



Armory Facade Lighting Project

100% CONSTRUCTION DOCUMENTS

03/06/2023



seattlecenter

305 HARRISON STREET
SEATTLE, WA 98109-4695
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Liz Aldner
Director, City Purchasing and Contracting Services
SEATTLE, WASHINGTON

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CITY PURCHASING AND CONTRACTING SERVICES

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PROJECT _____

Seattle Center Armory

SC-2019-05

Armory Facade Lighting Project

CONSULTANT



BUILDINGWORK

architecture
design
preservation
159 western avenue west, suite 486
seattle, washington 98119
office 206 775-8668
www.buildingwork.design



REVISIONS

| NO.: | DATE: | DESCRIPTION: |
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APPROVALS

DESIGNED: _____

DRAWN: _____

CHECKED: _____

APPROVED: _____

SCALE: _____

SHEET TITLE

COVERSHEET

SHEET NUMBER

G000

| | | | |
|------------|-------------------------------|----------|-----------------------------|
| @ | AT | FP | FIREPROOF |
| # | DIAMETER OR ROUND | FPBH | FROST PROOF HOSE BIB |
| Ø | POUND OR NUMBER | FRM | FRAMING |
| | | FRP | FIBERGLASS REINFORCED |
| AB | ANCHOR BOLT | | PANEL |
| ABE | AVERAGE BUILDING ELEVATION | FROT | FIRE RESISTANT |
| ABV | ABOVE | FRZR | FREEZER |
| ACT | ACOUSTIC TILE | FS | FULL SIZE |
| ACW | ALUMINUM-CLAD WOOD | FSD | FIRE SEPARATION DISTANCE |
| AD | AREA DRAIN | FT | FOOT OR FEET |
| ADJ | ADJUSTABLE, ADJACENT | FTG | FOOTING |
| AFF | ABOVE FINISH FLOOR | | |
| AHJ | AUTHORITY HAVING JURISDICTION | GA | GAUSE |
| | | GAL | GALLON |
| AHU | AIR HANDLING UNIT | GALV | GALVANIZED |
| ALT | ALTERNATE | GEN | GENERAL |
| ALUM./AL | ALUMINUM | GFI | GROUND FAULT INTERRUPTER |
| AP | ACCESS PANEL | GFR | GLASS FIBER REINFORCED |
| APPD | APPROVED | OLC | CONCRETE |
| APPROX | APPROXIMATE | GL | GLASS |
| ARCH | ARCHITECTURAL | GND | GROUND |
| ASF | ABOVE SUBFLOOR | GOVT | GOVERNMENT |
| AVG | AVERAGE | GR | GRADE |
| | | GSM | GALVANIZED SHEET METAL |
| BAL | BALANCING | GYP | GYPSUM WALL BOARD |
| BD | BOARD | GYP | GYPSUM |
| BE | BATH FAN EXHAUST | | |
| BEL | BELOW | HB | HOSE BIB |
| BEY | BEYOND | HC | HANDICAP/HOLLOW CORE |
| BLDG | BUILDING | HD | HEAD/HEAVY DUTY |
| BLK | BLOCK, BLOCKING | HDWD | HARDWOOD |
| BM | BENCH MARK | HDR | HEADER |
| BO | BOTTOM OF | HE | HEAD FAN EXHAUST |
| BTM | BOTTOM | HM | HOLLOW METAL |
| BRK MTL | BRAKE METAL | HOL | HOLLOW |
| BTWN | BETWEEN | HOR/ | HORIZONTAL |
| | | HORIZ | HORIZONTAL |
| C to C | CENTER TO CENTER | HP | HIGH POINT |
| CAB | CABINET | HR | HOUR |
| CAP | CAPACITY | HT | HEIGHT |
| CG | CORNER GUARD | HHH | HOT WATER HEATER |
| CHT | BABY CHANGING TABLE | | |
| CIP | CAST-IN-PLACE | IBC | INTERNATIONAL BUILDING CODE |
| CJ | CONTROL JOINT | ID | INSIDE DIAMETER |
| CL | CENTERLINE | IN | INCHES |
| CLG | CEILING | INCL | INCLUDE (D) (ING) |
| CLKG | CAULKING | INCR | INCREASE |
| CLO | CLOSET | INSUL | INSULATION |
| CLR | CLEAR | INT | INTERIOR |
| CMU | CONCRETE MASONRY UNIT | INTM | INTERMEDIATE |
| COL | COLUMN | INTUM | INTUMESCENT |
| CONC | CONCRETE | INV | INVERT |
| COND | CONDITION | | |
| CONN | CONNECTION | JST | JOIST |
| CONST | CONSTRUCTION | JT | JOINT |
| CONT | CONTINUOUS | | |
| CONTR | CONTRACTOR | L | LONG/LENGTH |
| CORR | CORRIDOR/CORRUGATED | LAM | LAMINATE |
| OPT | CARPET | LAV | LAVATORY |
| CT | CERAMIC TILE | LE | LAUNDRY FAN EXHAUST |
| CTR | CENTER | LH | LEFT HAND |
| CUST | CUSTOM | LN | LINEAR/LINEAL |
| CWP | CLEAR WALL PANEL | LOCN | LOCATION |
| | | LP | LOW POINT |
| D | DEEP (DIM)/DRYER | LT | LIGHT |
| DE | DRYER EXHAUST | LTG | LIGHTING |
| DEPT | DEPARTMENT | LVL | LEVEL |
| DET/DTL | DETAIL | | |
| DF | DRINKING FOUNTAIN | MATL | MATERIAL |
| DIA | DIAMETER | MAX | MAXIMUM |
| DIAG | DIAGONAL | MC | MEDICINE CABINET |
| DICA | DRILLED-IN CONC ANCHOR | MDF | MEDIUM DENSITY FIBERBOARD |
| DIM | DIMENSION | MECH | MECHANICAL |
| DIR | DIRECTION | MEMB | MEMBRANE |
| DIV | DIVISION | MFR | MANUFACTURER |
| DN | DOWN | MIN | MINIMUM |
| DP | DAMP/PROOFING | MISC | MISCELLANEOUS |
| DO | DITTO | MLDG | MOLDING |
| DOM | DOMESTIC | MO | MASONRY OPENING |
| DOOR | DOOR | MTD | MOUNTED |
| DS | DOWNSPOUT (EXTERIOR) | MET/MTL | METAL |
| DW | DISHWASHER | | |
| DWG | DRAWING | N | NORTH |
| | | (N) | NEW |
| (E) | EXISTING | NEG | NEGATIVE |
| E | EAST | NIC | NOT IN CONTRACT |
| EA | EACH | No or # | NUMBER |
| EL | ELEVATION | NOM | NOMINAL |
| ELEV | ELEVATOR | NTS | NOT TO SCALE |
| ELEC | ELECTRICAL | | |
| EMER | EMERGENCY | OA | OVERALL |
| EMR | ELEVATOR MACHINE ROOM | OC | ON CENTER |
| EQ | EQUAL | OD | OUTSIDE DIAMETER |
| EQJ | EARTHQUAKE JOINT | OFD | OVERFLOW DRAIN |
| EQT | EQUIPMENT | OPH | OPPOSITE HAND/OVERHEAD |
| EPL | EMERGENCY PATHWAY LIGHTING | OHV | ORDINARY HIGH WATER |
| EST | ESTIMATE, ESTIMATED | OPNG | OPENING |
| EW | EACH WAY | OPP | OPPOSITE |
| EXC | EXCAVATED | OVHD | OVERHEAD |
| EXH | EXHAUST | OVSJ | OPEN-WEB STEEL JOIST |
| EXIST | EXISTING | OZ | OUNCE |
| EXP | EXPOSED | | |
| EXPAN | EXPANSION | (P) | PROPOSED |
| EXT | EXTERIOR | PAR | PARALLEL |
| | | PART | PARTITION |
| FAB | FABRICATED | PC | PRECAST |
| FB | FLUSH BEAM | PERF | PERFORATED |
| FD | FLOOR FINISH | PERP | PERPENDICULAR |
| FE | FIRE EXTINGUISHER | PKG | PARKING |
| FF | FINISH FLOOR/ | PL | PLATE/PROPERTY LINE/PLASTIC |
| FG | FACTORY FINISHED | PLAM | PLASTIC LAMINATE |
| FG | FINISH GRADE | PLYWD/ | |
| FP | FACTORY PRIME PAINTED | PLY | PLYWOOD |
| FS | FEDERAL SPECIFICATION | PNL | PANEL |
| FE CABINET | FE CABINET | PAINT/ED | PAIN(T)ED |
| FIN | FINISHED | POL | POLISH/POLISHED |
| FLASH | FLASHING | PPL | POLISHED PLATE |
| FLEX | FLEXIBLE | PAIR | PAIR |
| FLR | FLOOR | PREFAB | PREFABRICATE(D) |
| FOC | FACE OF CONCRETE | PRELIM | PRELIMINARY |
| FOF | FACE OF FINISH | PROJ | PROJECT/PROJECTION |
| FOIC | FURNISHED BY OWNER, | PROP | PROPERTY |
| | INSTALLED BY CONTRACTOR | PSI | POUNDS PER SQUARE INCH |
| FOM | FACE OF MASONRY | PT | POINT/POINT OF TANGENCY |
| FOS | FACE OF STUD | | PRESSURE RATED |

| | | | |
|--------|---|--|--|
| PTD | FIELD PAINTED (NOT FACTORY FINISHED) | | DETAIL INDICATOR DETAIL NUMBER SHEET NUMBER |
| PTN | PARTITION | | |
| QTR | QUARTER | | ELEVATION INDICATOR DETAIL NUMBER SHEET NUMBER |
| QTY | QUANTITY | | |
| R | RISER/RADIUS/RESISTANCE | | |
| RB | RUBBER BASE | | |
| RD | ROOF DRAIN | | |
| REC | RECEIVE | | |
| REF | REFERENCE | | |
| REFR | REFRIGERATOR | | RM ELEVATION INDICATOR DETAIL NUMBER SHEET NUMBER ELEVATION |
| REINF | REINFORCED | | |
| REQD | REQUIRED | | |
| RET | RETURN | | |
| REV | REVERSE/REVISED/REVISION | | |
| RF | ROOF | | LAYOUT GRID |
| RFG | ROOFING | | |
| RH | RIGHT HAND | | |
| RIGID | RIGID INSULATION | | |
| RL | RAIN LEADER (INTERIOR) | | PARTITION LABEL SEE PARTITION SCHEDULE FOR EXPLANATION |
| RM | ROOM | | |
| RND | ROUND | | |
| R/O | RANGE/OVEN | | |
| RO | ROUGH OPENING | | EXTERIOR WALL TYPE |
| RUB | RUBBER | | |
| RWL | RAINWATER LEADER (INDOORS) | | HORIZONTAL ASSEMBLY |
| S | SOUTH | | |
| SALV | SALVAGE (D) | | |
| SAM | SELF-ADHESIVE MEMBRANE | | |
| SBC | IBC w/ SEATTLE AMENDMENTS | | PARTITION TYPE I SEE PARTITION SCHEDULE FOR EXPLANATION |
| SC | SOLID CORE | | |
| SCHED | SCHEDULE | | |
| SD | SMOKE DETECTOR | | |
| SECT | SECTION | | |
| SF | SQUARE FEET | | SPOT ELEVATION |
| SH | SHELF | | |
| SHT | SHEET | | |
| SHTG | SHEATHING | | |
| SID | SIDING | | |
| SIM | SIMILAR | | BUILDING SECTION DETAIL NUMBER SHEET NUMBER |
| SL | SLOPE | | |
| SLNT | SEALANT | | |
| SPEC | SPECIFICATIONS | | |
| SPRT | SPORT FLOORING (RUBBER) | | |
| SQ | SQUARE | | |
| SST | STAINLESS STEEL | | WALL SECTION DETAIL NUMBER SHEET NUMBER |
| STC | SOUND TRANSMISSION CLASS | | |
| STD | STANDARD/STUD | | |
| STIFF | STIFFENER | | |
| STL | STEEL | | FIRE EXTINGUISHER ON WALL HOOK |
| STOR | STORAGE | | |
| STFNT | STOREFRONT | | |
| STRUCT | STRUCTURAL | | FIRE EXTINGUISHER SURFACE AND RECESS |
| SUB | SUBSTITUTE | | |
| SUSP | SUSPENDED | | |
| SYM | SYMMETRICAL | | |
| SYS | SYSTEM | | |
| T | TOP/TREAD/TOILET/TEMPERED | | EXIT SIGNS (OVERHEAD) BLACK QUADRANTS INDICATE ARROWS SHOW DIRECTION |
| T & G | TONGUE&GROOVE | | |
| T-STAT | THERMOSTAT | | |
| TC | TOP OF CURB | | |
| TD | TRENCH DRAIN | | EXIT SIGNS (WALL) BLACK QUADRANTS INDICATE ARROWS SHOW DIRECTION |
| TEL | TELEPHONE | | |
| TEMP | TEMPORARY/TEMPERATURE/ TEMPERED | | |
| THK | THICK(NESS) | | |
| THRU | THROUGH | | WINDOW NUMBER |
| TO | TOP OF | | |
| TOC | TOP OF CONCRETE TOP OF CURB | | LOUVER NUMBER |
| TOIL | TOILET | | |
| TOP | TOPPING/TOP OF PLATE TOP OF PARAPET | | |
| TOSF | TOP OF SUBFLOOR | | FRAMED WALL (PLAN) |
| TOW | TOP OF WALL | | FRAMED WALL (SECTION) |
| TP | TOP OF PAVEMENT | | |
| TRANSL | TRANSLUCENT | | CMU WALL (PLAN) |
| TRTD | TREATED | | BRICK WALL (PLAN) |
| TV | TELEVISION | | |
| TWP | TRANSLUCENT WALL PANEL | | |
| TYP | TYPICAL | | BRICK WALL (SECTION) |
| UL | UNDERWRITERS' LABORATORY | | |
| UNFIN | UNFINISHED | | CONCRETE WALL (PLAN) |
| UNO | UNLESS NOTED OTHERWISE | | CONCRETE WALL (SECTION) |
| VAP | VAPOR BARRIER | | |
| VAR | VARIABLE/VARIABLE | | CONCRETE (DETAIL) |
| VB | VINYL BASE | | GWB (DETAILS) |
| VCT | VINYL COMPOSITION TILE | | BATT INSULATION |
| VENT | VENTILATION | | RIGID INSULATION |
| VERT | VERTICAL | | |
| VEST | VESTIBULE | | |
| VFY | VERIFY | | |
| VIF | VERIFY IN FIELD | | |
| VG | VERTICAL GRAIN | | |
| VOC | VOLATILE ORGANIC COMPOUNDS | | |
| VOL | VOLUME | | |
| VS | VINYL SHEET/SHEET VINYL | | |
| VTR | VENT THROUGH ROOF | | CENTERLINE |
| W | WEST/WIDE/WASHER | | |
| W/ | WITH | | |
| W/O | WITHOUT | | GRID LINE |
| WAIN | WAINSCOT | | |
| WC | WATER CLOSET | | |
| WD | WOOD | | PROPERTY LINE |
| WDW | WINDOW | | |
| WSEC | WASH. STATE ENERGY CODE | | OVERHEAD LINE |
| WGL | WIRE GLASS | | |
| WH | WALL HUNG | | |
| WIND | WINDOW | | |
| WP | WATERPROOF(ING) MEMBRANE | | |
| WR | WATER REPELLENT | | |
| WRB | WEATHER RESISTANT BARRIER | | |
| WS | WEATHERSTRIP | | |
| WT | WEIGHT | | |
| WWM | WELDED WIRE MESH | | |
| YD | YARD DRAIN | | |

PROJECT LOCATION:
305 HARRISON ST.
SEATTLE, WA 98109

PROJECT SUMMARY
NEW EXTERIOR BUILDING LIGHTING TO EMPHASIZE ARCHITECTURAL FEATURES
OF THE SEATTLE CENTER ARMORY AND ALLOW FOR PROGRAMMED COLORFUL
LIGHTING FOR SPECIAL EVENTS.

LEGAL DESCRIPTION
DENNY'S D T 3RD ADD T2GW VAC ALLEY & POR VAC STS ADJ & TOW POR VAC RD
ADJ AS DESC IN DEED REC #200007180000203.

KING COUNTY ASSESSOR'S PARCEL NUMBER
198529-0305

LAND USE
Zoning: SM-UP 95 (M)

DCI PROJECT #
6900475-CN

CODES
2018 SEATTLE EXISTING BUILDING CODE
2018 SEATTLE ENERGY CODE

OCCUPANCY
NO CHANGE

FIRE SPRINKLER
FULLY SPRINKLERED/NO CHANGE

OWNER
Seattle Center Redevelopment
305 Harrison St
Seattle, WA 98109
T 206 684-7205
Jeff Reed, Capital Projects Coordinator
jeff.reed@seattleu.gov

ARCHITECT (PRIMARY CONTACT)
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Elise Novak, AIA
elise@buildingwork.design

LIGHTING DESIGN
Dark Light Design
1511 3rd Ave Ste 700
Seattle, WA 98101
T 206 682-1720
Jill Cody, IALD, CLD, LC, LEED AP
jillc@darklight-design.com

ELECTRICAL ENGINEER
TFWB Engineers
1202 Westlake Ave N Ste 509
Seattle, WA 98109
T 206 413-5022
Kevin Wartelle
kevin@tf-wb.com

STRUCTURAL ENGINEER
Lund Ospehl
1201 First Ave S Ste 310
Seattle, WA 98134
T 206 402-5156
Brian Krieger, PE
bkrieger@lundospahl.com

- GENERAL**
- G000 COVER SHEET
- G001 GENERAL INFORMATION
- ARCHITECTURAL**
- A100 BUILDING ELEVATIONS
- A101 ROOF PLAN
- A410 LIGHT MOUNTING DETAILS
- STRUCTURAL**
- S1.01 STRUCTURAL NOTES AND DETAILS
- LIGHTING**
- LT01 ROOF LEVEL LIGHTING PLAN
- LT02 WINDOW LEVEL LIGHTING PLAN
- LT03 EAST-WEST ELEVATIONS
- LT04 NORTH-SOUTH ELEVATIONS
- LT05 LIGHT FIXTURE SCHEDULE
- ELECTRICAL**
- E1.00 ROOF PLAN - ELECTRICAL

NEW LED EXTERIOR BUILDING FACADE LIGHTING FOR THE
SOUTH CENTRAL ARMORY.

BASE SCOPE

LINEAR UPLIGHTING FIXTURES (LS1) AT WINDOW SILLS ON
ALL FACADES, PLUS FACADE-MOUNTED UP/
DOWNLIGHTING FIXTURES (CS1) AT BANNERS ON THE
SOUTH FACADE.

ADD ALTERNATE 1

ROOF-MOUNTED FLOOD WASH FIXTURES (FS1) ON SOUTH
FACADE INCLUDES NEW STEEL ARMATURE SYSTEM FOR
MOUNTING LIGHT FIXTURES, AND ASSOCIATED ROOFING.

ADD ALTERNATE 2

ROOF-MOUNTED FLOOD WASH FIXTURES (FS1) ON EAST
AND WEST FACADES. INCLUDES NEW STEEL ARMATURES
FOR MOUNTING LIGHT FIXTURES, AND ASSOCIATED
ROOFING.

ADD ALTERNATE 3

REPLACEMENT LIGHT FIXTURES (FS2) WITHIN EXISTING
LANTERNS AT NORTH BUILDING ENTRY FOR ACCENT
LIGHTING OF EAGLES ON FACADE.

ADD ALTERNATE 4

ROOF-MOUNTED LINEAR WASH FIXTURES (LS2) AT
CORNER AT NORTHEAST BUILDING CORNER. INCLUDES
NEW STEEL ARMATURES FOR MOUNTING LIGHT FIXTURES,
AND ASSOCIATED ROOFING.

1. ALL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE 2018 SEATTLE EXISTING BUILDING CODE AND ALL OTHER APPLICABLE CODING.
2. CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND VERIFY LOCATION OF WORK WITH THE ARCHITECT. NO SCALE MEASUREMENTS SHALL BE USED AS DIMENSIONS FOR WORK. LARGER SCALED DETAILS SHALL BE USED TO DETERMINE PRECEDENCE OVER SMALLER. NOTIFY THE ARCHITECT WHENEVER DIMENSION DISCREPANCIES ARISE.
3. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONDITION OF THE JOB SITE, INCLUDING SAFETY, PROTECTION OF THE PROPERTY, AND THE LIKE DURING PERFORMANCE OF THE WORK.
4. CONTRACTOR SHALL PROVIDE METHODS, MEANS, AND FACILITIES REQUIRED TO PREVENT CONTAMINATION OF SOIL, WATER OR ATMOSPHERE.
5. DRAWINGS ARE DIAGNOSTIC IN NATURE. INFORMATION IS PROVIDED TO EXISTING GENERAL LOCATIONS, ASPECTS, AND AREAS OF EXISTING BUILDING ELEMENTS. EXISTING CONDITIONS, DIMENSIONS, MATERIAL, AND QUANTITIES MUST BE VERIFIED BY THE CONTRACTOR.

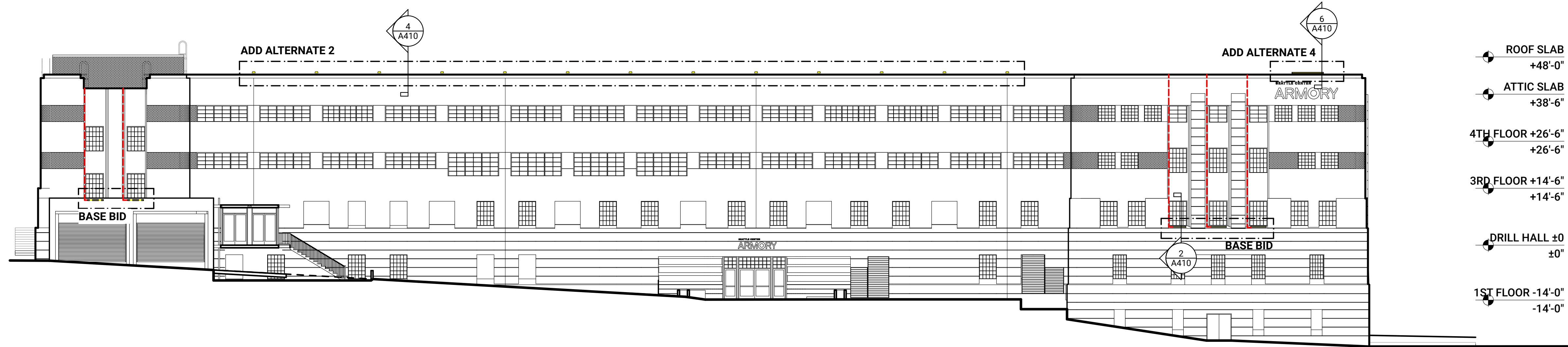
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ELEVATIONS GRAPHIC LEGEND

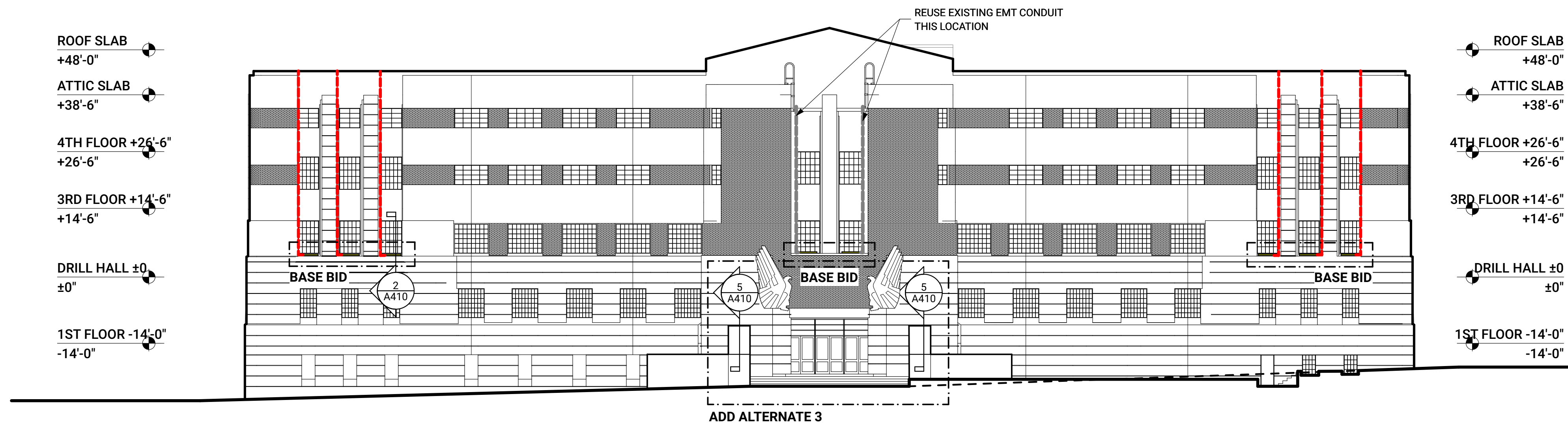
- EMT CONDUIT ROUTING FROM ROOF, PAINT TO MATCH FACADE
- NEW LIGHT FIXTURE; REF. LIGHTING DRAWINGS

ELEVATION NOTES

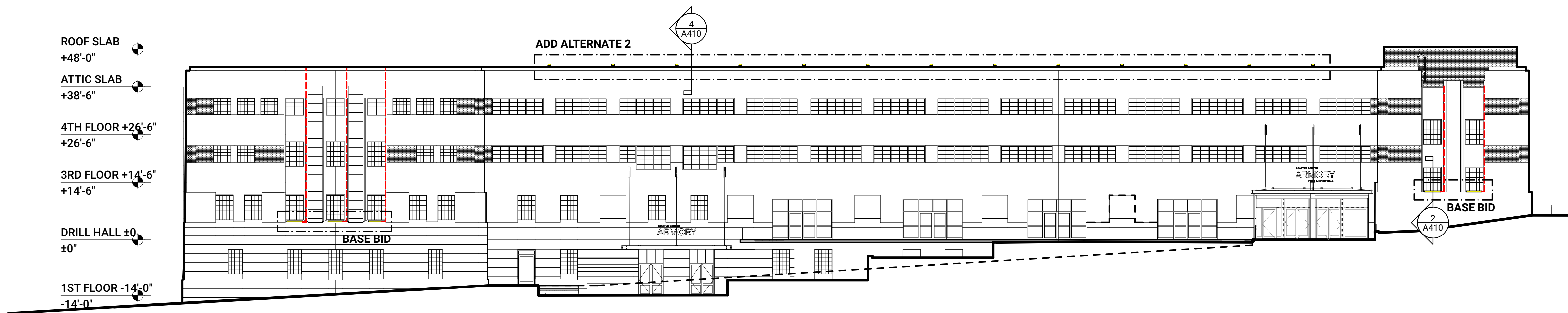
- SEE SHEET G001 FOR GENERAL NOTES
- CONTRACTOR TO SCHEDULE FIELD MEETING WITH ARCHITECT PRIOR TO INSTALLATION OF CONDUIT ON BUILDING FACADES TO DETERMINE EXACT CONDUIT ROUTING LOCATIONS.
- ALL EMT CONDUIT TO BE PAINTED TO MATCH BUILDING FACADE. CONSULT ARCHITECT FOR COLORS.
- REFER TO LIGHTING DRAWINGS FOR LIGHTING FIXTURE INFORMATION



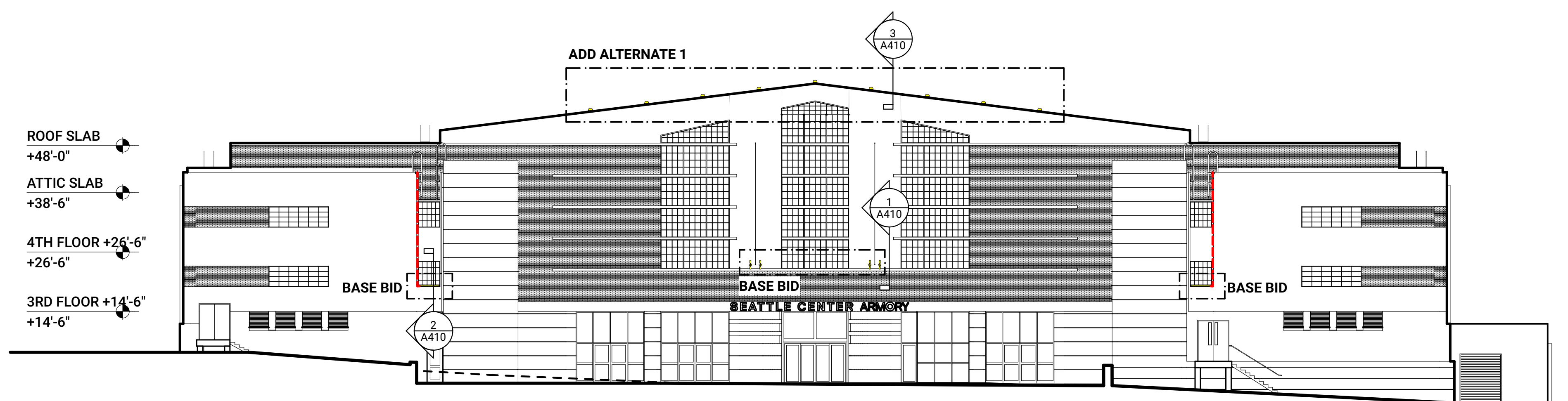
4 EAST ELEVATION
SCALE: 1/16" = 1'-0"



3 NORTH ELEVATION
SCALE: 1/16" = 1'-0"



2 WEST ELEVATION
SCALE: 1/16" = 1'-0"



1 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"

ROOF PLAN GRAPHIC LEGEND

- STEEL ARMATURE FOR LIGHT FIXTURE MOUNTING; SEE STRUCTURAL FOR MORE INFORMATION

ROOF PLAN NOTES

- SEE SHEET G001 FOR GENERAL NOTES
- DIMS ARE TO CENTERLINE OF MOUNTING ARMS UNLESS NOTED OTHERWISE
- STEEL TO BE FACTORY PRIMED WITH ZINC-RICH COATING; COORDINATE PAINT COLOR WITH ARCHITECT
- SEE SHEETS A410 AND S1.01 FOR ROOF MOUNTING DETAILS
- REFER TO LIGHTING DRAWINGS FOR LIGHTING FIXTURE INFORMATION
- REFER TO E1.00 FOR ELECTRICAL ROUTING PLAN



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Director, City Purchasing and Contracting Services

SEATTLE, WASHINGTON

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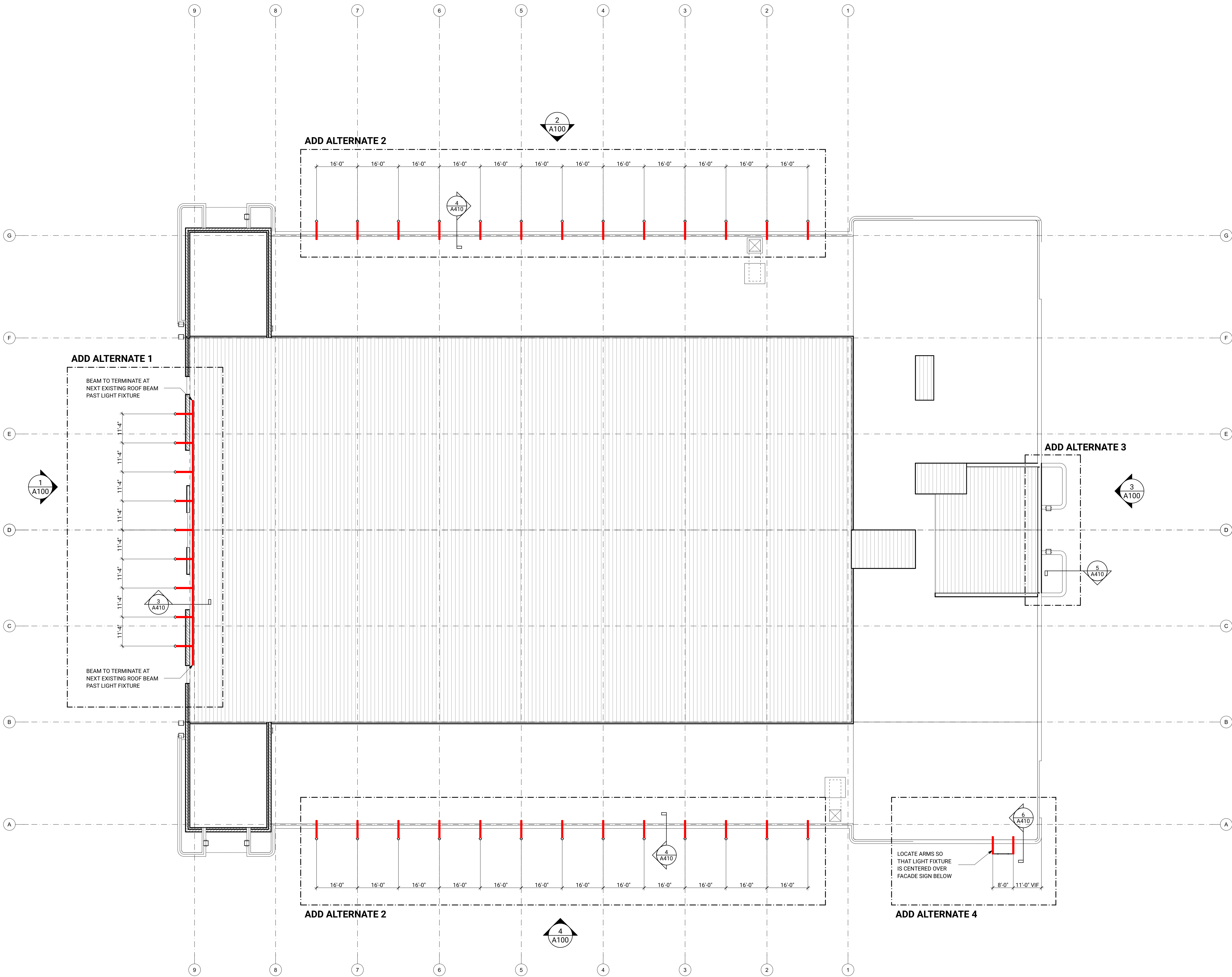
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SHEET TITLE

ROOF PLAN

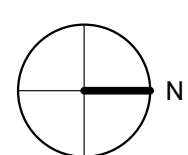
SHEET NUMBER

A101



1 ROOF PLAN
A101 SCALE: 1/16" = 1'-0"

0 8' 16' 32'



PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fully reinforced, cold fluid-applied, liquid resin waterproofing membrane and other ancillary waterproofing work.
B. Substrate preparation, cleaning and patching.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM) C 836 Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane.
B. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.
C. ACI-308 - Recommended Practice for Curing Concrete
D. ASTM - D638 - Test Methods for Tensile Properties of Plastics
E. ASTM - D4258 - Standard Practice for Surface Cleaning Concrete for Coatings
F. ASTM - D4259 - Standard Practice for Abrading Concrete
G. ASTM - D4541 - Method for Pull-Off Strength of Coatings using Portable Adhesion Tester
H. ASTM - E96(A) - Test Methods of Moisture Transmission of Material
I. ASTM E-108, ANSUL 790 for fire resistance.
J. Steel Structures Painting Council (SSPC)

1.03 SUBMITTALS FOR REVIEW

- A. Product Data: Provide current standard printed product literature indicating characteristics of membrane materials, flashing materials, components, and accessories product specification and installation.
B. Submit sample copies of both the Manufacturer and Applicator warranties for the periods stipulated. Each specimen must be a preprinted representative sample of the issuing company's standard warranty for the system specified.
C. Submit copies of current Safety Data Sheets (SDS) for all components of the work.

1.04 QUALITY ASSURANCE

- A. Applicator:
1. Company specializing in performing the work of this section with three years documented experience and approved by system manufacturer for membrane installation. Applicator to submit the following certification for review:
a. Documentation from membrane manufacturer to verify status as an approved applicator.
B. Perform one adhesion test at the onset of the work to determine tensile bond strength of membrane to substrate.
C. Perform Work in accordance with manufacturer's written instructions.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Confirm storage area for components with Owner. Area to be cool, dry, out of direct sunlight, and in accordance with manufacturer's written recommendations and relevant regulatory agencies. Materials are not to be stored in quantities that will exceed design loads, damage substrate materials or hinder installation or drainage.
B. Store solvent-bearing solutions, resins, additives, inhibitors or adhesives in accordance with the Safety Data Sheets and/or local fire authority. After partial use of materials replace lids promptly and tightly to prevent contamination.
C. Roll goods to be stored horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. Do not use rolls that are wet, dirty or have damaged ends.
D. Waterproofing materials must be kept dry at all times. If stored outside, raise materials above ground or roof level on pallets and cover with a tarpaulin or other waterproof material. Plastic wrapping installed at the factory should not be used as outside storage covers.
E. Follow manufacturers directions for protection of materials prior to and during installation. Do not use materials that have been damaged to the point that they will not perform as specified. Fleece reinforcing materials must be clean, dry and free of all contaminants.
F. Copies of current Safety Data Sheets for all components to be kept on site. Provide workers with appropriate safety data information and training as it relates to specific chemical materials. Each worker to be fully trained in first-aid measures to be undertaken in case of an incident. Comply with requirements of OSHA, NIOSH or local Authorities Having Jurisdiction for work place safety.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
B. Application of cold fluid-applied reinforced waterproofing membrane may proceed while air temperature is within manufacturer's written requirements.
C. When ambient temperatures are at or expected to fall below 23 Degrees F or reach 95 Degrees F or higher, follow Membrane System Manufacturer's recommendations for weather related restrictions and application procedures.
D. Ensure substrate materials are dry and free of contaminants. Do not commence with application unless substrate conditions are suitable. Demonstrate substrate conditions are suitable for the application of the materials.
E. Where required by Owner or designated representative, implement odor control and elimination measures prior to and during application of roofing/waterproofing materials. Control and elimination measures to be field tested at off-hours and typically consist of one or a multiple of the following measures:
1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and written recommendations of filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air where required due to size of intake opening. Provide track system to secure filters.
2. Erection and use of moveable enclosures sized to accommodate work areas and stationary enclosure for resin mixing station. Enclosure to be field constructed or pre-manufactured of fire resistant materials in compliance with Authorities Having Jurisdiction and requirements of the Owner or designated representative. Equipment enclosures with mechanical air intake/exhaust openings and odor control air cleaners, as required to clean enclosed air volume and prevent odor migration outside enclosure. Exhaust opening to be sealed with activated carbon filter.
3. Placement of odor elimination stations inside and outside of enclosures as required by field conditions and in coordination with the Owner or designated representative.
4. Protection of construction personnel and occupants of the structure and surrounding buildings as necessary to comply with requirements of OSHA, NIOSH and Authorities Having Jurisdiction.
5. When disposing of refuse or unused materials, observe EPA, OSHA and Authorities Having Jurisdiction disposal requirements.

1.07 COORDINATION & PROTECTION

- A. Coordinate work with installation of associated accessories and appurtenances as work proceeds.
B. Provide adequate protection (with tarp or other suitable material) from soil, stains, or spills at hoisting points and areas of application. Prevent damage from operations. Damage to be

- repaired at Contractor's expense and to Owner's satisfaction or be restored to original condition.
C. Provide barricades, retaining ropes, safety elements (active/passive) and any appropriate signage required by Authorities Having Jurisdiction and/or the Owner.
D. Protect finished roofing/waterproofing membrane from damage by other trades. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, or direct clean venting to come into direct contact with membrane. Contact membrane manufacturer for further exposure limitation and restrictions.

1.08 WARRANTY

- A. Waterproofing Contractor's Warranty: Provide two (2) year Applicator Maintenance Warranty covering workmanship for work of this section including installation of membrane, flashings, metal work, and roofing/waterproofing accessories.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Soprema

2.02 PRODUCTS

- A. Membrane: Two-component, with catalyst, cold fluid-applied reinforced (PMMA) polymethyl methacrylate waterproofing membrane with a 360 degree needle punched non-woven 110 g/m2 polyester reinforcing fleece, for a finished dry film membrane thickness of .115-inch nominal per ply.
1. Alsan RS System by Soprema, Inc.; www.soprema.us.

2.03 ACCESSORIES

- A. Cap Sheet Repair Membrane:
1. SOPREMA SOPRALENE FLAM 180 FR GR: SBS-modified bitumen membrane Cap Sheet with a burn-off film bottom surface and mineral granule top surface. Non-woven polyester reinforced.
B. Vapor Barrier Repair Membrane:
1. SOPREMA SOPRALENE STICK: SBS-modified bitumen, self-adhesive membrane with release film on the bottom surface and a sanded top surface. Non-woven polyester reinforced.
C. Coverboard:
1. DensDeck Prime factory primed coverboard - 1/4-inch.
D. Insulation Boards:
1. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 3 (20 psf) felt or glass-fiber mat facing on both major surfaces.
a. Soprema Sopra-ISO by Soprema Inc.
E. Low Rise Foam Adhesive for Insulation Boards:
1. Bead-Applied Insulation Adhesive: Insulation manufacturer's recommended bead-applied, low-rise, one- or multi-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
a. Soprema Duotack 355 by Soprema Inc.
F. Primers:
1. SOPREMA ELASTOCOOL 500 Primer: Asphalt cut-back primer. Primer for the preparation of membrane substrates for asphalt, heat-welded, hot asphalt and COLPLY ADHESIVE, solvent-based, cold adhesive-applied and cement applications.
2. SOPREMA ELASTOCOOL STICK Primer: Self-adhesive membrane primer. SBS polymer, resin and, solvent-based primer for the preparation of membrane substrates for self-adhesive SBS membrane and self-adhered SBS flashing applications.
G. Reinforcement Fleece: A 360 degree needle punched non-woven 110 g/m2 polyester reinforcing fleece used to improve tear strength, puncture resistance, flexural fatigue and crack bridging capabilities while maintaining membrane uniformity.
1. Soprema's Alsan RS Fleece reinforcement fabric.
H. Patching, Filling and Smoothing Resin: Two-component, high solids polymethyl methacrylate paste resin for use in filling surface cracks, voids and depressions and for smoothing/leveling surfaces prior to application of membrane system:
1. Alsan RS Paste resin for use in an adhered waterproofing system.
I. Catalyst/Curing Agent: White granular powder, based on dibenzoylperoxide, used as a reactive agent to induce curing of all polymethyl methacrylate resins:
1. Alsan RS Catalyst Powder for use with all regular-color polymethyl methacrylate resins.
J. Granules:
1. SOPREMA Granules: No. 11, mineral coated colored granules, color to match cap sheet, supplied by membrane cap sheet manufacturer.
K. Spray Foam Air Barrier:
1. State of Washington compliant closed-cell polyurethane spray foam insulation and air barrier with low to zero harmful liquid blowing agents.
a. Froth Pak Insulation Spray Foam 210 or 650.
b. Demilec Heatlok HFO Pro.
c. BASF Sprayite Comfort Plus and/or.
d. Or similar.
L. Tools, Accessories, and Cleaners: Supplied and/or approved by membrane manufacturer for product installation.
M. Cleaner: Alsan RS Cleaner.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify surfaces and site conditions are ready to receive work.

3.02 PREPARATION OF SUBSTRATE

- A. General:
1. Inspect substrates, and correct defects before application of new waterproofing. Fill surface voids greater than 1/8-inch wide with an acceptable fill material.
2. Remove ponded water, snow, frost and/or ice from the work substrate prior to installing new waterproofing materials.
3. Final substrate for waterproofing to be clean, dry, free of loose, spalled or weak material including coatings, mineral aggregate, flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, waterproofing agents, and curing compounds.
B. Steel/Metal:
1. Clean and prepare metal surfaces to near white metal in accordance with SSPC - SP3 (power tool clean) or as required by membrane manufacturer. Extend preparation a minimum of 5-inches beyond the termination of membrane flashing materials. Notch steel surfaces to provide a rust-stop.

3.03 MEMBRANE REPAIR AND FLASHING

- A. Perform openings into existing roof assembly as noted on the Construction Drawings. Contact the Project Architect immediately for items that do not conform the Construction Documents.
B. Limit openings into the roof assembly to allow for the installation of the new lighting posts as noted on the Construction Drawings.
C. Clean and prepare existing roof membrane surface. Prime existing cap sheet surface with appropriate manufacturer's primer. Allow to cure prior to proceeding.
D. Install steel post opening into roof assembly with spray foam air barrier. Trim excess at roof cap sheet membrane flush with surface.
E. Adhere new cap sheet membrane onto primed existing roof membrane. New target repair membrane to extend pass base of steel post 6-inches minimum. Target repair membrane to fit snug to steel post.
F. Where the existing roof assembly will be opened for steel post attachment to existing steel framing, existing roof system is to be removed down the existing roof deck surface. Existing roof deck to be carefully opened and salvaged for re-installation.
1. Allow enough open surface area for the installation of the new steel post and repair system repairs.
2. Each layer of the existing insulation system is to be staggered 6-inches to create thermal break.
3. Install open wood roof deck with salvaged wood roof deck.
4. Install new vapor barrier membrane onto primed roof deck and lapping onto the existing 6-inches.
5. Adhere each layer of roof insulation in manufacturer's low-rise foam adhesive.
6. Adhere new cap sheet membrane onto factory primed coverboard. New target repair membrane to lap onto existing roof membrane cap sheet 6-inches minimum with existing cap sheet primed. Target repair membrane to fit snug to steel post.
G. Fabric Reinforced Cold-Liquid Applied Flashings:
1. Fill cavities at base of penetration with (PMMA) polymethyl methacrylate Alsan RS Paste to achieve flat surface prior to installing repair membrane.
2. Mix and apply cold fluid-applied reinforced polymethyl methacrylate waterproofing membrane in strict accordance with written instructions of membrane manufacturer. Use only proprietary membrane resins and materials as supplied by membrane manufacturer.
3. Prime substrate surface to be dry. Remove remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
4. Protect areas where membrane has been installed. Do not work perform work on top of installed membrane during application of remaining work. Allow a minimum of 3-hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas. Closely follow the membrane manufacturer's written recommendations for hot and cold weather application. Monitor surface and ambient temperatures, including effects of wind chill.
5. Mixing of PMMA Resin:
a. Mix resin with a spiral agitator for a minimum of 2-minutes until liquid has a uniform color.
b. Add pre-measured catalyst powder to resin and mix with same agitator for 2-minutes or until powder is completely mixed. Catalyst is completely dissolved when there are no white specs remaining.
6. Application of Resin/Fleece:
a. Apply mixed resin to prepared surface in accordance with manufacturer's written instructions and details. Roll or brush resin liberally and evenly onto surface using a broad, even stroke. Cover one working area at a time, between 15' - 20' x 2' (4' - 1.9 m2).
b. Roll out dry polyester fleece onto liquid resin mix, making sure smooth side is facing up (natural unrolling procedure), avoiding any folds and wrinkles. Fleece will begin to rapidly saturate with the liquid resin mix. Use a medium nap roller or brush to work the resin into the fleece, saturating from bottom up, and eliminating air bubbles and wrinkles. The appearance of saturated fleece to be light opaque amber with no white spots. White spots are indicators of unsaturated fleece or lack of adhesion. Correct any defects before resin cures.
c. Apply additional liquid resin mix on top of fleece in accordance with manufacturer's written instructions and details to complete saturation of fleece. Roll final coating into fleece to result in glossy appearance. Excess resin, beyond what fleece can hold, to be rolled forward to unsaturated fleece, eliminating ponding or excessive build-up of resin. Excess resin left on top of fleece will weather and peel off. Correct amount of resin will leave no whiteness in fleece and there will be a slightly focus surface texture. Provide smooth and uniform final resin coating should be smooth and uniform.
d. Prevent contact between mixed/unmixed resin and new/existing membrane. If unmixed resin contacts membrane surface, remove immediately and clean thoroughly with a cloth rag.
e. Fleece Seams: Allow 2-inch (5 cm) overlap for side joints and 4-inch (10 cm) overlap for end joints.
f. Membrane Tie-offs: Clean in-place membrane once resin has cured. Allow cleaner to fully evaporate before application of new resin.
H. Disposal of Resin:
1. Dispose of cured resin in standard landfills and in accordance with Authorities Having Jurisdiction.
2. Do not throw uncured resin in the garbage.

3.04 TEMPORARY CLOSURES & WATERSTOPS

- A. Ensure moisture does not damage completed section of new waterproofing system.
B. Complete flashings, terminations, and temporary closures as required to provide a watertight condition.
C. Provide temporary closures as required by membrane manufacturer.

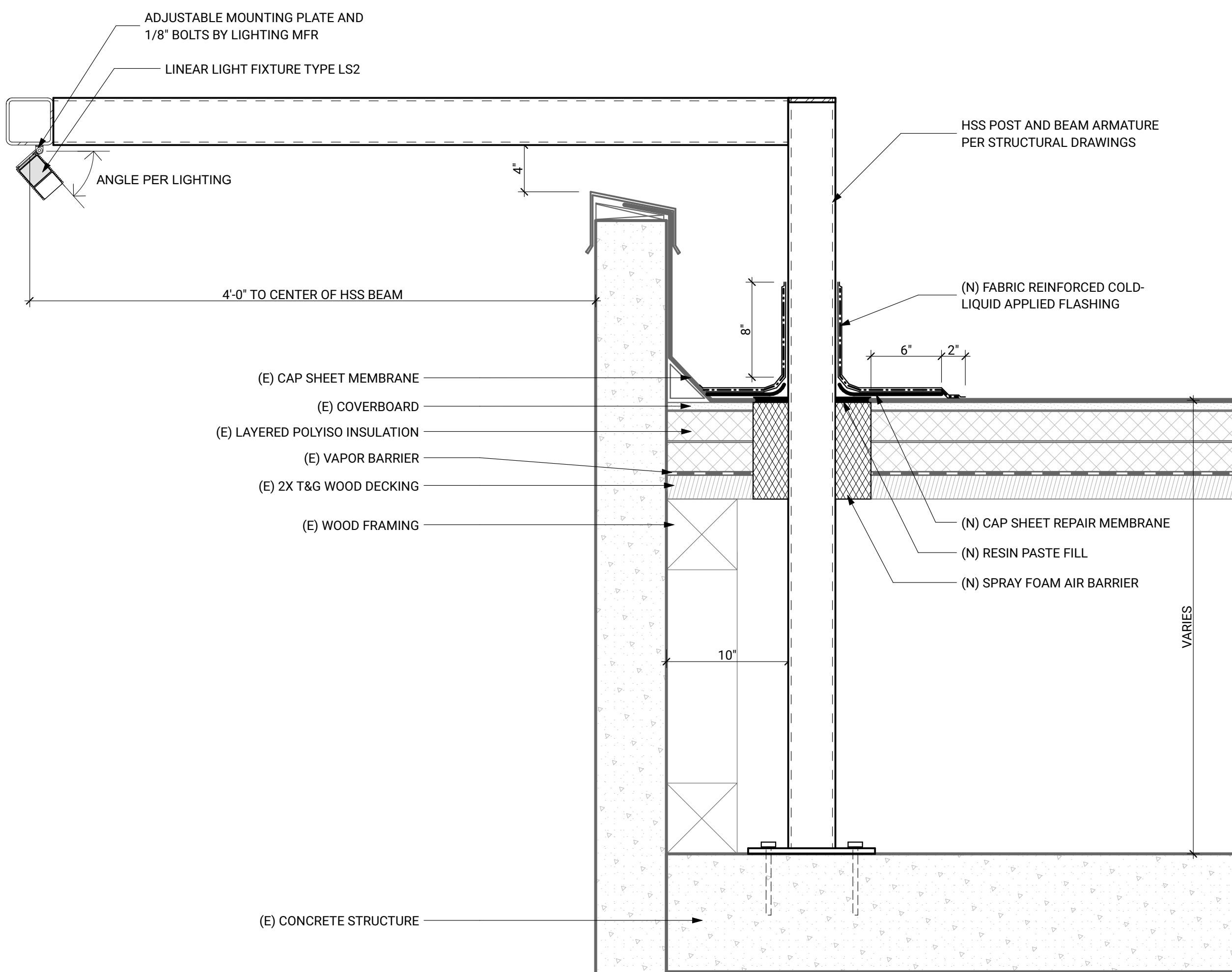
3.05 PROTECTION

- A. Upon completion of waterproofing and flashings (including associated work), implement appropriate procedures for surveillance and protection of roofing during remainder of construction. Protect areas where membrane has been installed.

3.06 CLOSEOUT

- A. Correction of Work:
1. Correct or replace work that does not conform to specified requirements including tolerances, slopes, and finishes. Deficiencies of membrane application, terminations and protections as noted during Membrane manufacturer's inspections to be corrected and replaced at Contractor's expense.
B. Clean-Up:
1. Site Clean-up, Interior and Exterior: Restore to preconstruction condition.

END OF SECTION



6 A410 FIXTURE LS2 ROOF MOUNTING DETAIL AT BUILDING SIGN

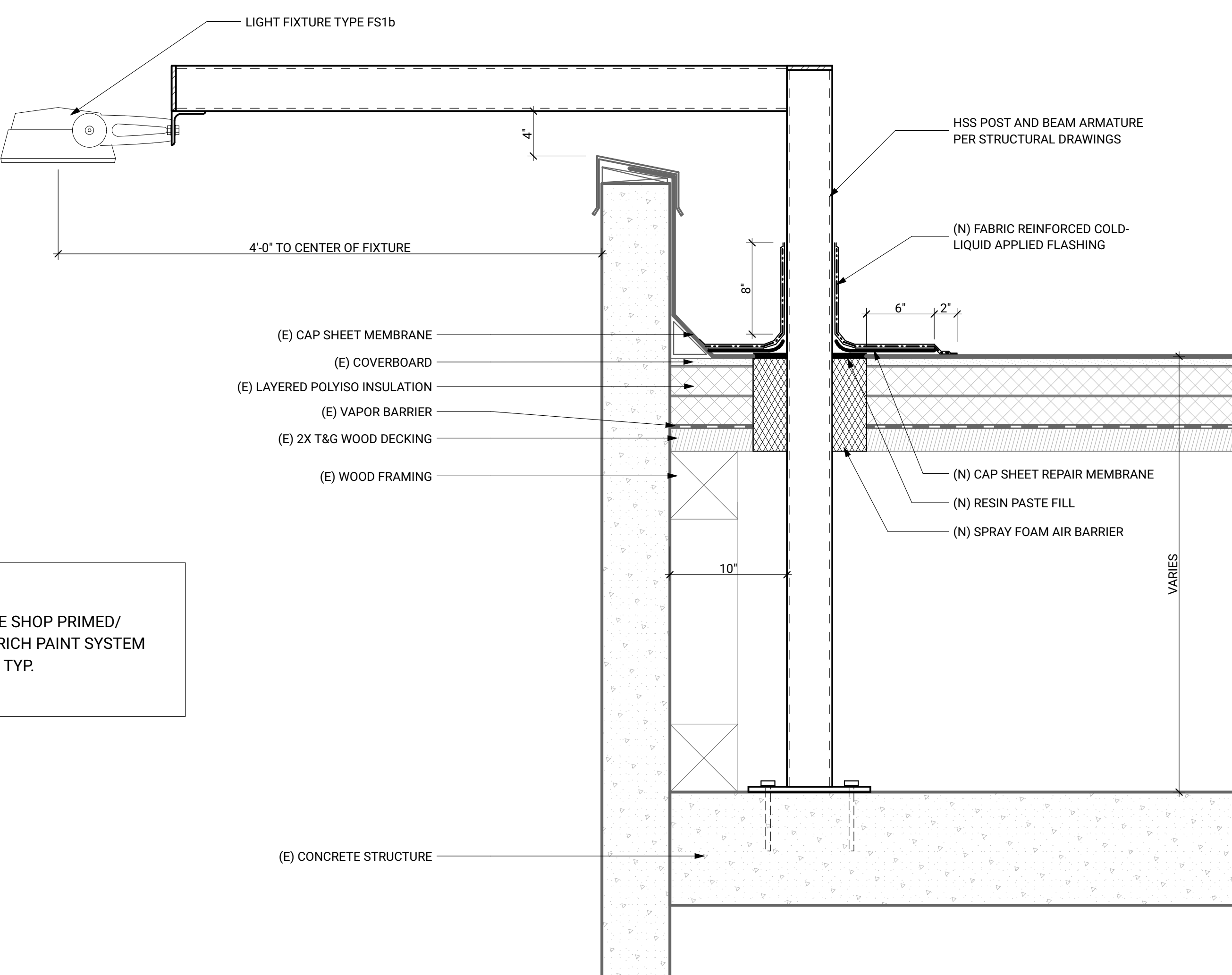
SCALE: 1 1/2\"= 1'-0"

ADD ALTERNATE 4

4 A410 FIXTURE FS1b ROOF MOUNTING DETAIL AT EAST AND WEST FACADES

SCALE: 1 1/2\"= 1'-0"

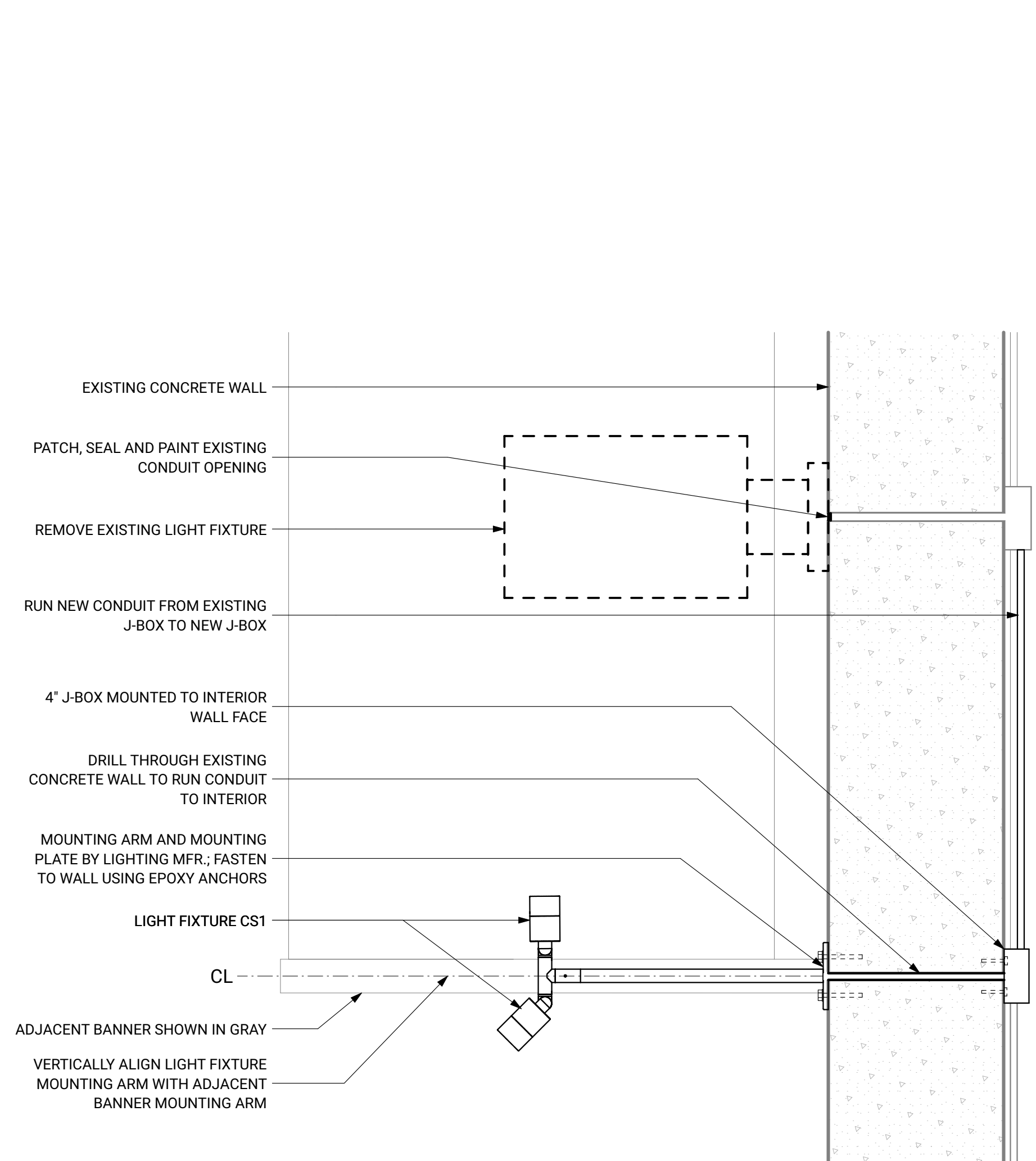
ADD ALTERNATE 2



1 A410 FIXTURE CS1 MOUNTING DETAIL AT SOUTH BANNERS

SCALE: 1 1/2\"= 1'-0"

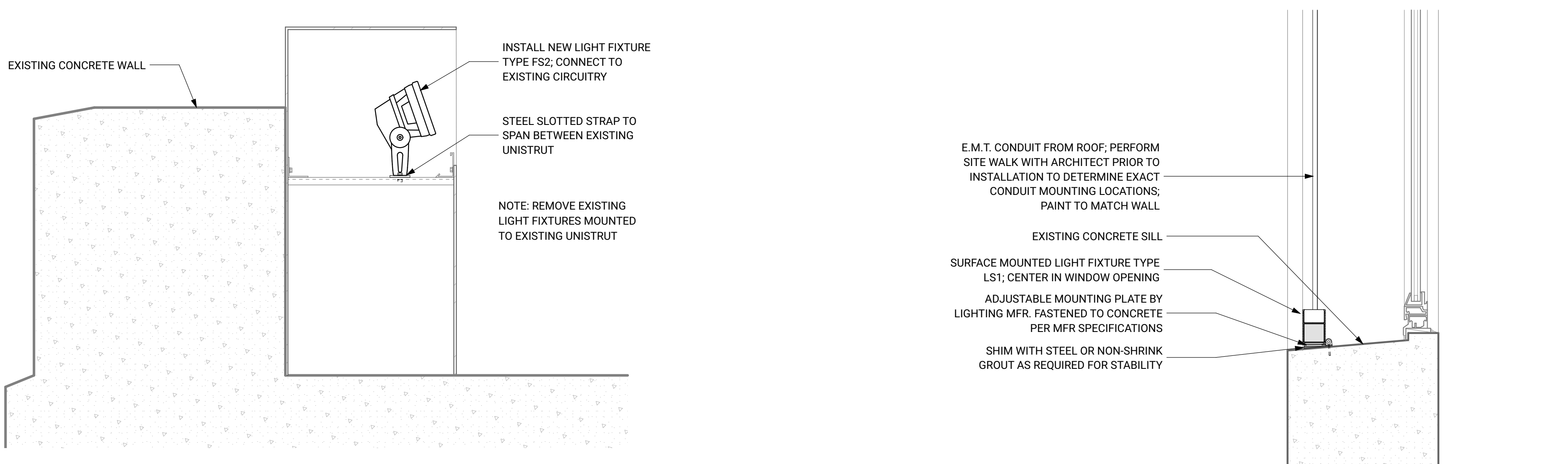
BASE BID



3 A410 FIXTURE FS1a ROOF MOUNTING DETAIL AT SOUTH FACADE

SCALE: 1 1/2\"= 1'-0"

ADD ALTERNATE 1



5 A410 FIXTURE FS2 MOUNTING DETAIL AT NORTH LANTERNS

SCALE: 1 1/2\"= 1'-0"

ADD ALTERNATE 3

2 A410 FIXTURE LS1 MOUNTING DETAIL AT WINDOWS

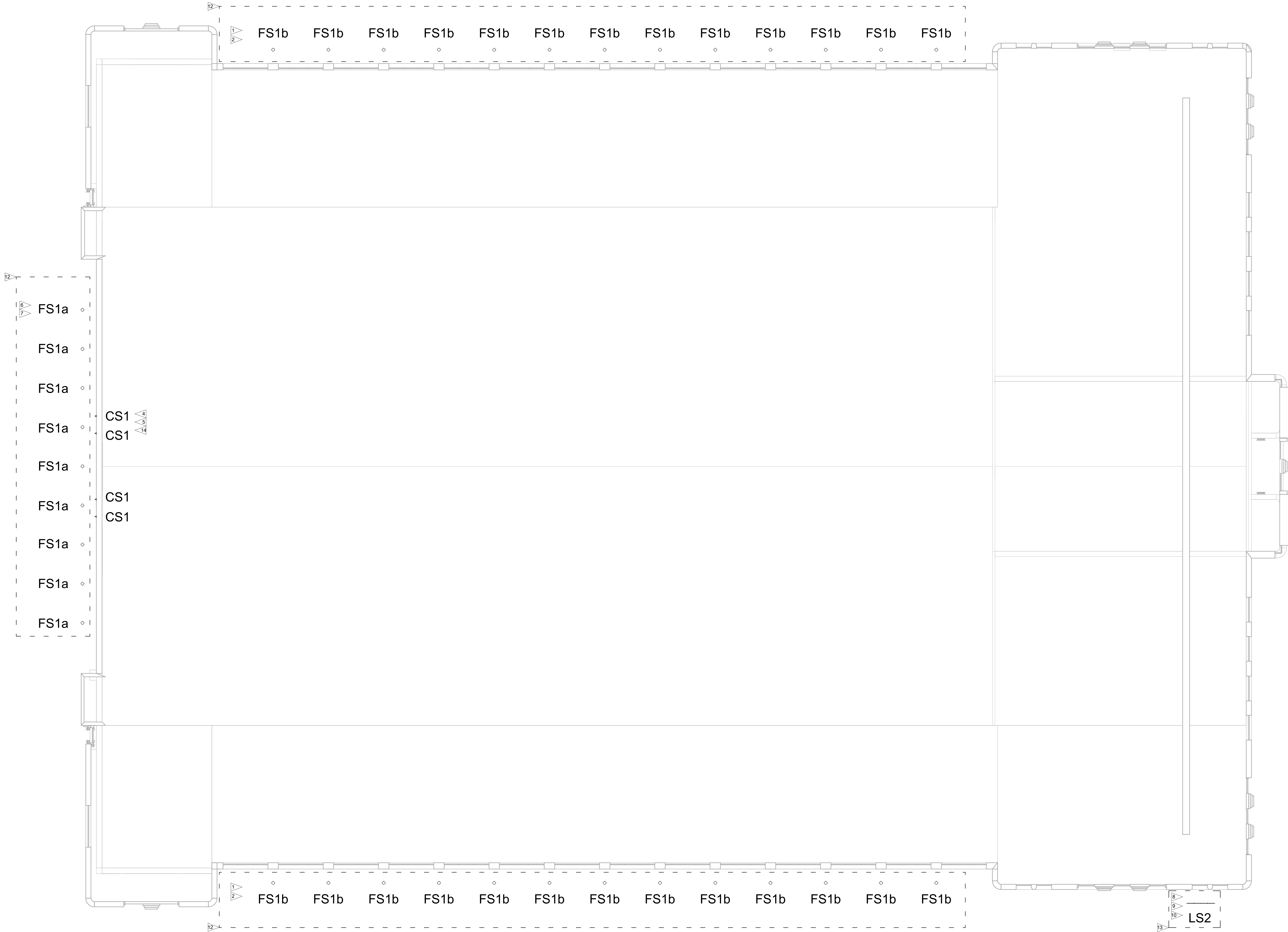
SCALE: 1 1/2\"= 1'-0"

BASE BID

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Flag Notes

1. Fixture FS1b is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building.
2. Each FS1b fixture receives individual combined line of data/power from PDS located on roof.
3. Note not used.
4. Fixture type CS1 is attached with DELTA STAR - TWIN SIGN STAR STYLE 'C' mounting pole to bottom of existing banner signage attached to building at these locations.
5. Mounting pole is to be turned so that one fixture head faces upwards and one fixture heads points down towards ground. Aiming in the field is required for fixtures.
6. Fixture FS1b is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building.
7. Fixtures is aimed with center of beam aimed back towards wall. Focus to be directed and approved by Darklight Design.
8. Fixture LS2 is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building signage at this location.
9. Horizontal placement of fixtures is approx. Place center of fixture aligned with center of signage attached to building face.
10. Fixtures is aimed with center of beam hitting center of wall mounted signage. Focus to be directed and approved by Darklight Design.
11. FS1a fixtures are a part of Add/Alternate One (1). Fixtures, armatures, connections, and accessories only included if Add/Alt. 1 is include in project.
12. FS1b fixtures are a part of Add/Alternate Two (2). Fixtures, armatures, connections, and accessories only included if Add/Alt. 2 is include in project.
13. LS2 fixtures are a part of Add/Alternate Four (4). Fixtures, armatures, connections, and accessories only included if Add/Alt. 4 is include in project.
14. CS1 fixtures are not connected to new DMX connected system. These fixtures should connect to existing dimmable circuits at this location to be attached to existing building timeclock network.





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WWW.SEATTLECENTER.COM

APPROVED BY SEATTLE CENTER

Redevelopment _____ Date _____ Jan Lee

APPROVED FOR ADVERTISING _____
Liz Aizer
Director, City Purchasing and Contracting Services
SEATTLE, WASHINGTON

BY: _____
CITY PURCHASING AND CONTRACTING SERVICES

Date _____

PROJECT _____

Seattle Center Armory
SC-2019-05
Armory Facade Lighting Project

CONSULTANT


dark light
1511 Third Avenue, Suite 700 Seattle WA 98101
206 682 1720 www.darklight-design.com

REVISIONS

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APPROVALS

DESIGNED: _____

DRAWN: _____

CHECKED: _____

APPROVED: _____

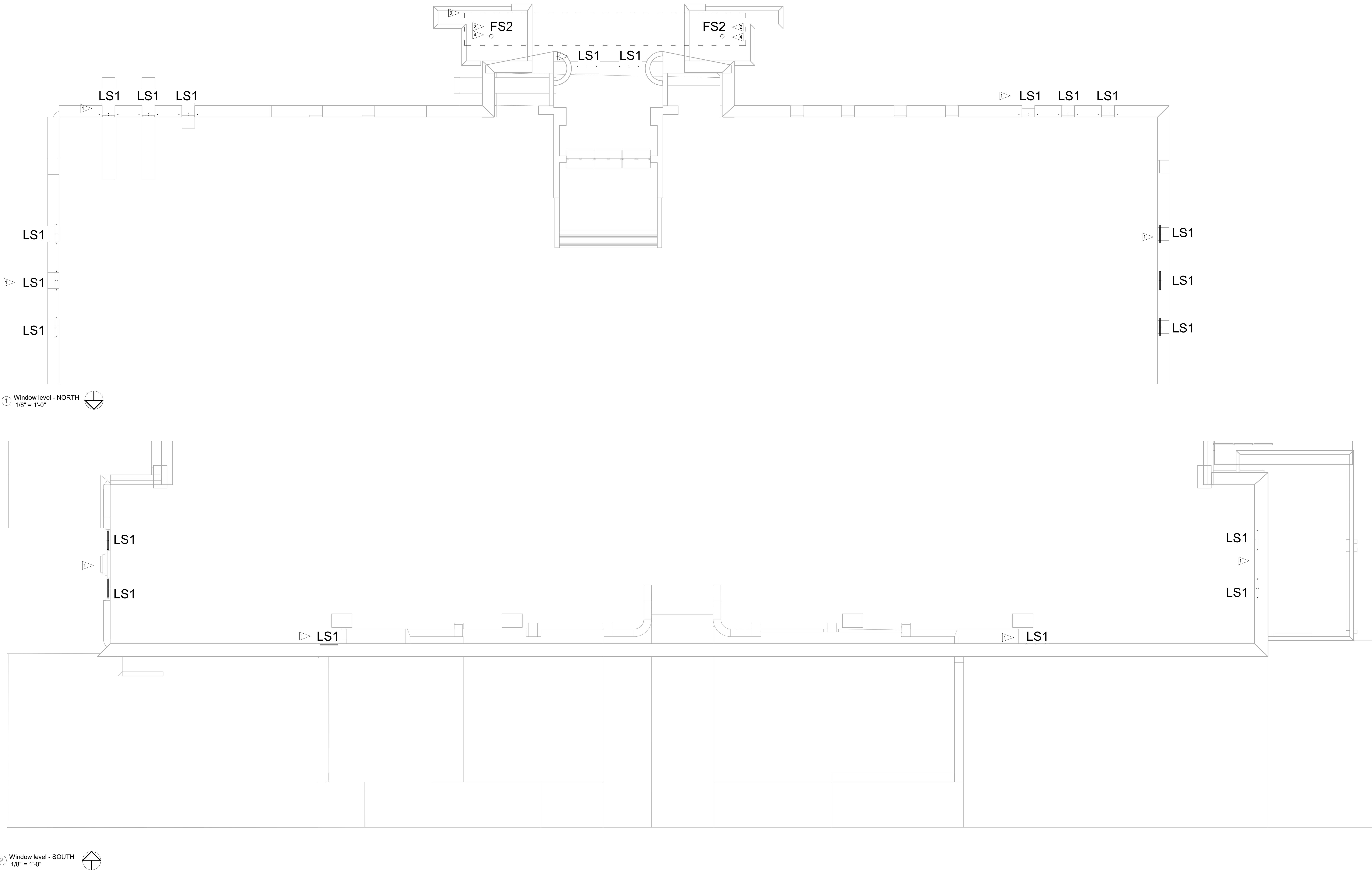
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SHEET TITLE

WINDOW
LEVEL

SHEET NUMBER

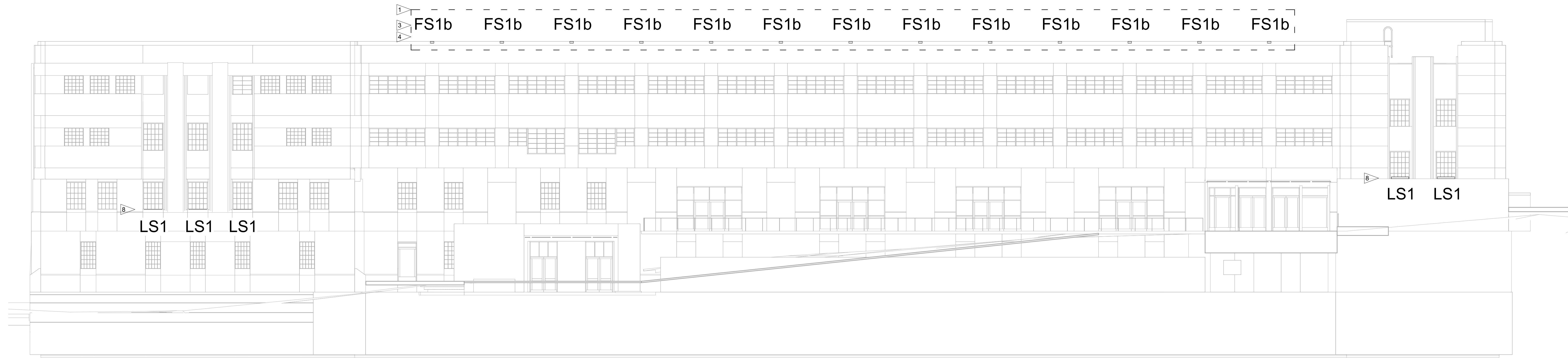
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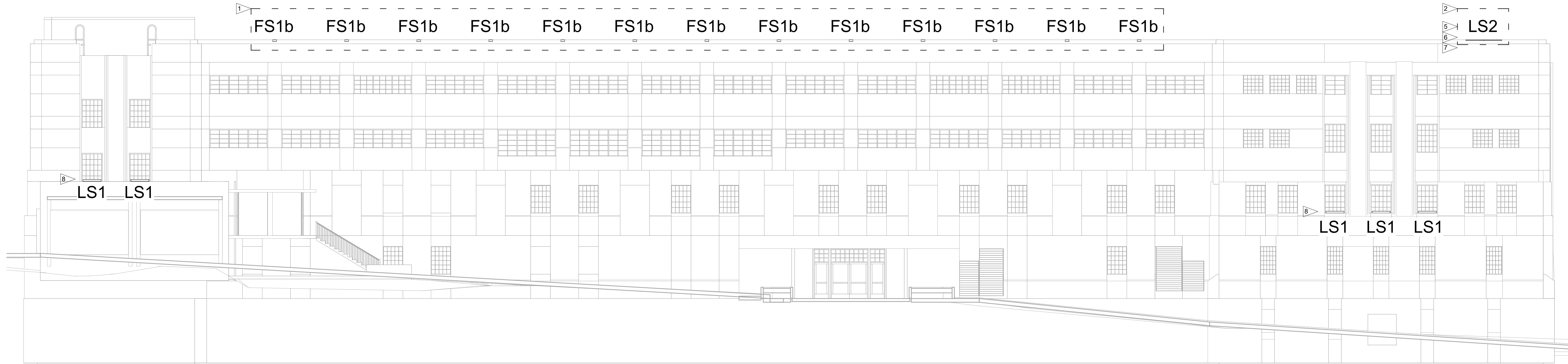
Flag Notes

1. Fixture LS1 is a 4' length of linear fixture mounted on the surface of the bottom of the windowsill at the indicated locations. Fixture is centered on the bottom of the windowsill and pointed straight upwards. Fixture is aimed in the field directed and approved by Darklight Design.
2. Fixture FS2 is placed in the existing lighting fixture washing locations at the north entrance to the building. They are to replace the existing lighting fixtures washing the eagles at the entryway. Fixture is aimed in the field directed and approved by Darklight Design.
3. FS2 fixtures are a part of Add/Alternate Three (3). Fixtures, mounting componenets, connections, and accessories only included if Add/Alt. 3 is include in project.
4. FS2 fixtures are not connected to new DMX connected system. These fixtures should connect to existing dimmable circuits at this location to be attached to existing building timeclock network.

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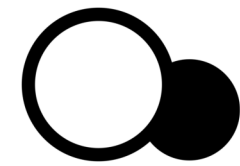
1 WEST ELEVATION
3/32" = 1'-0"



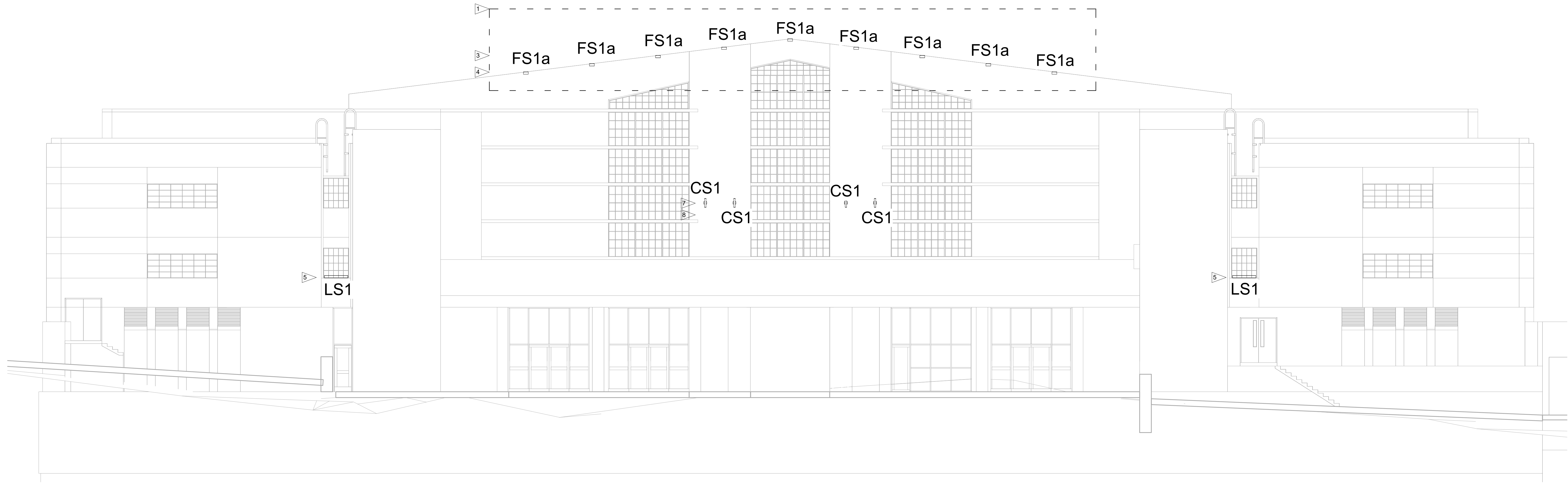
2 EAST ELEVATION
3/32" = 1'-0"

Flag Notes

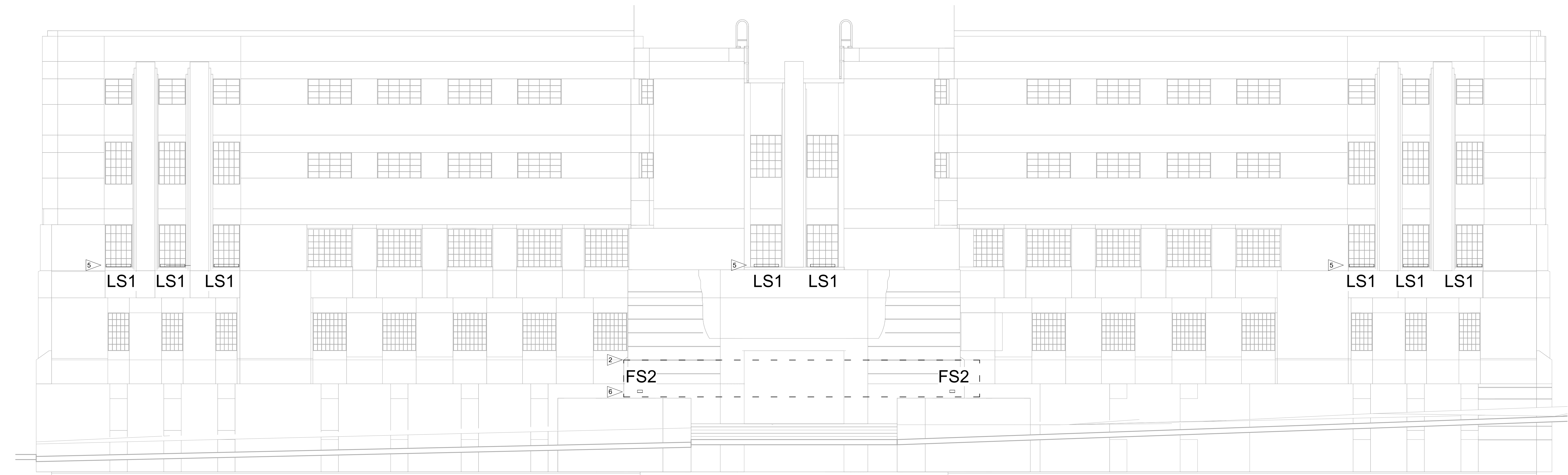
- FS1b fixtures are a part of Add/Alternate Two (2). Fixtures, armatures, connections, and accessories only included if Add/Alt. 2 is include in project.
- LS2 fixtures are a part of Add/Alternate Four (4). Fixtures, armatures, connections, and accessories only included if Add/Alt. 4 is include in project.
- Fixture FS1b is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building.
- Each FS1b fixture recieves individual combined line of data/power from PDS located on roof.
- Fixture LS2 is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building signange at this location.
- Horizontal placement of fixtures is approx. Place center of fixture aligned with center of signage attached to building face.
- Fixtures is aimed with center of beam hitting center of wall mounted signage. Focus to be directed and approved by Darklight Design.
- Fixture LS1 is a 4' length of linear fixture mounted on the surface of the bottom of the windowsill at the indicated locations. Fixture is centered on the bottom of the windowsill and pointed straight upwards. Fixture is aimed in the field directed and approved by Darklight Design.



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① SOUTH ELEVATION
1/8" = 1'-0"



② NORTH ELEVATION
1/8" = 1'-0"

Flag Notes

1. FS1a fixtures are a part of Add/Alternate One (1). Fixtures, armatures, connections, and accessories only included if Add/Alt. 1 is include in project.
2. FS2 fixtures are a part of Add/Alternate Three (3). Fixtures, mounting components, connections, and accessories only included if Add/Alt. 3 is include in project.
3. Fixture FS1a is attached to building by metal armature constructed by others. Face of fixture to be 48" from face of building.
4. Each FS1a fixture relieves individual combined line of data/power from PDS located on roof.
5. Fixture LS1 is a 4' length of linear fixture mounted on the surface of the bottom of the window sill at the indicated locations. Fixture is centered on the bottom of the window sill and pointed straight upwards. Fixture is aimed in the field directed and approved by Darklight Design.
6. Fixture FS2 is placed in the existing lighting fixture washing locations at the north entrance to the building. They are to replace the existing lighting fixtures washing the eagles at the entryway. Fixture is aimed in the field directed and approved by Darklight Design.
7. Fixture type CS1 is attached with DELTA STAR - TWIN SIGN STAR STYLE 'C' mounting pole to bottom of existing banner signage attached to building at these locations.
8. Mounting pole is to be turned so that one fixture head faces upwards and one fixture heads points down towards ground. Aiming in the field is required for fixtures.

LUMINAIRE SCHEDULE

GENERAL NOTES

Provide all mounting hardware, power feeds, accessories, and components as required for a complete operating installation.

Provide run lengths as shown on plans.

Provide all options and elements indicated in schedule. If not part of manufacturer's standard options or offerings, provide modifications as necessary to furnish luminaire with characteristics indicated on schedule.

Verify voltages and control requirements with electrical engineer.

Drivers shall be provided in size and quantity as required to accommodate specified load and dimming type.

Unless otherwise noted, locate drivers in accessible location within manufacturer's recommended distance. Confirm locations with Architect and Lighting Designer prior to installation.

Provide cord and/or cable lengths for pendant mounted luminaires as required to suspend luminaires at mounting heights noted on Luminaire Schedule or in Architect's documentation, whichever requires longest suspension.

ABBREVIATIONS

LF - linear foot/feet

TBD - to be determined

UNV - universal voltage

V - volt

| TYPE | MANUFACTURER/ SERIES | FIXTURE CHARACTERISTICS | | | | | LEDLIGHT SOURCE | | | ELECTRICAL | | | | NOTES |
|------|--|---|---------------------------|---|---------------------------------|---|--------------------|-----------------|------|------------|----------------|----------|---|--|
| | | DESCRIPTION | LOCATION | MOUNTING | OPTICS/ SHIELDING | FINISH | OUTPUT (LUMENS) | CCT (KELVIN) | CRI | WATTS | VOLTAGE | CONTROL | POWER SUPPLY | |
| CS1 | BK Lighting Denali or Approved Alternate | Pole arm mounted dual head spotlight washing fixture | South Entrance banners | 18" Straight Mount Stem | Clear lens, Medium Flood 45° | To be selected from manufacturer's standard offerings | 1508 | 3000 | 80 | 21 W | 12VAC/DC 50 | Switched | Integral/Remote 0-10V LED dimming driver | Provide both fixture heads with one (1) Soft Focus Lens, one (1) rectilinear lens, one (1) honeycomb baffle, and one (1) 45° cap. Provide 3' lead wire. |
| FS1a | Lumenpulse Lumenbeam Large or GVA FL50 or Approved Alternate | Exterior rated color changing architectural floodlight. | South Entrance | Surface mount to armature (by others) | Asymmetric Wallwash | To be selected from manufacturer's standard offerings | 1817 | RGBW30K | N.A. | 50 W | 120-277V | Dimmed | Integral/Remote 0-10V LED dimming driver | Mounted to building with built metal extension arm attached to roof as shown on mounting detail. Fixture lens center placed 4 ft. away from face of building. |
| FS1b | Lumenpulse Lumenbeam Large or GVA FL50 or Approved Alternate | Exterior rated color changing architectural floodlight. | East/West Facades | Surface mount to armature (by others) | Wide Flood | To be selected from manufacturer's standard offerings | 1817 | RGBW30K | N.A. | 50 W | 120-277V | Dimmed | Integral/Remote 0-10V LED dimming driver | Mounted to building with built metal extension arm attached to roof as shown on mounting detail. Fixture lens center placed 4 ft. away from face of building. Include LSL linear spread lens horizontal accessory. Fixture must be aimed in the field. |
| FS2 | Lumenpulse Lumenbeam Small or GVA FL50 or Approved Alternate | Exterior rated static white architectural floodlight. | North Entrance | Surface mount to existing unistrut | Narrow Flood 20° | To be selected from manufacturer's standard offerings | 1125 | 3000 | 80 | 13 W | 120-277V | Dimmed | Integral/Remote 0-10V LED dimming driver | Placed in existing mounting location for illumination of Eagle Statues on face of building. |
| LS1 | Lumenpulse Lumenfacade Nano or GVA STR9 Gen3 or Approved Alternate | Exterior rated color changing linear wall washing fixture. | Window Casings | Surface - floor | V 10° x H 60° | To be selected from manufacturer's standard offerings | 345 LF | RGBW30K | N.A. | 10W/FT | 120-277V | Dimmed | Integral/Remote 0-10V LED dimming driver | Mounted to bottom sill of window openings centered horizontally and vertically facing straight upwards. |
| LS2 | Lumenpulse Lumenfacade High Output or GVA STR9 Gen3 or Approved Alternate | Exterior rated static white linear wall washing fixture. | East Façade Signange | Surface mount to armature (by others) | V 10° x H 60° | To be selected from manufacturer's standard offerings | 345 LF | 3000 | N.A. | 15W/FT | 120-277V | Dimmed | Integral/Remote 0-10V LED dimming driver | Mounted to bottom sill of window openings centered horizontally and vertically facing straight upwards. |

GENERAL NOTES:

- ALL WORK SHALL BE IN COMPLIANCE WITH APPLICABLE CODES INCLUDING, BUT NOT LIMITED TO, THE SEATTLE ELECTRICAL CODE, THE SEATTLE BUILDING CODE AND THE SEATTLE ENERGY CODE.
- CONDUITS SHALL BE EMT.
- WIRES SHALL BE COPPER #12 AWG OR LARGER. TYPE THWN OR THHN.
- CABLES FOR DMX CONTROLS SHALL BE CAT 6. UNSHIELDED TWISTED PAIR WITH 4 Pairs.
- JUNCTION BOXES ON ROOF SHALL BE WEATHERPROOF TYPE.
- CONDUIT ROUTED ON ROOF SHALL BE SUPPORTED ON DURA-BLOCK STYLE RUBBER BLOCKS WITH CHANNEL FOR UNISTRUT. AFFIX CONDUIT TO UNISTRUT ON RUBBER BLOCK. SPACE BLOCKS AS REQUIRED BY CODE. NO CONDUITS SHALL BE ATTACHED DIRECTLY TO THE ROOF.
- 120V POWER CIRCUITS SHALL BE ROUTED IN 3/4" CONDUIT.
- CAT 6 DMX CONTROL CABLES SHALL BE ROUTED IN 1" CONDUIT.
- COMBINED POWER/DATA CABLES SHALL BE ROUTED IN 1" CONDUIT.
- EXISTING PANEL 2H4-D IS LOCATED IN 2ND FLOOR WEST ELECTRICAL ROOM. ADD (4) 201 BREAKERS AT PANEL FOR ROOFTOP LIGHTING CIRCUITS.
- FIBER SHALL BE INDOOR/OUTDOOR RATED, TIGHT BUFFERED, 50/125 MICRO MULTIMODE, 6 STRANDS.
- FIBER MEDIA CONVERTER SHALL CONVERT MULTIMODE FIBER TO ETHERNET OVER CAT 6 COPPER. LOCATE FIBER MEDIA CONVERTER ON ROOF IN WEATHERPROOF J-BOX. SIZE J-BOX AS REQUIRED FOR FIBER MEDIA CONVERTER AND ASSOCIATED CABLEING.
- AT COMPLETION OF PROJECT, PROVIDE ELECTRICAL OPERATION AND MAINTENANCE MANUAL WITH CUT SHEETS AND MAINTENANCE INFO FOR ALL MATERIALS AND LIGHT FIXTURES PROVIDED ON JOB.

SHEET NOTES:

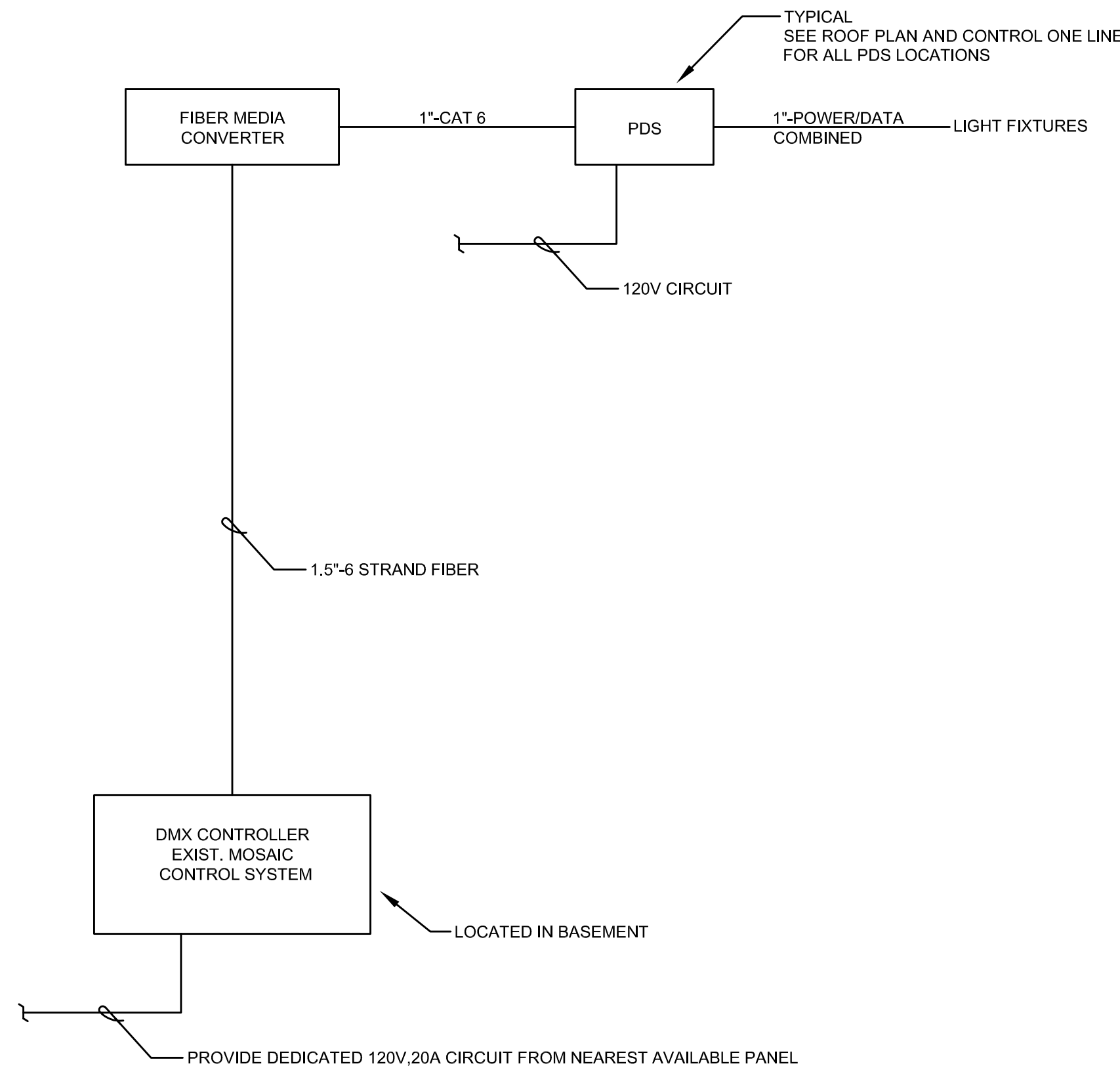
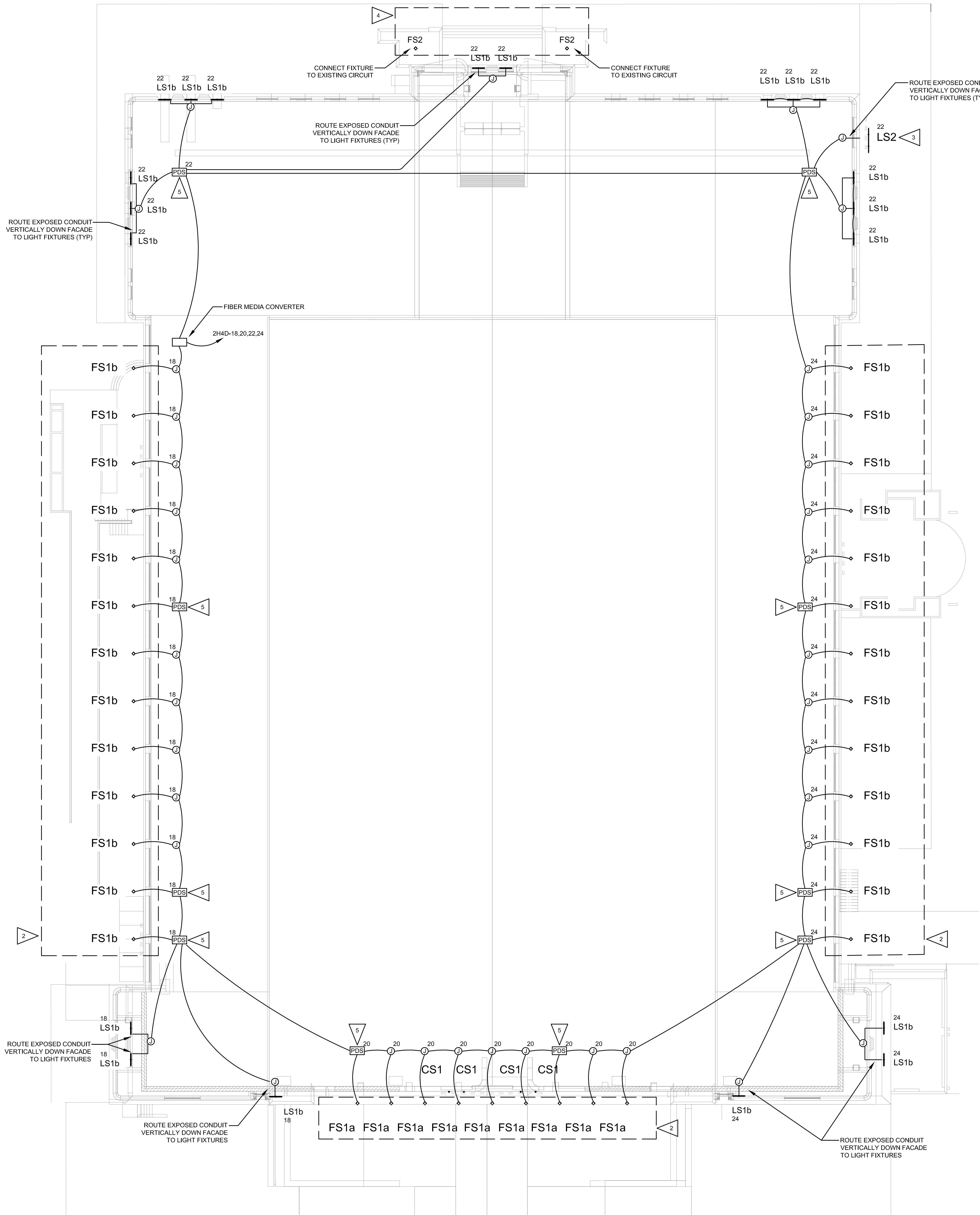
- REFER TO LIGHTING PLANS (SHEETS LT-01, LT-02, LT-03, AND LT-04) FOR FURTHER INFORMATION AND DETAILS ON FIXTURE MOUNTING, FIXTURE LOCATIONS, AND ELEVATIONS.
- REFER TO LIGHTING FIXTURE SCHEDULE AND LIGHTING CUTS BY LIGHTING DESIGNER FOR FURTHER DETAILS ON FIXTURES.
- REFER TO LIGHTING CONTROLS PLANS (SHEET LC-01) FOR FURTHER INFORMATION AND DETAILS ON CONTROLS CIRCUITRY FOR LIGHT FIXTURES.
- REFER TO ARCHITECTURAL ELEVATIONS FOR FURTHER DETAILS ON MOUNTING ELEVATIONS FOR LIGHT FIXTURES ON THE FACADES AND DETAILS FOR ROUTING CONDUITS EXPOSED ON THE FACADE.
- SCHEDULE AND HOLD A PRE-INSTALLATION MEETING WITH THE ARCHITECT AND ENGINEER PRIOR TO ROUTING EXPOSED CONDUITS ON THE FACADES. ROUTE POWER AND CONTROLS CIRCUITRY ON THE ROOF TO THE EXTENT POSSIBLE. CIRCUITRY SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO BUILDING STRUCTURE. GROUP CONDUITS TOGETHER TO MINIMIZE THE AMOUNT OF ROOF SPACE OCCUPIED BY CONDUITS.
- PENETRATE ROOF AS NEEDED TO ROUTE CONDUITS FROM INSIDE THE BUILDING TO THE ROOF. FLASH AND COUNTERFLASH ROOF PENETRATIONS.
- PAINT EXPOSED CONDUITS ON FACADES TO MATCH EXISTING WALL COLOR.

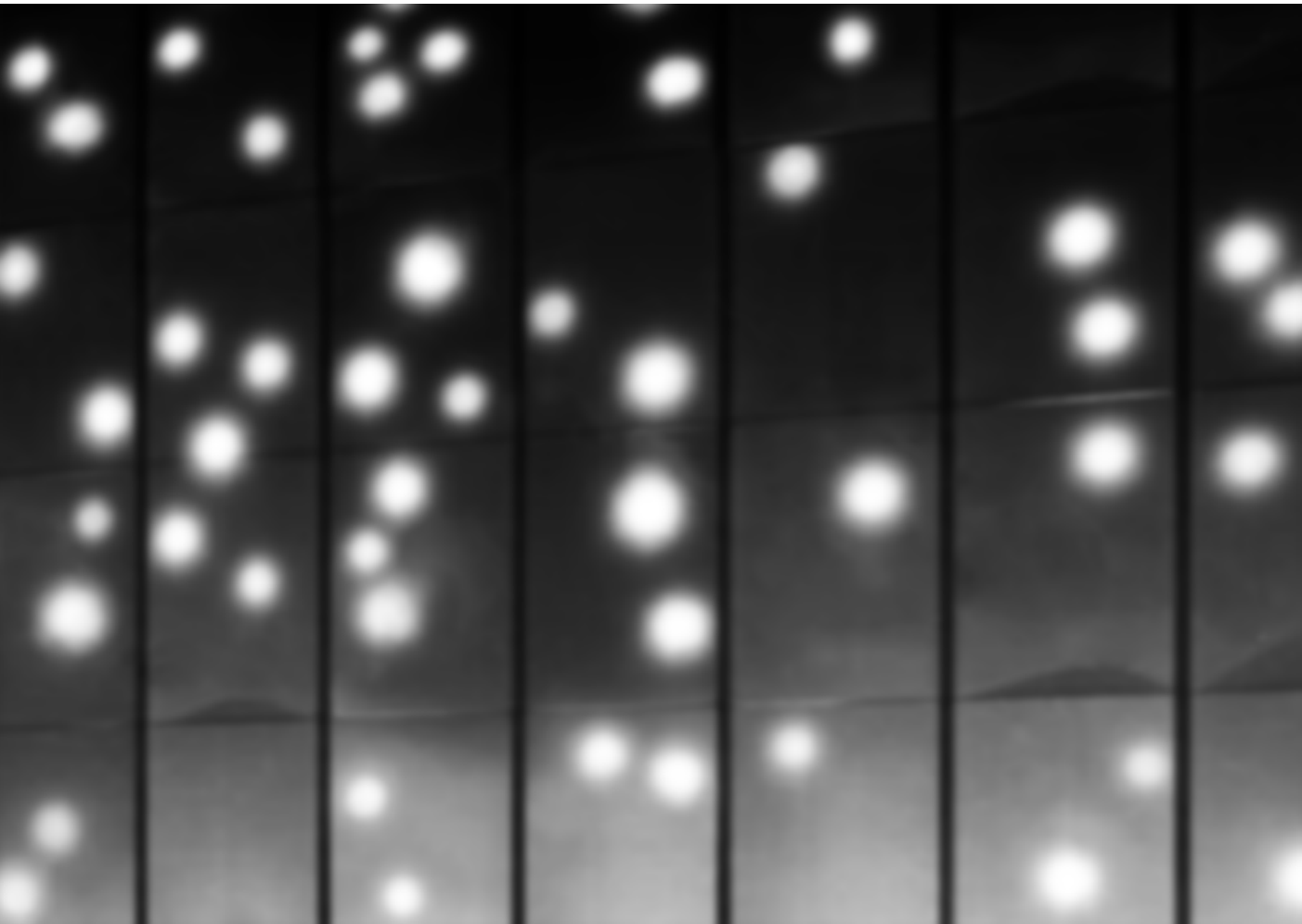
FLAG NOTES:

- FS1A FIXTURES ARE A PART OF ADD/ALTERNATE ONE (1), FIXTURES, ARMATURES, CONNECTIONS, AND ACCESSORIES ONLY INCLUDED IF ADD/ALT. 1 IS INCLUDE IN PROJECT.
- FS1B FIXTURES ARE A PART OF ADD/ALTERNATE TWO (2), FIXTURES, ARMATURES, CONNECTIONS, AND ACCESSORIES ONLY INCLUDED IF ADD/ALT. 2 IS INCLUDE IN PROJECT.
- LS2 FIXTURES ARE A PART OF ADD/ALTERNATE FOUR (4), FIXTURES, ARMATURES, CONNECTIONS, AND ACCESSORIES ONLY INCLUDED IF ADD/ALT. 4 IS INCLUDE IN PROJECT.
- FS2 FIXTURES ARE A PART OF ADD/ALTERNATE THREE (3), FIXTURES, MOUNTING COMPONENTS, CONNECTIONS, AND ACCESSORIES ONLY INCLUDED IF ADD/ALT. 4 IS INCLUDE IN PROJECT.
- LIGHTING CONTROL SYSTEM POWER/DATA DISTRIBUTION UNIT (PDS), LOCATE ON ROOF NEAR FIXTURES. PROVIDE 120V POWER AND CAT 6 TO PDS. PROVIDE COMBINED POWER/DATA CABLE FROM PDS TO EACH LIGHT FIXTURE.

LEGEND

- CONDUIT
LIGHT FIXTURE
JUNCTION BOX
FLAG NOTE





Luminaire Cut Sheets

Seattle Center Armory

100% Construction Documents

March 06, 2023

DENALI - TWIN SIGN STAR STYLE "C" LED (INTEGRAL)

IP66 RATED

DATE:

PROJECT:

TYPE:

CATALOG NUMBER LOGIC:



*Requires Safety Cable (SC).

**Accommodates up to 2 lens/shielding media

***120V only.

CATALOG NUMBER LOGIC

Example: ST - 42 - C - DE - LED - TR - x98 - FL - VER - 12 - 11 - C - SC - INC - 120

MATERIAL

Aluminum

SERIES

ST - Twin Sign Star

STEM LENGTH

24" (Standard), 30", 36", *42", or *48"

STYLE

C - Straight Mount

FIXTURE

DE - Denali Series

SOURCE

LED - Chip on Board (COB) Technology

HOUSING

TR - Integral Driver

LED TYPE

| | | |
|------------------------|------------------------|---|
| x98 - 13W/2700K/80CRI | x101 - 13W/2700K/90CRI | ✓ |
| x99 - 13W/3000K/80CRI | x102 - 13W/3000K/90CRI | ✓ |
| x103 - 13W/3500K/80CRI | x104 - 13W/3500K/90CRI | ✓ |
| x100 - 13W/4000K/80CRI | x121 - 13W/4000K/90CRI | ✓ |
| x122 - 21W/2700K/80CRI | x126 - 21W/2700K/90CRI | ✓ |
| x123 - 21W/3000K/80CRI | x127 - 21W/3000K/90CRI | ✓ |
| x124 - 21W/3500K/80CRI | x128 - 21W/3500K/90CRI | ✓ |
| x125 - 21W/4000K/80CRI | x129 - 21W/4000K/90CRI | ✓ |

OPTICS

SP - Spot (17°) FL - Flood (45°) WFL - Wide Flood (55°)

FINISH (See page 2 for full-color swatches)

Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)

Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRI, CRM, HUG, MDS, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)

Also available in RAL Finishes

LENS TYPE**

9 - Clear (Standard)

12 - Spot Focus 13 - Rectilinear

SHIELDING**

11 - Honeycomb Baffle

CAP STYLE

A - 45°

B - 90°

C - Flush

D - 45° Less Weephole (Downward Aiming Only)

E - 90° Less Weephole (Downward Aiming Only)



TITLE 24, JA8 COMPLIANT

B-K LIGHTING

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04/13/2022 SKU-1380
SUB-2834-00

LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory

DATE March 06, 2023

PHASE 100% Construction Documents

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DENALI - TWIN SIGN STAR STYLE "C" LED (INTEGRAL)

IP66 RATED

DATE:

PROJECT:

TYPE:

CATALOG NUMBER LOGIC:

**OPTION**

SC - Safety Cable w/ Mounting Canopy (standard with 42" and above)

CONTROL

ELV - Dimming Driver (For use with Electronic Low Voltage Dimmer)***

INC - Dimming Driver (For use with Incandescent Dimmer)***

010 - 0-10V Dimming Driver (Dimming ≤3-100%)

INPUT VOLTAGE

120 - 120 VAC

277 - 277 VAC

*Requires Safety Cable (SC).

**Accommodates up to 2 lens/shielding media

***120V only.



TITLE 24, JA8 COMPLIANT

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04/13/2022 SKU-1380 P2
SUB-2834-00**LUMINAIRE CUT SHEET**

PROJECT **Seattle Center Armory**
 DATE **March 06, 2023**
 PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DENALI - TWIN SIGN STAR STYLE "C" LED (INTEGRAL)

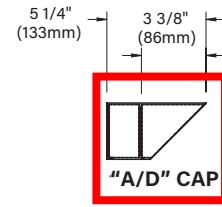
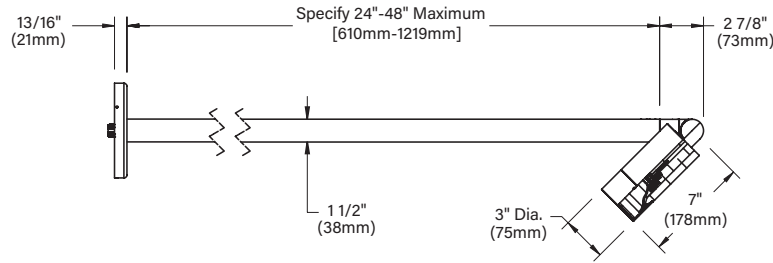
IP66 RATED

DATE:

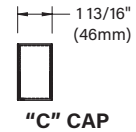
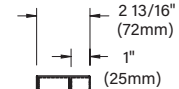
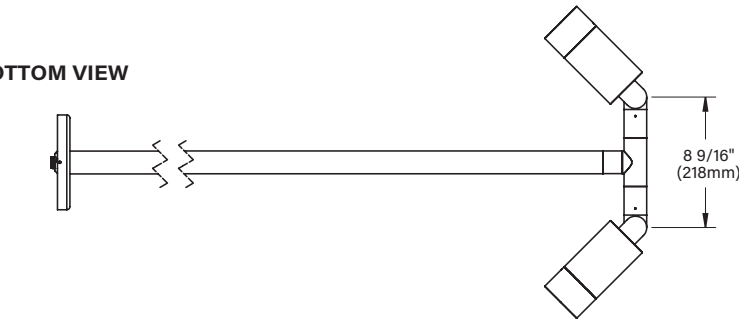
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TYPE:

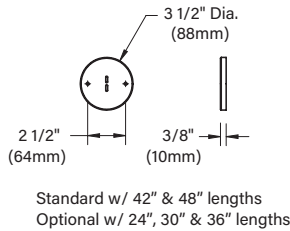
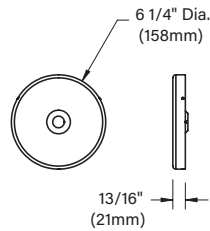
SIDE VIEW



BOTTOM VIEW



COVER DETAIL



Standard w/ 42" & 48" lengths
Optional w/ 24", 30" & 36" lengths

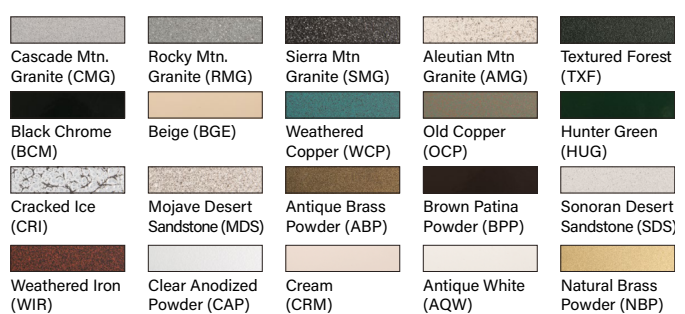
SAFETY CABLE W/MOUNTING CANOPY

STANDARD FINISHES



[Click Here](#) to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES



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04/13/2022 SKU-1380
SUB-2834-00



LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DENALI - TWIN SIGN STAR STYLE "C" LED (INTEGRAL)

IP66 RATED





DATE:

PROJECT:

TYPE:

Accessories (Configure separately)

SPECIFICATIONS

| | | |
|--|-------------------------|--|
| ELECTRICAL | WATTAGE | 13W or 21W LED |
| | LED | COB technology and modular design with electrical quick disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant options available. Minimum 50,000 hour rated life at 70% of initial lumens (L70). |
| | COLOR MANAGEMENT | COB technology delivers natural white light. Exact color point conformity exceeds ANSI C78.377 standard. Module exceeds 80 CRI (RA>80, R9.16). Color point uniformity 2 SDCM color control for 2700K-4000K CCT. |
| | WIRING | INC/ELV Wiring: 3 Wire, 18GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire 0-10 Wiring: 5 Wire, (3) 18GA and (2) 22GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire |
| | DRIVER | Incandescent/ELV Control Option Driver: Dimming driver for use with standard incandescent or electronic low voltage dimmers (10-100% range), 120VAC only. 0-10 Control Option Driver: Dimming driver for use with standard 0-10V dimmers (≤3-100% dim. range), 120-277VAC. With [1] 440mA (13W) / 700mA (21W). 50/60Hz. >0.9 Power Factor, (INC/ELV)10.0A/(0-10) <250mA in-rush current, .20%THD (nominal at 120VAC full load). Output over-voltage, overcurrent, and short circuit protection with auto recovery. Class 2 power supply; FCC47CFR Part 15 Compliant Class B (120VAC)/Class A (277VAC). |
| PHYSICAL | MATERIALS | Furnished in copper-free aluminum (6061-T6). |
| | STYLE | C style provides straight profile with machined adapter for 90° transition from fixture to stem. |
| | BODY | Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components. |
| | KNUCKLE | Patented 360HD mounting system features a mechanical taper-lock, which allows a full 180° vertical adjustment without the use of aim-limiting, serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lb. static load prior to movement to ensure decades of optical alignment. ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim-and-Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw. |
| | CAP | Fully machined and accommodates two (2) lens or louver media. |
| | LENS | Shock resistant, tempered, 1/8" thick soda lime glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment. |
| | OPTICS | Interchangeable optics permit changes in the field. |
| | INSTALLATION | 6 1/4" dia., machined canopy permits mounting to 4" octagonal junction box. Junction box installation must be designed to hold full fulcrum weight of fixture (junction box and gasket by others). Optional safety cable with mounting canopy maintains secondary support (standard with 42" and 48" lengths). |
| | HARDWARE | Tamper-resistant, stainless steel hardware. LOCK aiming screw is additionally black oxide treated for corrosion resistance. |
| | FINISH | StarGuard, our 15-stage chromate-free process, cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant. |
|     | WARRANTY | 5-year limited warranty. |
| | CERTIFICATION & LISTING | UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant components. Suitable for indoor or outdoor use, in wet locations. IP66 Rated. Made in the USA with sustainable processes. |

B-K LIGHTING

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04/13/2022 SKU-1380
SUB-2834-00



LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
 DATE **March 06, 2023**
 PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DATE:

PROJECT:

TYPE:

CATALOG NUMBER LOGIC:



*Accommodates up to 2 lens/shielding media.

**120V only.

CATALOG NUMBER LOGIC

Example: DE - LED - TR - x98 - SP - BZW - 9 - 11 - A - ELV - 120

MATERIAL

Aluminum

SERIES

DE - Denali

SOURCE

LED - Chip on Board (COB) Technology

HOUSING

TR - Integral Driver

LED TYPE

| | | |
|------------------------|------------------------|---|
| x98 - 13W/2700K/80CRI | x101 - 13W/2700K/90CRI | ✓ |
| x99 - 13W/3000K/80CRI | x102 - 13W/3000K/90CRI | ✓ |
| x103 - 13W/3500K/80CRI | x104 - 13W/3500K/90CRI | ✓ |
| x100 - 13W/4000K/80CRI | x121 - 13W/4000K/90CRI | ✓ |
| x122 - 21W/2700K/80CRI | x126 - 21W/2700K/90CRI | ✓ |
| x123 - 21W/3000K/80CRI | x127 - 21W/3000K/90CRI | ✓ |
| x124 - 21W/3500K/80CRI | x128 - 21W/3500K/90CRI | ✓ |
| x125 - 21W/4000K/80CRI | x129 - 21W/4000K/90CRI | ✓ |

OPTICS

SP - Spot (17°) FL - Flood (45°) WFL - Wide Flood (55°)

FINISH (See page 2 for full-color swatches)

Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)

Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRI, CRM, HUG, MDS, NBP, OCP, RMG, SDS, SMG, TFX, WCP, WIR)

Also available in RAL Finishes

LENS TYPE*

9 - Clear (Standard)

12 - Soft Focus 13 - Rectilinear

SHIELDING*

11 - Honeycomb Baffle

CAP STYLE

A - 45°

B - 90°

C - Flush

D - 45° Less Weephole (Downward Aiming Only)

E - 90° Less Weephole (Downward Aiming Only)

CONTROLS

ELV - Dimming Driver (For use with Electronic Low Voltage Dimmer)**

INC - Dimming Driver (For use with incandescent dimmer)**

010 - 0-10V Dimming Driver (Dimming ≤3-100%)

INPUT VOLTAGE

120 - 120 VAC

277 - 277 VAC



TITLE 24, JA8 COMPLIANT

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04/13/2022 SKU-1245
SUB-2783-00

LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory

DATE March 06, 2023

PHASE 100% Construction Documents

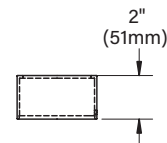
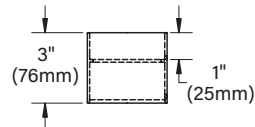
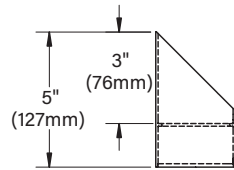
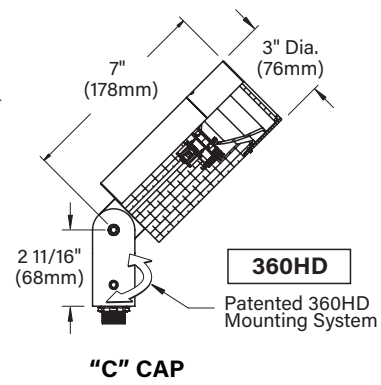
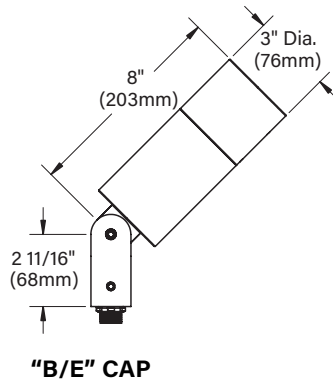
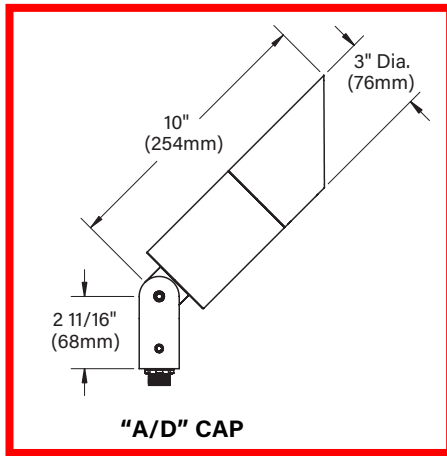
This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DATE:

PROJECT:

TYPE:

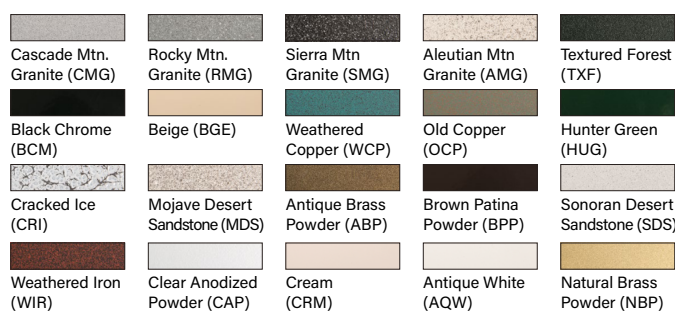


STANDARD FINISHES



Click [Here](#) to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

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04/13/2022 SKU-1245
SUB-2783-00



LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

DENALI LED (INTEGRAL)

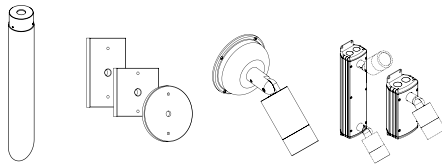
IP66 RATED

DATE:

PROJECT:

TYPE:

Accessories (Configure separately)







Power Pipe II

Canopies

Power Canopy

PM2DJ & PM2J

SPECIFICATIONS

| | | |
|--|-------------------------|---|
| ELECTRICAL | WATTAGE | 13W or 21W LED |
| | LED | COB technology and modular design with electrical quick disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant options available. Minimum 50,000 hour rated life at 70% of initial lumens (L70). |
| | COLOR MANAGEMENT | COB technology delivers natural white light. Exact color point conformity exceeds ANSI C78.377 standard. Module exceeds 80 CRI (RA>80, R9.16). Color point uniformity 2 SDCM color control for 2700K-4000K CCT. |
| | WIRING | INC/ELV Wiring: 3 Wire, 18GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire 0-10 Wiring: 5 Wire, (3) 18GA and (2) 22GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire |
| | DRIVER | Incandescent/ELV Control Option Driver: Dimming driver for use with standard incandescent or electronic low voltage dimmers (10-100% range), 120VAC only. 0-10 Control Option Driver: Dimming driver for use with standard 0-10V dimmers (≤3-100% dim. range), 120-277VAC. With [1] 440mA (13W) / 700mA (21W). 50/60Hz. >0.9 Power Factor, (INC/ELV)10.0A/(0-10) <250mA in-rush current, .20%THD (nominal at 120VAC full load). Output over-voltage, overcurrent, and short circuit protection with auto recovery. Class 2 power supply; FCC47CFR Part 15 Compliant Class B (120VAC)/Class A (277VAC). |
| PHYSICAL | MATERIALS | Furnished in copper-free aluminum (6061-T6). |
| | BODY | Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components. |
| | KNUCKLE | 360HD Mounting System features a mechanical taperlock, allowing full 180° vertical adjustment without the use of aim-limiting serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lbs. static load prior to movement for optical alignment with a ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim & Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw. |
| | CAP | Fully machined and accommodates two (2) lens or louver media. |
| | LENS | Shock-resistant, tempered glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment. |
| | HARDWARE | Tamper-resistant, stainless steel hardware. 360HD hardware is black oxide treated for additional corrosion resistance. |
| | OPTICS | Interchangeable optics permit changes in the field. |
|  TITLE 24, JA8  LISTED  RoHS  MADE IN THE USA | FINISH | StarGuard, our 15-stage chromate-free process, cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant. |
| | WARRANTY | 5-year limited warranty. |
| | CERTIFICATION & LISTING | UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant components. Suitable for indoor or outdoor use, in wet locations, and for installation within 4' of the ground. IP66 Rated. Made in the USA with sustainable processes. |

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MADE IN THE USA

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04/13/2022 SKU-1245
SUB-2783-00

LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
 DATE **March 06, 2023**
 PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

LAMP & DRIVER DATA (page 1 of 2)

DATE:

PROJECT:

TYPE:

DRIVER ELECTRICAL DATA

| Type | AC Input Range | Frequency Hz | Power Factor At Full Load (Efficiency) | THD | InRush Current | Operating Current | Operation Ambient Temperature | Dimmer Type | Dimmer Range |
|----------|----------------|--------------|--|-----|----------------|-------------------------|-------------------------------|-------------|--------------|
| Integral | 120VAC | 50/60 | > 0.9 | 20% | 10A | 440mA (13W)/700mA (21W) | -30° C ~ 70°C | TRIAC/ELV | 1-100% |
| Integral | 105-300VAC | 50/60 | > 0.9 | 20% | <250mA | 440mA (13W)/700mA (21W) | -30° C ~ 90°C | 0-10 | ≤3-100% |

LM79 DATA

OPTICAL DATA

| BK No. | CCT (Typ.) | CRI (Typ.) | Input Watts (Typ.) | L70 Data | Angle | CBCP | Del. Lumens | Muliplier |
|-------------|-------------|------------|--------------------|---------------|-----------|--------------|--------------|-------------|
| x98 | 2700 | 80 | 13 | 50,000 | 17 | 6,480 | 829 | 0.92 |
| x98 | 2700 | 80 | 13 | 50,000 | 45 | 1,773 | 1,041 | 0.92 |
| x98 | 2700 | 80 | 13 | 50,000 | 55 | 1,478 | 1,180 | 0.92 |
| x99 | 3000 | 80 | 13 | 50,000 | 17 | 6,796 | 869 | 0.96 |
| x99 | 3000 | 80 | 13 | 50,000 | 45 | 1,860 | 1,091 | 0.96 |
| x99 | 3000 | 80 | 13 | 50,000 | 55 | 1,550 | 1,237 | 0.96 |
| x103 | 3500 | 80 | 13 | 50,000 | 17 | 6,685 | 855 | 0.95 |
| x103 | 3500 | 80 | 13 | 50,000 | 45 | 1,829 | 1,074 | 0.95 |
| x103 | 3500 | 80 | 13 | 50,000 | 55 | 1,525 | 1,217 | 0.95 |
| x100 | 4000 | 80 | 13 | 50,000 | 17 | 7,059 | 903 | 1.00 |
| x100 | 4000 | 80 | 13 | 50,000 | 45 | 1,931 | 1,134 | 1.00 |
| x100 | 4000 | 80 | 13 | 50,000 | 55 | 1,610 | 1,285 | 1.00 |
| x101 | 2700 | 90 | 13 | 50,000 | 17 | 4,486 | 574 | 0.69 |
| x101 | 2700 | 90 | 13 | 50,000 | 45 | 1,228 | 720 | 0.69 |
| x101 | 2700 | 90 | 13 | 50,000 | 55 | 1,023 | 817 | 0.69 |
| x102 | 3000 | 90 | 13 | 50,000 | 17 | 4,936 | 631 | 0.73 |
| x102 | 3000 | 90 | 13 | 50,000 | 45 | 1,350 | 793 | 0.73 |
| x102 | 3000 | 90 | 13 | 50,000 | 55 | 1,126 | 899 | 0.73 |
| x104 | 3500 | 90 | 13 | 50,000 | 17 | 4,775 | 611 | 0.71 |
| x104 | 3500 | 90 | 13 | 50,000 | 45 | 1,307 | 767 | 0.71 |
| x104 | 3500 | 90 | 13 | 50,000 | 55 | 1,089 | 869 | 0.71 |
| x121 | 4000 | 90 | 13 | 50,000 | 17 | 5,324 | 681 | 0.75 |
| x121 | 4000 | 90 | 13 | 50,000 | 45 | 1,457 | 855 | 0.75 |
| x121 | 4000 | 90 | 13 | 50,000 | 55 | 1,214 | 969 | 0.75 |
| x122 | 2700 | 80 | 21 | 50,000 | 17 | 9,040 | 1,208 | 0.87 |
| x122 | 2700 | 80 | 21 | 50,000 | 45 | 2,437 | 1,359 | 0.87 |
| x122 | 2700 | 80 | 21 | 50,000 | 55 | 1,876 | 1,416 | 0.87 |
| x123 | 3000 | 80 | 21 | 50,000 | 17 | 10,030 | 1,341 | 0.96 |
| x123 | 3000 | 80 | 21 | 50,000 | 45 | 2,704 | 1,508 | 0.96 |
| x123 | 3000 | 80 | 21 | 50,000 | 55 | 2,082 | 1,571 | 0.96 |
| x124 | 3500 | 80 | 21 | 50,000 | 17 | 8,496 | 1,136 | 0.81 |
| x124 | 3500 | 80 | 21 | 50,000 | 45 | 2,290 | 1,277 | 0.81 |
| x124 | 3500 | 80 | 21 | 50,000 | 55 | 1,763 | 1,331 | 0.81 |
| x125 | 4000 | 80 | 21 | 50,000 | 17 | 10,431 | 1,394 | 1.00 |
| x125 | 4000 | 80 | 21 | 50,000 | 45 | 2,812 | 1,568 | 1.00 |
| x125 | 4000 | 80 | 21 | 50,000 | 55 | 2,165 | 1,634 | 1.00 |

B-K LIGHTING

MADE IN THE USA

559.438.5800 | INFO@BKLIGHTING.COM | BKLIGHTING.COM

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**

DATE **March 06, 2023**

PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

CS1

LAMP & DRIVER DATA (page 2 of 2)

DATE:

PROJECT:

TYPE:

| LM79 DATA | | | | OPTICAL DATA | | | | |
|-------------|-------------|------------|--------------------|---------------|-----------|--------------|--------------|-------------|
| BK No. | CCT (Typ.) | CRI (Typ.) | Input Watts (Typ.) | L70 Data | Angle | CBCP | Del. Lumens | Muliplier |
| x126 | 2700 | 90 | 21 | 50,000 | 17 | 6,120 | 818 | 0.68 |
| x126 | 2700 | 90 | 21 | 50,000 | 45 | 1,650 | 920 | 0.68 |
| x126 | 2700 | 90 | 21 | 50,000 | 55 | 1,270 | 959 | 0.68 |
| x127 | 3000 | 90 | 21 | 50,000 | 17 | 7,535 | 1,007 | 0.75 |
| x127 | 3000 | 90 | 21 | 50,000 | 45 | 2,031 | 1,133 | 0.75 |
| x127 | 3000 | 90 | 21 | 50,000 | 55 | 1,564 | 1,180 | 0.75 |
| x128 | 3500 | 90 | 21 | 50,000 | 17 | 5,406 | 723 | 0.64 |
| x128 | 3500 | 90 | 21 | 50,000 | 45 | 1,457 | 813 | 0.64 |
| x128 | 3500 | 90 | 21 | 50,000 | 55 | 1,225 | 847 | 0.64 |
| x129 | 4000 | 90 | 21 | 50,000 | 17 | 8,148 | 1,089 | 0.78 |
| x129 | 4000 | 90 | 21 | 50,000 | 45 | 2,196 | 1,225 | 0.78 |
| x129 | 4000 | 90 | 21 | 50,000 | 55 | 1,691 | 1,277 | 0.78 |

| OPTICS | |
|-----------------|---------|
| Optic | Angle |
| Spot w/ 13 Accy | 16 x 50 |
| Spot | 17° |
| Flood | 45° |
| Wide Flood | 55° |

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CS1

Specification Sheet

lumenbeam

Large
LBL

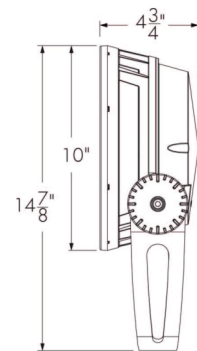
COLOR CHANGING

Project Name _____ Qty _____

Type _____ Catalog / Part Number _____



Front view



Side view

Photometric Summary (Discrete)

Symmetric

| | Delivered output (lm) | Intensity (peak cd) |
|-----------|-----------------------|---------------------|
| VN (6°) | 2,402 | 125,148 |
| NS (10°) | 2,572 | 91,221 |
| NF (20°) | 2,541 | 23,829 |
| M (30°) | 2,323 | 10,502 |
| FL (40°) | 2,190 | 5,407 |
| WFL (60°) | 1,817 | 1,886 |

Asymmetric

| | | |
|-----|-------|----------------|
| NAS | 2,672 | 41,158 (@2.5°) |
| WW | 2,213 | 9,834 (@5°) |

Based on RGBW40K full output, DMX/RDM configuration.
Photometric performance is measured in compliance with IESNA LM-79-08.

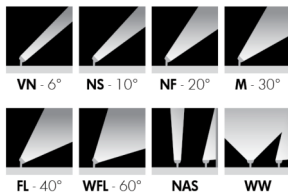
Photometric Summary (Opticolor)

Symmetric

| | Preliminary Data | |
|-----------|-----------------------|---------------------|
| | Delivered output (lm) | Intensity (peak cd) |
| NS (10°) | 1,700 | 23,954 |
| NF (20°) | 1,690 | 12,601 |
| M (30°) | 1,711 | 7,307 |
| FL (40°) | 1,711 | 4,155 |
| WFL (60°) | 1,705 | 1,616 |

Based on MRGBW40K full output, DMX/RDM configuration.
Photometric performance is measured in compliance with IESNA LM-79-08.

Optics



Description

The Lumenbeam Large Colour Changing is an IP66-rated luminaire for lighting landscapes, trees, columns, monuments, and architectural details. The system offers numerous options including optics for flood or accent lighting, a choice of color mixing, as well as various accessories, spread lenses, and controls. The luminaire also has an anti-corrosion option for use in harsh, chemical, or coastal environments.

Features

| | |
|---|--|
| Colors and Color Temperature (Discrete) | RGB, RGB + white 3000K, RGB + white 4000K, RGB + amber |
| Colors and Color Temperature (Opticolor) | Opticolor cluster with MRGBW (red, green, blue, white 3000K), Opticolor cluster with MRGBW (red, green, blue, white 4000K), Opticolor cluster with MRGBA (red, green, blue, amber), MRGBW30K and MRGBW40K can be configured to MRGB via RDM (consult factory for more details) |
| Optics (nominal distribution) | VN (6°), NS (10°), NF (20°), M (30°), FL (40°), WFL (60°), NAS (Narrow Asymmetric), WW (Asymmetric Wallwash) |
| Optical Option | Linear spread lens horizontal distribution, Linear spread lens vertical distribution |
| Options | Short Yoke, 3G ANSI C136.31-2010 Vibration Rating for bridge applications, Corrosion-resistant coating for hostile environments |
| Cable Color | Black, White |
| Power Consumption | 50 W |
| Warranty | 5-year limited warranty |

Performance

| | |
|--|---|
| Maximum Delivered Output (Discrete) | 2,664 lm (RGB full output, NAS @ 2.5°, DMX/RDM), 2,619 lm (RGBW30K full output, NAS @ 2.5°, DMX/RDM), 2,672 lm (RGBW40K full output, NAS @ 2.5°, DMX/RDM), 2,168 lm (RGBA full output, NAS @ 2.5°, DMX/RDM) |
|--|---|

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS1a/b

Specification Sheet

lumenbeam

Large
LBL

COLOR CHANGING

Colors and Color Temperatures



Controls

lumen talk[™] DMXrdm DALI8

Ratings

IP66 IK10

Certifications



Maximum Delivered Output (Opticolor) 1,677 lm (MRGBW30K full output, M 30°, DMX/RDM), 1,711 lm (MRGBW40K full output, M 30°, DMX/RDM), 1,386 lm (MRGBA full output, M 30°, DMX/RDM)

Maximum Delivered Intensity (Discrete) 124,768 cd at nadir (RGBA full output, VN 6°, DMX/RDM), 122,645 cd at nadir (RGBW30K full output, VN 6°, DMX/RDM), 125,148 cd at nadir (RGBW40K full output, VN 6°, DMX/RDM), 101,519 cd at nadir (RGBA full output, VN 6°, DMX/RDM)

Maximum Delivered Intensity (Opticolor) 23,475 cd at nadir (MRGBW30K full output, NS 10°, DMX/RDM), 23,954 cd at nadir (MRGBW40K full output, NS 10°, DMX/RDM), 19,403 cd at nadir (MRGBA full output, NS 10°, DMX/RDM)

Illuminance at Distance (Discrete) Minimum 1 fc at 353 ft (RGB full output, VN 6°, DMX/RDM), Minimum 1 fc at 350 ft (RGBW30K full output, VN 6°, DMX/RDM), Minimum 1 fc at 354 ft (RGBW40K full output, VN 6°, DMX/RDM), Minimum 1 fc at 319 ft (RGBA full output, VN 6°, DMX/RDM)

Illuminance at Distance (Opticolor) Minimum 1 fc at 153 ft (MRGBW30K full output, NS 10°, DMX/RDM), Minimum 1 fc at 155 ft (MRGBW40K full output, NS 10°, DMX/RDM), Minimum 1 fc at 139 ft (MRGBA full output, NS 10°, DMX/RDM)

Lumen Maintenance L70 120,000 hrs (Ta 25 °C)

Physical

Housing Material Low copper content high pressure die-cast aluminum

Yoke Material Heavy aluminum (standard yoke included)

Lens Material Clear tempered glass

Hardware Material Stainless steel

Gasket Material Silicone

Surface Finish Electrostatically applied polyester powder coat

Weight 12 lbs

EPA Front = 0.64 sq ft, Side = 0.21 sq ft

Electrical and control

Voltage 100 to 277 volts

Fixture Cable Power and data in one cable

Conductors 3C #16-3 (LT control), 5C #16-5 (DALI8 control), 6C #14-3/ #24-3 (DMX/RDM control)

Control Lumentalk, DMX/RDM enabled, DALI-2 dimming Type 8

Resolution (DMX/RDM) Per fixture, 8-bit or 16-bit, 3 channels (RGB) or 4 channels (RGBW30K, RGBW40K, RGBA, MRGBW30K, MRGBW40K, and MRGBA)

RGB Color Mixing 36 LEDs (12x Red, 12x Green, 12x Blue)

RGBW30K Color Mixing 28 LEDs (7x Red, 7x Green, 7x Blue, 7x White 3000K)

RGBW40K Color Mixing 28 LEDs (7x Red, 7x Green, 7x Blue, 7x White 4000K)

RGBA Color Mixing 28 LEDs (7x Red, 7x Green, 7x Blue, 7x Amber)

MRGBW30K Color Mixing 56 LEDs in 14 clusters (1x Red, 1x Green, 1x Blue, 1x White 3000K per cluster), Consult factory for more color and CCT options available

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LUMINAIRE CUT SHEET

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FS1a/b

| | |
|------------------------------|--|
| MRGBW40K Color Mixing | 56 LEDs in 14 clusters (1x Red, 1x Green, 1x Blue, 1x White 4000K per cluster), Consult factory for more color and CCT options available |
|------------------------------|--|

| | |
|---------------------------|--|
| MRGBA Color Mixing | 56 LEDs in 14 clusters (1x Red, 1x Green, 1x Blue, 1x Amber per cluster), Consult factory for more color and CCT options available |
|---------------------------|--|

Environmental

| | |
|----------------------------|--|
| Storage Temperature | -40 °F to 158 °F (device must reach start-up temperature value before operating) |
|----------------------------|--|

| | |
|-----------------------------|------------------|
| Start-up Temperature | -13 °F to 122 °F |
|-----------------------------|------------------|

| | |
|------------------------------|------------------|
| Operating Temperature | -40 °F to 122 °F |
|------------------------------|------------------|

| | |
|----------------------------------|--------------------------|
| Ingress Protection Rating | IP66, Wet location rated |
|----------------------------------|--------------------------|

| | |
|---------------------------------|------|
| Impact Resistance Rating | IK10 |
|---------------------------------|------|

Accessories (order separately)

| | |
|----------------------------|---|
| Optical Accessories | Snoot, Snoot wide, Visor, Linear Spread Lens Adjustable, Wire guard |
|----------------------------|---|

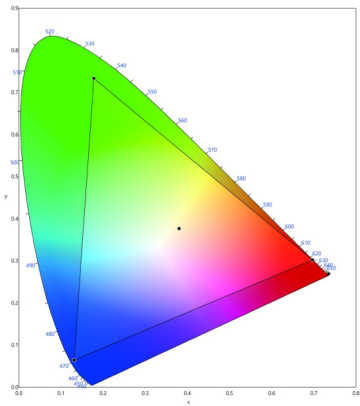
| | |
|----------------------|---|
| Control Boxes | DMX/RDM enabled (daisy chain or star configuration), Ethernet enabled (daisy chain or star configuration) |
|----------------------|---|

| | |
|------------------------|---|
| Control Systems | Lumentone™ 2 (LTN2), Pharos® kit (PHAROS) |
|------------------------|---|

| | |
|--|----------------------------|
| Diagnostic and Addressing Tools | LumenID (LID), LumentalkID |
|--|----------------------------|

Color point information

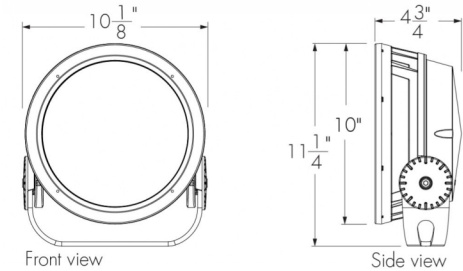
MRGBW40K



Red: 620-625nm
Green: 528-533nm
Blue: 465-470nm

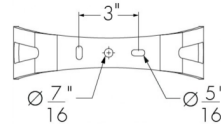
Mounting options

SY - Short yoke



Mounting details

Mounting hole pattern - standard and short yoke



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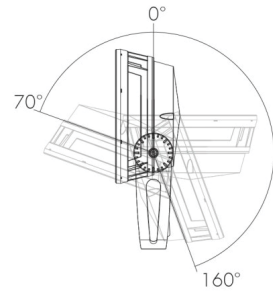
LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
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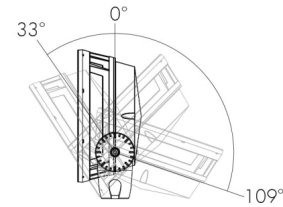
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FS1a/b

Adjustable pivot limits



Standard yoke



Short yoke

Optical options

LSLH - Linear spread lens horizontal distribution



LSLH - Linear spread lens horizontal distribution

LSLV - Linear spread lens vertical distribution



Beam angles

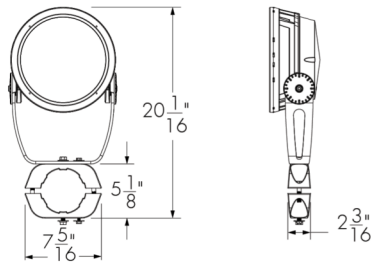
| Optic installed in fixture | Beam angle with LSLH/LSLV |
|----------------------------|---------------------------|
| VN | 7° x 60° |
| NS | 13° x 66° |
| NF | 16° x 62° |
| M | 23° x 65° |
| FL | 33° x 70° |

LLF: 0.88*
*LLF may vary slightly by distribution chosen.

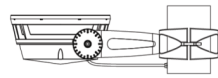
Factory installed, not adjustable on site. Not available for WFL, NAS and WW optics.
See 'Optical Accessories' section for field adjustable spread lens (LSLA).

Mounting accessories (order separately)

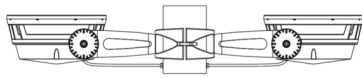
Round pole mounting accessory



PM4 model shown. Consult factory for square pole section.



PM4-1, PM4.5-1, PM5-1 - Round pole mounting accessory - single fixture

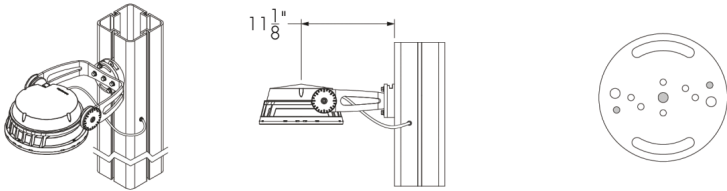


PM4-2, PM4.5-2, PM5-2 - Round pole mounting accessory - twin fixtures
*One bracket assembly is supplied per 2 fixtures unless otherwise specified.

| | PM4 | PM4.5 | PM5 |
|------------|-----------|-------------|-----------|
| For pole Ø | 4" ± 1/16 | 4.5" ± 1/16 | 5" ± 1/16 |

Consult factory for other pole diameters.

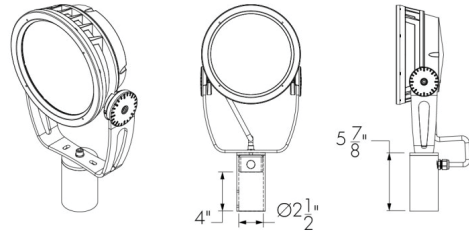
UY - Universal yoke for Lumentech pole



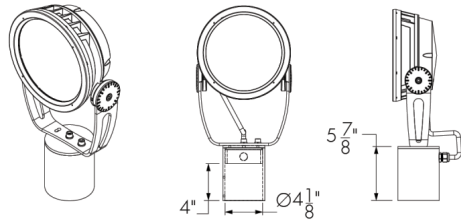
Square Lumentech profile shown. Refer to Lumentech specification sheet and installation instructions for more details.

The mounting holes used for this fixture are shown in gray.

Tenon adapter



TN2 - Tenon adapter to fit on 2 3/8 in O.D. tenon
Vertical mounting only. Consult factory for horizontal mounting.



TN4 - Tenon adapter to fit on 4 in O.D. tenon
Vertical mounting only. Consult factory for horizontal mounting.

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
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PHASE **100% Construction Documents**

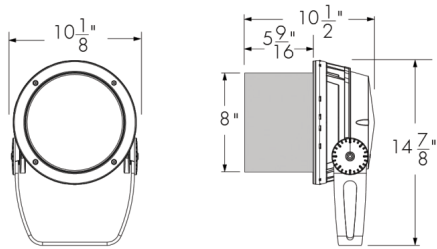
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FS1a/b

Optical accessories (order separately)

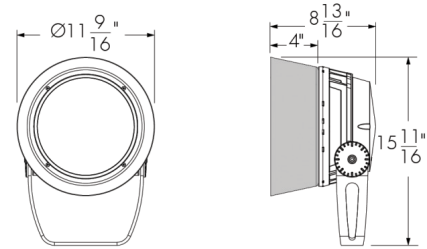
Installed optical accessories will affect the maximum pivot limits for each mounting option, consult factory for details.

SN - Snoot



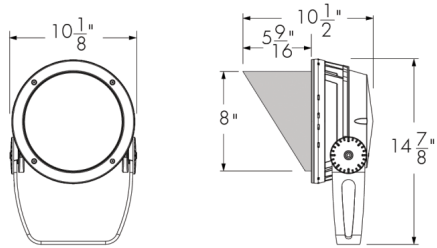
LBSN-FINISH-BK-OPTIONS (CRC)
Interior surface painted black. Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

SNW - Snoot wide



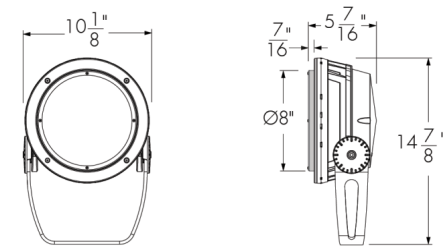
LBSNW-FINISH-BK-OPTIONS (CRC)
Interior surface painted black. Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

VS - Visor



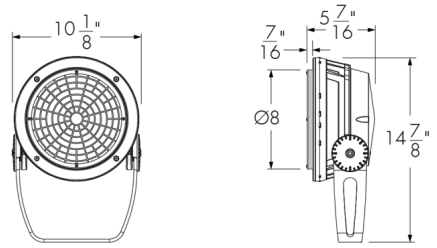
LBLVS-FINISH-BK-OPTIONS (CRC)
Interior surface painted black. Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

LSLA - Linear spread lens adjustable



LBSLSLA-FINISH-OPTIONS (CRC)
Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

WG - Wire guard



LBLWG-FINISH-OPTIONS (CRC)
Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

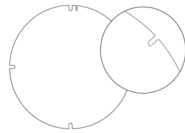
Accessory combinations

| + | Snoot | Snoot wide | Visor |
|-------------------------------|----------|------------|----------|
| Linear spread lens adjustable | LBSNLSLA | N/A* | LBLVLSLA |
| Wire guard | LBSNWWG | N/A | LBLVSWG |

Accessory combinations must be ordered together on a single line
Ex: A snoot + wire guard combination order code is LBSNWWG-FINISH-BK-OPTIONS. A maximum of two accessories can be combined per fixture.
*Consult factory for a linear spread lens adjustable + snoot wide combination.

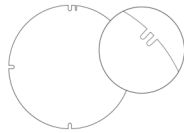
Diffuser lenses (intended for mockup purposes only, order separately)

Diffuser lens 1 (1 notch)



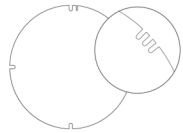
147677

Diffuser lens 2 (2 notches)



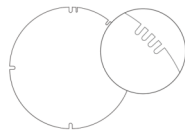
147678

Diffuser lens 3 (3 notches)



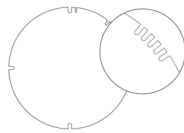
147679

Diffuser lens 4 (4 notches)



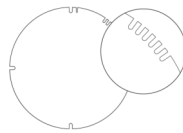
147680

Diffuser lens 5 (5 notches)



147681

Diffuser lens 6 (6 notches)



147682

Final distribution using diffuser lenses

| Original Distribution on Fixture | Final Distribution Using Diffuser Lens | | | | | |
|----------------------------------|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Diffuser Lens 1 Notch | Diffuser Lens 2 2 Notches | Diffuser Lens 3 3 Notches | Diffuser Lens 4 4 Notches | Diffuser Lens 5 5 Notches | Diffuser Lens 6 6 Notches |
| XN (4°/5°) | VN | NS | | | | |
| VN (6°) | NS | | NF | M | FL | WFL |
| NS (10°) | | | | | | |
| NF (20°) | | | | | | |
| M (30°) | | | | FL | WFL | |
| FL (40°) | | | | | | |
| WFL (60°) | | | | | | |

Choose a diffuser lens based on the desired final beam distribution. Refer to the 6-digit part numbers above to order diffuser lenses individually. To order a complete set of 6 diffuser lenses in a bag, refer to the following item names: **LBS**: LBALK-S **LBM/LBMP**: LBALK-M **LBL/LBLP**: LBALK-L **LBG/LBGP**: LBALK-G **LBX/LBXP**: LBALK-X.

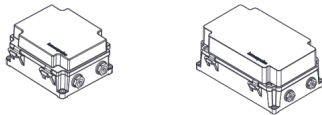
The diffuser lenses are intended for mockup purposes only. A lens holder is required to install a diffuser lens on the fixture, order separately using the following names: **LBS**: LBSLSLA-FINISH-LBALK **LBM/LBMP**: LBMLSAL-FINISH-LBALK **LBL/LBLP**: LBLLSLA-FINISH-LBALK **LBG/LBGP**: LBGLSLA-FINISH-LBALK **LBX/LBXP**: LBXLSLA-FINISH-LBALK

Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

Refer to the Diffuser Lens Installation Instructions on the Lumenpulse website for information on installing the diffuser lenses.

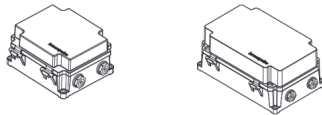
Control boxes (order separately)

CBX-DMX/RDM - DMX/RDM enabled (daisy chain or star configuration)



DMX/RDM control box. Up to six power and data outputs to fixtures or fixture runs. Consult CBX specification sheet and installation instructions for details. Lumenterminators provided with CBX (2x for daisy chain configuration, 6x for star configuration), consult factory to order spares.

CBX-ENET - Ethernet enabled (daisy chain or star configuration)



Ethernet control box. Up to four power and data outputs to fixture or fixture runs. Consult Ethernet CBX specification sheet and installation instructions for details.

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID



LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

LID-LT - LumentalkID



LumentalkID is a diagnostic and addressing tool. It must be specified for all Lumentalk (LT) applications. Consult LID-LT specification sheet for details.

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LUMINAIRE CUT SHEET
PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS1a/b

EPA Guide

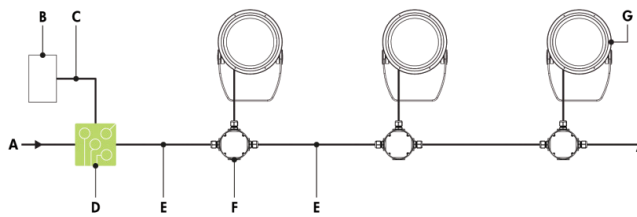
| | LBL | LBL with snoot | LBL with visor | LBL with snoot wide |
|-------------------|---|---|---|---|
| |  |  |  |  |
| EPA front (sq ft) | 0.642 | 0.642 | 0.642 | 1.016 |
| EPA side (sq ft) | 0.214 | 0.473 | 0.473 | 0.452 |

Typical wiring diagrams

Wiring color code

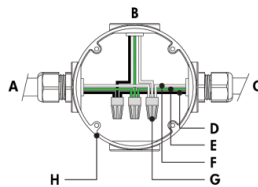
| UL Color Code | USE |
|---------------|------------------------------|
| Green | Ground |
| Black | Line |
| White | Line/Neutral |
| Red or Purple | 0-10V / Data + |
| Orange | 0-10V / Data - |
| Gray | Signal common (DMX/RDM only) |

Lumentalk (LT)



- A - Power input (100-277V AC, wiring by others)
- B - DMX/RDM controller (order separately from Lumenpulse, or by others)
- C - Data wiring (by others)
- D - Lumentranslator 2 (LTL2-DMX)
- E - Power wiring (by others)
- F - Junction box (by others)
- G - Lumenbeam Large

Lumentalk (LT) - wiring detail



- A - Power input (control over power line via Lumentalk system) or from previous fixture
- B - To fixture
- C - To next fixture
- D - Line
- E - Ground
- F - Line/Neutral
- G - Wire-nut (by others)
- H - Junction box (by others)

- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Lumentalk enabled fixtures must be commissioned using LumentalkID software and a LID-LT. Consult factory for details.
- Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
- No third party fixtures allowed on the same circuit.
- 1 DMX controller per Lumentalk network, maximum of 48 DMX channels per Lumentalk network (minimum step transition update rate is 1 second, minimum fade time between two colors is 1 minute). Consult factory for applications that require additional capabilities.
- 50 watts per fixture.

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LUMINAIRE CUT SHEET

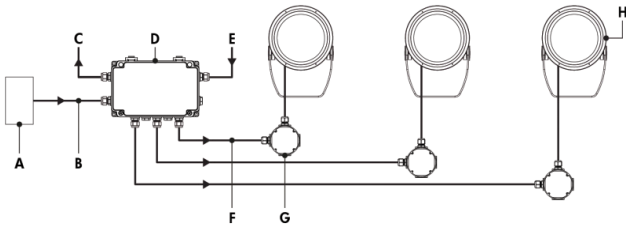
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FS1a/b

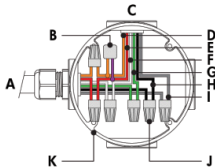
Specification Sheet

Star Layout (DMX/RDM)



- A - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B - Data input (Belden 9841 or equivalent, by others)
- C - Data output to next CBX (optional, not isolated/not boosted)
- D - CBX-ST
- E - Power input (100-277V AC, wiring by others)
- F - Power and data output to fixture (wiring by others)
- G - Junction box (by others)
- H - Lumenbeam Large

Star Layout (DMX/RDM) - wiring detail



- A - From CBX
- B - Lumenterminator
- C - To fixture
- D - Data -
- E - Data +
- F - Neutral
- G - Ground
- H - Line
- I - Signal common
- J - Wire-nut (by others)
- K - Junction box (by others)

Maximum fixture count per run

| Configuration/Voltage | 120V | 208V | 240V | 277V |
|-----------------------|------|------|------|------|
| LBL | 18 | 28 | 32 | 32 |

Based on 15A maximum, 16AWG cable, fixtures spaced 10 ft on center, first fixture 50 ft from CBX.

- Consult CBX installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- The DMX/RDM protocol states a maximum of 32 DMX/RDM enabled fixtures on any single run.
- Maximum of 4 DMX/RDM repeaters/CBX cascading in line.
- Maximum of 6 outputs per CBX-ST.
- RGB color mixture option requires 3 DMX addresses. RGBW30K and RGBW40K color mixture options require 4 DMX addresses. RGBA color mixture option requires 4 DMX addresses.
- DMX terminator is required at the end of each run to maintain data integrity. Six (6x) DMX lumenterminators included per CBX-ST. See installation instructions for details.
- 50 watts per fixture.

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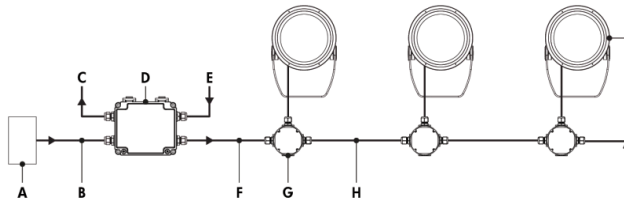
FS1a/b

Specification Sheet

lumenbeam
Large
LBL

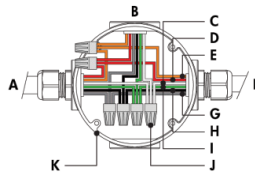
COLOR CHANGING

Daisy Chain Layout (DMX/RDM)



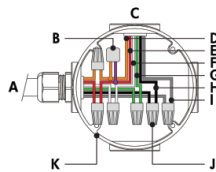
- A** - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B** - Data input (Belden 9841 or equivalent, by others)
- C** - Data output to next CBX (optional, not isolated/not boosted)
- D** - CBX-DS
- E** - Power input (100-277V AC, wiring by others)
- F** - Power and data output to fixture (wiring by others)
- G** - Junction box (by others)
- H** - Power and data wiring (by others)
- I** - Lumenbeam Large

Daisy Chain Layout (DMX/RDM) - wiring detail (first or middle of run)



- A** - From CBX or previous fixture
- B** - To fixture
- C** - Neutral
- D** - Data +
- E** - Data -
- F** - To next fixture
- G** - Signal common
- H** - Line
- I** - Ground
- J** - Wire-nut (by others)
- K** - Junction box (by others)

Daisy Chain Layout (DMX/RDM) - wiring detail (end of run)



- A** - From CBX or previous fixture
- B** - Lumenterminator
- C** - To fixture
- D** - Data -
- E** - Data +
- F** - Neutral
- G** - Ground
- H** - Line
- I** - Signal common
- J** - Wire-nut (by others)
- K** - Junction box (by others)

Maximum fixture count per run

| Configuration/Voltage | 120V | 208V | 240V | 277V |
|-----------------------|------|------|------|------|
| LBL | 18 | 28 | 32 | 32 |

Based on 15A maximum, 16AWG cable, fixtures spaced 10 ft on center, first fixture 50 ft from CBX.

- Consult CBX installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- The DMX/RDM protocol states a maximum of 32 DMX/RDM enabled fixtures on any single run.
- Maximum of 4 DMX/RDM repeaters/CBX cascading in line.
- Maximum of 1 output per CBX-DS.
- Maximum of 3 ft cable length between fixture and next junction box for daisy chain layout.
- RGB color mixture option requires 3 DMX addresses. RGBW30K and RGBW40K color mixture options require 4 DMX addresses. RGBA color mixture option requires 4 DMX addresses.
- DMX terminator is required at the end of each run to maintain data integrity. Two (2x) DMX lumenterminators included per CBX-DS. See installation instructions for details.
- 50 watts per fixture.

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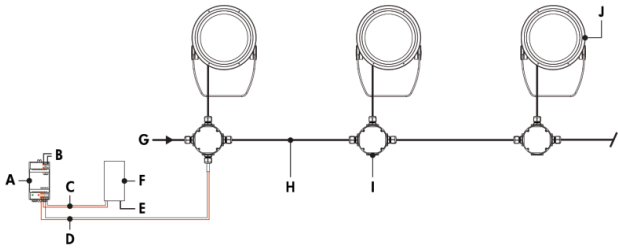
LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

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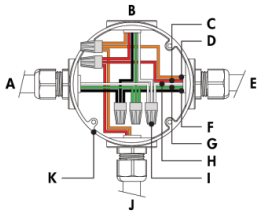
FS1a/b

DALI-2 dimming Type 8 (DALI8)



- A - DALI bus power supply (by others)
- B - Power input for DALI bus power supply (wiring by others)
- C - Data output to DALI controller (wiring by others)
- D - Data output to fixture (wiring by others)
- E - Power input for DALI controller (if required, wiring by others)
- F - DALI controller (by others)
- G - Power input (100-277V AC, wiring by others)
- H - Power and data wiring (by others)
- I - Junction box (by others)
- J - Lumenbeam Large

DALI-2 dimming Type 8 (DALI8) - wiring detail



- A - Power input or from previous fixture
- B - To fixture
- C - DA +
- D - DA -
- E - To next fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nut (by others)
- J - From DALI controller (by others)
- K - Junction box (by others)

- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Maximum of 64 DALI fixtures per DALI loop.
- The Lumenbeam responds to RGBWAF controls.
- Commissioning may be required based on the selection of 3rd party DALI controller. Controller and commissioning provided by others.
- 50 watts per fixture.

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dark light

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FS1a/b

How to order

| Housing | Voltage | Color and Color Temperature | Optics | Optical Option (4) (8) | Finish | Control | Options | Certification | Cable Length (15) (20) | Cable Color | Buy American Act |
|----------------------------|------------------|---|------------------------------------|---|---|---|---|--------------------|------------------------|-------------|------------------------------------|
| LBL Lumenbeam™ Large | 100 100 volts | RGB RGB | VN Very Narrow 6° (5) | LSLH Linear spread lens horizontal distribution (7) | BK Black Sandtex® | LT Lumentalk (12) (13) | SY Short Yoke | UL UL compliant | 3FT 3 ft (15) (20) | BK Black | BAA Buy American Act (21) |
| | 120 120 volts | RGBW30K RGB + white 3000K (1) | NS Narrow Spot 10° (5) | BRZ Bronze Sandtex® | DMX/RDM DMX/RDM enabled (14) (15) | 3GV 3G ANSI C136.31-2010 Vibration Rating for bridge applications | CE CE compliant (19) | 10FT 10 ft | WH White (21) | | |
| | 208 208 volts | RGBW40K RGB + white 4000K (1) | NF Narrow Flood 20° (5) | LSLV Linear spread lens vertical distribution (4) | SI Silver Sandtex® | DALI78 DALI-2 dimming Type 8 (14) (15) | CRC Corrosion- resistant coating for hostile environments (17) (18) | 20FT 20 ft | | | |
| | 220 220 volts | RGB RGB | M Medium 30° (5) | | WH Smooth white | | | 30FT 30 ft | | | |
| | 240 240 volts | MRGBW30K Opticolor cluster with MRGBW (red, green, blue, white 3000K) (2) (3) (4) | FL Flood 40° (5) | | BKTX Textured black | | | 50FT 50 ft | | | |
| | 277 277 volts | MRGBW40K Opticolor cluster with MRGBW (red, green, blue, white 4000K) (2) (3) (4) | WFL Wide Flood 60° (5) | | BRZTX Textured bronze non- metallic | | | 70FT 70 ft | | | |
| | | MRGBA Opticolor cluster with MRGBA (red, green, blue, amber) (2) (5) | NAS Narrow Asymmetric (5) | | GRATX Textured medium gray | | | 100FT 100 ft | | | |
| | | | WW Asymmetric Wallwash (5) | | GRNTX Textured green | | | | | | |
| | | | | | WHTX Textured white | | | | | | |
| | | | | | CC Custom color and finish (please specify RAL color) (7) (10) (11) | | | | | | |

- Notes:**
1. 2700K, 3500K and Royal Blue available, consult factory. Longer lead times apply.

2. Not available for VN, NAS and WW optics.

3. Consult factory for the availability of more color and CCT options.

4. MRGBW30K and MRGBW40K can be configured to MRGB via RDM, consult factory for more details.

5. Factory installed, not interchangeable on site.

6. Optical options are factory installed and cannot be changed in the field.

7. Field adjustable spread lens optical accessory available, order separately.

8. Not available with WFL, NAS and WW optics.

9. Lumenpulse offers a wide selection of RAL CLASSIC (K7) colors with a smooth texture and high-gloss finish. Please consult factory for a list of available K7 colors, other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.

10. Setup charges apply for RAL colors. Consult factory for details.

11. Longer lead times can be expected for custom RAL color finishes.

12. A Lumentranslator 2 (LT2) and LumentakID (LIDT) must be specified for Lumentalk applications. Consult Lumentranslator 2 and LumentakID pages and specification sheets for details.

13. Not available with Class II double insulated option.

14. A control box (CBX) and LumenID (LID) must be specified.

15. Maximum of 3 ft cable length for daisy chain DMX applications with CBX-DS.

16. DALI-2 Type 8 controller required, provided by others.

17. Use only when exposed to salt spray. This option is not required for normal outdoor exposure.

18. Setup charges apply. Consult factory for details.

19. Consult European specification sheets and installation instructions for CE and CE Class II wiring information.

20. 3 ft cable length is standard unless otherwise specified.

21. Not available with CE or CBI certification options.



LUMINAIRE CUT SHEET

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FS1a/b

Specification Sheet

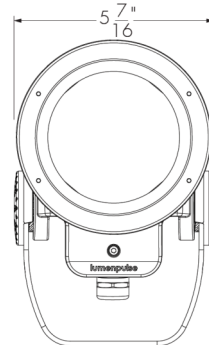
lumenbeam

Small
LBS

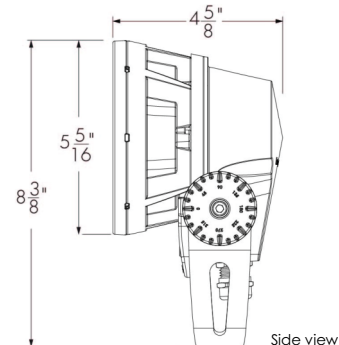
WHITE AND STATIC COLORS

Project Name _____ Qty _____

Type _____ Catalog / Part Number _____



Front view



Side view

Photometric summary

Symmetric

| | Delivered output (lm) | Intensity (peak cd) |
|-----------|-----------------------|---------------------|
| XN (4°) | 1,031 | 75,454 |
| VN (6°) | 824 | 43,590 |
| NS (10°) | 1,290 | 18,876 |
| NF (20°) | 1,125 | 11,338 |
| M (30°) | 1,179 | 6,532 |
| FL (40°) | 1,057 | 2,691 |
| WFL (60°) | 888 | 693 |

Asymmetric

| | | |
|-----|-------|----------------|
| NAS | 861 | 12,737 (@2.5°) |
| WW | 1,005 | 2,739 (@5°) |

Based on 4000K configuration.
Photometric performance is measured in compliance with IESNA LM-79-08.

Optics



XN - 4° VN - 6° NS - 10° NF - 20° M - 30°



FL - 40° WFL - 60° NAS WW

Colors and Color Temperatures



Red Green Blue

Description

The Lumenbeam Small is a compact, IP66-rated luminaire for lighting landscapes, trees, columns, monuments, and architectural details. It has numerous options, including optics for flood or accent lighting, a choice of color temperatures and colors, as well as various accessories, spread lenses, and controls. The luminaire also has an anti-corrosion option for use in harsh, chemical, or coastal environments.

Features

| | |
|--------------------------------------|---|
| Color and Color Temperature | 2200K, 2700K, 3000K, 3500K, 4000K, 5700K, Red, Green, Blue |
| Optics (nominal distribution) | XN (4°), VN (6°), NS (10°), NF (20°), M (30°), FL (40°), WFL (60°), NAS (Narrow Asymmetric), WW (Asymmetric Wallwash) |
| Optical Option | Linear spread lens horizontal distribution, Linear spread lens vertical distribution |
| Mounting Option | Stake Mounting, Knuckle Mounting, Canopy mounting option (for mounting on a standard round junction box) |
| Options | 3G ANSI C136.31-2010 Vibration Rating for bridge applications, Corrosion-resistant coating for hostile environments |
| Cable Color | Black, White |
| Power Consumption | 12.5W |
| Warranty | 5-year limited warranty |

Performance

| | |
|------------------------------------|---|
| Maximum Delivered Output | 1280lm (4000K, NS 10°) |
| Maximum Delivered Intensity | 76,352 cd at nadir (4000K, XN 4°) |
| Illuminance at Distance | Minimum 1 fc at 276 ft (4000K, XN 4°) |
| Color Consistency | 3 SDCM |
| Color Rendering | Minimum CRI 80 |
| Lumen Maintenance | L70 > 250,000 hrs (Ta 25 °C) (> 80,000 hrs for XN 4°, VN 6°, NAS optics only) |

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LUMINAIRE CUT SHEET

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This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS2

Specification Sheet

lumenbeam

Small
LBS

WHITE AND STATIC COLORS

Controls

ON/OFF 0-10V DALI  DMXrdm

Ratings

IP66 IK07

Certifications



Physical

Housing Material Low copper content high pressure die-cast aluminum

Yoke Material Heavy aluminum

Lens Material Clear tempered glass

Hardware Material Stainless steel

Gasket Material Silicone

Surface Finish Electrostatically applied polyester powder coat

Weight 5.2 lbs

EPA Front = 0.19 sq ft, Side = 0.11 sq ft

Electrical and control

Voltage 100 to 277 volts

Fixture Cable Power and data in one cable

Conductors 3C #16-3 (NO control), 5C #16-5 (DIM, DALI control), 6C #14-3/#24-3 (DMX/RDM control)

Control On/Off control, 0-10V dimming, DALI dimming, DMX/RDM enabled, Lumentalk system is enabled with LDB accessory - see typical wiring diagrams for details

Resolution (DMX/RDM) Per fixture, 8-bit or 16-bit

Environmental

Storage Temperature -40 °F to 158 °F (device must reach start-up temperature value before operating)

Start-up Temperature -13 °F to 122 °F

Operating Temperature -40 °F to 122 °F

Ingress Protection Rating IP66, Wet location rated

Impact Resistance Rating IK07

Application Wind Speed Luminaires were designed based on AASHTO 2013 standard to ensure highest quality and safety. Installation should be validated by a local project engineer to ensure the luminaires are suitable for the wind speed and exposure of the specific application

Accessories (order separately)

Optical Accessories Snoot, Visor, Linear Spread Lens Adjustable, Wire Guard

Control Boxes DMX/RDM enabled (daisy chain or star configuration), Ethernet enabled (daisy chain or star configuration), Lumentalk Data Bridge

Control Systems Lumentone™ 2 (LTN2), Pharos® kit (PHAROS)

Diagnostic and Addressing Tools LumenID (LID), LumentalkID

lumenpulse™

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info@lumenpulse.com www.lumenpulse.com

United States 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003
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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

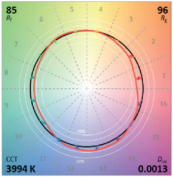
This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS2

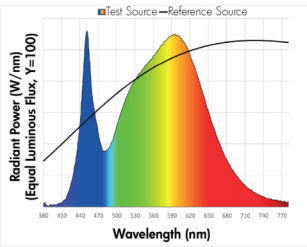
Chromaticity Data

TM-30 - 4000K

| CCT | CIE | TM-30 |
|-------|----------|----------|
| 4000K | R_a 83 | R_e 85 |
| | R_g 14 | R_g 96 |

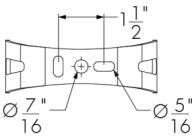


Spectral Power Distribution

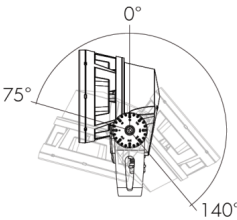


Mounting details

Mounting hole pattern - standard yoke

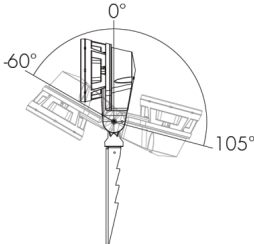
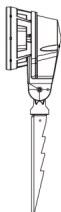
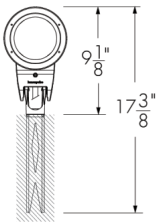


Adjustable pivot limits

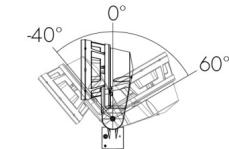
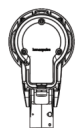
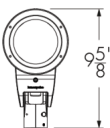


Mounting options

SK - Stake mounting



KN - Knuckle mounting



Suitable for 1/2 in, 3/4 in, and 1 in pipe diameter

Adjustable pivot limits

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LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory

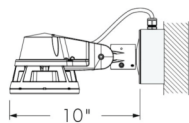
DATE March 06, 2023

PHASE 100% Construction Documents

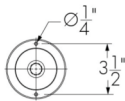
This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS2

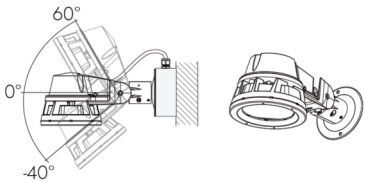
CN - Canopy cover



Suitable for standard round junction boxes, surface mounted



Mounting hole pattern



Adjustable pivot limits

Optical options

LSLH - Linear spread lens horizontal distribution



LSLV - Linear spread lens vertical distribution



Beam angles

| Optic installed in fixture | Beam angle with LSLH/LSLV |
|----------------------------|---------------------------|
| XN | 5° x 60° |
| VN | 7° x 60° |
| NS | 13° x 66° |
| NF | 16° x 62° |
| M | 23° x 65° |
| FL | 33° x 70° |

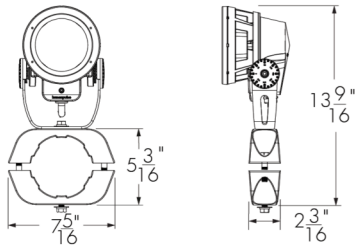
LLF: 0.88*

*LLF may vary slightly by distribution chosen.

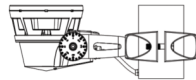
Factory installed, not adjustable on site. Not available for WFL, NAS and WW optics.
See 'Optical Accessories' section for field adjustable spread lens (LSLA).

Mounting accessories (order separately)

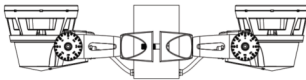
Round pole mounting accessory



PM4 model shown.
Consult factory for square pole section.



PM4-1, PM4.5-1, PM5-1 - Round pole mounting accessory - single fixture

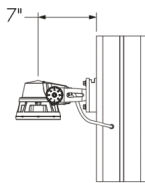
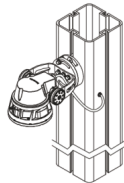


PM4-2, PM4.5-2, PM5-2 - Round pole mounting accessory - twin fixtures
*One bracket assembly is supplied per 2 fixtures unless otherwise specified.

| | PM4 | PM4.5 | PM5 |
|------------|------------|--------------|------------|
| For pole Ø | 4" ± 1/16" | 4.5" ± 1/16" | 5" ± 1/16" |

Consult factory for other pole diameters.

UY - Universal yoke for Lumentech pole



Square Lumentech profile shown. Refer to Lumentech specification sheet and installation instructions for more details.

The mounting holes used for this fixture are shown in gray.

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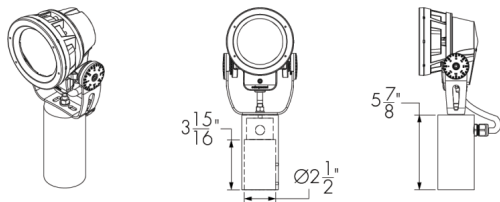
LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
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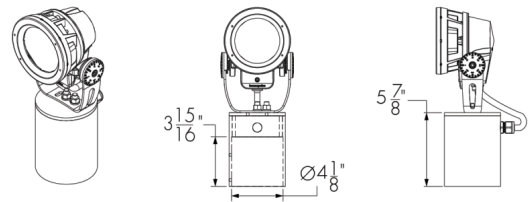
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FS2

Tenon adapter



TN2 - Tenon adapter to fit on 2 3/8 in O.D. tenon
Vertical mounting only. Consult factory for horizontal mounting.

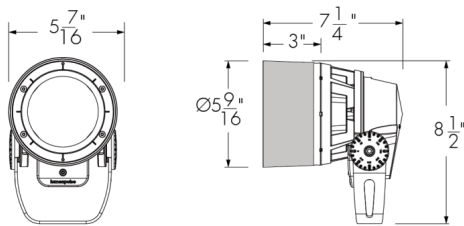


TN4 - Tenon adapter to fit on 4 in O.D. tenon
Vertical mounting only. Consult factory for horizontal mounting.

Optical accessories (order separately)

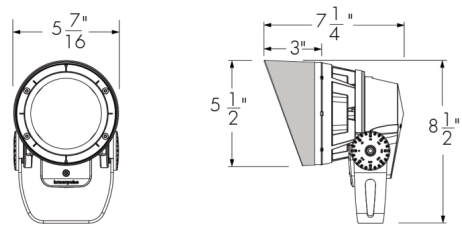
Installed optical accessories will affect the maximum pivot limits for each mounting option, consult factory for details.

SN - Snoot



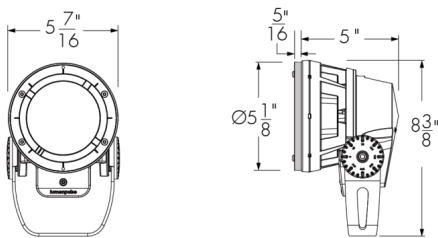
LBSSN-FINISH-BK-OPTIONS (CRC)
Interior surface painted black. Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

VS - Visor



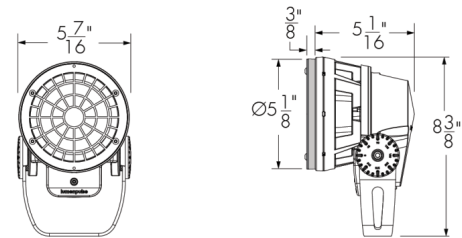
LBSVS-FINISH-BK-OPTIONS (CRC)
Interior surface painted black. Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

LSLA - Linear spread lens adjustable



LBLSLA-FINISH-OPTIONS (CRC)
Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

WG - Wire guard



LBSWG-FINISH-OPTIONS (CRC)
Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

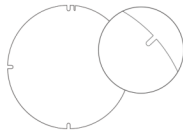
Accessory combinations

| | + | Snoot | Visor |
|-------------------------------|---|-----------|----------|
| Linear spread lens adjustable | | LBSSNLSLA | LBSVLSLA |
| Wire guard | | LBSSNWG | LBSVSWG |

Accessory combinations must be ordered together on a single line. A maximum of two accessories can be combined per fixture. Ex: A snoot + wire guard combination order code is LBSSNWG-FINISH-BK-OPTIONS.

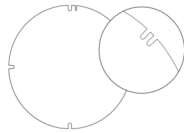
Diffuser lenses (intended for mockup purposes only, order separately)

Diffuser lens 1 (1 notch)



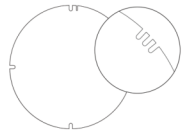
147665

Diffuser lens 2 (2 notches)



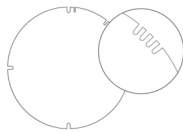
147666

Diffuser lens 3 (3 notches)



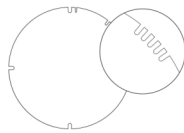
147667

Diffuser lens 4 (4 notches)



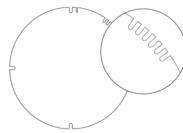
147668

Diffuser lens 5 (5 notches)



147669

Diffuser lens 6 (6 notches)



147670

Final distribution using diffuser lenses

| Original Distribution on Fixture | Final Distribution Using Diffuser Lens | | | | | |
|--|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | Diffuser Lens 1 1 Notch | Diffuser Lens 2 2 Notches | Diffuser Lens 3 3 Notches | Diffuser Lens 4 4 Notches | Diffuser Lens 5 5 Notches | Diffuser Lens 6 6 Notches |
| XN (4°/5°) | VN | NS | | | | |
| VN (6°) | NS | | NF | M | FL | WFL |
| NS (10°) | | | | | | |
| NF (20°) | | | | FL | WFL | |
| M (30°) | | | | | | |
| FL (40°) | | | | | | |
| WFL (60°) | | | | | | |

Choose a diffuser lens based on the desired final beam distribution. Refer to the 6-digit part numbers above to order diffuser lenses individually. To order a complete set of 6 diffuser lenses in a bag, refer to the following item names: **LBS**: LBALK-S **LBM/LBMP**: LBALK-M **LBL/LBLP**: LBALK-L **LBG/LBGP**: LBALK-G **LBX/LBXP**: LBALK-X.

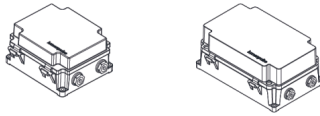
The diffuser lenses are intended for mockup purposes only. A lens holder is required to install a diffuser lens on the fixture, order separately using the following names: **LBS**: LBSLSLA-FINISH-LBALK **LBM/LBMP**: LBMLSLA-FINISH-LBALK **LBL/LBLP**: LBLLSLA-FINISH-LBALK **LBG/LBGP**: LBGLSLA-FINISH-LBALK **LBX/LBXP**: LBXLSLA-FINISH-LBALK

Please specify the exterior **FINISH** from the list of finishes in the fixture order code.

Refer to the Diffuser Lens Installation Instructions on the Lumenpulse website for information on installing the diffuser lenses.

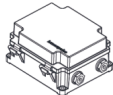
Control boxes (order separately)

CBX-DMX/RDM - DMX/RDM enabled (daisy chain or star configuration)



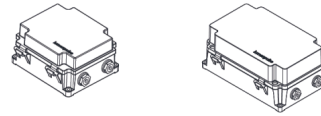
DMX/RDM control box. Up to six power and data outputs to fixtures or fixture runs. Consult CBX specification sheet and installation instructions for details. Lumenterminators provided with CBX (2x for daisy chain configuration, 6x for star configuration), consult factory to order spares.

LDB - Lumentalk Data Bridge



Lumentalk Data Bridge, 0-10V or DMX output. Consult LDB specification sheet for details.

CBX-ENET - Ethernet enabled (daisy chain or star configuration)



Ethernet control box. Up to four power and data outputs to fixture or fixture runs. Consult Ethernet CBX specification sheet and installation instructions for details.

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID






LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

LID-LT - LumentalkID



LumentalkID is a diagnostic and addressing tool. It must be specified for all Lumentalk (LT) applications. Consult LID-LT specification sheet for details.

EPA Guide

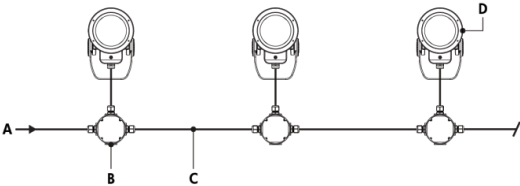
| | LBS | LBS with snoot | LBS with visor |
|-------------------|---|---|---|
| |  |  |  |
| EPA front (sq ft) | 0.188 | 0.188 | 0.188 |
| EPA side (sq ft) | 0.113 | 0.186 | 0.176 |

Typical wiring diagrams

Wiring color code

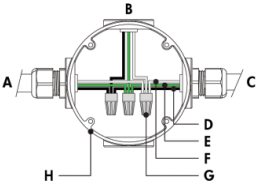
| UL Color Code | USE |
|---------------|------------------------------|
| Green | Ground |
| Black | Line |
| White | Line/Neutral |
| Red or Purple | 0-10V / Data + |
| Orange | 0-10V / Data - |
| Gray | Signal common (DMX/RDM only) |

On/Off Control (NO)



- A - Power input (100-277V AC, wiring by others)
- B - Junction box (by others)
- C - Power wiring (by others)
- D - Lumenbeam Small

On/Off Control (NO) - wiring detail



- A - Power input or from previous fixture
- B - To fixture
- C - To next fixture
- D - Line
- E - Ground
- F - Line/Neutral
- G - Wire-nut (by others)
- H - Junction box (by others)

- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 14 watts per fixture.

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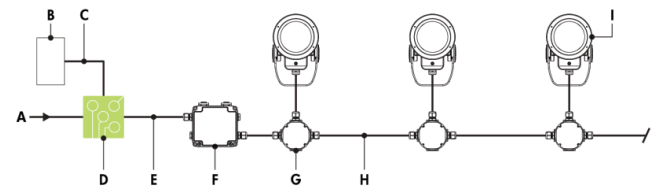
LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
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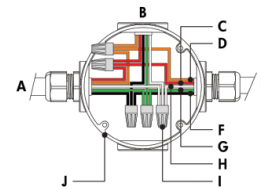
FS2

Lumentalk (LT)



- A - Power input (100-277V AC, wiring by others)
- B - Dimmer/controller (order separately from Lumenpulse, or by others)
- C - Data wiring (by others)
- D - Lumentranslator 2 (LTL2-DIM, -DMX, -TRIAC, -DALI)
- E - Power wiring (by others)
- F - Lumentalk Data Bridge (LDB-DIM or LDB-DMX)
- G - Junction box (by others)
- H - Power and data wiring (by others)
- I - Lumenbeam Small

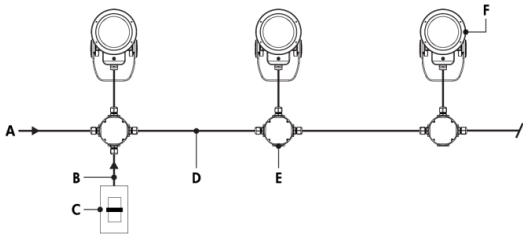
Lumentalk (LT) - wiring detail using LDB



- A - From Lumentalk Data Bridge (control over power line via Lumentalk system) or from previous fixture
- B - To fixture
- C - 0-10 V + / Data +
- D - 0-10 V - / Data -
- E - To next fixture
- F - Line
- G - Ground
- H - Line/Neutral
- I - Wire-nut (by others)
- J - Junction box (by others)

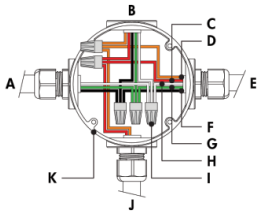
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Lumentalk Data Bridge required for Lumentalk system, see LDB installation instructions for details.
- For applications with all fixtures controlled as 1 zone: fixtures and Lumentalk Data Bridge must be specified as DIM. Maximum of 10 fixtures per LDB-DIM, consult factory for applications that require additional capabilities.
- For applications with fixtures controlled individually: fixtures and Lumentalk Data Bridge must be specified as DMX, 2-step commissioning process: 1 - DMX/RDM system using LumenID software and a LID, 2 - Lumentalk system using LumentalkID software and a LID-LT. Maximum of 32 fixtures per LDB-DMX. Consult factory for details.
- For DMX applications: 1 DMX controller per Lumentalk network, maximum of 48 DMX channels per Lumentalk network (minimum step transition update rate is 1 second, minimum fade time between two colors is 1 minute). Consult factory for applications that require additional capabilities.
- Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
- No third party fixtures allowed on the same circuit.
- Consult factory for DALI Lumentalk applications.
- 1% minimum dimming value.
- 14 watts per fixture.

0-10V dimming (DIM)



- A - Power input (100-277V AC, wiring by others)
- B - Data wiring (by others)
- C - Dimmer (by others)
- D - Power and data wiring (by others)
- E - Junction box (by others)
- F - Lumenbeam Small

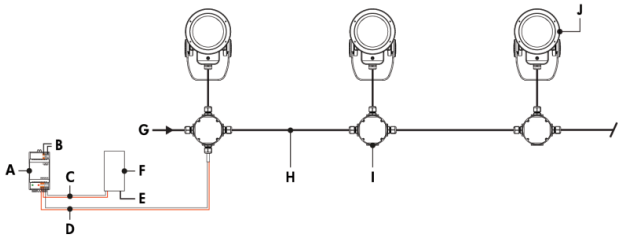
0-10V dimming (DIM) - wiring detail



- A - Power input or from previous fixture
- B - To fixture
- C - 0-10 V +
- D - 0-10 V -
- E - To next fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nut (by others)
- J - From dimmer (by others)
- K - Junction box (by others)

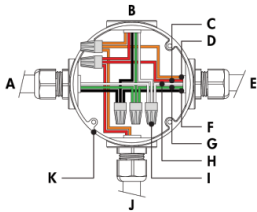
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 0-10V mA ratings: passive dimmer (Current Sink): 3mA per fixture, active dimmer (Current Source): 0.5mA per fixture.
- 1% minimum dimming value.
- 14 watts per fixture.

DALI dimming (DALI)



- A - DALI bus power supply (by others)
- B - Power input for DALI bus power supply (wiring by others)
- C - Data output to DALI controller (wiring by others)
- D - Data output to fixture (wiring by others)
- E - Power input for DALI controller (if required, wiring by others)
- F - DALI controller (by others)
- G - Power input (100-277V AC, wiring by others)
- H - Power and data wiring (by others)
- I - Junction box (by others)
- J - Lumenbeam Small

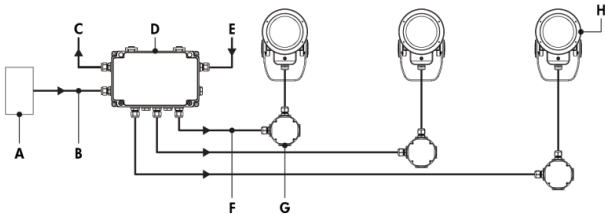
DALI dimming (DALI) - wiring detail



- A - Power input or from previous fixture
- B - To fixture
- C - DA +
- D - DA -
- E - To next fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nut (by others)
- J - From DALI controller (by others)
- K - Junction box (by others)

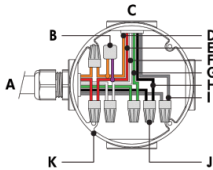
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Maximum of 64 DALI fixtures per DALI loop.
- Commissioning may be required based on the selection of 3rd party DALI controller. Controller and commissioning provided by others.
- 1% minimum dimming value.
- 14 watts per fixture.

Star Layout (DMX/RDM)



- A - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B - Data input (Belden 9841 or equivalent, by others)
- C - Data output to next CBX (optional, not isolated/not boosted)
- D - CBX-ST
- E - Power input (100-277V AC, wiring by others)
- F - Power and data output to fixture (by others)
- G - Junction box (by others)
- H - Lumenbeam Small

Star Layout (DMX/RDM) - wiring detail



- A - From CBX
- B - Lumenterminator
- C - To fixture
- D - Data -
- E - Data +
- F - Neutral
- G - Ground
- H - Line
- I - Signal common
- J - Wire-nut (by others)
- K - Junction box (by others)

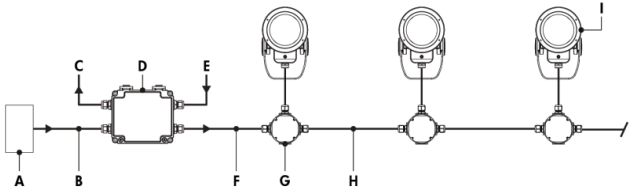
Maximum fixture count per run

| Configuration/Voltage | 120V | 208V | 240V | 277V |
|-----------------------|------|------|------|------|
| LBS | 32 | 32 | 32 | 32 |

Based on 15A maximum, 16AWG cable, fixtures spaced 10 ft on center, first fixture 50 ft from CBX.

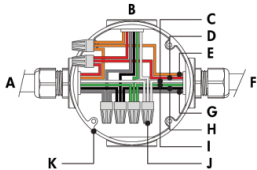
- Consult CBX installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- The DMX/RDM protocol states a maximum of 32 DMX/RDM enabled fixtures on any single run.
- Maximum of 4 DMX/RDM repeaters/CBX cascading in line.
- Maximum of 6 outputs per CBX-ST.
- Each fixture requires 1 DMX address.
- DMX terminator is required at the end of each run to maintain data integrity. Six (6x) DMX lumenterminators included per CBX-ST. See installation instructions for details.
- 1% minimum dimming value.
- 14 watts per fixture.

Daisy Chain Layout (DMX/RDM)



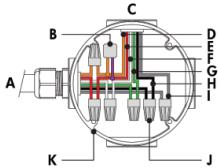
- A - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B - Data input (Belden 9841 or equivalent, by others)
- C - Data output to next CBX (optional, not isolated/not boosted)
- D - CBX-DS
- E - Power input (100-277V AC, wiring by others)
- F - Power and data output to fixture (wiring by others)
- G - Junction box (by others)
- H - Power and data wiring (by others)
- I - Lumenbeam Small

Daisy Chain Layout (DMX/RDM) - wiring detail (first or middle of run)



- A - From CBX or previous fixture
- B - To fixture
- C - Neutral
- D - Data +
- E - Data -
- F - To next fixture
- G - Signal common
- H - Line
- I - Ground
- J - Wire-nut (by others)
- K - Junction box (by others)

Daisy Chain Layout (DMX/RDM) - wiring detail (end of run)



- A - From CBX or previous fixture
- B - Lumenterminator
- C - To fixture
- D - Data -
- E - Data +
- F - Neutral
- G - Ground
- H - Line
- I - Signal common
- J - Wire-nut (by others)
- K - Junction box (by others)

Maximum fixture count per run

| Configuration/Voltage | 120V | 208V | 240V | 277V |
|-----------------------|------|------|------|------|
| LBS | 32 | 32 | 32 | 32 |

Based on 15A maximum, 16AWG cable, fixtures spaced 10 ft on center, first fixture 50 ft from CBX.

- Consult CBX installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- The DMX/RDM protocol states a maximum of 32 DMX/RDM enabled fixtures on any single run.
- Maximum of 4 DMX/RDM repeaters/CBX cascading in line.
- Maximum of 1 output per CBX-DS.
- Maximum of 3 ft cable length between fixture and next junction box for daisy chain layout.
- Each fixture requires 1 DMX address.
- DMX terminator is required at the end of each run to maintain data integrity. Two (2x) DMX lumenterminators included per CBX-DS. See installation instructions for details.
- 1% minimum dimming value.
- 14 watts per fixture.

Specification Sheet

lumenbeam

Small
LBS

WHITE AND STATIC COLORS

How to order

| Housing | Voltage | Color and Color Temperature (1) | Optics | Optical Option (4) (7) | Finish | Control (11) (12) | Mounting Option (13) | Options | Certification | Cable Length (14) (21) | Cable Color | Buy American Act |
|----------------------------|------------------|---------------------------------|------------------------------------|--|---|--|------------------------------------|---|---|------------------------|------------------|--------------------------------------|
| LBS Lumenbeam™ Small | 100 100 volts | 22K 2200K | XN Extra Narrow 4° (4) | LSLH Linear spread lens horizontal distribution (6) | BK Black Sandtex® | NO On/Off control | SK Stake Mounting | 3GV 3G ANSI C136.31- 2010 Vibration Rating for bridge applications (18) | UL UL compliant | 3FT 3 ft (14) (21) | BK Black | BAA Buy America.n (22) (23) |
| | 120 120 volts | 27K 2700K | VN Very Narrow 6° (4) | LSLV Linear spread lens vertical distribution (6) | BRZ Bronze Sandtex® | DIM 0-10V dimming | KN Knuckle Mounting | | CE CE compliant (19) (20) | 10FT 10 ft | WH White (22) | |
| | 208 208 volts | 30K 3000K | NS Narrow Spot 10° (4) | | SI Silver Sandtex® | DALI DALI dimming | CN Canopy mounting option | CRC Corrosion- resistant coating for hostile environments (17) (18) | CEII CE compliant Class II double insulated (19) | 20FT 20 ft | | |
| | 220 220 volts | 35K 3500K | NF Narrow Flood 20° (4) | | WH Smooth white | DMX/RDM DMX/RDM enabled (13) (14) | | | | 30FT 30 ft | | |
| | 240 240 volts | 40K 4000K | M Medium 30° (4) | | BKTX Textured black | | | | | 50FT 50 ft | | |
| | 277 277 volts | 57K 5700K | FL Flood 40° (4) | | BRZTX Textured bronze non- metallic | | | | | 70FT 70 ft | | |
| | | RD Red (2) (3) | WFL Wide Flood 60° (4) | | GRATX Textured medium gray | | | | | 100FT 100 ft | | |
| | | GR Green (2) (3) | NAS Narrow Asymmetric (4) | | GRNTX Textured green | | | | | | | |
| | | BL Blue (2) (3) | WW Asymmetric Wallwash (4) | | WHITX Textured white | | | | | | | |
| | | | | | CC Custom color and finish (please specify RAL color) (6) (9) (10) | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Notes:

- Consult factory for availability of static Royal Blue, Amber, 6500K and 90+ CRI.
- Static colors made to order 8-10 weeks.
- Not available for XN optic.
- Factory installed, not interchangeable on site.
- Optical options are factory installed and cannot be changed in the field.
- Field adjustable spread lens optical accessory available, order separately.
- Not available with WFL, NAS and WW optics.
- Lumenpulse offers a wide selection of RAL CLASSIC (K7) colors with a smooth texture and high-gloss finish. Please consult factory for a list of available K7 colors, other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
- Setup charges apply for RAL colors. Consult factory for details.
- Longer lead times can be expected for custom RAL color finishes.
- Lumentalk system is enabled with LD8 accessory. DIM or DMX/RDM must be specified in the order code. See the typical wiring diagrams in the specification sheet for details.
- A Lumentranslator 2 (LT2) and LumentakID (LIDT) must be specified for Lumentalk applications. Consult Lumentranslator 2 and Lumentalk pages and specification sheets for details.
- A control box (CBX) and LumentakID (LID) must be specified.
- Maximum of 3 ft cable length for daisy chain DMX applications with CBX-DS.
- The standard yoke is provided unless an alternate mounting option is specified as part of the order code.
- 3GV option is available for standard yoke mounting only.
- Use only when exposed to salt spray. This option is not required for normal outdoor exposure.
- Setup charges apply. Consult factory for details.
- Consult European specification sheets and installation instructions for CE and CE Class II wiring information.
- Not available with DALI control option.
- 3 ft cable length is standard unless otherwise specified.
- Not available with CE or CEI certification options.
- Contact your Lumenpulse Sales Representative for more information on order volume details.

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

FS2

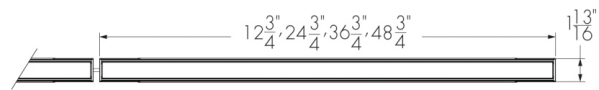
Specification Sheet

lumenfacade nano

LOGN

COLOR CHANGING

Project Name _____ Qty _____
Type _____ Catalog / Part Number _____



Top view



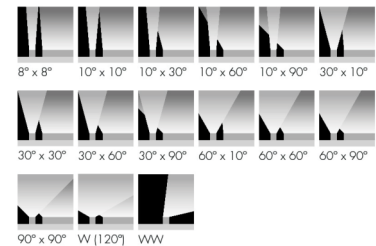
Front and side views

Photometric Summary (8 W/ft)

| | Delivered output (lm) | Intensity (peak cd) |
|----------|-----------------------|---------------------|
| 8°x8° | 1,538 | 41,559 |
| 10°x10° | 1,487 | 32,423 |
| 10°x30° | 1,442 | 9,172 |
| 10°x60° | 1,434 | 4,891 |
| 10°x90° | 1,437 | 2,564 |
| 30°x10° | 1,446 | 9,143 |
| 30°x30° | 1,558 | 3,598 |
| 30°x60° | 1,511 | 2,276 |
| 30°x90° | 1,522 | 1,645 |
| 60°x10° | 1,433 | 4,981 |
| 60°x60° | 1,526 | 1,128 |
| 60°x90° | 1,516 | 1,358 |
| 90°x90° | 1,491 | 922 |
| W (120°) | 867 | 426 |
| WW | 1,532 | 7,430 |

Based on RGBW40K full output, 4ft [1219mm],
UCTL control configuration.
Photometric performance is measured in compliance with
IESNA LM-79-08.

Optics



Description

The Lumenfacade Nano Color Changing is a high-efficiency linear LED luminaire with a slim profile that makes it easy to conceal and integrate into architectural facades. Available in 12 in, 24 in, 36 in or 48 in sections, the Lumenfacade Nano Color Changing can be configured with a wide number of options, including: optics for grazing, floodlighting, or wall washing; RGB, RGBW, or RGBA colour mixing; various mounting options, finishes, and controls; as well as Legacy or Custom output modes.

Features

| | |
|-----------------------------|---|
| Color and Color Temperature | RGB, RGB + white 3000K, RGB + white 4000K, RGB + amber |
| Optics | 8° x 8°, 10° x 10°, 10° x 30°, 10° x 60°, 10° x 90°, 30° x 10°, 30° x 30°, 30° x 60°, 30° x 90°, 60° x 10°, 60° x 60°, 60° x 90°, 90° x 90°, Wide 120°, Asymmetric Wallwash |
| Options | Corrosion-resistant coating for hostile environments, 3G ANSI C136.31-2010 Vibration Rating for bridge applications |
| Power Consumption | 4 W/ft, 8 W/ft |
| Warranty | 5-year limited warranty |

Performance

| | |
|--------------------------|--|
| Maximum Delivered Output | 895 lm (48 in fixture, RGB 4 W/ft, full output, 8° x 8°, UCTL control), 1,408 lm (48 in fixture, RGB 8 W/ft, full output, 8° x 8°, UCTL control), 986 lm (48 in fixture, RGBW30K 4 W/ft, full output, 8° x 8°, UCTL control), 1,507 lm (48 in fixture, RGBW30K 8 W/ft, full output, 8° x 8°, UCTL control), 1,006 lm (48 in fixture, RGBW40K 4 W/ft, full output, 8° x 8°, UCTL control), 1,538 lm (48 in fixture, RGBW40K 8 W/ft, full output, 8° x 8°, UCTL control), 878 lm (48 in fixture, RGBA 4 W/ft, full output, 8° x 8°, UCTL control), 1,339 lm (48 in fixture, RGBA 8 W/ft, full output, 8° x 8°, UCTL control) |
|--------------------------|--|

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LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory
DATE March 06, 2023
PHASE 100% Construction Documents

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

Colors and Color Temperatures



Controls

UCTL

Ratings

IP66 IK08

Certifications



Maximum Delivered Intensity

24,186 cd at nadir (RGB 4 W/ft, full output, 8°x8°, UCTL control), 38,044 cd at nadir (RGB 8 W/ft, full output, 8°x8°, UCTL control), 26,643 cd at nadir (RGBW30K 4 W/ft, full output, 8°x8°, UCTL control), 40,732 cd at nadir (RGBW30K 8 W/ft, full output, 8°x8°, UCTL control), 27,187 cd at nadir (RGBW40K 4 W/ft, full output, 8°x8°, UCTL control), 41,559 cd at nadir (RGBW40K 8 W/ft, full output, 8°x8°, UCTL control), 23,722 cd at nadir (RGBA 4 W/ft, full output, 8°x8°, UCTL control), 36,183 cd at nadir (RGBA 8 W/ft, full output, 8°x8°, UCTL control)

Illuminance at Distance

Minimum 1 fc at 156 ft (RGB full output 4 W/ft, 8°x8°, UCTL control), Minimum 1 fc at 195 ft (RGB 8 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 163 ft (RGBW30K 4 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 202 ft (RGBW30K 8 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 165 ft (RGBW40K 4 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 204 ft (RGBW40K 8 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 154 ft (RGBA 4 W/ft full output, 8°x8°, UCTL control), Minimum 1 fc at 190 ft (RGBA 8 W/ft full output, 8°x8°, UCTL control)

Lumen Maintenance

L70 >90,000 hrs

Physical

| | |
|-------------------|--|
| Housing Material | Low copper content extruded aluminum |
| Lens Material | Clear tempered glass |
| Hardware Material | Stainless steel |
| End Cap Material | Machined aluminum |
| Gasket Material | Silicone |
| Surface Finish | Electrostatically applied polyester powder coat |
| Weight | 1.4 lbs (12 in), 2.9 lbs (24 in), 4.4 lbs (36 in), 6 lbs (48 in) |

Electrical and control

| | |
|----------------------|--|
| Voltage | 48 VDC |
| Resolution (DMX/RDM) | Per foot or per fixture (configured with LumenID V3 software), 8-bit or 16-bit, 3 channels (RGB) or 4 channels (RGBW30K, RGBW40K and RGBA) |
| RGB Color Mixing | 12 LEDs per 12 in (4x Red, 4x Green, 4x Blue) |
| RGBW30K Color Mixing | 12 LEDs per 12 in (3x Red, 3x Green, 3x Blue, 3x White 3000K) |
| RGBW40K Color Mixing | 12 LEDs per 12 in (3x Red, 3x Green, 3x Blue, 3x White 4000K) |
| RGBA Color Mixing | 12 LEDs per 12 in (3x Red, 3x Green, 3x Blue, 3x Amber) |
| Control | Universal control (compatible with DMX/RDM or DALI-2 Type 8 systems) |

Environmental

| | |
|---------------------------|--|
| Storage Temperature | -40 °F to 185 °F (device must reach start-up temperature value before operating) |
| Start-up Temperature | -13 °F to 122 °F |
| Operating Temperature | -40 °F to 122 °F |
| Ingress Protection Rating | IP66 |

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LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory
DATE March 06, 2023
PHASE 100% Construction Documents

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

| | |
|---------------------------------------|---|
| Impact Resistance Rating | IK08 (IK09 for 48 in fixtures) |
| Application Wind Speed | Luminaires were designed based on AASHTO 2013 standard to ensure highest quality and safety. Installation should be validated by a local project engineer to ensure the luminaires are suitable for the wind speed and exposure of the specific application |
| Accessories (order separately) | |
| Cables | Lumenfacade Nano Jumper Cable (LOGNJC), Trunk Power Cable (TKPWR), Trunk Data Cable (TKDMX), Lumenfacade Nano Jumper Cable Joiner (LOGNJC-JOINER) |
| Control Boxes | Low-Voltage Control Box (LCBX), Low-Voltage Splitter Box (LSBX) |
| Remote Power Supply | Large Power Supply (LGPSU) |
| Optical Accessories | Lumenfacade Nano Visor (LOGNVS) |
| Control Systems | Lumentone™ 2 (LTN2), Pharos® kit (PHAROS) |
| Diagnostic and Addressing Tools | LumenID (LID) |



LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

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LS2

Photometric information

4 W/ft (RGBW40K)

| | Delivered output (lm) | Intensity (peak cd) |
|----------|-----------------------|---------------------|
| 8°x8° | 863 | 23,323 |
| 10°x10° | 835 | 18,196 |
| 10°x30° | 809 | 5,147 |
| 10°x60° | 805 | 2,745 |
| 10°x90° | 807 | 1,439 |
| 30°x10° | 812 | 5,131 |
| 30°x30° | 875 | 2,021 |
| 30°x60° | 849 | 1,279 |
| 30°x90° | 855 | 924 |
| 60°x10° | 804 | 3,185 |
| 60°x60° | 857 | 634 |
| 60°x90° | 852 | 763 |
| 90°x90° | 837 | 518 |
| W [120°] | 487 | 239 |
| WW | 860 | 4,170 |

Based on RGBW40K full output, 4ft [1219mm], UCTL control configuration.

Photometric performance is measured in compliance with IESNA LM 79-08.

Optical option installation details

HFR - Half-frosted lens



Top view



Front view

- Always position frosted side toward the wall.
- Applicable for 8° x 8°, 10° x 10° or asymmetric wallwash optics only.

WW - Asymmetric wallwash

Recommended setback from wall is 1/10 of the wall height.

Example: 2 ft setback for a 20 ft wall.

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

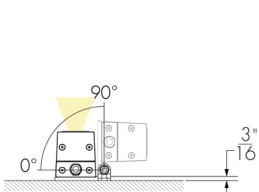
This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

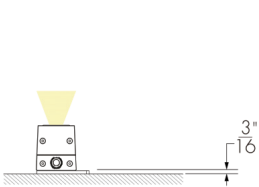
Mounting options

One mounting bracket provided for 12 in fixtures. Two mounting brackets provided for 24 in, 36 in and 48 in fixtures. See installation instructions for details.

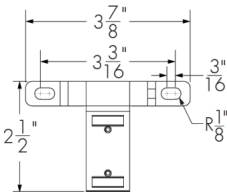
SAMN - Slim Adjustable Mounting Nano



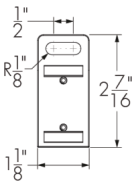
UMPN - Fixed Mounting Nano



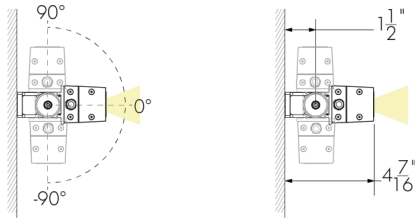
SAMN - Mounting hole pattern



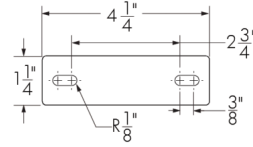
UMPN - Mounting hole pattern



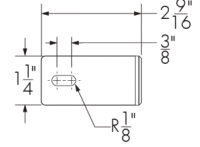
UMASN - Universal Adjustable Mounting Nano



UMASN - Mounting hole pattern

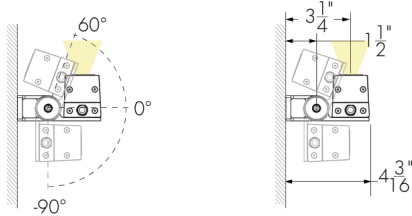


For 1 ft fixtures

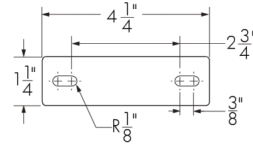


For 2 ft, 3 ft and 4 ft fixtures

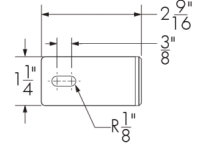
WAMN2 - Adjustable Extended Arm Mounting Nano 2 in



WAMN2 - Mounting hole pattern

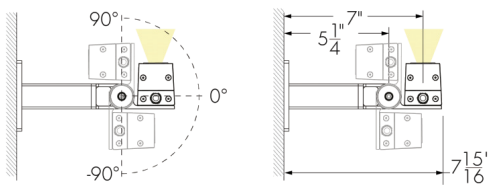


For 1 ft fixtures

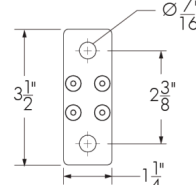


For 2 ft, 3 ft and 4 ft fixtures

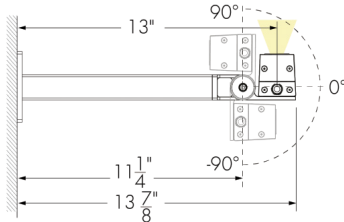
WAMN6 - Adjustable Extended Arm Mounting Nano 6 in



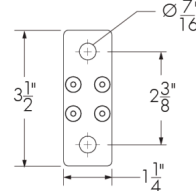
WAMN6 - Mounting hole pattern



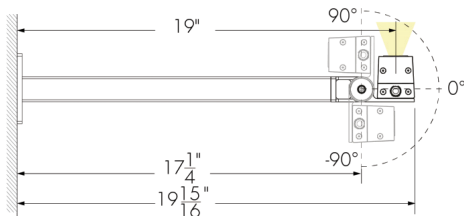
WAMN12 - Adjustable Extended Arm Mounting Nano 12 in



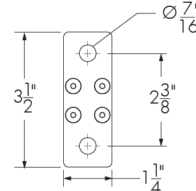
WAMN12 - Mounting hole pattern



WAMN18 - Adjustable Extended Arm Mounting Nano 18 in



WAMN18 - Mounting hole pattern



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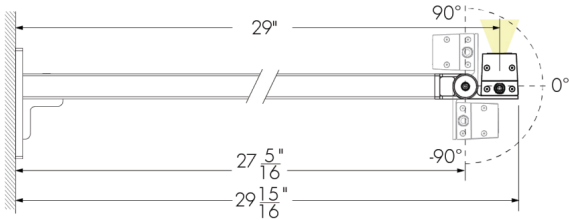
LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

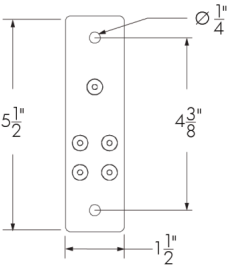
This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

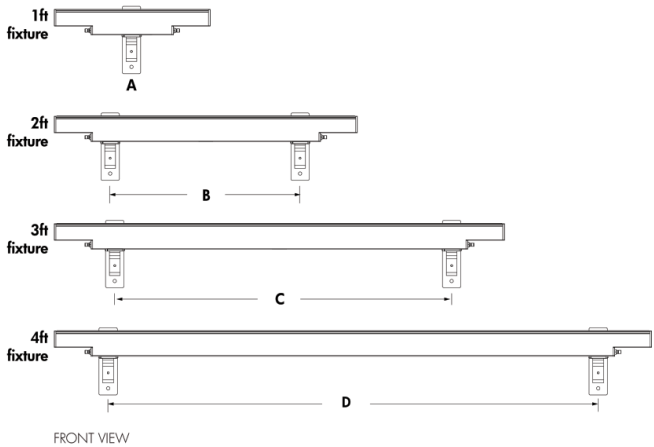
WAMN28 - Adjustable Extended Arm Mounting Nano 28 in



WAMN28 - Mounting hole pattern



Mounting bracket placement (minimum and maximum distances)

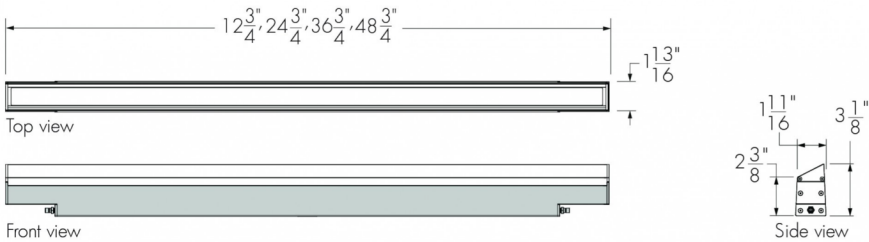


- A - Bracket in the center of the fixture
 - B - Minimum 14 in to maximum 16 in
 - C - Minimum 26 in to maximum 28 in
 - D - Minimum 38 1/2 in to maximum 40 1/2 in
- LOGN with bracket WAMN28 shown

The mounting bracket(s) to be centered on fixture and as symmetrical as possible. Distances must be respected for all installations.

Optical accessories (order separately)

LOGNVS - Visor for Lumenfacade Nano



LOGNVS-LENGTH-FINISH-OPTIONS

Please specify:
LENGTH: 12 in, 24 in, 36 in or 48 in; **FINISH:** BK - Black Sandtex®, BRZ - Bronze Sandtex®, SI - Silver Sandtex®, WH - Smooth white or CC - custom color and finish (please specify RAL color); **OPTIONS:** CRC - Corrosion-resistant coating for hostile environments

- The addition of a visor will affect beam distribution. Consult factory for application support.
- Not suitable for wide 120° optic.
- Maximum one accessory per fixture. Visors are field installable.

Cables (order separately)

LOGNJC - Jumper cable for Lumenfacade Nano



Front view 4" Minimum bend radius for jumper cable

For minimal spacing between fixtures, use a 1 ft jumper cable.

LOGNJC-CERTIFICATION-LENGTH-CABLE COLOR

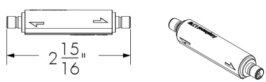
Please specify:

CERTIFICATION: UL or CE; **LENGTH:** 1 ft to 30 ft (available in 1 ft increments) or 50 ft; **CABLE COLOR:** black or white (connectors are the same color as the specified cable color).

- Suitable for dimming/data and non-dimming applications.
- Consult Lumenfacade Nano jumper cable specification sheet for all available cable lengths and additional information.

Joiner (order separately)

LOGNJC-JOINER - Joiner for Lumenfacade Nano Jumper Cable

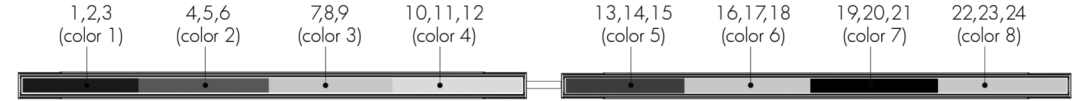


- Use joiners to connect and lengthen jumper cables.
- Joiners add voltage drops. Consult factory to confirm impact on run length.
- Available in black.

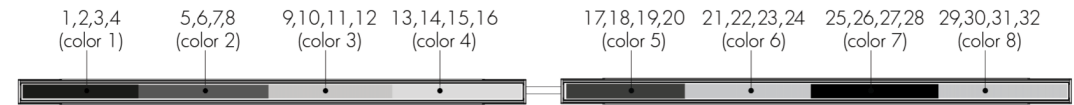
Resolution details

DMX/RDM control, resolution per foot: each 12 in section is addressed independently

DMX addresses:



UCTL control option, RGB color mixing option.



UCTL control option, RGBW30K, RGBW40K and RGBA color mixing options.

DMX/RDM control, resolution per fixture: each fixture is addressed independently

DMX addresses:



UCTL control option, RGB color mixing option.



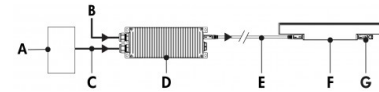
UCTL control option, RGBW30K, RGBW40K and RGBA color mixing options.

- 48 in fixtures shown.
- Fixture resolution can be configured on-site within the LumenID V3 software. A DMX/RDM enabled LCBX or DMX/RDM LSBX is required for DMX/RDM control.

Typical wiring diagrams

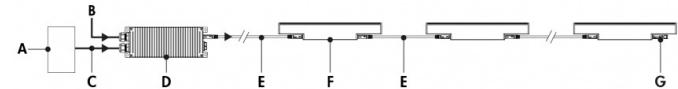
UCTL - Universal control

Single unit - LCBX 60W



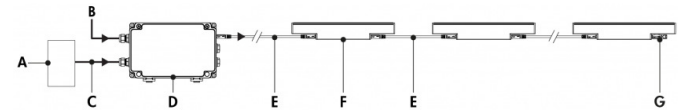
- A - Controller (order separately from Lumenpulse, or by others)
B - Power input (120-277V, wiring by others)
C - Data input (wiring by others)
D - LCBX (60W)
E - Jumper cable (LOGNJC)
F - Lumenfacade Nano
G - Terminator cap

Continuous run - LCBX 60W or 120W



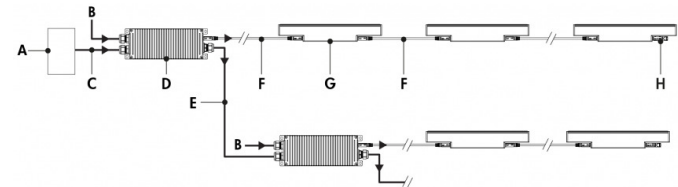
- A - Controller (order separately from Lumenpulse, or by others)
B - Power input (120-277V, wiring by others)
C - Data input (wiring by others)
D - LCBX (60W or 120W)
E - Jumper cable (LOGNJC)
F - Lumenfacade Nano
G - Terminator cap

Continuous run - LCBX 200W



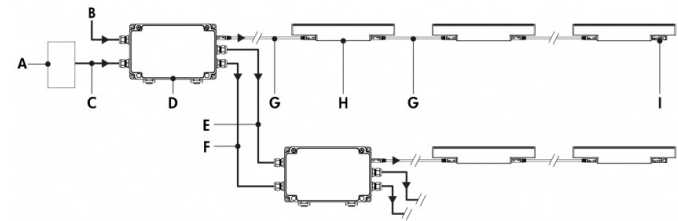
- A - Controller (order separately from Lumenpulse, or by others)
B - Power input (120-277V, wiring by others)
C - Data input (wiring by others)
D - LCBX (200W)
E - Jumper cable (LOGNJC)
F - Lumenfacade Nano
G - Terminator cap

Continuous run - Daisy chain
LCBX 60W or 120W



- A - Controller (order separately from Lumenpulse, or by others)
B - Power input (120-277V, wiring by others)
C - Data input (wiring by others)
D - LCBX (60W or 120W)
E - Data output to next LCBX (wiring by others)
F - Jumper cable (LOGNJC)
G - Lumenfacade Nano
H - Terminator cap

Continuous run - Daisy chain
LCBX 200W



- A - Controller (order separately from Lumenpulse, or by others)
B - Power input (120-277V, wiring by others)
C - Data input (wiring by others)
D - LCBX (200W)
E - Power output to next LCBX (120-277V, wiring by others)
F - Data output to next LCBX (wiring by others)
G - Jumper cable (LOGNJC)
H - Lumenfacade Nano
I - Terminator cap

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LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**
DATE **March 06, 2023**
PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

Specification Sheet

lumenfacade nano

LOGN

COLOR CHANGING

Maximum Run of Fixtures - Lumenfacade Nano® LOGN Color Changing

| 10ft Jumper Cable | | |
|---------------------------------------|-------|-------|
| Wattage | 4W/ft | 8W/ft |
| Maximum Run of Fixtures per LCBX 60W | 13ft | 6ft |
| Maximum Run of Fixtures per LCBX 120W | 25ft | 13ft |
| Maximum Run of Fixtures per LCBX 200W | 45ft* | 22ft |
| 25ft Jumper Cable | | |
| Wattage | 4W/ft | 8W/ft |
| Maximum Run of Fixtures per LCBX 60W | 13ft | 6ft |
| Maximum Run of Fixtures per LCBX 120W | 25ft | 13ft |
| Maximum Run of Fixtures per LCBX 200W | 45ft* | 22ft |
| 50ft Jumper Cable | | |
| Wattage | 4W/ft | 8W/ft |
| Maximum Run of Fixtures per LCBX 60W | 13ft | 6ft |
| Maximum Run of Fixtures per LCBX 120W | 25ft | 13ft |
| Maximum Run of Fixtures per LCBX 200W | 45ft* | 22ft |

*Example: 4W/ft = 45ft maximum run of end to end fixtures per LCBX 200W.
(11 fixtures maximum for 4ft LOGN 4W/ft, 45 fixtures maximum for 1ft LOGN 4W/ft).
Consult factory for system validation prior to quoting and ordering.

- Consult factory for specific applications and maximum fixture count/run length recommendations.
- Maximum of 1 output to fixture, or fixture run, per LCBX.
- Consult the LCBX specification sheet for more information.
- RGB color mixture option requires 3 DMX channels. RGBW30K and RGBW40K color mixture options require 4 DMX channels. RGBA color mixture option requires 4 DMX channels.
- Fixtures can be controlled via a DMX/RDM or DALI controller.
- For DALI-2 Type 8 applications: The LCBX responds to RGBWAF control.
- 4W version: 4 W/ft, 8W version: 8 W/ft.

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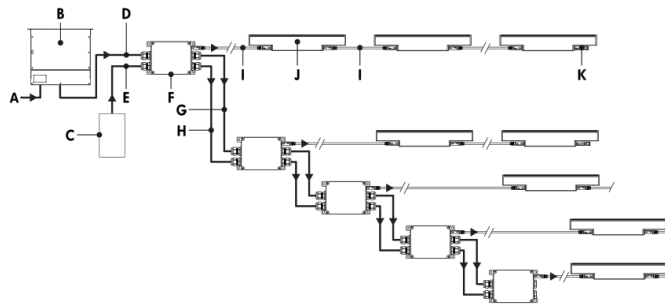
LUMINAIRE CUT SHEET

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LS2

Trunk system - LSBX

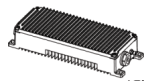


- A** - Power input (120-277V, wiring by others)
- B** - Large Power supply (LGPSU) (order separately from Lumenpulse)
- C** - Controller (order separately from Lumenpulse, or by others)
- D** - Power input (48V, order separately from Lumenpulse - Trunk Power Cable (TKPWR), or equivalent by others. Refer to LSBX specification sheet for details)
- E** - Data input (order separately from Lumenpulse - Trunk Data Cable (TKDMX), or equivalent by others. Refer to LSBX specification sheet for details)
- F** - LSBX
- G** - Power output to next LSBX (48V, order separately from Lumenpulse - Trunk Power Cable (TKPWR), or equivalent by others. Refer to LSBX specification sheet for details)
- H** - Data output to next LSBX (order separately from Lumenpulse - Trunk Data Cable (TKDMX), or equivalent by others. Refer to LSBX specification sheet for details)
- I** - Jumper cable (LOGNJC)
- J** - Lumenfacade Nano
- K** - Terminator cap

- Consult factory for specific applications and maximum fixture count/run length recommendations.
- Maximum of 1 output to fixture run per LSBX.
- The LSBX has a maximum of 200W for output to fixtures. Consult the LSBX specification sheet for more information.
- The Large Power Supply (LGPSU) has a maximum of 1000W (120V) or 1200W (277V). Consult LGPSU specification sheet for more information.
- RGB color mixture option requires 3 DMX channels. RGBW30K and RGBW40K color mixture options require 4 DMX channels. RGBA color mixture option requires 4 DMX channels.
- 4W version: 4 W/ft, 8W version: 8 W/ft.

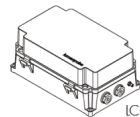
Control boxes (order separately)

LCBX - Low-Voltage Control Box



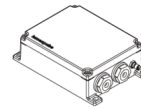
LCBX 60W & 120W

Low-voltage control and power box. One power and data output to fixture, or fixture run. Refer to LCBX specification sheet for details.



LCBX 200W

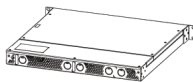
LSBX - Low-Voltage Splitter Box



Low-voltage control and power splitter box. One power and data output to fixture run. Refer to LSBX specification sheet for details.

Remote Power Supply (order separately)

LGPSU - Large Power Supply



Monté sur rack

Indoor rack-mounted 1.2KW power supply allows for scalable DMX/RDM controlled Lumenfacade Nano systems. Wall Mount version coming soon, consult factory for details.

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LUMINAIRE CUT SHEET

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LS2

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID



LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

How to order

| Housing | Wattage | Voltage | Length | Color and Color Temperature | Optics |
|---------------------------|----------------------------------|---------------|--|---|--|
| LOGN Lumenfacade™ Nano | 4W 4 W/ft 8W 8 W/ft | 48V 48 VDC | 12 12 3/4 in (1.4 lbs) 24 24 3/4 in (2.9 lbs) 36 36 3/4 in (4.4 lbs) 48 48 3/4 in (6 lbs) | RGB RGB RGBW30K RGB + white 3000K ⁽¹⁾ RGBW40K RGB + white 4000K ⁽¹⁾ RGBA RGB + amber | 8x8 8° x 8° 10x10 10° x 10° 10x30 10° x 30° 10x60 10° x 60° 10x90 10° x 90° 30x10 30° x 10° 30x30 30° x 30° 30x60 30° x 60° 30x90 30° x 90° 60x10 60° x 10° 60x60 60° x 60° 60x90 60° x 90° 90x90 90° x 90° W Wide 120° ⁽²⁾ WW Asymmetric Wallwash |

Notes:
1. 2700K, 3500K and Royal Blue available, consult factory. Longer lead times apply.
2. Not compatible with visor optical accessory.



LUMINAIRE CUT SHEET

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LS2

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How to order

| Lens | Mounting Options ⁽⁹⁾ ⁽⁷⁾ | Finish | Control ⁽¹¹⁾ | Options | Certification | Buy American Act |
|--|--|--|---|---|--|--|
| CL Clear lens ⁽³⁾ FR Frosted lens ⁽⁴⁾ HFR Half-frosted lens ⁽⁵⁾ | SAMN Slim Adjustable Mounting Nano UMPN Fixed Mounting Nano UMASN Universal Adjustable Mounting Nano WAMN2 Adjustable Wall Mounting Nano 2 in WAMN6 Adjustable Extended Arm Mounting Nano 6 in WAMN12 Adjustable Extended Arm Mounting Nano 12 in WAMN18 Adjustable Extended Arm Mounting Nano 18 in WAMN28 Adjustable Extended Arm Mounting Nano 28 in | BK Black Sandtex® BRZ Bronze Sandtex® SI Silver Sandtex® WH Smooth white CC Custom color and finish (please specify RAL color) ⁽⁸⁾ ⁽⁹⁾ ⁽¹⁰⁾ | UCTL Universal control (compatible with DMX/RDM or DALI-2 Type 8 systems) | CRC Corrosion-resistant coating for hostile environments ⁽¹²⁾ ⁽¹³⁾ 3GV 3G ANSI C136.31-2010 Vibration Rating for bridge applications ⁽¹⁴⁾ | UL UL compliant CE CE compliant | BAA Buy American ⁽¹⁵⁾ ⁽¹⁶⁾ |

- Notes:**

3. Not available for 8x8, 10x10, W or WW optics.

4. Not available for WW optic.

5. Available for 8x8, 10x10 or WW optics only.

6. One mounting bracket provided for 12 in fixtures. Two mounting brackets provided for 24 in, 36 in and 48 in fixtures.

7. Refer to Mounting Bracket Placement section in the specification sheet for mounting bracket distances that must be respected.

8. Lumenpulse offers a wide selection of RAL CLASSIC (K7) colors with a smooth texture and high-gloss finish. Please consult factory for a list of available K7 colors, other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
9. Setup charges apply for RAL colors. Consult factory for details.

10. Longer lead times can be expected for custom RAL color finishes.

11. A Low-Voltage Control Box (LCBX) or Low-Voltage Splitter Box (LSBX) and LumenID (LID) must be specified.

12. Use only when exposed to salt spray. This option is not required for normal outdoor exposure.

13. Setup charges apply. Consult factory for details.

14. Not available for SAMN mounting option. Mounting bracket distances that must be respected, consult Mounting Bracket Placement section in the specification sheet for details.

15. Not available with CE certification option.

16. Contact your Lumenpulse Sales Representative for more information on order volume details.



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LS2

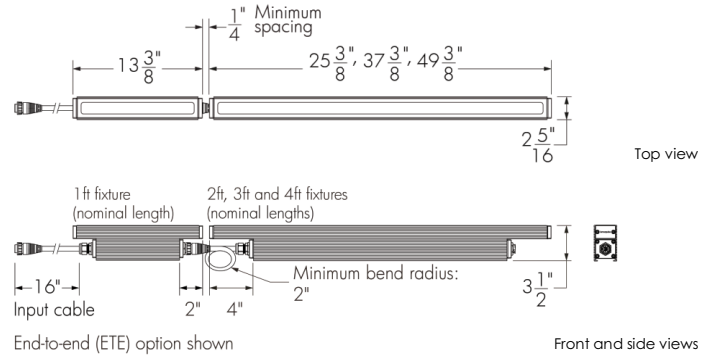
Specification Sheet

lumenfacade

LOG

WHITE AND STATIC COLORS

Project Name _____ Qty _____
Type _____ Catalog / Part Number _____

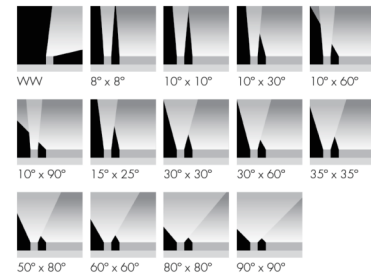


Photometric Summary

| | Delivered output (lm) | Intensity (peak cd) |
|---------|-----------------------|---------------------|
| WW | 3,592 | 5,159 |
| 8°x8° | 4,045 | 77,896 |
| 10°x10° | 3,830 | 38,346 |
| 10°x30° | 3,885 | 30,056 |
| 10°x60° | 3,984 | 17,736 |
| 10°x90° | 3,576 | 7,897 |
| 15°x25° | 3,880 | 24,730 |
| 30°x30° | 3,765 | 14,726 |
| 30°x60° | 3,848 | 5,106 |
| 35°x35° | 3,921 | 9,999 |
| 50°x80° | 3,767 | 3,449 |
| 60°x60° | 3,435 | 3,007 |
| 80°x80° | 3,881 | 2,530 |
| 90°x90° | 3,588 | 1,886 |

Based on HO 4000K, 4ft [1219mm] configuration.
Photometric performance is measured in compliance with IESNA LM-79-08.

Optics



Description

The Lumenfacade is a high-performance linear LED luminaire for grazing or floodlighting exterior walls and facades. Featuring second generation LED technology, the luminaire is available in 12 in, 24 in, 36 in or 48 in sections, and can be configured with a wide number of options, including: optics for grazing or flood lighting; a choice of outputs (ASHRAE 5 W/ft, RO 8.5 W/ft or HO 15.25 W/ft); various color temperatures or static colors; various mounting options, finishes, accessories and controls. The Lumenfacade is also available with a unique asymmetric wallwash distribution, providing exceptional uniformity and brightness for walls and signage.

Features

| | |
|-----------------------------|---|
| Color and Color Temperature | 2200K, 2700K, 3000K, 3500K, 4000K, Red, Green, Blue |
| Length (nominal) | 12 in, 24 in, 36 in, 48 in |
| Optics | Asymmetric Wallwash, 8° x 8°, 10° x 10°, 10° x 30°, 10° x 60°, 10° x 90°, 15° x 25°, 30° x 30°, 30° x 60°, 35° x 35°, 50° x 80°, 60° x 60°, 80° x 80°, 90° x 90° |
| Options | End-to-end configuration (factory installed 1 6 in black input cable included), Corrosion-resistant coating for hostile environments, 3G ANSI C136.31-2010 Vibration Rating for bridge applications, CE (certification covers European Economic Area) |
| Power Consumption | 5 W/ft (meets ASHRAE standards for linear lighting on building facades - not available for 12 in fixture lengths), 8.5 W/ft (RO version), 15.25 W/ft (HO version), Typically 20% higher for 12 in fixture lengths |
| Warranty | 5-year limited warranty |
| Performance | |
| Illuminance at Distance | Minimum 1 fc at 133 ft (HO 4000K, 48 in fixture, 10° x 60°, DMX/RDM) |
| Color Consistency | 2 SDCM, 3 SDCM (2200K) |

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LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory
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LS2

Colors and Color Temperatures



Controls

ON/OFF 0-10V DALI

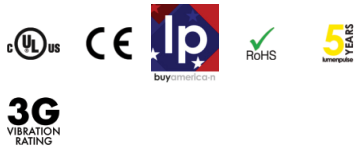


Ratings

IP66 IK07*

*asymmetric wallwash lens is IK06 rated

Certifications



| | |
|-------------------|---------------------------------|
| Color Rendering | Minimum CRI 80 |
| Lumen Maintenance | L70 280,000 hrs, L95 35,000 hrs |

Physical

| | |
|-------------------|--|
| Housing Material | Low copper content extruded aluminum |
| Lens Material | Clear tempered glass |
| Hardware Material | Stainless steel |
| End Cap Material | Machined aluminum |
| Gasket Material | Silicone |
| Surface Finish | Electrostatically applied polyester powder coat |
| Weight | 12 in: 4.5 lbs, 24 in: 7 lbs, 36 in: 10.5 lbs, 48 in: 14 lbs |

Electrical and control

| | |
|--------------------------------------|---|
| Voltage | 100 to 277 volts, 347 volts available (consult factory for details) |
| Fixture Cable | Power and data in one cable, End-to-end option (ETE): 16 in black input cable (no jumper cable needed for minimum spacing between two fixtures) |
| Leader Cable Conductor | 5C #16-5 |
| Maximum Cable and Fixture Run Length | 252 ft (On/Off, 277V, RO version), 164 ft (On/Off, 277V, HO version) |
| Control | On/Off control, Lumentalk, 0-10V dimming, DALI dimming, Lutron® EcoSystem® Enabled dimming, DMX/RDM enabled |
| Resolution (DMX/RDM) | Per foot or per fixture (configured with LumenID V3 software), 8-bit or 16-bit |

Environmental

| | |
|---------------------------|--|
| Storage Temperature | -40 °F to 185 °F (device must reach start-up temperature value before operating) |
| Start-up Temperature | -13 °F to 122 °F |
| Operating Temperature | -40 °F to 122 °F |
| Ingress Protection Rating | IP66, Wet location rated |
| Impact Resistance Rating | IK07 (asymmetric wallwash lens is IK06 rated) |

Accessories (order separately)

| | |
|---------------------------------|--|
| Optical Accessories | Lumenfacade Radial Louver |
| Cables | Leader cable (standard), Jumper cable (standard), Leader cable (ETE), Jumper cable (ETE) |
| Control Boxes | DMX/RDM enabled (daisy chain or star configuration), Ethernet enabled (daisy chain or star configuration), Lumentalk Data Bridge |
| Control Systems | Lumentone™ 2 (LTN2), Pharos® kit (PHAROS) |
| Diagnostic and Addressing Tools | LumenID (LID), LumentalkID |

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LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory
DATE March 06, 2023
PHASE 100% Construction Documents

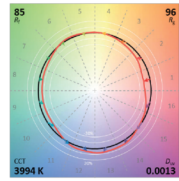
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LS2

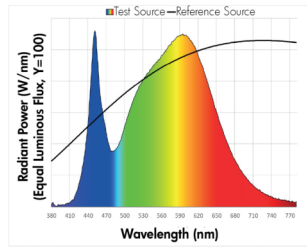
Chromaticity Data

TM-30 - 4000K

| CCT | CIE | TM-30 |
|-------|----------|----------|
| 4000K | R_a 83 | R_e 85 |
| | R_g 14 | R_g 96 |

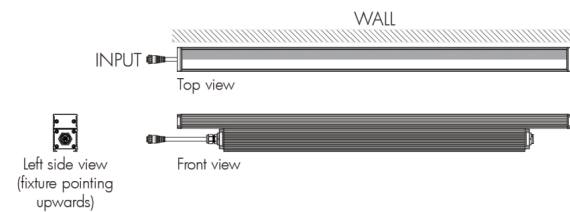


Spectral Power Distribution

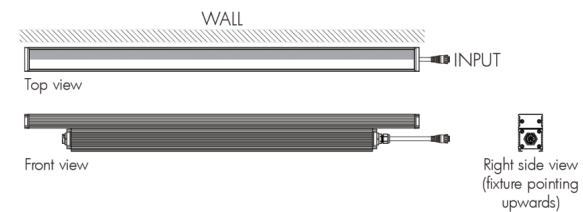


Asymmetric wallwash optic details

WWLF - Asymmetric wallwash optic, left feed



WWRF - Asymmetric wallwash optic, right feed

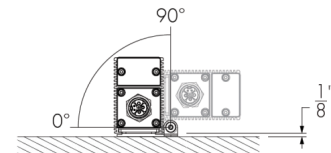


- Always position frosted side toward the wall.
- Fixture's feeding side is based on uplight installations. Feeding sides are reversed when fixture is used in a downlight application.
- Recommended setback from wall is 1/10 of the wall height. Example: 2 ft setback for a 20 ft wall.

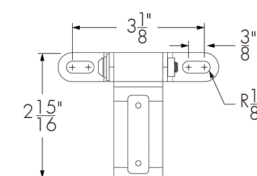
Mounting options

Surface Mount

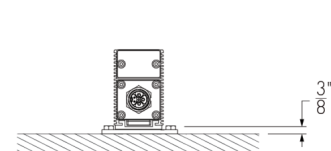
SAM - Slim Adjustable Mounting



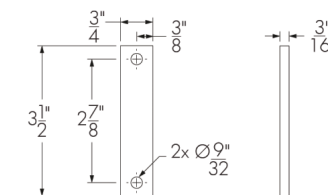
SAM - Mounting hole pattern



UMP - Fixed Mounting



UMP - Mounting hole pattern



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LUMINAIRE CUT SHEET

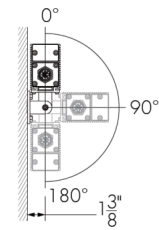
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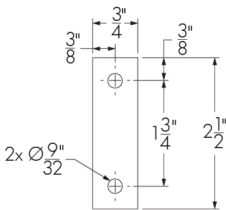
LS2

Wall Mount

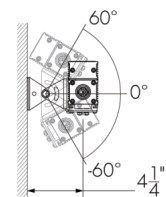
UMAS - Universal Adjustable Mounting



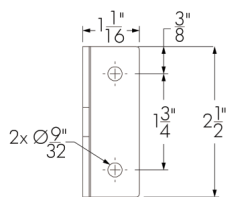
UMAS - Mounting hole pattern



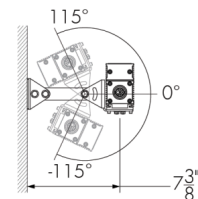
WAM2 - Adjustable Wall Mounting 2 in



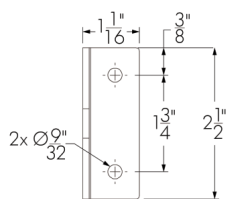
WAM2 - Mounting hole pattern



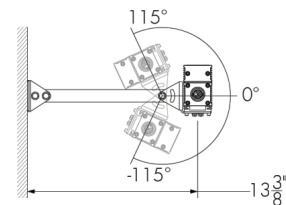
WAM6 - Adjustable Extended Arm Mounting 6 in



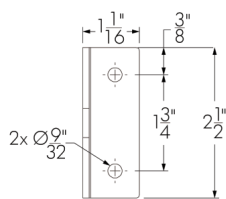
WAM6 - Mounting hole pattern



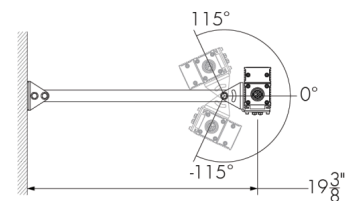
WAM12 - Adjustable Extended Arm Mounting 12 in



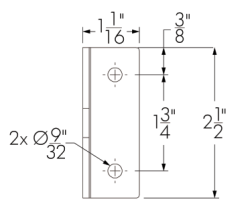
WAM12 - Mounting hole pattern



WAM18 - Adjustable Extended Arm Mounting 18 in



WAM18 - Mounting hole pattern



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LUMINAIRE CUT SHEET

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LS2

End-to-end configuration option (ETE)

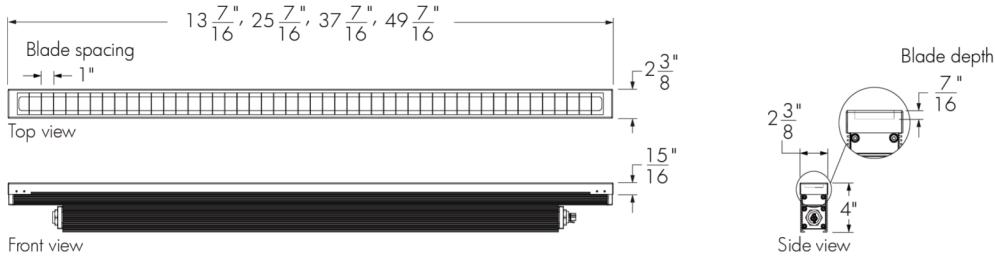


- A** - ETE leader cable (order separately)
- B** - Lumenfacade with ETE option
- C** - ETE 16 in black input cable (minimum bend radius: 2 in)
- D** - ETE jumper cable (order separately)

Includes a factory installed 16 in black input cable. A jumper cable is not required for minimum spacing between two end-to-end (ETE) fixtures. An ETE jumper cable is required only if a longer distance between two adjacent ETE fixtures is needed, or to connect two continuous runs of ETE fixtures together.

Optical accessories (order separately)

LOGRD - Radial louver for Lumenfacade



LOGRD-LENGTH-FINISH-OPTIONS

- Please specify:
- LENGTH:** 12 in, 24 in, 36 in or 48 in; **FINISH:** BK - Black Sandtex®, BRZ - Bronze Sandtex®, SI - Silver Sandtex®, WH - Smooth white or CC - custom color and finish (please specify RAL color); **OPTIONS:** CRC - Corrosion-resistant coating for hostile environments
 - The addition of a louver will affect beam distribution. Consult factory for application support.
 - Not suitable for asymmetric wallwash optic.

EPA Guide

Fixture

| | LOG 12 in | LOG 24 in | LOG 36 in | LOG 48 in |
|------------------------------|-----------|-----------|-----------|-----------|
| EPA front (sq ft) | 0.274 | 0.579 | 0.980 | 1.386 |
| EPA side (sq ft) | 0.040 | 0.040 | 0.044 | 0.047 |

Fixture with radial louver accessory

| | LOG 12 in | LOG 24 in | LOG 36 in | LOG 48 in |
|------------------------------|-----------|-----------|-----------|-----------|
| EPA front (sq ft) | 0.322 | 0.656 | 1.137 | 1.720 |
| EPA side (sq ft) | 0.045 | 0.047 | 0.052 | 0.055 |



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LS2

Cables (order separately)

LOGLC - Leader cable for Lumenfacade



Standard construction
LOGLC-CERTIFICATION-STD-LENGTH-CABLE COLOR



End-to-end (ETE) option
LOGLC-CERTIFICATION-ETE-LENGTH-CABLE COLOR

- Please specify:
- CERTIFICATION:** UL or CE; **LENGTH:** 10 ft, 25 ft, 50 ft, 100 ft, 150 ft or 200 ft; **CABLE COLOR:** black or white (connectors are black as standard; ETE fixture input cables are black as standard)
- Suitable for dimming/data and non-dimming applications.
 - Sealing end cap is mandatory for any unused connector. One (1) included with every leader cable.
 - Consult Lumenfacade leader cable specification sheet for details.

LOGJC - Jumper cable for Lumenfacade



Standard construction
LOGJC-CERTIFICATION-STD-LENGTH-CABLE COLOR

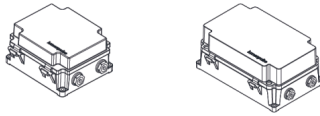


End-to-end (ETE) option
LOGJC-CERTIFICATION-ETE-LENGTH-CABLE COLOR

- Please specify:
- CERTIFICATION:** UL or CE; **LENGTH:** 1 ft (available for ETE option only), 2 ft to 30 ft (available in 1 ft increments) or 50 ft; **CABLE COLOR:** black or white (connectors are black as standard; ETE fixture input cables are black as standard)
- Suitable for dimming/data and non-dimming applications.
 - Consult Lumenfacade jumper cable specification sheet for details.

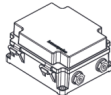
Control boxes (order separately)

CBX-DMX/RDM - DMX/RDM enabled (daisy chain or star configuration)



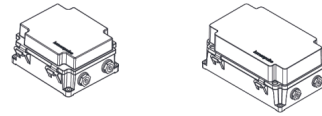
DMX/RDM control box. Up to six power and data outputs to fixtures or fixture runs. Consult CBX specification sheet and installation instructions for details. Lumenterminators provided with CBX (2x for daisy chain configuration, 6x for star configuration), consult factory to order spares.

LDB - Lumentalk Data Bridge



Lumentalk Data Bridge, 0-10V or DMX output. Consult LDB specification sheet for details.

CBX-ENET - Ethernet enabled (daisy chain or star configuration)



Ethernet control box. Up to four power and data outputs to fixture or fixture runs. Consult Ethernet CBX specification sheet and installation instructions for details.

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID



LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

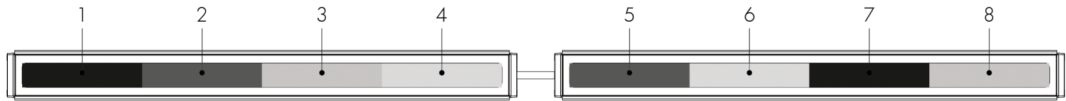
LID-LT - LumentalkID



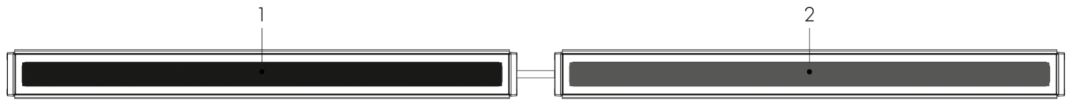
LumentalkID is a diagnostic and addressing tool. It must be specified for all Lumentalk (LT) applications. Consult LID-LT specification sheet for details.

Resolution details

DMX/RDM control, resolution per foot: each 12 in section is addressed independently
DMX addresses:



DMX/RDM control, resolution per fixture: each fixture is addressed independently
DMX addresses:



- 48 in fixtures shown.
- Applicable for DMX/RDM control option only. Fixture resolution can be configured on-site within the LumenID V3 software. A DMX/RDM enabled CBX is required.

Typical wiring diagrams

Wiring color code

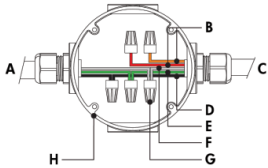
| UL Color Code | USE |
|---------------|----------------|
| Green | Ground |
| Black | Line |
| White | Line/Neutral |
| Red or Purple | 0-10V / Data + |
| Orange | 0-10V / Data - |

On/Off Control (NO)



- A - Power input (100-277V, wiring by others)
- B - Junction box (by others)
- C - Leader cable (LOGLC)
- D - Lumenfacade
- E - Jumper cable (LOGJC)
- F - Sealing end cap

On/Off Control (NO) - wiring detail



- A - Power input
- B - Not required
- C - To fixture
- D - Line
- E - Ground
- F - Line/Neutral
- G - Wire-nuts (by others)
- H - Junction box (by others)

- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

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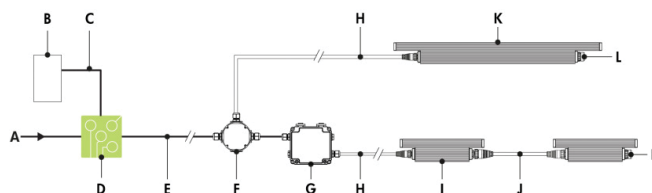
LUMINAIRE CUT SHEET

PROJECT Seattle Center Armory
DATE March 06, 2023
PHASE 100% Construction Documents

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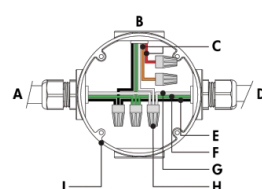
LS2

Lumentalk (LT)



- A** - Power input (100-277V AC, wiring by others)
- B** - Dimmer/controller (order separately from Lumenpulse, or by others)
- C** - Data wiring (by others)
- D** - Lumentranslator 2 (LT12-DIM, -DMX, -TRIAC, -DALI)
- E** - Power wiring (by others)
- F** - Junction box (by others)
- G** - Lumentalk Data Bridge (LDB-DIM or LDB-DMX)
- H** - Leader cable (LOGLC)
- I** - Lumenfacade 12 in
- J** - Jumper cable (LOGJC)
- K** - Lumenfacade (24 in, 36 in or 48 in fixture lengths)
- L** - Sealing end cap

Lumentalk (LT) - wiring detail



- A** - Power input (control over power line via Lumentalk system)
- B** - To fixture
- C** - Not required
- D** - To Lumentalk Data Bridge (for run lengths with 12 in fixtures)
- E** - Line
- F** - Ground
- G** - Line/Neutral
- H** - Wire-nuts (by others)
- I** - Junction box (by others)

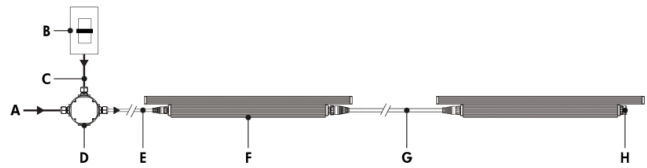
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
 - Lumentalk Data Bridge required for 12 in fixture lengths, see LDB installation instructions for details.
- For applications with all fixtures controlled as 1 zone: fixtures and Lumentalk Data Bridge must be specified as DIM. Maximum of 10 fixtures per LDB-DIM, consult factory for applications that require additional capabilities.
- For applications with fixtures controlled individually: fixtures and Lumentalk Data Bridge must be specified as DMX, 2-step commissioning process: 1 - DMX/RDM system using LumenID software and a LID, 2 - Lumentalk system using LumentalkID software and a LID-LT. Maximum of 32 fixtures per LDB-DMX. Consult factory for details.
- For DMX applications: 1 DMX controller per Lumentalk network, maximum of 48 DMX channels per Lumentalk network (minimum step transition update rate is 1 second, minimum fade time between two colors is 1 minute). Consult factory for applications that require additional capabilities.
 - Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
 - No third party fixtures allowed on the same circuit.
 - Consult factory for DALI Lumentalk applications.
 - 1% minimum dimming value.
 - ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

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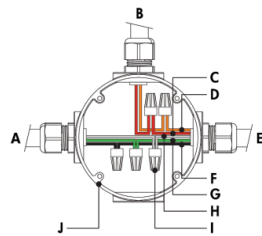
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0-10V dimming (DIM)



- A - Power input (100-277V, wiring by others)
- B - Dimmer (by others)
- C - Data wiring (by others)
- D - Junction box (by others)
- E - Leader cable (LOGLC)
- F - Lumenfacade
- G - Jumper cable (LOGJC)
- H - Sealing end cap

0-10V dimming (DIM) - wiring detail



- A - Power input
- B - From dimmer (by others)
- C - 0-10 V +
- D - 0-10 V -
- E - To fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nuts (by others)
- J - Junction box (by others)

- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 0-10V mA ratings: passive dimmer (Current Sink): 3 mA per fixture, active dimmer (Current Source): 0.5 mA per fixture.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

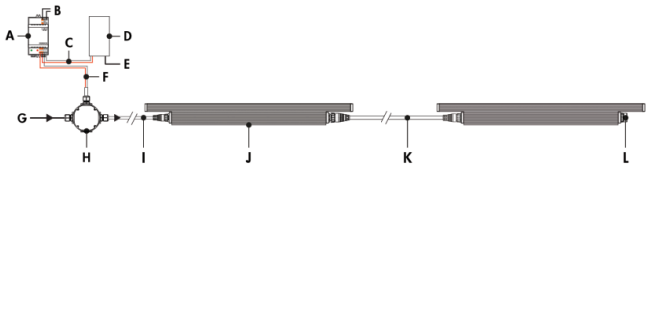


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LS2

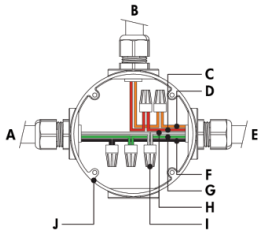
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DALI dimming (DALI)



- A - DALI bus power supply (by others)
- B - Power input for DALI bus power supply (wiring by others)
- C - Data output to DALI controller (wiring by others)
- D - DALI controller (by others)
- E - Power input for DALI controller (wiring by others)
- F - Data output to fixture (wiring by others)
- G - Power input (100-277V, wiring by others)
- H - Junction box (by others)
- I - Leader cable (LOGLC)
- J - Lumenfacade
- K - Jumper cable (LOGJC)
- L - Sealing end cap

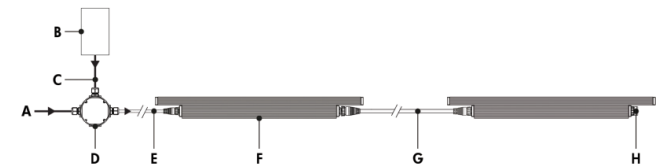
DALI dimming (DALI) - wiring detail



- A - Power input
- B - From DALI controller (by others)
- C - DA +
- D - DA -
- E - To fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nuts (by others)
- J - Junction box (by others)

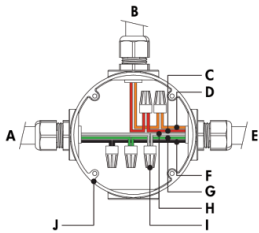
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Maximum of 64 DALI fixtures per DALI loop.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.
- Commissioning may be required based on the selection of 3rd party DALI controller. Controller and commissioning provided by others.

Lutron® EcoSystem® Enabled dimming (ES)



- A - Power input (100-277V, wiring by others)
- B - Lutron® EcoSystem® controller (by others)
- C - Data wiring (by others)
- D - Junction box (by others)
- E - Leader cable (LOGLC)
- F - Lumenfacade (24 in, 36 in or 48 in fixture lengths)
- G - Jumper cable (LOGJC)
- H - Sealing end cap

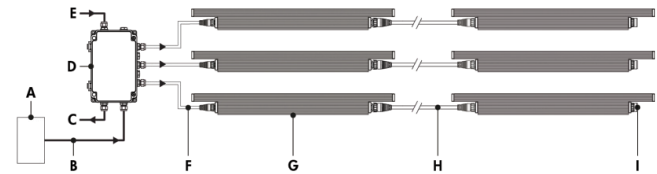
Lutron® EcoSystem® Enabled dimming (ES) - wiring detail



- A - Power input
- B - From Lutron® EcoSystem® controller (by others)
- C - Data +
- D - Data -
- E - To fixture
- F - Line
- G - Ground
- H - Neutral
- I - Wire-nuts (by others)
- J - Junction box (by others)

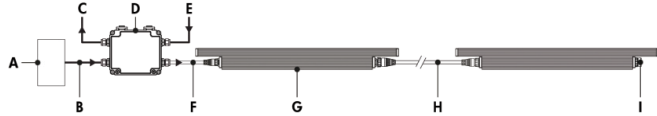
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Each Lutron® EcoSystem® enabled fixture has its own address; for the example shown, there are a total of 2 EcoSystem® addresses.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

Star Layout (DMX/RDM)



- A - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B - Data input (Belden 9841 or equivalent, by others)
- C - Data output to next CBX (optional, not isolated/not boosted)
- D - CBX-ST
- E - Power input (100-277V, wiring by others)
- F - Leader cable (LOGLC)
- G - Lumenfacade
- H - Jumper cable (LOGJC)
- I - Sealing end cap

Daisy Chain Layout (DMX/RDM)



- A - DMX/RDM controller (order separately from Lumenpulse, or by others)
- B - Data input (Belden 9841 or equivalent, by others)
- C - Data output to next CBX (optional, not isolated/not boosted)
- D - CBX-DS
- E - Power input (100-277V, wiring by others)
- F - Leader cable (LOGLC)
- G - Lumenfacade
- H - Jumper cable (LOGJC)
- I - Sealing end cap

| | | | |
|---|-------|-------|-------|
| Maximum Run of Fixtures, Lumenfacade® LOG ASHRAE White & Static Colors 5 W/ft | | | |
| Voltage | 120V | 240V | 277V |
| Maximum Run of Fixtures* | 128ft | | |
| Maximum Run of Fixtures, Lumenfacade® LOG RO White & Static Colors 8.5 W/ft | | | |
| Voltage | 120V | 240V | 277V |
| Maximum Run of Fixtures* | 120ft | 128ft | 128ft |
| Maximum Run of Fixtures, Lumenfacade® LOG HO White & Static Colors 15.25 W/ft | | | |
| Voltage | 120V | 240V | 277V |
| Maximum Run of Fixtures* | 68ft | 80ft | 88ft |

Based on 15A maximum, 50ft leader cable.
*Example: 120V = 120ft maximum run of end to end fixtures (30 fixtures maximum for 4ft LOG RO).

Based on 15A maximum, 50 ft leader cable.

- Consult CBX installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations. Maximum run length calculations are typically based on 48 in fixtures.
- The DMX/RDM protocol states a maximum of 32 DMX/RDM enabled fixtures on any single run.
- Maximum of 4 DMX/RDM repeaters/CBX cascading in line.
- Maximum of 6 outputs per CBX-ST; maximum of 1 output per CBX-DS.
- Each fixture requires 1 DMX address.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.



LUMINAIRE CUT SHEET

PROJECT **Seattle Center Armory**

DATE **March 06, 2023**

PHASE **100% Construction Documents**

This luminaire cut sheet is for information purposes only. Refer to final Luminaire Schedule for other acceptable manufacturers, specified features, finishes, lamping, etc.

LS2

How to order

| Housing ⁽²⁾ | Voltage ⁽³⁾ | Length | Color and Color Temperature ⁽⁶⁾ | Optics | Mounting Options | Finish | Control | Options | Buy American Act |
|--|-------------------------|--|--|--|--|--|--|--|--|
| LOG ASHRAE Lumenfacade™, 5 W/ft ASHRAE compliant ⁽¹⁾ | 100 100 volts | 12 13 3/8 in [4.5 lbs] ⁽²⁾ | 22K 2200K | WWLF Asymmetric Wallwash, left feed | SAM Slim Adjustable Mounting | BK Black Sandtex® | NO On/Off control | ETE End-to-end configuration (factory installed 16 in black input cable included) | BAA Buy American ⁽²⁰⁾ ⁽²¹⁾ |
| LOG RO Lumenfacade™ Regular Output, 8.5 W/ft | 120 120 volts | 24 25 3/8 in [7 lbs] | 27K 2700K | WWRF Asymmetric Wallwash, right feed | UMP Fixed Mounting ⁽⁸⁾ | BRZ Bronze Sandtex® | LT Lumentalk ⁽⁴⁾ ⁽¹²⁾ ⁽¹³⁾ | CRC Corrosion-resistant coating for hostile environments ⁽¹⁴⁾ ⁽¹⁷⁾ | |
| LOG HO Lumenfacade™ High Output, 15.25 W/ft | 208 208 volts | 36 37 3/8 in [10.5 lbs] | 30K 3000K | 8x8 8° x 8° ⁽⁷⁾ | UMAS Universal Adjustable Mounting ⁽⁸⁾ | SI Silver Sandtex® | DIM 0-10V dimming | 3GV 3G ANSI C136.31-2010 Vibration Rating for bridge applications ⁽¹⁸⁾ | |
| | 220 220 volts | 48 49 3/8 in [14 lbs] | 35K 3500K | 10x10 10° x 10° ⁽⁷⁾ | WAM2 Adjustable Wall Mounting ⁽⁸⁾ | WH Smooth white | DALI DALI dimming | CE CE (certification covers European Economic Area) ⁽¹⁹⁾ | |
| | 240 240 volts | | 40K 4000K | 10x30 10° x 30° | WAM6 Adjustable Extended Arm Mounting ⁽⁸⁾ | CC Custom color and finish (please specify RAL color) ⁽⁷⁾ ⁽¹⁵⁾ ⁽¹¹⁾ | ES Lutron® EcoSystem® Enabled dimming ⁽¹⁴⁾ | | |
| | 277 277 volts | | RD Red ⁽⁶⁾ | 10x60 10° x 60° | WAM12 Adjustable Extended Arm Mounting ⁽⁸⁾ | | DMX/RDM DMX/RDM enabled ⁽¹⁹⁾ | | |
| | | | GR Green ⁽⁶⁾ | 15x25 15° x 25° | WAM18 Adjustable Extended Arm Mounting ⁽⁸⁾ | | | | |
| | | | BL Blue ⁽⁶⁾ | 30x30 30° x 30° | | | | | |
| | | | | 30x60 30° x 60° | | | | | |
| | | | | 35x35 35° x 35° | | | | | |
| | | | | 50x80 50° x 80° | | | | | |
| | | | | 60x60 60° x 60° | | | | | |
| | | | | 80x80 80° x 80° | | | | | |
| | | | | 90x90 90° x 90° | | | | | |

Notes:

- ASHRAE version not available for 12 in fixture lengths.
- Power consumption is typically 20% higher for 12 in fixture lengths.
- 347 volts available, consult factory for details.
- To connect 12 in fixture lengths to the Lumentalk system, DIM or DMX/RDM must be specified as the control option, and a Lumentalk Data Bridge (LDB) is required. See the typical wiring diagrams in the specification sheet for details.
- Consult factory for availability of static: Royal Blue, 6500K and 90° CRI.
- Static colors made to order 8-10 weeks.
- For best results use with HO fixtures at a 4 in setback from surface. Contact factory for application support.
- Suitable to use when 3GV option is specified.
- Lumenpulse offers a wide selection of RAL CLASSIC (K7) colors with a smooth texture and high-gloss finish. Please consult factory for a list of available K7 colors, other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
- Setup charges apply for RAL colors. Consult factory for details.
- Longer lead times can be expected for custom RAL color finishes.
- Available for 24 in, 36 in and 48 in fixture lengths only.
- A Lumentranslator 2 (LTL2) and LumentalkID (LIDL2) must be specified for Lumentalk applications. Consult Lumentranslator 2 and Lumentalk pages and specification sheets for details.
- Available for 24 in (ASHRAE and RO only), 36 in and 48 in fixture lengths only.
- A control box (CBX) and LumentalkID (LIDL) must be specified.
- Use only when exposed to salt spray. This option is not required for normal outdoor exposure.
- Setup charges apply. Consult factory for details.
- Available with UMP and UMAS mounting options only.
- Consult European specification sheet and installation instructions for CE wiring information.
- Not available with CE certification option.
- Contact your Lumenpulse Sales Representative for more information on order volume details.

lumenpulse™

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