don't intend to detail which subcontractor is responsible for what type of work. Any trade shall be
		familiar with the entire contract. Division of work is responsibility of contractor.
	5.	UTILITY CONNECTIONS: where work indicated includes installation of utilities (Gas, Power, Water, Sewer, Phone etc.) provide all the required work that normally is not done by the Utility. Contractor shall inquire
		with Utilities to learn about the Scope of the Utility's work.
3.	Sheet I	Discipline Organization (not intended to determine responsibility of each trade).
	1.	G - General
	2.	CR - Code Review Items
	3.	H - Hazardous Material
	4.	C - Civil Engineering
	5.	A - Architectural
	6.	F - Furniture
	7.	L - Landscaping
	8.	S - Structural
	9.	M - Mechanical
	10.	EP - Electrical Power
	11.	EL - Electrical Lighting
	12.	FP - Fire Protection
	13.	P - Plumbing
	14.	T - Technology
	15.	Q - Equipment
).	Sheet 7	
	1.	0 - General
	2.	1 - Exterior (Elevations, 3D)
	3.	2 - Interior (Horizontal, Sections, Interior Elevations, 3D)
	4.	3 - Details
	5.	4 - Schedules
).	Drawin	g Conventions
	1.	To be demolished items are shown in dashed line. Some items necessary for removal may not be shown and removal is part of the contract.
	2.	Count of devices. lengths, areas and volumes are given for convenience only. Actually required numbers may be different and contractor is responsible to determine the actual need prior bidding.
	3.	Details will require items that will not be shown for every instance in the model. For example, a shut-off valve may be shown for a specific detail but the plans don't show this valve for every single instance - this
		valve will be required for each cuch device

1. All scheduled numbers and amounts of material and equipment are for contractor's convenience only. Contractor shall count and measure independently for bidding and ordering purposes. All scheduled numbers,

A.	PROJECT DESCRIPTION:
	1. Demolition of all existing lighting fixtures and controls.
	2. Installation of new lighting fixtures, controls and emergency lighting.
	3. All required conduit and wiring work
B.	SPECIAL SITE CONDITIONS:
	 Library will have staff working on site. Contractor shall coordinate work areas with staff on site to allow least work disruption of library staff. Work areas shall be kept clean, neat and safe at all times. Block off work areas and complete work in sections to minimize impact on staff and patrons.
	 XTG fire alarm panel information can be obtained from CSC under csc@cecinfo.com or 800-432-9082. This design requires connecting UL 924 relays to be triggered by fire alarm. typically this requires using an existing dry contact in the fire alarm panel. Verify with fire alarm panel manufacturer about exact requirements. WORK HOURS
	4. Meet requirements of local ordinances, rules and laws.
	5. Hours of operation are limited to 6 a.m. to 5 p.m. Monday through Friday unless approved otherwise.
C.	WORK PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE):
О.	1. NA
D.	EQUIPMENT PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE):
D.	1. NA
E.	SPECIAL WARRANTIES:
	1. NA
F.	PROVISIONS FOR FUTURE WORK
• •	1. NA
G.	PERMIT REQUIREMENTS:
О.	Contractor is responsible to obtain permit. See specification section 00 31 46 for details.
Н.	UTILITIES:
• • • •	Contractor may use owner's power and water at no cost.
I.	CONTINUITY OF SERVICE:
	 Library will be operational and will require power and lighting in most areas. Outages shall be scheduled with staff on site. Complete outages shall be avoided.
J.	SEQUENCING REQUIREMENTS:
-	1. NA
K.	SUBSTITUTIONS:
	1. See specification 01 25 00 for details.
	ALTERNATIO.

L. ALTERNATES:

General Abbreviations Acoustical Ceiling Tile

Additional Above Finished Counter Above Suspended Ceiling
Baseboard Below Finished Floor Below Finished Grade Building Below Bottom of Bottom of Concrete Bottom of Steel Base Plate Catch Basin Ceramic Tile Base
Contractor Furnished / Contractor Installed Cast-In-Place Control Joint Center Line
Ceiling
Concrete Masonry Unit Continuous Corridor Carpet
Casework
Ceramic Tile
Cold Water Drinking Fountain Diameter
Door
Downspout
Dishwasher Elevation Elevator Expanded Polystyrene Board Equal (Distance) Exterior Female Fire Alarm Fire Extinguisher Cabinet
Fire Hose Cabinet
Floor Floormat Foundation Galvanized Grab Bar Gypsum Board Hose Bib Hollow Core Height Heating, Ventilation & Air Conditioning
Hot Water Inside Diameter
Interior Manufacturer Nominal No to Scale on center
Outside Diameter
Owner Furnished / Contractor Installed
Owner Furnished / Owner Installed
Over Head Door Perpendicular Polyisocyanurate Board
Paint, Painted Reinforcing Steel Bars Reference Top of Finsihed Floor Top of Joist

City of Madison

Facilites Management
City-County Building, Room 115
210 Martin Luther King Jr. Boulevard
Madison, WI 53703



Design prepared for:

Madison Library

Ashman Library Lighting Upgrade

Location: 733 N High Point Rd. Madison, WI 53717

Contract: 8960 Project: 12410

Lighting Design: Kay Schindel, P.E.

Civil Design:

Landscaping Design: NA

Electrical Design:

Plumbing Design:

HVAC Design:

Structural Design:

Fire Protection Design:

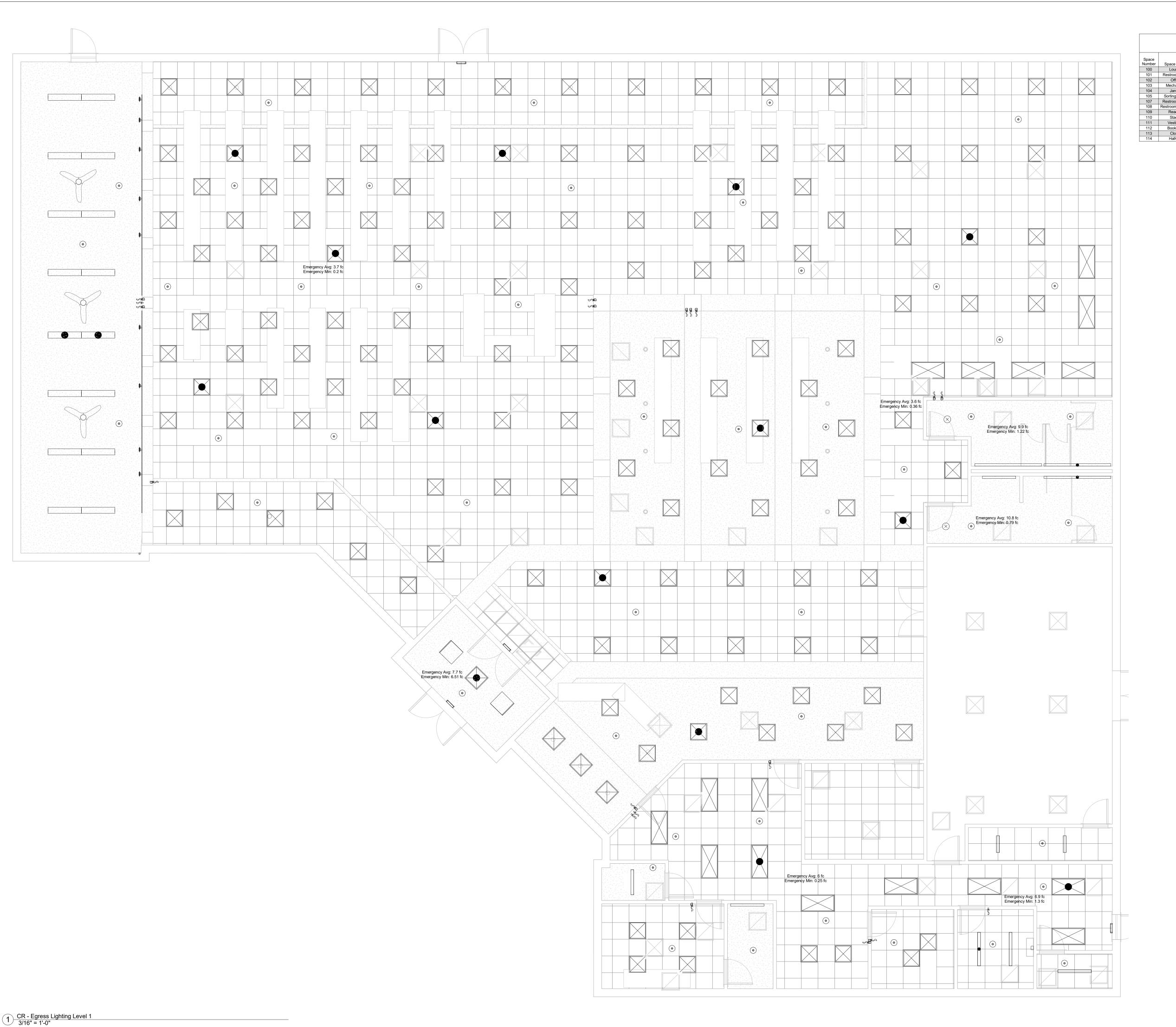
Architectural Design:

Revisions

Cover

G 001

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Interior Lighting Levels | Space Number | Space Name | Area | Space Type | Height | Min. Required Average | Illumination | Min. Required Average | Min. Required Average | Illumination | Min. Required Average | Min. Required Average | Illumination | Illumination | Min. Required Average | Illumination | Illumin

Emergency Lighting Load

Stacks
Reading
Reading
Reading
Stacks
Stacks
Stacks
Vestibule
Hallway
Sorting Office
Stacks
Hallway
Reading
Vestibule

Stacks
Stacks
Mechanical
Restroom Female
Restroom Male

22R-3400 22R-3400 22R-3400 22R-3400

22R-3400
22R-3400
22S-3400
22S-3400
22S-3400
22S-4000
24R-4000
EX-AC
EX-AC
EX-AC
EX-AC
EX-AC
EX-AC
EX-AC
EX-BC
EX-

S8-6000

Apparent Load

16 VA

27 VA

31 VA

31 VA

1 VA

1 VA

1 VA

1 VA

32 VA

33 VA

34 VA

652 VA

Allowed Lighting Load | 109 VA | 95 VA | 32 VA | 105 VA | 64 VA | 32 VA | 64 VA | 36 VA | 261 VA | 155 VA | 91 VA | 153 VA | 94 VA | 2,653 VA | 1,224 VA | 10,516 VA | 4,030 VA | 129 VA | 86 VA | 32 VA | 66 VA | 35 VA | 128 VA | 126 VA | 14,663 VA | 6,267 VA |

Lighting Upgrade

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Madison Library

Ashman Library

City of Madison

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Plumbing Design:

HVAC Design:

Structural Design:

Fire Protection Design:

Architectural Design:

Revisions

Project North TRUE



Lighting Levels and Emergency Lighting

CR 100

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2 EL - Demolition XTG Lighting Control Panel - Not to Scale

Demolish all lighting fixtures and controls. Not all existing items may be shown. Remove all unused raceways, boxes, conduit and wiring

	Keynote Legend
Key Value	Keynote Text
1	Remove light fixtures and fixture-box. Patch surface behind the fixture-box to match surrounding.
2	Remove all wall fixtures in area. Cover box with cover matching wall-color.
3	Remove existing lighting control panel.
4	XTG lighting control switches. Remove and cover opening with cover matching surrounding.
	T1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Project North TRUE

City of Madison

Facilites Management City-County Building, Room 115 210 Martin Luther King Jr. Boulevard Madison, WI 53703

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Structural Design:

Fire Protection Design:

Architectural Design:

Revisions

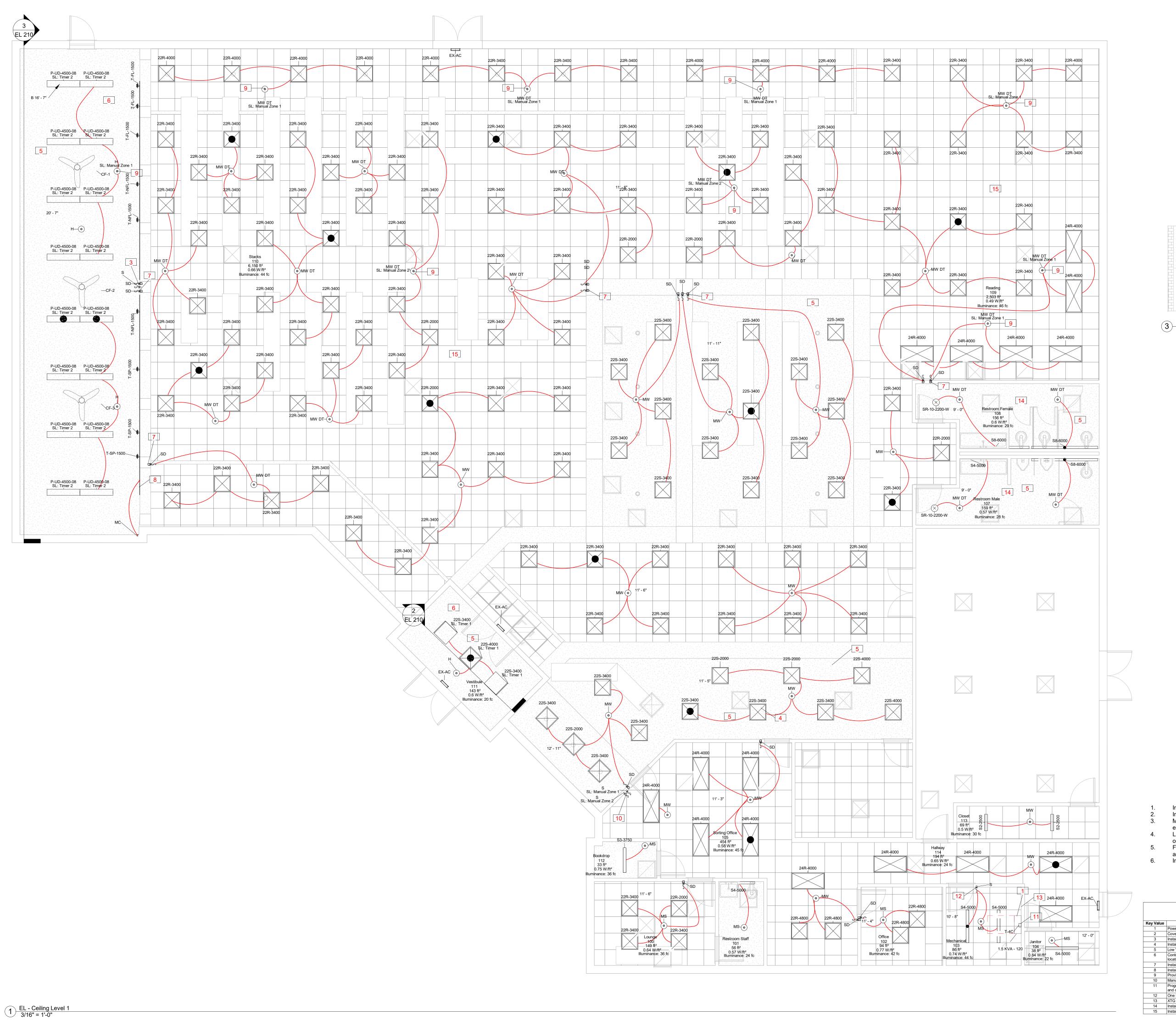
Madison Library

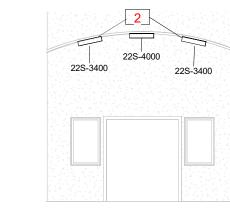
Ashman Library Lighting Upgrade

Demolition

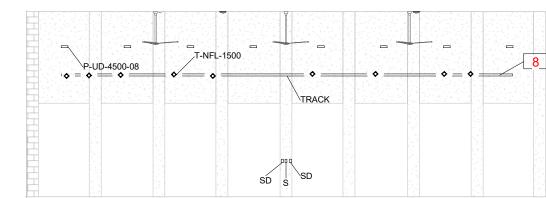
EL 200

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2 EL - Section Vestibule 1/8" = 1'-0"



3 EL - Section High Ceiling Area 3/32" = 1'-0"



4 EL - XTG fire Alarm Panel - Not to Scale

- Install new raceways, boxes, conduit and wiring as required for new lighting fixtures and controls.

 Install new wiring as required for emergency lighting operation and control by fire alarm panel.

 Modify Grid Ceiling to accommodate new fixtures. Owner will provide ceiling tiles. Contractor will provide grid
- Lighting zones are indicated by wire annotations and/or switchleg numbering. Wire annotations are schematic only to indicate control relationships and don't necessarily equal actually required physical wire runs. Fixtures with black dot are emergency lights. Install UL 924 relay to override local control and dimming upon activation of fire alarm or upon power failure. Power these fixtures from central inverter or generator. Install lockable cover over all switches and dimmers in Reading and Stack area.

	Keynote Legend
Key Value	Keynote Text
1	Power all emergency lighting fixtures and exit signs from this battery power inverter.
2	Cover all arch-gaps with sheet metal matching surface fixture. Match-caulk gaps up to 1/4".
3	Install fan speed control under lockable cover. Determine exact location with library staff.
4	Install fixtures in exisiting fixture locations where possible. Leave remaining recessed fixtures in place.
5	Low Voltage control allowed in this inaccessible area. See specification 26 09 23 - Lighting Control Devices.
6	Control Fixtures in this area from programmabel timer. Wire timer in parallel to local control devices. Low voltage wiring is allowed from timer to this zone. See plans for location of programmable timer.
7	Install all controls under lockable cover. See specification 26 09 23 - Lighting Control Devices.

Install all controls under lockable cover. See specification 26 09 23 - Lighting Control Devices.

Install track above HVAC grilles. Track length as shown.

Provide manual shut-off control for this zone. Low voltage control is allowed. See Specification 26 09 23 - Lighting Control Devices.

Manual switch to turn off light in lighting zones indicated. Low voltage control is allowed. See Specification 26 09 23 - Lighting Control Devices.

Programmable timer. See Specification 26 09 23 - Lighting Control Devices. Control zones indicated from this timer. Replace existing timer that controls outdoor lighting and control outdoor lighting from this timer. See details for wiring example with local lighting control.

One light fixture shall be controlled by switch only and not by motion sensor.

XTG Fire Alarm Panel. Wire from here to the UL 924 relays in the spaces.

14 Install UL 924 Relays outside drywall ceiling area. Install in adjacent area with lay-in ceiling for easy access.

15 Install lockable cover in reading and stack area. See Specification 26 09 23 - Lighting Control Devices.

City of Madison Facilites Management City-County Building, Room 115 210 Martin Luther King Jr. Boulevard Madison, WI 53703



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> Ashman Library Lighting Upgrade

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Landscaping Design:

Electrical Design:

Plumbing Design:

HVAC Design:

Structural Design:

Fire Protection Design:

Architectural Design:

Revisions

Project North TRUE

Lighting

EL 210

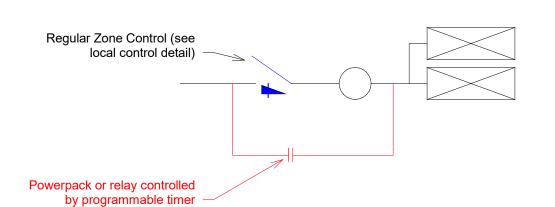
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	Emergency Power Battery Inverters													
Type Mark	Type Mark Description Est. Count Manufacturer Model URL Minutes In/Out Voltage Weight Keynote Specifications													
1.5 KVA - 120	Emergency Lighting Battery Inverter	1	Lithonia IISM-1500-120/120-OB1	www.acuitybrands.com	1500 VA	120 V	335.00 lbf	Size breaker based on connected load, provide wall or floor bracket as required for installation	26 52 00 – Safety Lighting					

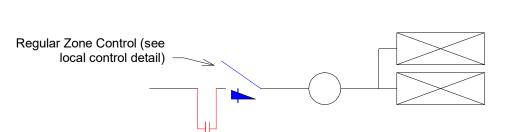
	Lighting Device Schedule												
Type Mark	Description	Est. Count	Model	Specification									
Н	Motion Sensor High Bay	4	Sensorswitch CMRB-6-PD-LT	www.acuitybrands.com	26 09 23 – Lighting Control Devices								
MC	Motion Sensor Corner-mount	1	Sensorswitch LWSH-WH	www.acuitybrands.com	26 09 23 – Lighting Control Devices								
MS	Motion Sensor short Range	6	Sensorswitch CMR-9-ADC-VLP	www.acuitybrands.com	26 09 23 – Lighting Control Devices								
MW	Motion Sensor wide Range	14	Sensorswitch CMR-10-ADC-VLP	www.acuitybrands.com	26 09 23 – Lighting Control Devices								
MW DT	Motion Sensor wide Range; Dual Technology	23	Sensorswitch CMR-PDT-10-ADC-VLP	www.acuitybrands.com	26 09 23 – Lighting Control Devices								
S	Single Pole Switch	4			26 09 23 – Lighting Control Devices								
SD	Switch w/ Dimmer	15	Wattstopper RH4FBL3PW	www.legrand.us	26 09 23 – Lighting Control Devices								
T-4C	Programmable Clock 4-Circuit	1	Intermatic 2800 Series	www.Intermatic.com	26 09 23 - Lighting Control Devices								

T 14 1	5	Est. Count			Apparent		Color	F.(f)		0 '5 '
Type Mark	Description	-	Model	URL	Load	Luminous Flux	Temperature	Efficacy	Lumen Maintenance	Specification
22R-2000	Recessed 2x2	6	Lithonia EPANL-2x4-2000LMHE-40K-MIN1-ZT-MVOLT	www.acuitybrands.com	16 VA	1972 lm	4000 K	126 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22R-3400	Recessed 2x2	98	Lithonia EPANL-2x2-3400LMHE-40K-MIN1-ZT-MVOLT	www.acuitybrands.com	27 VA	3399 lm	4000 K	128 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22R-4000	Recessed 2x2	9	Lithonia EPANL-2x2-4000LMHE-40K-MIN1-ZT-MVOLT	www.acuitybrands.com	33 VA	4117 lm	4000 K	125 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22R-4800	Recessed 2x2	4	Lithonia EPANL-2x2-4800LMHE-40K-MIN1-ZT-MVOLT	www.acuitybrands.com	36 VA	4697 lm	4000 K	129 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22S-2000	Surface 2x2	3	Lithonia EPANL-2x4-2000LMHE-40K-MIN1-ZT-MVOLT-2x2SMKSH	www.acuitybrands.com	16 VA	1972 lm	4000 K	126 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22S-3400	Surface 2x2	24	Lithonia EPANL-2x2-3400LMHE-40K-MIN1-ZT-MVOLT-2x2SMKSH	www.acuitybrands.com	27 VA	3399 lm	4000 K	128 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
22S-4000	Surface 2x2	Surface 2x2 3 Lithonia EPANL-2x2-4000LMHE-40K-MIN1-ZT-MVOLT-2x2SMKSH		www.acuitybrands.com	33 VA	4117 lm	4000 K	125 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
24R-4000	Recessed 2x4	16	Lithonia EPANL-2x4-4000LMHE-40K-MIN1-ZT-MVOLT	www.acuitybrands.com	31 VA	4042 lm	4000 K	129 lm/W	L91 @ 60K hours	26 51 00 - Interior Lighting
EX-AC	AC-powered Exit Fixture	4	Lithonia LQM-S-W-3-R-MVOLT	www.AcuityBrandsLighting.com	1 VA					26 52 00 - Safety Lighting
P-UD-4500-08	Pendant linear fixture; 80% DN; White	16	LedaLite 77-1-1-L-A-C-AG-08-7-D-E-W-N	www.signify.com	84 VA	10440 lm	4000 K	124 lm/W	L80 @ 110,000 hours	26 51 00 - Interior Lighting
S2-2500	Striplight 2'	2	Lithonia CLX-L24-2500LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	17 VA	2508 lm	4000 K	144 lm/W	L70 @ 100K hours	26 51 00 - Interior Lighting
S3-3750	Striplight 3'	1	Lithonia CLX-L36-3750LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	25 VA	3845 lm	4000 K	153 lm/W	L70 @ 100K hours	26 51 00 - Interior Lighting
S4-5000	Striplight 4'	5	Lithonia CLX-L48-5000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	32 VA	4839 lm	4000 K	152 lm/W	L70 @ 100K hours	26 51 00 - Interior Lighting
S8-6000	Striplight 8'	3	Lithonia CLX-L96-6000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	36 VA	5697 lm	4000 K	160 lm/W	L70 @ 100K hours	26 51 00 - Interior Lighting
SR-10-2200-W	Surface Fixture Round; White	2	Lightolier S10R-8-40K-22-W-Z10U	www.signify.com	23 VA	2000 lm	4000 K	86 lm/W	50,000 hours	26 51 00 - Interior Lighting
T-FL-1500	Track Fxiture 38°	3	Juno T272L-G2-40K-90CRI-FL-WH	juno.acuitybrands.com	15 VA	1454 lm	4000 K	100 lm/W	50,000 hours	26 51 00 - Interior Lighting
T-NFL-1500	Track Fxiture 23°	3	Juno T272L-G2-40K-90CRI-NFL-WH	juno.acuitybrands.com	15 VA	1466 lm	4000 K	100 lm/W	50,000 hours	26 51 00 - Interior Lighting
T-SP-1500	Track Fxiture 10°	3	Juno T272L-G2-40K-90CRI-SP-WH	juno.acuitybrands.com	15 VA	1466 lm	4000 K	100 lm/W	50,000 hours	26 51 00 - Interior Lighting
TRACK	Track compatible with scheduled track fixtures	1								

	High-Volume Low-Speed Fan Schedule															
Mark	Space Number	Space Name	Description	Manufacturer	URL	Model	Fan Diameter	Airflow	RPM	Voltage	Poles	Apparent Power	Enclosure Rating	Weight	Specification	Remark
CF-1	110	Stacks	Small Ceiling fan with DC-motor	Canarm	www.canarm.com/	CP56D1136N	4'-6"	8,449 CFM	330	120 V	1	35 VA	NA	22 lb	23 34 39 - High-Volume, Low-Speed Propeller Fans	
CF-2	110	Stacks	Small Ceiling fan with DC-motor	Canarm	www.canarm.com/	CP56D1136N	4'-6"	8,449 CFM	330	120 V	1	35 VA	NA	22 lb	23 34 39 - High-Volume, Low-Speed Propeller Fans	
CF-3	110	Stacks	Small Ceiling fan with DC-motor	Canarm	www canarm com/	CP56D1136N	4'-6"	8 449 CFM	330	120 V	1	35 VA	NA	22 lb	23 34 39 - High-Volume, Low-Speed Propeller Fans	

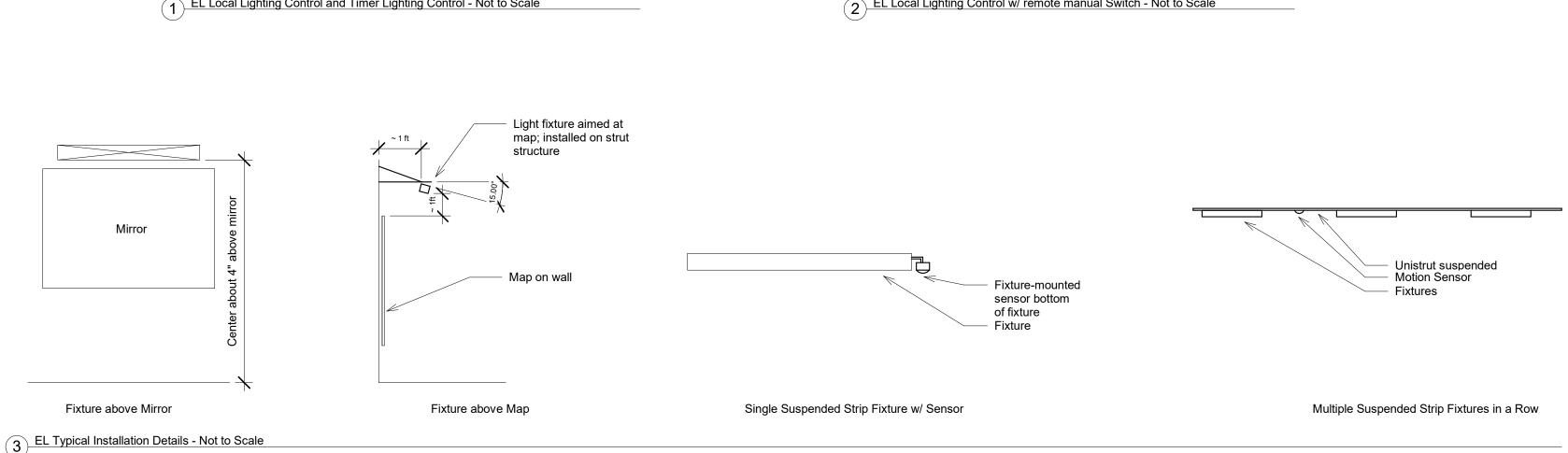


- Local Lighting Control w/ Timer Override Fixtures will be on when programmable timer is "ON" or when local lighting
- Wiring from programmable timer can be accomplished in line-voltage wiring or with low-voltage wiring and power-pack near lighting zone.
- 1 EL Local Lighting Control and Timer Lighting Control Not to Scale



Remote Switch Local Lighting Control w/ Timer Override

- Fixtures and local control will be disabled when remote switch is " Off".
- Wiring from remote switch can be accomplished in line-voltage wiring or with low-voltage wiring and power-pack near lighting zone.
- 2 EL Local Lighting Control w/ remote manual Switch Not to Scale



DETAILED FUNCTION TABLES____ PROGRAMMING INSTRUCTIONS — 8 = Incremental Set-Point Adjustment Please read all 3 steps before programming 2 = Occupancy Time Delay 1 Decrease 1 fc 2 Increase 1 fc Enter a programming function by pressing button the number of times as the desired function number from the tables below 1 30 sec 4 7.5 min** 7 15.0 min 2 2.5 min 5 10.0 min* 8 17.5 min 10 = Minimum On Time (e.g., press twice for function 2, occupancy time delay). **1** 0 min **3** 30 min **5** 60 min **3** 5.0 min **6** 12.5 min **9** 20.0 min 2. LED will flash back the selected function's current setting **2** 15 min* **4** 45 min (e.g., 5 flashes for 10 minute time delay). To change setting, proceed to step 3 before flash back sequence repeats 3 times. To exit the current function or to change to a different function, wait for sequence to repeat 3 times then return to step 1. 3 = Dim to Off Time Delay 1 30 sec 4 7.5 min 7 15.0 min 10 0 sec 2 2.5 min** 5 10.0 min 8 17.5 min 11 Infinite 11 = Photocell Mode P Option: 1 Full On/Off Ctrl* 2 Inhibit Only Ctrl 3 5.0 min 6 12.5 min 9 20.0 min ADC Option: 1 Normal** 2 Dim Only (No Off) 3. Press button the number of times indicated in the particular function's detailed table for the NEW desired setting (e.g 12 = Dual Technology (Microphonics™) 4 = Test Mode / 100hr Burn-In / Auto Set-Point press 3 times for 5 min). As confirmation of setting change LED flashes back the NEW setting 3 times before exiting. 1 Normal* 4 Run Auto Set-Point
2 Run 100 hr Burn-In 5 Blink back Set-Point 1 Normal* 2 Off 3 Medium 4 Low __If daylight 14 = Lamp Information 3 Run 100 hr then Auto-Setpoint 6 Test Mode 3 available 1 Enable LampMaximizer+ STD. <u>OPTIONS</u>
UNIT P ADC D PROGRAMMING FUNCTIONS _ ² The LED will blink back the ten's digit, then pause, then blink back 2 Disable LampMaximizer+* the one's digit. For a "0" the LED will blink very rapidly. The sequence is repeated 3 times. 3 Total Switches / 1000 ⁴ 2 Occupancy Time Delay • • • 4 Total Time On (khrs) 3 Dim to Off Time Delay ³ Test Mode will disable Minimum On Time, set Occupancy Time Delay to 30 sec, and shorten all photocell transitions and dimming rates. Mode will expire after 10 min or if function 4 is set back to Normal. 5 Reset Total Switch and Total Time On Statistics 4 Test Mode & 100 hr Burn-In • • • 6 Reset LampMaximizer+ Value 4 Auto Set-Point ⁴ The LED will blink back a two digit value; the first digit, then pause, then blink back the second digit. For a "0" the LED will blink rapidly. 5 Ten's Digit of Set-Point • • 5 = Ten's Digit of Set-Point 6 One's Digit of Set-Point 1 10 fc 4 40 fc 7 200 fc available 2 20 fc 5 50 fc 8 Disable 7 Sunlight Discount Factor • • 15 = Dimming Range (High Trim) 8 Incremental Set-Point Adjust. 1 Off 4 3 Volts 7 6 Volts 10 9 Volts 2 1 Volt 5 4 Volts 8 7 Volts 11 10 Volts* 3 30 fc 6 100 fc 10 0 fc* **10** Minimum On Time • • • 6 = One's Digit of Set-Point 11 Photocell Mode 3 2 Volts 6 5 Volts 9 8 Volts **1** 1 fc **4** 4 fc **7** 7 fc **10** 0 fc **12** Dual Tech. (MicrophonicsTM) ¹ • • •

 16 = Dimming Range (Low Trim)

 1 Off
 4 3 Volts
 7 6 Volts
 10 9 Volts

 2 1 Volt*
 5 4 Volts
 8 7 Volts
 11 10 Volts

 2 2 fc **5** 5 fc* **8** 8 fc 14 Lamp Information **3** 3 fc **6** 6 fc **9** 9 fc **15** Dimming Range (High Trim) • • 16 Dimming Range (Low Trim) 7 = Sunlight Discount Factor 3 2 Volts 6 5 Volts 9 8 Volts **1** x/1*** **4** x/4* **7** x/7 **10** x/10 **2** x/2 **5** x/5 **8** x/8 * DEFAULT SETTING ** SPECIAL DEFAULT SETTING FOR -ADC, -D UNITS **3** x/3 **6** x/6 **9** x/9 ** SPECIAL DEFAULT SETTING FOR CM(R)B 6, CM(R)B 50, CM(R) 6, RM(R) 6, RM(R) 50, SB(R) 6, & SB(R) 50 SERIES UNITS Sensor Programming Instructions Above instructions are based on Sensorswitch Instructions at the time of design. Amend as required id different sensors are used or if manufacturer changes procedure. Confirm any deviation with engineer. If sensors are equipped with VLC programming option, a smartphone app can be used. Note that sensors needs to be initialized and set with a PIN within 45 minutes of powering up. Sensorswitch support#: 1-800-535-2465 Verify settings with engineer prior programming. Certain settings may be different from shown above in certain zones. Sensors shall be programmed in two ways depending on availability of daylight: Before programming confer with engineer if specific zones require different settings. No daylight available: Motion control only: Disable Photocell (Function #5 - Setting 8) Occupancy Delay: 15 Minutes (Function #2 - Setting 7) Dim to Off Delay: 5 Minutes (Function #3 - Setting 3) Dimming Range shall be 0-10 Volt (Function #15 - Setting 11; Function #16 - Setting 1) C. Daylight available (inc. spaces with overhead doors, skylights, windows) Photo Control enabled (do NOT disable Photocell under function 5) Ensure Normal photocell mode is activated (Function #11 - Setting 1) Set Auto Set-Point (Function #4 - Setting 4) and step away from sensor while it calibrates day and artificial light (will turn lights on and off Delay and dimming range options same as above. e. Sunlight discount factor (Function #7) and incremental set point (Function #8) may have to be adjusted.

6. After programming, all functions shall be read out to verify proper control. Adjust as required for intended function. Discuss problems with engineer.

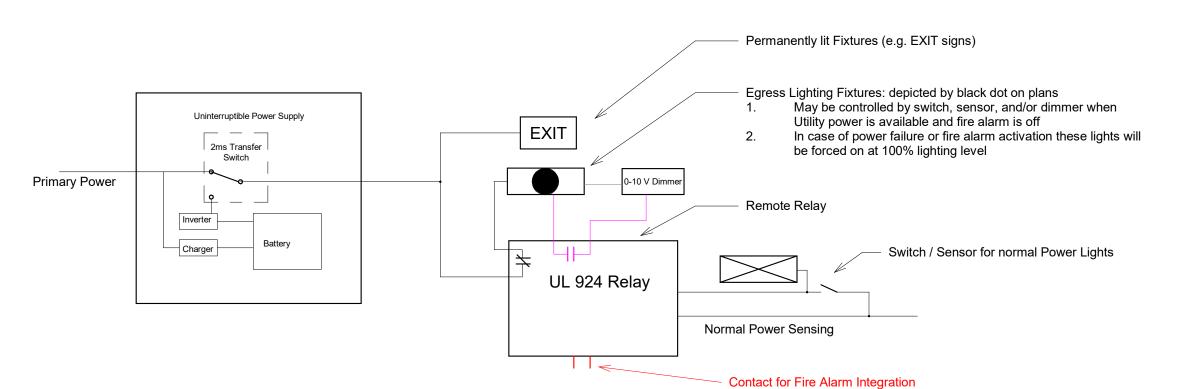
____ Light Fixtures Motion Sensor -Optional Room Switch and/or Dimmer upstream of Sensors 0-10V Control for Dimming

Motion Sensor w/ Switch

4 EL Sensor Programming - Not to Scale

- Each room lighting device or fixture shows a switch leg (SL) that dedicates a lighting zone. Motion Sensors turns on light upon occupancy and turn off light upon vacancy.
- Upon detection of motion or upon energizing the sensor will turn on lights at full brightness.
- After a set time of no detection of motion, sensor will dim lights down to 0% over a set period of time and turn them off after. Motion sensor is downstream of local switch and will be de-energized when switch is off:
- Light will be on upon activation of local switch regardless of actual motion detection (sensor is ON upon power-up) Sensors will not click when local switch is off (nuisance avoidance in quiet rooms)
- Where daylight is present, sensors dim or turn off lights based on natural lighting levels.
- Where switches are shown, occupants have the ability to turn off lights. Where dimmers are shown, occupants have the ability to dim lights in addition to dimming control by sensor.
- Notes on plans or switchleg naming will indicate exceptions. For example:
 - Disable Switchleg: A dimmer will only dim the lighting level to the allowable minimum. The line voltage switch in the dimmer will not be used. This prevents lights turning off entirely. Hallways are an example. One light fixture shall be controlled by switch only: Switchleg parameters indicate that some lights are controlled by switch and
 - sensor, and some lights by switch only. This prevents the latter lights from turning off upon loss of motion detection. Electrical or mechanical rooms are examples.
- Non-dimmable fixtures (e.g. can lights) in a zone with dimmable fixtures: 0-10V control wiring only extends to the dimmable
- fixtures. The non-dimmable fixtures will not dim. Coordinate controls with engineer before installation.

5 EL Local Lighting Control - Not to Scale



Emergency light fixtures (indicated by a black dot) and Exit signs will be powered by the Uninterruptible AC Power Supply (UPS). Wiring has to be extended from UPS to all devices. When normal power is present and fire alarm is OFF, lighting will be controlled by lighting control system. Local switches, timers, dimmers and sensors control on/off and dimming. When normal power is not present, the emergency fixtures and exit signs will be powered by the battery for over 90 minutes. These fixtures will be forced on at 100% (no dimming) When fire alarm is active, all emergency light fixtures will be forced on at 100% (no dimming). Contractor shall verify availability of contacts in fire alarm panel and add relay if required.

6 EL Egress Lighting Control w/ UPS and Fire Alarm Integration - Not to Scale

Facilites Management City-County Building, Room 115 210 Martin Luther King Jr. Boulevard Madison, WI 53703



City of Madison

Design prepared for: Madison Library

> Ashman Library Lighting Upgrade

733 N High Point Rd. Madison, WI 53717

Contract: 8960 Project: 12410

Lighting Design:

Kay Schindel, P.E.

Civil Design:

Landscaping Design:

Electrical Design:

Plumbing Design:

HVAC Design:

Structural Design:

Fire Protection Design:

Architectural Design:

Revisions

Project North TRUE

Details and Schedules

EL 300

Print Date: 2/9/2021 8:08:11 AM