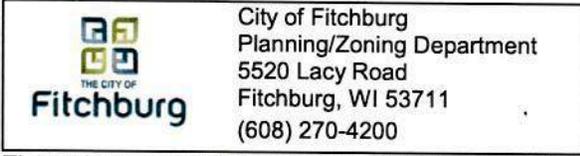


Rec. 1.016910 5/21/18
#465- RB



CONDITIONAL USE PERMIT APPLICATION

The undersigned owner, or owner's authorized agent, of property herein described hereby applies for a conditional use permit for the following described property:

1. **Location of Property:**
Street Address: 5935 Astor Drive

Legal Description - (Metes & Bounds, or Lot No. And Plat): Lot 1 CSM 14645

***Also submit in electronic format (MS WORD or plain text) by email to: **PLANNING@FITCHBURGWI.GOV**

2. **Current Use of Property:** Developable land

3. **Proposed Use of Property:** Place of worship

4. **Proposed Development Schedule:** December 7, 2017 - December 31, 2019

5. **Zoning District:** R-M (medium density residential)

6. **Future Land Use Plan Classification:** MDR (medium density residential)

***Pursuant to Section 22-3(b) of the Fitchburg Zoning Ordinance, all Conditional Use Permits shall be consistent with the currently adopted City of Fitchburg Comprehensive Plan.

***Attach three (3) copies of a site plan which shows any proposed land divisions, plus vehicular access points and the location and size of all existing and proposed structures and parking areas. Two (2) of the three (3) copies shall be no larger than 11" x 17". Submit one (1) pdf document of the entire submittal to planning@fitchburgwi.gov.

Additional information may be requested.

Type of Residential Development (If Applicable): _____

No. of Dwelling Units by Bedroom: 1 BR 2 BR 3 BR 4 or More

No. Of Parking Stalls: _____

Type of Non-residential Development (If Applicable): Place of worship

Proposed Hours of Operation: Sun-Sat 6 AM - 9 PM **No. Of Employees:** ~ 6-12

Floor Area: ~ 42,300 sq ft (~ 22,000+ sq ft future expansion) **No. Of Parking Stalls:** ~ 307 (~ 228+ future expansion)

Sewer: Municipal Private **Water:** Municipal Private

Current Owner of Property: Blackhawk Evangelical Free Church, Inc.

Address: 9620 Brader Way, Middleton, WI 53562 **Phone No:** 608.828.4200

Contact Person: Darren DeKeyser

Email: ddekeyser@blackhawkchurch.org

Address: 9620 Brader Way, Middleton, WI 53562 **Phone No:** 608.828.3691

Respectfully Submitted By: *Darren DeKeyser*

Owner's or Authorized Agent's Signature

** It is highly recommended that an applicant hold at least one neighborhood meeting prior to submitting an CUP application to identify any concerns or issues of surrounding residents.

PLEASE NOTE - Applicants shall be responsible for legal or outside consultant costs incurred by the City. Submissions shall be made at least four (4) weeks prior to desired plan commission meeting.

For City Use Only: **Date Received:** 5/21/2018 **Publish:** _____

Ordinance Section No. _____ **Fee Paid:** \$465.00

Permit Request No. CU-2218-18



City of Fitchburg Staff
City of Fitchburg Common Council
City of Fitchburg Planning Commission

RE: Blackhawk Church Conditional Use Permit Application

After a thorough assessment of Blackhawk Fitchburg's current and future programming, we are submitting a new Conditional Use Permit Application. Also, we are submitting an Architectural Design Review Application.

The building floorplan incorporates a commons, worship space, children's/student ministry space, conference rooms and offices. A majority of the space is considered multi-purpose so it can flex for various ministry and community needs.

In preparation for this application, a neighborhood meeting occurred on Tuesday, May 15, 2018. All neighbors within a 1,000-foot radius of the site were contacted as well as the Seminole Forest and Lacy Heights neighborhood associations, all Fitchburg alders and various city staff.

That evening, there were brief presentations by Blackhawk, Wyser Engineering and KEE Architecture. The presentations were aided by displays that included a site plan, floorplan, multiple renderings, a physical model as well as sample materials and colors. The presenting team and 20 or so neighbors (including the two District 4 Alders) had a healthy question and answer dialogue (before, during and after the meeting) and we felt that all questions surrounding topics such as building details, storm water management and general neighborhood traffic were answered to everyone's desire. We have not received any additional feedback following that evening.

We are excited to become a permanent fixture in the Fitchburg community, and thank you in advance for your consideration.

On behalf of Blackhawk Church and the submittal team,

Darren DeKeyser
Director of Operations
Blackhawk Church



City of Fitchburg
 Planning/Zoning Department
 5520 Lacy Road
 Fitchburg, WI 53711
 (608-270-4200)

ARCHITECTURAL & DESIGN REVIEW APPLICATION

Applicant/Contact Person: Douglas Kozel - KEE Architecture
 Address: 621 Williamson Street Phone Number of Contact Person: 608-255-9702
 City, State, Zip Code: Madison, WI 53703 Email of Contact Person: doug@keearch.com
 Project Address: 5935 Astor Drive Lot: 1 Subdivision: CSM 14645
 Project Type: Multi-Family Commercial Industrial Place of Worship Other
 New Addition

Impervious Surface Ratio (ISR): 64.5% (City Standard: maximum 65% ISR) at Full buildout

All items listed below must be included with the application to be considered complete. If an item is not included with the application, the applicant must provide in writing the basis for not including it. Building and site plans submitted to the Fitchburg Plan Commission for architectural and design review shall contain the following information:

Site Data:

- 1. Lot or property dimensions.
- 2. Orientation (to north).
- 3. Adjacent highways, roads, drive, etc.
- 4. Existing natural features (rivers, ponds, wetlands).
- 5. Existing buildings and/or improvements.
- 6. Existing and proposed site drainage.
- 7. Utility plans, including main/lateral sizes and existing fire hydrants on site or within 300 feet of the site
- 8. ISR shall be indicated on all plans.
- 9. Stormwater management plans and details, including grading plan.
- 10. Lighting plan in footcandles and light fixture cut sheets.

Building:

- 1. Building size, configuration and orientation.
- 2. Distance from lot lines.
- 3. Distance from other buildings, improvements and natural features.
- 4. Location of well, septic tank, drainfield, etc. (if applicable) NA
- 5. Additional proposed additions or new structures, including trash/recycling enclosure(s).
- 6. Construction type (wood frame, structural steel, etc.).
- 7. Foundation type (full basement, slab on grade, etc.).
- 8. Number of levels.
- 9. Siding/exterior covering type, color, texture, etc.
- 10. Roof type (gable, hip, shed, flat, etc.) and pitch.
- 11. Roofing material type, color, texture, etc.
- 12. Exterior door and window location, size, type, etc.
- 13. Fire protection sprinklers or fire alarm systems.

Ingress, Egress, Parking:

- 1. Location of highway and road access points.
- 2. Location, size, configuration of drivers and walks.
- 3. Number, size, location of parking spaces.
- 4. Location of handicapped parking and accessible building entrances.
- 5. Bicycle rack(s).

ARCHITECTURAL AND DESIGN REVIEW APPLICATION

Page 2

Landscaping:

-
-
-
-

1. Location, species, size of existing trees, shrubs, and plantings.
2. Location, species, size of proposed plantings.
3. Location and size of all paved, seeded/sodded and gravelled areas.
4. Location of all retaining walls, fences, berms and other landscape features.

Remaining trees on site are to be removed.

***It is highly recommended that an applicant hold at least one neighborhood meeting prior to submitting an ADR application to identify any concerns or issues of surrounding residents.**

The preceding information is considered to be the minimum information for submission, and the City may require additional information for its review. Any interpretations provided by city officials as the result of submitting the attached information are based on the submitted plans, and any plan changes, may affect the interpretations.

It is the responsibility of the owner/applicant to insure compliance with all local and state requirements. The below signed applicant acknowledges the above information and hereby submits the attached information for the City's Architectural and Design Review Process.

Signed: *[Signature]*
Applicant or Authorized Agent

Date: 5-21-2018

***** Application shall be accompanied by one (1) sets of full-size plans, two (2) sets no larger than 11"x17", and one (1) pdf document of the complete submittal to planning@fitchburgwi.gov. Applications are due at least 4 weeks prior to the desired Plan Commission Meeting. The time frame assumes a complete set of plans is provided, and if it is not provided the Plan Commission date will be adjusted.**

FOR CITY USE ONLY

Date Received: 5/21/2018 Plan Commission Date: _____

Comments:



May 22, 2018

Mr. Thomas Hovel
Zoning Administrator / Community Planner
City of Fitchburg
Planning / Zoning Department
5520 Lacy Road
Fitchburg, WI 53711

Subject: Blackhawk Church – Early Start Request

Dear Mr. Hovel:

Thank you for your continued assistance and coordination regarding the Blackhawk Church development proposal. On behalf of Blackhawk Church, we would like to request consideration by appropriate City Staff and the City of Fitchburg Plan Commission for an Early Start Permit for private development.

Specifically, Sec. 24-14 of the City of Fitchburg Land Division Code of Ordinances denotes requirements for Building Permits. Public improvements associated with this development (water main and sidewalk along Seminole Highway) have not been fully constructed nor accepted by City Staff. It is important to note the water main has been constructed in order that sufficient water service exists so that proper fire service can be provided for during private development construction.

We understand the Plan Commission may authorize the issuance of building permits in accordance with 24-14(b). We would like to request your consideration and approval in order that construction for the Blackhawk Church project can commence as soon as possible. We also acknowledge an agreement be provided in accordance with 24-14(d) and that no occupancy permit shall be provided until such time as the public improvements have been completed, inspected, and accepted by the City.

Again, thank you for your efforts, coordination and review of the Blackhawk Church development. If you have any questions or require additional information, please do not hesitate to contact our office.

Respectfully,

WYSER ENGINEERING, LLC

A handwritten signature in blue ink that reads "Wade P. Wyse".

Wade P. Wyse, P.E.
Principal – Project Manager

BLACKHAWK CHURCH

Fitchburg, Wisconsin

ARCHITECTURAL

- Floor Plan
- Elevations (North-West & West)
- Elevations (South-West & South)
- Elevations (South-East & East)
- Elevations (North-East & North)
- Perspective Views
- Perspective Views
- Materials

CIVIL

- C100 - Site Plan
- C200 - Grading & Erosion Control Plan
- C201 - Detail Grading Plan (North-West)
- C202 - Detail Grading Plan (North-East)
- C203 - Detail Grading Plan (South)
- C300 - Utility Plan
- C400 - Details
- C401 - Details

LANDSCAPE

- L1 - Landscape Plan

LIGHTING

- Lighting Plan
- Luminaire Schedule
- Fixture Cutsheets

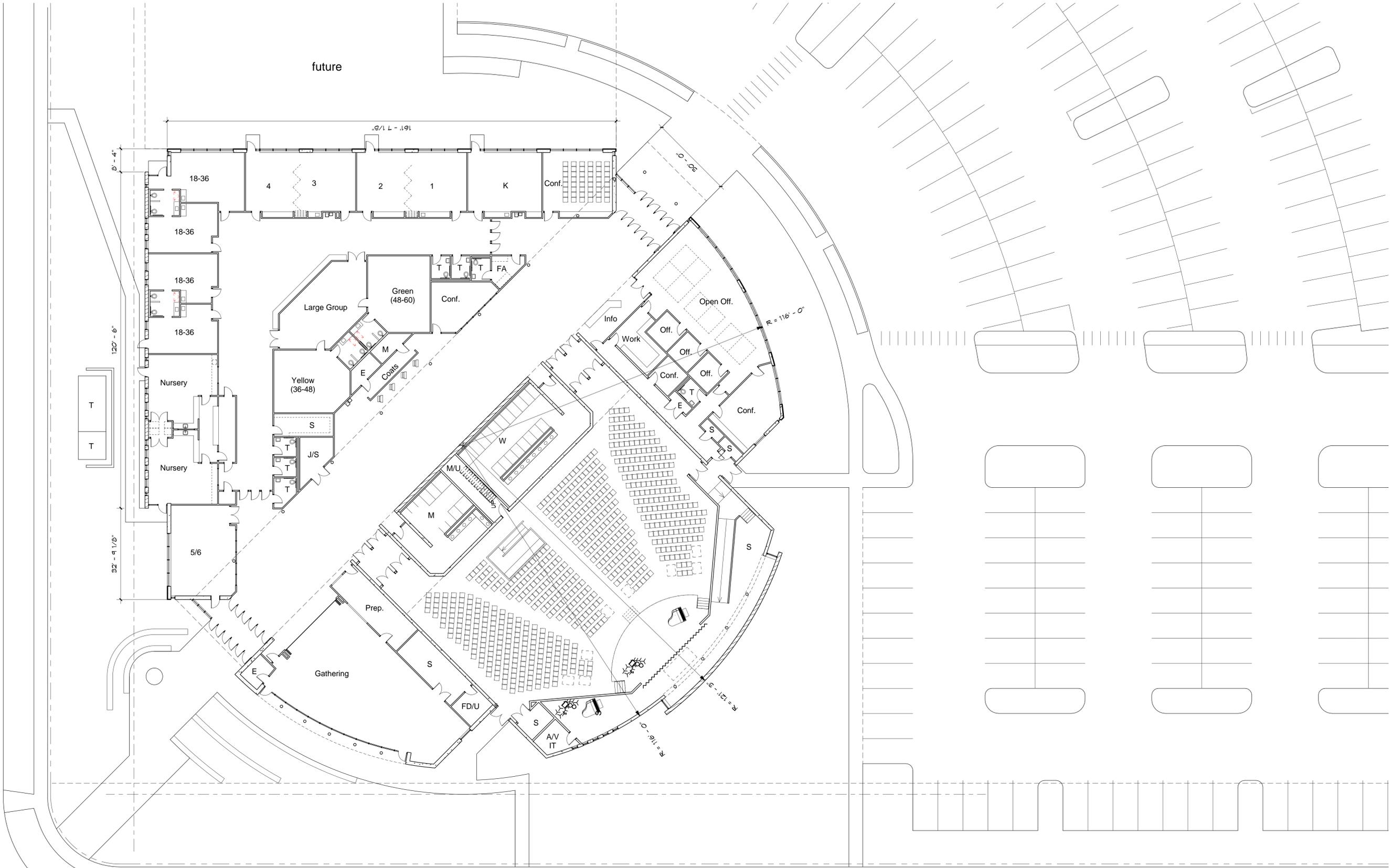
FITCHBURG PLAN COMMISSION

May 21, 2018



ASTOR DRIVE

future



- CONST. TYPE 2B (NON-COMBUSTIBLE)
- SLAB ON GRADE
- FULLY SPRINKLERED PER NFPA 13
- BUILDING AREA: 42,269 SF.

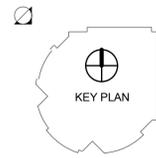
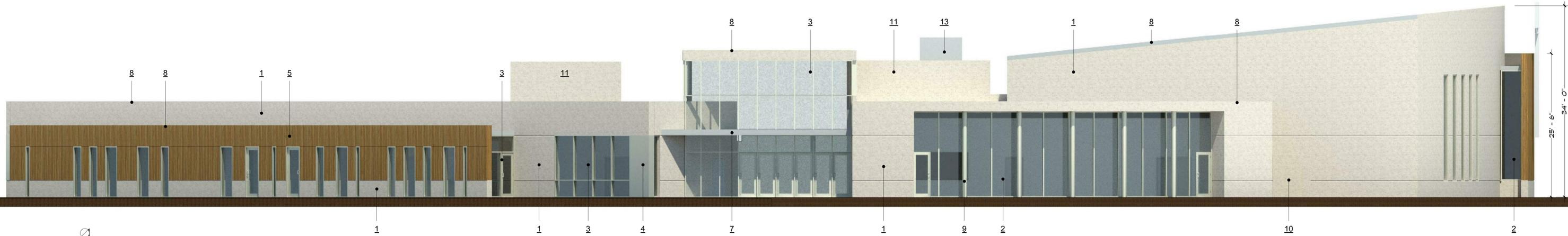


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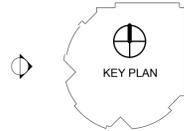
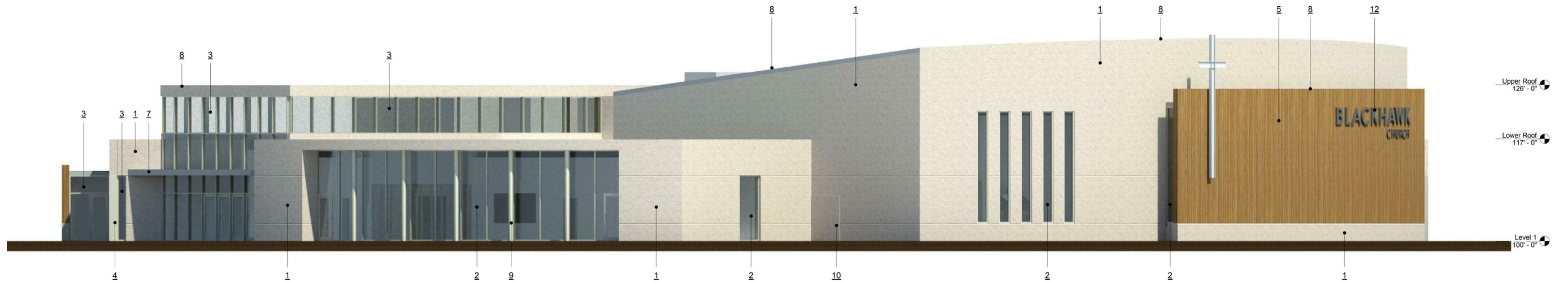
SEMINOLE HWY

Blackhawk Church
Fitchburg, WI





NORTH-WEST ELEVATION
1/8"=1'-0"



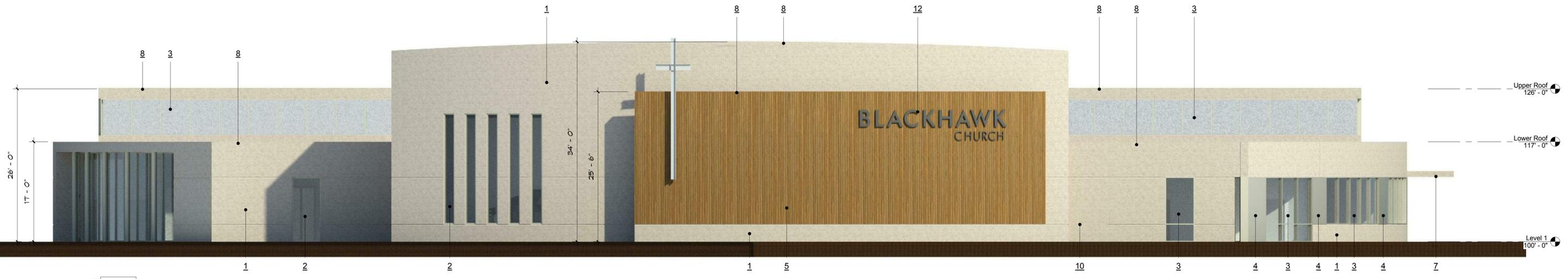
WEST ELEVATION
1/8"=1'-0"

KEY NOTES

1. WHITE CONCRETE PANELS WITH REVEALS - HEAVY SANDBLASTED
2. ALUMINUM CURTAINWALL WINDOW SYSTEM - 6" SYSTEM (KAWNEER 1600 WALL SYSTEM) WITH SSG HORIZONTALS
FINISH - ANODIZED
COLOR - CHAMPAGNE
3. ALUMINUM STOREFRONT WINDOW SYSTEM WITH 4" CAPS (KAWNEER ENCORE)
FINISH - ANODIZED
COLOR - CHAMPAGNE
4. 1/8" ALUMINUM PANELS
FINISH - ANODIZED
COLOR - CHAMPAGNE
5. COMPOSITE WOOD SIDING (TRESPA PURA NFC)
COLOR - ROMANTIC WALNUT
6. SINGLE PLY EPDM ROOF (60 MIL) - ADHERED
7. CANOPY AND SOFFIT
EXTERIOR FINISH SYSTEM (DIRECT APPLIED 100% ACRYLIC ARCHITECTURAL COATING)
8. ROOF EDGE
PAINTED METAL (GALVALUME SUBSTRATE, 22 GA. MIN.)
9. STEEL COLUMNS (GALV. AND PAINTED)
10. H.M. DOOR AND FRAME (INSULATED, GALV. & PAINTED)
11. MECHANICAL SCREEN - 5/8" GEMCLAD PANELS
12. PROPOSED LOCATION OF SIGN - FINAL GRAPHICS TO BE DETERMINED
13. ROOFTOP MECHANICAL UNIT

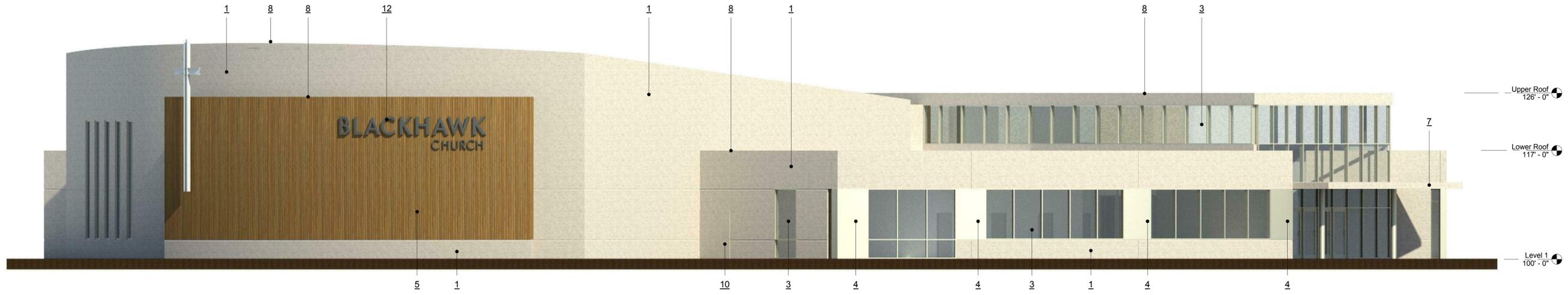
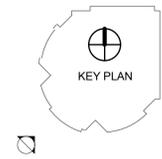
Blackhawk Church
Fitchburg, WI





SOUTH-WEST ELEVATION

1/8"=1'-0"



SOUTH ELEVATION

1/8"=1'-0"

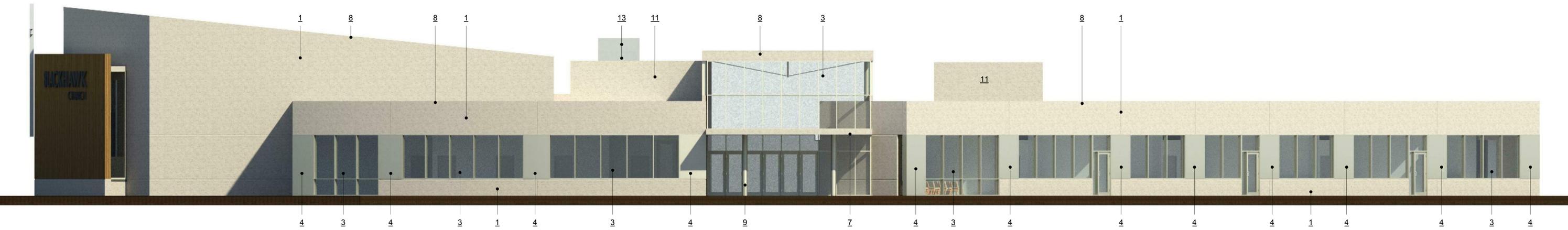


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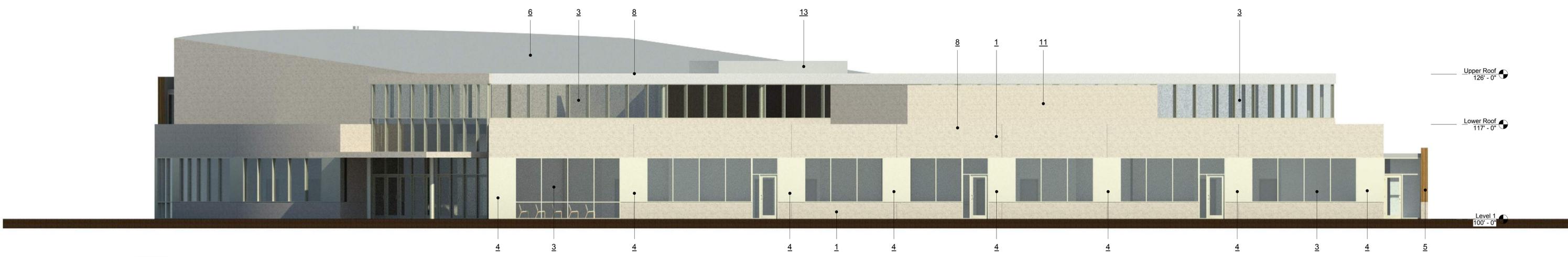
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Blackhawk Church
Fitchburg, WI





SOUTH-EAST ELEVATION
1/8"=1'-0"



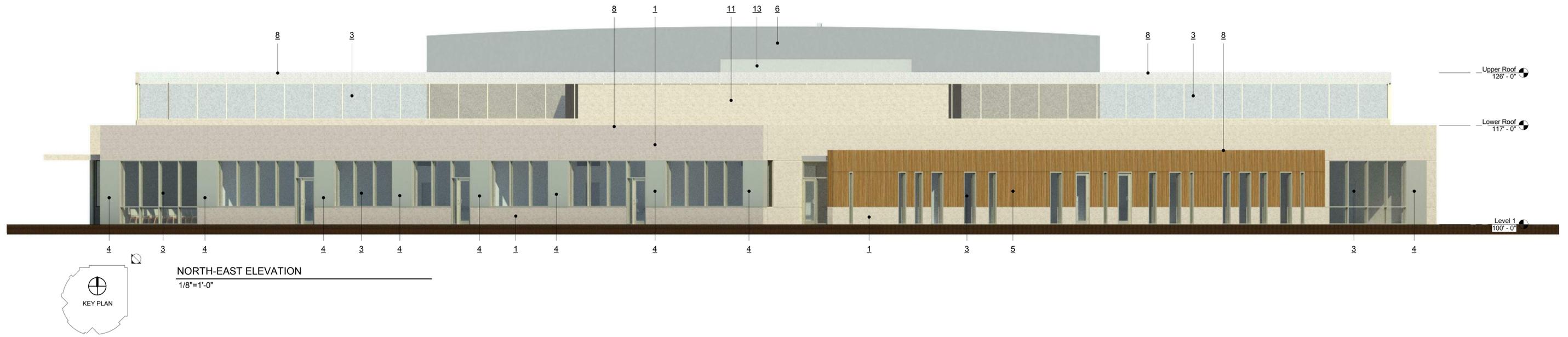
EAST ELEVATION
1/8"=1'-0"

KEY NOTES

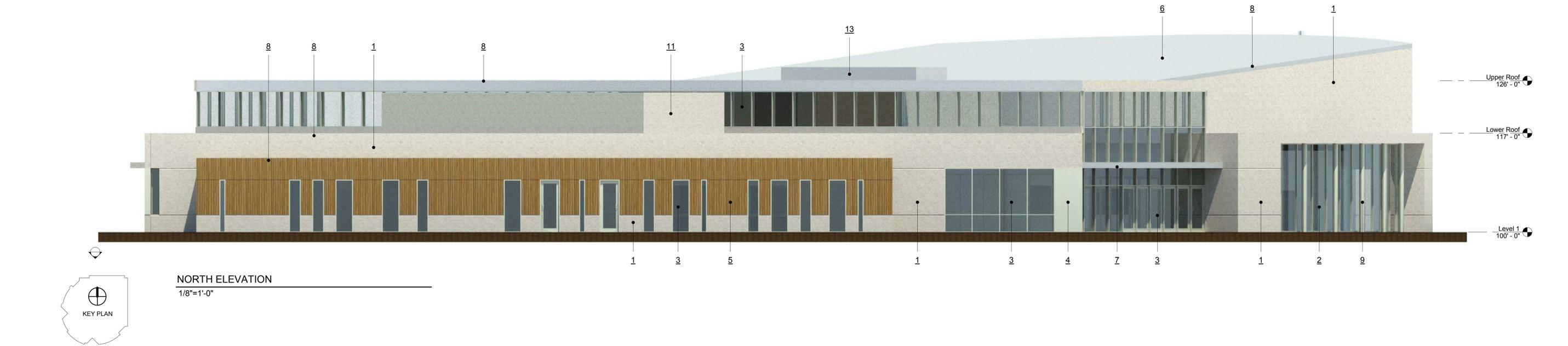
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Blackhawk Church
Fitchburg, WI





NORTH-EAST ELEVATION
1/8"=1'-0"



NORTH ELEVATION
1/8"=1'-0"

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Blackhawk Church
Fitchburg, WI





View of North Entrance along Astor Drive



View along Seminole Highway

Blackhawk Church
Fitchburg, WI

KEE Project #ZB15D 05/21/18
KEE Architecture 621 Williamson Street | Madison, WI | 608-255-9202





View along Seminole Highway



View of Main Entrance

Blackhawk Church
Fitchburg, WI

KEE Project #ZB15D 05/21/18
KEE Architecture 621 Williamson Street | Madison, WI | 608-255-9202





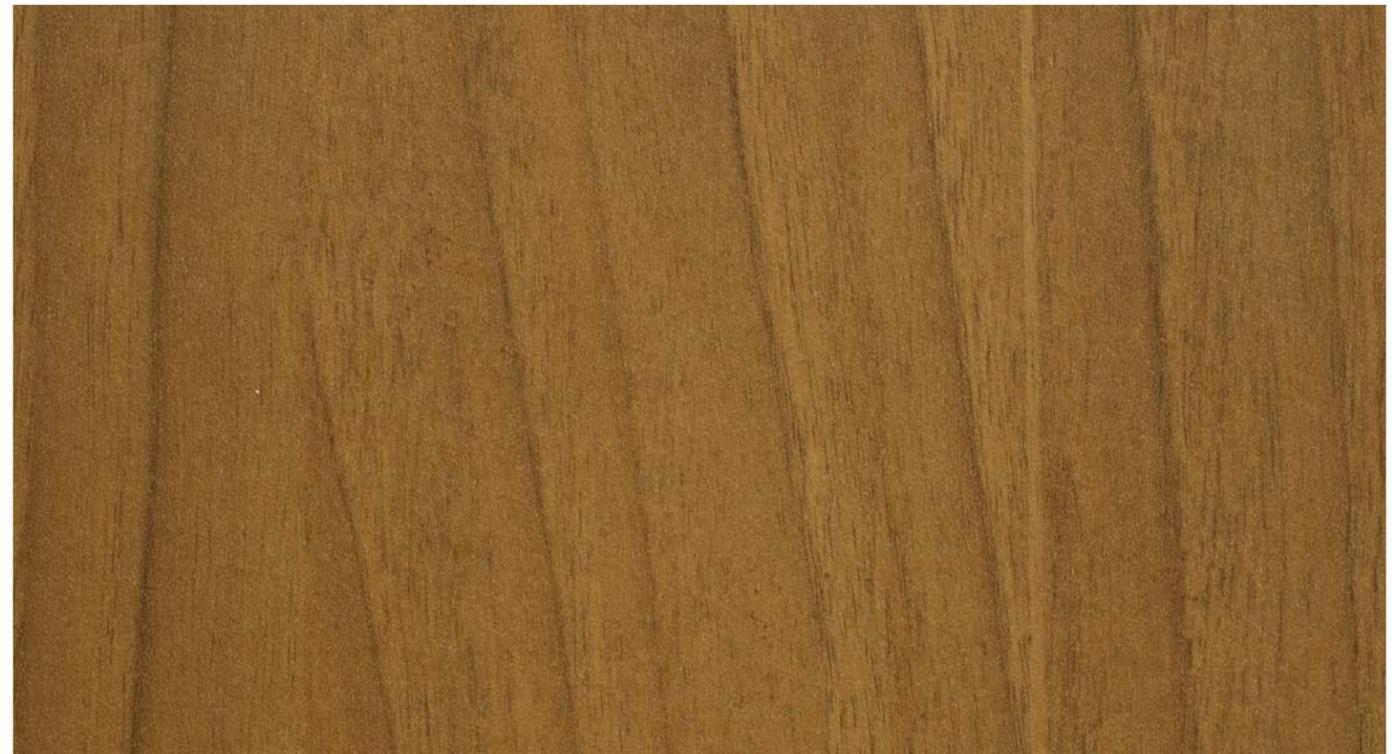
Sandblasted white concrete (1)



Anodized aluminum panels
& window frames (2,3,4)



Low-e clear glass

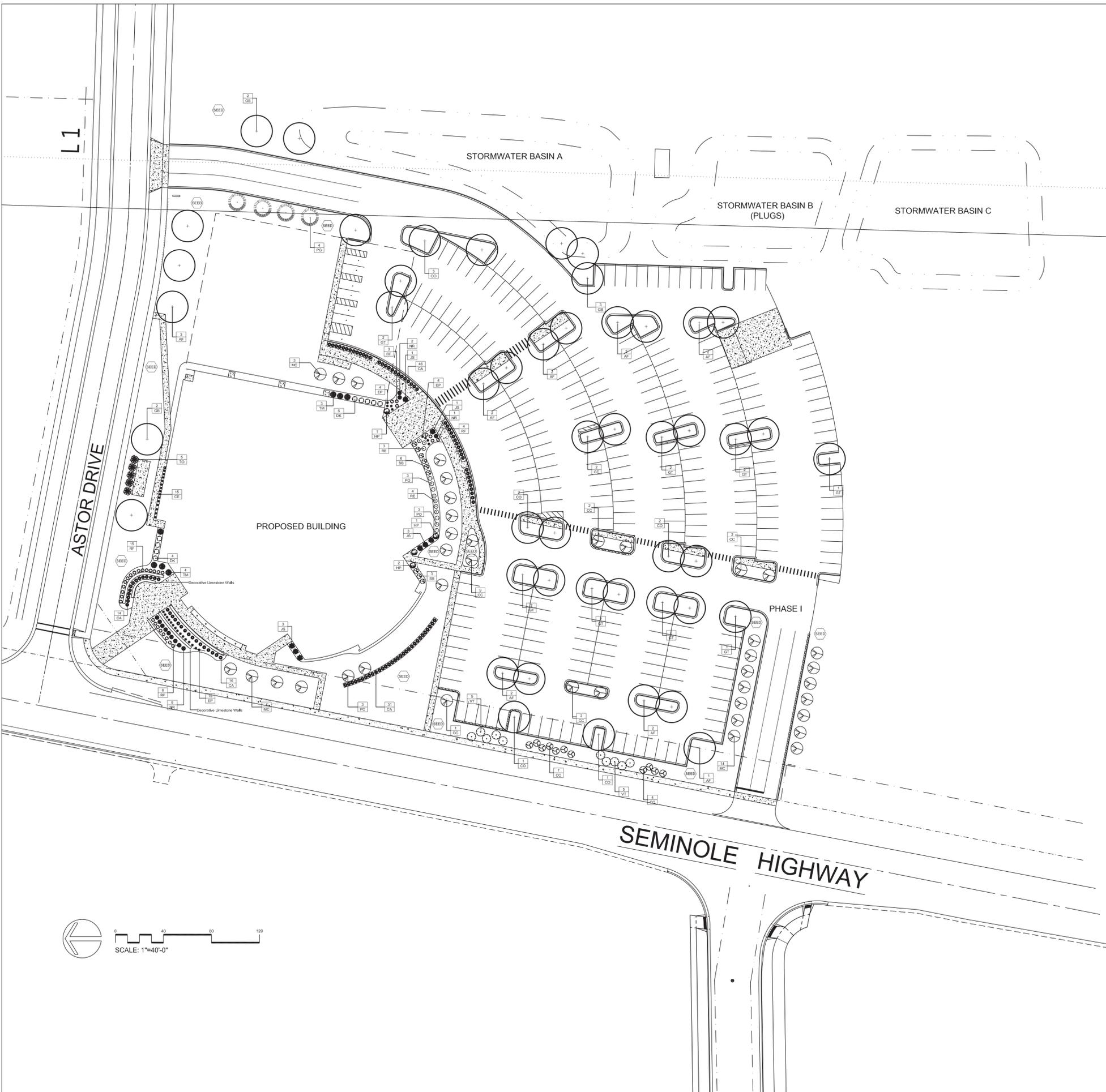


Composite wood siding (5)

Blackhawk Church



05/21/18



PLANT LIST

KEY	SCIENTIFIC NAME	QTY	PLANTING SIZE	ROOT CONDITION
DECIDUOUS TREES				
AF	Acer x freemanii 'Jeffersred'	16	2 1/2"	B&B
CO	Celtis occidentalis	9	2 1/2"	B&B
GB	Ginkgo biloba 'Autumn Gold'	7	2 1/2"	B&B
GT	Gleditsia triacanthos var. inermis 'Skyline'	16	2 1/2"	B&B
ORNAMENTAL TREES				
CC	Crataegus crus-galli var. inermis	14	2"	B&B
MC	Malus 'Camelot'	21	2"	B&B
PC	Pyrus Calleryana 'Chanticleer'	3	2"	B&B
EVERGREEN TREES				
PG	Picea glauca var. densata	4	6'	B&B
TO	Thuja occidentalis 'Techny'	5	6'	B&B
EVERGREEN SHRUBS				
JS	Juniperus sabina 'Blue Forest'	10	#5	Cont.
TM	Taxus x media 'Tauntoni'	7	#5	Cont.
DECIDUOUS SHRUBS				
CC	Cotinus coggygria 'Golden Spirit'	11	#5	Cont.
DK	Dienella 'Kodak Orange'	9	#3	Cont.
HP	Hydrangea paniculata 'Pinky Winky'	4	#5	Cont.
PO	Physocarpus opulifolius First Editions 'Little Devil'	6	#3	Cont.
RE	Rosa 'Easy Elegance My Girl'	7	#3	Cont.
SB	Spiraea betulifolia 'Tor Gold'	9	#3	Cont.
VT	Viburnum trilobum 'Redwing'	10	#5	Cont.
ORNAMENTAL GRASSES / PERENNIALS				
CA	Calamagrostis x acutiflora 'Karl Foerster'	107	#1	Cont.
CE	Carex elata 'Aurea'	15	#1	Cont.
EP	Echinacea purpurea	23	#1	Cont.
NR	Nepeta racemosa 'Walker's Low'	12	#1	Cont.
RF	Rudbeckia fulgida 'Goldsturm'	30	#1	Cont.

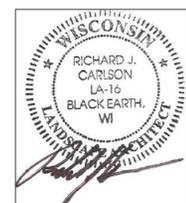
GENERAL NOTES:

- BARK MULCH TO BE BROWN DYED, RECYCLED HARDWOOD, WITH PRE-EMERGENT HERBICIDE
- TREES AND SHRUBS OUTSIDE OF PLANTING BEDS, SHALL RECEIVE BARK RINGS
- WASHED STONE TO BE 1.5" CAPITOL WASHED WITH WEED BARRIER FABRIC.
- BEDS NEXT TO BUILDING TO BE 1.5" WASHED STONE WITH FABRIC WEED BARRIER.
- BED EDGING TO BE DIMEX EDGEPRO OR EQUIVALENT
- PARKING LOT ISLANDS TO BE SEEDED.
- STORM WATER BASINS A AND C TO BE SEEDED WITH DETENTION BASIN - BIOSWALE SEED MIX BY PRAIRIE NURSERY OR EQUIVALENT.
- STORM BASIN B TO BE PLANTED WITH BIORETENTION PLUGS SPACED AT 1 FOOT ON CENTER.
- LIMESTONE WALLS MADE OUT OF QUARRIED LIMESTONE BOULDERS

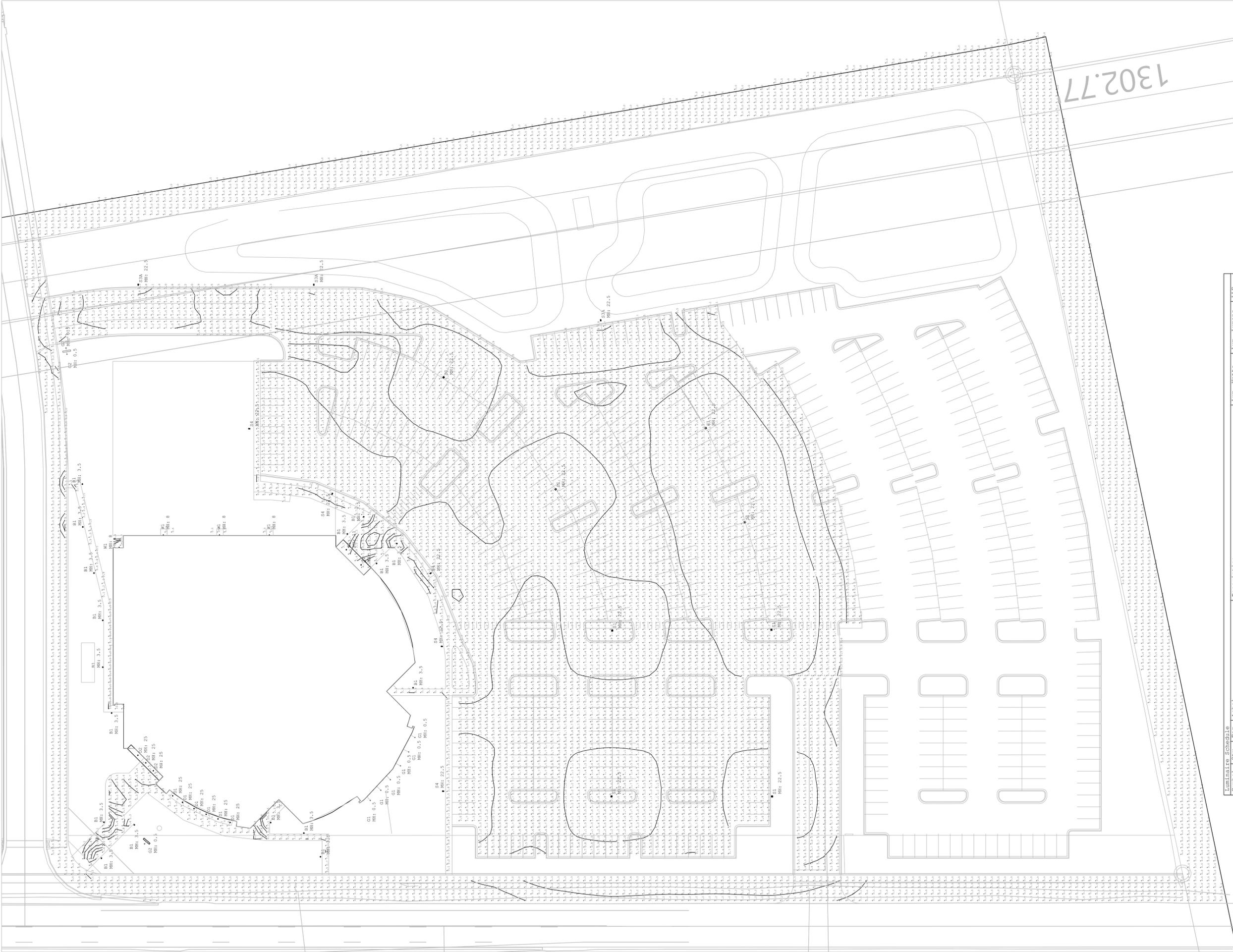
Date: 5-10-2018
Scale: 1" = 40'-0"
Designer: KMS
Job #

Seal:
To protect against legal liability, the plans presented herein are "schematic," and should not be outsourced as "biddable" or "construction documents" unless approved by the Landscape Designer. This is not an original document unless stamped in red, as ORIGINAL.

Revisions:



Reference Name:
builder



1302.77



Enterprise Lighting LTD

**BLACKHAWK CHURCH
WISCONSIN**

**SITE LIGHTING LAYOUT
LOCATIONS + CALCS**

DATE: MAY 18, 2018 SCALE: 3/8" = 1'-0" SHEET NUMBER

Luminaire Schedule

Symbol	Qty	Tag	Label	Description	Lum. Watts	Lum. Lumens	LLF
⊙	17	B1	FW-EDS-5K-SX-02-E-UJ-150-40K	42 INCH BOLLARD - TYPE 5 DISTRIBUTION	21.3	1779	0.900
⊙	8	D1	ML5606830-692H	6 INCH 600 LUMEN RECESSED DOWNLIGHT	9	655	0.900
⊙	3	D2	ML5609830-692H	6 INCH 900 LUMEN RECESSED DOWNLIGHT	13.1	899	0.900
⊙	6	G1	F1-vwf-30	FINCHPLE MOUNTED GROUND FLOOD	30.9	2403	0.900
⊙	3	G2	F1-hmr-50 area47234	FINCHPLE MOUNTED GROUND FLOOD	31	2480	0.900
⊙	3	G3	F1-hmr-50 area47234	FINCHPLE MOUNTED GROUND FLOOD	31	2480	0.900
⊙	3	S3A	GLEON-AF-02-LED-E1-S13-7030-H	LED 5 AREA LIGHT ON 20' POLE WITH 2.5' RAISED BASE	113	9214	0.900
⊙	5	S4	GLEON-AF-02-LED-E1-S14-7030	LED 5 AREA LIGHT ON 20' POLE WITH 2.5' RAISED BASE	113	9214	0.900
⊙	4	W1	FCC41DW-30	SQUARE CYLINDER WALL MOUNTED DOWNLIGHT	10	1689	0.500

Calculation Summary

Label	CalcType	Unfs	Avg	Max	Min	Avg/Min	Max/Min
Building Side 5	Illuminance FC	0.72	1.2	0.4	1.80	3.00	
Building Side 6	Illuminance FC	4.04	23.3	0.5	8.08	46.60	
Building Side 7	Illuminance FC	4.42	25.7	0.7	6.31	36.71	
Building Side 8	Illuminance FC	0.63	1.0	0.4	1.58	2.50	
Building Side 8 1	Illuminance FC	0.63	1.0	0.4	1.58	2.50	
East Sidewalk	Illuminance FC	9.01	15.9	0.3	20.00	117.00	
North Drive Entrance	Illuminance FC	1.18	4.3	0.3	3.93	14.33	
North Plaza	Illuminance FC	5.35	14.3	0.4	13.38	35.75	
North Plaza and West Sidewalk	Illuminance FC	1.65	10.3	0.1	16.50	103.00	
North Sidewalk	Illuminance FC	2.73	10.2	0.1	21.30	102.00	
Outside Property Line	Illuminance FC	0.03	0.4	0.0	N.A.	N.A.	
PHASE 1 PARKING	Illuminance FC	1.15	3.8	0.1	11.50	38.00	
West Drive	Illuminance FC	0.76	1.7	0.3	2.53	3.67	

Cree Edge™ Series

LED Pathway Luminaire

Product Description

Durable die-cast aluminum luminaire housing mounts directly to 4" (102mm) diameter pole (included) without visible mounting hardware for clean appearance. Pole mounts to rugged die cast aluminum internal flange secured by three 3/8" - 16x6" anchor bolts with 1-1/4" hook (provided). **Note:** T45 Torx 3/8" socket required for head installation. Top mounted LEDs for superior optical performance and light control.

Applications: Landscape, walk-ways and general site lighting

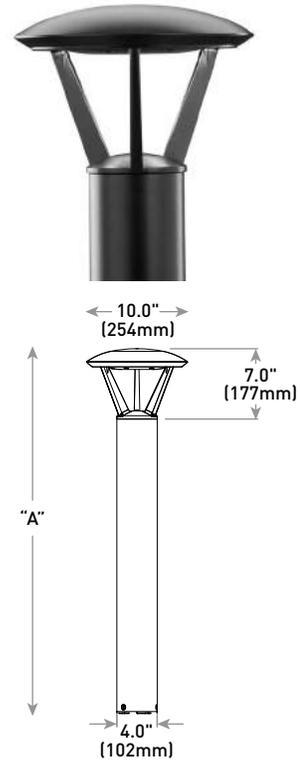
Performance Summary

Patented NanoOptic® Product Technology
Made in the U.S.A. of U.S. and imported parts
CRI: Minimum 70 CRI
 CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard
Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

*See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed
Upgrade Kit - Used for replacement of existing bollards with a bolt hole circle of 5.75" (146mm) XA-XBP8RSV XA-XBP8RWH XA-XBP8RBK XA-XBP8RBZ



Model	Dim. "A"	Weight*
Landscape (P0)	13" (330mm)	12.7 lbs. (5.8kg)
Landscape (P1)	18" (457mm)	13.3 lbs. (6.0kg)
Pathway (P3)	36" (914mm)	17.9 lbs. (8.1kg)
Pathway (P4)	42" (1068mm)	18.6 lbs. (8.4kg)
Pedestrian (P8)	96" (2438mm)	28.4 lbs (12.9kg)

* Add 4.5 lbs. (2.0kg) for 347-480V

SELECT FINISH

Ordering Information

Example: PWY-EDG-2M-P0-02-E-UL-SV-350

PWY-EDG			02	E				
Product	Optic	Mounting	LED Count (x9)	Series	Voltage	Color Options	Drive Current	Options
PWY-EDG	2M Type II Medium 3M Type III Medium 5M Type V Medium 5S Type V Short	P0 13" (330mm) landscape P1 18" (457mm) landscape P3 36" (914mm) pathway P4 42" (1067mm) pathway P8 96" (2438mm) pedestrian	02	E	UL Universal 120-277V UH* Universal 347-480V - Available with P3, P4, and P8 mounts only 12 120V 27 277V	BK Black BZ Bronze SV Silver WH White	350 350mA 525 525mA - Available with P1, P3, P4, and P8 mounts only	F Fuse - When code dictates fusing, use time delay fuse - Refer to ML spec sheet for availability with ML options HL Hi/Low (Dual Circuit Input) - Available with UL voltage and 525mA driver current only - Refer to HL spec sheet for details - Sensor not included TL Two-Level (175/525 w/integrated sensor control) - Available with 12 or 27 voltages only - Refer to TL spec sheet for details TL2 Two-Level (0/350 w/integrated sensor control) - Available with 12 or 27 voltages only - Refer to TL spec sheet for details TL3 Two-Level (0/525 w/integrated sensor control) - Available with 12 or 27 voltages only - Refer to TL spec sheet for details WB Welded Base Plate - Standard on P8 mount option, available with P3 and P4 mount - Includes welded base cover 40K 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire

* 347-480V utilizes magnetic step-down transformer. For input power for 347-480V, refer to the Electrical Data table



Rev. Date: V5 08/11/2016



Product Specifications

CONSTRUCTION & MATERIALS

- Durable die-cast aluminum luminaire housing mounts directly to 4" (102mm) diameter pole (included) without visible mounting hardware for clean appearance
- Pole mounts to rugged die cast aluminum internal flange secured by three 3/8"-16x6" anchor bolts with 1-1/4" hook (provided).
Note: T45 Torx 3/8" socket required for head installation
- Top mounted LEDs for superior optical performance and light control
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver and white are available
- **Weight:** See Dimension and Weight Chart on pages 1 and 4

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load at 120V
- **Total Harmonic Distortion:** < 20% at full load at 120V
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details

Electrical Data* (A)								
LED Count (x9)	System Watts 120-277V	System Watts 347-480V	Total Current					
			120V	208V	240V	277V	347V	480V
350mA								
02	22	28	0.18	0.12	0.10	0.10	0.09	0.13
525mA								
02	34	40	0.29	0.19	0.17	0.15	0.12	0.13

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/- 10%

Recommended Cree Edge™ Series Lumen Maintenance Factors (LMF) ¹					
Ambient	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Calculated ³ LMF	100K hr Calculated ³ LMF
5°C (41°F)	1.04	0.99	0.97	0.95	0.93
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.91
20°C (68°F)	1.01	0.96	0.94	0.92	0.90
25°C (77°F)	1.00	0.95	0.93	0.91	0.89

¹ Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

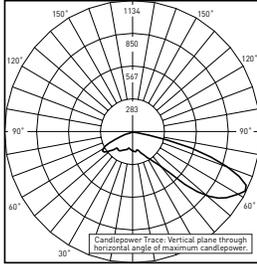
² In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

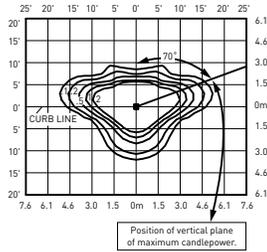
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/bollards-and-pathway/cree-edge-pathway>

2M



RESTL Test Report #: PL5758-001
 PWY-EDG-2M-**-02-E-UL-350-40K
 Initial Delivered Lumens: 1,549

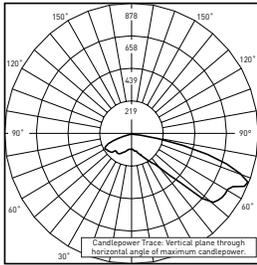


PWY-EDG-2M-**-02-E-UL-350-40K
 Mounting Height: 3' [0.9m] A.F.G.
 Initial Delivered Lumens: 1,565
 Initial FC at grade

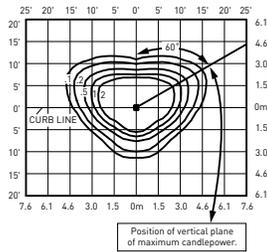
Type II Medium Distribution				
LED Count (x9)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,565	B1 U0 G1	1,625	B1 U0 G1
525mA				
02	2,191	B1 U0 G1	2,276	B1 U0 G1

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
 ** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf

3M



RESTL Test Report #: PL5698-001
 PWY-EDG-3M-**-02-E-UL-350-40K
 Initial Delivered Lumens: 1,470

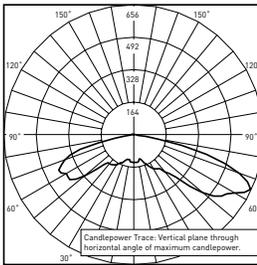


PWY-EDG-3M-**-02-E-UL-350-40K
 Mounting Height: 3' [0.9m] A.F.G.
 Initial Delivered Lumens: 1,389
 Initial FC at grade

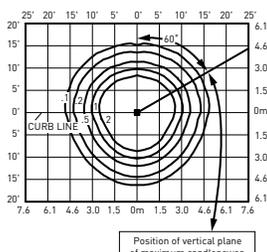
Type III Medium Distribution				
LED Count (x9)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,389	B1 U0 G1	1,442	B1 U0 G1
525mA				
02	1,944	B1 U0 G1	2,019	B1 U0 G1

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
 ** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf

5M



RESTL Test Report #: PL5798-001
 PWY-EDG-5M-**-02-E-UL-350-40K
 Initial Delivered Lumens: 1,780



PWY-EDG-5M-**-02-E-UL-350-40K
 Mounting Height: 3' [0.9m] A.F.G.
 Initial Delivered Lumens: 1,666
 Initial FC at grade

Type V Medium Distribution				
LED Count (x9)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,666	B1 U2 G1	1,730	B1 U2 G1
525mA				
02	2,333	B2 U2 G2	2,422	B2 U2 G2

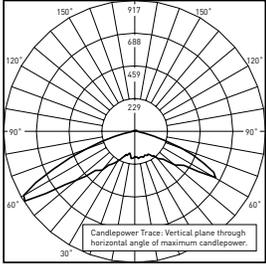
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
 ** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf



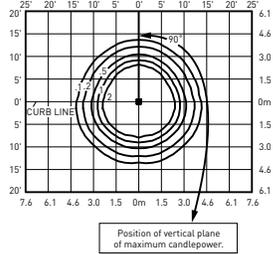
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/bollards-and-pathway/cree-edge-pathway>

55



RESTL Test Report #: PL5759-001
 PWY-EDG-5S-**-02-E-UL-350-40K
 Initial Delivered Lumens: 1,897



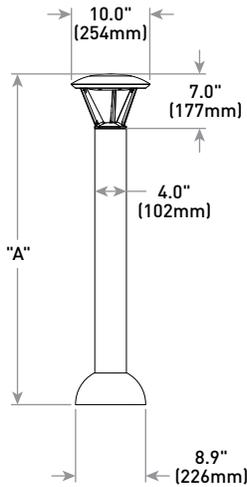
PWY-EDG-5S-**-02-E-UL-350-40K
 Mounting Height: 3' [0.9m] A.F.G.
 Initial Delivered Lumens: 1,868
 Initial FC at grade

Type V Short Distribution				
LED Count (x9)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,868	B1 U2 G1	1,940	B1 U2 G1
525mA				
02	2,615	B1 U2 G1	2,716	B1 U2 G1

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf

with Welded Base



Model	Dim. "A"	Weight*
Pathway (P3)	36" [914mm]	17.9 lbs. [8.1kg]
Pathway (P4)	42" [1068mm]	18.6 lbs. [8.4kg]
Pedestrian (P8)	96" [2438mm]	28.4 lbs [12.9kg]

* Add 4.5 lbs. [2.0kg] for 347-480V

Description

The Halo ML56 LED Downlighting System is a series of modular LED Light Modules for use with designated 5" or 6" ML56 LED trims in new construction, remodel and retrofit installation. Compatible with Halo 5" H550 and 6" H750, H2750 Series LED housings. And in retrofit of existing housings the ML56 Series fits 5" or 6" Halo, All-Pro, and others. ML56 system offers shallow trims for installation in Halo, All-Pro and others shallow housings. ML56 Light Modules are offered in 600 Series, 900 Series, and 1200 Series, 80CRI or 90CRI, and four color temperatures 2700K, 3000K, 3500K, 4000K. ML56 Light Modules are universal voltage 120V – 277V and dimmable at 120V. The ML56 lens provides uniform diffuse illumination standard.

Catalog #		Type
Project		D1
Comments		Date
Prepared by		

Specification Features

Mechanical

Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

Mounting

- Light Modules attach to reflector and baffle trims via locking tabs, and attach to eye-balls via keyed twist-to-lock mating bosses
- The complete light module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. The stainless steel friction blades allow the ML56 to be installed in a wider range of housings, and allow rotation in the housing aperture (360 degrees).

Housing Compatibility

A complete ML56 system includes a LED Light Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 600 Series = 600 design lumens typical.
- Delivered lumens vary depending upon CRI, color temperature, and trim finish.
- Color Temperature options: 2700K, 3000K, 3500K, 4000K
- CRI: 80

- L70 at 50,000 hours, projected in accordance with IES TM-21
- LED is a chip on board design consisting of a multiple LED package to create one virtual light source for a productive "cone of light"

Color Specification & Quality Standards

- A tight chromaticity specification ensures LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM, exceeds ENERGY STAR® color standards per ANSI C78.377- 2008.
- Every Halo LED Light Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- Halo ML56 LED Light Modules include lumen, CRI, and CCT designations in the model number
- Example: **ML5606830**
56 = 5" / 6" aperture series
06 = 600 lumen series
8 = >80 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector is a non-screw base, and where required to qualify as a high-efficacy luminaire.
- The included E26 medium screw-base Edison adapter provides easy retrofit of incandescent housings (see Housing Section).

Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers. (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

Warranty

Cooper Lighting provides a (5) five year limited warranty on the Halo ML56 LED Light Module.

LED Module in New or Retrofit Existing Construction – Housings other than Halo or All-Pro

- If used in recessed housings other than Halo or All-Pro the Cooper Lighting 5-year limited warranty applies to the LED Light Module and Trim only.
- As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes. Installer is responsible to properly and securely retain the LED Module and LED Trim in the housing at time of installation.



ML56 LED System

600 Series / 80 CRI

ML5606827

ML5606830

ML5606835

ML5606840

**5-Inch and 6-Inch
600 Lumen LED
Light Module for
New Construction,
Remodel and Retrofit**

**For use with 59x and 69x
Series Trims**

**FOR USE IN
INSULATED CEILING
AND NON-INSULATED
CEILING RATED
HOUSINGS**

**HIGH EFFICACY LED
WITH INTEGRAL
DRIVER - DIMMABLE**

Energy Data

ML56 600/80 Series

(Values at non-dimming line voltage)
Minimum Starting Temp: -30°C (-22°F)
EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer)
Sound Rating: Class A
Input Voltage: UNV 120V-277V
Power Factor: >0.95 @ 120V and >0.9 @277V
Input Frequency: 50/60Hz
THD: <20%
Max. Rated Wattage: 10W
Input Power: 9.0W
Input Current at 120V: 0.15A
Input Current at 277V: 0.08A
Driver Compliance: UL8750, Class II rated
Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F)
Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F)



ML5606827
5" or 6" LED 600 Series



ML5606830
5" or 6" LED 600 Series



ML5606835
5" or 6" LED 600 Series



ML5606840
5" or 6" LED 600 Series

Compliance

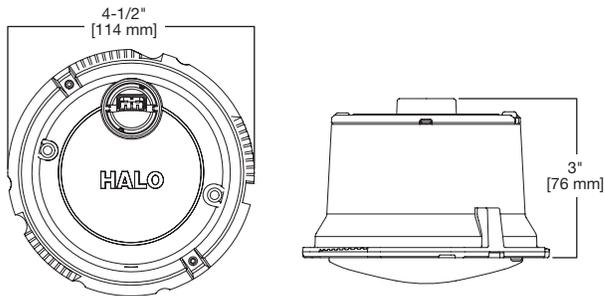
- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used as a California Title 24 compliant Non-Residential LED Luminaire
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits
- (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européene" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

* Not for use with housings in direct contact with spray foam insulation.



Refer to ENERGY STAR® Certified Products List.
 Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire

Dimensions



Ordering Information

Sample Number: **ML5606830 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Light Modules 600 Series / 80 CRI

ML5606827= 5 7/8" LED light module, 600 lumen, 80CRI, 2700K

ML5606830= 5 7/8" LED light module, 600 lumen, 80CRI, 3000K

ML5606835= 5 7/8" LED light module, 600 lumen, 80CRI, 3500K

ML5606840= 5 7/8" LED light module, 600 lumen, 80CRI, 4000K

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

- 591WB**=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
- 592SC**=5" LED trim, specular reflector & white flange
- 592H**=5" LED trim, haze reflector & white flange
- 592WB**=5" LED trim, white reflector & flange
- 593WB**=5" LED trim, white micro-step baffle & flange
- 593BB**=5" LED trim, black micro-step baffle & white flange
- 593SNB**=5" LED trim, satin nickel micro-step baffle & flange
- 593TBZB**=5" LED trim, tuscan bronze micro-step baffle & flange
- 594WB**=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
- 594SNB**=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
- 594TBZB**=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
- 595WW**=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
- 596WB**=5" LED trim, white shallow baffle & flange – shallow and standard housings

690 Series - 6" LED Trims

- 691WB**=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
- 692SC**=6" LED trim, specular reflector & white flange
- 692H**=6" LED trim, haze reflector & white flange
- 692WB**=6" LED trim, white reflector & flange
- 693WB**=6" LED trim, white micro-step baffle & flange
- 693BB**=6" LED trim, black micro-step baffle & white flange
- 693SNB**=6" LED trim, satin nickel micro-step baffle & flange
- 693TBZB**=6" LED trim, tuscan bronze micro-step baffle & flange
- 694WB**=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
- 694SNB**=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
- 694TBZB**=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
- 695WW**=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
- 696WB**=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

ML56 System Accessories

- ML56CLIP**=Friction clip mounting kit - for retrofitting non-torsion spring housings, 6" clips*
- WW595SC**=5" Wall wash insert - kick reflector for 595WW (1-included with trim) double or corner wall wash**
- WW695SC**=6" Wall wash insert - kick reflector for 695WW (1-included with trim) double or corner wall wash**
- TRM590WH**=5" LED oversize trim ring for use with 59" series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface
- TRM690WH**=6" LED oversize trim ring for use with 69" series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

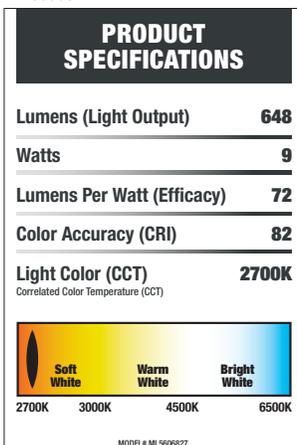
*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adapter band.

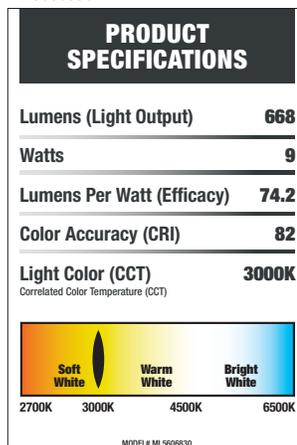
**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

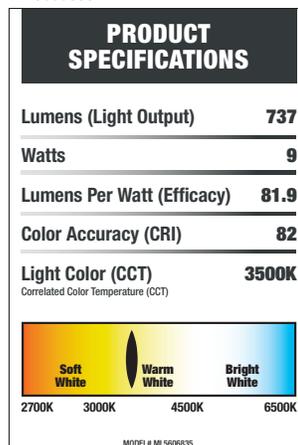
ML5606827



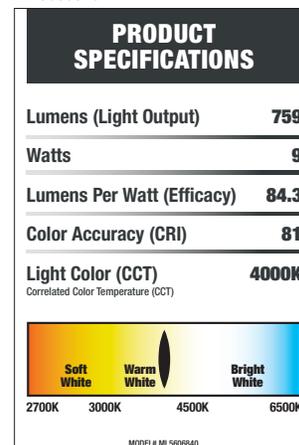
ML5606830



ML5606835



ML5606840



Housing – Trim Compatibility

Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

The ML56 LED light module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in³ in addition to those noted below.

Housing and All-Pro UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H750ICAT	6" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H750RICAT	6" LED, Insulated Ceiling, Air-Tite, Remodel Housing
		H750T	6" LED, Non-IC, Air-Tite, New Construction Housing
		H750TCP	6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing
Halo	Shallow Housings	H2750ICAT	6" LED, Shallow, Insulated Ceiling, Air-Tite, New Constr. (use with 691X, 694X, 696X trims only)

HALO and All-Pro - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description		
Halo	Standard Housings	H71CAT	6" Insulated Ceiling, Air-Tite New Construction Housing		
		H71RICAT	6" Insulated Ceiling, Air-Tite Remodel Housing		
		H71CT	6" Insulated Ceiling, New Construction Housing		
		H71RICT	6" Insulated Ceiling, Remodel Housing		
		H71CATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket		
		H71CTNB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket		
		H7T	6" Non-IC, New Construction Housing		
		H7RT	6" Non-IC, Remodel Housing		
		H7TNB	6" Non-IC, New Construction Housing, No Socket Bracket		
		H7TCP	6" Non-IC, Chicago Plenum, New Construction/Remodel Housing		
		H7UICAT	6" Insulated Ceiling, Universal New Construction Housing		
		H7UICAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing		
		All-Pro	Standard Housings	E1700AT	6" Insulated Ceiling, Air-Tite New Construction Housing
				E1700RAT	6" Insulated Ceiling, Air-Tite Remodel Housing
E1700	6" Insulated Ceiling, New Construction Housing				
E1700R	6" Insulated Ceiling, Remodel Housing				
E1700ATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket				
E1700NB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket				
E1700U	6" Insulated Ceiling, Universal New Construction Housing				
E1700UAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing				
ET700	6" Non-IC, New Construction Housing				
ET700R	6" Non-IC, Remodel Housing				
Halo	Shallow Housings	H271CAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)		
		H271RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)		
		H271CT	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)		
		H271RICT	6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only)		
		H27T	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)		
		H27RT	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)		
All-Pro	Shallow Housings	E12700AT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)		
		E12700	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)		
		E12700R	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)		
		ET2700	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)		
		ET2700R	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)		

Halo LED Retrofit Enclosures

Brand	Type	Catalog Number	Description
Halo	Retrofit	ML7BXRFK	6" Retrofit Enclosure, Non-IC, BX Whip
		ML7E26RFK	6" Retrofit Enclosure, Non-IC, E26 Screw base Interface

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
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Housing Compatibility Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

(Note shallow housings for use with 591X, 594X, 596X trims only)

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H50ICAT	5" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H50RICAT	5" LED, Insulated Ceiling, Air-Tite, Remodel Housing

HALO and All-Pro - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H5ICAT	5" Insulated Ceiling, Air-Tite New Construction Housing
		H5RICAT	5" Insulated Ceiling, Air-Tite Remodel Housing
		H5T	5" Non-IC, New Construction Housing
		H5RT	5" Non-IC, Remodel Housing
		H5TM	5" Non-IC, New Construction Housing (Canada)
All-Pro	Standard Housings	E1500AT	5" Insulated Ceiling, Air-Tite New Construction Housing
		E1500RAT	5" Insulated Ceiling, Air-Tite Remodel Housing
		ET500	5" Non-IC, New Construction Housing
		ET500R	5" Non-IC, Remodel Housing
Halo	Shallow Housings	H25ICAT	5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only)

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

Brand	Housing Type	Catalog Number
Juno	Standard Housings	IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2
	Shallow Housings	IC21, IC21R (use with 691X, 694X, 696X trims only)
Capri	Standard Housings	CR1, PR1, QL1
	Shallow Housings	R9ASIC/PS9RM (use with 691X, 694X, 696X trims only)
Elco		HL7ICA (EL7ICA)
Lithonia	Standard Housings	LC6, L7X
	Shallow Housings	L7XP (use with 691X, 694X, 696X trims only)
Thomas		PS1
Commercial Electric		C7ICA, H3
Progress	Standard Housings	P87-AT † *
	Shallow Housings	P86TG (use with 691X, 694X, 696X trims only)
Lightolier		1104ICS †*, 1104ICR †*

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

* ML56CLIP is compatible with only baffle and reflector trims.

5" Trims: 591X, 596X

Brand	Housing Type	Catalog Number
Juno	Standard Housings	IC20, IC25S, IC25W, TC20

ML56 600 Series Compliance Table

80 CRI LED Modules with ML56 Trims

	ML5606827	ML5606830	ML5606835	ML5606840
593BB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC
693BB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC
593TBZB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC
693TBZB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC
593SNB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC
693SNB	T24NR, WSEC, IECC	T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC
592H	ES, T24NR, WSEC, IECC			
592W	ES, T24NR, WSEC, IECC			
593WB	ES, T24NR, WSEC, IECC			
592SC	ES, T24NR, WSEC, IECC			
692H	ES, T24NR, WSEC, IECC			
595WW	ES, T24NR, WSEC, IECC			
695WW	ES, T24NR, WSEC, IECC			
693WB	ES, T24NR, WSEC, IECC			
692SC	ES, T24NR, WSEC, IECC			
692W	ES, T24NR, WSEC, IECC			
596WB	ES, T24NR, WSEC, IECC			
694TBZB	ES, T24NR, WSEC, IECC			
594TBZB	ES, T24NR, WSEC, IECC			
696WB	ES, T24NR, WSEC, IECC			
694SNB	ES, T24NR, WSEC, IECC			
594SNB	ES, T24NR, WSEC, IECC			
694WB	ES, T24NR, WSEC, IECC			
594WB	ES, T24NR, WSEC, IECC			
594WB-30	ES, T24NR, WSEC, IECC			
694WB-30	ES, T24NR, WSEC, IECC			

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24 = Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire

IECC = International Energy Conservation Code "High Efficacy"

WSEC = Washington State Energy Code - "High Efficacy" Luminaire

ML56 600 Series Lumen Table

80 CRI LED Modules with ML56 trims

	Trim Catalog #	ML5606827		ML5606830		ML5606835		ML5606840	
		Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
0° Tilt Angle	593BB	427.3	47.5	440.5	48.9	486.0	54.0	500.5	55.6
	693BB	473.0	52.6	487.6	54.2	537.9	59.8	554.0	61.6
	593TBZB	479.5	53.3	494.3	54.9	545.3	60.6	561.6	62.4
	693TBZB	496.9	55.2	512.2	56.9	565.1	62.8	582.0	64.7
	593SNB	531.7	59.1	548.1	60.9	604.7	67.2	622.7	69.2
	693SNB	549.1	61.0	566.0	62.9	624.5	69.4	643.1	71.5
	592H	599.1	66.6	617.6	68.6	681.4	75.7	701.7	78.0
	592W	617.6	68.6	636.6	70.7	702.4	78.0	723.3	80.4
	593WB	628.4	69.8	647.8	72.0	714.7	79.4	736.1	81.8
	592SC	632.8	70.3	652.3	72.5	719.7	80.0	741.2	82.4
	692H	635.0	70.6	654.6	72.7	722.2	80.2	743.7	82.6
	595WW	637.1	70.8	656.8	73.0	724.6	80.5	746.3	82.9
	695WW	638.2	70.9	657.9	73.1	725.9	80.7	747.5	83.1
	693WB	648.0	72.0	668.0	74.2	737.0	81.9	759.0	84.3
	692SC	648.0	72.0	668.0	74.2	737.0	81.9	759.0	84.3
	692W	650.2	72.2	670.2	74.5	739.5	82.2	761.5	84.6
	596WB	662.1	73.6	682.6	75.8	753.1	83.7	775.6	86.2
	694TBZB	667.6	74.2	688.2	76.5	759.3	84.4	781.9	86.9
	594TBZB	668.7	74.3	689.3	76.6	760.5	84.5	783.2	87.0
	696WB	673.0	74.8	693.8	77.1	765.4	85.0	788.3	87.6
694SNB	681.7	75.7	702.7	78.1	775.3	86.1	798.5	88.7	
594SNB	683.9	76.0	705.0	78.3	777.8	86.4	801.0	89.0	
694WB	704.5	78.3	726.3	80.7	801.3	89.0	825.2	91.7	
594WB	706.7	78.5	728.5	80.9	803.8	89.3	827.8	92.0	
30° Tilt Angle	594WB-30	685.0	76.1	706.1	78.5	779.0	86.6	802.3	89.1
	694WB-30	654.5	72.7	674.7	75.0	744.4	82.7	766.6	85.2

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 5" Trims • 600 Series • 80 CRI

Multiplier Table

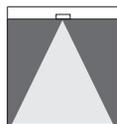
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.970	1.000	1.103	1.136

Table based upon testing with 3000°K color temperature, 80CRI.

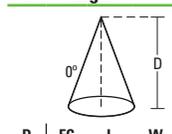
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-592SC

Test Number	P130228
Light Module	600 Series, 80CRI
Trim	5" Aperture, Specular Clear Trim
Lumens	652.0
Efficacy	72.5 Lm/W
SC	1.06

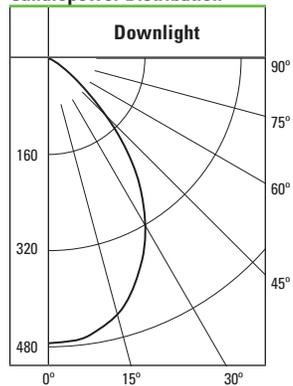


Cone of Light



D	FC	L	W
5.5	15.7	5.8	5.8
7	9.7	7.2	7.2
8	7.4	8.4	8.4
9	5.9	9.4	9.4
10	4.7	10.4	10.4
12	3.3	12.6	12.6

Candlepower Distribution

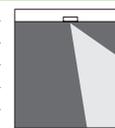


Zonal Lumen Summary

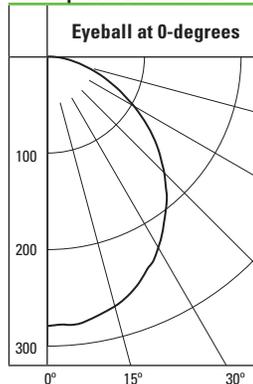
Zone	Lumens	%Fixture
0-30	337	51.7
0-40	502	77
0-60	644	98.7
0-90	652	100
90-180	0	0
0-180	652	100

ML5606830-594WB

Test Number	P130276
Light Module	600 Series, 80CRI
Trim	5" Aperture, Directional Eyeball
Lumens	729
Efficacy	80.9 Lm/W
SC	1.22

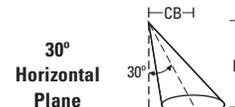


Candlepower Distribution

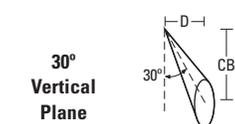


Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	214	29.4
0-40	346	47.5
0-60	590	81
0-90	729	100
90-180	0	0
0-180	729	100

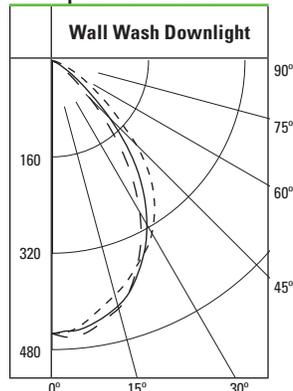


D	FC	L	W	CB
5.5	8.1	6.6	6.6	3.2
7	5	8.3	8.4	4
8	3.8	9.6	9.8	4.6
9	3	10.7	11	5.2
10	2.5	12	12.2	5.8
12	1.7	14.3	14.6	6.9



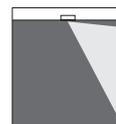
D	FC	L	W	CB
1'	159.1	1.1	1.2	1.7
2'	39.8	2.2	2.6	3.5
3'	17.7	3.3	3.8	5.2
4'	9.9	4.5	5.2	6.9
5'	6.4	5.6	6.6	8.7
6'	4.4	6.7	7.8	10.4

Candlepower Distribution



ML5606830-595WW

Test Number	P130300
Light Module	600 Series, 80CRI
Trim	5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	657
Efficacy	73 Lm/W
SC	1.1



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	322	49
0-40	485	73.8
0-60	639	97.4
0-90	657	100
90-180	0	0
0-180	657	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	2.8	1.8	0.7	0.2	0.1	0	0
2'	9.4	6.8	3	1	0.3	0.1	0
3'	10.8	8.9	4.8	2	0.7	0.2	0.1
4'	7.6	6.8	4.9	2.7	1.2	0.5	0.2
5'	5	4.6	3.7	2.5	1.5	0.7	0.3
6'	3.4	3.2	2.7	2.1	1.4	0.9	0.5
7'	2.3	2.2	2	1.6	1.2	0.8	0.5
8'	1.7	1.6	1.5	1.2	1	0.8	0.5
9'	1.2	1.2	1.1	1	0.8	0.6	0.5
10'	0.9	0.9	0.9	0.8	0.7	0.5	0.4

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--		--4'--	
1'	3	2.3	3	2.8
2'	10.3	9.5	10.3	9.6
3'	12.7	14	12.7	11.5
4'	10.3	11.9	10.3	8.7
5'	7.6	8.6	7.6	6.5
6'	5.4	6	5.4	4.8
7'	3.9	4.3	3.9	3.5
8'	2.9	3.1	2.9	2.7
9'	2.2	2.4	2.2	2
10'	1.7	1.8	1.7	1.6

Legend

0-deg:	---	Wall
90-deg:	---	Side
180-deg:	---	Room

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 6" Trims • 600 Series • 80 CRI

Multiplier Table

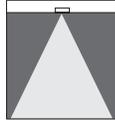
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.97	1.00	1.10	1.14

Table based upon testing with 3000°K color temperature, 80CRI.

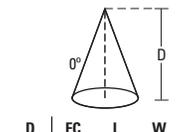
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5606830-692SC

Test Number	P130316
Light Module	600 Series, 80CRI
Trim	6" Aperture, Specular Clear Trim
Lumens	668
Efficacy	74.2 Lm/W
SC	0.66

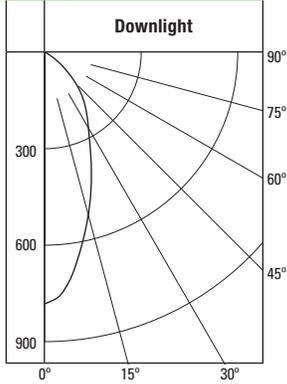


Cone of Light



D	FC	L	W
5.5	25.9	3.6	3.6
7	16	4.6	4.6
8	12.2	5.2	5.2
9	9.7	5.8	5.8
10	7.8	6.6	6.6
12	5.4	7.8	7.8

Candlepower Distribution

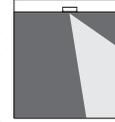


Zonal Lumen Summary

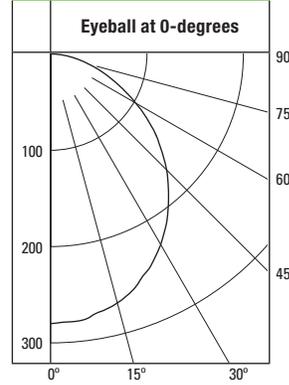
Zone	Lumens	%Fixture
0-30	368	55.1
0-40	509	76.3
0-60	659	98.7
0-90	668	100
90-180	0	0
0-180	668	100

ML5606830-694WB

Test Number	P130372
Light Module	600 Series, 80CRI
Trim	6" Aperture, Directional Eyeball
Lumens	726
Efficacy	80.7 Lm/W
SC	1.21



Candlepower Distribution



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	214	29.5
0-40	346	47.6
0-60	589	81.1
0-90	726	100
90-180	0	0
0-180	726	100

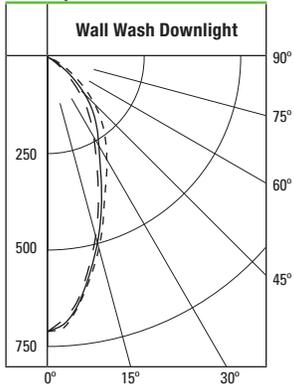
30° Horizontal Plane

D	FC	L	W	CB
5.5	8.1	6.5	6.6	3.2
7	5	8.3	8.6	4
8	3.8	9.6	9.8	4.6
9	3	10.7	11	5.2
10	2.5	11.9	12.2	5.8
12	1.7	14.3	14.6	6.9

30° Vertical Plane

D	FC	L	W	CB
1'	158.1	1.1	1.2	1.7
2'	39.5	2.2	2.6	3.5
3'	17.6	3.3	3.8	5.2
4'	9.9	4.5	5.2	6.9
5'	6.3	5.6	6.6	8.7
6'	4.4	6.7	7.8	10.4

Candlepower Distribution

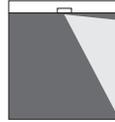


Legend

0-deg: ---	Wall
90-deg: ---	Side
180-deg: ---	Room

ML5606830-695WW

Test Number	P130396
Light Module	600 Series, 80CRI
Trim	6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	658
Efficacy	73.1 Lm/W
SC	0.69



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	352	53.5
0-40	492	74.8
0-60	643	97.7
0-90	658	100
90-180	0	0
0-180	658	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	1.9	1.2	0.4	0.1	0	0	0
2'	8.6	6.2	2.7	0.8	0.2	0.1	0
3'	9.2	7.5	4.4	1.9	0.7	0.2	0.1
4'	6.9	5.9	4.1	2.4	1.2	0.5	0.2
5'	4.9	4.4	3.3	2.2	1.3	0.7	0.4
6'	3.5	3.2	2.5	1.8	1.2	0.8	0.5
7'	2.6	2.4	1.9	1.5	1	0.7	0.5
8'	2	1.8	1.5	1.2	0.9	0.6	0.5
9'	1.5	1.4	1.2	1	0.7	0.6	0.4
10'	1.2	1.1	1	0.8	0.6	0.5	0.4

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--		--4'--	
1'	2	1.5	2	1.9
2'	9.5	8.5	9.5	8.9
3'	11.1	11.9	11.1	9.9
4'	9.3	10.1	9.3	8
5'	7.1	7.7	7.1	6.2
6'	5.3	5.8	5.3	4.7
7'	4.1	4.4	4.1	3.7
8'	3.2	3.4	3.2	2.9
9'	2.5	2.7	2.5	2.3
10'	2	2.1	2	1.8

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Description

The Halo ML56 LED Downlighting System is a series of modular LED Light Modules for use with designated 5" or 6" ML56 LED trims in new construction, remodel and retrofit installation. Compatible with Halo 5" H550 and 6" H750, H2750 Series LED housings. And in retrofit of existing housings the ML56 Series fits 5" or 6" Halo, All-Pro, and others. ML56 system offers shallow trims for installation in Halo, All-Pro and others shallow housings. ML56 Light Modules are offered in 600 Series, 900 Series, and 1200 Series, 80CRI or 90CRI, and four color temperatures 2700K, 3000K, 3500K, 4000K. ML56 Light Modules are universal voltage 120V – 277V and dimmable at 120V. The ML56 lens provides uniform diffuse illumination standard.

Catalog #		Type
Project		
Comments		Date
Prepared by		

Specification Features

Mechanical

Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

Mounting

- Light Modules attach to reflector and baffle trims via locking tabs, and attach to eyeballs via keyed twist-to-lock mating bosses
- The complete light module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. The stainless steel friction blades allow the ML56 to be installed in a wider range of housings, and allow rotation in the housing aperture (360 degrees).

Housing Compatibility

A complete ML56 system includes a LED Light Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59x series and 6" = 69x series trims). Refer to Housing – Trim Section in this document.

LED

- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.
- Color Temperature options: 2700K, 3000K, 3500K, 4000K

- CRI: 80
- L70 at 50,000 hours, projected in accordance with IES TM-21
- LED is a chip on board design consisting of a multiple LED package to create one virtual light source for a productive "cone of light"

Color Specification & Quality Standards

- A tight chromaticity specification ensures LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM exceeds ENERGY STAR® color standards per ANSI C78.377-2008.
- Every Halo LED Light Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- Halo ML56 LED Light Modules include lumen, CRI, and CCT designations in the model number
- Example: **ML5609830**
56 = 5" / 6" aperture series
09 = 900 lumen series
8 = >80 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector is a non-screw base, and where required to qualify as a high-efficacy luminaire.
- The included E26 medium screw-base Edison adapter provides easy retrofit of incandescent housings (see Housing Section).

Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers. (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

Warranty

Cooper Lighting provides a (5) five year limited warranty on the Halo ML56 LED Light Module.

LED Module in New or Retrofit Existing Construction – Housings other than Halo or All-Pro

- If used in recessed housings other than Halo or All-Pro the Cooper Lighting 5-year limited warranty applies to the LED Light Module and Trim only.
- As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes. Installer is responsible to properly and securely retain the LED Module and LED Trim in the housing at time of installation.



ML56 LED System

900 Series / 80 CRI

ML5609827

ML5609830

ML5609835

ML5609840

**5-Inch and 6-Inch
900 Lumen LED
Light Module for
New Construction,**

Remodel and Retrofit

**For use with 59x and 69x
Series Trims**

**FOR USE IN
INSULATED CEILING
AND NON-INSULATED
CEILING RATED
HOUSINGS**

**HIGH EFFICACY LED
WITH INTEGRAL
DRIVER - DIMMABLE**

Energy Data

ML56 900/80 Series

(Values at non-dimming line voltage)

Minimum Starting Temp: -30°C (-22°F)

EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer)

Sound Rating: Class A

Input Voltage: UNV 120V-277V

Power Factor: >0.95 @ 120V and >0.9 @ 277V

Input Frequency: 50/60Hz

THD: <20%

Max. Rated Wattage: 14W

Input Power: 13.4W

Input Current at 120V: 0.15A

Input Current at 277V: 0.08A

Driver Compliance: UL8750, Class II rated

Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F)

Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F)



ML5609827

5" or 6" LED 900 Series



ML5609830

5" or 6" LED 900 Series



ML5609835

5" or 6" LED 900 Series



ML5609840

5" or 6" LED 900 Series

Compliance

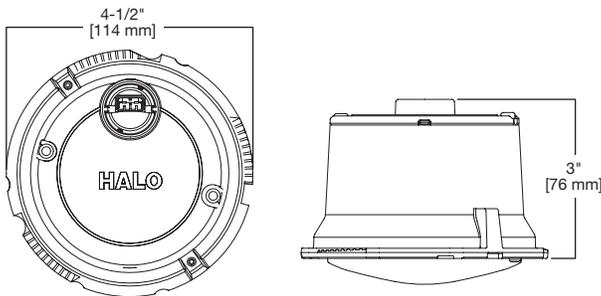
- cULus listed 1598 Luminaire (Halo and All-Pro housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used as a California Title 24 compliant Non-Residential LED Luminaire
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européene" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

* Not for use with housings in direct contact with spray foam insulation.



Refer to ENERGY STAR® Certified Products List.
 Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire

Dimensions



Ordering Information

Sample Number: **ML5609830 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Light Modules 900 Series / 80 CRI

ML5609827= 5"/6" LED light module, 900 lumen, 80CRI, 2700K

ML5609830= 5"/6" LED light module, 900 lumen, 80CRI, 3000K

ML5609835= 5"/6" LED light module, 900 lumen, 80CRI, 3500K

ML5609840= 5"/6" LED light module, 900 lumen, 80CRI, 4000K

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

591WB=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)

592SC=5" LED trim, specular reflector & white flange

592H=5" LED trim, haze reflector & white flange

592W=5" LED trim, white reflector & flange

593WB=5" LED trim, white micro-step baffle & flange

593BB=5" LED trim, black micro-step baffle & white flange

593SNB=5" LED trim, satin nickel micro-step baffle & flange

593TBZB=5" LED trim, tuscan bronze micro-step baffle & flange

594WB=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings

594SNB=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings

594TBZB=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings

595WW=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange

596WB=5" LED trim, white shallow baffle & flange – shallow and standard housings

690 Series - 6" LED Trims

691WB=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)

692SC=6" LED trim, specular reflector & white flange

692H=6" LED trim, haze reflector & white flange

692W=6" LED trim, white reflector & flange

693WB=6" LED trim, white micro-step baffle & flange

693BB=6" LED trim, black micro-step baffle & white flange

693SNB=6" LED trim, satin nickel micro-step baffle & flange

693TBZB=6" LED trim, tuscan bronze micro-step baffle & flange

694WB=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings

694SNB=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings

694TBZB=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings

695WW=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange

696WB=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

ML56 System Accessories

ML56CLIP=Friction clip mounting kit - for retrofitting non-torsion spring housings, 6" clips*

WW595SC=5" Wall wash insert - kick reflector for 595WW

(1-included with trim) double or corner wall wash**

WW695SC=6" Wall wash insert - kick reflector for 695WW

(1-included with trim) double or corner wall wash**

TRM590WH=5" LED oversize trim ring for use with 59" series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface

TRM690WH=6" LED oversize trim ring for use with 69" series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adpater band.

**Wall Wash Trims 595WW and 695WW Feature an exclusive Repositionable Kick Reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are Repositionable Kick Reflectors sold separately for addition to the Wall Wash Trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

ML5609827

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	934
Watts	13.4
Lumens Per Watt (Efficacy)	69.7
Color Accuracy (CRI)	81
Light Color (CCT) Correlated Color Temperature (CCT)	2700K
MODEL# ML5609827	

ML5609830

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1009
Watts	13.4
Lumens Per Watt (Efficacy)	75.3
Color Accuracy (CRI)	82
Light Color (CCT) Correlated Color Temperature (CCT)	3000K
MODEL# ML5609830	

ML5609835

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1024
Watts	13.4
Lumens Per Watt (Efficacy)	76.4
Color Accuracy (CRI)	83
Light Color (CCT) Correlated Color Temperature (CCT)	3500K
MODEL# ML5609835	

ML5609840

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1045
Watts	13.4
Lumens Per Watt (Efficacy)	78.0
Color Accuracy (CRI)	82
Light Color (CCT) Correlated Color Temperature (CCT)	4000K
MODEL# ML5609840	

Housing – Trim Compatibility

Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

The ML56 LED light module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in³ in addition to those noted below.

Halo and All-Pro UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H750ICAT	6" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H750RICAT	6" LED, Insulated Ceiling, Air-Tite, Remodel Housing
		H750T	6" LED, Non-IC, Air-Tite, New Construction Housing
		H750TCP	6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing
		H750TD010	6" LED, Non-IC, Air-Tite, New Construction Housing
		H750RTD010	6" LED, Non-IC, Air-Tite, Remodel Housing
		H750TCPD010	6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing
		H750RINTD010	6" LED, Non-IC, Air-Tite, Remodel Housing (International CE Mark and UL/cUL Listed)
		Halo	Shallow Housings

HALO and All-Pro - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description		
Halo	Standard Housings	H7ICAT	6" Insulated Ceiling, Air-Tite New Construction Housing		
		H7RICAT	6" Insulated Ceiling, Air-Tite Remodel Housing		
		H7ICT	6" Insulated Ceiling, New Construction Housing		
		H7RICT	6" Insulated Ceiling, Remodel Housing		
		H7ICATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket		
		H7ICTNB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket		
		H7T	6" Non-IC, New Construction Housing		
		H7RT	6" Non-IC, Remodel Housing		
		H7TNB	6" Non-IC, New Construction Housing, No Socket Bracket		
		H7TCP	6" Non-IC, Chicago Plenum, New Construction/Remodel Housing		
		H7UICAT	6" Insulated Ceiling, Universal New Construction Housing		
		H7UICAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing		
		All-Pro	Standard Housings	EI700AT	6" Insulated Ceiling, Air-Tite New Construction Housing
				EI700RAT	6" Insulated Ceiling, Air-Tite Remodel Housing
EI700	6" Insulated Ceiling, New Construction Housing				
EI700R	6" Insulated Ceiling, Remodel Housing				
EI700ATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket				
EI700NB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket				
EI700U	6" Insulated Ceiling, Universal New Construction Housing				
EI700UAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing				
ET700	6" Non-IC, New Construction Housing				
ET700R	6" Non-IC, Remodel Housing				
Halo	Shallow Housings	H27ICAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)		
		H27RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)		
		H27ICT	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)		
		H27RICT	6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only)		
		H27T	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)		
		H27RT	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)		
All-Pro	Shallow Housings	EI2700AT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)		
		EI2700	6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only)		
		EI2700R	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)		
		ET2700	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)		
		ET2700R	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)		

Halo LED Retrofit Enclosures

Brand	Type	Catalog Number	Description
Halo	Retrofit	ML7BXRFK	6" Retrofit Enclosure, Non-IC, BX Whip
		ML7E26RFK	6" Retrofit Enclosure, Non-IC, E26 Screw base Interface

Housing Compatibility - Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

(Note shallow housings for use with 591X, 594X, 596X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H550ICAT	5" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H550RICAT	5" LED, Insulated Ceiling, Air-Tite, Remodel Housing

HALO and All-Pro - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H5ICAT	5" Insulated Ceiling, Air-Tite New Construction Housing
		H5RICAT	5" Insulated Ceiling, Air-Tite Remodel Housing
		H5T	5" Non-IC, New Construction Housing
		H5RT	5" Non-IC, Remodel Housing
		H5TM	5" Non-IC, New Construction Housing (Canada)
All-Pro	Standard Housings	EI500AT	5" Insulated Ceiling, Air-Tite New Construction Housing
		EI500RAT	5" Insulated Ceiling, Air-Tite Remodel Housing
		ET500	5" Non-IC, New Construction Housing
		ET500R	5" Non-IC, Remodel Housing
Halo	Shallow Housings	H25ICAT	5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only)

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

Brand	Housing Type	Description
Juno	Standard Housings	IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2
	Shallow Housings	IC21, IC21R (use with 691X, 694X, 696X trims only)
Capri	Standard Housings	CR1, PR1, QL1
	Shallow Housings	R9ASIC/PS9RM (use with 691X, 694X, 696X trims only)
Elco		HL7ICA (EL7ICA)
Lithonia	Standard Housings	LC6, L7X
	Shallow Housings	L7XP (use with 691X, 694X, 696X trims only)
Thomas		PS1
Commercial Electric		C7ICA, H3
Progress	Standard Housing	P87-AT †*
	Shallow Housing	P86TG (use with 691X, 694X, 696X trims only)
Lightolier		1104ICS †*, 1104ICR †*

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

* ML56CLIP is compatible with only baffle and reflector trims

5" Trims: 591X, 596X

Brand	Housing Type	Catalog Number
Juno	Standard Housings	IC20, IC25S, IC25W, TC20

ML56 900 Series Compliance Table

80 CRI LED Modules with ML56 Trims

	ML5609827	ML5609830	ML5609835	ML5609840
593BB	WSEC, IECC	ES, T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC	ES, T24NR, WSEC, IECC
693BB	ES, T24NR, WSEC, IECC			
593TBZB	ES, T24NR, WSEC, IECC			
693TBZB	ES, T24NR, WSEC, IECC			
593SNB	ES, T24NR, WSEC, IECC			
693SNB	ES, T24NR, WSEC, IECC			
592H	ES, T24NR, WSEC, IECC			
593WB	ES, T24NR, WSEC, IECC			
592W	ES, T24NR, WSEC, IECC			
595WW	ES, T24NR, WSEC, IECC			
592SC	ES, T24NR, WSEC, IECC			
692H	ES, T24NR, WSEC, IECC			
695WW	ES, T24NR, WSEC, IECC			
693WB	ES, T24NR, WSEC, IECC			
692SC	ES, T24NR, WSEC, IECC			
596WB	ES, T24NR, WSEC, IECC			
692W	ES, T24NR, WSEC, IECC			
594TBZB	ES, T24NR, WSEC, IECC			
694TBZB	ES, T24NR, WSEC, IECC			
594SNB	ES, T24NR, WSEC, IECC			
696WB	ES, T24NR, WSEC, IECC			
694SNB	ES, T24NR, WSEC, IECC			
694WB	ES, T24NR, WSEC, IECC			
594WB	ES, T24NR, WSEC, IECC			
594WB-30	ES, T24NR, WSEC, IECC			
694WB-30	ES, T24NR, WSEC, IECC			

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24NR = May be used for California Title 24 Non-Residential LED luminaire

IECC = International Energy Conservation Code "High Efficacy"

WSEC = Washington State Energy Code - "High Efficacy" Luminaire

ML56 900 Series Lumen Table

80 CRI LED Modules with ML56 trims

	Trim Catalog #	ML5609827		ML5609830		ML5609835		ML5609840	
		Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
0° Tilt Angle	593BB	602.9	45.0	651.3	48.6	661.0	49.3	674.5	50.3
	693BB	676.2	50.5	730.5	54.5	741.3	55.3	756.5	56.5
	593TBZB	686.3	51.2	741.4	55.3	752.4	56.2	767.8	57.3
	693TBZB	714.1	53.3	771.4	57.6	782.9	58.4	799.0	59.6
	593SNB	757.1	56.5	817.8	61.0	830.0	61.9	847.0	63.2
	693SNB	789.9	58.9	853.3	63.7	866.0	64.6	883.8	66.0
	592H	846.8	63.2	914.8	68.3	928.4	69.3	947.4	70.7
	593WB	887.2	66.2	958.5	71.5	972.7	72.6	992.7	74.1
	592W	894.8	66.8	966.7	72.1	981.0	73.2	1001.2	74.7
	595WW	916.3	68.4	989.9	73.9	1004.6	75.0	1025.2	76.5
	592SC	917.6	68.5	991.3	74.0	1006.0	75.1	1026.6	76.6
	692H	921.4	68.8	995.3	74.3	1010.1	75.4	1030.9	76.9
	695WW	922.6	68.9	996.7	74.4	1011.5	75.5	1032.3	77.0
	693WB	934.0	69.7	1009.0	75.3	1024.0	76.4	1045.0	78.0
	692SC	946.6	70.6	1022.7	76.3	1037.9	77.5	1059.1	79.0
	596WB	946.6	70.6	1022.7	76.3	1037.9	77.5	1059.1	79.0
	692W	947.9	70.7	1024.0	76.4	1039.2	77.6	1060.6	79.1
	594TBZB	954.2	71.2	1030.8	76.9	1046.2	78.1	1067.6	79.7
	694TBZB	959.3	71.6	1036.3	77.3	1051.7	78.5	1073.3	80.1
	594SNB	959.3	71.6	1036.3	77.3	1051.7	78.5	1073.3	80.1
30° Tilt Angle	696WB	975.7	72.8	1054.1	78.7	1069.7	79.8	1091.7	81.5
	694SNB	977.0	72.9	1055.4	78.8	1071.1	79.9	1093.1	81.6
	694WB	1017.4	75.9	1099.1	82.0	1115.5	83.2	1138.3	84.9
	594WB	1018.7	76.0	1100.5	82.1	1116.8	83.3	1139.7	85.1
	594WB-30	987.1	73.7	1066.3	79.6	1082.2	80.8	1104.4	82.4
	694WB-30	959.3	71.6	1036.3	77.3	1051.7	78.5	1073.3	80.1

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 5" Trims • 900 Series • 80 CRI

Multiplier Table

CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.93	1.00	1.02	1.04

Table based upon testing with 3000°K color temperature, 80CRI.

Multipliers may be used to determine relative lumen values with other color temperatures.

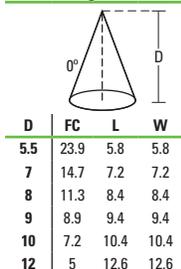
5" Trims • 900 Series • 80 CRI

ML5609830-592SC

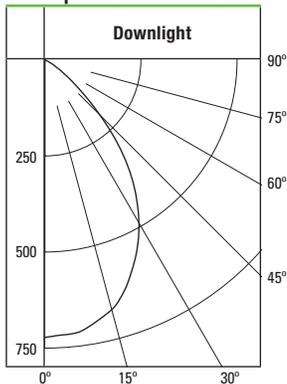
Test Number	P130004
Light Module	900 Series, 80CRI
Trim	5" Aperture, Specular Clear Trim
Lumens	991
Efficacy	74 Lm/W
SC	1.06



Cone of Light



Candlepower Distribution

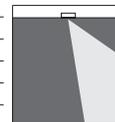


Zonal Lumen Summary

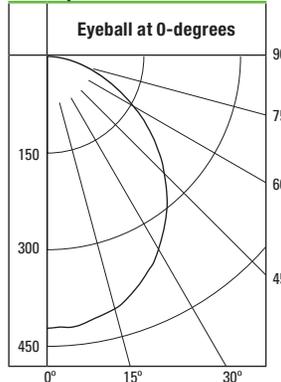
Zone	Lumens	%Fixture
0-30	513	51.8
0-40	765	77.2
0-60	979	98.8
0-90	991	100
90-180	0	0
0-180	991	100

ML5609830-594WB

Test Number	P130060
Light Module	900 Series, 80CRI
Trim	5" Aperture, Directional Eyeball
Lumens	1100
Efficacy	82.1 Lm/W
SC	1.22



Candlepower Distribution



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	324	29.5
0-40	523	47.6
0-60	892	81
0-90	1100	100
90-180	0	0
0-180	1100	100

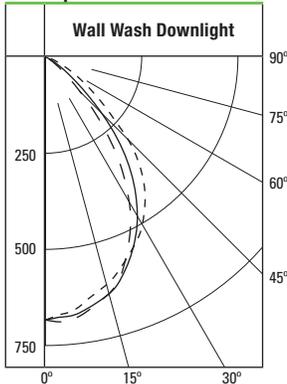
30° Horizontal Plane

D	FC	L	W	CB
5.5	12.3	6.6	6.6	3.2
7	7.6	8.3	8.6	4
8	5.8	9.6	9.8	4.6
9	4.6	10.7	11	5.2
10	3.7	11.9	12.2	5.8
12	2.6	14.3	14.6	6.9

30° Vertical Plane

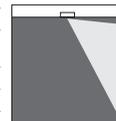
D	FC	L	W	CB
1'	240.2	1.1	1.2	1.7
2'	60.1	2.2	2.6	3.5
3'	26.7	3.3	3.8	5.2
4'	15	4.5	5.2	6.9
5'	9.6	5.6	6.6	8.7
6'	6.7	6.7	7.8	10.4

Candlepower Distribution



ML5609830-595WW

Test Number	P130084
Light Module	900 Series, 80CRI
Trim	5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	990
Efficacy	73.9 Lm/W
SC	1.06



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	486	49.1
0-40	732	73.9
0-60	964	97.4
0-90	990	100
90-180	0	0
0-180	990	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	4	2.7	1	0.3	0.1	0	0
2'	14.1	10.3	4.4	1.3	0.4	0.1	0
3'	16.4	13.6	7.4	2.9	1.1	0.4	0.1
4'	11.5	10.4	7.4	4	1.8	0.8	0.3
5'	7.6	7.1	5.7	3.8	2.2	1.1	0.5
6'	5.1	4.9	4.2	3.1	2.2	1.3	0.7
7'	3.5	3.4	3	2.4	1.8	1.3	0.8
8'	2.5	2.5	2.3	1.9	1.5	1.1	0.8
9'	1.9	1.8	1.7	1.5	1.2	1	0.7
10'	1.4	1.4	1.3	1.2	1	0.8	0.7

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--	--4'--
1'	4.3 3.3 4.3	4.1 1.9 4.1
2'	15.4 14 15.4	14.5 8.8 14.5
3'	19.3 20.9 19.3	17.5 14.7 17.5
4'	15.5 17.7 15.5	13.3 14.8 13.3
5'	11.4 12.7 11.4	9.9 11.4 9.9
6'	8.2 9 8.2	7.3 8.3 7.3
7'	6 6.4 6	5.4 6.1 5.4
8'	4.4 4.7 4.4	4.1 4.5 4.1
9'	3.3 3.5 3.3	3.1 3.4 3.1
10'	2.6 2.7 2.6	2.4 2.6 2.4

Legend

0-deg:	--- --- ---	Wall
90-deg:	-----	Side
180-deg:	-----	Room

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 6" Trims • 900 Series • 80 CRI

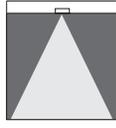
Multiplier Table

CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.93	1.00	1.02	1.04

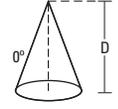
Table based upon testing with 3000°K color temperature, 80CRI.
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609830-692SC

Test Number	P130100
Light Module	900 Series, 80CRI
Trim	6" Aperture, Specular Clear Trim
Lumens	1023
Efficacy	76.3 Lm/W
SC	0.66

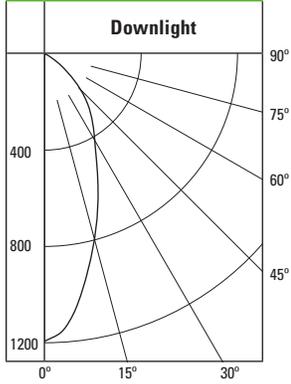


Cone of Light



D	FC	L	W
5.5	39.4	3.6	3.6
7	24.4	4.6	4.6
8	18.6	5.2	5.2
9	14.7	5.8	5.8
10	11.9	6.6	6.6
12	8.3	7.8	7.8

Candlepower Distribution

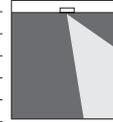


Zonal Lumen Summary

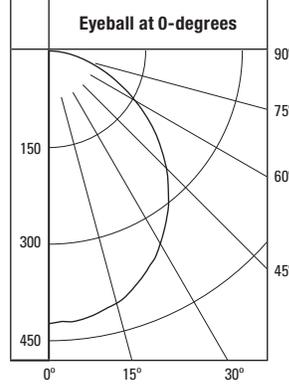
Zone	Lumens	%Fixture
0-30	562	54.9
0-40	778	76.1
0-60	1009	98.7
0-90	1023	100
90-180	0	0
0-180	1023	100

ML5609830-694WB

Test Number	P130156
Light Module	900 Series, 80CRI
Trim	6" Aperture, Directional Eyeball
Lumens	1099
Efficacy	82 Lm/W
SC	1.21

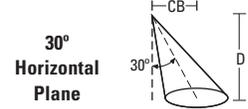


Candlepower Distribution

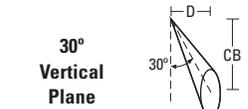


Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	324	29.5
0-40	523	47.6
0-60	891	81.1
0-90	1099	100
90-180	0	0
0-180	1099	100

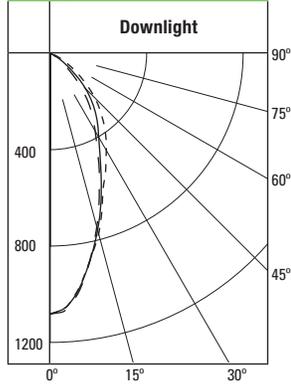


D	FC	L	W	CB
5.5	12.3	6.6	6.6	3.2
7	7.6	8.3	8.6	4
8	5.8	9.6	9.8	4.6
9	4.6	10.7	11	5.2
10	3.7	12	12.2	5.8
12	2.6	14.3	14.6	6.9



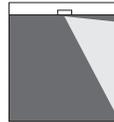
D	FC	L	W	CB
1'	240.2	1.1	1.2	1.7
2'	60.1	2.2	2.6	3.5
3'	26.7	3.3	3.8	5.2
4'	15	4.5	5.2	6.9
5'	9.6	5.6	6.6	8.7
6'	6.7	6.7	7.8	10.4

Candlepower Distribution



ML5609830-695WW

Test Number	P130180
Light Module	900 Series, 80CRI
Trim	6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	997
Efficacy	74.4 Lm/W
SC	0.69



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	533	53.5
0-40	745	74.8
0-60	974	97.7
0-90	997	100
90-180	0	0
0-180	997	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	3	1.7	0.6	0.2	0.1	0	0
2'	13	9.3	4	1.3	0.3	0.1	0
3'	13.9	11.3	6.6	2.9	1.1	0.4	0.1
4'	10.5	9	6.2	3.6	1.8	0.8	0.3
5'	7.4	6.6	5	3.3	2	1.1	0.5
6'	5.3	4.8	3.8	2.7	1.8	1.2	0.7
7'	3.9	3.6	3	2.2	1.6	1.1	0.7
8'	3	2.8	2.3	1.8	1.3	1	0.7
9'	2.3	2.2	1.9	1.5	1.1	0.8	0.6
10'	1.8	1.7	1.5	1.2	1	0.7	0.6

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--	--4'--
1'	3.2 2.2 3.2	3 1.2 3
2'	14.3 13 14.3	13.4 8.1 13.4
3'	16.9 18.2 16.9	15 13.2 15
4'	14.1 15.5 14.1	12.2 12.5 12.2
5'	10.7 11.7 10.7	9.4 9.9 9.4
6'	8 8.8 8	7.1 7.7 7.1
7'	6.2 6.7 6.2	5.5 5.9 5.5
8'	4.8 5.2 4.8	4.4 4.6 4.4
9'	3.8 4.1 3.8	3.5 3.7 3.5
10'	3 3.3 3	2.8 3 2.8

Legend

0-deg: --- --- ---	Wall
90-deg: --- --- ---	Side
180-deg: --- --- ---	Room

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Varieta

Single Array LED Flood Light

FL1/BLK



Features

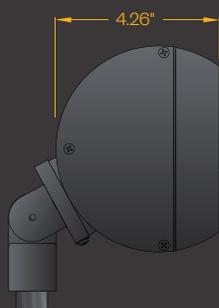
The Amerlux Varieta flood luminaire employs solid state technology and precision engineering to provide LED solutions for exterior signage, wall washing, and landscape layouts. All components are encapsulated inside a single attractive enclosure designed for superior performance in weather resistant applications. Offered in a choice of finishes, and color temperatures, three mounting options and glare shield are also available.

Product Overview

Wattage:	31W
Lumen Output:	3,170 lm
Color Temp:	3,000K / 4,000K / 5,000K
Dimming:	0-10 volt

PROJECT:

TYPE:



Construction:

- Die-Cast aluminum faceplate
- Extruded aluminum housing
- IP67 sealed optical module

Mounting:

- Cast aluminum pivot
- 180° tilt
- 360° rotation

Electrical:

Integral driver
 Input voltage 120v-277v auto-sensing
 Power consumption 31W
 1/2" NPT wire entry
Standard - non-dimming unless specified

Accessories:

EGS -Ext Glare Shield
GSP17 -Ground Stake
PMBS-2-18 -Pole Mount
WMS14 -Wall Mount

Optics:

- Lumen maintenance: 70% @ 50,000 hours
- 1 lens module containing 16 LEDs available in a number of symmetric or asymmetric axial beam spread patterns

Ambient Operating Range:

-30°C to 40°C

Weight:

5 lbs

EPA:

0.25

ETL listed, suitable for wet locations.

Finish:

Premium quality thermoset polyester powdercoat for a durable finish in the following:

BLK -Satin Black
CLB -Classic Bronze
GRN -Green

TBK -Textured Black
WHT -White



Varieta

Single Array LED Flood Light



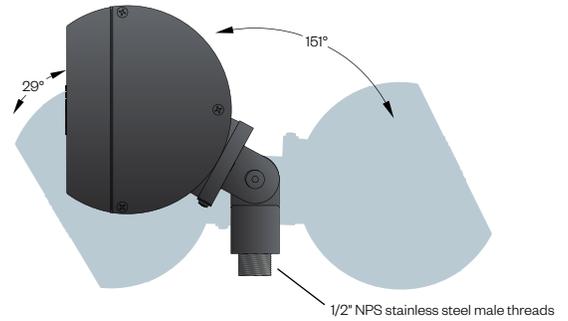
PROJECT:

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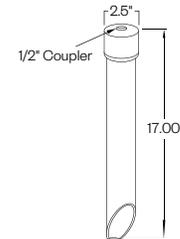
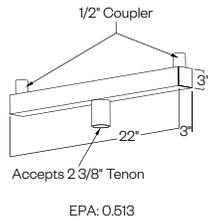
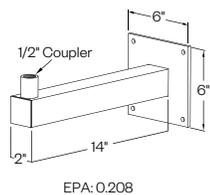
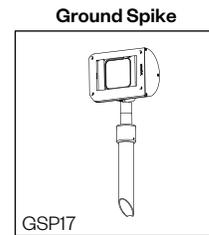
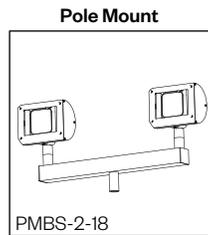
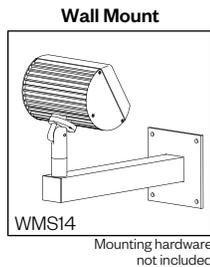
Accessories:



Mounting:



Mounting Accessories:



Ordering Information

Model	Light Distribution	CCT	CRI	Approx. Lumens	Total Efficacy	Finish	Accessories	Dimming Option
FL1	NSP	30 (3,000K)	80	2,580	83 Lm/W	SELECT FINISH	EGS	DM
		40 (4,000K)	80	2,940	94 Lm/W			
		50 (5,000K)	70	3,020	97 Lm/W			
	HMS VMS	30 (3,000K)	80	2,340	75 Lm/W			
		40 (4,000K)	80	2,670	86 Lm/W			
		50 (5,000K)	70	2,740	88 Lm/W			
	HWS VWS	30 (3,000K)	80	2,260	72 Lm/W			
		40 (4,000K)	80	2,580	83 Lm/W			
		50 (5,000K)	70	2,640	85 Lm/W			
	SGS	30 (3,000K)	80	2,270	73 Lm/W			
		40 (4,000K)	80	2,580	82 Lm/W			
		50 (5,000K)	70	2,650	85 Lm/W			
	MFL	30 (3,000K)	80	2,710	87 Lm/W			
		40 (4,000K)	80	3,090	99 Lm/W			
		50 (5,000K)	70	3,170	102 Lm/W			
	HMF VMF	30 (3,000K)	80	2,490	80 Lm/W			
		40 (4,000K)	80	2,840	91 Lm/W			
		50 (5,000K)	70	2,920	94 Lm/W			
	HWF VWF	30 (3,000K)	80	2,420	78 Lm/W			
		40 (4,000K)	80	2,760	89 Lm/W			
		50 (5,000K)	70	2,830	91 Lm/W			
	SQF	30 (3,000K)	80	2,460	79 Lm/W			
		40 (4,000K)	80	2,800	90 Lm/W			
		50 (5,000K)	70	2,870	92 Lm/W			

Ordering options in **BOLD**

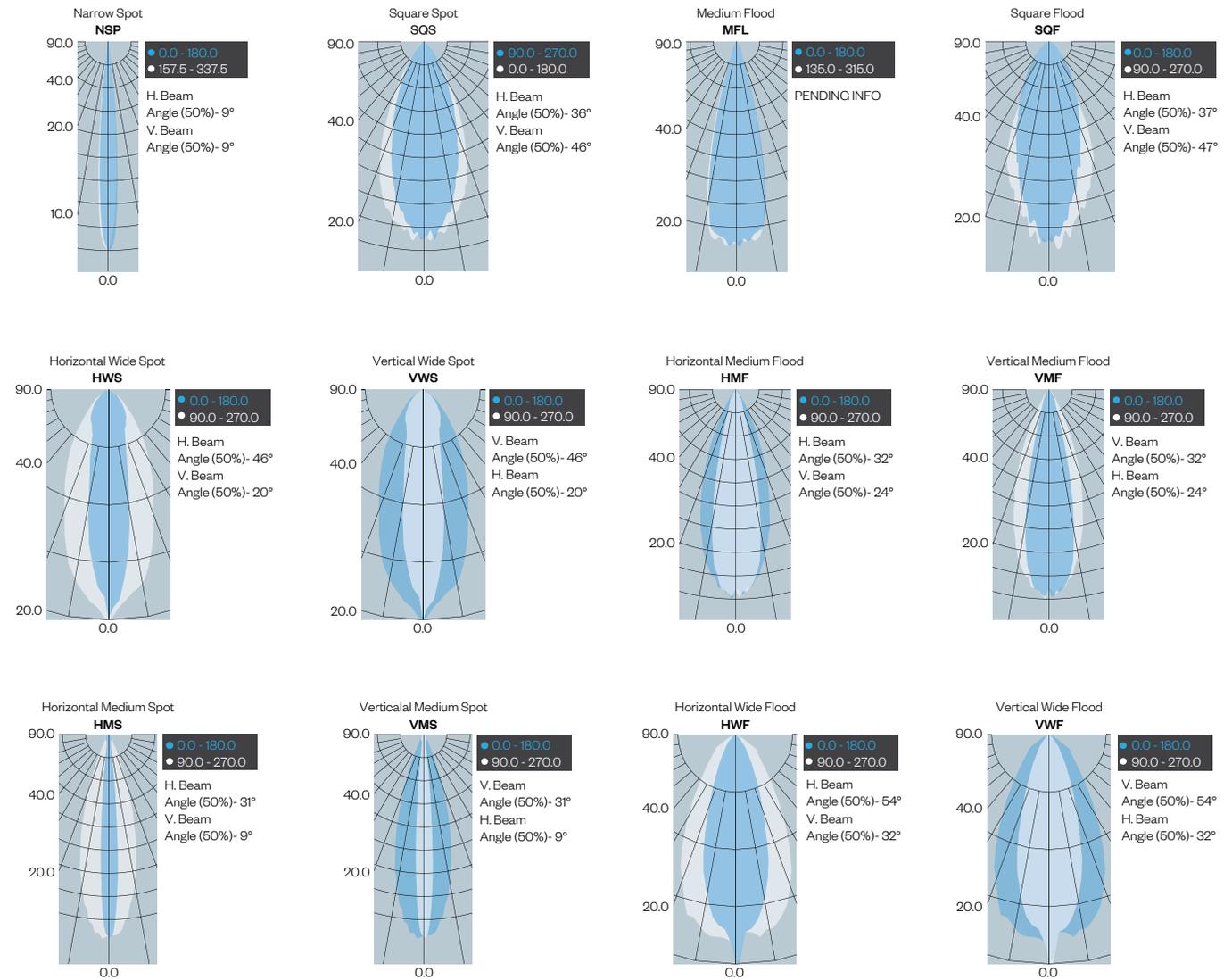
Varieta

Single Array LED Flood Light

PROJECT:

TYPE:

Optical Performance:



Varieta

Two Array LED Flood Light



PROJECT:

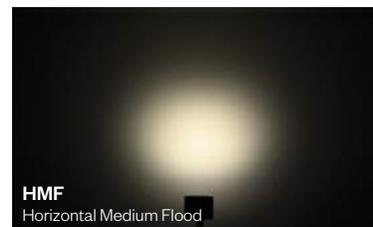
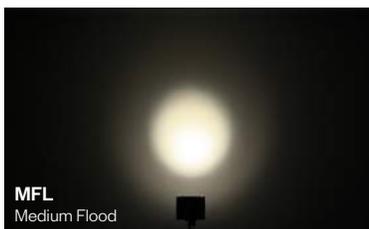
TYPE:

Visual Light Pattern Reference:

SPOT OPTIC LIGHT PATTERNS



FLOOD OPTIC LIGHT PATTERNS



DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics

Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical

LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting

STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the

arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. QUICK MOUNT ARM: Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish

Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty

Five-year warranty.

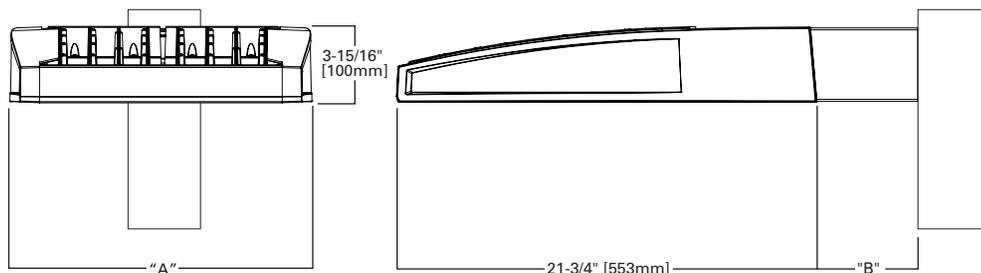


GLEON
GALLEON LED

1-10 Light Squares
Solid State LED

AREA/SITE LUMINAIRE

DIMENSIONS

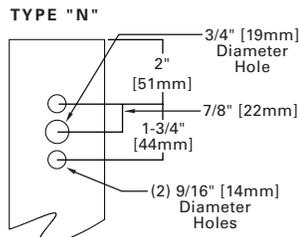


DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length ¹	Weight with Arm (lbs.)	EPA with Arm ² (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

DRILLING PATTERN



CERTIFICATION DATA

UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium® Qualified*

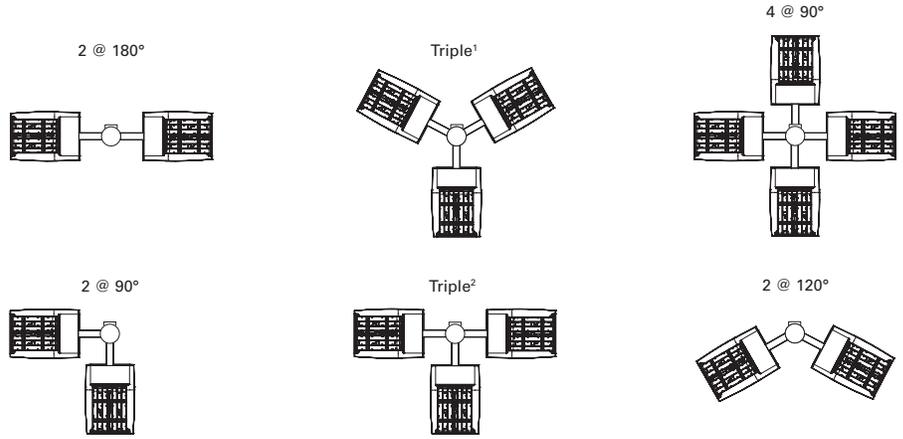
ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)



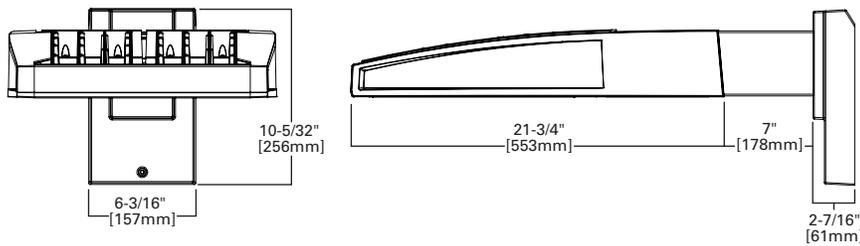
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AF-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AF-10	16" Extended Arm (Required)	16" Extended Arm (Required)

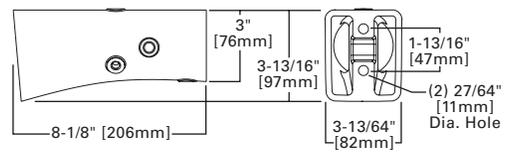


NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. 2 Round poles are 3 @ 90°.

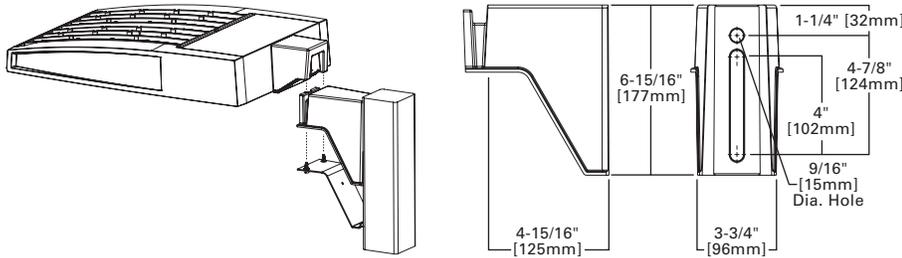
STANDARD WALL MOUNT



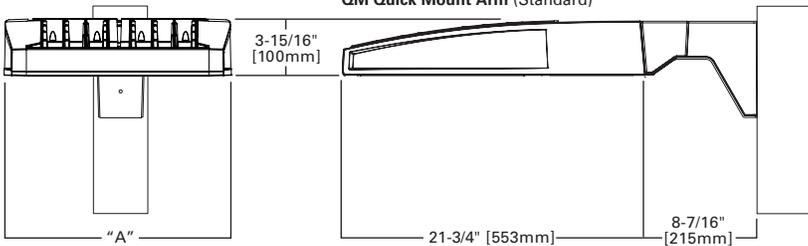
MAST ARM MOUNT



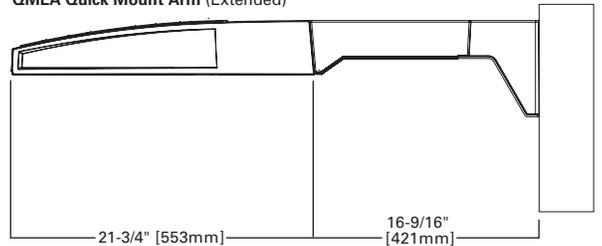
QUICK MOUNT ARM (INCLUDES FIXTURE ADAPTER)



QM Quick Mount Arm (Standard)



QMEA Quick Mount Arm (Extended)

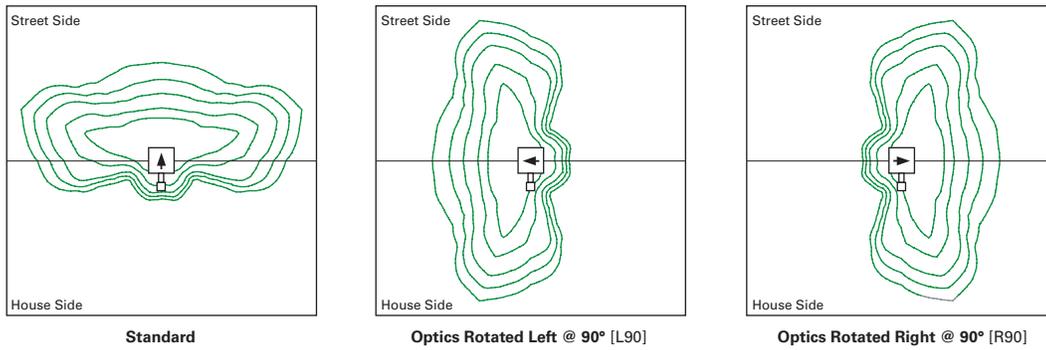


QUICK MOUNT ARM DATA

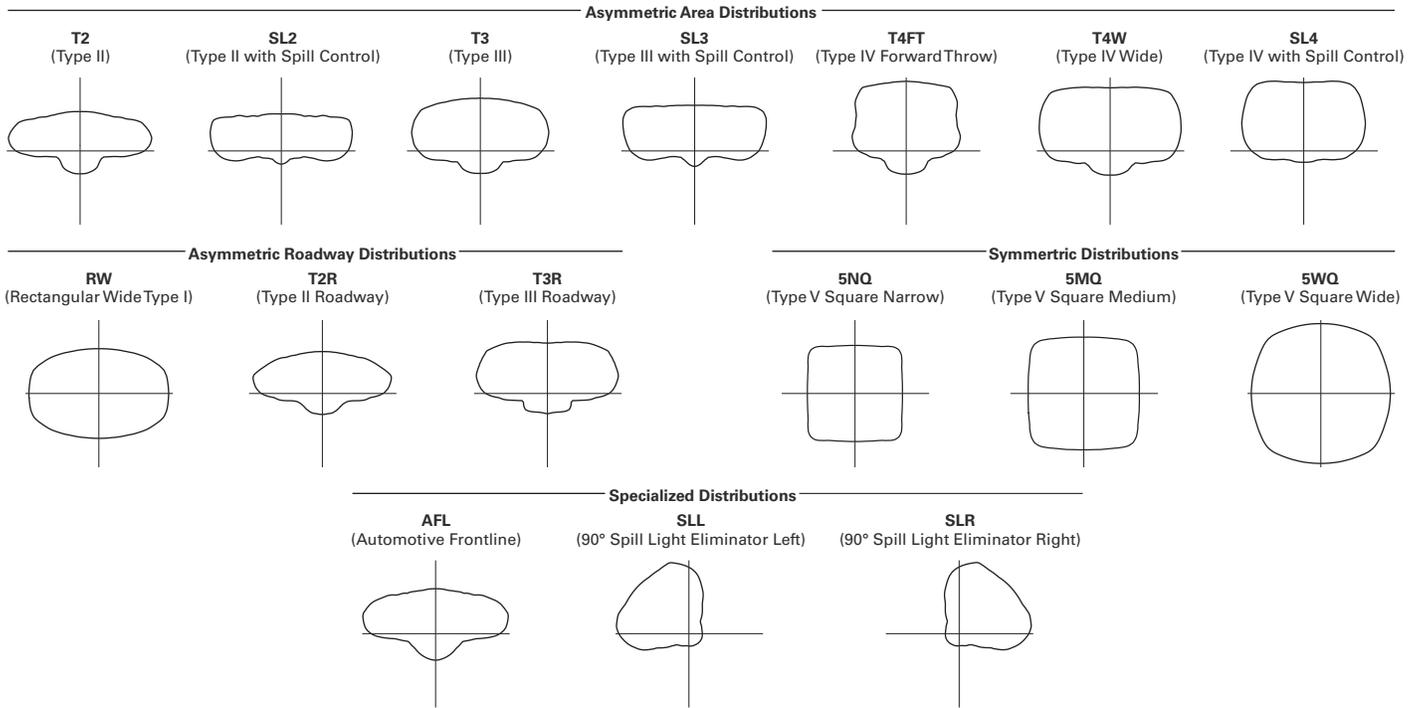
Number of Light Squares ^{1,2}	"A" Width	Weight with QM Arm (lbs.)	Weight with QMEA Arm (lbs.)	EPA (Sq. Ft.)
1-4	15-1/2" (394mm)	35 (15.91 kgs.)	38 (17.27 kgs.)	1.11
5-6 ³	21-5/8" (549mm)	46 (20.91 kgs.)	49 (22.27 kgs.)	
7-8	27-5/8" (702mm)	56 (25.45 kgs.)	59 (26.82 kgs.)	

NOTES: 1 QM option available with 1-8 light square configurations. 2 QMEA option available with 1-6 light square configurations. 3 QMEA arm to be used when mounting two fixtures at 90° on a single pole.

OPTIC ORIENTATION



OPTICAL DISTRIBUTIONS

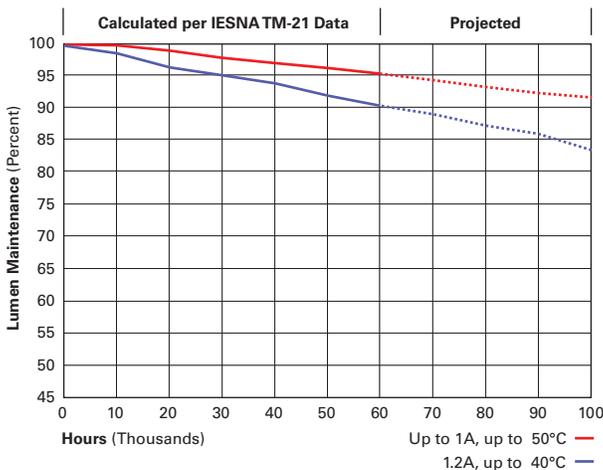


LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97



NOMINAL POWER LUMENS (1A)

S3,
S3A,
S4

S1

Number of Light Squares	1	2	3	4	5	6	7	8	9	10	
Nominal Power (Watts)	59	113	166	225	279	333	391	445	501	558	
Input Current @ 120V (A)	0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.6	5.07	
Input Current @ 208V (A)	0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75	
Input Current @ 240V (A)	0.26	0.48	0.71	0.96	1.19	1.41	1.67	1.89	2.12	2.39	
Input Current @ 277V (A)	0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09	
Input Current @ 347V (A)	0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68	
Input Current @ 480V (A)	0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28	
Optics											
T2	4000K/5000K Lumens	6,116	11,951	17,833	23,563	29,195	34,937	41,317	46,814	52,221	57,817
	3000K Lumens	5,414	10,579	15,786	20,858	25,843	30,926	36,574	41,440	46,226	51,180
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	6,493	12,688	18,932	25,015	30,994	37,090	43,863	49,699	55,439	61,380
	3000K Lumens	5,748	11,231	16,759	22,143	27,436	32,832	38,828	43,994	49,075	54,334
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3	4000K/5000K Lumens	6,234	12,181	18,176	24,017	29,756	35,609	42,111	47,715	53,225	58,930
	3000K Lumens	5,518	10,783	16,089	21,260	26,340	31,521	37,277	42,237	47,115	52,165
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	6,372	12,453	18,580	24,550	30,418	36,400	43,048	48,776	54,409	60,239
	3000K Lumens	5,640	11,023	16,447	21,732	26,926	32,221	38,106	43,177	48,163	53,324
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
T4FT	4000K/5000K Lumens	6,270	12,252	18,282	24,156	29,929	35,815	42,356	47,992	53,534	59,271
	3000K Lumens	5,550	10,845	16,183	21,383	26,493	31,703	37,494	42,483	47,388	52,467
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4W	4000K/5000K Lumens	6,189	12,094	18,045	23,844	29,543	35,352	41,809	47,372	52,843	58,506
	3000K Lumens	5,479	10,706	15,973	21,107	26,151	31,294	37,009	41,934	46,777	51,790
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	6,105	11,931	17,803	23,522	29,144	34,877	41,245	46,734	52,130	57,717
	3000K Lumens	5,404	10,561	15,759	20,822	25,798	30,873	36,510	41,369	46,145	51,091
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	6,233	12,180	18,174	24,013	29,753	35,604	42,106	47,708	53,218	58,921
	3000K Lumens	5,517	10,782	16,088	21,256	26,337	31,517	37,272	42,231	47,109	52,157
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL4	4000K/5000K Lumens	5,922	11,572	17,268	22,816	28,269	33,829	40,006	45,330	50,566	55,984
	3000K Lumens	5,242	10,244	15,286	20,197	25,024	29,945	35,413	40,126	44,761	49,557
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	6,429	12,563	18,746	24,768	30,688	36,723	43,429	49,208	54,891	60,775
	3000K Lumens	5,691	11,121	16,594	21,925	27,165	32,507	38,443	43,559	48,590	53,798
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
5MQ	4000K/5000K Lumens	6,547	12,794	19,090	25,224	31,253	37,400	44,228	50,114	55,902	61,893
	3000K Lumens	5,795	11,325	16,898	22,328	27,665	33,106	39,151	44,361	49,484	54,788
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
5WQ	4000K/5000K Lumens	6,564	12,828	19,141	25,291	31,336	37,499	44,347	50,248	56,051	62,058
	3000K Lumens	5,810	11,355	16,944	22,388	27,739	33,194	39,256	44,480	49,616	54,934
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	5,478	10,703	15,970	21,102	26,145	31,286	37,001	41,924	46,765	51,777
	3000K Lumens	4,849	9,474	14,137	18,679	23,144	27,694	32,753	37,111	41,396	45,833
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	6,371	12,449	18,576	24,544	30,411	36,392	43,037	48,764	54,396	60,225
	3000K Lumens	5,640	11,020	16,443	21,726	26,920	32,214	38,096	43,166	48,151	53,311
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
AFL	4000K/5000K Lumens	6,394	12,494	18,644	24,634	30,521	36,524	43,194	48,942	54,593	60,444
	3000K Lumens	5,660	11,060	16,504	21,806	27,017	32,331	38,235	43,323	48,326	53,505
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4

* Nominal data for 70 CRI.

ORDERING INFORMATION

Sample Number: GLEON-AF-04-LED-E1-T3-GM-QM

Product Family ^{1,2}	Light Engine	Number of Light Squares ³	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	AF=1A Drive Current	01=1 02=2 03=3 04=4 05=5 ⁴ 06=6 07=7 ⁵ 08=8 ⁵ 09=9 ⁶ 10=10 ⁶	LED=Solid State Light Emitting Diodes	E1=120-277V 347=347V ⁷ 480=480V ^{7,8}	T2=Type II T2R=Type II Roadway T3=Type III T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Narrow 5MQ=Type V Square Medium 5WO=Type V Square Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I AFL=Automotive Frontline	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White	[Blank]=Arm for Round or Square Pole EA=Extended Arm ⁹ MA=Mast Arm Adapter ¹⁰ WM=Wall Mount QM=Quick Mount Arm (Standard Length) ¹¹ QMEA=Quick Mount Arm (Extended Length) ¹²

Options (Add as Suffix)	Accessories (Order Separately)
<p>7030=70 CRI 3000K¹³ 8030=80 CRI 3000K¹⁴ 7050=70 CRI 5000K¹³ 7060=70 CRI 6000K¹³ 600=Drive Current Factory Set to Nominal 600mA¹⁵ 800=Drive Current Factory Set to Nominal 800mA¹⁵ 1200=Drive Current Factory Set to Nominal 1200mA^{15,16} F=Single Fuse (120, 277 or 347V. Must Specify Voltage) FF=Double Fuse (208, 240 or 480V. Must Specify Voltage) 2L=Two Circuits^{17,18} DIM=External 0-10V Dimming Leads^{19,20} P=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage)²¹ PER7=NEMA 7-PIN Twistlock Photocontrol Receptacle²¹ R=NEMA Twistlock Photocontrol Receptacle²¹ AHD145=After Hours Dim, 5 Hours²² AHD245=After Hours Dim, 6 Hours²² AHD255=After Hours Dim, 7 Hours²² AHD355=After Hours Dim, 8 Hours²² HA=50°C High Ambient²³ MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height^{24,25} MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height^{24,26} MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height^{24,25} MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height (Wide Range)^{24,28} MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height^{24,25,29} MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height^{24,26,29} MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height^{22,27,29} MS/X-L40W=Bi-Level Motion Sensor, 21' - 40' Mounting Height (Wide Range)^{24,28,29} MS-L08=Motion Sensor for ON/OFF Operation, Maximum 8' Mounting Height^{24,25} MS-L20=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height^{24,26} MS-L40=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height^{24,27} MS-L40W=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height (Wide Range)^{24,28} LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' - 16' Mounting Height³⁰ LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height³⁰ L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right MT=Factory Installed Mesh Top TH=Tool-less Door Hardware LCF=Light Square Trim Plate Painted to Match Housing³¹ HSS=Factory Installed House Side Shield³² CE=CE Marking³³</p>	<p>OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V OA/RA1013=Photocontrol Shorting Cap OA/RA1014=120V Photocontrol MA1252=10kV Surge Module Replacement MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon FSIR-100=Wireless Configuration Tool for Occupancy Sensor²⁴ GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares GLEON-QM=Quick Mount Arm Kit¹⁰ GLEON-QMEA=Quick Mount Extended Arm Kit¹¹ LS/HSS=Field Installed House Side Shield^{32,34}</p>

- NOTES:**
- Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
 - DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
 - Standard 4000K CCT and minimum 70 CRI.
 - Not compatible with MS/4-LXX or MS/1-LXX sensors.
 - Not compatible with extended quick mount arm (QMEA).
 - Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
 - Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
 - Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
 - May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
 - Factory installed.
 - Maximum 8 light squares.
 - Maximum 6 light squares.
 - Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
 - Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
 - 1 Amp standard. Use dedicated IES files for 600mA, 800mA and 1200mA when performing layouts. These files are published on the Galleon luminaire product page on the website.
 - Not available with HA option.
 - 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in AF-02 through AF-04 requires a larger housing, normally used for AF-05 or AF-06. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
 - Not available with LumaWatt Pro wireless sensors.
 - Cannot be used with other control options.
 - Low voltage control lead brought out 18" outside fixture.
 - Not available if any "MS" sensor is selected. Motion sensor has an integral photocell.
 - Requires the use of P photocontrol or the PER7 or R photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
 - 50°C lumen maintenance data applies to 600mA, 800mA and 1A drive currents.
 - The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
 - Approximately 22' detection diameter at 8' mounting height.
 - Approximately 40' detection diameter at 20' mounting height.
 - Approximately 60' detection diameter at 40' mounting height.
 - Approximately 100' detection diameter at 40' mounting height.
 - Replace X with number of Light Squares operating in low output mode.
 - LumaWatt Pro wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities. See www.eaton.com/lighting for LumaWatt Pro application information.
 - Not available with house side shield (HSS).
 - Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
 - CE is not available with the LWR, MS, MS/X, MS/DIM, P, R or PER7 options. Available in 120-277V only.
 - One required for each Light Square.



Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

Date:	Approved:
Type:	
Fixture:	
Project:	

FCQSQ410W

4" Square Wall, Pendant or Surface Mounted Die-Cast Aluminum Cylinder with Up and Down Light.
(2 of 2)



W1

ORDERING

EXAMPLE: FCQSQ410WX2-120V-3K-750-BK-UNFL-DNFL

SERIES	VOLTAGE	SOURCE	TEMPERATURE	LAMP	FINISH	LED OPTICS		ACCESSORIES
FCQSQ410W	120V	LED	3K	600 Lumens (8.5W) @ direction	BK Black	UP	DOWN	LD LED Dimming (0-10V)
	277V		35K	900 Lumens (14W) @ direction	BZ Bronze	USP Spot	DSP Spot	APLX Additional Pendant Length
	347V △	4K	1800 Lumens (43W) (1 direction only)	SL Silver	UNFL Narrow Flood	DNFL Narrow Flood	BBU Battery Backup, Remote	
				WH White	UFL Flood	DFL Flood		
				CC Custom Color	UWFL Wide Flood	DWFL Wide Flood		
					UNO None	DNO None		

SPECIFICATION

MOUNTING

- Mounts directly to standard recessed junction box. Additional mounting holes allow unit to be attached directly to mounting surface.

CONSTRUCTION

- Marine grade, corrosion resistant, heavy walled, high pressure die-cast aluminum with die-cast back mounting plate.
- Lens is 1/4" thick clear, tempered glass. Precision formed semi-specular aluminum for maximum reflectance.
- Continuous silicone gasket to seal out contaminants. Hidden fasteners allow for cover removal to facilitate installation and service.

LED

- Lumens stated are the minimum delivered out of the luminaire. LED lifetime is 70,000+ hours with the lumen depreciation greater than L70. All of our luminaires are LM-80 tested, are ≥ CRI 80 and have a 4-step MacAdam Ellipse color consistency. Integral power supply standard. Input voltage 120V or 277V standard. Consult factory for other voltages and any single color options.

FINISH

- Six stage chemical pre-treatment process that includes iron phosphate, to prepare the substrate for a UV stable, super durable standard polyester powder coat.

ELECTRICAL

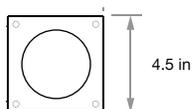
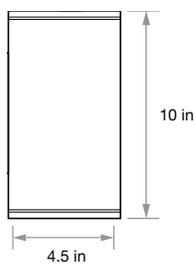
- Ballast** UL listed ballast standard. Ballast has a manufacturer issued 5 year warranty. Please consult factory for other voltage options.

LISTING

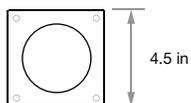
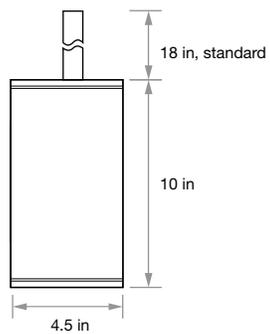
- UL & cUL/ETL, U.S. and CA listed for wet location in down position. IP65 Rating.

DIMENSIONS

FCCSQ410



FCCSQ410P



FCCSQ410W

