



Client:
Madison Fire Department

Fire Station 2
Lighting Retrofit
(BPW Set)

Location:
421 Grand Canyon Dr.
Madison, WI 53719

Contract: 9322
Project: 14530

Sheetlist	
Sheet Number	Sheet Name
G 01	Cover
E 001	General Electrical Information
EL 001	General Lighting
EL 200	Demolition
EL 210	Lighting
EL 220	Lighting
EL 300	Details and Schedules

General Abbreviations	
AFF	Above Finished Floor
ACCT	Account
ADOL	Above Finished Counter
AFG	Above Finished Grade
ADM	Administrator
APPO	Approved
ASC	Above Suspended Ceiling
BB	Baseboard
BFT	Below Finished Floor
BFG	Below Finished Grade
BLDG	Building
BLW	Below
BO	Bottom of
BOC	Bottom of Concrete
BOS	Bottom of Steel
BPS	Base Plate
CB	Catch Basin
CBT	Ceramic Tile Base
CE	Center Element
CF/I	Contractor Furnished / Contractor Installed
CF/OI	Contractor Furnished / Owner Installed
CG	Cast-in-Place
CIP	Corner
CJ	Center Joint
CL	Center Line
CLG	Ceiling
CMU	Concrete Masonry Unit
CO	Coat
COL	Column
CONC	Concrete
CONV	Convex
CORR	Corridor
CPT	Carpet
CSWK	Caserwork
CT	Center
CW	Cold Water
DEMO	Demolition
DF	Drinking Fountain
DIA	Diameter
DR	Door
DS	Downspout
DWV	Discharge
DWG	Drawing
E	East
EA	Each
ED	Expansion Joint
EL	Elevation
ELEV	Elevator
EPS	Expanded Polystyrene Board
EQ	Equal Clearance
EST	Estimated
EXP	Expand, Expansion
EXT	Exterior
F	Face
FA	Fire Alarm
FAB	Fabric
FD	Flue
FEC	Fire Extinguisher Cabinet
FHC	Fire Hose Cabinet
FLR	Floor
FM	Format
FND	Foundation
FO	Finished Opening
FP	Fire Protection
FTG	String
GA	Gauge
GALV	Galvanized
GB	Grille Bar
GR	Grade
GT	Grout
GYP	Gypsum Board
HB	Hardback
HC	Hollow Core
HGT	Height
HM	Handicapped
HM	Hollow Metal
HVAC	Heating, Ventilation & Air Conditioning
HW	Hot Water
ID	Inside Diameter
INT	Interior
JHA	Jurisdiction Having Authority
LAV	Lavatory
LL	Load
M	Male
MAX	Maximum
MFR	Manufacturer
MN	Minimum
MISC	Miscellaneous
MO	Masonry Opening
N	North
NA	Not Applicable
NIC	Not in Contract
NM	Nominal
NTS	Not to Scale
OC	on center
OD	Outside Diameter
OF/CI	Owner Furnished / Contractor Installed
OF/OI	Owner Furnished / Owner Installed
OHD	Over Head Door
OPNG	Opening
OPP	Opposite
PERP	Perpendicular
POLYSO	Polyisocyanurate Board
PT	Paint, Painted
PTN	Paint
RCP	Reflected Ceiling Plan
RD	Roof Drain
REBAR	Reinforcing Steel Bars
REF	Reference
REV	Revision
RO	Rough Opening
S	South
SAN	Sanitary
SST	Stainless Steel
TEMP	Temperature
TFP	Top of Finish Floor
TO	Top of
TOB	Top of Beam
TOC	Top of Concrete
TOU	Top of Unit
TYP	Typical
UNO	Unless Noted Otherwise
VIF	Verified in Field
W	With
WI	With
W/O	Without
W/C	With/Without
WD	Word
WH	Water Heater
XPS	Extruded Polystyrene Board
XTG	Existing

A. General Conditions:

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, 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. UTILITIES 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.

B. Drawing Conventions

1. To be demolished items are shown in dashed line and/or colored. 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 such device.
4. Sheet and view Naming:
 - G - General
 - H - Hazardous Material
 - S - Structural
 - AD - Architectural Demolition
 - A - Architectural
 - FA - Fire Detection and Alarm
 - PD - Plumbing Demolition
 - P - Plumbing
 - MD - Mechanical Demolition
 - M - Mechanical
 - ED - Electrical Demolition
 - EL - Electrical Lighting
 - EP - Electrical Power

A. PROJECT DESCRIPTION:

1. NA

B. SPECIAL SITE CONDITIONS:

1. NA

C. WORK HOURS:

1. Meet requirements of local ordinances, rules and laws.
2. Hours of operation are limited to 7 a.m. to 7 p.m. Monday through Saturday and Sunday 10 a.m. through 7 p.m. unless approved otherwise.

D. WORK PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE):

1. NA

E. EQUIPMENT PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE):

1. NA

F. SPECIAL WARRANTIES:

1. NA

G. PROVISIONS FOR FUTURE WORK

1. NA

H. PROVISIONS FOR RETROFIT INSTALLATIONS

1. NA

I. PERMIT REQUIREMENTS:

1. Contractor is responsible to obtain all permits. See specification section 00 31 46 for details.

J. UTILITIES:

1. Contractor may use owner's power and water at no cost.

K. CONTINUITY OF SERVICE:

1. NA

L. SEQUENCING REQUIREMENTS:

1. NA

M. ALTERNATES:

1. NA

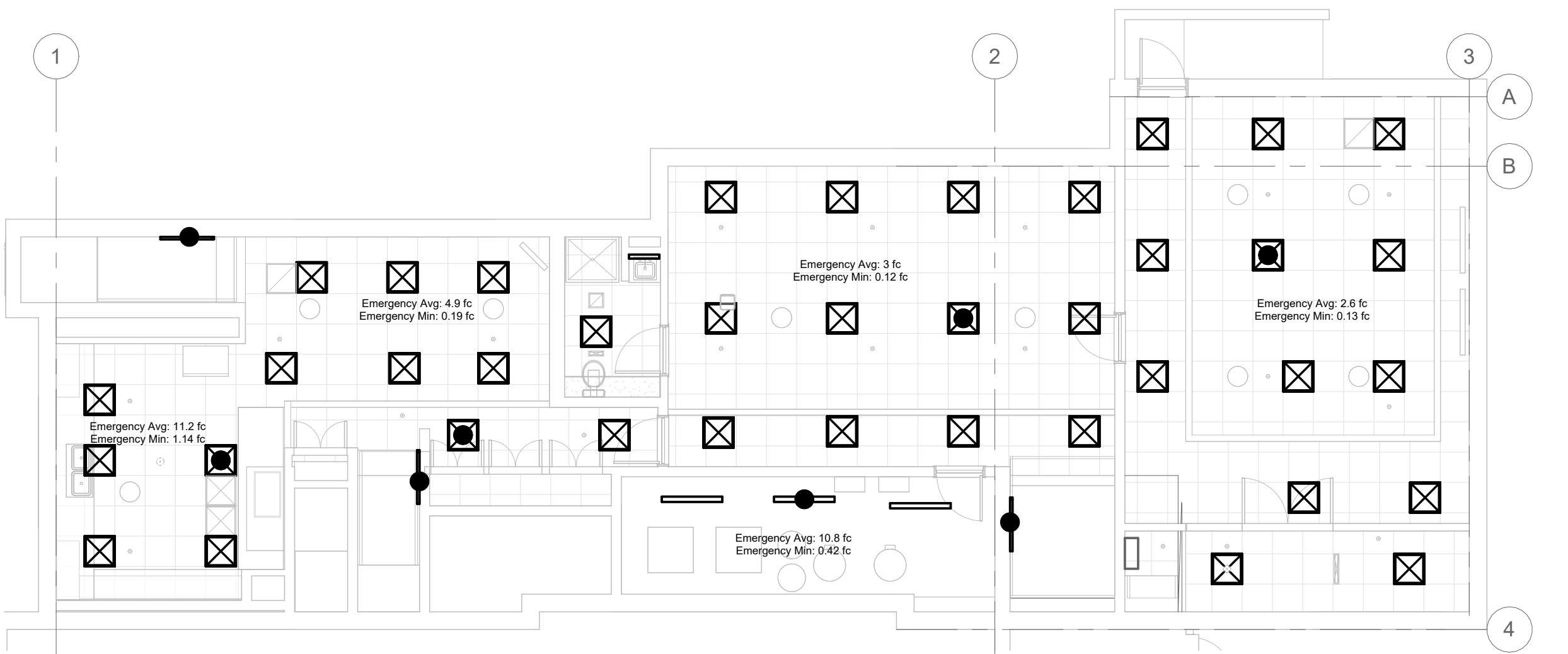
Cover
G 01



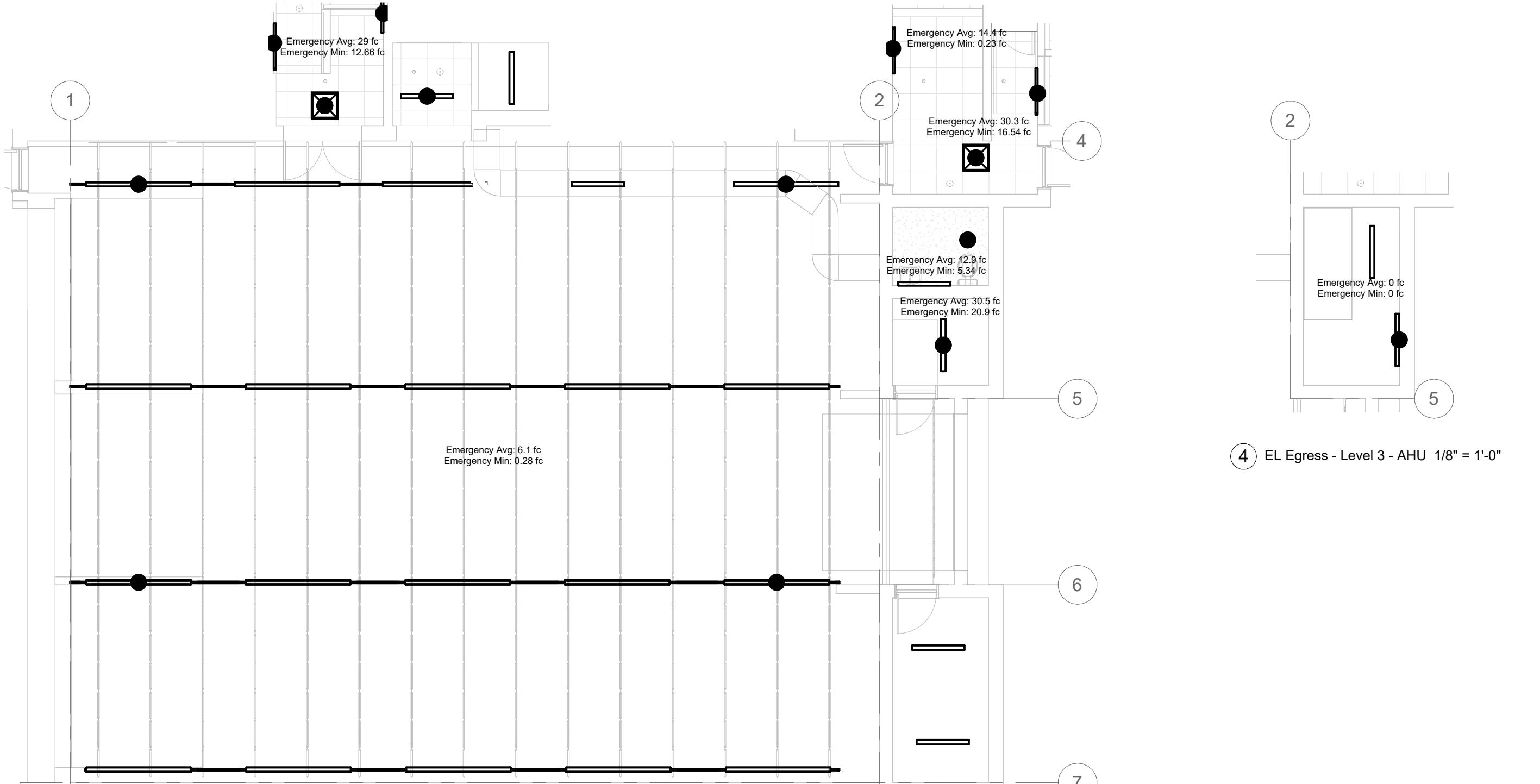
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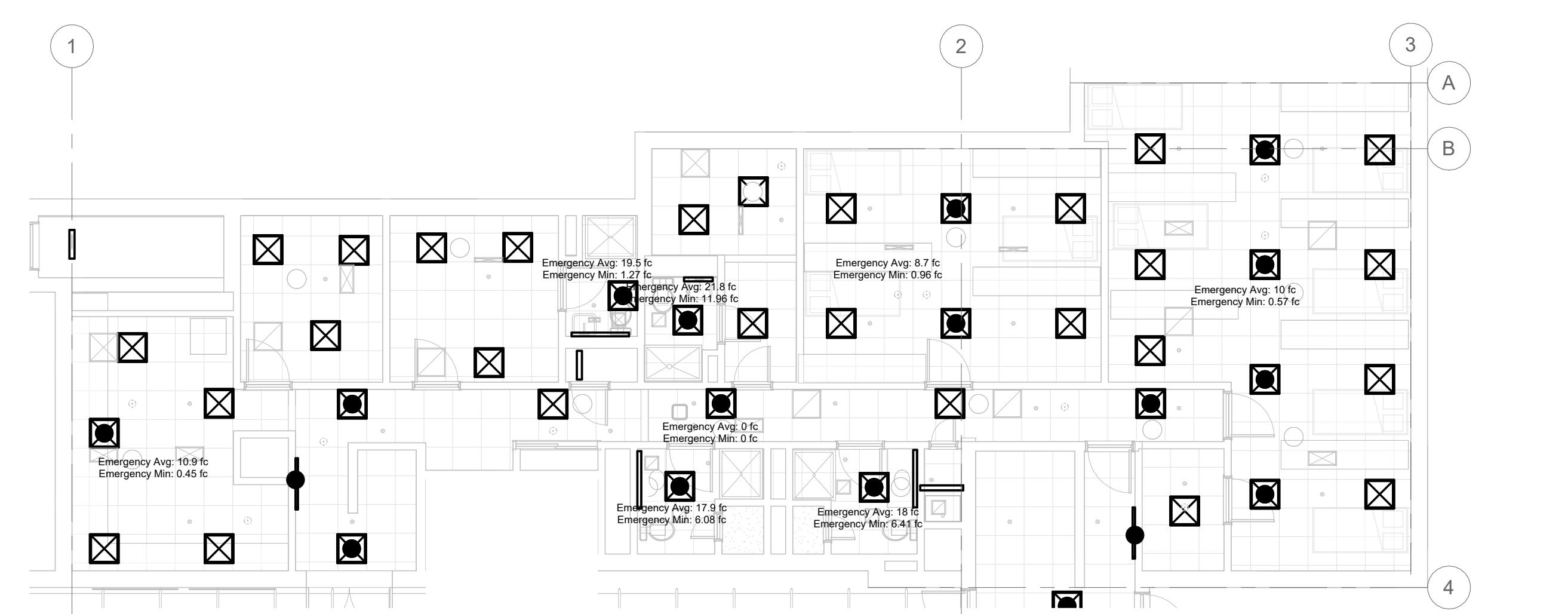
Project: 14530



1 EL Egress - Level 0 - Basement 1/8" = 1'-0"



2 EL Egress - Level 1 - Garage 1/8" = 1'-0"



3 EL Egress - Level 2 - 2nd Floor 1/8" = 1'-0"

Emergency Lighting Load				
Space Mark	Space: Number	Space: Name	Apparent Load	Estimated UL 924 Relays required
2-2.0K	004A	Dining	14 VA	1
2-2.0K	001	Gym	14 VA	1
2-2.0K	204	Bathroom	14 VA	1
2-2.0K	207	Bathroom	14 VA	1
2-2.0K	205	Bathroom	14 VA	1
2-2.0K	206	Bathroom	14 VA	1
2-2.0K	210	Dormitory	14 VA	1
2-2.0K	210	Dormitory	14 VA	1
2-2.0K	211	Dormitory	14 VA	1
2-2.0K	211	Dormitory	14 VA	1
2-2.0K	211	Dormitory	14 VA	1
2-2.0K	211	Dormitory	14 VA	1
2-2.0K	213	Corridor	14 VA	1
2-2.0K	213	Corridor	14 VA	1
2-2.0K	105	Stair West	14 VA	1
2-2.0K	104	Corridor	14 VA	1
2-2.0K	002A	Day Room	14 VA	1
2-4.0K	004B	Kitchen	28 VA	1
2-4.0K	201	Watch	28 VA	1
-4.0K	005	Mechanical	24 VA	1
-5.0K	103	Storage	30 VA	1
-5.0K	101	Garage	30 VA	1
-5.0K	200	AHU	30 VA	1
-8.0K	101	Garage	48 VA	1
-8.0K	101	Garage	48 VA	1
-8.0K	101	Garage	48 VA	1
-8.0K	101	Garage	48 VA	1
2-1.5K	102	Bathroom	15 VA	1
2-4-2K	105	Stair West	16 VA	
2-4-2K	105	Stair West	16 VA	
2-4-2K	006	Stair East Down	16 VA	
2-4-2K	104	Corridor	16 VA	
2-4-2K	106	Stair North	16 VA	

IECC 2015 Lighting Levels

IECC 2015 Lighting Levels													
Space Number	Space Name	Area	Space Type	Workplane Height	Min. Required Avgverage Illumination	Actual Average Illumination	Illumination Goal	Max. Allowed Power Density IECC 2015	Actual Power Density	Actual Power Density compared to Code	Allowed Lighting Load	Actual Lighting Load	Space Lighting Load Contributing to Total Building Lighting Load
001	Gym	585 ft ²	Fitness Exercise Area	2' - 6"	30 fc	36.8 fc	123%	0.72 W/ft ²	0.38 W/ft ²	53%	421 VA	222 VA	0.03 VA/ft ²
002A	Day Room	641 ft ²	Lounge / Breakroom	2' - 6"	20 fc	32.6 fc	163%	0.73 W/ft ²	0.3 W/ft ²	41%	468 VA	190 VA	0.02 VA/ft ²
002B	Storage	123 ft ²	Storage	2' - 6"	10 fc	27.6 fc	276%	0.63 W/ft ²	0.37 W/ft ²	59%	78 VA	46 VA	0.01 VA/ft ²
003	Bathroom	63 ft ²	Restroom - otherwise	2' - 6"	20 fc	29.5 fc	148%	0.98 W/ft ²	0.55 W/ft ²	56%	62 VA	35 VA	0 VA/ft ²
004A	Dining	309 ft ²	Dining Area (Family)	2' - 6"	30 fc	38.2 fc	127%	0.89 W/ft ²	0.42 W/ft ²	47%	275 VA	130 VA	0.02 VA/ft ²
004B	Kitchen	243 ft ²	Food Preparation	2' - 6"	50 fc	53.9 fc	108%	1.21 W/ft ²	0.52 W/ft ²	43%	294 VA	126 VA	0.02 VA/ft ²
005	Mechanical	197 ft ²	Electrical / Mechanical	2' - 6"	30 fc	34.1 fc	114%	0.95 W/ft ²	0.36 W/ft ²	38%	188 VA	71 VA	0.01 VA/ft ²
006	Stair East Down	66 ft ²	Stairwell	0' - 0"	10 fc	14.4 fc	144%	0.69 W/ft ²	0.24 W/ft ²	35%	46 VA	16 VA	0 VA/ft ²
100	Storage	104 ft ²	Warehouse - small Items hand-carried	2' - 6"	30 fc	32.4 fc	108%	0.95 W/ft ²	0.58 W/ft ²	61%	99 VA	61 VA	0.01 VA/ft ²
101	Garage	3,240 ft ²	Emergency Vehicle Garage	2' - 6"	30 fc	30.4 fc	101%	0.56 W/ft ²	0.31 W/ft ²	55%	1,815 VA	997 VA	0.12 VA/ft ²
102	Bathroom	44 ft ²	Restroom - otherwise	2' - 6"	20 fc	26.7 fc	134%	0.98 W/ft ²	0.88 W/ft ²	90%	43 VA	39 VA	0 VA/ft ²
103	Storage	49 ft ²	Warehouse - small Items hand-carried	2' - 6"	30 fc	30.6 fc	102%	0.95 W/ft ²	0.62 W/ft ²	65%	46 VA	30 VA	0 VA/ft ²
104	Corridor	96 ft ²	Stairwell	0' - 0"	10 fc	30.3 fc	303%	0.69 W/ft ²	0.31 W/ft ²	45%	66 VA	30 VA	0 VA/ft ²
105	Stair West	87 ft ²	Stairwell	0' - 0"	10 fc	31.2 fc	312%	0.69 W/ft ²	0.53 W/ft ²	77%	60 VA	46 VA	0.01 VA/ft ²
106	Stair North	63 ft ²	Stairwell	0' - 0"	10 fc	23.7 fc	237%	0.69 W/ft ²	0.47 W/ft ²	68%	43 VA	29 VA	0 VA/ft ²
200	AHU	100 ft ²	Electrical / Mechanical	2' - 6"	30 fc	31.4 fc	105%	0.95 W/ft ²	0.6 W/ft ²	64%	95 VA	61 VA	0.01 VA/ft ²
201	Watch	234 ft ²	Office - enclosed	2' - 6"	40 fc	44.2 fc	110%	1.11 W/ft ²	0.56 W/ft ²	50%	260 VA	130 VA	0.02 VA/ft ²
202	Office	114 ft ²	Office - enclosed	2' - 6"	40 fc	46.2 fc	116%	1.11 W/ft ²	0.65 W/ft ²	58%	127 VA	74 VA	0.01 VA/ft ²
203	Officer	136 ft ²	Dormitory - Living Quarters	2' - 6"	20 fc	29.1 fc	146%	0.38 W/ft ²	0.37 W/ft ²	98%	52 VA	51 VA	0.01 VA/ft ²
204	Bathroom	38 ft ²	Restroom - otherwise	2' - 6"	20 fc	31.1 fc	155%	0.98 W/ft ²	0.98 W/ft ²	100%	38 VA	38 VA	0 VA/ft ²
205	Bathroom	52 ft ²	Restroom - otherwise	2' - 6"	20 fc	28.3 fc	142%	0.98 W/ft ²	0.73 W/ft ²	74%	50 VA	38 VA	0 VA/ft ²
206	Bathroom	53 ft ²	Restroom - otherwise	2' - 6"	20 fc	28.5 fc	142%	0.98 W/ft ²	0.71 W/ft ²	72%	52 VA	38 VA	0 VA/ft ²
207	Bathroom	35 ft ²	Restroom - otherwise	2' - 6"	20 fc	27.8 fc	139%	0.98 W/ft ²	0.74 W/ft ²	76%	34 VA	26 VA	0 VA/ft ²
208	Officer	119 ft ²	Dormitory - Living Quarters	2' - 6"	20 fc	24.2 fc	121%	0.38 W/ft ²	0.35 W/ft ²	93%	45 VA	42 VA	0.01 VA/ft ²
209	Storage	12 ft ²	Storage	2' - 6"	10 fc	0 fc	0%	0.63 W/ft ²	1.48 W/ft ²	235%	7 VA	17 VA	0 VA/ft ²
210	Dormitory	338 ft ²	Dormitory - Living Quarters	2' - 6"	20 fc	31 fc	155%	0.38 W/ft ²	0.36 W/ft ²	94%	128 VA	120 VA	0.01 VA/ft ²
211	Dormitory	611 ft ²	Dormitory - Living Quarters	2' - 6"	20 fc	29.3 fc	147%	0.38 W/ft ²	0.36 W/ft ²	93%	232 VA	217 VA	0.03 VA/ft ²
212	Laundry	49 ft ²	Warehouse - small Items hand-carried	2' - 6"	30 fc	34.1 fc	114%	0.95 W/ft ²	0.47 W/ft ²	50%	46 VA	23 VA	0 VA/ft ²
213	Corridor	246 ft ²	Corridor - otherwise	0' - 0"	10 fc	11.5 fc	115%	0.66 W/ft ²	0.28 W/ft ²	43%	163 VA	70 VA	0.01 VA/ft ²
214	Mop Closet	13 ft ²	Electrical / Mechanical	2' - 6"	30 fc	0 fc	0%	0.95 W/ft ²	1.52 W/ft ²	160%	12 VA	20 VA	0 VA/ft ²
				8,061 ft ²							5,345 VA	3,032 VA	0.38 VA/ft ²

A. Demolition:

1. Demolish all existing lighting fixtures and controls. This includes all items not needed for new installation to function. This includes, but is not limited to, emergency, exit, track, architectural and spot lights, switches, sensors, inverters, batteries and control panels. Demolition drawings may not show all existing items.
2. Remove all unused raceways, boxes, conduit and wiring
3. Patch wall, ceiling and other surfaces damaged by removal of XTG elements. Use adjacent surface matching cover for electrical boxes that remain.

B. Installation:

1. Install new raceways, boxes, conduit and wiring as required for new lighting fixtures and controls.
2. Locations shown are approximate only. Install as required to coordinate with tile patterns, architectural features, sprinklers, mechanical equipment and other obstacles. Center Fixtures and provide even grid wherever possible. Review deviations from plan with designer prior installation.
3. Install fixtures at indicated height. Provide required suspension. A noted height typically applies to all fixtures in a space, even if only a single fixture has an indicated height shown. If no height is given, ceiling surface mounting or mounting at bottom of fixture can be assumed. Installation in between trusses or beams also is an option. Consult with engineer before determining mounting height.
4. Surface wiring raceway in finished areas is only allowed where the structure does not allow installation inside ceiling or wall. Raceway shall be neatly routed and hidden in corners to the greatest extend possible. In finished spaces use surface wire molding instead of conduit. Wiremold shall be factory painted to match wall surface. Where matching factory paint is not available, use field-painting.
5. Support all lighting fixtures adequately and provide all extra support.
6. All conduit except at fixture entrance shall be 3/4" or larger. Turns between access boxes should not be more than 270°.
7. Grid Ceilings:
 - a. use flexible metal conduit from a J-box in enough length to allow lifting and 2' lateral move of fixture
 - b. Move flexible head sprinklers where required for even layout pattern.
8. Suspended Strip Light Fixtures: use rigid type hangers every 4' or less. Mount multiple fixtures in a row on a uni-strut structure.
9. Cord & Plug Fixtures: Mount on hook for easy replacement and install safety wire. Provide plug within reach of fixture

C. Retrofit Installation:

1. Maintain all fire ratings while penetrating plenums, walls or ceilings.
2. Install all wiring inside ceiling and wall. If wiring cannot be fished through, provide surface mounted conduit or wire molding in finished spaces.
3. Modify Grid Ceiling to accommodate new fixtures. Fill in openings with new tiles of existing type. Contractor shall provide tiles and grid elements. Review Special site conditions for information on type of tile. Where sprinkler, diffuser or other permanent obstruction prevents even layout, relocate after consultation with engineer.
4. Prevent dirt and dust polluting occupied areas and take special care while working in occupied areas and cover equipment and furniture as needed.
5. Canopy: Provide retrofit version of fixtures and/or all retrofit accessories for installing over existing fixture locations. Ensure existing opening is fully covered. Build cover matching surrounding surface.

D. Control:

1. Locate sensors to enable good detection within controlled zone and in between partitions. In enclosed rooms minimize detection of motion in adjacent rooms.
2. Lighting zones are indicated by wire annotations and/or switchleg (SL) numbering. Wire annotations are schematic only to indicate control relationships and don't necessarily equal actually required physical wire runs. Lighting zones can be shown by proximity of sensor and light fixture without wire or switchleg annotation (for example, garage lighting where each fixture has one sensor)
3. Spaces with electrical panels shall have at least one light be controlled by a manual switch only (no automatic control) per code-requirement.
4. Fixture-mounted sensors shall be installed to allow 360° detection and bottom of sensor lens shall be at or below bottom of fixture.
5. Size analog 0-10V wiring to limit voltage drop. At 100% position the light fixture shall be 100% bright.

E. Emergency Lighting:

1. Light fixtures with a black dot indicate emergency lights.
2. Control fixtures from central inverter or generator. Provide all wiring to emergency power source.
3. Re-wire fixture internals if fixture has integrated sensor or other lighting control.
4. Install UL 924 relay in accessible location near controlled fixture. Verify location with engineer.
 - a. Drywall Ceiling: if no easily accessible location is available, install relay above grid ceiling in adjacent area
 - b. Outdoor fixtures: Install relay inside above a grid ceiling or other accessible location
5. Retrofit of XTG fixtures: Re-arrange wiring and existing control to allow emergency fixture operation like for new fixtures. Note that schedules that show number of relays required only account for relays of NEW fixtures.

General Lighting

EL 001



Client:
Madison Fire Department

Fire Station 2 Lighting Retrofit (BPW Set)

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This architectural floor plan illustrates the layout of a building across three sections, labeled 1, 2, and 3, with sub-labels A and B indicating specific areas. The plan features a grid-based structure with various rooms, windows, and furniture pieces. Brown shaded areas highlight specific rooms or sections of rooms. Section 1 (left) includes a large room with a grid pattern, a central room with two vertical brown blocks, and a room with a horizontal brown block. Section 2 (center) shows a large room with a grid pattern, a central room with two vertical brown blocks, and a room with a horizontal brown block. Section 3 (right) includes a large room with a grid pattern, a central room with two vertical brown blocks, and a room with a horizontal brown block. Sub-label A is located in the top right of Section 3, and sub-label B is located in the bottom right of Section 3.

1 ED - Level 0 - Basement 1/8" = 1'-0"

The diagram illustrates a particle beam line, likely a proton synchrotron, with the following components:

- 1**: A vertical beam line structure with a horizontal beam input and a vertical beam output.
- 2**: A horizontal beam line structure with a vertical beam input and a horizontal beam output.
- 3**: A horizontal beam line structure with a vertical beam input and a horizontal beam output.
- 4**: A vertical beam line structure with a horizontal beam input and a vertical beam output.
- 5**: A vertical beam line structure with a horizontal beam input and a vertical beam output.
- 6**: A vertical beam line structure with a horizontal beam input and a vertical beam output.
- 7**: A vertical beam line structure with a horizontal beam input and a vertical beam output.

The beam line consists of a series of horizontal and vertical beam lines, with several horizontal beam lines being significantly thicker than the vertical ones. The beam lines are represented by brown rectangles, and the vertical structures are represented by white rectangles with black outlines. The entire system is set against a light gray background with a grid of thin gray lines.

2 ED - Level 1 - Garage 1/8" = 1'-0"

3 ED - Level 3 - 2nd Floor, $1/8'' = 1' - 0''$

2 0 2 4 6 8 10 12 14

3/16" = 1'-0" FEET

5 0 5 10 15 20 25

3/32" = 1'-0" FEET

30 5 0 5 10 15 20 25 30 35 40

1/16" = 1'-0"

FEET

45 20 0 20

1" = 20'-0" FEET

Revisions	Description

Project North TRUE

emolition

FI 200

Date:

23 15:26:32
in color on 24" x 36"

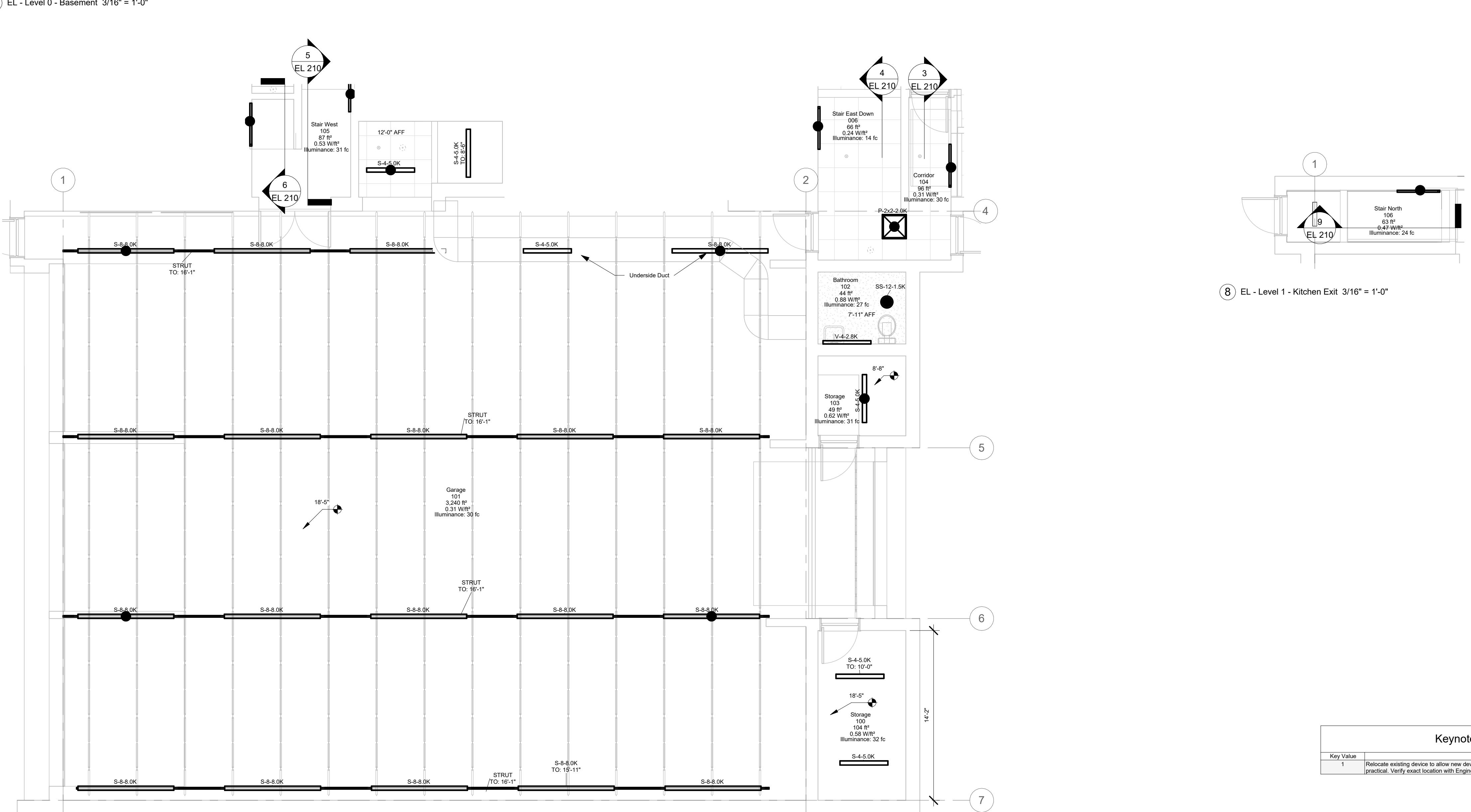
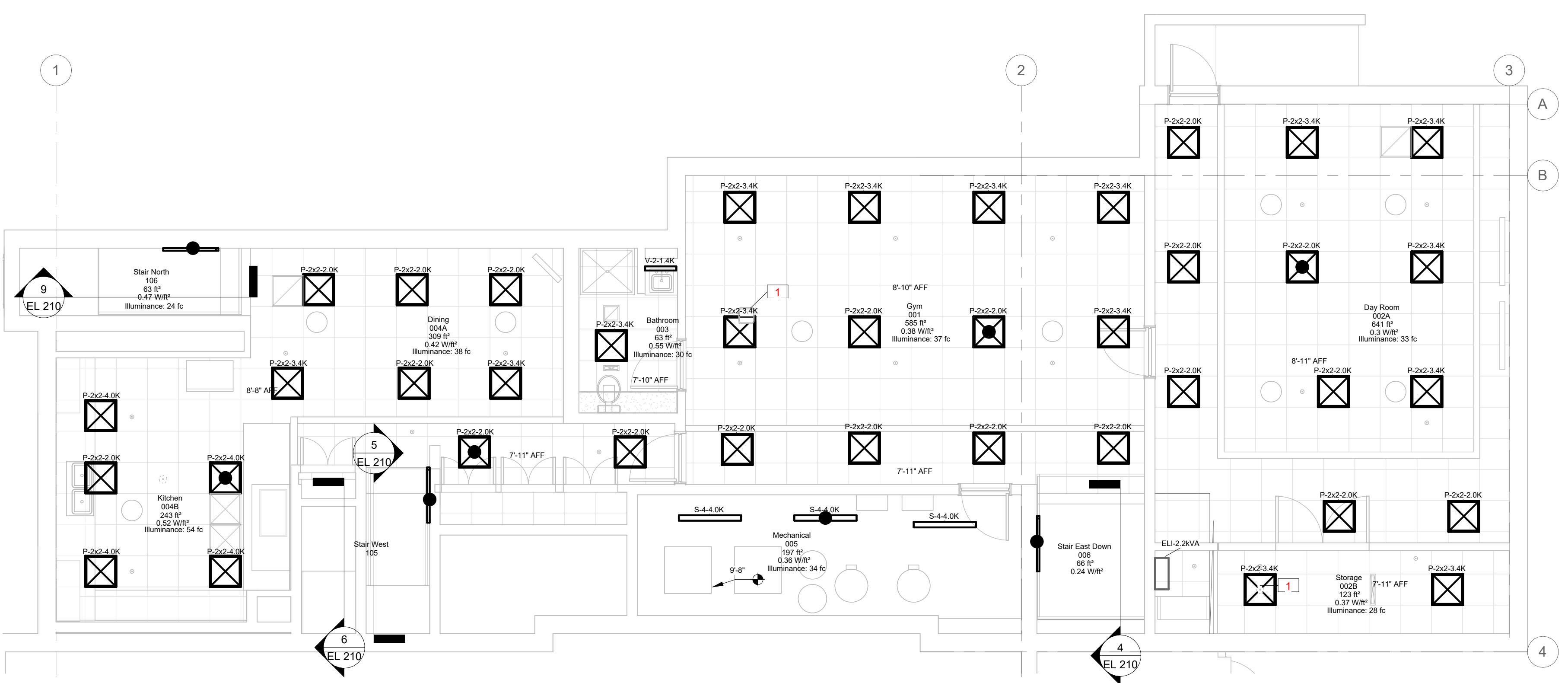


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Keynote Legend	
Key Value	Keynote Text

1 Relocate existing device to allow new device installation. Install XTG device as close to original location as practical. Verify exact location with Engineer.

Revisions

No.	Description

Project North
TRUE

Lighting



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1. *What is the primary purpose of the study?* (e.g., to evaluate the effectiveness of a new treatment, to describe a population, to compare two groups, to predict an outcome, to explore a phenomenon)

Revisions

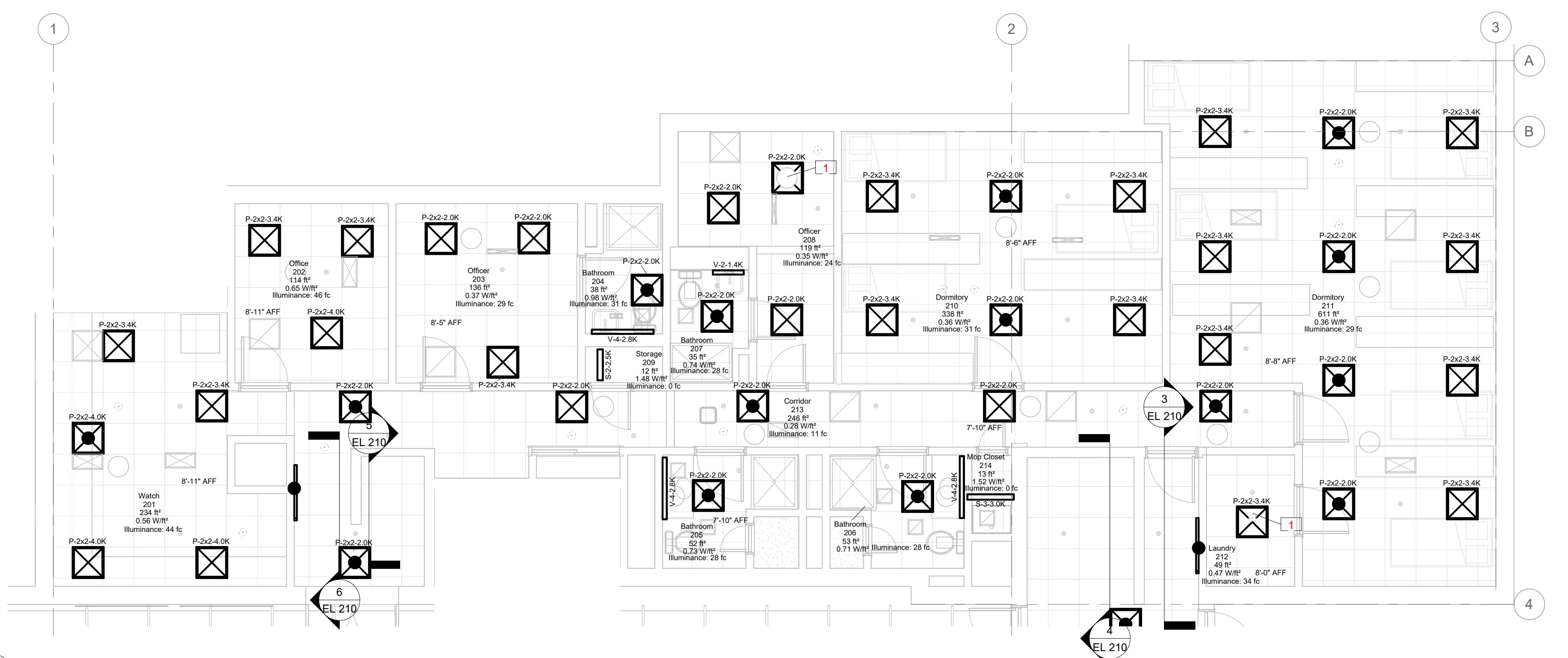
No.	Description

Project North TRUE

Lighting

FI 220

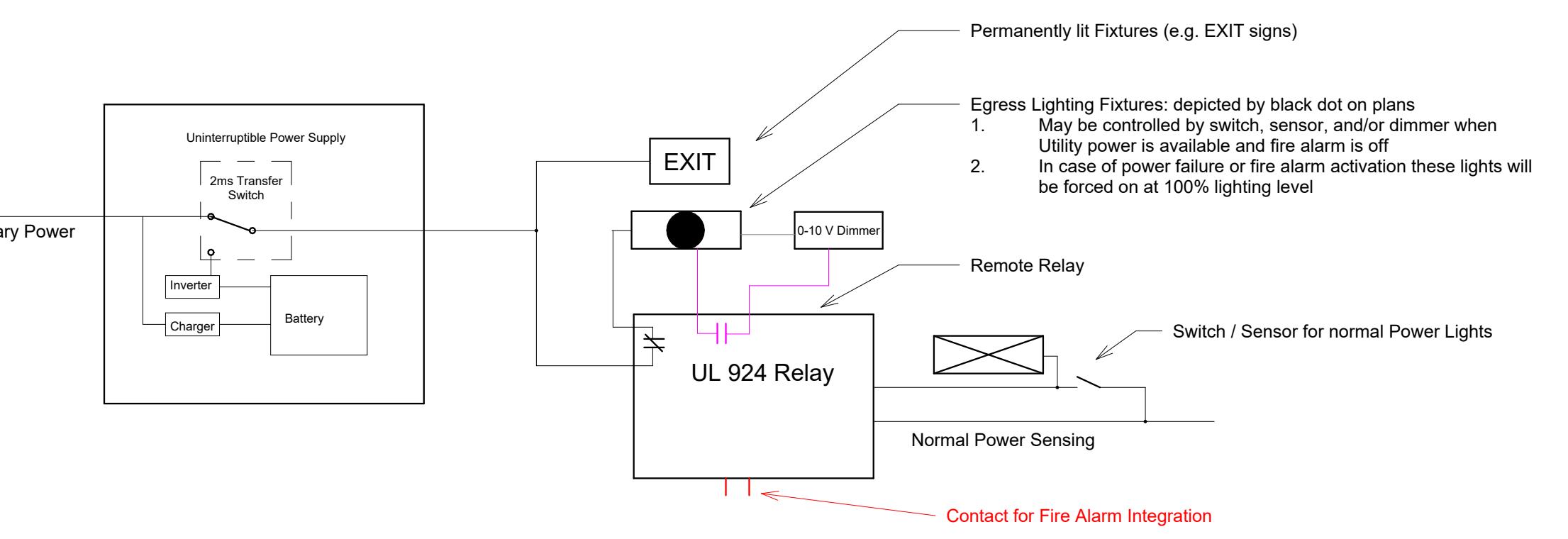
Print Date:
7/5/2023 15:26:34



1 EL - Level 2 - 2nd Floor 3/16" = 1'-0"



Emergency Lighting Inverters												
Type Mark	Space Number	Space Name	Description	Manufacturer	Model	URL	Output Rating @ 90 Minutes	In / Out Voltage	Weight	Remark	Specific Remark	Specifications
ELI-2.2kVA	002B	Storage	Emergency Lighting Inverter	Myers	EM-3-S-B-10-04-T-M(BBM)-I-F	www.myerseps.com	2200 VA	120 V	494 lbf			26 50 00 - Lighting



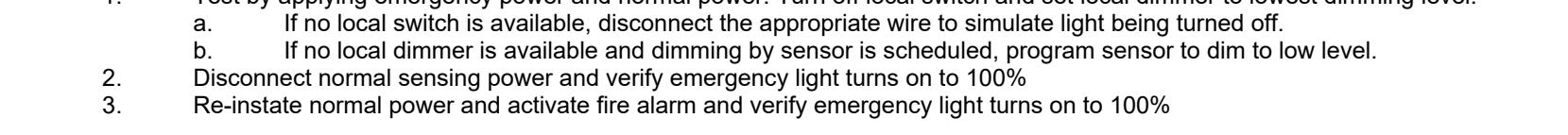
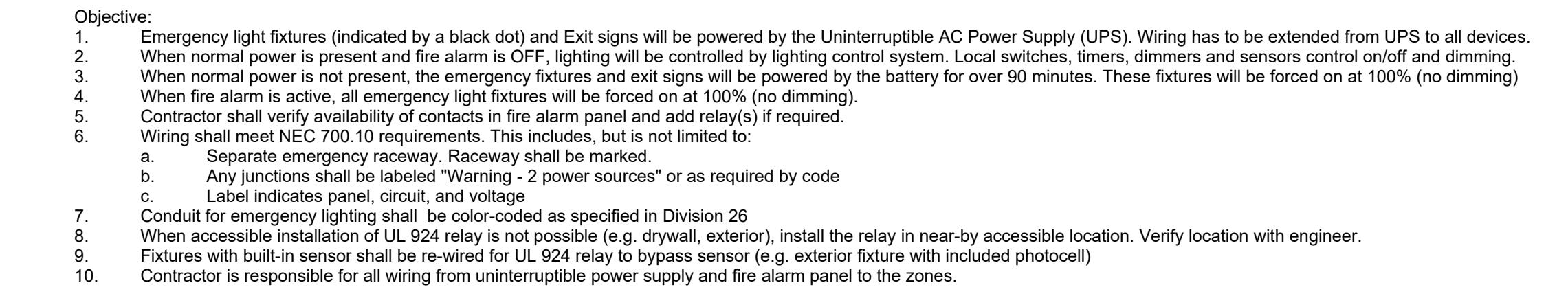
Designed by:
City of Madison
Facilities Management
City-County Building, Room 115
Martin Luther King Jr. Boulevard
Madison, WI 53703



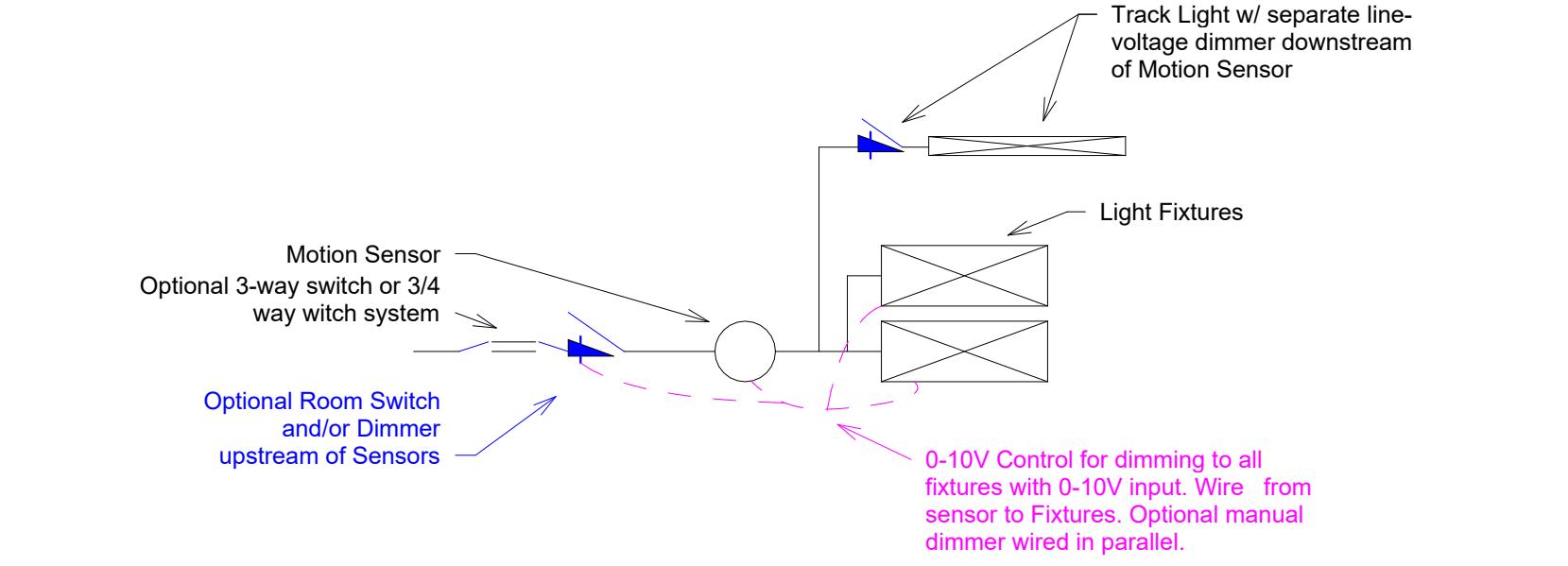
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Madison Fire Department

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(BPW Set)

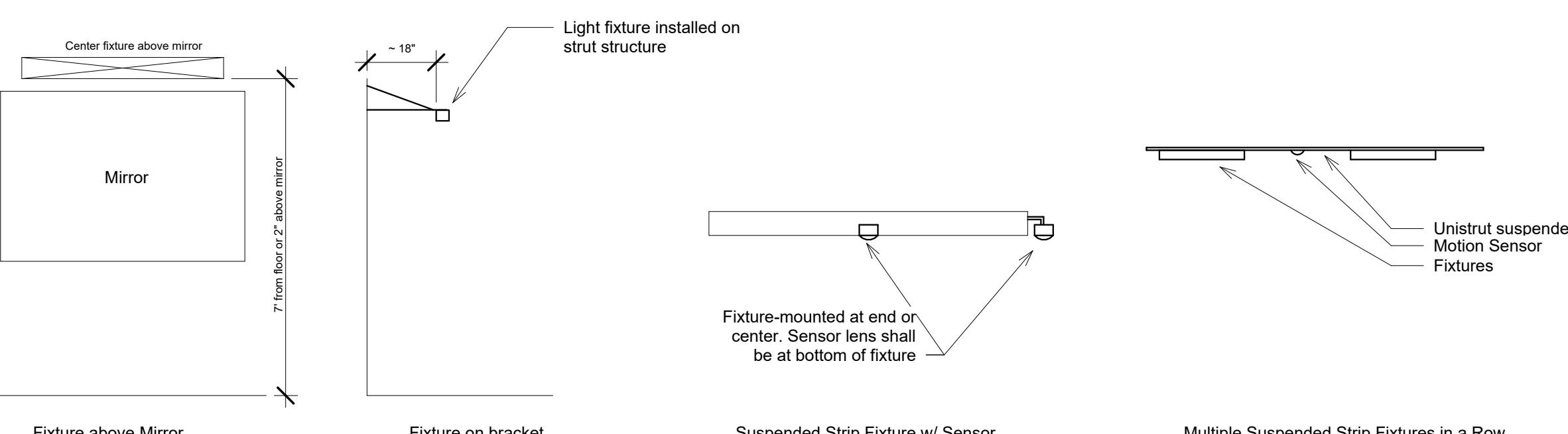
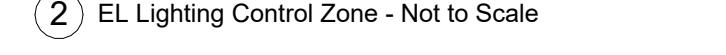
Lighting Fixture Schedule																
Type Mark	Type Comments	Description	Est. Count	Model	URL	Apparent Power	Luminous Flux	Color Temperature	Efficacy	Lumen Maintenance	Environmental Rating	Unified Glare Rating (highest value)	Type Remark	Specific Remark	Specification	
P-2x2-2.0K	Light Fixture Interior	Panel 2x2	42	Lithonia SPX-2x2-2000LM-80CRI-40K-BFR-LUGR-ZT-MVOLT-WH	www.acuitybrands.com	14 VA	2111 lm	4000 K	151 lm/W	L90 @ 50K hours	IPX5; NSF Splash Zone	16.1			26500-Lighting	
P-2x2-3.4K	Light Fixture Interior	Panel 2x2	32	Lithonia SPX-2x2-3400LM-80CRI-40K-BFR-LUGR-ZT-MVOLT-WH	www.acuitybrands.com	23 VA	3438 lm	4000 K	149 lm/W	L90 @ 50K hours	IPX5; NSF Splash Zone	17.8			26500-Lighting	
P-2x2-4.0K	Light Fixture Interior	Panel 2x2	8	Lithonia SPX-2x2-4000LM-80CRI-40K-BFR-LUGR-ZT-MVOLT-WH	www.acuitybrands.com	28 VA	4080 lm	4000 K	146 lm/W	L90 @ 50K hours	IPX5; NSF Splash Zone	18.4			26500-Lighting	
S-2-2.0K	Light Fixture Interior	Strip 2'	1	Lithonia CLX-L24-2000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	13 VA	1981 lm	4000 K	147 lm/W	L70 @ 100K hours	Damp Location	26.2			26500-Lighting	
S-2-2.5K	Light Fixture Interior	Strip 2'	1	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	Damp Location	27			26500-Lighting	
S-3-3.0K	Light Fixture Interior	Strip 3'	1	Lithonia CLX-L36-3000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	20 VA	3004 lm	4000 K	150 lm/W	L70 @ 100K hours	Damp Location	27.3			26500-Lighting	
S-4-4.0K	Light Fixture Interior	Strip 4'	3	Lithonia CLX-L48-4000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	24 VA	4090 lm	4000 K	172 lm/W	L70 @ 100K hours	Damp Location	26.3			26500-Lighting	
S-4-5.0K	Light Fixture Interior	Strip 4'	8	Lithonia CLX-L48-5000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	30 VA	5019 lm	4000 K	166 lm/W	L70 @ 100K hours	Damp Location	27			26500-Lighting	
S-8-8.0K	Light Fixture Interior	Strip 8'	19	Lithonia CLX-L96-8000LM-HEF-RDL-MVOLT-EZ1-40K-80CRI	www.acuitybrands.com	48 VA	8181 lm	4000 K	172 lm/W	L70 @ 100K hours	Damp Location	26.5			26500-Lighting	
SS-12-1.5K	Light Fixture Interior	Slim Surface - Round - Wet Location	1	TGS 88-1215-RW-TM-CC4000K-90CRI	www.trulygreensolutions.com	15 VA	1500 lm	4000 K	100 lm/W	36K hours	IP 44 / Wet Location				26500-Lighting	
V-2-1.4K	Light Fixture Interior	Vanity 4'	2	Birchwood NOL-LED-HLO-40-2-MW-MVOLT-D1-SM	www.birchwoodlighting.com	12 VA	1396 lm	4000 K	118 lm/W	L70 @ 60K hours	Damp Location	0			26500-Lighting	
V-4-2.8K	Light Fixture Interior	Vanity 4'	4	Birchwood NOL-LED-HLO-40-4-MW-MVOLT-D1-SM	www.birchwoodlighting.com	24 VA	2792 lm	4000 K	118 lm/W	L70 @ 60K hours	Damp Location	0			26500-Lighting	



Light Fixture Support		
Type Mark	Estimated Total Length	Specification
STRUT	206'	26 05 00 - Common Work Results for Electrical

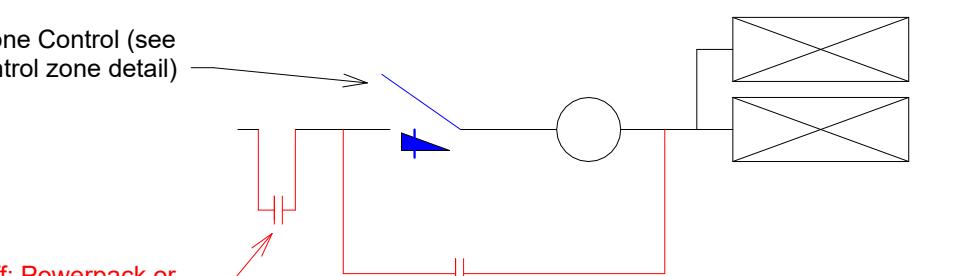


- A. Lighting zones with lighting-devices and light-fixtures are indicated by wire lines and/or switch leg (SL) numbers.
- B. Where devices allow, dimming shall be accomplished by 0-10V wiring of all devices.
- C. Where shown on plans, a zone may have 3-way and 4-way switches. Enable 3-way function on dimmer switch and wire appropriately to enable control from all switch locations. Fixtures and devices in the same above zone are denoted by the same switchleg (SL) number.
- D. Motion sensor with local switch will be de-energized when switch is off (sensor downstream of switch):
 1. Light will be on upon activation of local switch regardless of actual motion detection (sensor is ON upon power-up)
 2. Sensors will not click when local switch is off (nuisance avoidance in quiet rooms)
- E. Line-voltage dimmers (i.e. track lighting) shall be downstream of local motion sensor.
- F. Notes on plans or switchleg naming will indicate exceptions. For example:
 1. 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.
 2. 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.
- G. Sensor Programming Instructions:
 1. The below is based on Sensorswitch Instructions at the time of design. Amend if different sensors are used or if manufacturer changes procedure. Confirm any deviation with engineer. Sensorswitch support#: 1-800-535-2465
 2. If sensors are equipped with VLC programming option, a smartphone app shall be used. Note that sensors needs to be initialized and set with a PIN within 45 minutes of powering up. Program is sent to sensor via flashlight. Lights will blink to acknowledge successful programming.
 3. Verify settings with engineer prior programming. Certain settings may be different in certain zones.
 4. Sensors shall be programmed depending on availability of daylight . Save presets to avoid deviations.
 5. No daylight available:
 - a. Enable "Time Delay" - Set to 15 minutes
 - b. Disable Trim
 - c. Enable "Dim to Off Delay" - set to 5 minutes
 - d. Disable Photocell
 6. Daylight available (inc. spaces with overhead doors, skylights, windows within 20' of sensor)
 - a. Enable "Photocell" and set to "On/Off and Auto Dimming"
 - b. Enable "Auto Set Point"
 7. After programming, all functions shall be tested to verify desired function. Adjust as required for intended function. Discuss problems with engineer.

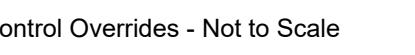


**Turn off lights
when leaving
rooms empty**

- Some spaces don't employ automatic lighting control and use manual switches only. These include but are not limited to mechanical, electrical, or crawl spaces.
In these spaces, adhere a sign to the exit door indicating that lights shall be shut off upon leaving the space.
Above sign is an example and similar signs can be used upon approval.



- Powerpack or remote switch
 - Programmable timer:
 - relay controlled
 - programmable timer
- Lighting Control Override
 - A zone will indicate which zones will be overridden.
 - Manual shut-off:
 - Staff can remotely turn off selected zones regardless of local lighting control. the remote switch is shown on plans (typically in a non-public location)
 - Programmable timer:
 - A central timer forces lights in zone on regardless of local control setting
 - Programming from programmable timer and remote switch can be accomplished in high-voltage wiring or with low-voltage wiring and power-pack near lighting fixture.



Details and Schedules

FI 200