

Request for Bid Proposal	 Marshall University Office of Purchasing One John Marshall Drive Huntington, WV 25755-4100 Direct all inquiries regarding this order to: (304) 696-2599	Bid# R2401708 Addendum No. 01		
Vendor:			For information call: Purchasing Contact: Michelle Wheeler Phone: (304) 696-2727 Email: michelle.wheeler@marshall.edu & Purchasing@marshall.edu	
Sealed requests to bid for furnishing the supplies, equipment or services described below will be received by the Institution. TO RECEIVE CONSIDERATION FOR AWARD, UNLESS OTHERWISE NOTED, THE BID WILL BE SUBMITTED ON THIS FORM AND UPLOADED INTO THE MU BONFIRE PORTAL ON OR BEFORE THE DATE AND TIME SHOWN FOR THE BID OPENING. When applicable, prices will be based on units specified; and Bidders will enter the delivery date or time for items contained herein. The Institution reserves the right to accept or reject bids on each item separately or as a whole, to reject any or all bids, to waive informalities or irregularities and to contract as the best interests of the Institution may require. BIDS ARE SUBJECT TO THE GENERAL TERMS AND CONDITIONS AS SET FORTH HEREIN.				
DATE 3/13/2024	Click here to enter text.	DEPARTMENT REQUISITION NO. R2401708	BIDS OPEN: 3:00 p.m. on 3/21/2024 via TEAMS Link: http://tinyurl.com/2m25rw9p	BIDDER MUST ENTER DELIVERY DATE FOR EACH ITEM BID
Item #	Quantity	Description	Unit Price	Extended Price
<div style="text-align: center; margin-bottom: 20px;"> <u>ADDENDUM NO. 01</u> </div> <p>Project Name: R2401708- MARSHALL HEALTH – FORMER STRAYER BUILDING RENOVATIONS</p> <p>To extend the technical question deadline and move the bid opening date.</p>				
Total				

To the Office of Purchasing,
 In compliance with the above, the undersigned offers and agrees, if this offer is accepted within _____ calendar days (30 calendar days unless a different period is inserted by the purchaser) from the bid open date, specified above, to furnish any or all items upon which prices are offered, at the price set opposite each item, delivered at the designated point(s), within the time specified.

Bidder guarantees shipment from _____ within _____ days

FOB _____ After receipt of order at address shown

Terms _____

BOG 43

Bidder's name Vendor _____

Signed By _____

Typed Name _____

Title _____

Email _____

Street Address _____

City/State/Zip _____

Date _____ Phone _____

Fein _____

**ADDENDUM ACKNOWLEDGEMENT
FORM SOLICITATION NO.:**

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specifications, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any University personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Company

Authorized Signature

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

**MARSHALL UNIVERSITY JOAN C EDWARDS SCHOOL OF MEDICINE
CABELL COUNTY, WEST VIRGINIA**

MARSHALL HEALTH – FORMER STRAYER BUILDING RENOVATIONS

ADDENDUM #1

March 12, 2024

THRASHER PROJECT #T60-11110

TO WHOM IT MAY CONCERN:

A Pre-Bid Conference was held on Thursday, March 7, 2024, on the above-referenced project, a copy of the sign in sheet is included in this Addendum. A Pre-Bid Walkthrough was conducted on Friday, March 8th, 2024, and a copy of the sign in sheet is included in this Addendum. The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. LAST DAY FOR QUESTIONS IS MARCH 13, 2024.

B. SPECIFICATIONS

1. The Index has been updated.
2. General Terms and Conditions has been updated.
3. Specification Section 081416 Flush Wood Doors has been updated.
4. Specification Section 087100 Door Hardware has been updated.
5. Specification Section 095113 Acoustical Panel Ceilings has been updated.
6. Specification Section 101419 Dimensional Letter Signage has been added.
7. Specification Section 101423 Panel Signage has been added.
8. Specification Section 104413 Fire Extinguisher Cabinets has been added.
9. Specification Section 104416 Fire Extinguishers has been added.
10. Specification Section 123213 Manufactured Plastic Laminate Clad Casework has been updated.

C. DRAWINGS

1. Sheets A,0.01, A0.02, A1.01, A1.02, A6.01 and A7.02 have been revised.
2. Sheet M201 has been revised.
3. Sheet P-201 has been revised.

D. QUESTIONS AND RESPONSES**QUESTION**

1. The break point between Base Bid and Alternate 1, as shown on drawing A1.01, leaves open the issue of how we terminate certain walls, ceilings, and flooring. Can additional clarification be provided, or break lines redrawn that correlate to wall lines on the finished floor plan.

RESPONSE

Sheets A0.02, A1.01, and A7.02 have been revised to provide clarification to the boundaries between the Base Bid and Alternate #1.

QUESTION

2. The door schedule calls for new HM frames but there is no specification, please provide.

RESPONSE

Section 081416 – Flush Wood Doors has been revised to include specifications for hollow metal frames.

QUESTION

3. The project documents (Marshall University General Terms and Conditions), requires a maintenance bond for the roofing system. Roofing scope appears to be limited to flashing new openings and penetrations. Please confirm that a maintenance bond is required for this work.

RESPONSE

The maintenance bond is required for scope of work for the project.

QUESTION

4. Current project documents have substantial completion by December 1, 2024, but we can find no reference to the required duration of bid validity. The concern is that if the project award or NTP is delayed, will the required substantial completion date be delayed as well? Please provide clear direction on how long bids shall remain valid. Requesting that substantial completion be stated in calendar days from NTP in place of a hard a date.

RESPONSE

The goal is for substantial completion is December 1, 2024, however, the project schedule will be revised to 245 calendar days upon notice to proceed and 30 calendar days after substantial completion for final completion. The general terms and conditions have been updated.

QUESTION

5. Temporary Facilities Spec (015000) required temporary utility connections and consumption to be paid for by the GC. Is owner agreeable to use of existing utilities during construction. Please confirm available use with or without metering.

RESPONSE

The owner is agreeable to use existing utilities during construction without metering.

QUESTION

6. Specifications Table of Contents lists “Manufactured Plastic – Laminate Casework 123213”. However, Specification Section footer is “Manufactured Wood-Veneer-Faced-Casework” listing Lab casework manufacturers. Additionally, specs are mixed with plastic laminate casework specs. Please clarify.

RESPONSE

Section 123213 – Manufactured Plastic-Laminate Clad Casework has been revised with the correct footer. Specialized laboratory casework is not specified in this project. The casework shall be plastic-laminate faced wood casework with solid-surface countertops specified in Section 123661.16. An updated copy of the section is provided in this addendum.

QUESTION

7. Demolition Note 3 on D1.01 denotes the removal of an operable partition to be salvaged and returned to the owner. Does this include the structural steel for the operable partition? If so, please provide a detail showing the existing configuration of the structural steel for this component.

RESPONSE

The removal of the operable partition shall be only the partition and its track. The structural framing to which it is mounted shall not be removed.

QUESTION

8. Construction Note 2 on sheet A1.01 reads, “Reinstall salvaged operable partition.” However, Construction Note 2 is not present anywhere on sheet A1.01. Please advise whether the partition is to be installed. If in a different location than where it was originally installed, please provide information on the location and structural steel required for the installation of this operable partition.

RESPONSE

The operable partition shall not be installed anywhere. Note 2 shall be omitted from the Sheet A1.01.

QUESTION

9. The specifications do not include a minimum compressive strength for the concrete paving. Please specify the required psi for the mix design.

RESPONSE

The compressive strength of the concrete used shall be 4,000 psi with air.

QUESTION

10. Please provide specifications for the Dimensional and Panel signage.

RESPONSE

Specification Section 101419 and Section 101423 have been included in this addendum.

QUESTION

11. Please provide specifications for the Fire Extinguishers and cabinets.

RESPONSE

Specification Section 104416 and 104413 have been included in this addendum.

QUESTION

12. Please clarify if Refrigerators/Freezers shown on 1 & 3/A4.01, 8 & 9/A4.02 and referenced as REF-1 on P-201 are to be provided by Contractor.

RESPONSE

Refrigerators referenced at these locations shall be furnished and installed by the Owner.

QUESTION

13. D1.01, General Demolition Note 18 refers to repair or replace existing ceiling while on A1.02 Reflected Ceiling Plan General Note 4 refers to "New Ceiling Installation". Please clarify if the intent is to completely demolish and replace the ceiling.

RESPONSE

The intent is to demolish and replace all ceilings except at Restroom 167 and Restroom 168.

QUESTION

14. 095113 Paragraph 2.4 references Metal Suspension System in Conference and Restaurant which are not labeled in the drawings. Please advise.

RESPONSE

These references shall be omitted. An updated Section 095113 has been provided in this addendum.

QUESTION

15. General Notes on select Plumbing Drawings state "All slab penetrations must be approved by the Landlord and include a GPR or X-Ray. All locations will be evaluated and stamped approved by the building's structural engineer or approved equal in writing." There are additional notes indicated that the building's structural engineer shall perform work as a sub-contractor. Does this requirement include all required efforts shown on the drawings? Or is it only to include unanticipated work?

If this is to include all work shown on the drawings, we propose an owner allowance to capture these anticipated costs.

RESPONSE

This note is only in reference to slab penetrations related to plumbing work on the project. A project structural engineer should review and approve any plumbing related items having a structural impact. This structural engineer shall be provided by the Architect.

QUESTION

16. Please provide contact information for the “Building’s Structural Engineer” as referenced in the General Notes on select plumbing drawings.

RESPONSE

The original building structural engineer is unknown at this time.

The structural engineer for this specific project is:

Carol Stevens, PE
CAS Structural Engineering, Inc.
P.O. Box 469
Alum Creek, WV 25003
304-756-2564

QUESTION

17. Please clarify if Signage shown on 2/A2.01 and 2/A8.01 is to be included in Base Bid or Alternate #1.

RESPONSE

The signage shown in Elevation 2/A2.01 and shall be included in the Base Bid.

QUESTION

18. I can find no concrete compressive strength listed for the exterior concrete work. Can you provide?

RESPONSE

See response to Question #9.

QUESTION

19. The Roofing Specifications I assume are for any new penetrations through the roof. Do you know who holds the current roof warranty (Roofing Contractor)?

RESPONSE

The holder of the current roof warranty is unknown.

QUESTION

20. There is room signage shown on the plans, but no specifications are provided. Can you provide?

RESPONSE

Specification 101423 has been provided in this addendum.

QUESTION

21. What is the extent of Asphalt work on this project? Nothing shown on plans.

RESPONSE

The scope of work for asphalt shall be to replace what is removed for the trenching of the sanitary line through the parking lot. The application shall match the thickness of the existing asphalt.

QUESTION

22. What is the proposed Notice To Proceed Date?

RESPONSE

The proposed notice to proceed date is April 1st, 2024. This will be contingent upon owner and successful bidder's ability to prepare, finalize, and execute contract documents by this date.

QUESTION

23. The break point between Base Bid and Alternate 1, as shown on drawing A1.01, leaves open the issue of how we terminate certain walls, ceilings, and flooring. Can additional clarification be provided, or break lines redrawn that correlate to wall lines on the finished floor plan.

RESPONSE

See response to Question #1 of this addendum.

QUESTION

24. To clarify the pre-bid meeting comment regarding the bid form, it appears the Base Bid, Alternate No.1, and Alternate No.2 Areas are detailed on Drawing A0.02. The bid form states that Alternate No.1 will be an add to the contract and that Alternate No.2 will be an add to the contract. Please verify that we are NOT to include the alternate areas in the base bid.

RESPONSE

Bid prices shall be provided for each item: Base Bid, Alternate #1 and Alternate #2. Each item shall be priced such that the Base Bid will be completed with Alternate #1 and Alternate #2 being optional for the Owner to complete in sequential order. The project shall be awarded to the lowest base bid.

QUESTION

25. Temporary Facilities per Spec Section 015000:

- a. Building Existing Electric - Can Temporary Electric (existing electric) be used by the contractor at no cost or use charges during construction?
- b. Building Water - Can Temporary Water (existing water) be used by contractor at no cost or use charges during construction?
- c. Building Natural Gas – If natural gas is present, can the existing gas be used by the contractor at no cost or use charges during construction?
- d. Does the project require a job trailer or can we use the existing building to conduct onsite meetings?
- e. Will the entire parking lot area at the Strayer Building be under the control of the contractor for laydown area?
- f. Is a project sign required? If so, what is the size of the sign?

RESPONSE

- a. Existing utilities at the project site can be used at no cost.
- b. Existing utilities at the project site can be used at no cost.
- c. Existing utilities at the project site can be used at no cost.
- d. The project does not require a jobsite trailer. The existing building can be used to conduct onsite project meetings.
- e. For bidding purposes, half of the parking lot can be assumed to be used by the contractor for a laydown and mobilization needs. The owner may provide additional space at their discretion.
- f. A project sign is not required. The owner shall furnish a sign if they so choose.

E. CLARIFICATIONS

1. Section 102800 - Toilet, Bath, and Laundry Accessories: *Saniflow Corp. Machflow M09AB* Hand Dryers and *Saniflow Corp. Babymedi CP0016HCS-ASTM* Childcare Accessories shall be approved as an acceptable substitute or option. These substitution requests are attached to this addendum.
2. Section 265113 – LED Lighting Fixtures and Lamps: *Laface & McGovern* lighting and their proposed lighting products (manufacturers *Lithonia Lighting, Kurtzon, Finelite, Brownlee Lighting, Gotham*, shall be approved as acceptable substitutes or options. The substitution request is attached to this addendum.
3. Sheet M-201 – Ductwork sizing updated and trunk duct relocated to coordinate below existing structural steel

4. Sheet P-201 – relocated new piping to coordinate with mechanical systems below existing structural steel.

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until **3:00 p.m. on Thursday, March 21, 2024**. A bid that is not submitted electronically through Bonfire™ should contain the information listed below on the face of the envelope or the bid may be rejected by the University.

Bid Opening Location: Marshall University Office of Purchasing
Old Main 125
One John Marshall Drive Huntington, WV 25755

Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.



CASEY ARTHUR, MBA, AIA, NCARB, LEED AP
Project Manager

**MARSHALL UNIVERSITY JOAN C EDWARDS SCHOOL OF MEDICINE
CABELL COUNTY, WEST VIRGINIA
MARSHALL HEALTH – FORMER STRAYER BUILDING RENOVATIONS**

**MANDATORY PRE-BID CONFERENCE
Thursday, March 7, 2024**

Thrasher Project #T60-11110

Name	Representing	Phone #	Email Address
Casey Arthur	Thrasher Group	304-677-9310	carthur@thethrashergroup.com
Andrea Boisdien	Thrasher Group	304-343-7601	aboisdien@thethrashergroup.com
SCOTT MOREHOUSE	MARSHALL U.	304-696-6022	morehou1@marshall.edu
Tanner Boster	Merch-Ustin	304-942-7096	Tanner@MerchUstin.com
MIKE DAVIS	G&G BUILDERS INC.	304-549-6720	MDAVIS@GANDGBUILDERS.COM
HOLLIE MASSIE	SWOPE CONSTRUCTION CO.	304-525-9958 304-812-7702	hmassie@swope.co.wm
Haley Williams	Gondoy Enterprise	304-437-1974 681-208-2335	gondoy138@gmail.com HaleWilliams2021@icloud.com
JUSTIN DOZIER	CDC, LLC	304-553-1553	cdozier@cdellc.wv.com
Matthew Willis	Danhill Const.	304-632-1600	Matthew.Willis@DanhillConstruction.com

Name	Representing	Phone #	Email Address
JIMMY LEACH	E.P. LEACH & SONS, INC.	301-939-1007	jleach3@comcast.net
Allen Shumate	Finnie Plumbing	304 250 7100	info@finnieplumbing.com
Shawn Wilkute	Mi-De-Con, Inc	740-357-6381	ecofley1@outlook.com
Tim Hayslett Sr	1 Korin 3-10, Inc.	304-542-0977	tim@1k3-10.com
Ben O'Dell	Neighborgall Construction	304-926-4730 304-625-5181	estimating@neighborgall.com
BETH NEIGHBORGALL	NEIGHBORGALL CONST.	304-525-5181	estimating@neighborgall.com
Amy Henson	Pillar Innovations	304-400-9858	amyhenson@pillarinnovations.com
JOHN E. SPRINGSTON	UNITED CONSTRUCTION CO.	(304) 483-6558	JSpringston@uccivv.com
Steve Kinder	Start to Finish Construction LLC	304-532-4655 304-741-9869	S2Fconstruction@yahoo.com
Austin King	Assten Construction Co Inc	304-343-5400	AKing@AsstenConstruction.com
Roman Watts	J & J construction	740 550 8470	RWatts@appmech.net
SCOTT PARK	J & J GENERAL MAINTENANCE INC	740-442-1274	SPARK@JJGMI.COM

[illegible]

**MARSHALL UNIVERSITY JOAN C EDWARDS SCHOOL OF MEDICINE
CABELL COUNTY, WEST VIRGINIA
MARSHALL HEALTH – FORMER STRAYER BUILDING RENOVATIONS**

MANDATORY SITE WALKTHROUGH

Friday, March 8, 2024

Thrasher Project #T60-11110

Name	Representing	Phone #	Email Address
JOHN E. SPRINGSTON	UNITED CONSTRUCTION CO.	304 893-6615	JSpringston@uccwv.com JSpringston@uccwv.com
Will Leqq	Cherry River Construction LLC	304-550-5581	Wleqq@cherryriverconstruction.net bhinkle@cherryriverconstruction.net
RAY HUNTER	S.A. COMUNALE	304-767-3088	RAY.HUNTER@COMUNALE.COM
Mike Shirley	S.A. Comunale/P	304 915 4466	MIKE.SHIRLEY@comunale.com
Tim Hayslett Sr	IK3 in 3-10, Inc	304- 542-0977	tim@IK3-10.com
Tanner Boster	Merch - Urstin	304- 942- 7096	Tanner@MerchUrstin.com
Ryan Mayo	Neighborgall	304- 525- 8181	estimating@neighborgall.com
Steve Kindee	Start to Finish Construction LLC	804-532-6655	S2Fconstruction@yahoo.com
Bryan Monk Amy Henson	Pillar Innovations Pillar Innovations	304-491-7890 304- 542- 1323	BryanMonk@PillarInnovations.com Amyhenson@pillarinnovations.com

Name	Representing	Phone #	Email Address
Mike Laughlin	DSO Mechanical	304-280-6147	mLaughlin@dsonmech.com
HOLLIE MASSIE	SWOPE CONSTRUCTION Co.	304-525-9958 304-812-7702	hmassie@swopeco.com
ERIC COFFEY	MI-DR-CON	740-532-2277 740-532-4888	ecoffey1@aolhook.com
Jason Adams	Dixon	304 638-4092	jason adams @ dixonelectrical.com
Geoff Heston	Progressive Elec.	304-245-1253	dshuron@we wire v. com
Chris Dozie	CDC LLC	304-553-1553	cdozie@cde llc wv.com
CHRIS SHAW	AGSTEN CONSTRUCTION	304 343 5400	CSHAW@AGSTENCONSTRUCTION.COM
Roman Watts	J&J construction	740 550 8470	Rwatts@jppmech.net
Scott Park	J&J construction		
Matt Porter	J&J construction	606 439 4596	mporter@jjgmi.com
BETH NEIGHBORGAU	NCC	304-525-5181	estimating@neighborgall.com
Pete Barber	Nitro Construction	304-880-4216	Pbarber@nitrocs.com

Name	Representing	Phone #	Email Address
Matthew Willis	Danhill Construction	304-719-1450	matthew.willis@danhillconstruction.com
Jimmy LEACH	E.P. LEACH & SONS	304-939-1007	jleach3@comcast.net

Note from Constx Co.
 * list items to salvage so demo team doesn't trash all.

**MARSHALL UNIVERSITY JOAN C EDWARDS SCHOOL OF MEDICINE
CABELL COUNTY, WEST VIRGINIA
FOR THE
MARSHALL HEALTH – FORMER STRAYER BUILDING
RENOVATIONS
THRASHER #T60-11110**

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331300

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334200

MARSHALL UNIVERSITY

GENERAL TERMS AND CONDITIONS

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document constitutes acceptance of this contract (the Contract) made by and between Marshall University (University or Marshall) and the Vendor. Vendor's signature to the Contract signifies Vendor's agreement to be bound by and accept the terms and conditions contained in the Contract. Therefore, the parties agree that the following contractual terms and conditions are dominate over any competing terms made a part of the Contract. **IN THE EVENT OF ANY CONFLICT BETWEEN VENDOR'S FORM(S) AND THESE GENERAL TERMS AND CONDITIONS, THESE GENERAL TERMS AND CONDITIONS SHALL CONTROL**

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications, if applicable, included with the Solicitation/Contract.

2.1 "Award Document" means the document that identifies the Vendor as the Contract holder when signed by the Vendor and Marshall University's Office of Purchasing and, when necessary, approved as to form by the Attorney General.

2.2 "Bid" or "Proposal" means the Vendor's verbal bid or written bid provided in response to a solicitation by the University.

2.3 "Board" means the Governing Board of Marshall University.

2.4 "Buyer" means an individual designated by a Chief Procurement Officer to perform designated purchasing and acquisition functions as authorized by the Chief Procurement Officer.

2.5 "Chief Procurement Officer" means the individual designated by the President of Marshall University to manage, oversee and direct the purchasing and acquisition of supplies, equipment, services, and printing for the University.

2.6 "Contract" means the binding agreement that is entered between the University and the Vendor to provide requested goods and/or services requested in the Solicitation.

2.7 "Governing Board" means the Marshall University Board of Governors as provided for in the West Virginia state code.

2.8 "Higher Education Institution" means an institution as defined by Sections 401(f), (g) and (h) of the federal Higher Education Facilities Act of 1963, as amended.

2.9 "Office of Purchasing" means the section within Marshall University headed by the Chief Procurement Officer and its personnel.

2.10 “Purchasing Card” or “P-Card” means The State of West Virginia’s Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.

2.11 "Responsible Bidder" and "Responsible Vendor" mean a person and/or vendor who have the capability in all respects to perform contract requirements, and the integrity and reliability which will assure good faith performance.

2.12 "Responsive Bidder" and "Responsive Vendor" mean a person and/or a vendor who has submitted a bid which conforms in all material respects to the invitation to bid.

2.13 “Solicitation” means the notice of an opportunity to supply the University with goods and services.

2.14 “State” means the State of West Virginia and/or any of its agencies, commissions, boards, departments or divisions as context requires.

2.15 “University” means Marshall University or Marshall.

2.16 “Vendor” or “Vendors” means any entity providing either a verbal or written bid in response to the solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

2.17 “Will”, “Shall” and “Must” identifies a mandatory item or requirement that concludes the duty, obligation or requirement imposed is mandatory, as opposed to being directory or permissive.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of the Contract shall be determined in accordance with the category that has been identified as applicable to the Contract below:

Term Contract

Initial Contract Term: The Contract becomes effective on _____
_____ and extends for a period of _____ year(s).

Renewal Term: The Contract may be renewed upon the mutual written consent of the University and the Vendor. Any request for renewal should be submitted to the University thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of the Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed _____ months in total. Automatic renewal of the Contract is prohibited.

Any language that seeks to automatically renew, modify, or extend the Contract beyond the initial term or automatically continue the Contract period from term to term is deleted. The Contract may be renewed or continued only upon mutual written agreement of the Parties.

Alternate Renewal Term – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor and Agency.

Fixed Period Contract: The Contract becomes effective upon Vendor's receipt of the notice to proceed and must achieve Substantial Completion in 245 calendars and Final Completion must be achieved 30
calendar _____ days _____ after _____ Substantial _____ Completion _____ is
achieved. _____.

Fixed Period Contract with Renewals: The Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract must be completed within _____ days. Upon completion, the Vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ successive one-year periods or multiple periods of less than one year provided that the multiple renewal periods do not exceed _____ months in total.

One-Time Purchase: The term of the Contract shall run from the issuance of the Award Document until all the goods contracted for have been delivered, but in no event, will the Contract extend for more than one fiscal year.

4. NOTICE TO PROCEED: Vendor shall begin performance of the Contract immediately upon receiving notice to proceed unless otherwise instructed by the University. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under the Contract shall be determined in accordance with the category that has been identified as applicable to the Contract below.

Open End Contract: Quantities stated in the solicitation are approximations only, based on estimates supplied by the University. It is understood and agreed that the Contract shall cover the quantities ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

Service: The scope of the service to be provided will be more clearly defined in the specifications included herewith.

Combined Service and Goods: The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

One-Time Purchase: The Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under the Contract without an appropriate change order approved by the Vendor, University, and/or when necessary, the Attorney General's office.

6. EMERGENCY PURCHASES: The Chief Procurement Officer may suspend the use of a university wide mandatory contract (the University's Office of Purchasing has created standard specifications that are establish University wide contracts for commonly used commodities and services that are needed on a repetitive basis), or the competitive bidding process to allow a Department to purchase goods or services in the open market if for immediate or expedited delivery in an emergency.

Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work, provided that a required University emergency purchase with another vendor does not cause a breach of contract.

7. REQUIRED DOCUMENTS: All the items checked below must be provided to the University by the Vendor as specified below.

BID BOND (Construction Only): Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

PERFORMANCE BOND: The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Marshall University Office of Purchasing Office prior to Contract award.

LABOR/MATERIAL PAYMENT BOND: The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be received by the Marshall University Office of Purchasing Office prior to Contract award.

MAINTENANCE BOND: The successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and received by the Marshall University Office of Purchasing Office prior to Contract award.

LICENSE(S) / CERTIFICATIONS / PERMITS: In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the University.

INSERT ADDITIONAL REQUIREMENT BELOW:

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications prior to Contract award regardless whether that requirement is listed above.

8. INSURANCE: The Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. Subsequent to contract award, and prior to the insurance expiration date, Vendor shall provide the University with proof that the insurance mandated herein has been continued. Vendor must also provide with immediate notice of any changes in its insurance policies mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverages identified below must be maintained throughout the life of the contract. The Vendor shall also furnish proof of any additional insurance requirements prior to the Contract award regardless of whether that insurance requirement is listed in this section.

Any provisions requiring the University to maintain any type of insurance for either of its or the Vendors benefit is deleted.

Vendor must maintain:

Commercial General Liability Insurance in at least an amount of: _____ per occurrence and an aggregate of _____.

Automobile Liability Insurance in at least an amount of: _____ per occurrence and an aggregate of _____.

Professional/Malpractice/Errors and Omission Insurance in at least an amount of: _____ per occurrence and an aggregate of _____.

Commercial Crime and Third-Party Fidelity Insurance in an amount of: _____ per occurrence and an aggregate of _____.

Cyber Liability Insurance in an amount of: _____ per occurrence and an aggregate of _____. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by Vendor in performance of the Contract and shall include, but not limited to, claims involving infringement of intellectual property, including but not limited to infringement of copyright, trademark, trade dress, invasion of privacy violations, information theft, damage to or destruction of electronic information, release of private information, alteration of electronic information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

Builders Risk Insurance in an amount equal to 100% of the amount of the Contract.
_____ per occurrence and an aggregate of _____.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the University's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

_____ per _____

Liquidated Damages Contained in the Specifications

11. ACCEPTANCE: Vendor's signature on the certification and signature page, constitutes an offer to the University that cannot be unilaterally withdrawn, signifies that the product or service proposed by Vendor meets the mandatory requirements for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions unless otherwise indicated.

12. STATUTE OF LIMITATIONS - Any clauses limiting the time in which the State may bring suit against the Vendor or any other third party are deleted.

13. PRICING/BEST PRICE GUARANTEE: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation by the University. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the University and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software licenses, subscriptions, or maintenance may be paid annually in advance.

15. PAYMENT METHODS: The Vendor must accept payment by electronic funds transfer or P-Card for payment of all orders under this Contract unless the box below is checked.

Vendor is not required to accept the State of West Virginia's P-Card or by electronic funds transfer as payment for all goods and services for the reason(s) stated below:

16. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract. Any references contained in the Contract, Vendor's bid, or in any American Institute of Architects documents obligating the University to pay to compensate Vendor, in whole or in part, for lost profit, pay a termination fee, pay liquidated damages if the Contract is terminated early, seeking to accelerate payments in the event of Contract termination, default, or non-funding, costs of collection, court costs, or attorney's fees, unless ordered by a court of competent jurisdiction is hereby deleted. Any language imposing and interest or charges due to late payment is deleted.

17. FEES OR COSTS: Any language obligating the State to pay costs of collection, court costs, or attorney's fees, unless ordered by a court of competent jurisdiction is deleted.

18. RISK SHIFTING: Any provision requiring the State to bear the costs of all or a majority of business/legal risks associated with this Contract, to indemnify the Vendor, or hold the Vendor or a third party harmless for any act or omission is hereby deleted.

19. LIMITING LIABILITY: Any language limiting the Vendor's liability for direct damages is deleted.

20. TAXES: The Vendor shall pay any applicable sales, use, personal property or other taxes arising out of the Contract and the transactions contemplated hereby. The University is exempt from federal and state taxes and will not pay or reimburse such taxes. The University will, upon request, provide a tax-exempt certificate to confirm its tax-exempt status.

21. FISCAL YEAR FUNDING: The Contract shall continue for the term stated herein, contingent upon funds being appropriated by the WV Legislature or otherwise being made available for this Contract. In the event funds are not appropriated or otherwise available, the Contract becomes of no effect and is null and void after June 30 of the current fiscal year. If that occurs, the University may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

22. CANCELLATION/RIGHT TO TERMINATE: The University reserves the right to cancel/terminate the Contract immediately upon written notice to the Vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The University may also cancel any purchase or Contract upon thirty (30) days written notice to the Vendor. In the event of early cancellation, the University agrees to pay the Vendor only for all undisputed services rendered or goods received before the termination's effective date. All provisions are delete that seek to require the State to (1) compensate Vendor, in whole or in part, for loss profit, (2) pay a termination fee, or (3) pay liquidated damages if the Contract is terminated early.

In the event that a vendor fails to honor any contractual term or condition, the Chief Procurement Officer may cancel the contract and re-award the contract to the next lowest responsible and responsive bidder in accordance with the Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, section 7.4.1

Any language seeking to accelerate payments in the event of Contract termination, default or non-funding is hereby deleted.

23. RIGHT OF FIRST REFUSAL Any language seeking to give the Vendor a Right of First Refusal is hereby deleted.

24. DISPUTES – Any language binding the University to any arbitration or to the decision of any arbitration board, commission, panel or other entity is deleted; as is any requirement to waive a jury trial.

Any language requiring or permitting disputes under this Contract to be resolved in the courts of any state other than the State of West Virginia is deleted. All legal actions for damages brought by Vendor against the University shall be brought in the West Virginia Legislative Claims Commission. Other causes of action must be brought in the West Virginia Court authorized by statute to exercise jurisdiction over it.

Any language requiring the State to agree to, or be subject to, any form of equitable relief not authorized by the Constitution or laws of State of West Virginia is deleted.

25. TIME: Time is of the essence with regard to all matters of time and performance in the Contract.

26. DELIVERY -All deliveries under the Contract will be FOB destination unless the State expressly and knowingly agrees otherwise. Any contrary delivery terms are hereby deleted.

27. APPLICABLE LAW: The Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, W. Va. Code or Marshall University Board of Governors Policy No. FA-9 Purchasing Policy is void and of no effect. Any language requiring the application of the law of any state other than the State of West Virginia in interpreting or enforcing the Contract is deleted. The Contract shall be governed by the laws of the State of West Virginia

28. COMPLIANCE WITH GOVERNING LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances. Vendor shall notify all subcontractors providing commodities or services related to this Contract that, as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances.

29. ARBITRATION: Any references made to arbitration contained in the Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to the Contract are hereby deleted, void, and of no effect.

30. MODIFICATIONS: Notwithstanding anything contained in the Contract to the contrary, no modification of the Contract shall be binding without mutual written consent of the University, and the Vendor.

31. AMENDMENTS - The parties agree that all amendments, modifications, alterations or changes to the Contract shall be by mutual agreement, in writing, and signed by both parties. Any language to the contrary is deleted.

32. NO WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of the Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

Any provisions requiring the University to waive any rights, claims or defenses is hereby deleted.

33. SUBSEQUENT FORMS: The terms and conditions contained in the Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the University such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

34. ASSIGNMENT: Neither the Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the University and any other government or office that may be required to approve such assignments.

The Vendor agrees not to assign the Contract to any person or entity without the State's prior written consent, which will not be unreasonably delayed or denied. The State reserves the right to assign this Contract to another State agency, board or commission upon thirty (30) days written notice to the Vendor. These restrictions do not apply to the payments made by the State. Any assignment will not become effective and binding upon the State until the State is notified of the assignment, and the State and Vendor execute a change order to the Contract.

35. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by the Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the University; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

36. UNIVERSITY EMPLOYEES: University employees are not permitted to utilize the Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

37. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the University, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the University's policies, procedures, and rules.

Proposals are NOT to be marked as confidential or proprietary Any Provisions regarding confidential treatment or non-disclosure of the terms and conditions of the Contract are hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act ("FOIA") (W.Va. Code §29B-1-1, et. seq.) and public procurement laws. This Contract and other public records may be disclosed without notice to the vendor at the University's sole discretion. The University shall not be liable in any way for disclosure of any such records

Any provisions regarding confidentiality of or non-disclosure related to contract performance are only effective to the extent they are consistent with FOIA and incorporated into the Contract through a separately approved and signed non-disclosure agreement.

38. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of W. Va. Code §18B-5-4 and the Freedom of Information Act in W.Va. Code Chapter 29B.

**DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL,
CONTAINING A TRADE SECRET(S), OR IS OTHERWISE NOT SUBJECT TO
PUBLIC DISCLOSURE.**

Submission of any bid, proposal, or other document to the Marshall University Office of Purchasing constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document.

39. LICENSING: Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local University of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state University or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the University to verify that the Vendor is licensed and in good standing with the above entities.

40. ANTITRUST: In submitting a bid to, signing a contract with, or accepting an Award Document from Marshall University, the Vendor agrees to convey, sell, assign, or transfer to the University all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by Marshall University. Such assignment shall be made and become effective at the time the University tenders the initial payment to Vendor.

41. THIRD-PARTY SOFTWARE: If this Contract contemplates or requires the use of third-party software, the vendor represents that none of the mandatory click-through, unsigned, or web-linked terms and conditions presented or required before using such third-party software conflict with any term of this Addendum or that it has the authority to modify such third-party software's terms and conditions to be subordinate to this Addendum. The Vendor shall indemnify and defend the State against all claims resulting from an assertion that such third-party terms and conditions are not in accord with, or subordinate to, this Addendum.

42. RIGHT TO REPOSSESSION NOTICE: Any provision for repossession of equipment without notice is hereby deleted. However, the State does recognize a right of repossession with notice.

43. VENDOR CERTIFICATIONS: By signing its bid or entering into the Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that the Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity

that could be considered a violation of law; and (4) that it has reviewed the Contract in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the University. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with the all State agencies as required.

44. VENDOR RELATIONSHIP: The relationship of the Vendor to the University shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by the Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the University for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and University with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

45. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the University, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage, and hour laws.

46. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §18B-5-5 and §5A-3-18 the University is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Marshall University Office of Purchasing affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

47. WEST VIRGINIA DRUG-FREE WORKPLACE CONFORMANCE AFFIDAVIT West Virginia Alcohol and Drug-Free Workplace Act requires public improvement contractors to have and implement a drug-free workplace policy that requires drug and alcohol testing. This act is applicable to any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract for which the value of contract is over \$100,000. No public authority may award a public improvement contract which is to be let to bid to a contractor unless the terms of the contract require the

contractor and its subcontractors to implement and maintain a written drug-free workplace policy and the contractor and its subcontractors provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free workplace policy.

48. DISCLOSURE OF INTERESTED PARTIES A state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1,000,000 or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract.

49. CONFLICT OF INTEREST: Vendor, its officers, members, or employees shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the University.

50. MARSHALL UNIVERSITY'S INFORMATION TECHNOLOGY SERVICES AND SUPPORT DEPARTMENT (IT) FEES: If a vendor requires services through the Marshall University's IT Department, they must reimburse the University at the IT Rate Schedule which is located at: <https://www.marshall.edu/it/rates/>.

51. PUBLICITY: Vendor shall not, in any way or in any form, publicize or advertise the fact that Vendor is supplying goods or services to the University without the express written consent of the Marshall University Communications Department. Requests should be sent to ucomm@marshall.edu.

52. UNIVERSITY MARKS: Vendor shall not, in any way or in any form use the University's trademarks or other intellectual property without the express written consent of the Marshall University Communications Department. Requests should be sent to ucomm@marshall.edu.

53. INTELLECTUAL PROPERTY: The University will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising out of the agreement, and Vendor will execute any assignments of other documents necessary for the University to perfect such rights, provided that, for research collaboration pursuant to subcontracts under sponsored research agreements, intellectual property rights will be governed by the terms of the grant or contract to the University to the extent such intellectual property terms to apply to subcontractors.

54. FERPA: Vendor agrees to abide by the Family Education Rights and Privacy Act of 1974 ("FERPA). To the extent that Vendor receives personally identifiable information from education records as defined in (FERPA), Vendor agrees to abide by the limitations on re-disclosure set forth in which states that the officers, employees and agents of a party that receives education record information from Marshall may use the information, but only for the purposes for which the disclosure was made.

55. REPORTS: Vendor shall provide the University with the following reports identified by a checked box below:

Such reports as the University may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by University, etc.

Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by University.

56. PREFERENCE FOR THE USE OF DOMESTIC STEEL PRODUCTS IN STATE CONTRACT PROJECTS: Pursuant to W.Va. Code §5A-3-56, (a)(1) Except when authorized pursuant to the provisions of subsection (b) of this section, no contractor may use or supply steel products for a state contract project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W.Va. Code §5A-3-56. As used in this section (2):

(A) "State contract project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of any materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after the effective date of this section on or after June 6, 2001.

(B) "Steel products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations, from steel made by the open hearth, basic oxygen, electric furnace, bessemer or other steel making process.

(b) Notwithstanding any provision of subsection (a) of this section to the contrary, the Director of the West Virginia Department of Administration, Purchasing Division ("Director of the Purchasing Division") may, in writing, authorize the use of foreign steel products if:

(1) The cost for each contract item used does not exceed one tenth of one percent of the total contract cost or \$2,500, whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

(2) The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

57. PREFERENCE FOR DOMESTIC ALUMINUM, GLASS AND STEEL PRODUCTS:

In Accordance with W. Va. Code § 5-19-1 et seq.,

(a) Every state spending unit, as defined in chapter five-a, shall require that every contract or subcontract for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works contain a provision that, if any aluminum, glass or steel products are to be supplied in the performance of the contract, or subcontract, only domestic aluminum, glass or steel products shall be supplied unless the spending officer, as defined in chapter five-a, determines, in writing, after the receipt of offers or bids, that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest or that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements: Provided,

That this article applies to any public works contract awarded in an amount more than \$50,000, and with regard to steel only, this article applies to any public works contract awarded in an amount more than \$50,000 or requiring more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a “substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to the Contract.

(Name, Title)

(Printed Name and Title)

(Address)

(Phone Number)

(Fax Number)

(Email Address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through BONFIRE, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to Marshall University that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the Vendor in a contractual relationship; and that to the best of my knowledge, the Vendor will properly register with the WV Purchasing Division and Marshall University.

(Company)

(Authorized Signature)

(Printed Name and Title of Authorized Representative)

(Date)

(Phone Number)

(Fax Number)

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood-veneer.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
 - 4. Door Frames

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product, including the following:
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
 - 1. Door schedule indicating door location, type, size, fire protection rating, and swing.
 - 2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
 - 3. Details of frame for each frame type, including dimensions and profile.
 - 4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
 - 5. Dimensions and locations of blocking for hardware attachment.
 - 6. Clearances and undercuts.
 - 7. Requirements for veneer matching.
- C. Samples: For factory-finished doors.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Certification: Licensed participant in AWT's Quality Certification Program.
- B. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
 - 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.
- C. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
 - 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection rating indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
 - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.
- C. Thermally Rated Door Assemblies: Provide door assemblies with U-factor of not more than 0.50 deg Btu/F x h x sq. ft. when tested according to ASTM C518.
- D. Fire-Rated, Borrowed-Lite Assemblies: Assemblies complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Algoma Hardwoods, Inc.
 - 2. Chappell Door Co.
 - 3. Eggers Industries.
 - 4. Graham; an Assa Abloy Group company.
 - 5. Haley Brothers, Inc.
 - 6. Lambton Doors.
 - 7. Marshfield Door Systems, Inc.
 - 8. Masonite Architectural.
 - 9. Mohawk Flush Doors, Inc.; a Masonite company.
- B. Frame Manufacturers:
 - 1. [Concept Frames, AADG, Inc.; ASSA ABLOY Group.](#)
 - 2. [Custom Metal Products.](#)
 - 3. [National Custom Hollow Metal Doors & Frames.](#)
 - 4. [Premier Products, Inc.](#)
 - 5. [Republic Doors and Frames; an Allegion brand.](#)

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Basis-Of-Design: Masonite - Graham Flush Wood Doors
 - 1. Species: Plain Sliced Red Oak
 - 2. Stain Color: #901 Burgundy
- B. Interior Solid-Core Doors:
 - 1. Grade: Premium, with Grade A faces and edges.
 - 2. Species: Plain Sliced Red Oak
 - 3. Cut: Plain sliced.
 - 4. Panels: Flush.
 - 5. Match between Veneer Leaves: Book match.
 - 6. Assembly of Veneer Leaves on Door Faces: Balance match.
 - 7. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
 - 8. Core: Either glued or nonglued wood stave or structural composite lumber.
 - 9. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.

2.4 FRAMES

- A. Frames:
 - a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch.
 - b. Construction: Knocked down at drywall, and Full profile welded at CMU.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
 - 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
 - 3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.
- B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.
- C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.
- D. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized according to ASTM A153/A153M, Class B.

2.6 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.
- E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

2.7 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.
 1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
 1. Locate hardware to comply with DHI-WDHS-3.
 2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
 3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
 4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.
 5. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Factory cut and trim openings through doors.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."
- D. Door Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond

edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

- E. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

2.8 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.9 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.
 - 1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 2. Finish faces, all four edges, edges of cutouts, and mortises.
 - 3. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors that are indicated on Drawings to receive transparent finish.
- C. Transparent Finish:
 - 1. Architectural Woodwork Standards Grade: Premium.
 - 2. Staining: To match Masonite "Graham - #901 Burgundy" unless otherwise directed by the Architect.
 - 3. Effect: Semifilled finish, produced by applying an additional finish coat to partially fill the wood pores].
 - 4. Sheen: Semigloss.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 087100 "Door Hardware."
- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors and frames in accordance with NFPA 80.
 - 2. Install smoke- and draft-control doors in accordance with NFPA 105.
- C. Job-Fitted Doors:
 - 1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
 - a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
 - 2. Machine doors for hardware.
 - 3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 4. Clearances:
 - a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
 - b. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.

- b. Install frames with removable stops located on secure side of opening.
- 2. Fire-Rated Openings: Install frames according to NFPA 80.
- 3. Floor Anchors: Secure with post installed expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of post installed expansion anchors if so indicated and approved on Shop Drawings.
- 4. Solidly pack mineral-fiber insulation inside frames.
- 5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
- 6. In-Place Concrete or Masonry Construction: Secure frames in place with post installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
- 7. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

3.3 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

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SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

- 1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
 - b. Sliding doors.
 - c. Gates.
- 2. Electronic access control system components, including:
 - a. Biometric access control reader.
 - b. Electronic access control devices.
- 3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.
- 4. Lead-lining door hardware items required for radiation protection at door openings.
- 5. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

- B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

- 1. Windows
- 2. Cabinets (casework), including locks in cabinets
- 3. Signage
- 4. Toilet accessories
- 5. Overhead doors

- C. Related Sections:

- 1. Division 01 Section "Alternates" for alternates affecting this section.
- 2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.

3. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
4. Division 13 Section "Radiation Protection" for requirements for lead-lining for door hardware at openings indicated to receive radiation protection.
5. Division 26 sections for connections to electrical power system and for low-voltage wiring.
6. Division 28 sections for coordination with other components of electronic access control system.

1.3 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Key Systems and Nomenclature

C. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.4 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:

- a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.
 - f. Location of each hardware set cross-referenced to indications on Drawings.
 - g. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - h. Mounting locations for hardware.
 - i. Door and frame sizes and materials.
 - j. Name and phone number for local manufacturer's representative for each product.
 - k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
5. Key Schedule:
 - a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.

- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

- 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
- 2. Product Certificates for electrified door hardware, signed by manufacturer:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- 3. Certificates of Compliance:
 - a. Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
 - b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in "QUALITY ASSURANCE" article, herein.
 - c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in "QUALITY ASSURANCE" article, herein.
- 4. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, for door hardware on doors located in accessible routes.
- 5. Warranty: Special warranty specified in this Section.

D. Fire Door Assembly Inspection and Testing:

- 1. Submit a written report of the results of functional testing and inspection for fire door assemblies, in compliance with NFPA 80-2007 requirements. Written report shall be provided to the Owner to be made available to the Authority Having Jurisdiction (AHJ). Report shall include the door number for each fire door assembly, door location, door and frame material, fire rating, and summary of deficiencies.

E. Closeout Submittals:

- 1. Operations and Maintenance Data : Provide in accordance with Division 01 and include:

- a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
- b. Catalog pages for each product.
- c. Name, address, and phone number of local representative for each manufacturer.
- d. Parts list for each product.
- e. Final approved hardware schedule, edited to reflect conditions as-installed.
- f. Final keying schedule
- g. Copies of floor plans with keying nomenclature
- h. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
- i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

- A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.
 1. Where specific manufacturer's product is named and accompanied by "No Substitute," including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)
 - a. Where no additional products or manufacturers are listed in product category, requirements for "No Substitute" govern product selection.
 2. Where products indicate "acceptable manufacturers" or "acceptable manufacturers and products", provide product from specified manufacturers, subject to compliance with specified requirements and "Single Source Responsibility" requirements stated herein.
- B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 1. Warehousing Facilities: In Project's vicinity.
 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

- C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.
- D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - 1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
 - 2. Can provide installation and technical data to Architect and other related subcontractors.
 - 3. Can inspect and verify components are in working order upon completion of installation.
 - 4. Capable of producing wiring diagrams.
 - 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
- E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
 - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
 - 2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- G. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
- H. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- I. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.
- J. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbf (22.2 N).
 - 2. Maximum opening-force requirements:
 - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.

- b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - 3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
 - 4. Adjust door closer sweep periods so that, from open position of 70 degrees, door will take at least 3 seconds to move to 3 inches (75 mm) from latch, measured to leading edge of door.
- K. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01.
- 1. Attendees: Owner, Contractor, Architect, Installer and Supplier's Architectural Hardware Consultant.
 - 2. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.
 - c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.
- L. Coordination Conferences:
- 1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
 - a. Attendees: Door hardware supplier, door hardware installer, Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
 - 2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
 - a. Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, Owner, Architect and Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.6 .DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
 - 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
 - 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 - 2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
 - 1. Promptly replace products damaged during shipping.
 - 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 - 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- E. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
- F. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.
- F. Direct shipments not permitted, unless approved by Contractor.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Years from date of Substantial Completion, for durations indicated.
 - a. Closers:
 - 1) Mechanical: 10 years. Electrified: 2 years.
 - b. Automatic Operators: 1 year.
 - c. Exit Devices:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - d. Locksets:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - e. Continuous Hinges: Lifetime warranty
 - 2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.9 MAINTENANCE

- A. Maintenance Tools:
 - 1. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 - 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

- C. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.
- D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- E. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

A. Fasteners

- 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
- 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
- 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
- 4. Install hardware with fasteners provided by hardware manufacturer.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

- 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
- 2. Use materials which match materials of adjacent modified areas.
- 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 HINGES

A. Provide five-knuckle, ball bearing hinges.

- 1. Manufacturers and Products:

- a. Scheduled Manufacturer and Product: Ives 5BB series
- b. Acceptable Manufacturers and Products: Hager BB series, McKinney TA/T4A series, Stanley FBB Series

B. Requirements:

1. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
2. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
3. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
4. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
5. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
7. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
8. Doors 36 inches (914 mm) wide or less furnish hinges 4-1/2 inches (114 mm) high; doors greater than 36 inches (914 mm) wide furnish hinges 5 inches (127 mm) high, heavy weight or standard weight as specified.
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
10. Provide mortar guard for each electrified hinge specified, unless specified in hollow metal frame specification.
11. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.4 CONTINUOUS HINGES

A. Aluminum Geared

1. Manufacturers:

- a. Scheduled Manufacturer: Ives.
- b. Acceptable Manufacturers: Markar, Stanley.

2. Requirements:

- a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.25, Grade 2.
- b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum, with 0.25-inch (6 mm) diameter Teflon coated stainless steel hinge pin.
- c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
- d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
- e. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
- f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.
- g. Install hinges with fasteners supplied by manufacturer.
- h. Provide hinges with symmetrical hole pattern.

2.5 ELECTRIC POWER TRANSFER

A. Manufacturers:

- a. Scheduled Manufacturer: Von Duprin
- b. Acceptable Manufacturers: Falcon, ABH

B. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires sufficient to accommodate electric function of specified hardware.

C. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.6 FLUSH BOLTS

A. Manufacturers:

- 1. Scheduled Manufacturer: Ives
- 2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.7 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage ND Series
2. Acceptable Manufacturers and Products: Sargent 11 Series.

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1. Cylinders: Refer to “KEYING” article, herein.
2. Provide cylindrical locks with classroom security function with an inside indicator that provides clear direction for users to safely and quickly secure the room.
3. Provide locksets able to withstand 3100 inch pounds of torque applied to locked outside lever without gaining access per ANSI/BHMA A156.2 Abusive Locked Lever Torque Test and cycle tested to 3 million cycles per ANSI/BHMA A156.2 Cycle Test.
4. Provide levers with vandal resistant technology for use at heavy traffic or abusive applications. Levers feature internal lock components that prevent damage caused by excessive force from persons kicking, hitting or standing on lever to gain access.
5. Provide solid steel rotational stops to control excessive rotation of lever.
6. Provide completely refunctionable lockset that allows lock function to be changed to over twenty other common functions by swapping easily accessible parts.
7. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
8. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
9. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
10. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
11. Provide electrified options as scheduled in the hardware sets.
12. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.
 - a. Lever Design: Schlage Sparta.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.8 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage L9000 series
2. Acceptable Manufacturers and Products: Sargent 8200 series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1 Operational, Grade 1 Security, and manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
2. Indicators: Where specified, provide indicator window measuring a minimum 2 inch x 1/2 inch with 180 degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction 3-piece latchbolt. Provide deadbolt with full 1 inch (25 mm) throw, constructed of stainless steel.
4. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
5. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide a request to exit (RX) switch that is actuated with rotation of inside lever.
6. Provide motor based electrified locksets with electrified options as scheduled in the hardware sets and comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24V DC to allow for changes in the field without changing lock chassis.
 - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
 - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
 - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Request to Exit Switch (RX) –
 - 1) Modular Design – provide electrified locks capable of using, adding, or changing a modular RX switch without opening the lock case.
 - 2) Monitoring – where scheduled, provide a request to exit (RX) switch that detects rotation of the inside lever.
 - f. Connections – provide quick-connect Molex system standard.
 - g. UL Listed – 3 hour fire door
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: Schlage 17A.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.9 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Von Duprin 99/33 series
2. Acceptable Manufacturers and Products: Sargent 8800/8400 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit or Fire Exit Hardware. Cylinders: Refer to "KEYING" article, herein.
2. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
3. Touchpad: Extend minimum of one half of door width. Match exit device finish, stainless steel for US26, US26D, US28, US32, and US32D finishes; and for all other finishes, provide compatible finish to exit device. Provide compression springs in devices, latches, and outside trims or controls; tension springs also acceptable.
4. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
5. Provide exit devices with manufacturer's approved strikes.
6. Provide exit devices cut to door width and height. Locate exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
7. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
8. Provide cylinder dogging at non-fire-rated exit devices, unless specified less dogging.
9. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion that is removed by use of a keyed cylinder, which is self-locking when re-installed.
10. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
 - a. Lever Style: Match lever style of locksets.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.
11. Concealed Vertical Cable Exit Devices: provide cable-actuated concealed vertical latch system in two-point for non-rated or fire rated wood doors up to a 90 minute rating and less bottom latch (LBL) configuration for non-rated or fire rated wood doors up to 20 minute rating. Vertical rods not permitted.
 - a. Cable: Stainless steel with abrasive resistant coating. Conduit and core wire ends snap into latch and center slides without use of tools.
 - b. Wood Door Prep: Maximum 1 inch x 1.1875 inch x 3.875 inches top latch pocket and 1 inch x 1.1875 inch x 5 inches bottom latch pocket which does not require the use of a metal wrap or edge for non-rated or fire rated wood doors up to a 45 minute rating.
 - c. Latchbolts and Blocking Cams: Manufactured from sintered metal low carbon copper- infiltrated steel, with molybdenum disulfide low friction coating.

- d. Top Latchbolt: Minimum 0.38 inch (10 mm) and greater than 90 degree engagement with strike to prevent door and frame separation under high static load.
 - e. Bottom Latchbolt: Minimum of 0.44 inch (11 mm) engagement with strike.
 - f. Product Cycle Life: 1,000,000 cycles.
 - g. Latch Operation: Top and bottom latch operate independently of each other. Top latch fully engages top strike even when bottom latch is compromised. Separate trigger mechanisms not permitted.
 - h. Latch release does not require separate trigger mechanism.
 - i. Cable and latching system characteristics:
 - 1) Installed independently of exit device installation, and capable of functioning on door prior to device and trim installation.
 - 2) Connected to exit device at single point in steel and aluminum doors, and two points for top and bottom latches in wood doors.
 - 3) Bottom latch height adjusted, from single point for steel and aluminum doors and two points for wood doors, after system is installed and connected to exit device, while door is hanging
 - 4) Bottom latch position altered up and down minimum of 2 inches (51 mm) in steel and aluminum doors without additional adjustment. Bottom latch deadlocks in every adjustment position in wood doors.
 - 5) Top and bottom latches in steel and aluminum doors and top latch in wood doors may be removed while door is hanging.
 - 6) Top latch mounting: double or single tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
12. Provide UL labeled fire exit hardware for fire rated openings.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.

2.10 ELECTRIC STRIKES

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product: Von Duprin 5100/6000 series
- 2. Acceptable Manufacturers and Products: HES 1006/9600 series

B. Requirements:

- 1. Provide electric strikes designed for use with type of locks shown at each opening.
- 2. Provide electric strikes UL Listed as burglary-resistant.
- 3. Where required, provide electric strikes UL Listed for fire doors and frames.
- 4. Provide fail-secure type electric strikes, unless specified otherwise.
- 5. Coordinate voltage and provide transformers and rectifiers for each strike as required.

2.11 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage or Von Duprin PS900 series
2. Acceptable Manufacturers and Products Sargent

B. Requirements:

1. Provide power supplies, recommended and approved by manufacturer of electrified locking component, for operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring power supply.
2. Provide appropriate quantity and size of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide appropriate option boards for power supplies necessary for proper operation of the electrified locking components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component used in the system.
4. Provide regulated and filtered 24 VDC power supply and UL class 2 listed.
5. Options:
 - a. Provide power supply, where specified, with internal capability of charging sealed backup batteries 24 VDC, in addition to operating DC load.
 - b. Provide sealed batteries for battery back-up at each power supply where specified.
 - c. Provide keyed power supply cabinet.
6. Provide power supply in an enclosure, complete, and requiring 120VAC to fused input.
7. Provide power supply with emergency release terminals, where specified, that allow release of all devices upon activation of fire alarm system complete with fire alarm input for initiating “no delay” exiting mode.

2.12 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Sargent
2. Acceptable Manufacturers: No substitutions

B. Requirements:

1. Provide cylinders/cores, from the same manufacturer of locksets, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. High Security: dual-locking cylinder with permanent core requiring, patented keyway.
 - b. Security: dual-locking cylinder with **interchangeable** core requiring restricted, patented keyway.

- c. Conventional cylinder with **interchangeable** core with open keyway.
- 3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent-protected.
- 4. Security Cylinders: Where indicated, provide cylinders/cores with “dual-locking mechanism” with interlocking finger pin(s) to check for patented features on keys.
- 5. Nickel silver bottom pins.
- 6. Temporary Construction Cylinder Keying.
 - a. Owner or Owner’s Representative will void operation of temporary construction keys.
- 7. Replaceable Construction Cores..
 - a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - 1) 12 construction change (day) keys.

2.13 KEYING

- A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- B. Requirements:
 - 1. Key per the following:
 - a. All Locks to be keyed into the owner existing Master Key System as directed by the owner.
 - 2. Provide keys with the following features.
 - a. Material: Solid nickel plated
 - 3. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication “Keying Systems and Nomenclature” for identification. Blind code marks shall not include actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
 - d. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
 - 4. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.
 - b. Permanent Control Keys: 3.
 - c. Master Keys: 6.
 - d. Unused balance of key blanks shall be furnished to Owner with the cut keys.

- e. Extra Keys:
 - 1) 6 Construction Keys

2.14 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer: Telkee
2. Acceptable Manufacturers: HPC, Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.15 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 4040XP series.
2. Acceptable Manufacturers and Products: Sargent 281 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 3/4 inch (19 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).

10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.16 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.17 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
 - a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.18 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers: Glynn-Johnson
2. Acceptable Manufacturers: Rixson, Sargent

B. Requirements:

1. Provide heavy duty concealed mounted overhead stop or holder as specified for exterior and interior vestibule single acting doors.
2. Provide heavy duty concealed mounted overhead stop or holder as specified for double acting doors.
3. Provide heavy or medium duty and concealed or surface mounted overhead stop or holder for interior doors as specified. Provide medium duty surface mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking wall, open against equipment, casework, sidelights, and where conditions do not allow wall stop or floor stop presents tripping hazard.
4. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.19 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.20 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International
2. Acceptable Manufacturers: Pemko, Reese

B. Requirements:

1. Provide thresholds, weatherstripping (including door sweeps, seals, astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:
 - a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
 - b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.21 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.22 MAGNETIC HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: LCN
2. Acceptable Manufacturers: Rixson, Sargent

B. Requirements:

1. Provide wall or floor mounted electromagnetic door release as specified with minimum of 25 pounds of holding force. Coordination projection of holder and armature with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Wire magnetic holders on fire-rated doors into the fire control panel for fail-safe operation.

2.23 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)

5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Existing Door and Frame Compatibility: Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Where on-site modification of doors and frames is required:
 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 2. Field modify and prepare existing door and frame for new hardware being installed.
 3. When modifications are exposed to view, use concealed fasteners, when possible.
 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 2. Custom Steel Doors and Frames: HMMA 831.
 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches (750 mm) of door height greater than 90 inches (2286 mm).
- I. Lock Cylinders: Install construction cores to secure building and areas during construction period.
1. Replace construction cores with permanent cores as indicated in keying section.
- J. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
1. Conduit, junction boxes and wire pulls.
 2. Connections to and from power supplies to electrified hardware.
 3. Connections to fire/smoke alarm system and smoke evacuation system.
 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 5. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.

- M. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
 - 1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.
- O. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- P. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- Q. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- S. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 FIELD QUALITY CONTROL

- A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 FIELD INSPECTIONS:

- A. Fire Door Assembly Inspection and Testing: Provide functional testing and inspection of fire door assemblies in accordance with NFPA 80-2007/2010. Inspections shall be performed by individuals certified by Intertek as a Fire Door Assembly Inspector, using reporting forms provided by the Door and Hardware Institute (DHI). Alternatively, inspections may be performed by individuals acceptable to the Architect, who have knowledge and understanding of the operating components of the applicable door type, and who have experience in preparing written reports of testing and inspection results.
 - 1. Schedule fire door assembly inspection within 90 days of Substantial Completion of the Project.
 - 2. Submit a signed, written final report as specified in Paragraph 1.4: Submittals.
 - 3. Contractor shall correct all deficiencies and schedule a reinspection of fire door assemblies which were noted as deficient on the inspection report.
 - 4. Inspector shall reinspect fire door assemblies after repairs are made.
 - 5. Additional reinspections which are required due to incomplete repairs will be performed by the inspector at the expense of the Contractor.

3.6 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.7 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.8 DEMONSTRATION

- A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

3.9 DOOR HARDWARE SCHEDULE

- A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

Hardware Sets:

103788 OPT0353057 Version 2

HARDWARE GROUP NO. 01

FOR USE ON DOOR #(S):

119 155 156 164

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
<u>Y</u>				<u>H</u>	
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PRIVACY LOCK	L9040 17A L583-363 L283-722	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 02

FOR USE ON DOOR #(S):

102 103 115 136 143 163

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
<u>Y</u>				<u>H</u>	
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 03

FOR USE ON DOOR #(S):

108	109	111	113	114	116
124	125	126	127	128	129
131	133	137	139	141	158
160	162				

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HARDWARE GROUP NO. 04

FOR USE ON DOOR #(S):

146

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PANIC HARDWARE	CDSI-99-L-17	626	VON
2	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	RIM CYLINDER	63-34	626	SAR
1	EA	MORTISE CYLINDER	63-42 X COLLAR & CAM REQUIRED (KEYED INTO EXISTING SYSTEM)	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 05

FOR USE ON DOOR #(S):

110	112	135	138	142	144
145	147	153	159	161	

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ELEC CLASSROOM LOCK	CO-100-CY-70-KP-SPA-JSAR 4B BATTERY OPERATED	626	SCE
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 06

FOR USE ON DOOR #(S):

105	107	134	148A	149	150
151					

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ENTRANCE/OFFICE LOCK	ND50JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	COAT AND HAT HOOK	582	626	IVE

HARDWARE GROUP NO. 07

FOR USE ON DOOR #(S):

132

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ENTRANCE/OFFICE LOCK	ND50JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	OH STOP	100S	630	GLY
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	COAT AND HAT HOOK	582	626	IVE

HARDWARE GROUP NO. 08

FOR USE ON DOOR #(S):

120

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
2	EA	CONT. HINGE	112HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-3349A-EO 24 VDC	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-3349A-T-360T 24 VDC	626	VON
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	MORTISE CYLINDER	63-42 X COLLAR & CAM REQUIRED (KEYED INTO EXISTING SYSTEM)	626	SAR
2	EA	90 DEG OFFSET PULL	8190EZHD 12" O	630-316	IVE
2	EA	OH STOP	100S	630	GLY
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL R	LCN
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	RELAY/DOOR SEQUENCER	8310-845	689	LCN
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	7764	628	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
1		CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER			
1		PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS			
1		PROVIDE RISER DIAGRAMS			
1	EA	WEATHERSTRIP BY DOOR/FRAME MANUFACTURER			

OPERATION : DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO READER MOMENTARILY RETRACTS PANIC DEVICE LATCH AND MOMENTARILY ENABLES EXTERIOR ACTUATOR BUTTON. PUSHING ENABLED EXTERIOR ACTUATOR BUTTON SIGNALS AUTOMATIC OPERATOR TO MOMENTARILY OPEN DOOR. INTERIOR ACTUATOR ENABLED AT ALL TIMES. PUSHING THE INTERIOR ACTUATOR BUTTON MOMENTARILY RETRACTS PANIC DEVICE LATCH AND SIGNALS AUTOMATIC OPERATOR TO MOMENTARILY OPEN DOOR. PANIC DEVICE LATCHES ALSO CAPABLE OF BEING ELECTRONICALLY DOGGED DOWN (I.E. PUSH/PULL MODE) AS DESIGNATED BY ACCESS CONTROL SYSTEM SCHEDULE. EXIT DEVICES LATCH AND LOCK WITH ACTIVATION OF SECURITY SYSTEM. FREE EGRESS AT ALL TIMES.

HARDWARE GROUP NO. 09

FOR USE ON DOOR #(S):

121

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
<u>Y</u>				<u>H</u>	
2	EA	CONT. HINGE	112HD	628	IVE
2	EA	DUMMY PUSH BAR	350	626	VON
2	EA	90 DEG OFFSET PULL	8190EZHD 12" O	630-316	IVE
2	EA	OH STOP	100S	630	GLY
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL	LCN
				R	
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	RELAY/DOOR SEQUENCER	8310-845	689	LCN
2	EA	DOOR SWEEP	8192AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA		WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

OPERATION: DOORS NORMALLY CLOSED AND UNLOCKED. PUSHING EITHER ACTUATOR SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR IS UN-SECURE.

HARDWARE GROUP NO. 10

FOR USE ON DOOR #(S):

104A 123A

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	51003FP 12/24 VAC/VDC	689	VON
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.

HARDWARE GROUP NO. 11

FOR USE ON DOOR #(S):

104B 123B 148B 154B

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	51003FP 12/24 VAC/VDC	689	VON
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

*OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS
ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER
OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.*

HARDWARE GROUP NO. 12

FOR USE ON DOOR #(S):

152A 152B 154A

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PANIC HARDWARE	LD-99-L-NL-17	626	VON
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.

HARDWARE GROUP NO. 13

FOR USE ON DOOR #(S):

165

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	CLASSROOM LOCK	ND70JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 14

FOR USE ON DOOR #(S):

EXIST SIDE

ENTRANCE

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	MAGNETIC LOCK	M490P ATS/LED 12/24 VDC	628	SCE
1	EA	PUSH BUTTON	625RDEX DA 12/24 VDC	630	SCE
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	MOTION SENSOR	SCANII 12/24 VDC	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS FA900 120/240 VAC	LGR	SCE
1			HDWE SUPPLIER/GC TO VERIFY COMPATIBILITY WITH EXISTING OPENING FOR NEW HDWE		
1			BALANCE OF HARDWARE EXISTING		
1			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			MOUNTING PLATES AS REQUIRED TO MOUNT NEW HDWE		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

*OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS
ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER
OUTAGE OR FIRE EVENT DOOR REMAINS UNSECURE.*

HARDWARE GROUP NO. 15

FOR USE ON DOOR #(S):

EXIST
SOUTH
ENTRANCE

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	MAGNETIC LOCK	M492 12/24 VDC	628	SCE
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL R	LCN
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	PUSH BUTTON	625RDEX DA 12/24 VDC	630	SCE
2	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	MOTION SENSOR	SCANII 12/24 VDC	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS FA900 120/240 VAC	LGR	SCE
1		HDWE SUPPLIER/GC TO VERIFY COMPATIBILITY WITH EXISTING OPENING FOR NEW HDWE			
1		BALANCE OF HARDWARE EXISTING			
1		CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER			
1		MOUNTING PLATES AS REQUIRED TO MOUNT NEW HDWE			
1		PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS			
1		PROVIDE RISER DIAGRAMS			

OPERATION: DOORS NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO CARD READER MOMENTARILY RELEASES MAGNETIC LOCKS AND SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. DEPRESSING ACTUATOR MOMENTARILY RELEASES MAGNETIC LOCKS AND SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. INTERIOR ACTUATOR ENABLED AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS UNSECURE.

HARDWARE GROUP NO. 16

FOR USE ON DOOR #(S):

159A 166 169

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 17

FOR USE ON DOOR #(S):

167 168

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

End of Section

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SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

- 1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
 - b. Sliding doors.
 - c. Gates.
- 2. Electronic access control system components, including:
 - a. Biometric access control reader.
 - b. Electronic access control devices.
- 3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.
- 4. Lead-lining door hardware items required for radiation protection at door openings.
- 5. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

- B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

- 1. Windows
- 2. Cabinets (casework), including locks in cabinets
- 3. Signage
- 4. Toilet accessories
- 5. Overhead doors

- C. Related Sections:

- 1. Division 01 Section "Alternates" for alternates affecting this section.
- 2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.

3. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
4. Division 13 Section "Radiation Protection" for requirements for lead-lining for door hardware at openings indicated to receive radiation protection.
5. Division 26 sections for connections to electrical power system and for low-voltage wiring.
6. Division 28 sections for coordination with other components of electronic access control system.

1.3 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Key Systems and Nomenclature

C. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.4 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:

- a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.
 - f. Location of each hardware set cross-referenced to indications on Drawings.
 - g. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - h. Mounting locations for hardware.
 - i. Door and frame sizes and materials.
 - j. Name and phone number for local manufacturer's representative for each product.
 - k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
5. Key Schedule:
 - a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.

- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

- 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
- 2. Product Certificates for electrified door hardware, signed by manufacturer:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- 3. Certificates of Compliance:
 - a. Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
 - b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in "QUALITY ASSURANCE" article, herein.
 - c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in "QUALITY ASSURANCE" article, herein.
- 4. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, for door hardware on doors located in accessible routes.
- 5. Warranty: Special warranty specified in this Section.

D. Fire Door Assembly Inspection and Testing:

- 1. Submit a written report of the results of functional testing and inspection for fire door assemblies, in compliance with NFPA 80-2007 requirements. Written report shall be provided to the Owner to be made available to the Authority Having Jurisdiction (AHJ). Report shall include the door number for each fire door assembly, door location, door and frame material, fire rating, and summary of deficiencies.

E. Closeout Submittals:

- 1. Operations and Maintenance Data : Provide in accordance with Division 01 and include:

- a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
- b. Catalog pages for each product.
- c. Name, address, and phone number of local representative for each manufacturer.
- d. Parts list for each product.
- e. Final approved hardware schedule, edited to reflect conditions as-installed.
- f. Final keying schedule
- g. Copies of floor plans with keying nomenclature
- h. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
- i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

- A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.
 1. Where specific manufacturer's product is named and accompanied by "No Substitute," including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)
 - a. Where no additional products or manufacturers are listed in product category, requirements for "No Substitute" govern product selection.
 2. Where products indicate "acceptable manufacturers" or "acceptable manufacturers and products", provide product from specified manufacturers, subject to compliance with specified requirements and "Single Source Responsibility" requirements stated herein.
- B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 1. Warehousing Facilities: In Project's vicinity.
 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

- C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.
- D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - 1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
 - 2. Can provide installation and technical data to Architect and other related subcontractors.
 - 3. Can inspect and verify components are in working order upon completion of installation.
 - 4. Capable of producing wiring diagrams.
 - 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
- E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
 - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
 - 2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- G. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
- H. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- I. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.
- J. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbf (22.2 N).
 - 2. Maximum opening-force requirements:
 - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.

- b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - 3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
 - 4. Adjust door closer sweep periods so that, from open position of 70 degrees, door will take at least 3 seconds to move to 3 inches (75 mm) from latch, measured to leading edge of door.
- K. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01.
- 1. Attendees: Owner, Contractor, Architect, Installer and Supplier's Architectural Hardware Consultant.
 - 2. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.
 - c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.
- L. Coordination Conferences:
- 1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
 - a. Attendees: Door hardware supplier, door hardware installer, Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
 - 2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
 - a. Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, Owner, Architect and Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.6 .DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
 - 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
 - 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 - 2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
 - 1. Promptly replace products damaged during shipping.
 - 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 - 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- E. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
- F. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.
- F. Direct shipments not permitted, unless approved by Contractor.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Years from date of Substantial Completion, for durations indicated.
 - a. Closers:
 - 1) Mechanical: 10 years. Electrified: 2 years.
 - b. Automatic Operators: 1 year.
 - c. Exit Devices:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - d. Locksets:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - e. Continuous Hinges: Lifetime warranty
 - 2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.9 MAINTENANCE

- A. Maintenance Tools:
 - 1. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 - 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

- C. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.
- D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- E. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

A. Fasteners

- 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
- 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
- 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
- 4. Install hardware with fasteners provided by hardware manufacturer.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

- 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
- 2. Use materials which match materials of adjacent modified areas.
- 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 HINGES

A. Provide five-knuckle, ball bearing hinges.

- 1. Manufacturers and Products:

- a. Scheduled Manufacturer and Product: Ives 5BB series
- b. Acceptable Manufacturers and Products: Hager BB series, McKinney TA/T4A series, Stanley FBB Series

B. Requirements:

1. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
2. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
3. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
4. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
5. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
7. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
8. Doors 36 inches (914 mm) wide or less furnish hinges 4-1/2 inches (114 mm) high; doors greater than 36 inches (914 mm) wide furnish hinges 5 inches (127 mm) high, heavy weight or standard weight as specified.
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
10. Provide mortar guard for each electrified hinge specified, unless specified in hollow metal frame specification.
11. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.4 CONTINUOUS HINGES

A. Aluminum Geared

1. Manufacturers:

- a. Scheduled Manufacturer: Ives.
- b. Acceptable Manufacturers: Markar, Stanley.

2. Requirements:

- a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.25, Grade 2.
- b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum, with 0.25-inch (6 mm) diameter Teflon coated stainless steel hinge pin.
- c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
- d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
- e. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
- f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.
- g. Install hinges with fasteners supplied by manufacturer.
- h. Provide hinges with symmetrical hole pattern.

2.5 ELECTRIC POWER TRANSFER

A. Manufacturers:

- a. Scheduled Manufacturer: Von Duprin
- b. Acceptable Manufacturers: Falcon, ABH

B. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires sufficient to accommodate electric function of specified hardware.

C. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.6 FLUSH BOLTS

A. Manufacturers:

- 1. Scheduled Manufacturer: Ives
- 2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.7 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage ND Series
2. Acceptable Manufacturers and Products: Sargent 11 Series.

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1. Cylinders: Refer to “KEYING” article, herein.
2. Provide cylindrical locks with classroom security function with an inside indicator that provides clear direction for users to safely and quickly secure the room.
3. Provide locksets able to withstand 3100 inch pounds of torque applied to locked outside lever without gaining access per ANSI/BHMA A156.2 Abusive Locked Lever Torque Test and cycle tested to 3 million cycles per ANSI/BHMA A156.2 Cycle Test.
4. Provide levers with vandal resistant technology for use at heavy traffic or abusive applications. Levers feature internal lock components that prevent damage caused by excessive force from persons kicking, hitting or standing on lever to gain access.
5. Provide solid steel rotational stops to control excessive rotation of lever.
6. Provide completely refunctionable lockset that allows lock function to be changed to over twenty other common functions by swapping easily accessible parts.
7. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
8. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
9. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
10. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
11. Provide electrified options as scheduled in the hardware sets.
12. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.
 - a. Lever Design: Schlage Sparta.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.8 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage L9000 series
2. Acceptable Manufacturers and Products: Sargent 8200 series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1 Operational, Grade 1 Security, and manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
2. Indicators: Where specified, provide indicator window measuring a minimum 2 inch x 1/2 inch with 180 degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction 3-piece latchbolt. Provide deadbolt with full 1 inch (25 mm) throw, constructed of stainless steel.
4. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
5. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide a request to exit (RX) switch that is actuated with rotation of inside lever.
6. Provide motor based electrified locksets with electrified options as scheduled in the hardware sets and comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24V DC to allow for changes in the field without changing lock chassis.
 - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
 - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
 - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Request to Exit Switch (RX) –
 - 1) Modular Design – provide electrified locks capable of using, adding, or changing a modular RX switch without opening the lock case.
 - 2) Monitoring – where scheduled, provide a request to exit (RX) switch that detects rotation of the inside lever.
 - f. Connections – provide quick-connect Molex system standard.
 - g. UL Listed – 3 hour fire door
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: Schlage 17A.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.9 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Von Duprin 99/33 series
2. Acceptable Manufacturers and Products: Sargent 8800/8400 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit or Fire Exit Hardware. Cylinders: Refer to “KEYING” article, herein.
2. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
3. Touchpad: Extend minimum of one half of door width. Match exit device finish, stainless steel for US26, US26D, US28, US32, and US32D finishes; and for all other finishes, provide compatible finish to exit device. Provide compression springs in devices, latches, and outside trims or controls; tension springs also acceptable.
4. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
5. Provide exit devices with manufacturer’s approved strikes.
6. Provide exit devices cut to door width and height. Locate exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
7. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
8. Provide cylinder dogging at non-fire-rated exit devices, unless specified less dogging.
9. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion that is removed by use of a keyed cylinder, which is self-locking when re-installed.
10. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
 - a. Lever Style: Match lever style of locksets.
 - b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.
11. Concealed Vertical Cable Exit Devices: provide cable-actuated concealed vertical latch system in two-point for non-rated or fire rated wood doors up to a 90 minute rating and less bottom latch (LBL) configuration for non-rated or fire rated wood doors up to 20 minute rating. Vertical rods not permitted.
 - a. Cable: Stainless steel with abrasive resistant coating. Conduit and core wire ends snap into latch and center slides without use of tools.
 - b. Wood Door Prep: Maximum 1 inch x 1.1875 inch x 3.875 inches top latch pocket and 1 inch x 1.1875 inch x 5 inches bottom latch pocket which does not require the use of a metal wrap or edge for non-rated or fire rated wood doors up to a 45 minute rating.
 - c. Latchbolts and Blocking Cams: Manufactured from sintered metal low carbon copper- infiltrated steel, with molybdenum disulfide low friction coating.

- d. Top Latchbolt: Minimum 0.38 inch (10 mm) and greater than 90 degree engagement with strike to prevent door and frame separation under high static load.
 - e. Bottom Latchbolt: Minimum of 0.44 inch (11 mm) engagement with strike.
 - f. Product Cycle Life: 1,000,000 cycles.
 - g. Latch Operation: Top and bottom latch operate independently of each other. Top latch fully engages top strike even when bottom latch is compromised. Separate trigger mechanisms not permitted.
 - h. Latch release does not require separate trigger mechanism.
 - i. Cable and latching system characteristics:
 - 1) Installed independently of exit device installation, and capable of functioning on door prior to device and trim installation.
 - 2) Connected to exit device at single point in steel and aluminum doors, and two points for top and bottom latches in wood doors.
 - 3) Bottom latch height adjusted, from single point for steel and aluminum doors and two points for wood doors, after system is installed and connected to exit device, while door is hanging
 - 4) Bottom latch position altered up and down minimum of 2 inches (51 mm) in steel and aluminum doors without additional adjustment. Bottom latch deadlocks in every adjustment position in wood doors.
 - 5) Top and bottom latches in steel and aluminum doors and top latch in wood doors may be removed while door is hanging.
 - 6) Top latch mounting: double or single tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
12. Provide UL labeled fire exit hardware for fire rated openings.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.

2.10 ELECTRIC STRIKES

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product: Von Duprin 5100/6000 series
- 2. Acceptable Manufacturers and Products: HES 1006/9600 series

B. Requirements:

- 1. Provide electric strikes designed for use with type of locks shown at each opening.
- 2. Provide electric strikes UL Listed as burglary-resistant.
- 3. Where required, provide electric strikes UL Listed for fire doors and frames.
- 4. Provide fail-secure type electric strikes, unless specified otherwise.
- 5. Coordinate voltage and provide transformers and rectifiers for each strike as required.

2.11 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage or Von Duprin PS900 series
2. Acceptable Manufacturers and Products Sargent

B. Requirements:

1. Provide power supplies, recommended and approved by manufacturer of electrified locking component, for operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring power supply.
2. Provide appropriate quantity and size of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide appropriate option boards for power supplies necessary for proper operation of the electrified locking components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component used in the system.
4. Provide regulated and filtered 24 VDC power supply and UL class 2 listed.
5. Options:
 - a. Provide power supply, where specified, with internal capability of charging sealed backup batteries 24 VDC, in addition to operating DC load.
 - b. Provide sealed batteries for battery back-up at each power supply where specified.
 - c. Provide keyed power supply cabinet.
6. Provide power supply in an enclosure, complete, and requiring 120VAC to fused input.
7. Provide power supply with emergency release terminals, where specified, that allow release of all devices upon activation of fire alarm system complete with fire alarm input for initiating “no delay” exiting mode.

2.12 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Sargent
2. Acceptable Manufacturers: No substitutions

B. Requirements:

1. Provide cylinders/cores, from the same manufacturer of locksets, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. High Security: dual-locking cylinder with permanent core requiring, patented keyway.
 - b. Security: dual-locking cylinder with **interchangeable** core requiring restricted, patented keyway.

- c. Conventional cylinder with **interchangeable** core with open keyway.
- 3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent-protected.
- 4. Security Cylinders: Where indicated, provide cylinders/cores with “dual-locking mechanism” with interlocking finger pin(s) to check for patented features on keys.
- 5. Nickel silver bottom pins.
- 6. Temporary Construction Cylinder Keying.
 - a. Owner or Owner’s Representative will void operation of temporary construction keys.
- 7. Replaceable Construction Cores..
 - a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - 1) 12 construction change (day) keys.

2.13 KEYING

- A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- B. Requirements:
 - 1. Key per the following:
 - a. All Locks to be keyed into the owner existing Master Key System as directed by the owner.
 - 2. Provide keys with the following features.
 - a. Material: Solid nickel plated
 - 3. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication “Keying Systems and Nomenclature” for identification. Blind code marks shall not include actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
 - d. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
 - 4. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.
 - b. Permanent Control Keys: 3.
 - c. Master Keys: 6.
 - d. Unused balance of key blanks shall be furnished to Owner with the cut keys.

- e. Extra Keys:
 - 1) 6 Construction Keys

2.14 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer: Telkee
2. Acceptable Manufacturers: HPC, Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.15 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 4040XP series.
2. Acceptable Manufacturers and Products: Sargent 281 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 3/4 inch (19 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).

10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.16 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.17 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
 - a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.18 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers: Glynn-Johnson
2. Acceptable Manufacturers: Rixson, Sargent

B. Requirements:

1. Provide heavy duty concealed mounted overhead stop or holder as specified for exterior and interior vestibule single acting doors.
2. Provide heavy duty concealed mounted overhead stop or holder as specified for double acting doors.
3. Provide heavy or medium duty and concealed or surface mounted overhead stop or holder for interior doors as specified. Provide medium duty surface mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking wall, open against equipment, casework, sidelights, and where conditions do not allow wall stop or floor stop presents tripping hazard.
4. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.19 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.20 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International
2. Acceptable Manufacturers: Pemko, Reese

B. Requirements:

1. Provide thresholds, weatherstripping (including door sweeps, seals, astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:
 - a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
 - b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.21 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.22 MAGNETIC HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: LCN
2. Acceptable Manufacturers: Rixson, Sargent

B. Requirements:

1. Provide wall or floor mounted electromagnetic door release as specified with minimum of 25 pounds of holding force. Coordination projection of holder and armature with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Wire magnetic holders on fire-rated doors into the fire control panel for fail-safe operation.

2.23 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)

5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Existing Door and Frame Compatibility: Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Where on-site modification of doors and frames is required:
 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 2. Field modify and prepare existing door and frame for new hardware being installed.
 3. When modifications are exposed to view, use concealed fasteners, when possible.
 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 2. Custom Steel Doors and Frames: HMMA 831.
 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches (750 mm) of door height greater than 90 inches (2286 mm).
- I. Lock Cylinders: Install construction cores to secure building and areas during construction period.
1. Replace construction cores with permanent cores as indicated in keying section.
- J. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
1. Conduit, junction boxes and wire pulls.
 2. Connections to and from power supplies to electrified hardware.
 3. Connections to fire/smoke alarm system and smoke evacuation system.
 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 5. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.

- M. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
 - 1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.
- O. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- P. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- Q. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- S. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 FIELD QUALITY CONTROL

- A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 FIELD INSPECTIONS:

- A. Fire Door Assembly Inspection and Testing: Provide functional testing and inspection of fire door assemblies in accordance with NFPA 80-2007/2010. Inspections shall be performed by individuals certified by Intertek as a Fire Door Assembly Inspector, using reporting forms provided by the Door and Hardware Institute (DHI). Alternatively, inspections may be performed by individuals acceptable to the Architect, who have knowledge and understanding of the operating components of the applicable door type, and who have experience in preparing written reports of testing and inspection results.
 - 1. Schedule fire door assembly inspection within 90 days of Substantial Completion of the Project.
 - 2. Submit a signed, written final report as specified in Paragraph 1.4: Submittals.
 - 3. Contractor shall correct all deficiencies and schedule a reinspection of fire door assemblies which were noted as deficient on the inspection report.
 - 4. Inspector shall reinspect fire door assemblies after repairs are made.
 - 5. Additional reinspections which are required due to incomplete repairs will be performed by the inspector at the expense of the Contractor.

3.6 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.7 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.8 DEMONSTRATION

- A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

3.9 DOOR HARDWARE SCHEDULE

- A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

Hardware Sets:

103788 OPT0353057 Version 2

HARDWARE GROUP NO. 01

FOR USE ON DOOR #(S):

119 155 156 164

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PRIVACY LOCK	L9040 17A L583-363 L283-722	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 02

FOR USE ON DOOR #(S):

102 103 115 136 143 163

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 03

FOR USE ON DOOR #(S):

108	109	111	113	114	116
124	125	126	127	128	129
131	133	137	139	141	158
160	162				

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HARDWARE GROUP NO. 04

FOR USE ON DOOR #(S):

146

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PANIC HARDWARE	CDSI-99-L-17	626	VON
2	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	RIM CYLINDER	63-34	626	SAR
1	EA	MORTISE CYLINDER	63-42 X COLLAR & CAM REQUIRED (KEYED INTO EXISTING SYSTEM)	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 05

FOR USE ON DOOR #(S):

110	112	135	138	142	144
145	147	153	159	161	

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ELEC CLASSROOM LOCK	CO-100-CY-70-KP-SPA-JSAR 4B BATTERY OPERATED	626	SCE
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 06

FOR USE ON DOOR #(S):

105	107	134	148A	149	150
151					

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ENTRANCE/OFFICE LOCK	ND50JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	COAT AND HAT HOOK	582	626	IVE

HARDWARE GROUP NO. 07

FOR USE ON DOOR #(S):

132

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	ENTRANCE/OFFICE LOCK	ND50JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	OH STOP	100S	630	GLY
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	COAT AND HAT HOOK	582	626	IVE

HARDWARE GROUP NO. 08

FOR USE ON DOOR #(S):

120

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
2	EA	CONT. HINGE	112HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-3349A-EO 24 VDC	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-3349A-T-360T 24 VDC	626	VON
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	MORTISE CYLINDER	63-42 X COLLAR & CAM REQUIRED (KEYED INTO EXISTING SYSTEM)	626	SAR
2	EA	90 DEG OFFSET PULL	8190EZHD 12" O	630-316	IVE
2	EA	OH STOP	100S	630	GLY
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL R	LCN
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	RELAY/DOOR SEQUENCER	8310-845	689	LCN
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	7764	628	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
1		CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER			
1		PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS			
1		PROVIDE RISER DIAGRAMS			
1	EA	WEATHERSTRIP BY DOOR/FRAME MANUFACTURER			

OPERATION : DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO READER MOMENTARILY RETRACTS PANIC DEVICE LATCH AND MOMENTARILY ENABLES EXTERIOR ACTUATOR BUTTON. PUSHING ENABLED EXTERIOR ACTUATOR BUTTON SIGNALS AUTOMATIC OPERATOR TO MOMENTARILY OPEN DOOR. INTERIOR ACTUATOR ENABLED AT ALL TIMES. PUSHING THE INTERIOR ACTUATOR BUTTON MOMENTARILY RETRACTS PANIC DEVICE LATCH AND SIGNALS AUTOMATIC OPERATOR TO MOMENTARILY OPEN DOOR. PANIC DEVICE LATCHES ALSO CAPABLE OF BEING ELECTRONICALLY DOGGED DOWN (I.E. PUSH/PULL MODE) AS DESIGNATED BY ACCESS CONTROL SYSTEM SCHEDULE. EXIT DEVICES LATCH AND LOCK WITH ACTIVATION OF SECURITY SYSTEM. FREE EGRESS AT ALL TIMES.

HARDWARE GROUP NO. 09

FOR USE ON DOOR #(S):

121

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u>	<u>MFR</u>
<u>Y</u>				<u>H</u>	
2	EA	CONT. HINGE	112HD	628	IVE
2	EA	DUMMY PUSH BAR	350	626	VON
2	EA	90 DEG OFFSET PULL	8190EZHD 12" O	630-316	IVE
2	EA	OH STOP	100S	630	GLY
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL	LCN
				R	
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	RELAY/DOOR SEQUENCER	8310-845	689	LCN
2	EA	DOOR SWEEP	8192AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA		WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

OPERATION: DOORS NORMALLY CLOSED AND UNLOCKED. PUSHING EITHER ACTUATOR SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR IS UN-SECURE.

HARDWARE GROUP NO. 10

FOR USE ON DOOR #(S):

104A 123A

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	51003FP 12/24 VAC/VDC	689	VON
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.

HARDWARE GROUP NO. 11

FOR USE ON DOOR #(S):

104B 123B 148B 154B

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	51003FP 12/24 VAC/VDC	689	VON
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.

HARDWARE GROUP NO. 12

FOR USE ON DOOR #(S):

152A 152B 154A

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PANIC HARDWARE	LD-99-L-NL-17	626	VON
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	POWER SUPPLY	PS902 BBK 900-2RS 120/240 VAC	LGR	SCE
			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS SECURE.

HARDWARE GROUP NO. 13

FOR USE ON DOOR #(S):

165

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	CLASSROOM LOCK	ND70JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 14

FOR USE ON DOOR #(S):

EXIST SIDE

ENTRANCE

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	MAGNETIC LOCK	M490P ATS/LED 12/24 VDC	628	SCE
1	EA	PUSH BUTTON	625RDEX DA 12/24 VDC	630	SCE
1	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	MOTION SENSOR	SCANII 12/24 VDC	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS FA900 120/240 VAC	LGR	SCE
1			HDWE SUPPLIER/GC TO VERIFY COMPATIBILITY WITH EXISTING OPENING FOR NEW HDWE		
1			BALANCE OF HARDWARE EXISTING		
1			CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER		
1			MOUNTING PLATES AS REQUIRED TO MOUNT NEW HDWE		
1			PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS		
1			PROVIDE RISER DIAGRAMS		

*OPERATION: WHEN DOOR IS CLOSED AND LOCKED. VALID CREDENTIAL UNLOCKS
ELECTRIC LOCK ALLOWING ENTRY. FREE EGRESS AT ALL TIMES. IN-CASE OF POWER
OUTAGE OR FIRE EVENT DOOR REMAINS UNSECURE.*

HARDWARE GROUP NO. 15

FOR USE ON DOOR #(S):

EXIST
SOUTH
ENTRANCE

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
1	EA	INTERFACE BOX	JB7 AS REQUIRED		VON
1	EA	MAGNETIC LOCK	M492 12/24 VDC	628	SCE
1	EA	SURF. AUTO OPERATOR	9550 SERIES REG/STD	ANCL R	LCN
2	EA	ACTUATOR PKG	8310-3822TW	630	LCN
1	EA	PUSH BUTTON	625RDEX DA 12/24 VDC	630	SCE
2	EA	DOOR CONTACT	679-05WD/HM AS REQUIRED	BLK	SCE
1	EA	MOTION SENSOR	SCANII 12/24 VDC	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS FA900 120/240 VAC	LGR	SCE
1		HDWE SUPPLIER/GC TO VERIFY COMPATIBILITY WITH EXISTING OPENING FOR NEW HDWE			
1		BALANCE OF HARDWARE EXISTING			
1		CREDENTIAL READER FURNISHED BY ACCESS CONTROL PROVIDER			
1		MOUNTING PLATES AS REQUIRED TO MOUNT NEW HDWE			
1		PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS			
1		PROVIDE RISER DIAGRAMS			

OPERATION: DOORS NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO CARD READER MOMENTARILY RELEASES MAGNETIC LOCKS AND SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. DEPRESSING ACTUATOR MOMENTARILY RELEASES MAGNETIC LOCKS AND SIGNALS AUTOMATIC OPERATOR TO OPEN DOORS. INTERIOR ACTUATOR ENABLED AT ALL TIMES. IN-CASE OF POWER OUTAGE OR FIRE EVENT DOOR REMAINS UNSECURE.

HARDWARE GROUP NO. 16

FOR USE ON DOOR #(S):

159A 166 169

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	STOREROOM LOCK	ND80JSARD SPA	626	SCH
1	EA	PERM CORE	6300 KEYED INTO EXISTING SYSTEM	626	SAR
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

HARDWARE GROUP NO. 17

FOR USE ON DOOR #(S):

167 168

PROVIDE EACH OPENING WITH THE FOLLOWING:

<u>QT</u> <u>Y</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINIS</u> <u>H</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQUIRED)	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	SR64/65 OR 488 SEALS AS REQUIRED	BK	ZER

End of Section

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SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, and coordinated with each other, using input from installers of the items involved.
- B. Product test reports.
- C. Research reports.
- D. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

- 1. Flame-Spread Index: Class A according to ASTM E1264.
 - 2. Smoke-Developed Index: 50 or less.

2.2 MINERAL FIBER ACOUSTICAL PANELS

- A. Basis of Design Product:
 - 1. Armstrong Ceiling & Wall Solutions.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong Ceiling & Wall Solutions.
 - 2. Rockfon; ROCKWOOL International.
 - 3. USG Corporation.
- C. Acoustical Panel Standard: Manufacturer's standard panels according to ASTM E1264 Type III.
- D. Classification: Painted Mineral Fiber.
- E. Color: White.
- F. Light Reflectance (LR): 0.86.
- G. Ceiling Attenuation Class (CAC): ASTM C1414.
- H. Noise Reduction Coefficient (NRC): 0.90. Determined in accordance with ASTM E1264.
- I. Edge/Joint Detail: Reveal Edge.
- J. Thickness: 3/4 inch.
- K. Modular Size: 24 by 24 inches.
- L. Surface Pattern: Fine Texture

2.3 METAL SUSPENSION SYSTEM, GENERAL

- A. Basis of Design Product:
 - 1. Armstrong Ceiling & Wall Solutions.
 - a. Prelude XL 15/16" Exposed Tee System.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. [Armstrong Ceiling & Wall Solutions](#).
2. [Rockfon; ROCKWOOL International](#).
3. [USG Corporation](#).

- C. Metal Suspension-System Standard: Manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M.
- D. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
1. Structural Classification: Intermediate-duty system.
 2. End Condition of Cross Runners: butt-edge type.
 3. Face Design: Flat, flush.
 4. Cap Material: Cold-rolled steel or aluminum.
 5. Cap Finish: Painted white.
- E. Narrow-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 9/16-inch-wide metal caps on flanges.
1. Structural Classification: Intermediate-duty system.
 2. End Condition of Cross Runners: butt-edge type.
 3. Face Design: Flat, flush.
 4. Cap Material: Cold-rolled steel or aluminum.
 5. Cap Finish: Painted white.

2.4 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- B. Hold-Down Clips: Manufacturer's standard hold-down.
- C. Impact Clips: Manufacturer's standard impact-clip system designed to absorb impact forces against acoustical panels.
- D. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical panels in place during a seismic event.

2.5 METAL EDGE MOLDINGS AND TRIM

- A. [Manufacturers](#): Subject to compliance with requirements, provide products by one of the following:
1. Armstrong Ceiling & Wall Solutions.

- 2. [Rockfon; ROCKWOOL International.](#)
- 3. [USG Corporation.](#)

- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated.
- B. Layout openings for penetrations centered on the penetrating items.

3.2 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C636/C636M and manufacturer's written instructions.
- B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Do not use exposed fasteners, including pop rivets, on moldings and trim.
 - 2. Arrange directionally patterned acoustical panels as follows:
 - a. As indicated on reflected ceiling plans.

END OF SECTION 095113

SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Illuminated, fabricated channel dimensional characters.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign.
 - 4. Show locations of electrical service connections.
 - 5. Include diagrams for power, signal, and control wiring.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Delegated-Design Submittal: For signs indicated in "Performance Requirements" Article.
 - 1. Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design sign structure and anchorage of dimensional character sign type(s) according to structural performance requirements.
- B. Structural Performance: Signs and supporting elements shall withstand the effects of gravity and other loads within limits and under conditions indicated.
- C. Thermal Movements: For exterior fabricated channel dimensional characters, allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 DIMENSIONAL CHARACTERS

- A. Fabricated Channel Characters: Metal face and side returns, formed free from warp and distortion; with uniform faces, sharp corners, and precisely formed lines and profiles; internally braced for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners; and as follows.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. A.R.K. Ramos.
 - b. ASI Sign Systems, Inc.
 - c. Gemini Incorporated.
 - d. JD Signs, Inc.
 - 2. Illuminated Characters: Halo Lit character construction with LED lighting, including transformers, insulators, and other accessories for operability, with provision for servicing and concealing connections to building electrical system. Use tight or sealed joint construction to prevent unintentional light leakage. Space lamps apart from each other and away from character surfaces as needed to illuminate evenly.
 - a. Power: As indicated on electrical Drawings.
 - 1) Provide continuous raceway.
 - 3. Character Material: Sheet or plate aluminum.
 - 4. Character Height: As indicated on Drawings.
 - 5. Character Depth: As indicated on Drawings.

6. Finishes:
 - a. Integral Aluminum Finish: Anodized color as selected by Architect from full range of industry colors and color densities.
 - b. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard, in color as selected by Architect from manufacturer's full range.
7. Mounting: Projected studs.
 - a. Hold characters at manufacturer's recommended distance from wall surface.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:
 1. Use concealed fasteners and anchors unless indicated to be exposed.
 2. For exterior exposure, furnish nonferrous-metal stainless-steel or hot-dip galvanized devices unless otherwise indicated.
 3. Exposed Metal-Fastener Components, General:
 - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.
 4. Sign Mounting Fasteners:
 - a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
- B. Adhesive: As recommended by sign manufacturer.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 1. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 2. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
 3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
 4. Internally brace dimensional characters for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.

5. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
 - b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
 2. Back Bar and Brackets: Remove loose debris from substrate surface and install backbar or bracket supports in position, so that signage is correctly located and aligned.
- C. Remove temporary protective coverings and strippable films as signs are installed.

END OF SECTION 101419

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Room-identification signs.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For panel signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.

C. Samples: For each exposed product and for each color and texture specified.

D. Sign Schedule: As indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL SIGNS, GENERAL

- A. Regional Materials: Panel signs shall be manufactured within 500 miles of Project site.

2.2 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: For exterior signs, allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities for signs.

2.3 SIGNS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Ace Sign Systems, Inc.
 - 2. Advance Corporation; Braille-Tac Division.
 - 3. Allen Industries, Inc.
 - 4. Allen Markings International.
 - 5. APCO Graphics, Inc.
 - 6. ASE, Inc.
 - 7. ASI Sign Systems, Inc.
 - 8. Best Sign Systems Inc.
 - 9. Bunting Graphics, Inc.
 - 10. Clarke Systems.
 - 11. Diskey Sign Company.
 - 12. Fossil Industries, Inc.
 - 13. InPro Corporation.
 - 14. Mohawk Sign Systems.
 - 15. Nelson-Harkins Industries.
 - 16. Poblocki Sign Company, LLC.
 - 17. Seton Identification Products.
 - 18. Supersine Company (The); Division of Stamp-Rite, Inc.
 - 19. Vista System.
 - 20. Vomar Products, Inc.
 - 21. Architect approved equivalent.
- B. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Basis-of-Design Product: Best Sign Systems, Premium Interior Lucent.
2. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to phenolic backing sheet to produce composite sheet.
 - a. Composite-Sheet Thickness: 0.25 inch.
 - b. Color(s): As selected by Architect from manufacturer's full range.
3. Sign-Panel Perimeter: Finish edges smooth.
 - a. Edge Condition: Bullnosed.
 - b. Corner Condition in Elevation: Radiused.
4. Mounting: with two-face tape.

2.4 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D 4802, Type UVF (UV filtering).
- B. Polycarbonate Sheet: Coated, mar-resistant, UV-stabilized polycarbonate, with coating on both sides.
- C. Vinyl Film: UV-resistant vinyl film of nominal thickness indicated, with pressure-sensitive, permanent adhesive on back; die cut to form characters or images as indicated and suitable for exterior applications.

2.5 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
- B. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.6 FABRICATION

- A. Surface-Engraved Graphics: Machine engrave characters and other graphic devices into panel surface indicated to produce precisely formed copy, incised to uniform depth.
 1. Engraved Opaque Acrylic Sheet: Fill engraved graphics with manufacturer's standard enamel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
 - 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Mounting Methods:
 - 1. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position and push to engage tape adhesive.
- C. Remove temporary protective coverings and strippable films at time of Substantial Completion.

END OF SECTION 101423

SECTION 104413 - FIRE EXTINGUISHER CABINETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes fire protection cabinets for fire extinguishers.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For fire protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Maintenance data.

1.3 QUALITY ASSURANCE

- A. Coordinate size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- B. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
 - 1. Sheet: ASTM B 209.
 - 2. Extruded Shapes: ASTM B 221.

2.2 FIRE PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.

1. Basis-of-Design Product: Subject to compliance with requirements provide J.L. Industries, Inc, a division of Activar Construction Products Group; "Ambassador Series" or comparable product by one of the following: :
 - a. Fire End & Croker Corporation.
 - b. J. L. Industries, Inc., a division of Activar Construction Products Group.
 - c. Kidde Residential and Commercial Division, Subsidiary of Kidde plc.
 - d. Larsen's Manufacturing Company.
 - e. Architect approved equivalent.
- B. Cabinet Construction: Nonrated, 1-hour fire rated, 2-hour fire rated. Provide rated cabinets in same rated walls.
 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.0428-inch-thick, cold-rolled steel sheet lined with minimum 5/8-inch-thick, fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Steel sheet.
- D. Semirecessed Cabinet: Cabinet box partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semirecessed cabinet installation.
 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- E. Cabinet Trim Material: Steel sheet.
- F. Door Material: Steel sheet.
- G. Door Style: Flush opaque panel, frameless, with no exposed hinges.
- H. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
- I. Accessories:
 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 2. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
 - a. Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Red.

4) Orientation: Vertical.

J. Finishes:

1. Manufacturer's standard baked-enamel paint for the following:
 - a. Exterior of cabinet, door, and trim, except for those surfaces indicated to receive another finish.
 - b. Interior of cabinet and door.

2.3 FABRICATION

- A. Fire Protection Cabinets: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Miter and weld joints and grind smooth.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed and prepare recesses as required by type and size of cabinet and trim style.
- B. Install fire protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- C. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.
- D. Identification: Apply vinyl lettering at locations indicated.
- E. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- F. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413

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SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
- C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each mounting bracket indicated.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Amerex Corporation.
 - b. Ansul Incorporated; Tyco International Ltd.
 - c. Badger Fire Protection; a Kidde company.
 - d. Buckeye Fire Equipment Company.
 - e. Fire End & Croker Corporation.
 - f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
 - g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
 - h. Larsen's Manufacturing Company.
 - i. Moon-American.
 - j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
 - k. Potter Roemer LLC.
 - l. Pyro-Chem; Tyco Safety Products.
 - m. Architect approved equivalent.
 - 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Clean-Agent Type in Steel Container: UL-rated 1-A:10-B:C, 10-lb nominal capacity, with HFC blend agent and inert material in enameled-steel container; with pressure-indicating gage.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
 - 1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

SECTION 123213 – MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad casework.
2. Casework hardware and accessories.

1.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- ##### A. Product Data: For each type of product.
- ##### B. Shop Drawings: For wood-veneer-faced casework.
- ##### C. Samples: For casework and hardware finishes.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Qualification Data: AWI Quality Certification Program.
- ##### B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

- ##### A. Quality Standard Compliance Certificates: AWI's Quality Certification Program certificates.

1.6 QUALITY ASSURANCE

- ##### A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.7 WARRANTY

- ##### A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Wilsonart LLC.
 - c. CIF Lab Solutions LP.
 - d. ICIscientific.
 - e. Kewaunee Scientific Corporation.
 - f. TMI Systems Corporation.

2.2 GENERAL REQUIREMENTS FOR CASEWORK

- A. Quality Standard: Unless otherwise indicated, comply with the AWI/AWMAC/WI's "Architectural Woodwork Standards" for grades of casework indicated for construction, finishes, installation, and other requirements.
 1. Grade: Custom.
 2. Provide labels and certificates from AWI certification program indicating that casework complies with requirements of grades specified.
- B. Product Designations:
 1. Manufacturer Reference: Drawings indicate sizes, configurations, and finish materials of manufactured wood-veneer-faced casework by referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes and door and drawer configurations, of same finish materials, and complying with the Specifications may be considered. See Section 016000 "Product Requirements."
 2. AWI/AWMAC/WI Reference: Drawings indicate configurations of manufactured wood-veneer-faced casework by referencing designations of Casework Design Series numbering system in the Appendix of the AWI/AWMAC/WI's "Architectural Woodwork Standards."

2.3 PLASTIC-LAMINATED-FACED CASEWORK

- A. Design: Frameless cabinet construction with the following door and drawer-front style:
 1. Flush overlay.
- B. Grain Direction:
 1. Doors: Vertical with continuous vertical matching.
 2. Drawer Fronts: Vertical with continuous vertical matching.

3. Face Frame Members: Lengthwise.
4. End Panels: Vertical.
5. Bottoms and Tops of Units: Side to side.
6. Knee Space Panels: Vertical.
7. Aprons: Horizontal.

C. Exposed Materials:

1. Plastic-Laminate Grade: VGS.
 - a. Colors and Patterns: As selected by Architect from manufacturer's full range.
2. Edgebanding: PVC.
 - a. PVC Edgebanding Color: As selected by Architect from casework manufacturer's full range.

D. Semiexposed Materials:

1. Plastic Laminate: Grade CLS unless otherwise indicated. Provide plastic laminate for semiexposed surfaces unless otherwise indicated.
 - a. Colors and Patterns: As selected by Architect from manufacturer's full range.
 - b. Provide plastic laminate of same grade as exposed surfaces for interior faces of doors and drawer fronts and other locations where opposite side of component is exposed.
2. Hardboard: Use only for cabinet backs where exterior side of back is not exposed.

E. Concealed Materials:

1. Solid Wood: With no defects affecting strength or utility.
2. Plywood: Hardwood plywood. Provide backs of same species as faces.
3. Plastic Laminate: Grade BKL.
4. Particleboard.
5. MDF.
6. Hardboard.

2.4 MATERIALS

- A. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.
- B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated.
- C. Softwood Plywood: DOC PS 1.
- D. Particleboard: ANSI A208.1, Grade M-2.
- E. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130.
- F. Hardboard: ANSI A135.4, Class 1 tempered.

- G. PVC Edgebanding for Wood: Rigid PVC extrusions, through color with satin finish, 3.0 mm thick at doors and drawer fronts, 1.0 mm thick elsewhere.
- H. Thermally Fused Laminate (TFL) Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.
 - 1. Edgebanding for Thermally Fused Laminate (TFL) Panels: PVC or polyester edgebanding matching thermally fused laminate panels.
- I. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3.
 - 1. Manufacturers: Basis-of-Design: Formica Corporation. Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Nevamar; a Panolam Industries International, Inc. brand
 - c. Pionite, a Panolam Industries International, Inc. brand.

2.5 FINISH

- A. Stain: Provide uniform color and to match approved Samples.
- B. Finish: Manufacturer's standard, baked, clear finish consisting of a thermosetting catalyzed sealer and a thermosetting catalyzed conversion varnish.

2.6 CASEWORK HARDWARE AND ACCESSORIES

- A. Hardware, General: Unless otherwise indicated, provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware.
 - 1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard except where hardware is through-bolted from back side.
- B. Butt Hinges: Stainless steel, semiconcealed, five-knuckle hinges complying with ANSI/BHMA A156.9, Grade 1, with antifriction bearings and rounded tips.
- C. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, Type B01602.
- D. Wire Pulls: Solid stainless steel wire pulls, fastened from back with two screws.
 - 1. For sliding doors, provide recessed stainless steel flush pulls.
- E. Semirecessed Pulls: Plastic. For sliding doors, provide recessed plastic flush-pulls.
- F. Door Catches: Zinc-plated,.
- G. Door and Drawer Bumpers: Self-adhering, clear silicone rubber.

- H. Drawer Slides: Manufacturer's standard; complying with ANSI/BHMA A156.9.
- I. Drawer and Hinged-Door Locks: Cylindrical (cam) type, five-pin tumbler, brass with chrome-plated finish, and complying with ANSI/BHMA A156.11, Grade 1.
 - 1. Provide a minimum of two keys per lock and six master keys.
 - 2. Provide locks where indicated.
 - a. Master key for up to 500 key changes.
- J. Sliding-Door Hardware Sets: Manufacturer's standard, to suit type and size of sliding-door unit.
- K. Adjustable Shelf Supports:
 - 1. Pin-type, two-pin-locking plastic shelf rests complying with ANSI/BHMA A156.9, Type B04013.
 - 2. Mortise-type, zinc-plated steel standards and shelf rests complying with ANSI/BHMA A156.9, Type B04071 and Type B04091.

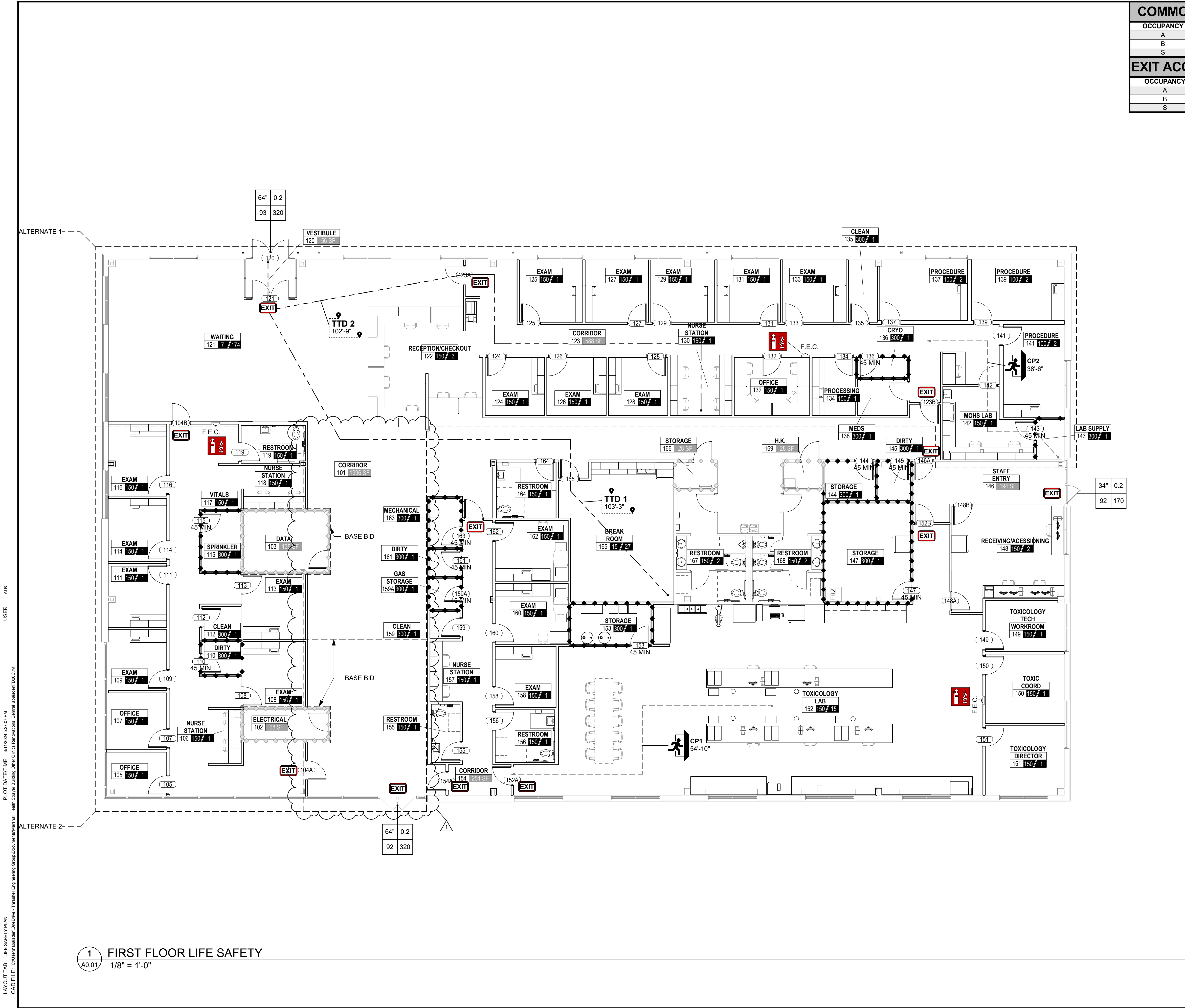
PART 3 - EXECUTION

3.1 INSTALLATION

- A. Grade: Install casework to comply with same quality standard grade as item to be installed.
- B. Install casework level, plumb, and true in line; shim as required using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- C. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plane. Align similar adjoining doors and drawers to a tolerance of 1/16 inch. Bolt adjacent cabinets together with joints flush, tight, and uniform.
- D. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten cabinets to hanging strips, masonry, framing, wood blocking, or reinforcements in walls and partitions. Align similar adjoining doors to a tolerance of 1/16 inch.
- E. Fasten casework to adjacent units and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWI/AWMAC/WT's "Architectural Woodwork Standards."
- F. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- G. Adjust operating hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

- H. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

END OF SECTION 123213



COMMON PATH OF EGRESS TRAVEL (IBC 1006.2.1)

OCCUPANCY	SPRINKLERED	MAX. DISTANCE
A	YES	75' - 0"
B	YES	100' - 0"
S	YES	100' - 0"

EXIT ACCESS TRAVEL DISTANCE (IBC TABLE 1017.2)

OCCUPANCY	SPRINKLERED	MAX. DISTANCE
A	YES	250' - 0"
B	YES	300' - 0"
S	YES	400' - 0"

COMMON PATH OF TRAVEL (CP)

MARK	LENGTH
CP1	54'-10"
CP2	38'-6"

TOTAL TRAVEL DISTANCE (TTD)

MARK	LENGTH
TTD1	103'-3"
TTD2	102'-9"

GENERAL LIFE SAFETY NOTES:

1. THE BUILDING SHALL BE PROTECTED WITH NEW AUTOMATIC SPRINKLER AND FIRE ALARM SYSTEMS. REFER TO THE FIRE PROTECTION DRAWINGS (FP-SERIES) FOR ADDITIONAL INFORMATION.
2. WHERE FIRE RATED PARTITIONS INTERSECT WITH LESSER RATED PARTITIONS OR NON-RATED PARTITIONS, THE HIGHER RATED PARTITION SHALL CONTINUE THROUGH THE INTERSECTION TO MAINTAIN THE HIGHER RATING.
3. FIRE EXTINGUISHERS SHALL BE PROVIDED AND LOCATED IN ACCORDANCE WITH NFPA 10. THE MAXIMUM TRAVEL DISTANCE TO THE NEAREST FIRE EXTINGUISHER FROM ANY POINT IN THE BUILDING SHALL NOT EXCEED 75 FEET.
4. REFER TO THE REFLECTED CEILING PLANS FOR EXIT SIGN LOCATIONS.

PROJECT INFORMATION:

PROJECT DESCRIPTION: RENOVATION TO EXISTING HIGHER EDUCATION FACILITY INTO LABORATORY AND OUTPATIENT HEALTH CLINIC.

TOTAL OCCUPANCY AREA: 14,399 SQ. FT.

SPRINKLER SYSTEM: YES

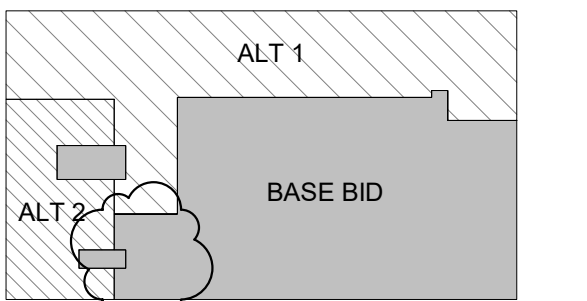
FIRE ALARM SYSTEM: YES

BUILDING OCCUPANCY TYPE: BUSINESS

BUILDING OCCUPANT LOAD: 150/SF = 96 TOTAL OCCUPANTS

LIFE SAFETY PLAN LEGEND

- NTS
- EXISTING 1 HOUR FIRE RATING
 - 1 HOUR FIRE RATING
 - 2 HOUR FIRE RATING
 - CP1 10'-0" COMMON PATH OF TRAVEL
 - TTD 1 10'-0" TRAVEL DISTANCE
 - FIRE EXTINGUISHER - CABINET
 - FIRE EXTINGUISHER - WALL MOUNT
 - EXIT EXIT SIGN LOCATIONS
 - 101 1hr FIRE RATED DOOR TAG
 - 34" 0.2 CLEAR WIDTH OF DOOR INCHES
 - 25 170 IBC CAPACITY FACTOR
 - ALLOWABLE OCCUPANT LOAD
 - ACTUAL OCCUPANT LOAD



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600 WHITE OAKS BLVD.
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F (304) 624-7831

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NO.	BY	DATE	DESCRIPTION
1	ALB	03/22/24	ADDENDUM 1

**MARSHALL HEALTH FORMER
STRAYER BUILDING RENOVATIONS**

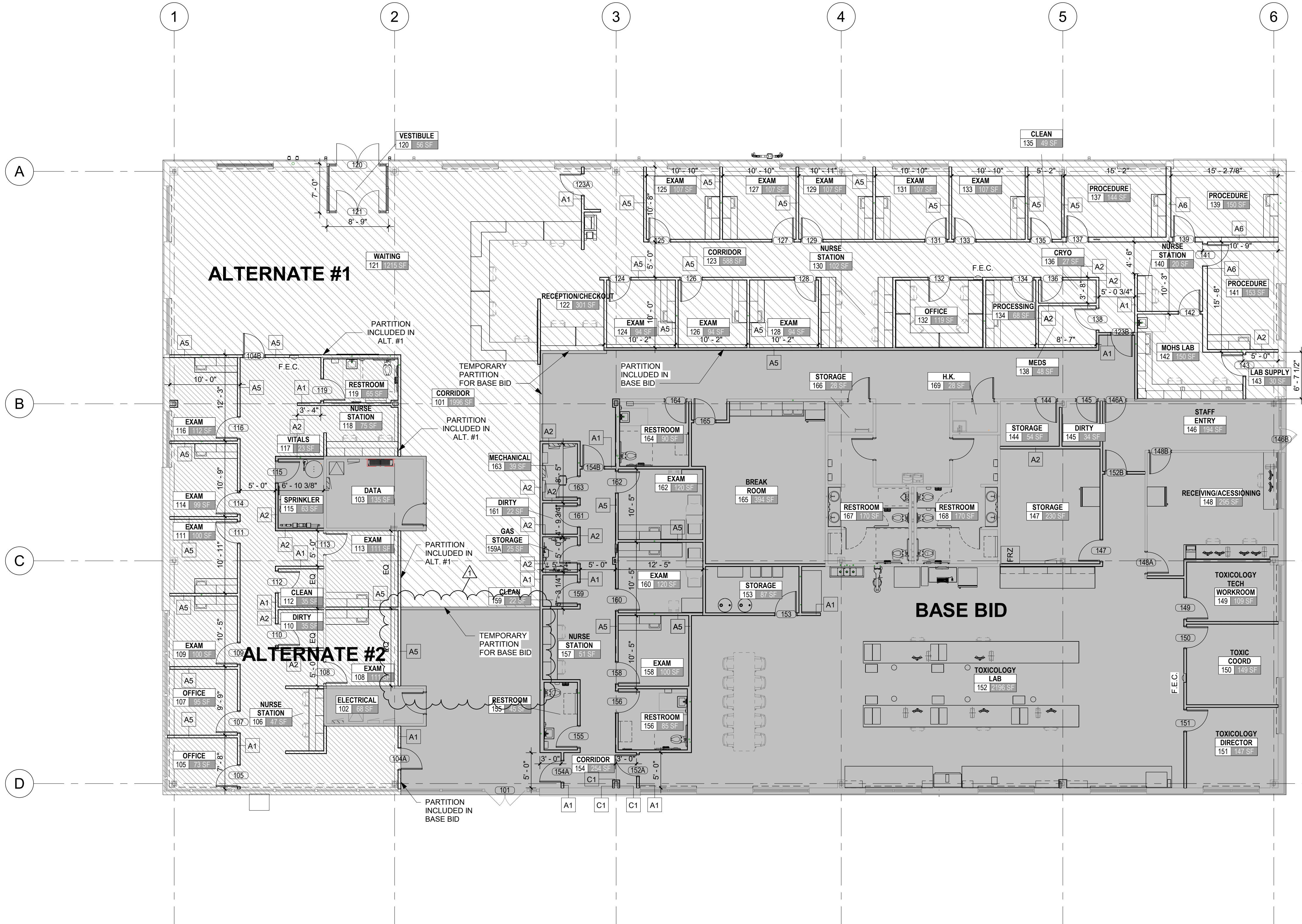
MARSHALL HEALTH
SCOTT DEPOT, WV
FEBRUARY 22, 2024
CONSTRUCTION DOCUMENTS

DRAWN: ALB DATE: 02/22/24
CHECKED: CCA DATE: 02/22/24
PROJECT No. T60-11110

LIFE SAFETY PLAN

SHEET No.

A0.01



1 BIDDING PLAN
A0.02 1/8" = 1'-0"

BIDDING PLAN GENERAL NOTES:

- ALL INTERIOR DEMOLITION SHALL BE INCLUDED IN THE BASE BID.
- BASE BID, ALTERNATE #1, AND ALTERNATE #2 SHALL INCLUDE BUILDING SYSTEMS SCOPE AS DEFINED IN MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DOCUMENTS. SEE DOCUMENTS FOR ADDITIONAL DETAILS.
- BASE BID SHALL INCLUDE A BUILDING GENERATOR. SEE CIVIL AND ELECTRICAL SHEETS FOR ADDITIONAL DETAILS.
- BASE BID SHALL INCLUDE BUILDING SPRINKLER SYSTEM. SEE PLUMBING AND FIRE PROTECTION SHEETS.
- ALTERNATE #1 SHALL INCLUDE ALL NEW SIDEWALK SITE WORK AND NEW EXTERIOR DOOR 120. SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.

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NO.	BY	DATE	DESCRIPTION
1	ALB	03/12/24	ADDENDUM 1

**MARSHALL HEALTH FORMER
STRAYER BUILDING RENOVATIONS**
MARSHALL HEALTH
SCOTT DEPOT, WV
FEBRUARY 22, 2024
CONSTRUCTION DOCUMENTS

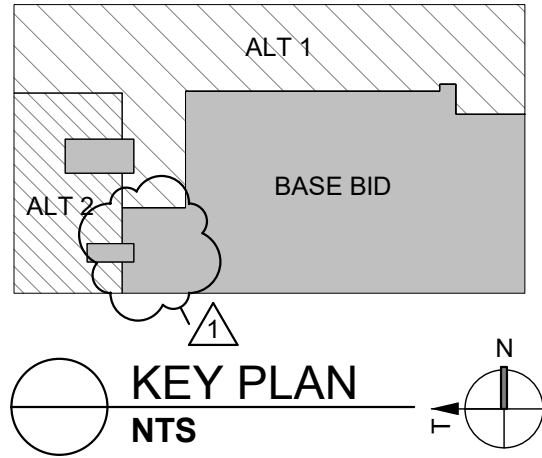
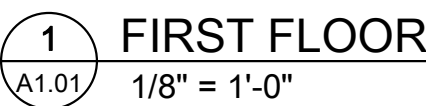
DRAWN: ALB DATE: 02/22/24
CHECKED: CCA DATE: 02/22/24
PROJECT No.
T60-11110

BIDDING PLAN

SHEET No.

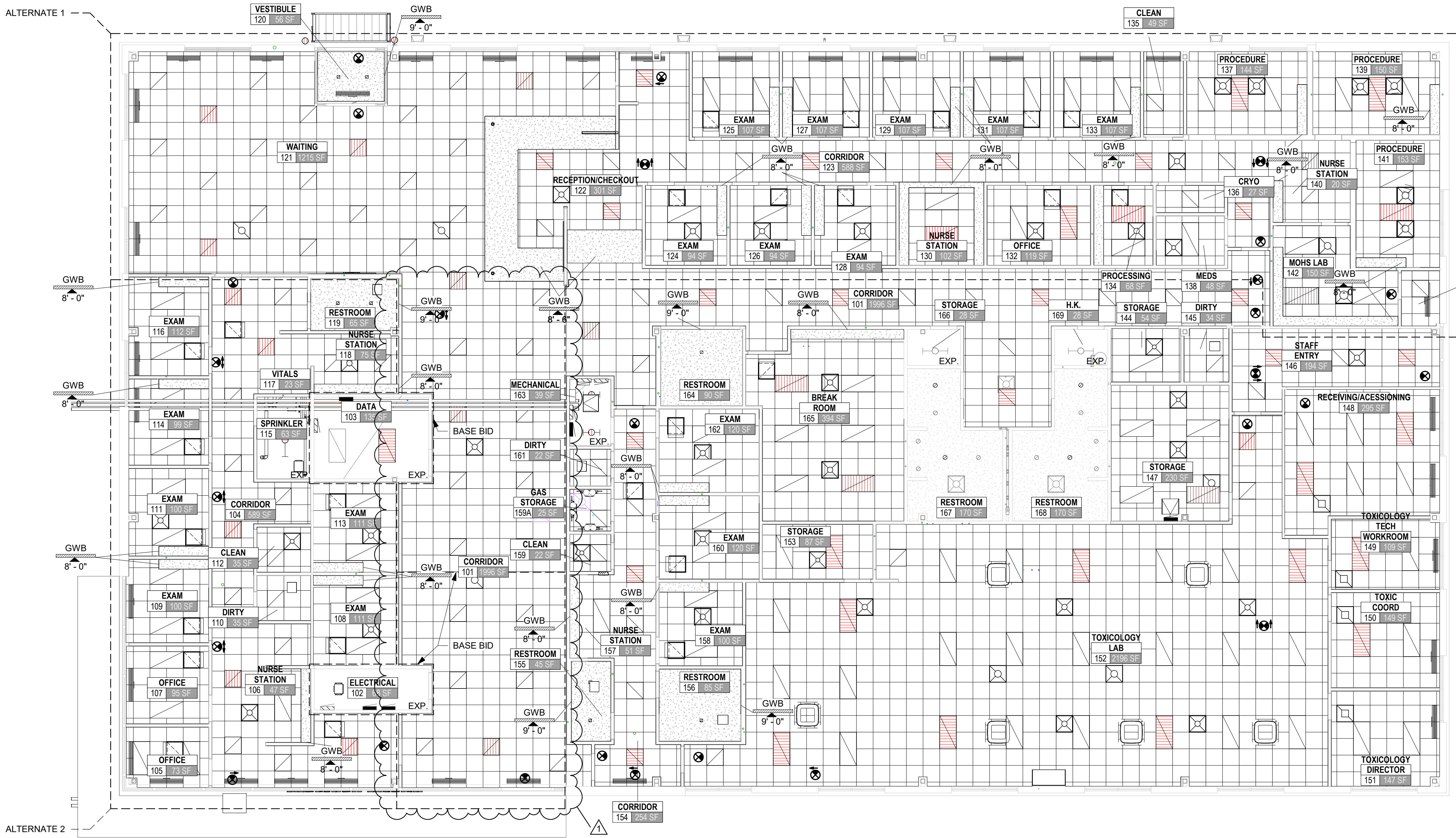
A0.02

- | NOTE # | DESCRIPTION |
|--------|--|
| 1 | ROLLER SHADES |
| 3 | FIRE EXTINGUISHER AND CABINETS |
| 4 | CORNER GUARD - SEE SPECIFICATION |
| 5 | NEW COUNTERTOP AND SINKS MATCH DIMENSIONS OF PREVIOUS COUNTERTOP. SEE ELEVATION 3 & 9/A4.03. |
| 6 | NEW TOILET PARTITIONS AND DOORS. MATCH DIMENSIONS OF PREVIOUS DESIGN. |
| 7 | INSTALL NEW WALL FINISHES IN BATHROOM. SEE TYPICAL FINISH ELEVATION 6/A7.01. |



LAYOUT TAB RCP
CAD FILE: C:\Users\alaser\OneDrive - Thrasher Engineering Group\Documents\Marshall Health Strayer Building Other Crisis Renovations_Consultant\alaser\2202.rvt
PLOT DATE/TIME: 3/11/2024 5:27:19 PM
USER: ALB

1 FIRST FLOOR
1/8" = 1'-0"



LAYOUT TAB: DOOR & WINDOW SCHEDULES & DETAILS
CAD FILE: C:\Users\alaser\OneDrive - Thrasher Engineering Group\Documents\Marshall Health Strayer Building Other Crises Renovations, Conts\alaser\A6.01.dwg
PLOT DATE/TIME: 3/12/2024, 3:24:55 PM
USER: ALB

BASE BID DOOR, FRAME, & HARDWARE SCHEDULE											
#	TYPE MARK	DOORS				FRAMES			ASSEMBLY		
		WIDTH	HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	ACCESS CONTROLS	HARDWARE
102	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	02
103	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	02
144	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	05
145	F	3'-0"	7'-0"	WOOD	STAINED		H.M.	PTD	45 MIN	No	05
146A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	04
147	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	05
148A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	06
148B	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		Yes	11
149	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	06
150	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	06
151	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	06
152A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		Yes	12
152B	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	Yes	12
153	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	05
154A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	Yes	12
154B	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		Yes	11
155	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	01
156	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	01
158	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
159	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	05
159A	F	2'-6"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	16
160	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
161	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	05
162	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
163	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	02
164	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	01
165	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	13
166	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	16
167	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	17
168	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	17
169	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	16

EXISTING DOOR, FRAME, & HARDWARE SCHEDULE											
#	TYPE MARK	DOORS				FRAMES			ASSEMBLY		
		WIDTH	HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	ACCESS CONTROLS	HARDWARE
101	PFG	6'-0"	8'-0"	ALUM.	ANOD.	1	ALUM.	ANOD.		Yes	15
146B	FG	3'-0"	8'-0"	ALUM.	ANOD.	1	ALUM.	ANOD.		Yes	14

NOTE 1: PATCH PREVIOUS OPENING AND HEADER. MATCH EXISTING ASSEMBLY FOR TALLER DOOR.

ALTERNATE 1 DOOR, FRAME, & HARDWARE SCHEDULE											
#	TYPE MARK	DOORS				FRAMES			ASSEMBLY		
		WIDTH	HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	ACCESS CONTROLS	HARDWARE
120	PFG	6'-0"	7'-0"	ALUM.	ANOD.	1	ALUM.	ANOD.		Yes	08
121	PFG	6'-0"	7'-0"	ALUM.	ANOD.	1	ALUM.	ANOD.		No	09
123A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		Yes	10
123B	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		Yes	11
124	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
125	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
126	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
127	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
128	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
129	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
131	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
132	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	07
133	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
134	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	06
135	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	05
136	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	02
137	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
138	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	05
139	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
141	F	3'-0"	7'-0"	WOOD	STAINED		H.M.	PTD		No	03
142	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	05
143	F	3'-0"	7'-0"	WOOD	STAINED		H.M.	PTD		No	02

1 DOOR DETAIL - INT. HOLLOW METAL - GYP - HEAD
A6.01 1 1/2" = 1'-0"

2 DOOR DETAIL - INT. HOLLOW METAL - GYP - JAMB
A6.01 1 1/2" = 1'-0"

3 DOOR DETAIL - EXT. ALUMINUM - MASONRY - JAMB
A6.01 1 1/2" = 1'-0"

4 DOOR DETAIL - EXT. ALUMINUM - E.I.F. - HEAD
A6.01 1 1/2" = 1'-0"

5 DOOR THRESHOLD DETAILS - EXT. - ALUM.
A6.01 1 1/2" = 1'-0"

6 DOOR THRESHOLD DETAILS - INT. - ALUM.
A6.01 1 1/2" = 1'-0"

7 DOOR THRESHOLD DETAILS - INT. - H.M.
A6.01 1 1/2" = 1'-0"

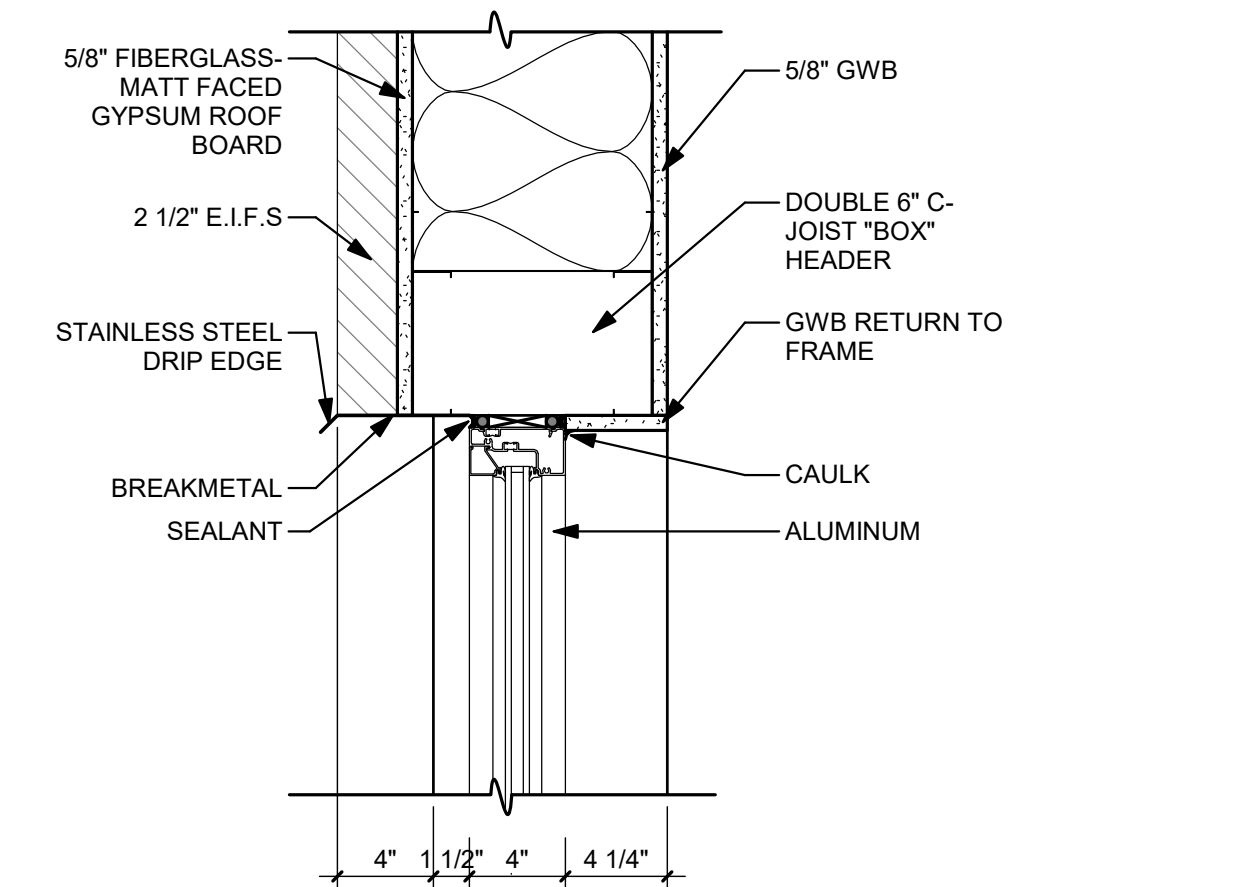
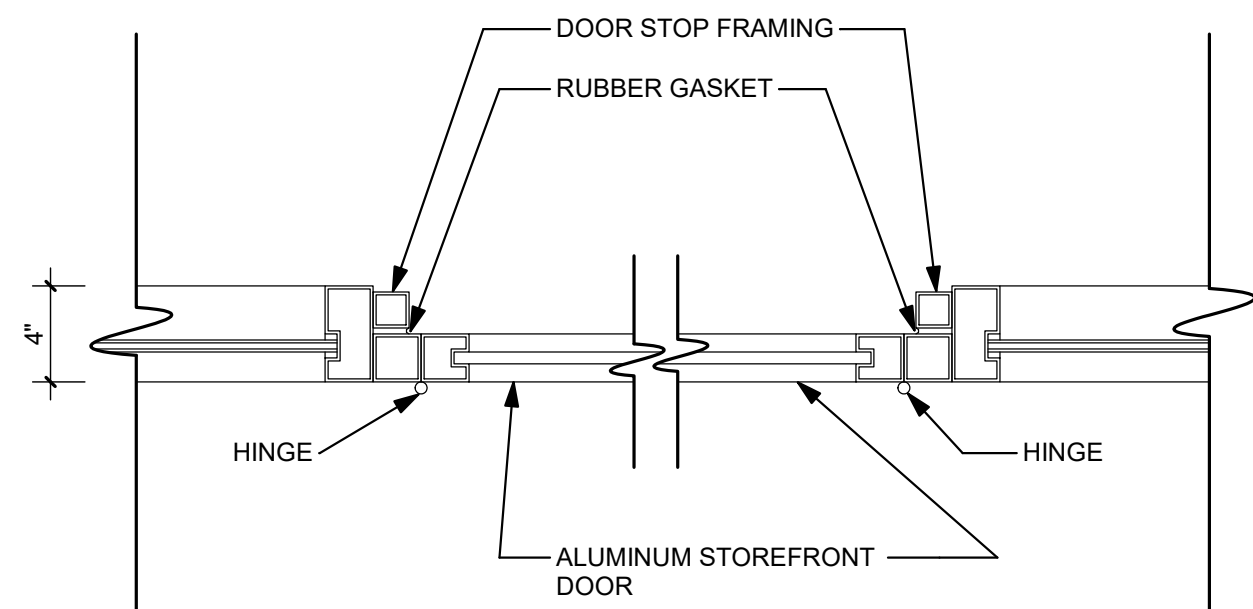
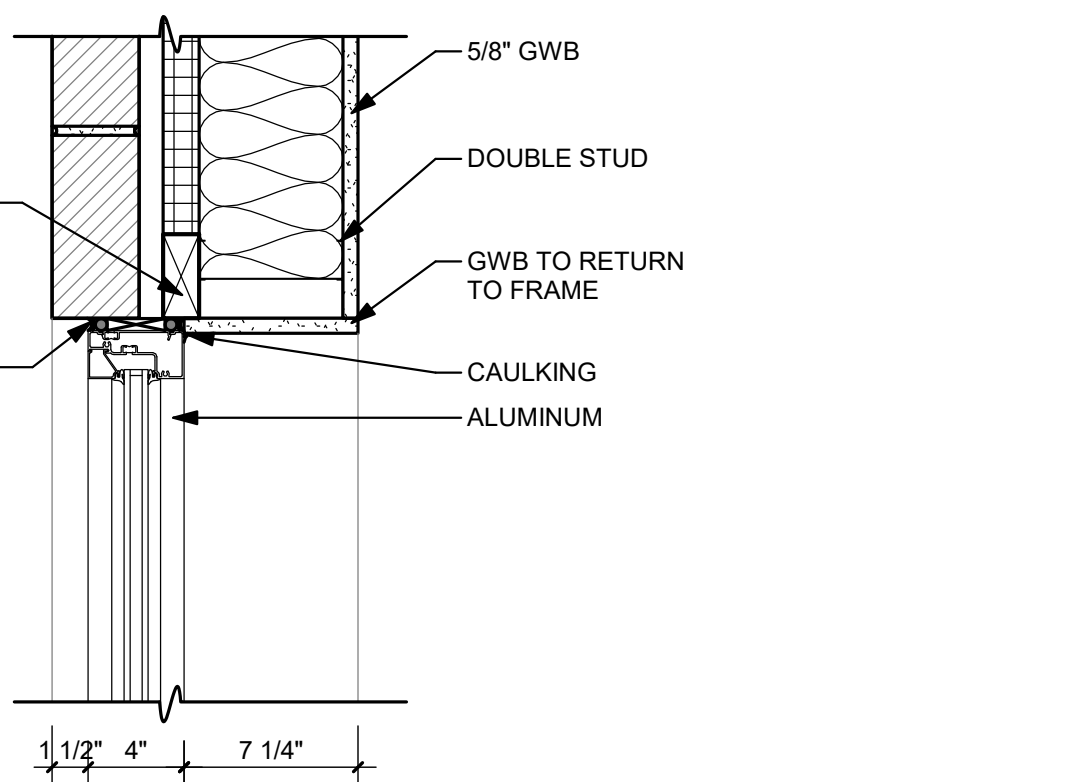
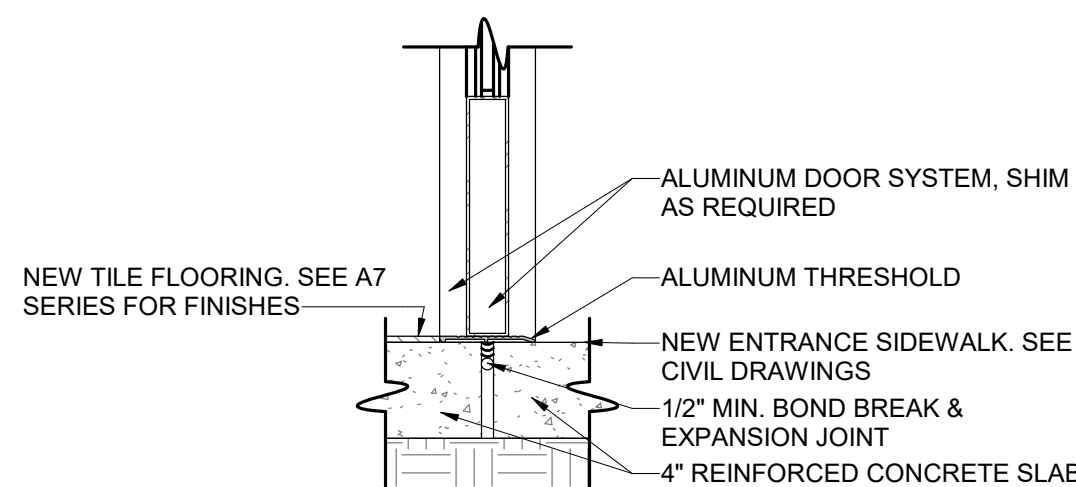
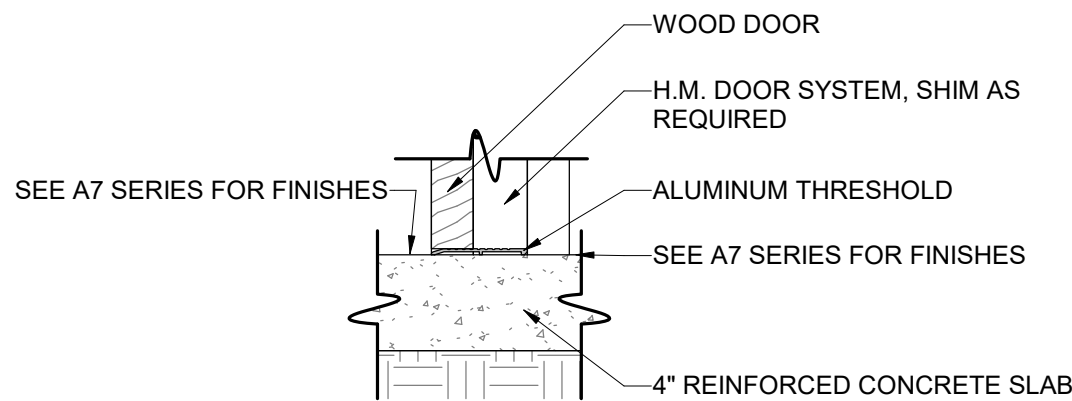
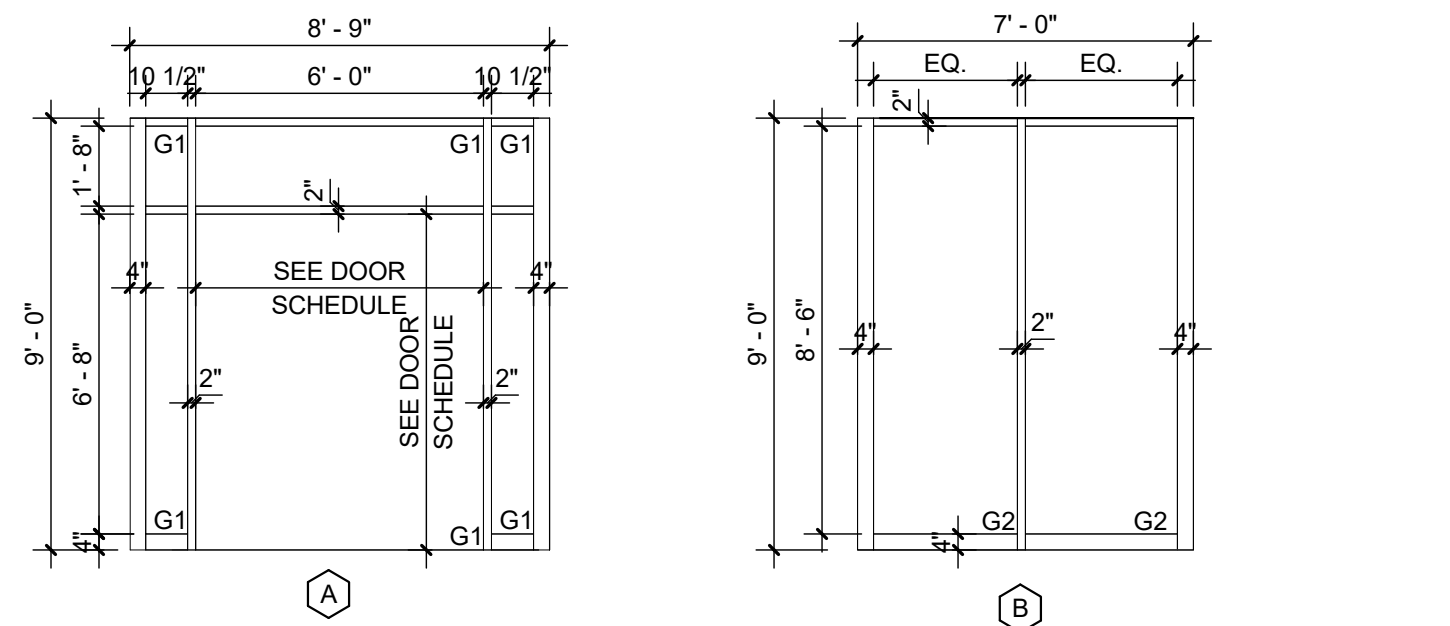
8 STOREFRONT DOOR DETAIL
A6.01 1 1/2" = 1'-0"

9 ALT. 1 WINDOW ELEVATIONS
A6.01 1/4" = 1'-0"

10 FRAME TYPE LEGEND
1/4" = 1'-0"

11 DOOR TYPE LEGNED
1/4" = 1'-0"

ALTERNATE 2 DOOR, FRAME, & HARDWARE SCHEDULE											
#	TYPE MARK	DOORS				FRAMES			ASSEMBLY		
		WIDTH	HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	ACCESS CONTROLS	HARDWARE
104A	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	Yes	10
104B	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	11
105	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	06
107	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	06
108	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
109	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
110	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	05
111	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
112	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	05
113	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	03
114	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
115	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	02
116	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD	45 MIN	No	03
119	F	3'-0"	7'-0"	WOOD	STAINED	1	H.M.	PTD		No	01



ALT. 1 WINDOW SCHEDULE		
TYPE	ALUM.	GLAZING TYPES
A	ALUM.	G1
B	ALUM.	G2

GLAZING TYPES:

G1 INSULATED EXTERIOR, TEMPERED, TINTED. 1" OVERALL THICKNESS.

G2 UNINSULATED INTERIOR, TEMPERED. 1" OVERALL THICKNESS CLEAR.

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NO.	BY	DATE	DESCRIPTION
1	ALB	03/12/24	ADDENDUM 1

MARSHALL HEALTH FORMER STRAYER BUILDING RENOVATIONS
MARSHALL HEALTH
SCOTT DEPOT, WV
FEBRUARY 22, 2024
CONSTRUCTION DOCUMENTS

DRAWN: ALB
CHECKED: CCA
PROJECT No.
T60-11110

DATE: 02/22/24
DATE: 02/22/24

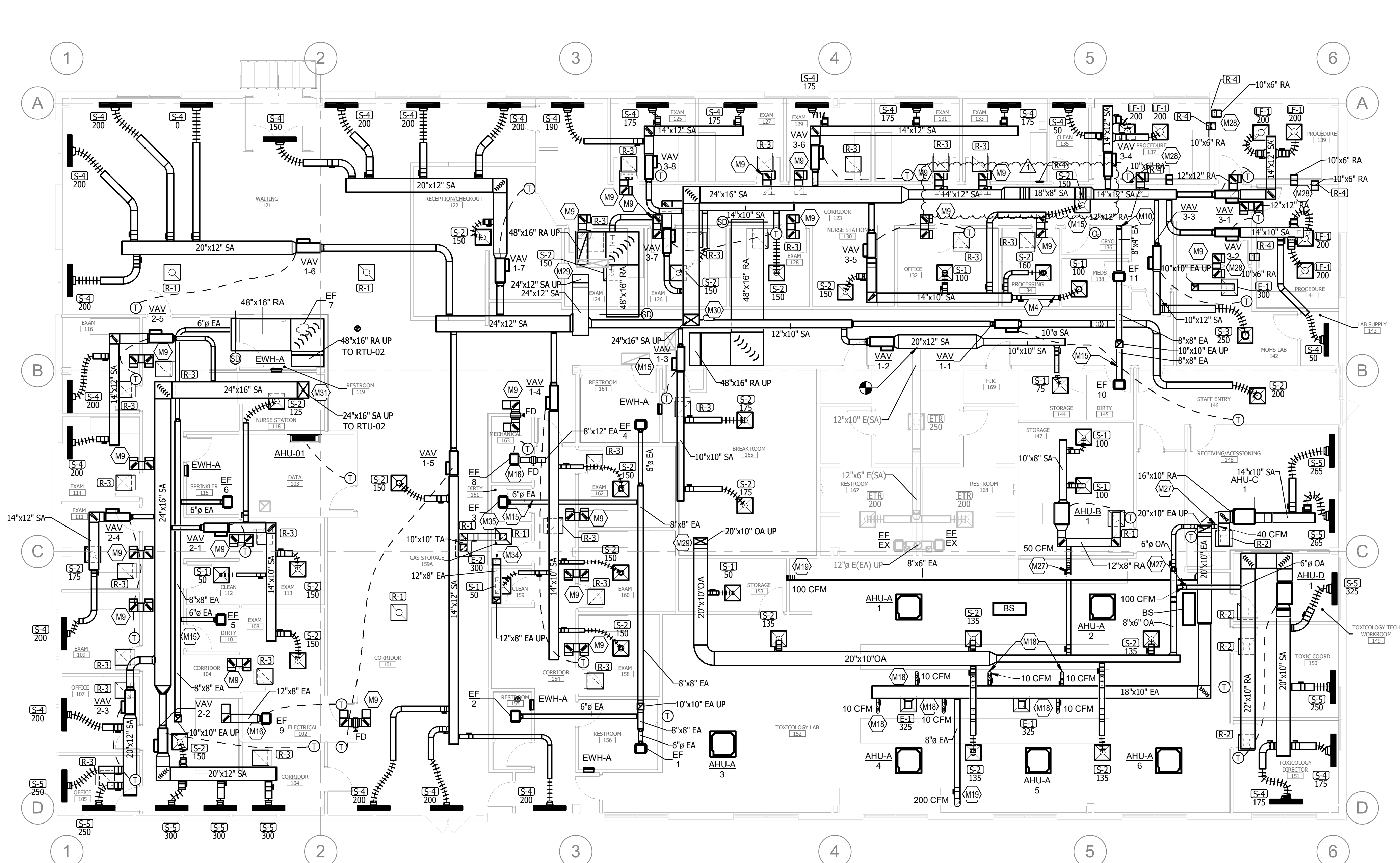
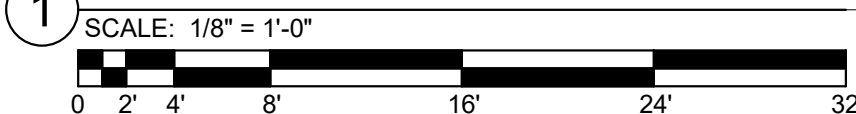
DOOR & WINDOW SCHEDULES & DETAILS
SHEET No.

A6.01

USER: Author

LAYOUT TAB MECHANICAL AIR DISTRIBUTION NEW WORK PLAN
CADD FILE: Autodesk Docs\JWMS23_Marshall Univ Strayer Tox Lab MEP_R23.rvt
PLOT DATE/TIME: 3/12/2024 10:27:53 AM

MECHANICAL AIR DISTRIBUTION NEW WORK PLAN



GENERAL NOTES - MECHANICAL

- A. REFER TO SHEET **M-001** FOR LEGEND & ABBREVIATIONS.
B. REFER TO SHEET **M-002** FOR MECHANICAL GENERAL, DEMOLITION AND HAZARDOUS NOTES
C. REFER TO **DIVISION 23** OF THE PROJECT MANUAL FOR SPECIFICATIONS.
D. UNLESS NOTED OTHERWISE, LOW VELOCITY BRANCH DUCT RUNOUTS TO DIFFUSERS SHALL BE THE SAME DIAMETER OR FREE AREA AS DIFFUSER NECK. SEE AIR DEVICE SCHEDULE FOR NECK SIZES.
E. UNLESS NOTED OTHERWISE, MEDIUM PRESSURE DUCT RUNOUTS TO TERMINAL BOXES SHALL BE THE SAME SIZE AS TERMINAL BOX INLET. DUCT RUNOUTS TO TERMINAL BOXES SHALL BE 2" LARGER THAN INLET SIZE IF THE BOX IS MORE THAN 15 FEET AWAY FROM THE MAIN SUPPLY DUCT. SEE VAV SCHEDULE FOR INLET SIZES AND CAPACITY RANGES.
F. ANY FLEX DUCT USED FOR SUPPLY DIFFUSERS MAY ONLY BE INSTALLED ABOVE ACCESSIBLE CEILINGS, NOT HARD CEILINGS. FLEX DUCT MAY NOT EXCEED 6 FEET AND MAY NOT REST ON CEILING TILES OR OTHER SYSTEMS.
G. THE ROUTING OF ALL DUCTWORK AND PIPING AS SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY, INTENDING TO SHOW GENERAL ROUTING AND LOCATIONS OF EQUIPMENT, MECHANICAL PIPING, DUCTWORK AND SPECIALTIES. THE CONTRACTOR IS RESPONSIBLE FOR THE EXACT LOCATION AND COORDINATION OF ALL ITEMS.

TAGGED NOTES

- M4 PROVIDE OXYGEN MONITORING SYSTEM IN LOCATION INDICATED MOUNTED AT 44" AFF SIMILAR TO A GASLAB RAD-0002-ZR. SYSTEM TO BE PROVIDED WITH DUAL STROBE AND AUDIBLE ALARM MOUNTED INSIDE AND DIRECTLY OUTSIDE OF THE ROOM. PROVIDE AT 110V /1 PH/60 HZ.
M9 PROVIDE 12X8 TRANSFER Z-DUCT THROUGH FULL HEIGHT PARTITION WALL. REFER TO DETAIL 2 ON SHEET M-402
M10 PROVIDE TWO 8X8 PRICE 530 RETURN DUCTS ON WALL ATTACHED TO DUCTWORK IN LOCATION INDICATED. ONE GRILLE SHOULD BE LOCATED WITHIN 1' OF THE CEILING, ONE GRILLE SHOULD BE LOCATED WITHIN 1' OF THE FINISHED FLOOR.
M15 DOOR TO BE UNDERCUT TO PROVIDE AIR TRANSFER FROM CORRIDOR TO ROOM
M16 EXHAUST FAN TO DISCHARGE INTO PLENUM. FINISH DUCT WITH A WELDED WIRE MESH
M18 PROVIDE HOSE CONNECTION PER DETAIL 3 ON M-401. BALANCE TO CFM SHOWN
M19 PROVIDE HARD PIPED EXHAUST DUCT DOWN TO LAB EQUIPMENT. MAKE ATTACHMENT TO EQUIPMENT PER FINAL MANUFACTURER'S IOM. BALANCE DUCT TO CFM SHOWN
M27 TIE OUTSIDE AIR DUCT INTO RETURN AIR DUCT. BALANCE TO CFM SHOWN
M28 PROVIDE LOW WALL RETURN IN WALL SIMILAR TO DETAIN 6 ON M-403
M29 ALL DOWNSTREAM DUCTWORK, HANGERS, EQUIPMENT, CONTROLS, ETC ASSOCIATED WITH THIS RTU SHALL BE COMPLETED UNDER THE BASE BID.
M30 ALL DOWNSTREAM DUCTWORK, HANGERS, EQUIPMENT, CONTROLS, ETC ASSOCIATED WITH THIS RTU SHALL BE COMPLETED UNDER ADD ALTERNATE #1.
M31 ALL DOWNSTREAM DUCTWORK, HANGERS, EQUIPMENT, CONTROLS, ETC ASSOCIATED WITH THIS RTU SHALL BE COMPLETED UNDER ADD ALTERNATE #2.
M34 ROUTE EXHAUST DUCT DOWN TO 6" OFF FINISHED FLOOR. PROVIDE E-2 DEVICE LOW ON DUCT. BALANCE TO 300 CFM
M35 PROVIDE A R1 DEVICE IN THE MAIN CORRIDOR (101) THAT SHALL BE DUCTED TO A R1 DEVICE IN THE MED GAS ROOM. AIRFLOW WILL BE TRANSFERRED FROM MAIN CORRIDOR TO MED GAS ROOM FOR MAKEUP AIR REQUIREMENTS. BALANCE DAMPER TO MAINTAIN 300 CFM OF AIRFLOW THROUGH DUCT AT ALL TIMES. FIRE CAULK DUCT PENETRATION PER DETAILS ON BOTH EXHAUST AND TRANSFER DUCT

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NO.	BY	DATE	DESCRIPTION
1			

**MARSHALL HEALTH FORMER
STRAYER BUILDING RENOVATIONS**
MARSHALL HEALTH NETWORK
SCOTT DEPOT, WV
FEBRUARY 22, 2024
CONSTRUCTION DOCUMENTS

DRAWN: Author DATE: 09/20/23
CHECKED: Checker DATE: 09/20/23
PROJECT No. T80-11110

MECHANICAL AIR
DISTRIBUTION NEW
WORK PLAN

SHEET No.

M-201

SUBSTITUTION REQUEST

Project: Marshall Health Former Strayer Building Renovations Substitution Request Number: 001
From: Neighborgall Construction
To: The Thrasher Group Date: 03/07/2024
A/E Project Number: T60-11110
Re: Lighting Package Substitution Request Contract For: _____
Specification Title: LED Lighting Fixtures and Lamps Description: Approved Equal for specified lights
Section: 265113 Page: _____ Article/Paragraph: _____

Proposed Substitution: Laface and McGovern Package as detailed in the following pages
Manufacturer: Various Address: _____ Phone: _____
Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Ben O'Dell; Estimator
Signed by: _____
Firm: Neighborgall Construction
Address: 1216 7th Avenue, Huntington, WV 25701
Telephone: (304) 525-5181

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____



LAFACE & MCGOVERN OF WV, LLC
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MARSHALL HEALTH STRAYER BUILDING

24-23937-0

3/6/2024



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Type	Manufacturer/Brand	Catalog Number	Notes
A1	ABL-Lithonia Lighting	STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT	
A1X	ABL-Lithonia Lighting	STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT	
B1	ABL-Lithonia Lighting	STAK 2X4 6000LM 90CRI 40K COL MIN10 ZT MVOLT	
B1X	ABL-Lithonia Lighting	STAK 2X4 6000LM 90CRI 40K COL MIN10 ZT MVOLT	
C1	Kurtzon Lighting Inc.	KL-R-5-2X4-2-LEDR-940-UNV-P12ACR	
C1X	Kurtzon Lighting Inc.	KL-R-5-2X4-2-LEDR-940-UNV-P12ACR	
C2	Kurtzon Lighting Inc.	KL-R-5-2X4-3-LEDR-940-UNV-P12ACR	
C2X	Kurtzon Lighting Inc.	KL-R-5-2X4-3-LEDR-940-UNV-P12ACR	
D1	ABL-Lithonia Lighting	STAK 2X2 2000LM 80CRI 40K COL MIN10 ZT MVOLT	
D1X	ABL-Lithonia Lighting	STAK 2X2 2000LM 80CRI 40K COL MIN10 ZT MVOLT	
F1	Kurtzon Lighting Inc.	KL-R-5-2X2-3-LEDH-940-UNV-P12ACR	VERIFY LUMEN PACKAGE REQUIRED
H1	Kurtzon Lighting Inc.	KLX12-R-5-2X4-2LEDR-840-UNV-P12ACR	
H1X	Kurtzon Lighting Inc.	KLX12-R-5-2X4-2LEDR-840-UNV-P12ACR	
L1	Finelite	HP2-R-D-4'X4'-S-840-F-96LG-XXX-SC-FC-10%-VF-FE-SW	
P1	Brownlee Lighting	2662-22-WH-C37-WHL-CC1-40K	
R1	ABL-Lithonia Lighting	IVO4S D 20LM 40K 80CRI MWD MIN10 MVOLT ZT NCH P AR LD F	
R1X	ABL-Lithonia Lighting	IVO4S D 20LM 40K 80CRI MWD MIN10 MVOLT ZT NCH P AR LD F	
R2	ABL-Lithonia Lighting	IVO4S D 30LM 40K 80CRI MWD MIN10 MVOLT ZT NCH P AR LD F	
S2X	ABL-Lithonia Lighting	CSS L24 ALO15 MVOLT SWW3 80CRI M6	
	ABL-Lithonia Lighting	HC36	
S4X	ABL-Lithonia Lighting	CSS L48 ALO3 MVOLT SWW3 80CRI	
W1X	ABL-Lithonia Lighting	WPX1 LED P1 40K MVOLT DDBXD	
XC1	ABL-Lithonia Lighting	EDG 1 G EL M6	
CONTROLS		CONTROLS	
	ABL-Acuity Brands Controls	NPODMA DX XX	
	ABL-Acuity Brands Controls	NCM PDT 10 RJB	
	ABL-Acuity Brands Controls	NPP16 D EFP	
	ABL-Acuity Brands Controls	NECY MVOLT ENC GFXK	



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Type	Manufacturer/Brand	Catalog Number	Notes
	ABL-Acuity Brands Controls	NBRG 8 KIT	
	ABL-Acuity Brands Controls	WSXA PDT D XX	



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Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT
Note:

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A1



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces – rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](#) to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](#)

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.
All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency – including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit [www.acuitybrands.com/aplus](#).



Items marked by a **shaded background** qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit [www.acuitybrands.com/designselect](#).
*See ordering tree for details



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Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
		5000LM						
		6000LM						
		7200LM						
	2X2 2'x2'	2000LM						
		3000LM						
		4000LM						
		5000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality
			PDT Occ sensor dual tech (passive infrared & microphonics)
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
			(blank) No sensor, Control Input function only
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			APIREM Occ sensing with passive infrared - on/off functionality and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection
			APDTEM Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection.
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
		JOT JOT, "Just One Touch" (wireless) enabled	(blank) No sensor, Control Input function only
			VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell at 15ft mounting height



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Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS18366' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS18466' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLVTwo cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CPChicago Plenum ‡</div><div>LATCT-bar clips</div><div>DWAMAnti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSHPPAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSHPPAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSHPPAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation
<p>The below information applies to all nLight AIR devices with an EM option.</p> <ul style="list-style-type: none">EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.

STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. **Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!**

Life Safety Code (NFPA101) Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPDMA D](#) as well as nLight Wall Pods.



WSXA D



SPDMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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Intelligent Luminaire Technology Guide

Choose nomenclature from these columns							
Control/Sensor Configurations	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen managment. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
	NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC



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Controls Accessories

nLight® Wired Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight.</i>			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.</i>	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
A1

STACK LED Center Element Troffer

PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



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MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
A1X



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](#) to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](#)

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.

All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency — including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit [www.acuitybrands.com/aplus](#).



Items marked by a **shaded background** qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit [www.acuitybrands.com/designselect](#).
*See ordering tree for details



Project 24-23937-0
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Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
A1X

STACK LED Center Element Troffer

Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
		5000LM						
	2X2 2'x2'	2000LM						
		3000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality



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Note:

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Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS1836 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS1846 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLV Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CP Chicago Plenum ‡</div><div>LATC T-bar clips</div><div>DWAM Anti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSH PAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSH PAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSH PAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the **CLAIRITY+** mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.



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STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!

Life Safety Code (NFPA101)
Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPODMA D](#) as well as nLight Wall Pods.



WSXA D



SPODMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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Intelligent Luminaire Technology Guide

Choose nomenclature from these columns							
Control/Sensor Configurations	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen managment. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
	NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10
ZT MVOLT

Note:

Type

A1X

STACK LED Center Element Troffer

Controls Accessories

nLight® Wired Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight.</i>			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.</i>	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 4000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
A1X

STACK LED Center Element Troffer

PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 6000LM 90CRI 40K COL MIN10
ZT MVOLT
Note:

Type
B1



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.

All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency — including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit www.acuitybrands.com/aplus.



Items marked by a **shaded background** qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



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Note:

Type
B1

STACK LED Center Element Troffer

Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
		5000LM						
		6000LM						
		7200LM						
	2X2 2'x2'	2000LM						
		3000LM						
		4000LM						
		5000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality
			PDT Occ sensor dual tech (passive infrared & microphonics)
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
			(blank) No sensor, Control Input function only
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			APIREM Occ sensing with passive infrared - on/off functionality and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection
			APDTEM Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection.
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
		JOT JOT, "Just One Touch" (wireless) enabled	(blank) No sensor, Control Input function only
			VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell at 15ft mounting height



STACK



Project 24-23937-0
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STACK LED Center Element Troffer

Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS18366' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS18466' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLVTwo cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CPChicago Plenum ‡</div><div>LATCT-bar clips</div><div>DWAMAnti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSHPPAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSHPPAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSHPPAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 6000LM 90CRI 40K COL MIN10 ZT MVOLT
Note:

Type
B1

STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!

Life Safety Code (NFPA101)
Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPODMA D](#) as well as nLight Wall Pods.



WSXA D



SPODMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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Intelligent Luminaire Technology Guide

Control/Sensor Configurations	Choose nomenclature from these columns						
	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen managment. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC	



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ZT MVOLT

Note:

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STACK LED Center Element Troffer

Controls Accessories

nLight® Wired Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight.</i>			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.</i>	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

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Catalog Number: STAK 2X4 6000LM 90CRI 40K COL MIN10 ZT MVOLT

Note:

Type
B1

STACK LED Center Element Troffer

PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



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Note:

Type
B1X



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.

All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency — including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit www.acuitybrands.com/aplus.



Items marked by a **shaded background** qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING


Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X4 6000LM 90CRI 40K COL MIN10 ZT MVOLT

Note:

Type
B1X

STACK LED Center Element Troffer

 Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
	2X2 2'x2'	2000LM						
		3000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality
			PDT Occ sensor dual tech (passive infrared & microphonics)
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
		JOT JOT, "Just One Touch" (wireless) enabled	(blank) No sensor, Control Input function only
			VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell at 15ft mounting height



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Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS1836 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS1846 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLV Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CP Chicago Plenum ‡</div><div>LATC T-bar clips</div><div>DWAM Anti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSH PAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSH PAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSH PAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the **CLAIRITY+** mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.



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Note:

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STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!

Life Safety Code (NFPA101)
Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPDMA D](#) as well as nLight Wall Pods.



WSXA D



SPDMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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STACK LED Center Element Troffer

Intelligent Luminaire Technology Guide

Choose nomenclature from these columns							
Control/Sensor Configurations	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen managment. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
	NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC



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ZT MVOLT

Note:

Type
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STACK LED Center Element Troffer

Controls Accessories

nLight® Wired Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight.</i>			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.</i>	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



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Note:

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PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR

Note:

Type
C1



PROJECT

DATE TYPE

NOTES

REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10V 1% dimming comes standard**
- **Up to 39,000 Lm Delivered @129 Lm/W**
- **DLC Standard and Premium Listings Available**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



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ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Voltage	Optics	Options
KL-R								

Series	Material	Size	Row Qty.	Light Source		Voltage	Optics	Options
				LED Type	CCT/CRI			
KL-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1" x 4" Housing	1	LEDR	83 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	SW Wet Location Hub Supplied (not installed)
			2	LEDH	830 3000K	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	PxL * Programmed to User Specified Lumen Value.
	4 White AL Hsg. & Polished 304 SS Door	2x2 2" x 2" Housing	2	LEDHF	835 3500K	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	PxW * Programmed to User Specified Wattage Value.
			3		840 4000K	347V*	TG 0.156" Prismatic Tempered Glass (Inverted)	10KV 10KV Parallel Surge Protection (One Supplied Per Circuit)
	5 White AL Hsg. & White AL Door	2x4 2" x 4" Housing	4		850 5000K		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	GTD Generator Transfer Device
					90+ CRI:		FROST 0.125" Flat Diffusing Frost Acrylic	WHIP Must Specify Length and Wire Qty
	7 White AL Hsg. & White CRS Door				935 3500K		ZDBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION	OCCMW Internal microwave OCC Sensor
					940 4000K		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	FC Fuse & Holder (One Supplied Per Circuit)
					950 5000K		GRHS 0.125" Flat Diffused Acrylic with Glare Suppression Distribution	EM10 10W Integral LED EM (Specify Input Voltage)
								EM20 20W Remote LED EM (Specify Input Voltage)
								GG 1/8" Thick Grid Gasket (Provided Loose)
								EDL -40F Electronic Driver
								WHT White Finished Door & HSG
								AMW Anti-Microbial White Powdercoat
								2/ED Two Drivers/Two Circuits
								316SS DOOR ** 316 Stainless Steel Door Frame
								316SS HSG *** 316 Stainless Steel Housing

NOTE: Additionally available in 95+ CRI with Sun-Like LEDs. Consult factory for more information.

NOTE: P12ACR option is standard and will be provided when no other option is selected.

Note*: Specify Value in Ordering Notes
Note**: 316 SS Door Frame to Replace 304SS Door on Material Options 3 or 4
Note***: 316 SS Housing to Replace 304SS/430 SS Housing on Material Option 3

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR
Note:

Type
C1



REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOOR FRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDS: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

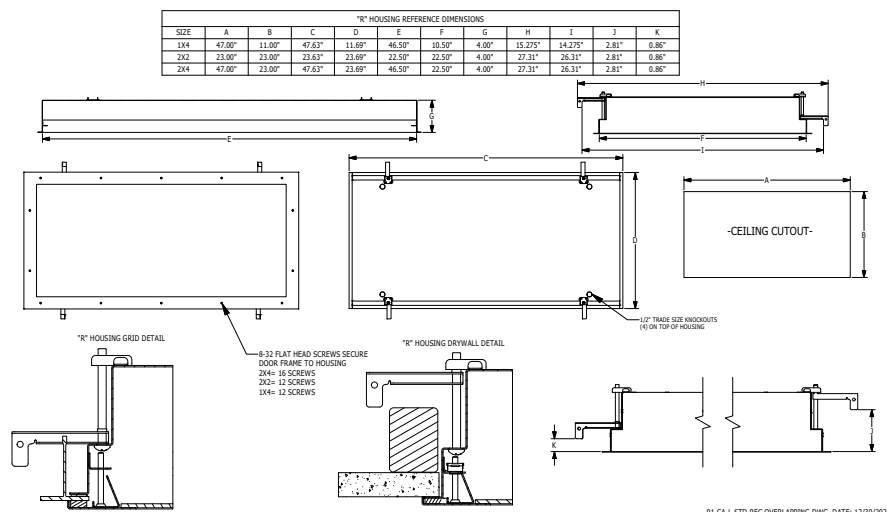
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food zones & Splash Zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty. This product is Buy American Act (B.A.A.) compliant.

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/28/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR
Note:

Type
C1



REV: 01/23/2024

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

ENERGY DATA

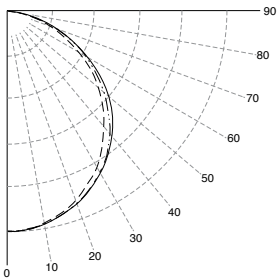
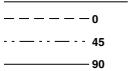
SURFACE & RECESSED OVERLAPPING LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LEDR	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	2LEDR	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	2LEDHF	18,046	153	118	35°C (95°F)	15,346	183	85	35°C (95°F)	0-10V 1%
1X4	EM10	1030-1180	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	2LEDR	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	3LEDR	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	4LEDR	6,328	55	115	45°C (113°F)	6,084	55	111	45°C (113°F)	0-10V 1%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	4LEDH	12,425	109	114	40°C (104°F)	11,856	109	109	35°C (95°F)	0-10V 1%
2X2	4LEDHF	18,523	153	121	35°C (95°F)	16,425	184	89	35°C (95°F)	0-10V 1%
2X2	EM10	1090-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	2LEDR	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	3LEDR	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	4LEDR	13,726	111	124	45°C (113°F)	13,134	113	116	45°C (113°F)	0-10V 1%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	4LEDH	26,977	220	123	40°C (104°F)	25,632	220	117	40°C (104°F)	0-10V 1%
2X4	4LEDHF	39,373	305	129	35°C (95°F)	35,488	373	95	35°C (95°F)	0-10V 1%
2X4	EM10	1230-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	NA

- ¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120vAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
³ EFFICACY CALCULATED USING 4000K CCT DATA.
⁴ MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON-STANDARD SELECTION
⁵ 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR

Note:

Type
C1X



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10V 1% dimming comes standard**
- **Up to 39,000 Lm Delivered @129 Lm/W**
- **DLC Standard and Premium Listings Available**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



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ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Voltage	Optics	Options
KL-R								

Series	Material	Size	Row Qty.	Light Source		Voltage	Optics	Options
				LED Type	CCT/CRI			
KL-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1" x 4" Housing	1	LEDR	83 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	SW Wet Location Hub Supplied (not installed)
			2	LEDH	830 3000K	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	PxL * Programmed to User Specified Lumen Value.
	4 White AL Hsg. & Polished 304 SS Door	2x2 2" x 2" Housing	2	LEDHF	835 3500K	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	PxW * Programmed to User Specified Wattage Value.
			3		840 4000K	347V*	TG 0.156" Prismatic Tempered Glass (Inverted)	10KV 10KV Parallel Surge Protection (One Supplied Per Circuit)
	5 White AL Hsg. & White AL Door	OR			850 5000K		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	GTD Generator Transfer Device
		2x4 2" x 4" Housing	4				FROST 0.125" Flat Diffusing Frost Acrylic	WHIP Must Specify Length and Wire Qty
	7 White AL Hsg. & White CRS Door				90+ CRI:		ZDBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION	OCCMW Internal microwave OCC Sensor
					935 3500K		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	FC Fuse & Holder (One Supplied Per Circuit)
					940 4000K		GRHS 0.125" Flat Diffused Acrylic with Gase Suppression Distribution	EM10 10W Integral LED EM (Specify Input Voltage)
					950 5000K			EM20 20W Remote LED EM (Specify Input Voltage)
								GG 1/8" Thick Grid Gasket (Provided Loose)
								EDL -40F Electronic Driver
								WHT White Finished Door & HSG
								AMW Anti-Microbial White Powdercoat
								2/ED Two Drivers/Two Circuits
								316SS DOOR ** 316 Stainless Steel Door Frame
								316SS HSG *** 316 Stainless Steel Housing

NOTE: Additionally available in 95+ CRI with Sun-Like LEDs. Consult factory for more information.

NOTE: P12ACR option is standard and will be provided when no other option is selected.

Note*: Specify Value in Ordering Notes
Note**: 316 SS Door Frame to Replace 304SS Door on Material Options 3 or 4
Note***: 316 SS Housing to Replace 304SS/430 SS Housing on Material Option 3

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR
Note:

Type
C1X



REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOOR FRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDS: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

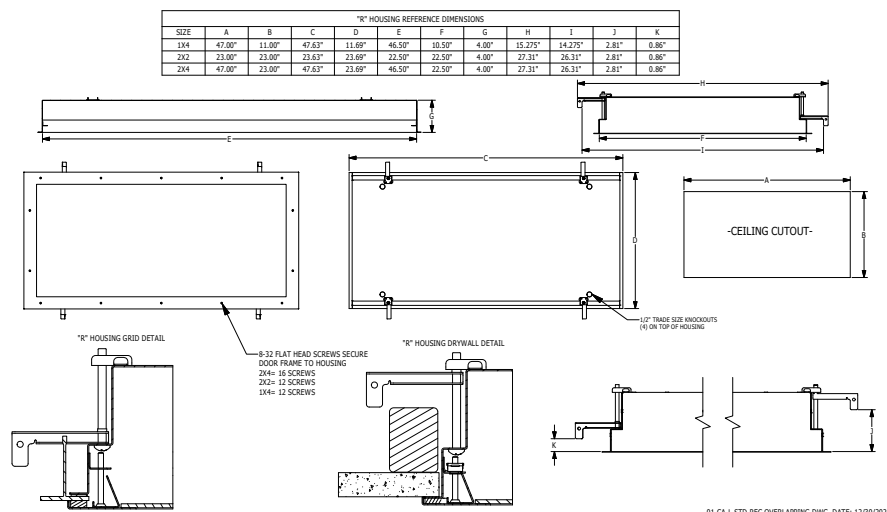
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food zones & Splash Zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty. This product is Buy American Act (B.A.A.) compliant.

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/28/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-2-LEDR-940-UNV-P12ACR

Note:

Type
C1X



REV: 01/23/2024

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

ENERGY DATA

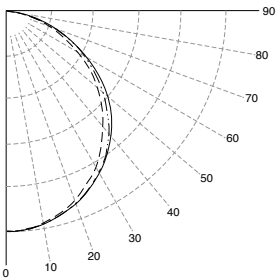
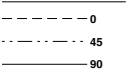
SURFACE & RECESSED OVERLAPPING LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LEDR	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	2LEDR	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	2LEDHF	18,046	153	118	35°C (95°F)	15,346	183	85	35°C (95°F)	0-10V 1%
1X4	EM10	1030-1180	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	2LEDR	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	3LEDR	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	4LEDR	6,328	55	115	45°C (113°F)	6,084	55	111	45°C (113°F)	0-10V 1%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	4LEDH	12,425	109	114	40°C (104°F)	11,856	109	109	35°C (95°F)	0-10V 1%
2X2	4LEDHF	18,523	153	121	35°C (95°F)	16,425	184	89	35°C (95°F)	0-10V 1%
2X2	EM10	1090-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	2LEDR	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	3LEDR	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	4LEDR	13,726	111	124	45°C (113°F)	13,134	113	116	45°C (113°F)	0-10V 1%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	4LEDH	26,977	220	123	40°C (104°F)	25,632	220	117	40°C (104°F)	0-10V 1%
2X4	4LEDHF	39,373	305	129	35°C (95°F)	35,488	373	95	35°C (95°F)	0-10V 1%
2X4	EM10	1230-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	NA

- ¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
- ² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120vAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
- ³ EFFICACY CALCULATED USING 4000K CCT DATA.
- ⁴ MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON-STANDARD SELECTION
- ⁵ 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LEDR-940-UNV-P12ACR

Note:

Type
C2



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10V 1% dimming comes standard**
- **Up to 39,000 Lm Delivered @129 Lm/W**
- **DLC Standard and Premium Listings Available**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



DISCLAIMER: Although KURTZON has prepared the information contained in this document with all due care, KURTZON does not warrant or represent that the information is free from errors or omission. While the information is considered to be true and correct at the date of publication, changes in circumstances after the time of publication may impact on the accuracy of the information. The information may change without notice and KURTZON is not in any way liable for the accuracy of any information printed and stored or in any way interpreted or used.



ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Voltage	Optics	Options
KL-R								

Series	Material	Size	Row Qty.	Light Source		Voltage	Optics	Options
				LED Type	CCT/CRI			
KL-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1" x 4" Housing	1	LEDR	83 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	SW Wet Location Hub Supplied (not installed)
			2	LEDH	830 3000K	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	PxL * Programmed to User Specified Lumen Value.
	4 White AL Hsg. & Polished 304 SS Door	2x2 2" x 2" Housing	2	LEDHF	835 3500K	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	PxW * Programmed to User Specified Wattage Value.
			3		840 4000K	347V*	TG 0.156" Prismatic Tempered Glass (Inverted)	10KV 10KV Parallel Surge Protection (One Supplied Per Circuit)
	5 White AL Hsg. & White AL Door	OR	4		850 5000K		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	GTD Generator Transfer Device
		2x4 2" x 4" Housing					FROST 0.125" Flat Diffusing Frost Acrylic	WHIP Must Specify Length and Wire Qty
	7 White AL Hsg. & White CRS Door				90+ CRI:		ZDBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION	OCCMW Internal microwave OCC Sensor
					935 3500K		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	FC Fuse & Holder (One Supplied Per Circuit)
					940 4000K		GRHS 0.125" Flat Diffused Acrylic with Gase Suppression Distribution	EM10 10W Integral LED EM (Specify Input Voltage)
					950 5000K			EM20 20W Remote LED EM (Specify Input Voltage)
								GG 1/8" Thick Grid Gasket (Provided Loose)
								EDL -40F Electronic Driver
								WHT White Finished Door & HSG
								AMW Anti-Microbial White Powdercoat
								2/ED Two Drivers/Two Circuits
								316SS DOOR ** 316 Stainless Steel Door Frame
								316SS HSG *** 316 Stainless Steel Housing

NOTE: Additionally available in 95+ CRI with Sun-Like LEDs. Consult factory for more information.

NOTE: P12ACR option is standard and will be provided when no other option is selected.

Note*: Specify Value in Ordering Notes
Note**: 316 SS Door Frame to Replace 304SS Door on Material Options 3 or 4
Note***: 316 SS Housing to Replace 304SS/430 SS Housing on Material Option 3

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LEDR-940-UNV-P12ACR
Note:

Type
C2



REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOOR FRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDS: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

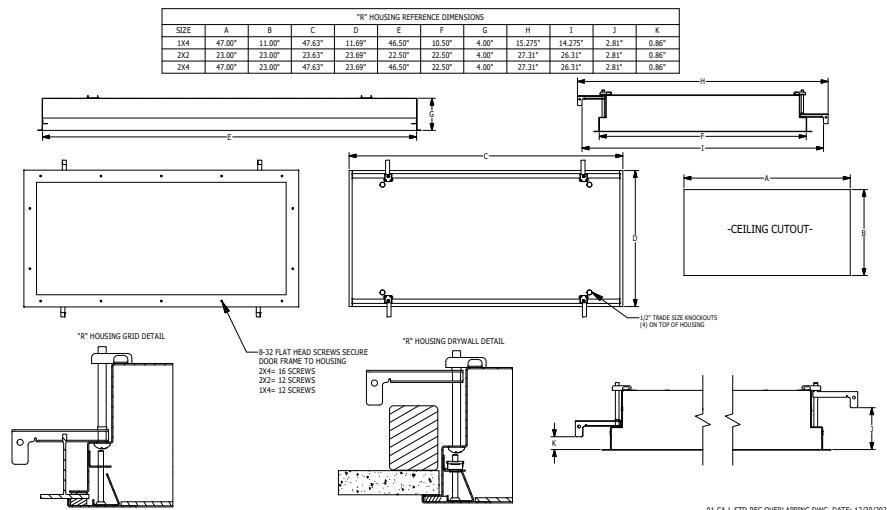
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food zones & Splash Zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty. This product is Buy American Act (B.A.A.) compliant.

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/28/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LED-R-940-UNV-P12ACR

Note:

Type
C2



REV: 01/23/2024

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

ENERGY DATA

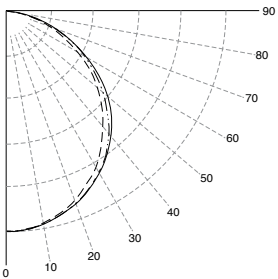
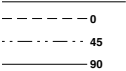
SURFACE & RECESSED OVERLAPPING LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LED-R	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	2LED-R	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	2LED-H	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	2LED-HF	18,046	153	118	35°C (95°F)	15,346	183	85	35°C (95°F)	0-10V 1%
1X4	EM10	1030-1180	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	2LED-R	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	3LED-R	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LED-H	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	4LED-R	6,328	55	115	45°C (113°F)	6,084	55	111	45°C (113°F)	0-10V 1%
2X2	3LED-H	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	4LED-H	12,425	109	114	40°C (104°F)	11,856	109	109	35°C (95°F)	0-10V 1%
2X2	4LED-HF	18,523	153	121	35°C (95°F)	16,425	184	89	35°C (95°F)	0-10V 1%
2X2	EM10	1090-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	2LED-R	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	3LED-R	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LED-H	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	4LED-R	13,726	111	124	45°C (113°F)	13,134	113	116	45°C (113°F)	0-10V 1%
2X4	3LED-H	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	4LED-H	26,977	220	123	40°C (104°F)	25,632	220	117	40°C (104°F)	0-10V 1%
2X4	4LED-HF	39,373	305	129	35°C (95°F)	35,488	373	95	35°C (95°F)	0-10V 1%
2X4	EM10	1230-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	NA

¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120VAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
³ EFFICACY CALCULATED USING 4000K CCT DATA.
⁴ MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON-STANDARD SELECTION
⁵ 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LEDR-940-UNV-P12ACR

Note:

Type
C2X



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10V 1% dimming comes standard**
- **Up to 39,000 Lm Delivered @129 Lm/W**
- **DLC Standard and Premium Listings Available**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



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ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Voltage	Optics	Options
KL-R								

Series	Material	Size	Row Qty.	Light Source		Voltage	Optics	Options
				LED Type	CCT/CRI			
KL-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1" x 4" Housing	1	LEDR	83 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	SW Wet Location Hub Supplied (not installed)
			2	LEDH	830 3000K	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	PxL * Programmed to User Specified Lumen Value.
	4 White AL Hsg. & Polished 304 SS Door	2x2 2" x 2" Housing	2	LEDHF	835 3500K	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	PxW * Programmed to User Specified Wattage Value.
			3		840 4000K	347V*	TG 0.156" Prismatic Tempered Glass (Inverted)	10KV 10KV Parallel Surge Protection (One Supplied Per Circuit)
	5 White AL Hsg. & White AL Door	OR	4		850 5000K		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	GTD Generator Transfer Device
		2x4 2" x 4" Housing					FROST 0.125" Flat Diffusing Frost Acrylic	WHIP Must Specify Length and Wire Qty
	7 White AL Hsg. & White CRS Door				90+ CRI:		ZDBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION	OCCMW Internal microwave OCC Sensor
					935 3500K		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	FC Fuse & Holder (One Supplied Per Circuit)
					940 4000K		GRHS 0.125" Flat Diffused Acrylic with Gase Suppression Distribution	EM10 10W Integral LED EM (Specify Input Voltage)
					950 5000K			EM20 20W Remote LED EM (Specify Input Voltage)
								GG 1/8" Thick Grid Gasket (Provided Loose)
								EDL -40F Electronic Driver
								WHT White Finished Door & HSG
								AMW Anti-Microbial White Powdercoat
								2/ED Two Drivers/Two Circuits
								316SS DOOR ** 316 Stainless Steel Door Frame
								316SS HSG *** 316 Stainless Steel Housing

NOTE: Additionally available in 95+ CRI with Sun-Like LEDs. Consult factory for more information.

NOTE: P12ACR option is standard and will be provided when no other option is selected.

Note*: Specify Value in Ordering Notes
Note**: 316 SS Door Frame to Replace 304SS Door on Material Options 3 or 4
Note***: 316 SS Housing to Replace 304SS/430 SS Housing on Material Option 3

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LED-R-940-UNV-P12ACR
Note:

Type
C2X



REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOOR FRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDS: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

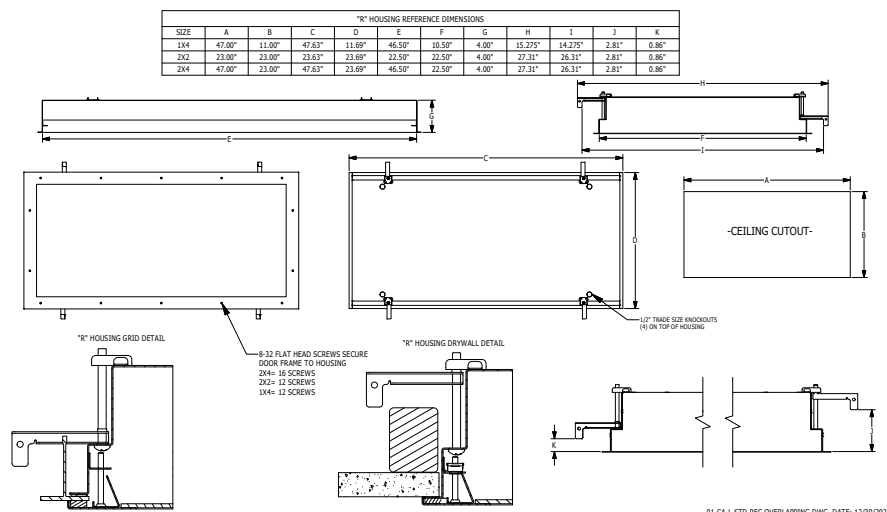
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food zones & Splash Zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty. This product is Buy American Act (B.A.A.) compliant.

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/28/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X4-3-LEDR-940-UNV-P12ACR

Note:

Type
C2X



REV: 01/23/2024

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

ENERGY DATA

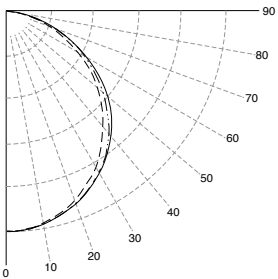
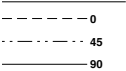
SURFACE & RECESSED OVERLAPPING LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LEDR	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	2LEDR	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	2LEDHF	18,046	153	118	35°C (95°F)	15,346	183	85	35°C (95°F)	0-10V 1%
1X4	EM10	1030-1180	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	2LEDR	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	3LEDR	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	4LEDR	6,328	55	115	45°C (113°F)	6,084	55	111	45°C (113°F)	0-10V 1%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	4LEDH	12,425	109	114	40°C (104°F)	11,856	109	109	35°C (95°F)	0-10V 1%
2X2	4LEDHF	18,523	153	121	35°C (95°F)	16,425	184	89	35°C (95°F)	0-10V 1%
2X2	EM10	1090-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	2LEDR	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	3LEDR	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	4LEDR	13,726	111	124	45°C (113°F)	13,134	113	116	45°C (113°F)	0-10V 1%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	4LEDH	26,977	220	123	40°C (104°F)	25,632	220	117	40°C (104°F)	0-10V 1%
2X4	4LEDHF	39,373	305	129	35°C (95°F)	35,488	373	95	35°C (95°F)	0-10V 1%
2X4	EM10	1230-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	NA

- ¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120vAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
³ EFFICACY CALCULATED USING 4000K CCT DATA.
⁴ MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON-STANDARD SELECTION
⁵ 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X2 2000LM 80CRI 40K COL MIN10 ZT MVOLT
Note:

Type
D1



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](#) to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](#)

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.

All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency — including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit [www.acuitybrands.com/aplus](#).



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit [www.acuitybrands.com/designselect](#).
*See ordering tree for details



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STACK LED Center Element Troffer

Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
		5000LM						
	2X2 2'x2'	2000LM						
		3000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality



STACK



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Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS1836 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS1846 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLV Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CP Chicago Plenum ‡</div><div>LATC T-bar clips</div><div>DWAM Anti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSH PAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSH PAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSH PAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the **CLAIRITY+** mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.



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STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!

Life Safety Code (NFPA101)
Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPDMA D](#) as well as nLight Wall Pods.



WSXA D



SPDMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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Intelligent Luminaire Technology Guide

Control/Sensor Configurations	Choose nomenclature from these columns						
	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen management. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC	



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Controls Accessories

nLight® Wired Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight.</i>			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: <i>Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.</i>	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



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PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



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Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X2 2000LM 80CRI 40K COL MIN10
ZT MVOLT

Note:

Type
D1X



DIGITAL NAVIGATION

[Ordering Tree](#) [nLight Platform](#) [Controls](#) [Dimensions](#) [Performance](#)

FEATURES & SPECIFICATIONS

INTENDED USE — Available in 1X4, 2X2, and 2X4 configuration, STACK provides both functionality and efficiency. STACK is the ideal choice for many recessed commercial applications. The wide center basked and curved matte reflector allow STACK to deliver a high quality of light while maintaining optimal performance.

- **Less than 2" in depth.**
- A high level of configurability allows you to choose the perfect solution for your space.
- Available 0-10v dimming to 1%
- Long-life LEDs deliver 80% lumen maintenance at 60,000 hours

The STACK lay-in delivers low glare, ambient lighting in a popular center-basket design. A typically configured STAK features a **Unified Glare Rating (UGR)** starting at 16, UGR data available on [page 6](#). The slim profile of the luminaire, coupled with energy-saving LED technology make STACK an ideal choice for renovation or new construction. The STACK lay-in offers a high-quality, cost-effective LED lighting solution for schools, offices, retail, healthcare facilities and other commercial spaces.

CONSTRUCTION — The reflector is finished with a glare reducing matte white paint for improved aesthetics and increased light diffusion. End plates contain easy-to-position clips allowing the luminaire to be securely attached to the T grid. Diffusers are extruded from impact modified acrylic for increased durability. LED boards are accessible from the room-side, and drivers are accessible from the plenum.

Integrated Sensor (nLight® Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, **CLAIRITY+**, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch™ VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

INSTALLATION — With a depth of only 1.9", STACK makes for an easy installation, especially in restrictive plenum applications. STACK fits into standard 15/16" and narrow 9/16" T-grid ceiling systems. Suitable for damp location.

ELECTRICAL — Long-life LED's, coupled with high-efficiency drivers provide superior quality of light and an extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). 0-10 volt dimming driver, dims to 1%.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. A high performance acrylic diffuser conceals LED's and efficiently delivers light in a volumetric distribution.

LISTINGS — CSA certified to meet US and Canadian standards. Damp location listed. IC rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice

Catalog Number
Notes
Type

LED Center Element Lay-In

STACK



Specifications

Length 1X4, 2X4: 47 3/4" (121.2)
Length 2X2: 23-3/4" (60.3)
Width 2X2, 2X4: 23-3/4" (60.3)
Width 1X4: 11-3/4" (29.8)
Depth: 1.9" (4.8)

All dimensions are inches (centimeters) unless otherwise specified.



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products.

All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency — including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing visit www.acuitybrands.com/aplus.



Items marked by a **shaded background** qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING


Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X2 2000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
D1X

STACK LED Center Element Troffer

 Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: STAK 2X4 5000LM 80CRI 40K COL MIN10 ZT MVOLT

Series	Size	Lumens	CRI	Color Temperature	Lens	Minimum Dimming	Dimming ‡	Voltage
STAK	1X4 1'x4'	3000LM	80CRI 80 CRI	30K 3000K	COL Curved Opal Lens	MIN1 Dims to 1% ‡	(blank) none	MVOLT 120-277V
		4000LM	90CRI 90 CRI	35K 3500K	COLT Curved Opal Lens with Trim	MIN10 Dims to 10%	EZT eldoLED 0-10V Dimming ‡	120 120V
		5000LM		40K 4000K			ZT Generic 0-10V Dimming	277 277V
		6000LM		50K 5000K				347 347V ‡
		7200LM						
	2X4 2'x4'	3000LM						
		4000LM						
		5000LM						
	2X2 2'x2'	2000LM						
		3000LM						
		4000LM						
		5000LM						

Step Level Dimming Option	Emergency Options	Controls Input	Sensor
SLD Step-level dimming ‡	E7W EM battery pack, 7W, CA Title 20 Noncompliant ‡	(blank) No Control Input	(blank) No Sensor or Control Input function only, if selected.
	E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡	SSE Sensor Switch Embedded	APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
	E15WLCP EM Self-Diagnostic battery pack, 15W Constant Power, Certified in CA Title 20 MAEDBS ‡		APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
	GTD Generator Transfer Device ‡		VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height
		NLIGHT nLight enabled	VAPIR8 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height
		NLIGHTER nLight enabled, for use with generator supply EM power	VPIR15 Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height
		NLIGHTLM nLight enabled with lumen management	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height
		NLIGHTERLM nLight enabled with lumen management, for use with generator supply EM power	
		NLTAIR2 nLight AIR Generation 2 (wireless) enabled ‡	(blank) No sensor, Control Input function only
		NLTAIREM2 nLight AIR Generation 2 (wireless) enabled and UL924 Emergency Operation, via power interrupt detection ‡	PIR Occ sensing with passive infrared - on/off functionality
			PDT Occ sensor dual tech (passive infrared & microphonics)
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
			(blank) No sensor, Control Input function only
			APIR Occ sensing with passive infrared - on/off functionality and auto dimming photocell
			APDT Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell
			APIREM Occ sensing with passive infrared - on/off functionality and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection
			APDTEM Occ sensor dual tech (passive infrared & microphonics) and auto dimming photocell and UL924 Emergency Operation, via power interrupt detection.
			VPIR8 Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height
			(blank) No sensor, Control Input function only
		JOT JOT, "Just One Touch" (wireless) enabled	VAPIR15 Vertex low-profile on/off occupancy sensor with auto dimming photocell at 15ft mounting height



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Standby Mode	Options
NOC Occupancy Sensor Disabled	<div><div>PWS1836 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit</div><div>PWS1846 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit</div><div>PWS1846 PWSLV Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡</div><div>PWS1856LV 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡</div></div> <div><div>CP Chicago Plenum ‡</div><div>LATC T-bar clips</div><div>DWAM Anti-microbial paint</div></div>

‡ Option Value Ordering Restrictions	
Option Value	Restriction
MIN1	Required for all Control Input options, excluding JOT. Not available with SLD.
Dimming	This section is left blank only when a Control Input option or Step Level Dimming option is selected
EZT	Not available with MIN10
347	Not available with: E7W, E10WLCP, E15WLCP, SLD, GTD
SLD	Not available with controls. Must select MIN10. Leave Dimming section blank
E7W, E10WLCP	Not available with 347V
E15WLCP	Not available with: 2X2 or 347V
GTD	Must select 120 OR 277, Not available with 347V or MVOLT
NLTAIR2	See UL924 Sequence of Operation chart on page 3. Can be used as a normal power sensing device for nLight AIR devices and luminaires with EM emergency options.
NLTAIREM2	See UL924 Sequence of Operation Chart on page 3. Leave sensor option blank, not available with APIR, APDT, APIREM, APDTEM or VPIR8.
JOT	Not available with SLD, nLight, NLTAIR2, NOC, or GTD options. Must be ordered with COLT, not available with COL.
NOC	Must select a Wireless Network Control
PWS1846 PWSLV, PWS1856LV	Not available with nLight wired network or individual controls
CP	Not available with Wired Network Controls, PWS1836, PWS1846, PWS1846 PWSLV or PWS1856LV.

ACCESSORIES

Accessories: Order as separate catalog number.	
DGA14	Drywall grid adapter for 1X4 recessed fixture
DGA22	Drywall grid adapter for 2x2 recessed fixture
DGA24	Drywall grid adapter for 2x4 recessed fixture
1X4SMKSH PAF	Multi-Use Surface Mount Kit 1X4 Post-Paint
2X2SMKSH PAF	Multi-Use Surface Mount Kit 2X2 Post-Paint
2X4SMKSH PAF	Multi-Use Surface Mount Kit 2X4 Post-Paint
LATC 10SETSOFA J40	10 Sets of 4 LATC Earthquake Clips
LATC 20SETSOFA J80	20 Sets of 4 LATC Earthquake Clip
ELA PSRME IC	Remote enclosure for battery for insulated ceiling
RK8BDP 2P U	Disconnect Plug (BDP), 2 Pole, Package of 1
RK8BDP 3P U	Disconnect Plug (BDP), 3 Pole, Package of 1
RK8BDP 2P J10	Disconnect Plug (BDP), 2 Pole, Package of 10
RK8BDP 2P J40	Disconnect Plug (BDP), 2 Pole, Package of 40

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.



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STACK LED Center Element Troffer

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.
*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.
The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.
Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.



Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLARITY+ mobile app. **Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!**

Life Safety Code (NFPA101)
Testing & Reporting Requirements

- 30 seconds every 30 days
- 90 minutes every year
- Keep records for 5 years



DOWNLOAD CLARITY+



STACK is compatible with Sensor Switch™
[WSXA D](#) and [SPDMA D](#) as well as nLight Wall Pods.



WSXA D



SPDMA D



nLight WIRED
nPODMA DX



nLight AIR
rPODBA



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ZT MVOLT

Note:

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STACK LED Center Element Troffer

Intelligent Luminaire Technology Guide

Control/Sensor Configurations	Choose nomenclature from these columns						
	Control Input		Sensor		Sensor	Notes	Previous Nomenclature
	SSE	+	APIR	=	MSD 7 ADCX	Individual fixture control only. PIR integral occupancy sensor with automatic dimming control photocell.	MSD7ADCX
	SSE	+	APDT	=	MSD PDT 7 ADCX	Individual fixture control only. PDT integral occupancy sensor with automatic dimming control photocell.	MSDPDT7ADCX
	SSE	+	VPIR8	=	VERTEX 8F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 8ft mounting height.	VTX8FOCC
	SSE	+	VAPIR8	=	VERTEX 8F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 8ft mounting height.	VTX8FADC
	SSE	+	VPIR15	=	VERTEX 15F EZ OCC VLP	Vertex low-profile on/off occupancy PIR occupancy sensor with VLP programming at 15ft mounting height.	VTX15FOCC
	SSE	+	VAPIR15	=	VERTEX 15F EZ ADC VLP	Vertex low-profile on/off occupancy sensor with auto dimming photocell with VLP programming at 15ft mounting height.	VTX15FADC
	JOT	+	(blank)	=	BTRM JOT BTA	Wireless room control with "Just One Touch" pairing.	JOT
	JOT	+	VAPIR15	=	BTRM JOT BTA + VERTEX 15F EZ ADC VLP GSKT	Wireless room control with "Just One Touch" pairing.	JOTVTX15
	NLIGHT	+	(blank)	=	nIO EZDXA	nLight enabled only. No onboard sensor.	NLIGHT
	NLIGHT	+	PIR	=	nIO EZDXA + nES 7	nLight enabled with PIR integral occupancy sensor.	NLIGHT NES7
	NLIGHT	+	PDT	=	nIO EZDXA + nES PDT 7	nLight enabled with dual technology occupancy control sensor.	NLIGHT NESPDT7
	NLIGHT	+	APIR	=	nIO EZDXA + nES 7 ADCX	nLight enabled with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT NES7ADCX
	NLIGHT	+	APDT	=	nIO EZDXA + nES PDT 7 ADCX	nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT NESPDT7ADCX
	NLIGHT	+	VPIR8	=	NIO EZDXA + VERTEX 8F EZ OCC VLP	nLight enabled with Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLIGHT NVTX8FOCC
	NLIGHTER	+	(blank)	=	nIO EZDCL ER	Emergency nLight enabled only. No onboard sensor. BUS Power required.	NLIGHT EMG
	NLIGHTER	+	PIR	=	nIO EZDCL ER PH + nES 7	Emergency nLight enabled with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG NESPDT7
	NLIGHTER	+	PDT	=	nIO EZDCL ER PH + nES PDT 7	Emergency nLight enabled with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG NES7ADC
	NLIGHTER	+	APIR	=	nIO EZDCL ER + nES 7 ADCX	Emergency nLight enabled with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NES7ADCX
	NLIGHTER	+	APDT	=	nIO EZDCL ER + nES PDT 7 ADCX	Emergency nLight enabled with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG NESPDT7ADCX
	NLIGHTLM	+	(blank)	=	nIO EZDXA N80	nLight enabled only with 80% constant lumen managment. No onboard sensor.	NLIGHT CL80
	NLIGHTLM	+	PIR	=	nIO EZDXA N80 + nES 7	nLight enabled with 80% constant lumen managment with PIR integral occupancy sensor.	NLIGHT CL80 NES7
	NLIGHTLM	+	PDT	=	nIO EZDXA N80 + nES PDT 7	nLight enabled with 80% constant lumen management with dual technology occupancy control sensor.	NLIGHT CL80 NESPDT7
	NLIGHTLM	+	APIR	=	nIO EZDXA N80 + nES 7 ADCX	nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell.	NLIGHT CL80 NES7ADCX
	NLIGHTLM	+	APDT	=	nIO EZDXA N80 + nES PDT 7 ADCX	nLight enabled with 80% constant lumen managementwith dual technology occupancy controls sensor with automatic dimming photocell.	NLIGHT CL80 NESPDT7ADCX
	NLIGHTLMER	+	(blank)	=	nIO EZDCL ER N80	Emergency nLight enabled only with 80% constant lumen management. No onboard sensor. BUS Power required.	NLIGHT EMG CL80
	NLIGHTLMER	+	PIR	=	nIO EZDCL ER N80 + nES 7	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor. BUS Power required.	NLIGHT EMG CL80 NES7
	NLIGHTLMER	+	PDT	=	nIO EZDCL ER N80 + nES PDT 7	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy control sensor. BUS Power required.	NLIGHT EMG CL80 NESPDT7
	NLIGHTLMER	+	APIR	=	nIO EZDCL ER N80 + nES 7 ADCX	Emergency nLight enabled with 80% constant lumen management with PIR integral occupancy sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NES7ADCX
	NLIGHTLMER	+	APDT	=	nIO EZDCL ER N80 + nES PDT 7 ADCX	Emergency nLight enabled with 80% constant lumen management with dual technology occupancy controls sensor with automatic dimming photocell. BUS Power required.	NLIGHT EMG CL80 NESPDT7ADCX
	NLTAIR2	+	(blank)	=	RIO EZDL 180D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RIO
	NLTAIREM2	+	(blank)	=	RIO EZDL EM 180D G2	nLight AIR Generation 2 enabled	NLTAIR2 RIOEM
	NLTAIR2	+	APIR	=	RES7 G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7
	NLTAIR2	+	APDT	=	RES7 PDT 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDT
	NLTAIR2	+	APIREM	=	RES7 EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7EM
	NLTAIR2	+	APDTEM	=	RES7 PDT EM 90D G2	nLight AIR Generation 2 enabled.	NLTAIR2 RES7PDTEM
NLTAIR2	+	VPIR8	=	RIO EZDL EXTD8 ACWH 90D G2 + VERTEX 8F EZ OCC VLP	nlight AIR Generation 2 enabled. Vertex low-profile on/off occupancy PIR occupancy sensor at 8ft mounting height.	NLTAIR2 RVT8FOCC	



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X2 2000LM 80CRI 40K COL MIN10
ZT MVOLT

Note:

Type

D1X

STACK LED Center Element Troffer

Controls Accessories

nLight® Wired Control Accessories: Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight .			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODMA [Color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 RJB / nCM PDT 9 RJB
On/Off & raise/lower	nPODMA DX [Color]	Large motion 360°, ceiling (PIR / dual tech)	nCM10 RJB / nCM PDT 10 RJB
Graphic touchscreen	nPOD TOUCH [Color]	Wall switch with raise/lower	nWSX PDT LV DX [color]
Photocell controls	Model number	Cat-5 cable (plenum rated)	Model number
Full range dimming	nCM ADCX RJB	10' cable	CAT5 10FT J1
		30' cable	CAT5 30FT J1

nLight® AIR Control Accessories: Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair .	
Wall switches	Model number
On/Off single pole	rPODBA [color] G2
On/Off two pole	rPODB A2P [color] G2
On/Off & raise/lower single pole	rPODBA DX [color] G2
On/Off & raise/lower two pole	rPODBA 2P DX [color] G2



Sensor Switch
WSXA D



nLight WIRED
NPOD UNITOUCH



nLight WIRED
nPODMA DX



nLight AIR
rPODBA

PHOTOMETRICS

See STACK Prime - Low-Profile Recessed LED Luminaire (acuitybrands.com) for photometry reports.

UGR Chart

UGR Values of STAKP 1x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21.5	21.8	21.5	22.2
4000LM	22.4	22.8	23.7	24.4
5000LM	23.2	23.5	23.2	23.9
6000LM	23.6	24	22.4	23.1

UGR Values of STAKP 1x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	21	21.4	21.1	21.8
4000LM	21.9	22.3	22	22.7
5000LM	22.7	23.1	22.8	23.5
6000LM	23.2	23.6	23.3	23.9

UGR Values of STAKP 2x2 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.9	20.5	16.5	17.8
3000LM	20	21.6	17.7	19
4000LM	21	22.6	18.6	19.9
5000LM	21.7	23.4	19.4	20.7

UGR Values of STAKP 2x2 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
2000LM	18.4	20	16.1	17.3
3000LM	19.6	21.2	17.3	18.5
4000LM	20.5	22.2	18.2	19.5
5000LM	21.3	22.9	19	20.2

UGR Values of STAKP 2x4 @ 80CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	18	19.3	20.1	21.4
4000LM	18.9	20.2	20.7	22
5000LM	19.7	21.1	17.9	19.2
6000LM	20.2	21.5	18.8	20.1
7200LM	20.8	22.1	19.7	20.9

UGR Values of STAKP 2x4 @ 90CRI and 3500K (70% 50% 20% reflectance using a 4H x 8H room size)				
Lumen Package	COL		COLT	
	Crosswise	Endwise	Crosswise	Endwise
3000LM	19.3	20.6	19.2	20.5
4000LM	19.8	21.1	19.7	21
5000LM	20.4	21.7	20.3	21.6
6000LM	17.5	18.9	17.5	18.7
7200LM	18.5	19.8	18.4	19.6

UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered “Luminaire-UGR and/or “Point-UGR” values. To determine a more precise maximum UGR value (“Application-UGR”), a full lighting design layout should be completed with the selected luminaire configuration for each application.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: STAK 2X2 2000LM 80CRI 40K COL MIN10 ZT MVOLT

Note:

Type
D1X

STACK LED Center Element Troffer

PERFORMANCE DATA

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X2 2000LM 80CRI 30K COL MVOLT	2,160	16.8	128.8
STAK 2X2 2000LM 80CRI 30K COLT MVOLT	2,109	16.8	125.7
STAK 2X2 2000LM 80CRI 35K COL MVOLT	2,241	16.8	133.6
STAK 2X2 2000LM 80CRI 35K COLT MVOLT	2,188	16.8	130.4
STAK 2X2 2000LM 80CRI 40K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 40K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 2000LM 80CRI 50K COL MVOLT	2,311	16.8	137.7
STAK 2X2 2000LM 80CRI 50K COLT MVOLT	2,257	16.8	134.5
STAK 2X2 3000LM 80CRI 30K COL MVOLT	3,029	24.1	125.4
STAK 2X2 3000LM 80CRI 30K COLT MVOLT	2,957	24.1	122.5
STAK 2X2 3000LM 80CRI 35K COL MVOLT	3,141	24.1	130.1
STAK 2X2 3000LM 80CRI 35K COLT MVOLT	3,067	24.1	127
STAK 2X2 3000LM 80CRI 40K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 40K COLT MVOLT	3,163	24.1	131
STAK 2X2 3000LM 80CRI 50K COL MVOLT	3,240	24.1	134.2
STAK 2X2 3000LM 80CRI 50K COLT MVOLT	3,163	24.1	131
STAK 2X2 4000LM 80CRI 30K COL MVOLT	3,978	33.3	119.4
STAK 2X2 4000LM 80CRI 30K COLT MVOLT	3,884	33.3	116.6
STAK 2X2 4000LM 80CRI 35K COL MVOLT	4,126	33.3	123.8
STAK 2X2 4000LM 80CRI 35K COLT MVOLT	4,028	33.3	120.9
STAK 2X2 4000LM 80CRI 40K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 40K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 4000LM 80CRI 50K COL MVOLT	4,255	33.3	127.7
STAK 2X2 4000LM 80CRI 50K COLT MVOLT	4,155	33.3	124.7
STAK 2X2 5000LM 80CRI 30K COL MVOLT	4,944	42.6	116
STAK 2X2 5000LM 80CRI 30K COLT MVOLT	4,827	42.6	113.3
STAK 2X2 5000LM 80CRI 35K COL MVOLT	5,128	42.6	120.3
STAK 2X2 5000LM 80CRI 35K COLT MVOLT	5,007	42.6	117.5
STAK 2X2 5000LM 80CRI 40K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 40K COLT MVOLT	5,164	42.6	121.2
STAK 2X2 5000LM 80CRI 50K COL MVOLT	5,289	42.6	124.1
STAK 2X2 5000LM 80CRI 50K COLT MVOLT	5,164	42.6	121.2
STAK 2X4 3000LM 80CRI 30K COL MVOLT	3,056	24.1	126.9
STAK 2X4 3000LM 80CRI 30K COLT MVOLT	2,976	24.1	123.6
STAK 2X4 3000LM 80CRI 35K COL MVOLT	3,170	24.1	131.6
STAK 2X4 3000LM 80CRI 35K COLT MVOLT	3,086	24.1	128.2

Performance Data			
Luminaire Catalog	Lumens	Wattage	Efficacy
STAK 2X4 3000LM 80CRI 40K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 40K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 3000LM 80CRI 50K COL MVOLT	3,269	24.1	135.8
STAK 2X4 3000LM 80CRI 50K COLT MVOLT	3,183	24.1	132.2
STAK 2X4 4000LM 80CRI 30K COL MVOLT	3,978	33.2	119.8
STAK 2X4 4000LM 80CRI 30K COLT MVOLT	3,873	33.2	116.7
STAK 2X4 4000LM 80CRI 35K COL MVOLT	4,126	33.2	124.3
STAK 2X4 4000LM 80CRI 35K COLT MVOLT	4,017	33.2	121
STAK 2X4 4000LM 80CRI 40K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 40K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 4000LM 80CRI 50K COL MVOLT	4,255	33.2	128.2
STAK 2X4 4000LM 80CRI 50K COLT MVOLT	4,144	33.2	124.8
STAK 2X4 5000LM 80CRI 30K COL MVOLT	5,074	41.9	121
STAK 2X4 5000LM 80CRI 30K COLT MVOLT	4,940	41.9	117.9
STAK 2X4 5000LM 80CRI 35K COL MVOLT	5,262	41.9	125.5
STAK 2X4 5000LM 80CRI 35K COLT MVOLT	5,124	41.9	122.2
STAK 2X4 5000LM 80CRI 40K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 40K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 5000LM 80CRI 50K COL MVOLT	5,428	41.9	129.5
STAK 2X4 5000LM 80CRI 50K COLT MVOLT	5,285	41.9	126.1
STAK 2X4 6000LM 80CRI 30K COL MVOLT	5,819	50.2	115.8
STAK 2X4 6000LM 80CRI 30K COLT MVOLT	5,666	50.2	112.8
STAK 2X4 6000LM 80CRI 35K COL MVOLT	6,035	50.2	120.1
STAK 2X4 6000LM 80CRI 35K COLT MVOLT	5,877	50.2	117
STAK 2X4 6000LM 80CRI 40K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 40K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 6000LM 80CRI 50K COL MVOLT	6,225	50.2	123.9
STAK 2X4 6000LM 80CRI 50K COLT MVOLT	6,061	50.2	120.6
STAK 2X4 7200LM 80CRI 30K COL MVOLT	6,926	55.2	125.6
STAK 2X4 7200LM 80CRI 30K COLT MVOLT	6,744	55.2	122.3
STAK 2X4 7200LM 80CRI 35K COL MVOLT	7,184	55.2	130.3
STAK 2X4 7200LM 80CRI 35K COLT MVOLT	6,995	55.2	126.8
STAK 2X4 7200LM 80CRI 40K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 40K COLT MVOLT	7,215	55.2	130.8
STAK 2X4 7200LM 80CRI 50K COL MVOLT	7,409	55.2	134.3
STAK 2X4 7200LM 80CRI 50K COLT MVOLT	7,215	55.2	130.8



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X2-3-LEDH-940-UNV-P12ACR

Note: VERIFY LUMEN PACKAGE REQUIRED

Type
F1



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10V 1% dimming comes standard**
- **Up to 39,000 Lm Delivered @129 Lm/W**
- **DLC Standard and Premium Listings Available**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



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ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Voltage	Optics	Options
KL-R								

Series	Material	Size	Row Qty.	Light Source		Voltage	Optics	Options
				LED Type	CCT/CRI			
KL-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1" x 4" Housing	1	LEDH	83 CRI: 830 3000K 835 3500K 840 4000K 850 5000K	120V 277V UNV	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	SW Wet Location Hub Supplied (not installed)
	4 White AL Hsg. & Polished 304 SS Door	2x2 2" x 2" Housing	2	LEDH	835 3500K 840 4000K 850 5000K	347V*	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	PxL * Programmed to User Specified Lumen Value.
	5 White AL Hsg. & White AL Door	OR	3	LEDH	835 3500K 840 4000K 850 5000K	347V*	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	PxW * Programmed to User Specified Wattage Value.
	7 White AL Hsg. & White CRS Door	2x4 2" x 4" Housing	4	LEDH	835 3500K 840 4000K 850 5000K	347V*	TG 0.156" Prismatic Tempered Glass (Inverted)	10KV 10KV Parallel Surge Protection (One Supplied Per Circuit)
					90+ CRI: 935 3500K 940 4000K 950 5000K	347V	HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	GTD Generator Transfer Device
							FROST 0.125" Flat Diffusing Frost Acrylic	WHIP Must Specify Length and Wire Qty
							2DBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION	OCCMW Internal microwave OCC Sensor
							LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	FC Fuse & Holder (One Supplied Per Circuit)
							GRHS 0.125" Flat Diffused Acrylic with Gase Suppression Distribution	EM10 10W Integral LED EM (Specify Input Voltage)
								EM20 20W Remote LED EM (Specify Input Voltage)
								GG 1/8" Thick Grid Gasket (Provided Loose)
								EDL -40F Electronic Driver
								WHT White Finished Door & HSG
								AMW Anti-Microbial White Powdercoat
								2/ED Two Drivers/Two Circuits
								316SS DOOR ** 316 Stainless Steel Door Frame
								316SS HSG *** 316 Stainless Steel Housing

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X2-3-LEDH-940-UNV-P12ACR
Note: VERIFY LUMEN PACKAGE REQUIRED

Type
F1



REV: 01/23/2024

Cleanroom KL-R Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOOR FRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDS: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

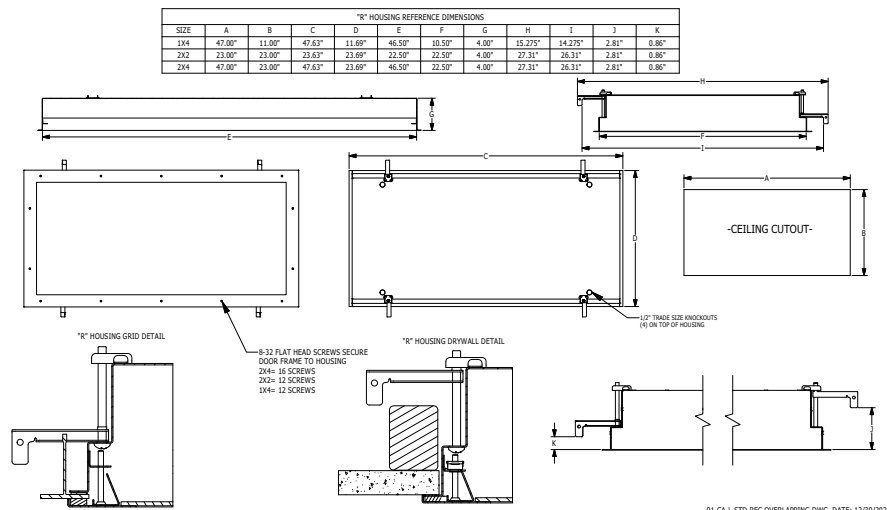
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food zones & Splash Zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty. This product is Buy American Act (B.A.A.) compliant.

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/28/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KL-R-5-2X2-3-LEDH-940-UNV-P12ACR

Note: VERIFY LUMEN PACKAGE REQUIRED

Type
F1



REV: 01/23/2024

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency LED Recessed Luminaires

ENERGY DATA

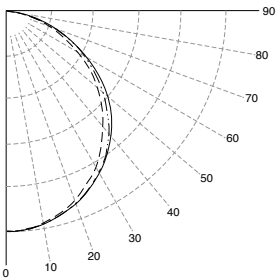
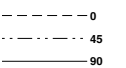
SURFACE & RECESSED OVERLAPPING LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LEDH	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	2LEDH	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	2LEDHF	18,046	153	118	35°C (95°F)	15,346	183	85	35°C (95°F)	0-10V 1%
1X4	EM10	1030-1180	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	2LEDH	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	3LEDH	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	4LEDH	6,328	55	115	45°C (113°F)	6,084	55	111	45°C (113°F)	0-10V 1%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	4LEDH	12,425	109	114	40°C (104°F)	11,856	109	109	35°C (95°F)	0-10V 1%
2X2	4LEDHF	18,523	153	121	35°C (95°F)	16,425	184	89	35°C (95°F)	0-10V 1%
2X2	EM10	1090-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	2LEDH	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	3LEDH	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	4LEDH	13,726	111	124	45°C (113°F)	13,134	113	116	45°C (113°F)	0-10V 1%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	4LEDH	26,977	220	123	40°C (104°F)	25,632	220	117	40°C (104°F)	0-10V 1%
2X4	4LEDHF	39,373	305	129	35°C (95°F)	35,488	373	95	35°C (95°F)	0-10V 1%
2X4	EM10	1230-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	NA

- ¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
- ² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120VAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
- ³ EFFICACY CALCULATED USING 4000K CCT DATA.
- ⁴ MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON-STANDARD SELECTION
- ⁵ 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LEDR-840-UNV-P12ACR

Note:

Type
H1



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

- Suitable For Use In Class 1 Division 2 Groups A, B, C, & D Installations
- IP66 rating
- ETL listed for wet locations
- Recessed housing suitable for tbar grid and hardlid installations
- 0-10V dimming to 10% standard
- Made in the USA by a Family Owned US Corporation



DISCLAIMER: Although KURTZON has prepared the information contained in this document with all due care, KURTZON does not warrant or represent that the information is free from errors or omission. While the information is considered to be true and correct at the date of publication, changes in circumstances after the time of publication may impact on the accuracy of the information. The information may change without notice and KURTZON is not in any way liable for the accuracy of any information printed and stored or in any way interpreted or used.

ORDERING GUIDE

Series	Material	Size	Light Source	CCT/CRI	Voltage	Optics	Options
KLX12-R							

Series	Material	Size	Light Source	CCT/CRI	Voltage	Optics	Options
KLX12-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1' x 4' Housing	2 LEDR	80 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	HFC Fuse & Holder (One Supplied Per Circuit)
	4 White AL Hsg. & Polished 304 SS Door		2 LEDH	830 3000K CCT	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	2/ED Two Drivers (Two Circuits)
	5 White AL Hsg. & White AL Door			835 3500K CCT	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	EDL -40F Electronic Driver
	7 White AL Hsg. & White CRS Door	2x2 2' x 2' Housing	2 LEDR	840 4000K CCT		TG 0.156" Prismatic Tempered Glass (Inverted)	H/EM** 10W Integral LED EM (Specify Input Voltage)
			2 LEDH	850 5000K CCT		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	WHT White Finished Door & HSG
		2x4 2' x 4' Housing	3 LEDR			FROST 0.125" Flat Diffusing Frost Acrylic	PdL* Programmed to User Specified Lumen Value
			3 LEDH	90 CRI:		2DBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing Distribution	PxW* Programmed to User Specified Wattage Value
			4 LEDR	935 3500K CCT		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	WHIP Must Specify Length and Wire Qty
				940 4000K CCT		GH85 0.125" Flat Diffused Acrylic with Glare Suppression Distribution	AMW Anti-Microbial White Powdercoat
							GG 1/8" Thick Grid Gasket (Provided Loose)

NOTE: P12ACR option is standard and will be provided when no other option is selected

Note: * Specify value in ordering notes below
** H/EM not available for 2x2 with 2-led option

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LED-840-UNV-P12ACR
Note:

Type
H1



REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened, silicone sealed knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOORFRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum. , 20Ga 304 Polished SS, or 18Ga Powder coated CRS

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDs: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 10%. They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

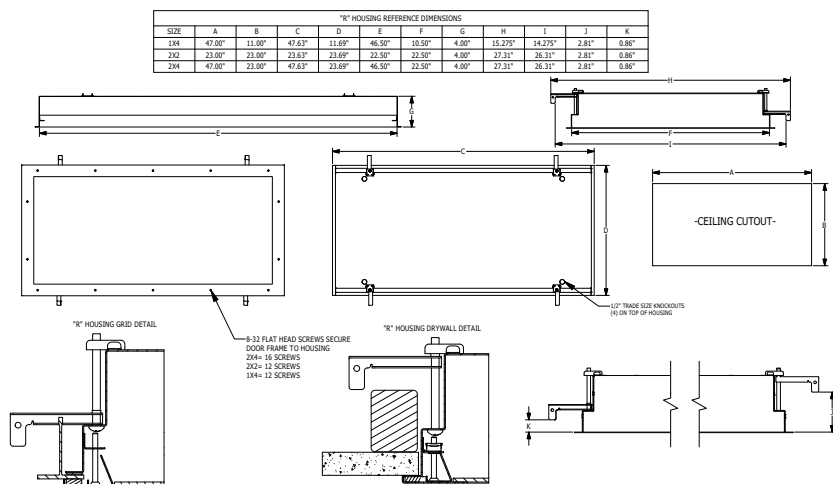
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: Listed for Class I Division II Groups A,B,C & D hazardous locations. IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 listed for non-food and splash zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/30/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LED-R-840-UNV-P12ACR

Note:

Type
H1



REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

ENERGY DATA

HAZ CLASS 1 DIVISION 2 SURFACE & RECESSED OVERLAP LED TROFFER (APPROX ¹ LUMENS DELIVERED)											
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				HAZ LOCATION TEMP CODE	STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴		
1X4	1LED-R	2,974	29	103	40°C (104°F)	2,868	29	99	40°C (104°F)	T4A	0-10V 10%
1X4	2LED-R	5,948	55	108	40°C (104°F)	5,736	56	103	40°C (104°F)	T4A	0-10V 10%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	T4A	0-10V 10%
2X2	2LED-R	3,165	29	109	40°C (104°F)	3,042	29	105	40°C (104°F)	T4A	0-10V 10%
2X2	3LED-R	4,747	42	113	40°C (104°F)	4,563	42	109	40°C (104°F)	T4A	0-10V 10%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	T4A	0-10V 10%
2X2	4LED-R	6,328	55	115	40°C (104°F)	6,084	55	111	40°C (104°F)	T4A	0-10V 10%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	T4A	0-10V 10%
2X4	2LED-R	6,864	55	125	40°C (104°F)	6,567	56	117	40°C (104°F)	T4A	0-10V 10%
2X4	3LED-R	10,295	83	124	40°C (104°F)	9,851	83	119	40°C (104°F)	T4A	0-10V 10%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	T4A	0-10V 10%
2X4	4LED-R	13,726	111	124	40°C (104°F)	13,134	113	116	40°C (104°F)	T4A	0-10V 10%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	T4A	0-10V 10%

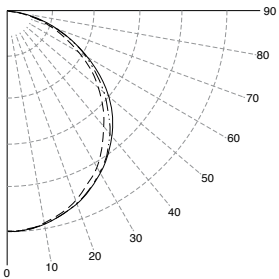
¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @ 25°C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120VAC AND Tambient = 25°C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
³ EFFICACY CALCULATED USING 4000K CCT DATA.
⁴ MAX AMBIENT TEMP RATING AS SPECIFIED ON SAFETY REPORT, NON-IC INSTALLATION.

PHOTOMETRICS

P12 PRISMATIC

Key:

— 0
--- 45
— 90





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LEDR-840-UNV-P12ACR

Note:

Type
H1X



PROJECT _____

DATE _____ TYPE _____

NOTES _____

REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

- Suitable For Use In Class 1 Division 2 Groups A, B, C, & D Installations
- IP66 rating
- ETL listed for wet locations
- Recessed housing suitable for tbar grid and hardlid installations
- 0-10V dimming to 10% standard
- Made in the USA by a Family Owned US Corporation



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ORDERING GUIDE

Series	Material	Size	Light Source	CCT/CRI	Voltage	Optics	Options
KLX12-R							

Series	Material	Size	Light Source	CCT/CRI	Voltage	Optics	Options
KLX12-R	3 White 430 SS Hsg. & Polished 304 SS Door	1x4 1' x 4' Housing	2 LEDR	80 CRI:	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	H/FC Fuse & Holder (One Supplied Per Circuit)
	4 White AL Hsg. & Polished 304 SS Door		2 LEDH	830 3000K CCT	277V	LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	2/ED Two Drivers (Two Circuits)
	5 White AL Hsg. & White AL Door			835 3500K CCT	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)	EDL -40F Electronic Driver
	7 White AL Hsg. & White CRS Door	2x2 2' x 2' Housing	2 LEDR	840 4000K CCT		TG 0.156" Prismatic Tempered Glass (Inverted)	H/EM** 10W Integral LED EM (Specify Input Voltage)
			2 LEDH	850 5000K CCT		HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)	WHT White Finished Door & HSG
		2x4 2' x 4' Housing	3 LEDR			FROST 0.125" Flat Diffusing Frost Acrylic	PdL* Programmed to User Specified Lumen Value
			3 LEDH	90 CRI:		2DBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing Distribution	PxW* Programmed to User Specified Wattage Value
			4 LEDR	935 3500K CCT		LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution	WHIP Must Specify Length and Wire Qty
				940 4000K CCT		GH85 0.125" Flat Diffused Acrylic with Glare Suppression Distribution	AMW Anti-Microbial White Powdercoat
							GG 1/8" Thick Grid Gasket (Provided Loose)

NOTE: P12ACR option is standard and will be provided when no other option is selected

Note: * Specify value in ordering notes below
** H/EM not available for 2x2 with 2-led option

Ordering Notes, If Applicable



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LED-840-UNV-P12ACR
Note:

Type
H1X



REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened, silicone sealed knockouts for a superior seal. Housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

DOORFRAME: One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the mounting surface. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum. , 20Ga 304 Polished SS, or 18Ga Powder coated CRS

GASKETS: NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

OPTICS: Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

LEDs: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 10%. They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Drivers with higher input voltage ratings are available, consult factory for driver specifications.

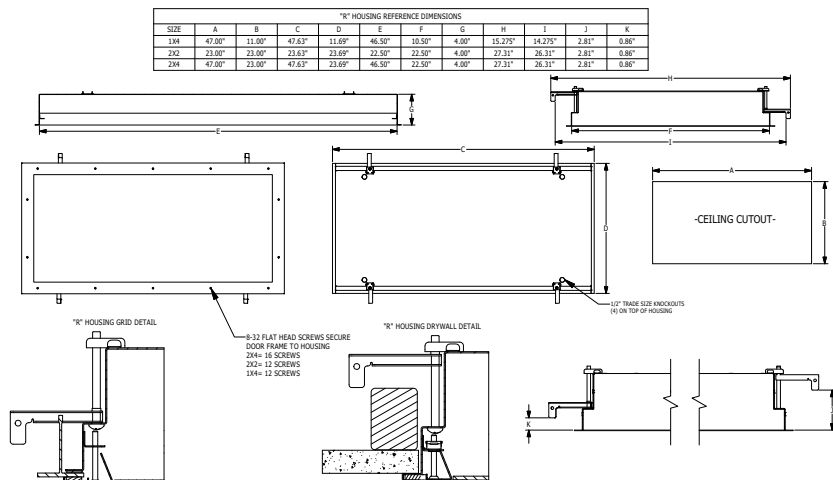
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION: Suitable for recessed Non-IC installation into covered ceilings. Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

LISTINGS: Listed for Class I Division II Groups A,B,C & D hazardous locations. IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 listed for non-food and splash zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty

PRODUCT DRAWINGS



01-CA-L-STD REC OVERLAPPING DWG. DATE: 12/30/2020



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: KLX12-R-5-2X4-2LED-R-840-UNV-P12ACR

Note:

Type
H1X



REV: 11232022

Hazardous X12 KL Troffers: KLX12-R-LED

1x4, 2x2 and 2x4 Hazardous Location LED Luminaires

ENERGY DATA

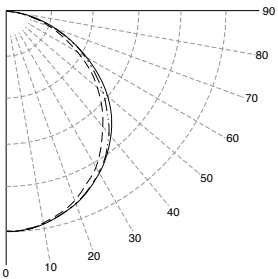
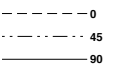
HAZ CLASS 1 DIVISION 2 SURFACE & RECESSED OVERLAP LED TROFFER (APPROX ¹ LUMENS DELIVERED)											
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				HAZ LOCATION TEMP CODE	STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴		
1X4	1LED-R	2,974	29	103	40°C (104°F)	2,868	29	99	40°C (104°F)	T4A	0-10V 10%
1X4	2LED-R	5,948	55	108	40°C (104°F)	5,736	56	103	40°C (104°F)	T4A	0-10V 10%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	T4A	0-10V 10%
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2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	T4A	0-10V 10%
2X2	4LED-R	6,328	55	115	40°C (104°F)	6,084	55	111	40°C (104°F)	T4A	0-10V 10%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	T4A	0-10V 10%
2X4	2LED-R	6,864	55	125	40°C (104°F)	6,567	56	117	40°C (104°F)	T4A	0-10V 10%
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2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	T4A	0-10V 10%
2X4	4LED-R	13,726	111	124	40°C (104°F)	13,134	113	116	40°C (104°F)	T4A	0-10V 10%
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¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @ 25°C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
² WATTAGE IS MEASURED WITH 4000K SELECTION @ 120VAC AND Tambient = 25°C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
³ EFFICACY CALCULATED USING 4000K CCT DATA.
⁴ MAX AMBIENT TEMP RATING AS SPECIFIED ON SAFETY REPORT, NON-IC INSTALLATION.

PHOTOMETRICS

P12 PRISMATIC

Key:





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

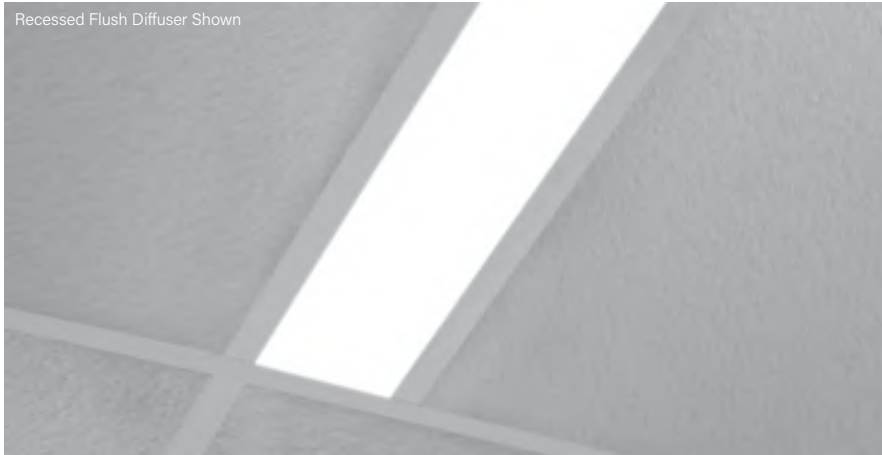
Catalog Number:
HP2-R-D-4'X4'-S-840-F-96LG-XXX-SC-FC-10%-VF-FE-SW
Note:

Type
L1

Submitted by:		Date:
Type:	Project:	
Ordering Info:		

FINELITE®
Better Lighting

High Performance 2" Aperture (HP-2) Recessed



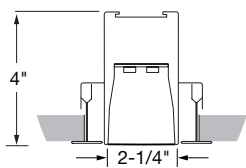
High Performance 2" Aperture is a patented, linear LED luminaire family. HP-2 delivers excellent performance using an advanced optical design and mid-power LEDs. Achieving 90% of initial light output at 100,000+ hours and backed by a 10-year performance-based warranty on all standard components.

This product is enrolled in the International Living Future Institute (ILFI) Declare 2.0 Program and is third-party verified with options achieving **Red List Approved** and **Red List Declared** status.

Note: see page 6 for all aesthetic options

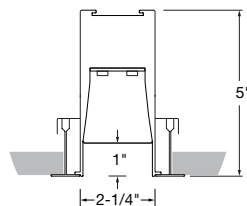
CROSS SECTIONS

Recessed



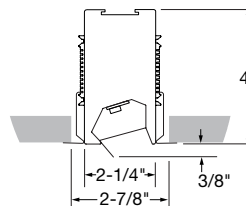
Flush Downlight Diffuser
(standard)

Regressed



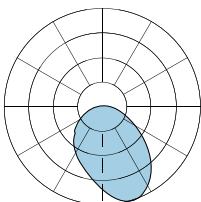
Flat Diffuser with
1" Regressed

Wall Wash Recessed

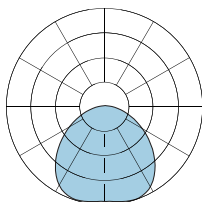


Kicker
(standard)

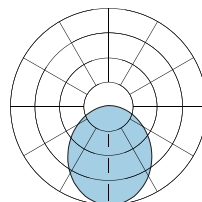
OPTIC OPTIONS



Downlight Asymmetric
Optic (DAO)



Downlight Spread
Optic (DSO)



Standard Downlight
Flush Optic (F)

ALSO AVAILABLE IN



Pendant
(D, ID, I)



Wall Mount
(WM)



Surface Mount
(SM)



Also available in Indigo-Clean.
See Indigo-Clean Tech Sheet

Protected by one or more US Patents: 8915613; D702,391; D702,390; D700,732

Page 1



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number:
HP2-R-D-4'X4'-S-840-F-96LG-XXX-SC-FC-10%-VF-FE-SW
Note:

Type
L1

Submitted by:	Date:
Type:	Project:
Ordering Info:	

FINELITE®
Better Lighting

Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

Clear Form

BODY TYPE			OUTPUT AND LED TYPE		
Platform	Series Name	Luminaire Type	Luminaire Distribution	Total Length of Run	Downlight Output (Flush)
<input checked="" type="radio"/> HP - High Performance	<input checked="" type="radio"/> 2	<input type="radio"/> R - Recessed <input type="radio"/> RG - Recessed Regressed (Wall Wash not available)	<input type="radio"/> D - Direct <input type="radio"/> WW-D - Wall Wash Direct	4'x4' Minimum 2' section length. Increments accurate to 1/16" (±1/32"), standard. 12' maximum section length.	<input type="radio"/> S - Standard (336 lm/ft) <input type="radio"/> B - Boosted (423 lm/ft) <input type="radio"/> H - High (639 lm/ft) <input type="radio"/> V - Very High (822 lm/ft) <input type="radio"/> TL - Tailored: _____ lm/ft*

Lumen provided above are for Flush lens only, see pg. 12 for WW lumens
* Specify Tailored lm/ft of outputs between Standard (S) and Very High (V). Consult factory for tailored lumen output outside of this range.

OUTPUT AND LED TYPE	MECHANICAL/OPTICAL OPTIONS		ELECTRICAL OPTIONS	
LED CRI/CCT	Downlight	Reflector System	DEFINE Voltage	Circuiting ²
<input type="radio"/> 830 - 80 CRI, 3000K <input type="radio"/> 835 - 80 CRI, 3500K <input type="radio"/> 840 - 80 CRI, 4000K <input type="radio"/> 930 - 90 CRI, 3000K <input type="radio"/> 935 - 90 CRI, 3500K <input type="radio"/> 940 - 90 CRI, 4000K <input type="radio"/> 8TW - 80 CRI, Tunable White <input type="radio"/> 9TW - 90 CRI, Tunable White	<input type="radio"/> F - Flush (standard) ⁸ <input type="radio"/> DL - 1" Drop Down Lens ⁸ <input type="radio"/> RG-D - Flat Diffuser with 1" Regress ^{1,8} <input type="radio"/> RG-WCB - White Cross Blade Baffle ^{1,8} <input type="radio"/> RG-LHE - Hollowed Ellipse Louver ^{1,8} <input type="radio"/> RG-LHC - Hex Louver ^{1,8} <input type="radio"/> DAO-L - Downlight Asymmetric Left ^{4,8} <input type="radio"/> DAO-R - Downlight Asymmetric Right ^{4,8} <input type="radio"/> DSO - Downlight Spread Optic ^{4,8} <input type="radio"/> K - Kicker for Wall Wash only (standard) ⁵ <input type="radio"/> FO - Fully Open for Wall Wash only	<input type="radio"/> 96LG - 96 Low Gloss White <input type="radio"/> SW - Signal White for Wall Wash only	<input type="radio"/> 120 - 120 Voltage <input type="radio"/> 277 - 277 Voltage <input type="radio"/> 347 - 347 Voltage	<input type="radio"/> SC - Single Circuit* One single circuit in a run <input type="radio"/> MC - Multi-Circuit* More than one switch leg or zone. Factory shop drawings required

* Battery, Night Light, and Emergency to Generator circuits are in addition to the normal luminaire circuit(s)

ELECTRICAL OPTIONS		MOUNTING OPTIONS
Driver Selection		Ceiling Hardware Type
0-10V Driver Options <input type="radio"/> FC-10% - 0-10V 10% (standard) <input type="radio"/> FC-1% - 0-10V 1% <input type="radio"/> OTI-10% - EldoLED OTi, 0-10V 10% ³ <input type="radio"/> OTI-1% - EldoLED OTi, 0-10V 1% ³ <input type="radio"/> ELD-10V-0% - EldoLED SOLOdrive, 0-10V 0.1% <input type="radio"/> 10V-TW-10% - EldoLED OTi, 0-10V 10% (Tunable White) ³ DALI Driver Options <input type="radio"/> FC-DALI-1% - DALI 1% <input type="radio"/> DXL-DALI-1% - EldoLED Dexal, 1% <input type="radio"/> ELD-DALI-0% - EldoLED SOLOdrive, 0.1% <input type="radio"/> ELD-DALI-TW - EldoLED DUALdrive LightShape, 0.1% (Tunable White)	DMX Driver Options <input type="radio"/> FIN-DMX - Finelite DMX 1% (Tunable White - FineTune Controls Only) ⁶ <input type="radio"/> ELD-DMX - EldoLED POWERdrive, 0.1% <input type="radio"/> ELD-DMX-TW - EldoLED POWERdrive, 0.1% (Tunable White) Lutron Driver Options <input type="radio"/> LUT-ES1 - Lutron, Ecosystem 1% <input type="radio"/> LUT-TW - Lutron T-Series, EcoSystem 0.1% (Tunable White) See Page 3 for additional driver options and details	<input type="radio"/> C1 - 15/16" T-Bar <input type="radio"/> C1T - 15/16" Tegular <input type="radio"/> C2 - 9/16" T-Bar <input type="radio"/> C2T - 9/16" Tegular <input type="radio"/> C3 - Screw Slot <input type="radio"/> C3F - Flush Screw Slot <input type="radio"/> SF - Spackle Flange <input type="radio"/> VF - Visible Flange <input type="radio"/> TZ4 - Tech Zone 4" (C1, C2, C2T, C3, C3F)

OTHER OPTIONS		Integrated Sensor (Optional) ⁸	Special Options (Optional)
Endcap Style	Finish	Emergency Style (Optional) See page 5 Backup Battery table	
<input checked="" type="radio"/> FE - Flat Endcap (standard)	<input type="radio"/> SW - Signal White (standard) <input type="radio"/> FB - Finelite Black <input type="radio"/> SA - Satin Aluminum <input type="radio"/> #### - RAL Color Code ⁷	<input type="radio"/> LGD18W - Legrand 18W Brand Battery Back-up <input type="radio"/> LGD10W - Legrand 10W Brand Battery Back-up <input type="radio"/> EM/GEN - Emergency to Generator <input type="radio"/> NL - Night Light <input type="radio"/> BSL310LP - Bodine Battery Back up Low Profile <input type="radio"/> GTD - Generator Transfer Device <input type="radio"/> ALCR - Automatic Load Control Relay	<input type="radio"/> OBO - Occupancy ⁹ <input type="radio"/> OBD - Daylight ⁹ <input type="radio"/> W601 - Wattstopper Wireless Sensor ¹⁰ <input type="radio"/> OBE - Enlighted ¹¹ <input type="radio"/> REE - Remote Enlighted ¹² <input type="radio"/> VOCC - Lutron Vive Wireless Sensor (VDO) ¹³ <input type="radio"/> VRF - Lutron Vive Radio Only ¹³
			<input type="radio"/> CP - Chicago Plenum ¹⁴ <input type="radio"/> FLX - Flex Whip <input type="radio"/> RLA - Red List Approved <input type="radio"/> RLD - Red List Declared

¹ Recessed Regressed straight run only

² Contact factory for switching options

³ Add DTO to gain "Dim to Off" functionality (FC-10% - DTO, FC-1% - DTO)

⁴ Not available with Regressed or Curves

⁵ Kicker standard in Signal White. Customer Custom color kickers have a surcharge

⁶ B & V outputs only

⁷ 20 business days lead time for color

⁸ Minimum fixture length with a sensor is 3ft.

⁹ Not available with Wall Wash

¹⁰ LMFS-601 w/ 0-10V driver(s) and LMFI-111, up to 6 drivers may be connected.

¹¹ LMFS-601 w/ DALI driver, only 1 driver can be connected.

¹² Enlighted components installed by Finelite, provided by others

¹³ Enlighted for Wall Wash fixtures. Enlighted Control Unit & Sensor Cable installed for Remote mounting sensor.

¹⁴ Lutron Vive Integrated Sensors require a DALI driver

¹⁵ Only available with C1, C2, and C3 mounting hardware with Finelite Gridbox



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number:
HP2-R-D-4'X4'-S-840-F-96LG-XXX-SC-FC-10%-VF-FE-SW

Note:

Type
L1

Submitted by:		Date:
Type:	Project:	
Ordering Info:		

FINELITE®
Better Lighting

Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

SUPPLEMENTARY DRIVER PAGE

0-10V Driver Options	
FC-10%	Factory Choice, 0-10V 10% Dimming (Linear)
FC-10%-DTO	Factory Choice, 0-10V 10% Dimming, Dim-to-Off (Linear)
FC-1%	Factory Choice, 0-10V 1% Dimming (Linear)
FC-1%-DTO	Factory Choice, 0-10V 1% Dimming, Dim-to-Off (Linear)
ELD-10V-0%	EldoLED SOLOdrive, 0-10V 0.1% Dimming (Linear)
ELD-10V-1%	EldoLED ECOdrive, 0-10V 1% Dimming (Linear)
10V-TW-10%	EldoLED OTi, 0-10V 10% Dimming, Tunable White (Linear)
10V-TW-10%-DTO	EldoLED OTi, 0-10V 10% Dimming, Dim-to-Off, Tunable White (Linear)
OTi-10%	EldoLED OTi, 0-10V 10% Dimming (Linear)
OTi-10%-DTO	EldoLED OTi, 0-10V 10% Dimming, Dim-to-Off (Linear)
OTi-1%	EldoLED OTi, 0-10V 1% Dimming (Linear)
OTi-1%-DTO	EldoLED OTi, 0-10V 1% Dimming, Dim-to-Off (Linear)

DALI Driver Options	
FC-DALI-1%	Factory Choice, DALI 1% Dimming (Logarithmic)
DXL-DALI-1%	EldoLED Dexal, DALI 1% Dimming (Logarithmic)
ELD-DALI-0%	EldoLED SOLOdrive, DALI 0.1% Dimming (Logarithmic)
ELD-DALI-1%	EldoLED ECOdrive, DALI 1% Dimming (Logarithmic)
ELD-DALI-TW	EldoLED DUALdrive Light Shape, DALI 0.1% Dimming, Tunable White (Logarithmic Dimming, Linear CCT Control)

DMX Driver Options	
FIN-DMX	Finelite, DMX 1% Dimming, Tunable White - FineTUNE Controls Only (Linear)
ELD-DMX	EldoLED POWERdrive, DMX 0.1% Dimming (8 Bit, 1CH) (Linear)
ELD-DMX-16	EldoLED POWERdrive, DMX 0.1% Dimming (16 Bit, 2CH) (Linear)
ELD-DMX-TW	EldoLED POWERdrive, DMX 0.1% Dimming, Tunable White (8 Bit, 2CH - CH1 Warm / CH2 Cool) (Linear)
ELD-DMX-TW16	EldoLED POWERdrive, DMX 0.1% Dimming, Tunable White (16 Bit, 4CH - CH1, 2 Warm / CH3, 4 Cool) (Linear)

Lutron Driver Options	
LUT-ES1	Lutron, Ecosystem 1% Dimming
LUT-TW	Lutron T-Series, EcoSystem 0.1% Dimming, Tunable White



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FINELITE®
Better Lighting

Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

SPECIFICATIONS

BODY TYPE

CONSTRUCTION: Precision-cut 6061-T6 extruded aluminum body. Internal joiner system and plug-together wiring are standard.

LENGTHS: Any length, 2' minimum, in increments down to 1/16th" (±1/32"). 12' maximum section length. Hollowed Ellipse Louver (**LHE**), Hex Louver (**LHC**), and White Cross Blade Baffle (**WCB**) are available in 1' increments.

MITERED CORNERS¹: Illuminated corners of greater than 60° and less than 180° in a single plane, available with Flush Diffuser, Bottom Glow Diffuser, Regressed Diffuser, or White Cross Blade Baffle². Corners not available with Wall Wash (**WW-D**), Hollowed Ellipse Louver (**LHE**), Hex Louver (**LHC**) or 1" Drop Down Lens. Contact factory for Double miters using the White Cross Blade Baffle. Consult factory for tailored lighting options.

OUTPUT AND LED TYPE

LIGHT OUTPUT: Four lumen packages available, Standard (**S**), Boosted Standard (**B**), High (**H**), and Very High (**V**). For lengths 3' and greater, the uplight and downlight can be specified with different lumen packages and dual controls. For Tailored Outputs outside of range from Standard (**S**) to Very High (**V**), consult factory. Light engines are replaceable.

MECHANICAL/OPTICAL OPTIONS

DOWNLIGHT OPTION: 12' maximum diffuser length. Flush frost white snap-in diffuser standard, 73% transmissive, 99% diffusion. Internal secondary diffusers at corners ensure visually seamless, uniform, continuous illumination. Available with Flush (**F**), Bottom Glow (**BG**), 1" Drop Down Lens (**DL**), White Cross Blade Baffle (**WCB**)^{3,4}, Ellipse Louver (**LHE**)³, Hex Louver (**LHC**)³, Downlight Asymmetric Optic (**DAO**)⁵, Downlight Spread Optic (**DSO**)⁵, and Regressed downlight diffusers (**RG**)³. 1" Drop Down Lens made of highly efficient acrylic. Available with a solid endcap or an endcap with a diffuse filler to continue the luminous aesthetic. Downlight Spread & Downlight Asymmetric Optics are extruded lenses with a subtle ribbed appearance providing a batwing or asymmetric distribution for improved optical performance. Consult factory for more tailored lumen outputs.

LUMEN MAINTENANCE: 90% of initial light output (L90) at 100,000+ hours; 70% of initial light output (L70) at 200,000+ hours.

REFLECTORS: Die-formed 20-gauge cold-rolled steel reflectors finished in 96LG High Reflectance white powder coat paint. The standard Semi-Specular Aluminum (**SSA**) Kicker (**K**) reflector delivers light high on the vertical surface. The Kicker reflector can be easily removed for open distribution (**FO**).

ELECTRICAL OPTIONS

STATIC WHITE FEED: Standard with one 18-gauge/5-conductor single-circuit feed wire controlling uplight and downlight together (power and dimming). Specify dual feed wires for independent control of uplight and downlight. 14-gauge feed wire used when luminaire current exceeds 5 amps.

TUNABLE WHITE FEED: Standard with one 18-gauge/5-conductor single-circuit feed. 14-gauge feed used when luminaire current exceeds 5 amps. DMX and power feed at same location (standard). DMX feeds cannot be cut or spliced. DMX feeds should be ordered based on fixed lengths.

STATIC WHITE DRIVER: Replaceable 120V, 277V, and 347V constant current reduction dimming driver standard. Can be wired dimming or non-dimming. 0-10V dimming controls with a range of 10%- 100% standard. Dimming to 1% available. Separate dimming for uplight and downlight available. Driver is fully accessible from below the ceiling.

- **Power Factor:** ≥ 0.9
- **Total Harmonic Distortion (THD):** <20%
- **Expected driver lifetime:** 100,000 hours

LUTRON DRIVER OPTIONS:

- **LUT-ES1 (LDE1)** - (Hi-lume 1% EcoSystem with Soft-On, Fade-to-Black dimming (LDE1 series))

TUNABLE WHITE DRIVER: Replaceable LED driver. Driver is accessible from below the ceiling. 120V, 277V, and 347V.

- **Power factor:** ≥0.90
- **Total Harmonic Distortion (THD):** <20%
- **Dimming Range:** 100%-10%
- **Expected driver lifetime:** 100,000 hours
- **FineTune DMX:** 1%

LUTRON TUNABLE WHITE DRIVER OPTION:

LUT-TW (1% T-Series 2-Channel Digital Tunable White (PSQ Series)).

MOUNTING OPTIONS

HANGING HARDWARE:

- **Recessed T-Bar:** Standard bracket design works with most lay-in ceiling types. Brackets secure luminaire to the ceiling grid from above. Tie-in T-Bar brackets connect the luminaire to the T-Bar for securing to structure. Consult local codes for tie-wire recommendations.
- **Recessed Spackle Flange:** Drywall surfaces (walls or ceilings): 1/4" - 20 stud and nut (provided by others). Mounted with three equidistant suspension points.

¹ Not available with Wall Wash
² White Cross Blade (WCB) baffles not available with custom angles. Available in 90 degrees only
³ Recessed Regressed straight run only
⁴ White Cross Blade Baffle (WCB) currently not advisable for drywall
⁵ Not available with Regressed or Curves

Continued



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MARSHALL HEALTH STRAYER BUILDING

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FINELITE®
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Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

SPECIFICATIONS

TUNABLE WHITE DMX HANGING HARDWARE: For grid ceiling applications the dual GridBox™ mounting is supplied (standard). For hard ceiling applications the ceiling mounting box is supplied (standard). DMX feeds cannot be cut or spliced. DMX feeds should be ordered based on fixed lengths. Available DMX pendant feed lengths are 5' (standard), 12', and 30'.

TUNABLE WHITE DMX INTERCONNECTION CABLES: Luminaires are pre-wired with plug-and-play interconnection cables to support easy plug-together joining of fixture runs. If a non-FineTune DMX system has been specified, a DMX to RJ45 converter is provided.

OTHER OPTIONS

ENDCAPS: Flat endcaps (**FE**) at each end of run add 1/16" to each end of luminaire. Drop Down Lens Illuminated Endcap (**DE**) includes diffuse element to continue luminance of drop lens.

EMERGENCY STYLE: Optional emergency to generator/inverter wiring, internal generator transfer switch, nightlight wiring, step-dimming driver, backup battery.

FINISHES: Finelite Signal White (**SW**) powder coat, Finelite Black (RAL 9005) with semi gloss fine texture (**FB**), and Satin Aluminum (**SA**) are standard. Optional Adder: 179 RAL colors ⁷ are available.

LABELS: Luminaire and electrical components are ETL-listed conforming to UL 1598 in the U.S.A. and CAN/CSA C22.2 No. 250.0 in Canada. In accordance with NEC Code 410.130 (G), this luminaire contains an internal driver disconnect. UL 924 and UL 2108 - PoE options available on request. These fixtures are rated for Damp Location. IC Rated. HP-2 can be used to comply with 2016 Title 24, Part 6 (JA8); high efficacy LED light source requirements. Finelite products use electronic components that are RoHS compliant, and the mechanical components of the luminaire have been verified to not knowingly contain any restricted substances listed per RoHS Directive 2015/863. Consult factory for tailored lighting options. Finelite makes the specification process easy when putting healthier products on your projects. Simply add – **RLA** (Red List Approved) or – **RDL** (Red List Declared) to your part number.

WEIGHT ⁸: R - 2.3 lb/ft; WW-R - 2.9 lb/ft

WARRANTY: 10-year performance-based warranty on all standard components. Optional accessories such as emergency battery packs are covered by their individual manufacturer warranties.

Backup Battery

	Legrand 18W	Legrand 10W / Bodine BSL310LP
HP2-R-D		
Min. Housing Length	8'*	4'**
EM Lumen Output	1608	956
EM Section Illuminated	2'	2' or 4'
HP2-R-WW-D		
Min. Housing Length	8'*	4'*
EM Lumen Output	1500	891
EM Section Illuminated	4'	4'

* Minimum fixture housing length for battery pack approved without sensor
** Exception: 5' not available, 6'+ okay

Bodine GTD and Legrand ALCR Min. Length

Configuration	Min Length
Generator	6'
Generator + OCC	8'
Daylight	6'
Generator + Daylight	8'

TUNABLE WHITE ELECTRICAL OPTIONS ⁶:

- **TW Driver Options 0-10V:** EM/GEN, GTD or Battery Back up
- **FineTune DMX:** EM/GEN or Battery Back up
- **DMX:** Battery Back up
- **DALI:** EM/GEN, GTD or Battery Back up
- **LUTRON:** EM/GEN, GTD or Battery Back up

INTEGRATED SENSORS: Integrated PIR (Passive Infrared) Occupancy (**OBO**) or Daylight Sensors (**OBD**) available with Flush and Bottom Glow downlight diffusers. PIR sensors not recommended for stairwell applications. Refer to Occupancy Sensor & Daylight Sensor tech sheet and the Embedded Intelligence landing page for more information and additional sensor options. Minimum fixture length with a sensor is 3ft.

⁶ Consult Finelite for Generator Transfer Device and Battery Backup fit
⁷ 20 business days lead time for color
⁸ Excludes Battery Backup and Generator Transfer Device weight



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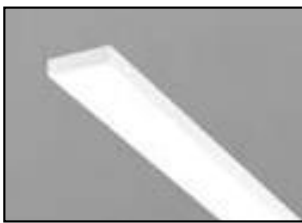
Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

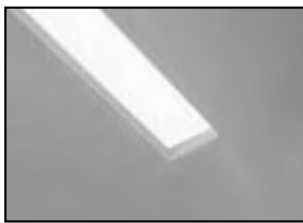
AESTHETIC OPTIONS



Flush Diffuser (F)



1" Drop Down Lens (DL)



Flat Diffuser with 1" Regressed (RG-D)



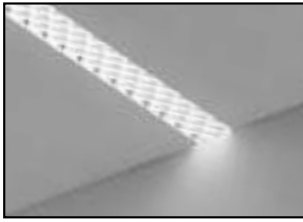
Downlight Asymmetric Optic (DAO) ¹
Externally flush



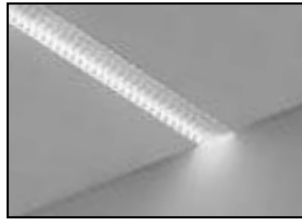
Downlight Spread Optic (DSO) ¹
Externally flush



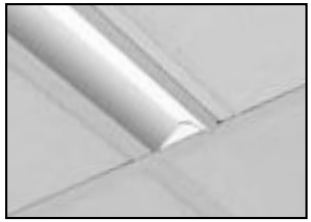
White Cross Blade Baffle² (RG-WCB)



Hex Louver² (RG-LHC)



Hollowed Ellipse Louver² (RG-LHE)



Kicker (K) - Wall Wash only

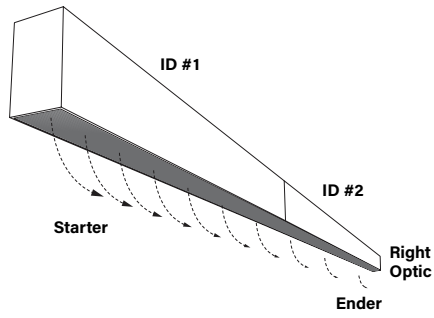
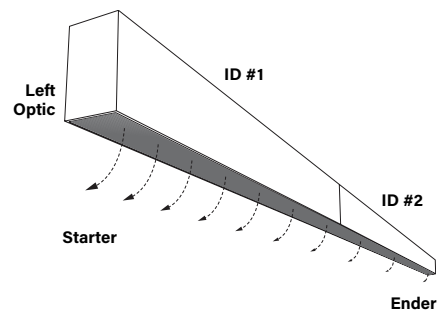
¹ With a subtle ribbed appearance providing specialized distribution
² Regressed only. Not available with Wall Wash

DOWNLIGHT ASYMMETRIC OPTIONS

Use this tool to understand how to specify Downlight Asymmetric for your project. The diagrams below show a linear run from power feed to ender. Specify DAO-L distributes light to the left or DAO-R distributes light to the right.

Downlight Asymmetric Optic Left (DAO-L)

Downlight Asymmetric Optic Right (DAO-R)



PREINSTALLED LABEL

For DAO, Preinstalled label on diffuser shows direction of light. Remove after installation.



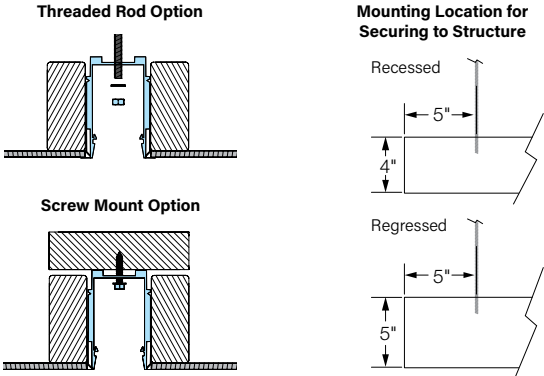
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Home Order Specs Options Mountings Photometry Wall Setback Tunable White

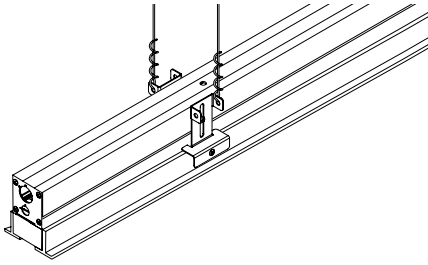
High Performance 2" Aperture (HP-2) Recessed

HARD CEILING MOUNTING OPTIONS



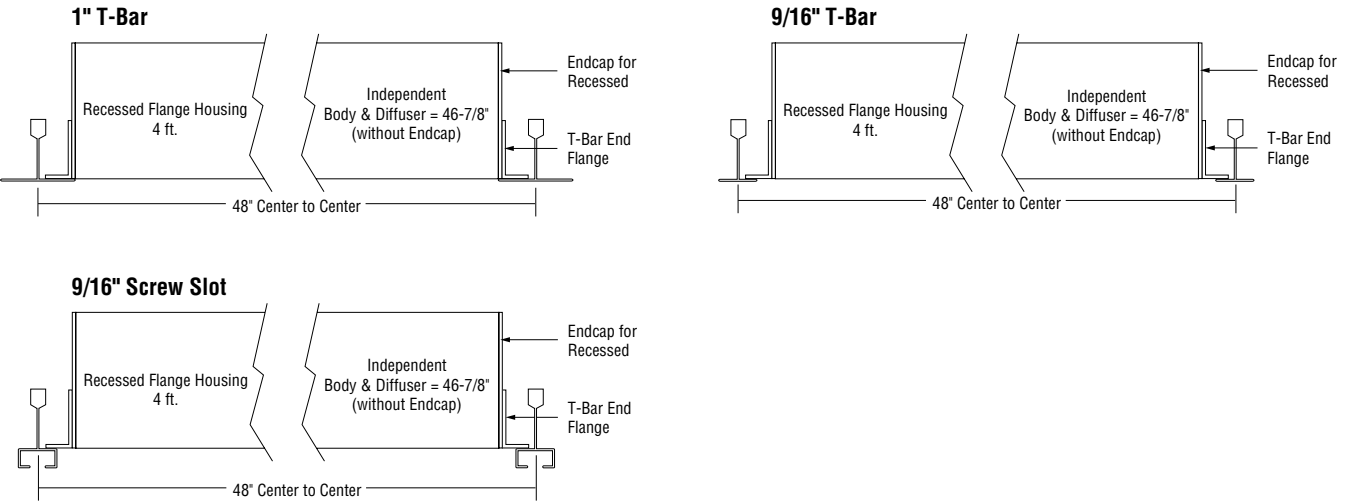
Two mounting options: threaded rod and screw mounting options. Mounting locations are located on each end of the luminaire. Mounting location is 5" away from each end of luminaire.

T-BAR INSTALLATION

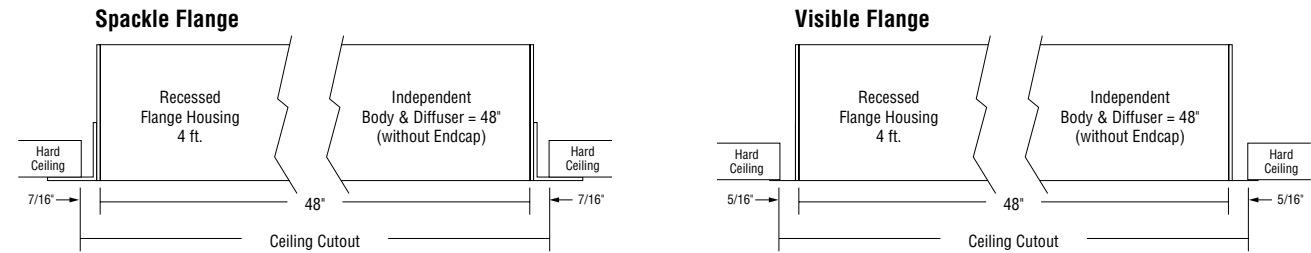


HP-2 R for T-Bar installations comes standard with a splice plate at the end of the luminaire. Mounting brackets (supplied) secure the luminaire to T-Bar and provide support to structure location. All even foot length (2, 4, 6, ...) luminaire runs are reduced in length by an appropriate amount to fit within typical 2x2 and 2x4 T-Bar grid systems. For uncommon T-Bar systems please consult factory.

GRID LENGTH DETAIL - 4' EXAMPLE



HARD CEILING LENGTH DETAIL - 4' EXAMPLE



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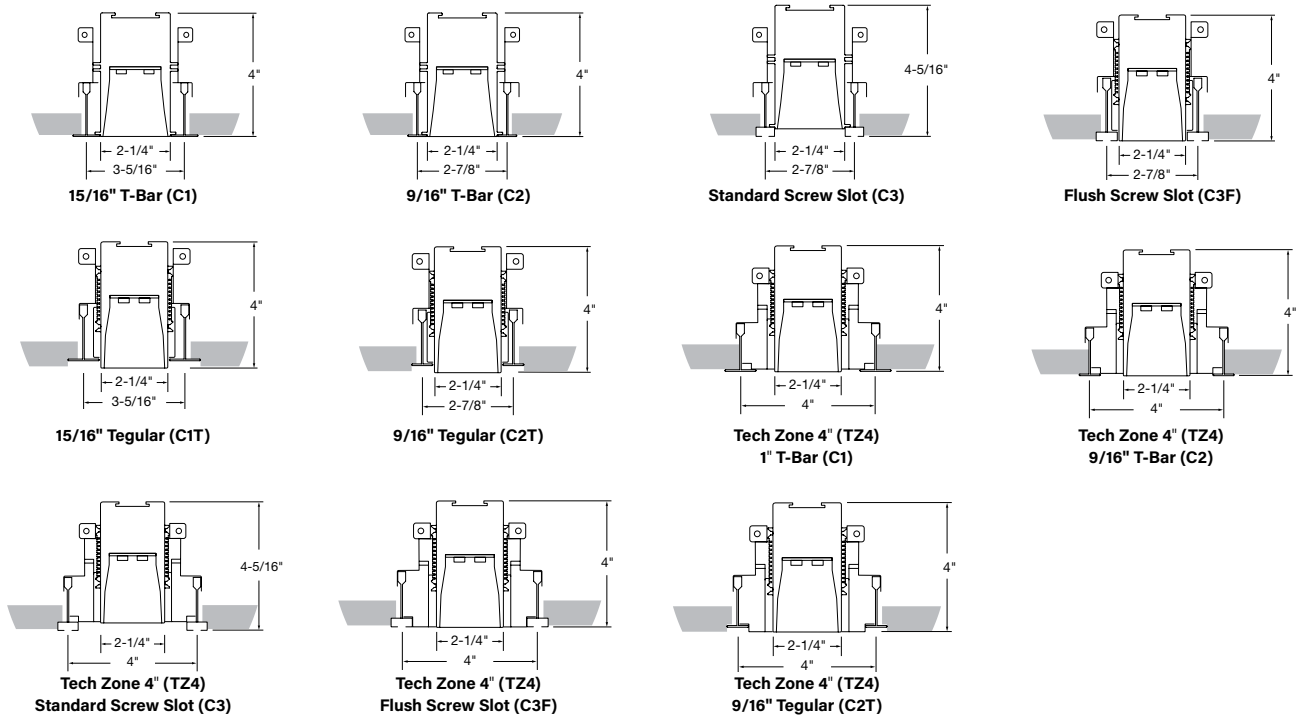
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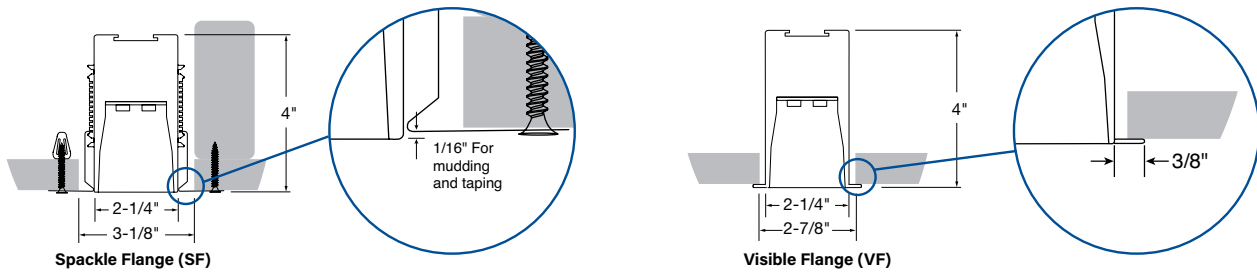
High Performance 2" Aperture (HP-2) Recessed

RECESSED MOUNTING TYPES - T-BAR

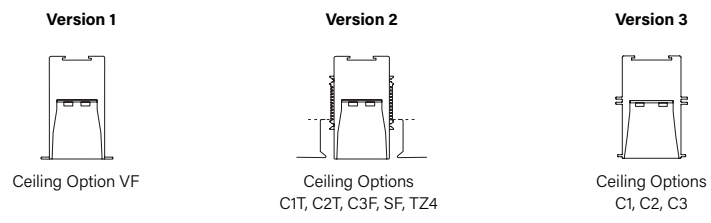
Rough-In Dimensions



RECESSED MOUNTING TYPES - CUTOUT DIMENSIONS



HOUSING



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Type:	Project:	
Ordering Info:		

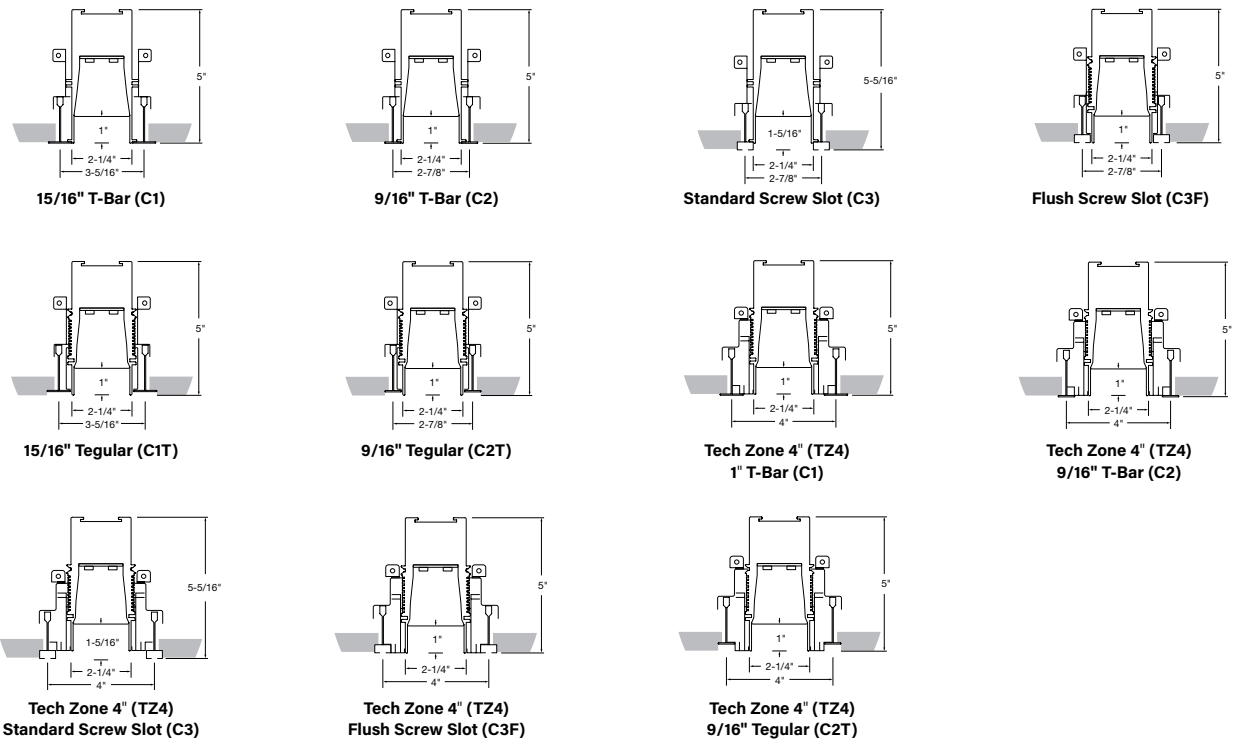


Home Order Specs Options Mountings Photometry Wall Setback Tunable White

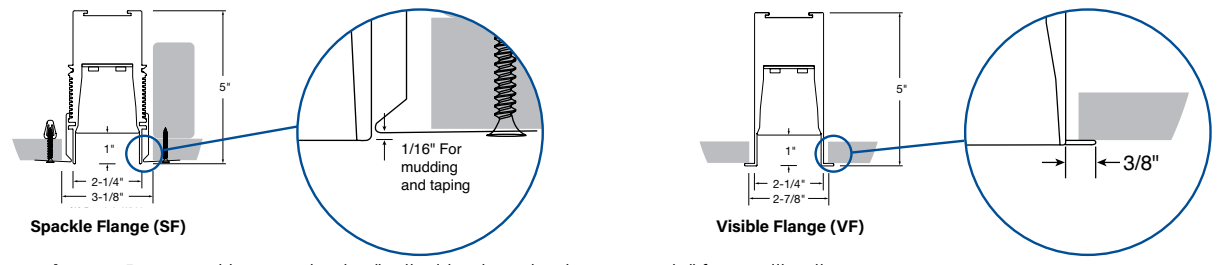
High Performance 2" Aperture (HP-2) Recessed

REGRESSED MOUNTING TYPES - T-BAR

Rough-In Dimensions

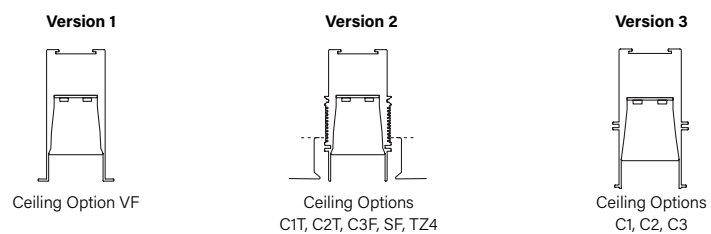


REGRESSED MOUNTING TYPES - CUTOUT DIMENSIONS



Regressed Lens: Regressed lens version is 5" tall with a lens that is regressed 1" from ceiling line.

HOUSING





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FINELITE®
Better Lighting

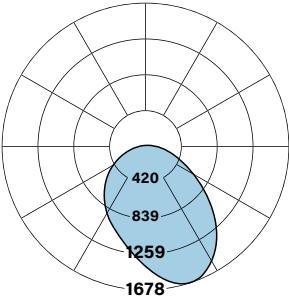
Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

Recessed Photometry - 4' Luminaire 3500K

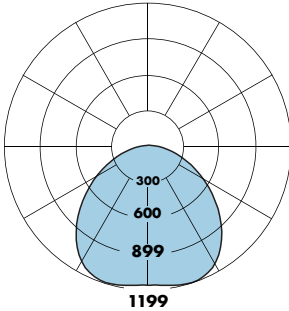
HP2-R-D-4'-V-835-DAO
Downlight: Downlight Asymmetric Optic - Right

Efficacy: 105 lm/W
Total luminaire output: 3741 lumens (935 lm/ft)
35.5 watts (8.9 W/ft)
Peak Candela Value: 1670 @ 0°
CRI: 80 / CCT: 3500K
ITL LM79 Report REP-051921-01



HP2-R-D-4'-V-835-DSO
Downlight: Downlight Spread Optic

Efficacy: 92 lm/W
Total luminaire output: 3273 lumens (818 lm/ft)
35.7 watts (8.9 W/ft)
Peak Candela Value: 1197 @ 0°
CRI: 80 / CCT: 3500K
ITL LM79 Report 94139



Complete LM79 LED Photometry

Complete LM79 LED Photometry

Total Light Output, 3500K, 80 CRI (Lumens) - 4' Luminaire			
S ¹	B ¹	H ¹	V ²
1531	1925	2910	3741

Light Output, 3500K, 80 CRI (Lumens Per Foot)			
S ¹	B ¹	H ¹	V ²
383	481	727	935

Power, 3500K (Watts Per Foot)			
S ¹	B ¹	H ¹	V ²
3.5	4.4	6.8	8.9

Efficacy, 3500K, 80 CRI (Lumens Per Watt)			
S ¹	B ¹	H ¹	V ²
110	109	107	105

S - Standard Output, B - Boosted Standard Output, H - High Output, V - Very High Output

¹ Family Correlation based on 4' luminaire 3500K Very High Output (V) test - 120V.

² Based on ITL report: REP-051921-01

Total Light Output, 3500K, 80 CRI (Lumens) - 4' Luminaire			
S ¹	B ¹	H ¹	V ²
1340	1684	2546	3273

Light Output, 3500K, 80 CRI (Lumens Per Foot)			
S ¹	B ¹	H ¹	V ²
335	421	636	818

Power, 3500K (Watts Per Foot)			
S ¹	B ¹	H ¹	V ²
3.5	4.4	6.8	8.9

Efficacy, 3500K, 80 CRI (Lumens Per Watt)			
S ¹	B ¹	H ¹	V ²
96	95	93	92

S - Standard Output, B - Boosted Standard Output, H - High Output, V - Very High Output

¹ Family Correlation based on 4' luminaire 3500K Very High Output (V) test - 120V.

² Based on ITL report: 94139

Wattage is Real Power. If you would like additional details to calculate Apparent Power, please contact your local Finelite representative.

Sample Lumen Adjustment Calculation

Lumen Adjustment Factors 80 CRI		Lumen Adjustment Factors 90 CRI	
3000K	0.985	3000K	0.746
3500K	1.000	3500K	0.760
4000K	1.032	4000K	0.789

High Output (H) / 4000K, 90 CRI
Lumen Adjustment Factor: 0.789
Total Light Output: 2910 lm x 0.789 = 2296 lm
Total Light Output per Foot: 707 lm/ft x 0.789 = 574 lm/ft.
watts/foot: 6.8 W/ft.

$$\text{Efficacy} = \frac{574 \frac{\text{lm}}{\text{ft.}}}{6.8 \frac{\text{W}}{\text{ft.}}} = 84 \text{ lm/W}$$

Protected by one or more US Patents: 8915613; D702,391; D702,390; D700,732



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number:
HP2-R-D-4'X4'-S-840-F-96LG-XXX-SC-FC-10%-VF-FE-SW
Note:

Type
L1

Submitted by:		Date:
Type:	Project:	
Ordering Info:		

FINELITE®
Better Lighting

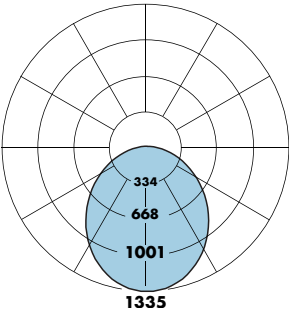
Home Order Specs Options Mountings Photometry Wall Setback Tunable White

High Performance 2" Aperture (HP-2) Recessed

Recessed Photometry - 4' Luminaire 3500K

HP2-R-D-4'-V-835
Downlight: Flush Diffuser

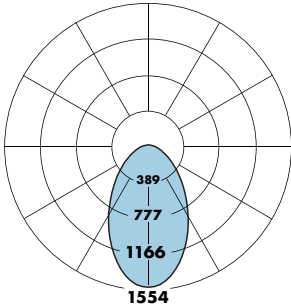
Efficacy: 89 lm/W
Total luminaire output: 3287 lumens (822 lm/ft)
36.9 watts (9.2 W/ft)
Peak Candela Value: 1335 @ 0°
CRI: 80 / CCT: 3500K
ITL LM79 Report 85135



Complete LM79 LED Photometry

HP2-R RG-D-4'-V-835
Downlight: Regressed Diffuser

Efficacy: 79 lm/W
Total luminaire output: 2907 lumens (727 lm/ft)
37 watts (9.3 W/ft)
Peak Candela Value: 1554 @ 0°
CRI: 80 / CCT: 3500K
ITL LM79 Report 90351



Complete LM79 LED Photometry

Total Light Output, 3500K, 80 CRI (Lumens) - 4' Luminaire			
S ¹	B ¹	H ¹	V ²
1346	1692	2557	3287

Light Output, 3500K, 80 CRI (Lumens Per Foot)			
S ¹	B ¹	H ¹	V ²
336	423	639	822

Power, 3500K (Watts Per Foot)			
S ¹	B ¹	H ¹	V ²
3.6	4.6	7.1	9.2

Efficacy, 3500K, 80 CRI (Lumens Per Watt)			
S ¹	B ¹	H ¹	V ²
93	92	90	89

S - Standard Output, B - Boosted Standard Output, H - High Output, V - Very High Output
¹ Family Correlation based on 4' luminaire 3500K Very High Output (V) test - 120V.
² Based on ITL report: 85135

Total Light Output, 3500K, 80 CRI (Lumens) - 4' Luminaire			
S ¹	B ¹	H ¹	V ²
1190	1496	2261	2907

Light Output, 3500K, 80 CRI (Lumens Per Foot)			
S ¹	B ¹	H ¹	V ²
298	374	565	727

Power, 3500K (Watts Per Foot)			
S ¹	B ¹	H ¹	V ²
3.6	4.6	7.1	9.3

Efficacy, 3500K, 80 CRI (Lumens Per Watt)			
S ¹	B ¹	H ¹	V ²
82	81	80	79

S - Standard Output, B - Boosted Standard Output, H - High Output, V - Very High Output
¹ Family Correlation based on 4' luminaire 3500K Very High Output (V) test - 120V.
² Based on ITL report: 90351

Wattage is Real Power. If you would like additional details to calculate Apparent Power, please contact your local Finelite representative.

Sample Lumen Adjustment Calculation

Lumen Adjustment Factors 80 CRI		Lumen Adjustment Factors 90 CRI	
3000K	0.985	3000K	0.746
3500K	1.000	3500K	0.760
4000K	1.032	4000K	0.789

High Output (H) / 4000K, 90 CRI
Lumen Adjustment Factor: 0.789
Total Light Output: 2557 lm x 0.789 = 2017 lm
Total Light Output per Foot: 639 lm/ft x 0.789 = 504 lm/ft.
watts/foot: 71 W/ft.

$$\text{Efficacy} = \frac{504 \frac{\text{lm}}{\text{ft.}}}{7.1 \frac{\text{W}}{\text{ft.}}} = 71 \text{ lm/W}$$

Protected by one or more US Patents: 8915613; D702,391; D702,390; D700,732

TAPER



Grey Linen (GYL) diffuser

2662 LED

The 2662 LED features a one-piece tapered drum which is offered in three different sizes and two acrylic-backed fabric options. The base (bottom) of the drum is constructed of high transmission matte-white acrylic, providing optimal light distribution and performance. Two suspension options to choose from with extension kits available for high ceilings and staggered drops. The top of the drum is fully covered by the LED assembly to minimize debris entry. Given the size range, this unit is ideal for commercial lobbies and common areas, open-office layouts, conference rooms, break rooms, and

FINISHES



Grey Linen (GYL) diffuser



TAPER

STANDARD SPECIFICATIONS

DIFFUSER

The drum features a high quality UV stabilized white acrylic outer shell, with your choice of fabric bonded to its exterior sidewall. The base (bottom) of the drum is constructed with high transmission white acrylic. The fixture can be cleaned with a damp cloth and mild detergent, if needed.

HOUSING

Formed, cold rolled steel design, finished in a high reflectance powder coat white. The housing covers the entire top surface of the drum. No need for top cover.

LED PERFORMANCE - 3500K STANDARD

120-277V - 3500K, 82 CRI - L80 rating - 60,000 hrs - L70 rating (projected) - 100,000 hrs
Amperage rated @ 110V input
Operating ambient temperature: -20°C / -4°F - 40°C / 104°F

Delivered 3500K CCT noted. Consult Brownlee.com for performance of all CCTs.

B12 - 12W nominal, .10 A input - 1509 lm. Dimmable (0-10V).

C17 - 16W nominal, .15 A input - 2297 lm. Dimmable (0-10V).

C24 - 23W nominal, .20 A input - 3152 lm. Dimmable (0-10V).

C37 - 35W nominal, .30 A input - 4414 lm. Dimmable (0-10V).

C49 - 45W nominal, .40 A input - 5948 lm. Dimmable (0-10V).

SUSPENSION SYSTEM

The 2662 Series is available in multiple colors and two suspension methods:

CC1 - Cord & Single Cable: Both the power cord and aircraft cable can be trimmed in the field. See optional ordering code CE1 and CE2 for extended 10' and 20' drops.

SSM - Single Stem Mount: Traditional pendant style. Steel stem in your choice of finish. The standard overall height (OAH) can be extended with additional stem sections in 1' and 2' intervals - see accessories section.

MOUNTING

Directly to j-box (by others). Mounting hardware included.

WARRANTY

5 year limited warranty on this LED product. Consult factory for details.

ORDERING INFORMATION

2662	Model	2.	3.	4.	5.	6.	7.	8. (if required)
2.	SIZE							
12	12" dia.							
16	16" dia.							
22	22" dia.							
3.	FINISH							
CC1								
BL	Black							
NT	Nickel Tone							
WH	White							
SSM								
BL	Black							
BZ	Bronze							
GM	Gun Metal							
MB	Metallic Bronze							
MG	Metallic Gold							
NT	Nickel Tone							
PL	Platinum							
WH	White							
4.	WATTAGE							
12 SIZE								
B12	12W B Series LED							
16 SIZE								
B12	12W B Series LED							
C17	16W C Series LED							
C24	23W C Series LED							
22 SIZE								
C37	35W C Series LED							
C49	45W C Series LED							
5.	DIFFUSER							
Gyl Grey Linen								
WHL White Linen								
6.	SUSPENSION							
CC1 Cord & Single Cable								
SSM Single Stem Mount								
7.	COLOR TEMPERATURE							
35K	3500K standard color temperature							
27K	2700K color temperature							
30K	3000K color temperature							
40K	4000K color temperature							
8.	AVAILABLE OPTIONS							
90R ⁰	90 CRI (3000K only)							
BAC ¹	Buy American Compliant							
CE1	3' - 10' Cord/Cable Extension (CC1 only)							
CE2	10' - 20' Cord/Cable Extension (CC1 only)							
DTR ⁴	Triac (Line Voltage) Dimming (120V)							
ES ⁶	ENERGY STAR [®] (Not available in 90 CRI)							
FCL ⁷	French Canadian Labels							
SVL	Swivel Canopy (SSM only)							
T24 ⁹	Title 24 JA8 Compliant (B12, C24 & C49 in 3000K only)							

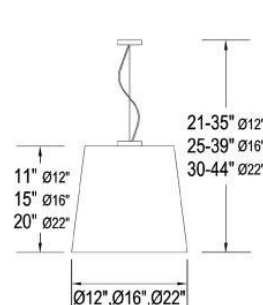
ACCESSORIES (field installed - order separately)

390002xx SSM Extension Kit: includes (1) 1' stem and (2) 2' stems. 5' combined max. Specify finish (xx)

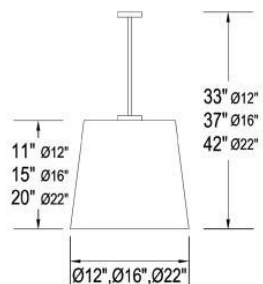
Notes: (0) 90R - cannot be combined with ES. (1) BAC - cannot be combined with FCL. (2) BBI/BBS/BBC - cannot be combined with ECW or EXT. (3) BLD - includes integral OCC sensor (do not combine with OCC option). Cannot be combined with DTR. (4) DTR - cannot be combined with BLD or T24. (5) ECW - cannot be combined with BBI, BBC, or DTR. (6) ES - cannot be combined with 90R or T24. (7) FCL - cannot be combined with BAC. (8) OCC - integral ON/OFF occupancy sensor. (9) T24 - includes JA8 labeling and 90 CRI LEDs (do not combine with 90R option). Cannot be combined with DTR or ES. (10) BBS - cannot be combined with BLD, ECW, EXT, or OCC. (11) PCH/PC4 - cannot be combined with BLD or OCC.
Add'l Notes: *BBI/BBS/BBC - standard BBI (and BBS) option has a minimum operating temperature of 10C/50F. BBC option has a minimum operating temperature of -20C/-4F. **BLD - integral OCC sensor with onboard control. 1: Motion is detected, illuminate to 100%. 2: Motion no longer detected, dim to 50%, 30%, 20% or 10%. 3: Remain in continuous dimmed state or turn off after set period.

Specifications and dimensions subject to change without notice.

Consult your Brownlee Lighting representative for availability and ordering information.



CC1 suspension



SSM suspension



2662-22-WHL-CC1





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F
Note:

Type
R1



Luminaire Type:
Catalog Number:



Round Shallow Recessed Downlight
New Construction & Remodel

IVO4S | 4"

OVERVIEW

Feature Set

- Ultra Shallow recessed downlight fits in plenums as small as 2 inches above ceiling
- Perfect color consistency of less than 0.5 step MacAdam Ellipse fixture to fixture
- Exceptional color rendering with 80 CRI, 90 CRI, or 95 CRI minimum.
- Bounding Ray™ optical design delivers low brightness apertures for a comfortable lighting experience.
- 65 deg cutoff to source and source image.
- Patent pending optics available in three batwing distributions deliver exceptional lighting uniformity.
- Field adaptable with interchangeable optics and trims
- Up to 90% lumen maintenance at 55,000 hours.

Distribution



Superior Performance*

Nominal Lumens	05LM	07LM	10LM	15LM	20LM	25LM	30LM
Delivered Lumens	529	780	1065	1481	1937	2384	2809
Wattage	5.3	7.8	10.5	15.7	22.4	25.0	30.7
Lumens per Watt	100	100	101	94	87	95	92

*Based on 3500K WD 80CRI P AR LSS



Flanged



Flangeless

PRODUCT FAMILY

New Construction



NCH
New Construction Housing



ICAT/CP
IC Airtight/Chicago Plenum Housing

- Optimal for new construction projects with ceilings as shallow as 2" in plenum depth

Remodel



RM
Remodel Fixture

- Optimal for renovation or remodel projects where installation from below the ceiling is necessary



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1



4"

Round Shallow Recessed Downlight

ORDERING INFORMATION

Luminaire Type:

Catalog Number:

EXAMPLE: IVO4S D 10LM 35K 80CRI MWD MVOLT MIN10 ZT NCH P AR LSS F

Series	Function	Lumen Packages	Kelvin Temperature	Color Rendering Index ²	Distribution	Voltage
IVO4S Round Shallow Recessed	D Downlight	05LM ¹ 500 Lumens	27K 2700K	80CRI 80+ CRI	MD Medium (0.8 s/mh, 60°)	MVOLT 120V-277V
		07LM 750 Lumens	30K 3000K	90CRI 90+ CRI	MWD Medium Wide (1.0 s/mh, 65°)	120 120V
		10LM 1000 Lumens	35K 3500K	95CRI 95+ CRI	WD Wide (1.2 s/mh, 75°)	277 277V
		15LM 1500 Lumens	40K 4000K			347 ³ 347V
		20LM 2000 Lumens	50K 5000K			
		25LM 2500 Lumens				
		30LM 3000 Lumens				

Dimming Level	Control Input	Emergency Option	Housing Style	Options
MIN1 Constant current, dimming to 1%	ZT ⁴ 0-10V Generic.	(Blank) No Emergency	NCH New Construction Housing	SF ⁸ Single Fuse. Specify 120 or 277.
MIN10 Constant current, dimming to 10%	EZT 0-10V e/dLoLED.	E6WR ⁷ 6W integral emergency battery, CA Title 20 compliant emergency battery pack with remote test switch. 2000 lumen max.	ICAT IC/Airtight Housing (new construction only). 2000LM max.	
DARK Constant current, dimming to 0.1%	ELV ⁵ Electronic line voltage. Forward phase-cut (120V only)		CP Chicago Plenum (new construction only). 2000LM max.	
	DMX ⁶ DMX with RDM (remote device management).		RM Remodel/Install from below. Not available with Emergency Pack options. 2500LM max.	
	DALI ⁶ DALI Compatible.			
	NLIGHT nLight enabled			
	NLTAIR2 nLight Air			
	NLIGHTER nLight enabled emergency circuit			
	NLTAIREM2 nLight AIR Gen2 with UL924 compliant EM			

Trim Style	Trim Color	Trim Finish	Flange Option
P Open Reflector	AR Clear Anodized	LD Matte Diffuse	F Self Flanged (color matches trim)
	BR Black Anodized	LS Specular	FL Flangeless (Drywall)
	GR Gold Anodized	LSS Semi Specular	FBL ¹¹ Flange Only Black
	PR Pewter Anodized		FWR ¹² Flange Only White
	WTR Wheat Anodized		FRALTBD ¹⁰ Flange Only RAL
	WR ⁹ White Gloss (painted)		FCPC Flange Only Custom Finish
	WMR ⁹ Soft White Matte (painted)		
	WRAMF ⁹ White with Anti-Microbial		
	BZR ⁹ Dark Bronze painted		
	TRALTBD ^{9,10} Trim RAL # TBD (TBD for pricing only)		
	TCPC ⁹ Trim Custom Paint Color		

ACCESSORIES — order as separate catalog numbers (shipped separately)

IVO4SOPTC D MD U	Field Replaceable Optic, Medium Distribution
IVO4SOPTC D MWD U	Field Replaceable Optic, Medium Wide Distribution
IVO4SOPTC D WD U	Field Replaceable Optics, Wide Distribution

ORDERING NOTES

- 05LM only available with ELV or ZT.
- 50K CCT is not available with 90CRI. 35K, 40K or 50K is not available with 95CRI.
- 347 only available with ZT at MIN1 or MIN10.
- Not available with ELV
- ZT is not available with DARK.
- DMX and DALI are not available with MIN1 or MIN10.
- E6WR is not available with DMX, NLIGHT, NLIGHTER, or NLTAIREM2
- RM with SF is not valid with DMX or nLight.
- Not available with Optical Finish.
- Replace with applicable RAL number and finish when ready to order. See [RAL BROCHURE](#) for available color options.
- For use with different reflector flange colors only (i.e. AR, BZR, GR, PR, WR, WTR options). Not applicable with BR (black reflector) or FL (flangeless) option.
- For use with different reflector flange colors only (i.e. AR, BR, BZR, GR, PR, WTR options). Not applicable with WR (white reflector) or FL (flangeless) option.





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1



4"

Round Shallow Recessed Downlight

SPECIFICATIONS

Optical System

Bounding Ray™ optical design delivers top-down flash for superior brightness control. Source and source image present simultaneously. Unitized optical system has mechanical attachment of the light engine to the trim for optimized optical alignment. Source regression delivers 65 degrees of visual cutoff to source and source image. Patent pending optics are available in three (3) batwing distributions for optimal uniformity, free of shadows, hot spots or striations. Optics are field interchangeable without tools via twist-lock feature.

LED Light Engine

Proprietary light engines are custom binned to deliver perfect color consistency of less than 0.5-step MacAdam Ellipse fixture to fixture. LED light engine is rated for L90 / 55,000 hours up to 2500 lumens and L80 / 55,000 hours at 3000 lumens. Available in 80, 90, or 95 CRI minimum. 90 CRI has an R9 greater than 50. 95 CRI has an R9 greater than 80.

Trims

Trims are field interchangeable via twist-lock mechanism. Trims are available in nine (9) standard colors and three standard finishes that can be customized.

Electrical

Luminaire operates from a 50 or 60 Hz ±3 Hz AC line over a voltage ranging from 120 VAC to 347 VAC. The fluctuations of line voltage have no visible effect on the luminous output. Luminaire has a power factor of 85% or greater at all standard operating voltages and full luminaire output. Sound Rated A+. Input wires are 18AWG, 600V minimum, solid copper.

Controls (Optional)

Luminaire is equipped with interface for nLight wired, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. Luminaire is equipped with interface for nLight Air, meaning it can communicate over the wireless nLight control platform. It pairs to other luminaires and wall switches through our mobile app, CLAIRITY+, which allows for single fixture control.

Dimming

The luminaire is capable of continuous dimming without perceivable stroboscopic flicker as measured by flicker index (ANSI/IES RP-16-10) over a range of 100 – 10%, 100 – 1.0% or 100 – 0.1% of rated lumen output with a smooth shut off function to step to 0%. eldoLED LED drivers (EZT) conforms to IEEE P1789 standards. The driver is inaudible in 24dB environment, and stable when input voltage conditions fluctuate over what is typically experienced in a commercial environment.

Emergency Battery (Optional)

Self testing integral emergency battery (E6WR) provides a emergency lighting for a duration of 90 minutes to meet egress code requirements. Emergency battery is accessible from below the ceiling. Emergency battery is CEC T20 Compliant.

Installation

Luminaire installs in 3 1/2" plenum depth ceiling (unless noted otherwise). Fixture is suitable for installation in ceilings from 5/8" to 2" in ceiling thickness via patented retention spring design. Luminaire has telescopic mounting bars with maximum 24" and minimum 10 1/2" extension and 1 1/8" vertical adjustment (supplied separated). Mounting brackets also work with C-Channel from 3/4" to 1 1/2", Flat Strap from 1/2" to 3/4", Conduit up to 3/4" in diameter, and 1/2" angle bar. Luminaire is rated for up to (8) No. 12 AWG 90°C through branch circuit conductors. Fixture should be used in ceilings with 25°C ambient temperature as standard. Non-IC rated luminaires shall be installed with 3" of clearance on all sides from insulation or 1/2" clearance on all sides from non-combustible materials (unless marked spacing noted otherwise.) IC rated luminaires can be installed in direct contact with insulation.

Construction

Luminaire features LED module with quick-disconnect harness and strain relief for ease of inspection and service. Servicing and maintaining the light engine, driver and branch circuit conductors is possible without tools from below the ceiling. Luminaire is constructed with 20 gauge galvanized steel.

Listings

Fixtures are CSA certified to meet US and Canadian Standards: All fixtures manufactured in strict accordance with the appropriate and current requirements of the "Standards for Safety" to UL, damp location standard; wet location (WL) optional, covered ceiling only.

Photometrics

All photometry is conducted by IESNA standard LM-79-08 in an accredited lab. LEDs are tested by LM-80 standards and used to calculate via TM-21.

Warranty

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note:

Actual performance may differ as a result of end user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1



4"

Round Shallow Recessed Downlight

Tables of Use

IVO4S NCH - 3000 Lumens Max.			
Marked Spacing in Inches			
Lumen Package	Fixture Center to Center Min	Fixture Center to Building Member MIN	Space Above Fixture
3000	24	12	0.5

Dimming Configurations	Dimming Level		Control Input	Dimming Level	Driver Dim Curve	Recommended Control Dim Curve
	MIN10	+	ZT	100% to 10%	Linear	Linear/Logarithmic
		+	EZT	100% to 10%	Linear	Linear/Logarithmic
	MIN1	+	ZT	100% to 1%	Linear	Linear/Logarithmic
		+	EZT	100% to 1%	Linear	Linear/Logarithmic
		+	ELV	100% to 1%*	n/a	n/a
	DARK	+	EZT	100% to 0.1%	Logarithmic	Linear
		+	DMX	100% to 0.1%	Square	Linear
		+	DALI	100% to 0.1%	Logarithmic	Linear

* ELV Minimum Dimming level depends on dimmer and dimmer load

Embedded NLight Configurations	Dimming Level		Control Input	Dimming Level	Control Provided	Driver Provided
	MIN10	+	NLIGHT	100% to 10%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 10%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 10%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 10%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	MIN1	+	NLIGHT	100% to 1%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 1%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 1%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 1%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	DARK	+	NLIGHT	100% to 0.1%	NIO EZDXA	eldoLED 0-10V SOLOdrive
		+	NLIGHTER	100% to 0.1%	NIO EZDCL ER	eldoLED 0-10V SOLOdrive
		+	NLTAIR2	100% to 0.1%	RIO EZDL G2	eldoLED 0-10V SOLOdrive
		+	NLTAIREM2	100% to 0.1%	RIO EZDL EM G2	eldoLED 0-10V SOLOdrive

How to Estimate Delivered Lumens in Emergency Mode
Delivered Lumens = P x LPW
P = Output power of emergency driver. P = 6W for E6WR
LPW = Lumen per watt rating of the luminaire. This information is available on the ABL luminaire spec sheet.

Flangeless

Flangeless Installation

Gotham's flangeless option utilizes a micro-thin polymer mud ring that minimizes the amount of drywall compound required to finish the ceiling. The end result is a virtually undetectable flangeless downlight installation.

The polymer mud ring is installed independent of the of the recessed frame, therefore floating with the ceiling. This innovation minimizes any surface cracks during reflector installation, ceiling movement and any future service to the recessed frame, wiring, electronics, etc.



Partially finished mud ring, showing cross-section detail.



An IVO downlight requires only approximately 3" of plaster to finish.



IVO with flangeless trim



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1



4"

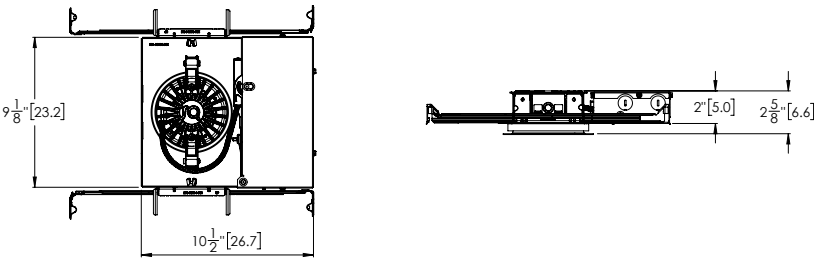
Round Shallow Recessed Downlight

New Construction Dimensions

Dimensions in inches [centimeters]
1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

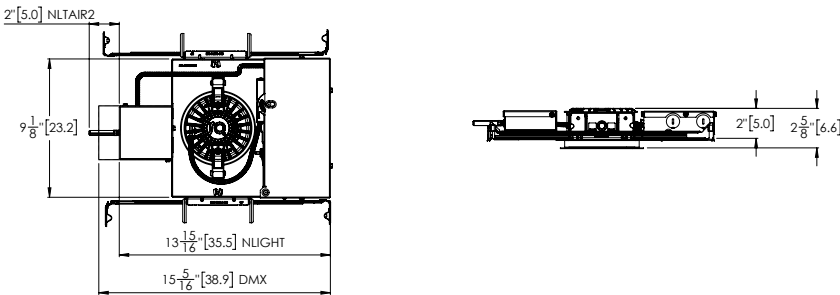
Trim Aperture: 4-5/16" (11) Ceiling Cutout (flanged): 5" (12.7)
Trim Flange O.D.: 5-1/2" (14) Ceiling Cutout (flangeless): 5-1/4" (13.3)

Standard New Construction Housing (NCH)



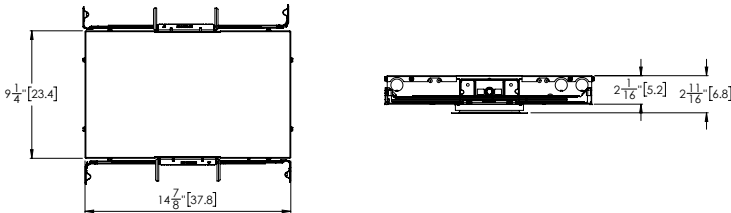
Shipping Weight: 5.7 lbs

NCH with NLIGHT, NLTAIR2, DMX



Shipping Weight: 7.2 lbs

**IC Airtight (ICAT) or Chicago Plenum (CP)
(dimensions are the same when E6WR added)**



Shipping Weight: 8.7 lbs



4" Round Shallow Recessed Downlight

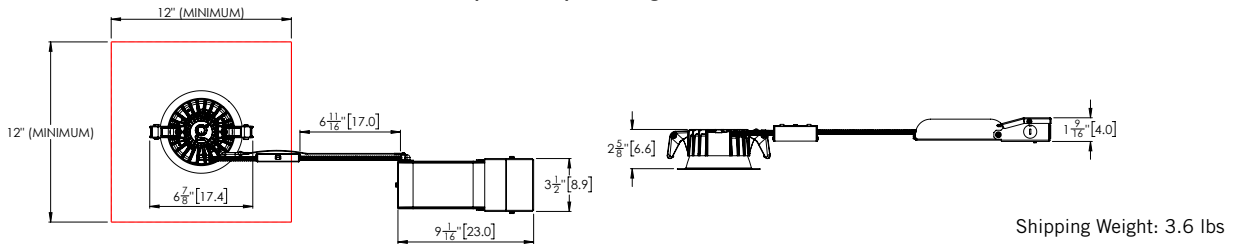
Remodel Dimensions

Dimensions in inches [centimeters]
1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

Trim Aperture: 4-5/16" (11)	Ceiling cutout (flanged): 5" (12.7)
Flanged Trim O.D.: 5-1/2" (14)	Ceiling cutout (flangeless): 5-1/4" (13.3)

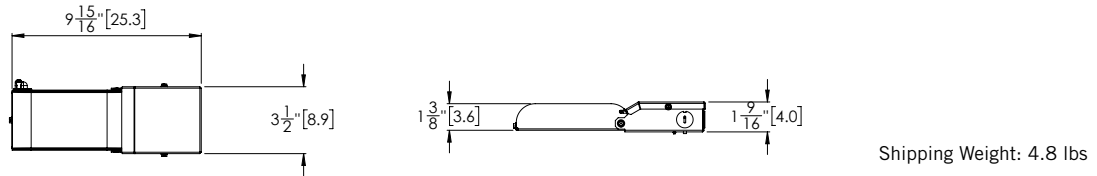
Remodel Construction (RM)

Requires 2" of plenum height



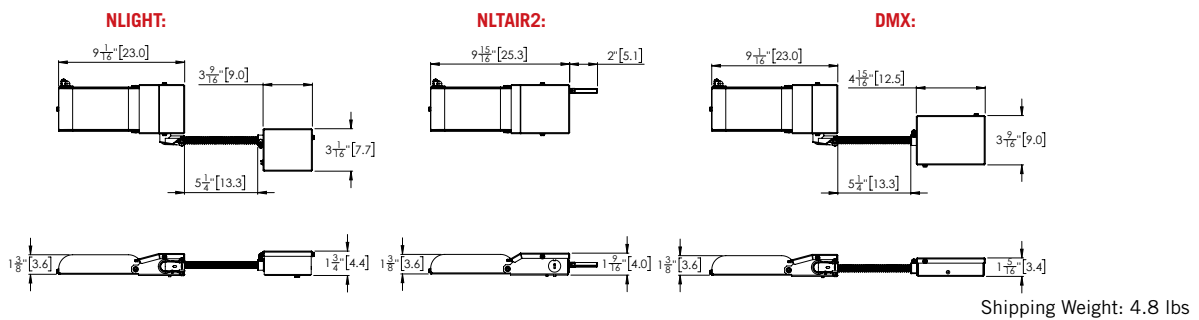
Remodel Construction (RM) Driver Enclosure with Fuse (SF)

Requires 3" of plenum height



Remodel Construction (RM) Driver Enclosures with Control Options

Requires 3" of plenum height





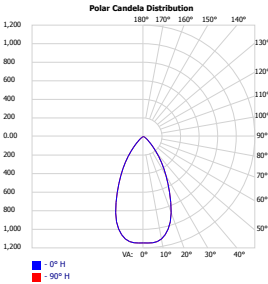
4"

Round Shallow Recessed Downlight

MD MEDIUM BEAM

IVO4S D 20LM 35K 80CRI MD P AR LSS

WATTAGE: 22.4, LUMENS: 1894, LPW: 85, S/MH: .86, TEST NO: 23-460-4P351



Candela Summary	
0°	2082
10°	2036
20°	1587
30°	885
40°	377
50°	111
60°	28
70°	4
80°	1
90°	0

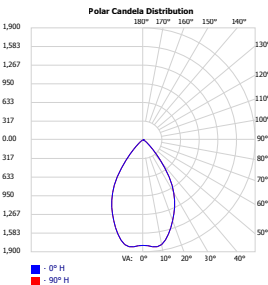
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1270.2	67.1%
0-40	1652.7	87.3%
0-60	1880.3	99.3%
0-90	1894.2	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	32.53	8.3	8.2
10'	20.82	10.4	10.2
12'	14.46	12.5	12.3
14'	10.62	14.5	14.3
16'	8.13	16.6	16.3

MWD MEDIUM WIDE BEAM

IVO4S D 20LM 35K 80CRI MWD P AR LSS

WATTAGE: 22.4, LUMENS: 1929, LPW: 86, S/MH: .97, TEST NO: 23-561-1P351



Candela Summary	
0°	1793
10°	1805
20°	1460
30°	1037
40°	455
50°	108
60°	24
70°	1
80°	0
90°	0

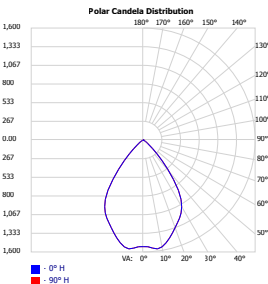
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1210.5	62.8%
0-40	1678.2	87.0%
0-60	1920.3	99.5%
0-90	1929.1	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	28.01	10.2	9.8
10'	17.93	12.7	12.3
12'	12.45	15.3	14.7
14'	9.15	17.8	17.2
16'	7	20.3	19.7

WD WIDE BEAM

IVO4S D 20LM 35K 80CRI WD P AR LSS

WATTAGE: 22.4, LUMENS: 1936.9, LPW: 87, S/MH: 1.1, TEST NO: 23-561-7P351



Candela Summary	
0°	1524
10°	1551
20°	1334
30°	1100
40°	546
50°	112
60°	25
70°	1
80°	0
90°	0

Zonal Lumen Summary		
Zone	Lumens	%
0-30	1119.3	57.8%
0-40	1648.6	85.1%
0-60	1928	99.5%
0-90	1045.9	100.0%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	23.82	11.8	11.5
10'	15.24	14.7	14.4
12'	10.58	17.7	17.3
14'	7.78	20.6	20.1
16'	5.95	23.6	23

CRI/CCT Multiplier Table		
CRI	CCT	Multiplier
80	2700K	0.92
	3000K	0.96
	3500K	1.00
	4000K	1.01
	5000K	1.04
90	2700K	0.80
	3000K	0.85
	3500K	0.85
	4000K	0.89
95	2700K	0.68
	3000K	0.75

Reflector Finish Multiplier		
Trim Color	Optical Finish	Multiplier
AR	LSS	1.00
AR	LS	1.03
AR	LD	0.98
GR	LSS	1.01
GR	LS	0.99
GR	LD	0.99
PR	LSS	0.96
PR	LS	0.96
PR	LD	0.93
WTR	LSS	0.95
WTR	LS	0.95
WTR	LD	0.92
WR		1.03
BZR		0.81
BR		0.80

UGR (70% 50% 20% reflectance using a 4H x 8H room size)						
Lumen Package	Crosswise			Endwise		
	MD	MWD	WD	MD	MWD	WD
05LM	7.9	4.9	4.9	7.9	4.9	4.9
07LM	9.2	6.2	6.2	9.2	6.2	6.2
10LM	10.3	7.3	7.3	10.3	7.3	7.3
15LM	11.4	8.4	8.4	11.4	8.4	8.4
20LM	12.3	9.4	9.3	12.3	9.4	9.3
25LM	13	10.1	10.1	13	10.1	10.1
30LM	13.6	10.6	10.6	13.6	10.6	10.6

*UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered "Luminaire-UGR" and/or "Point-UGR" values. To determine a more precise maximum UGR value ("Application-UGR"), a full lighting design layout should be completed with the selected luminaire configuration for each application.

**Calculated using an AR (Clear reflector) with LSS (Semi-Specular) finish



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MARSHALL HEALTH STRAYER BUILDING

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LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1



4" Round Shallow Recessed Downlight

NLIGHT AIR

nLight® AIR is the ideal solution for retrofit or new construction spaces where adding communication wiring is cost prohibitive. The integrated nLight AIR rPP20 Power Pack is part of each IVO Luminaire ordered with the NLTAIR option. These individually addressable controls offer the ultimate in flexibility during initial setup and for space repurposing.

nLight® AIR Control Accessories	
Order as separate catalog number. Visit nLight AIR .	
Wall Switches	Model Number
On/Off single pole	rPODB (color) G2
On/Off two pole	rPODB 2P (color) G2
On/Off & raise/lower single pole	rPODB DX (color) G2
On/Off & raise/lower two pole	rPODB 2P DX (color) G2

nLight® AIR Control Accessories (cont.)	
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	rCMS 9 / rCMS PDT 9
Large motion 360°, ceiling	rCMS 10 / rCMS PDT 10

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.

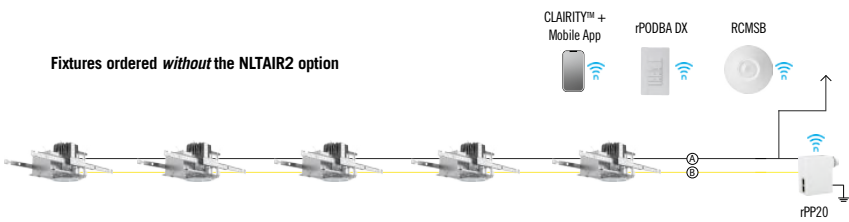
nLight® The nLight® solution is a digital networked lighting control system that provides both energy savings and increased user configurability by cost effectively integrating time-based, daylight-based, sensor-based and manual lighting control schemes.

nLight® Wired Control Accessories	
Order as separate catalog number. Visit nLight .	
Wall Switches	Model Number
On/Off single pole	nPODM (color)
On/Off two pole	nPODM 2P (color)
On/Off & raise/lower single pole	nPOD DX (color)
On/Off & raise/lower two pole	nPODM 2P DX (color)
Graphic touchscreen	nPOD GFX (color)
Photocell Controls	
Dimming	nCM ADCX

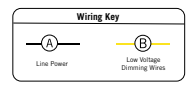
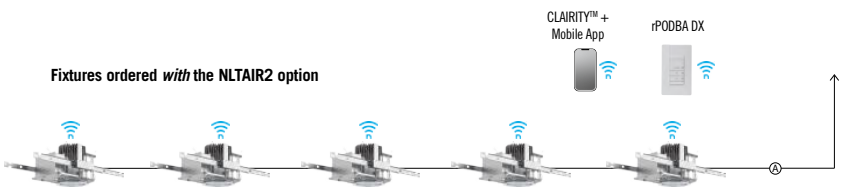
nLight® Wired Control Accessories (cont.)	
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	nCM 9 / nCM PDT 9
Large motion 360°, ceiling	nCM 10 / nCM PDT 10
Wide View	nWV 16 / nWV PDT 16
Wall switch with raise/lower	nWSX LV DX / nWSX PDT LV DX
Cat-5 Cables (plenum rated)	
10', CAT5	CAT5 10FT J1
15', CAT5	CAT5 15FT J1

Possibilities for nLight® AIR

Fixtures ordered *without* the NLTAIR2 option

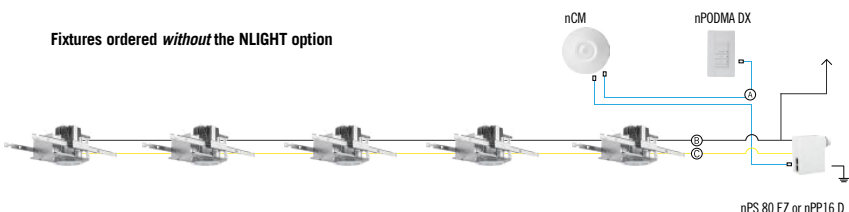


Fixtures ordered *with* the NLTAIR2 option

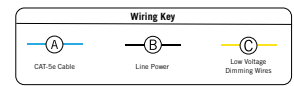
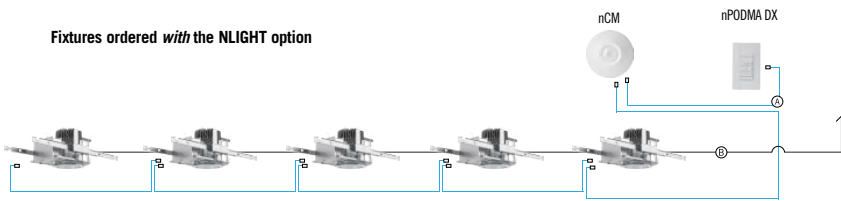


Possibilities for nLight® wired

Fixtures ordered *without* the NLIGHT option

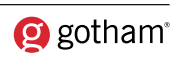


Fixtures ordered *with* the NLIGHT option



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands' controls products. All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency – including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates. To learn more about Acuity A+ standards, specifications, and testing, visit www.acuitybrands.com/aplus.





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F
Note:

Type
R1X



Luminaire Type:
Catalog Number:



Round Shallow Recessed Downlight

IV04S

4"

New Construction & Remodel

OVERVIEW

Feature Set

- Ultra Shallow recessed downlight fits in plenums as small as 2 inches above ceiling
- Perfect color consistency of less than 0.5 step MacAdam Ellipse fixture to fixture
- Exceptional color rendering with 80 CRI, 90 CRI, or 95 CRI minimum.
- Bounding Ray™ optical design delivers low brightness apertures for a comfortable lighting experience.
- 65 deg cutoff to source and source image.
- Patent pending optics available in three batwing distributions deliver exceptional lighting uniformity.
- Field adaptable with interchangeable optics and trims
- Up to 90% lumen maintenance at 55,000 hours.

Distribution



Superior Performance*

Nominal Lumens	05LM	07LM	10LM	15LM	20LM	25LM	30LM
Delivered Lumens	529	780	1065	1481	1937	2384	2809
Wattage	5.3	7.8	10.5	15.7	22.4	25.0	30.7
Lumens per Watt	100	100	101	94	87	95	92

*Based on 3500K WD 80CRI P AR LSS



Flanged



Flangeless

PRODUCT FAMILY

New Construction



NCH
New Construction Housing



ICAT/CP
IC Airtight/Chicago Plenum Housing

- Optimal for new construction projects with ceilings as shallow as 2" in plenum depth

Remodel



RM
Remodel Fixture

- Optimal for renovation or remodel projects where installation from below the ceiling is necessary



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Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1X



4"

Round Shallow Recessed Downlight

ORDERING INFORMATION

Luminaire Type:

Catalog Number:

EXAMPLE: IVO4S D 10LM 35K 80CRI MWD MVOLT MIN10 ZT NCH P AR LSS F

Series	Function	Lumen Packages	Kelvin Temperature	Color Rendering Index ²	Distribution	Voltage
IVO4S Round Shallow Recessed	D Downlight	05LM ¹ 500 Lumens	27K 2700K	80CRI 80+ CRI	MD Medium (0.8 s/mh, 60°)	MVOLT 120V-277V
		07LM 750 Lumens	30K 3000K	90CRI 90+ CRI	MWD Medium Wide (1.0 s/mh, 65°)	120 120V
		10LM 1000 Lumens	35K 3500K	95CRI 95+ CRI	WD Wide (1.2 s/mh, 75°)	277 277V
		15LM 1500 Lumens	40K 4000K			347 ³ 347V
		20LM 2000 Lumens	50K 5000K			
		25LM 2500 Lumens				
		30LM 3000 Lumens				

Dimming Level	Control Input	Emergency Option	Housing Style	Options
MIN1 Constant current, dimming to 1%	ZT ⁴ 0-10V Generic.	(Blank) No Emergency	NCH New Construction Housing	SF ⁸ Single Fuse. Specify 120 or 277.
MIN10 Constant current, dimming to 10%	EZT 0-10V e/dLED.	E6WR ⁷ 6W integral emergency battery, CA Title 20 compliant emergency battery pack with remote test switch. 2000 lumen max.	ICAT IC/Airtight Housing (new construction only). 2000LM max.	
DARK Constant current, dimming to 0.1%	ELV ⁵ Electronic line voltage. Forward phase-cut (120V only)		CP Chicago Plenum (new construction only). 2000LM max.	
	DMX ⁶ DMX with RDM (remote device management).		RM Remodel/Install from below. Not available with Emergency Pack options. 2500LM max.	
	DALI ⁶ DALI Compatible.			
	NLIGHT nLight enabled			
	NLTAIR2 nLight Air			
	NLIGHTER nLight enabled emergency circuit			
	NLTAIREM2 nLight AIR Gen2 with UL924 compliant EM			

Trim Style	Trim Color	Trim Finish	Flange Option
P Open Reflector	AR Clear Anodized	LD Matte Diffuse	F Self Flanged (color matches trim)
	BR Black Anodized	LS Specular	FL Flangeless (Drywall)
	GR Gold Anodized	LSS Semi Specular	FBL ¹¹ Flange Only Black
	PR Pewter Anodized		FWR ¹² Flange Only White
	WTR Wheat Anodized		FRALTBD ¹⁰ Flange Only RAL
	WR ⁹ White Gloss (painted)		FCPC Flange Only Custom Finish
	WMR ⁹ Soft White Matte (painted)		
	WRAMF ⁹ White with Anti-Microbial		
	BZR ⁹ Dark Bronze painted		
	TRALTBD ^{9,10} Trim RAL # TBD (TBD for pricing only)		
	TCPC ⁹ Trim Custom Paint Color		

ACCESSORIES — order as separate catalog numbers (shipped separately)

IVO4SOPTC D MD U	Field Replaceable Optic, Medium Distribution
IVO4SOPTC D MWD U	Field Replaceable Optic, Medium Wide Distribution
IVO4SOPTC D WD U	Field Replaceable Optics, Wide Distribution

ORDERING NOTES

- 05LM only available with ELV or ZT.
- 50K CCT is not available with 90CRI. 35K, 40K or 50K is not available with 95CRI.
- 347 only available with ZT at MIN1 or MIN10.
- Not available with ELV
- ZT is not available with DARK.
- DMX and DALI are not available with MIN1 or MIN10.
- E6WR is not available with DMX, NLIGHT, NLIGHTER, or NLTAIREM2
- RM with SF is not valid with DMX or nLight.
- Not available with Optical Finish.
- Replace with applicable RAL number and finish when ready to order. See [RAL BROCHURE](#) for available color options.
- For use with different reflector flange colors only (i.e. AR, BZR, GR, PR, WR, WTR options). Not applicable with BR (black reflector) or FL (flangeless) option.
- For use with different reflector flange colors only (i.e. AR, BR, BZR, GR, PR, WTR options). Not applicable with WR (white reflector) or FL (flangeless) option.





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Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1X



4"

Round Shallow Recessed Downlight

SPECIFICATIONS

Optical System

Bounding Ray™ optical design delivers top-down flash for superior brightness control. Source and source image present simultaneously. Unitized optical system has mechanical attachment of the light engine to the trim for optimized optical alignment. Source regression delivers 65 degrees of visual cutoff to source and source image. Patent pending optics are available in three (3) batwing distributions for optimal uniformity, free of shadows, hot spots or striations. Optics are field interchangeable without tools via twist-lock feature.

LED Light Engine

Proprietary light engines are custom binned to deliver perfect color consistency of less than 0.5-step MacAdam Ellipse fixture to fixture. LED light engine is rated for L90 / 55,000 hours up to 2500 lumens and L80 / 55,000 hours at 3000 lumens. Available in 80, 90, or 95 CRI minimum. 90 CRI has an R9 greater than 50. 95 CRI has an R9 greater than 80.

Trims

Trims are field interchangeable via twist-lock mechanism. Trims are available in nine (9) standard colors and three standard finishes that can be customized.

Electrical

Luminaire operates from a 50 or 60 Hz ±3 Hz AC line over a voltage ranging from 120 VAC to 347 VAC. The fluctuations of line voltage have no visible effect on the luminous output. Luminaire has a power factor of 85% or greater at all standard operating voltages and full luminaire output. Sound Rated A+. Input wires are 18AWG, 600V minimum, solid copper.

Controls (Optional)

Luminaire is equipped with interface for nLight wired, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. Luminaire is equipped with interface for nLight Air, meaning it can communicate over the wireless nLight control platform. It pairs to other luminaires and wall switches through our mobile app, CLAIRITY+, which allows for single fixture control.

Dimming

The luminaire is capable of continuous dimming without perceivable stroboscopic flicker as measured by flicker index (ANSI/IES RP-16-10) over a range of 100 – 10%, 100 – 1.0% or 100 – 0.1% of rated lumen output with a smooth shut off function to step to 0%. eldoLED LED drivers (EZT) conforms to IEEE P1789 standards. The driver is inaudible in 24dB environment, and stable when input voltage conditions fluctuate over what is typically experienced in a commercial environment.

Emergency Battery (Optional)

Self testing integral emergency battery (E6WR) provides a emergency lighting for a duration of 90 minutes to meet egress code requirements. Emergency battery is accessible from below the ceiling. Emergency battery is CEC T20 Compliant.

Installation

Luminaire installs in 3 1/2" plenum depth ceiling (unless noted otherwise). Fixture is suitable for installation in ceilings from 5/8" to 2" in ceiling thickness via patented retention spring design. Luminaire has telescopic mounting bars with maximum 24" and minimum 10 1/2" extension and 1 1/8" vertical adjustment (supplied separated). Mounting brackets also work with C-Channel from 3/4" to 1 1/2", Flat Strap from 1/2" to 3/4", Conduit up to 3/4" in diameter, and 1/2" angle bar. Luminaire is rated for up to (8) No. 12 AWG 90°C through branch circuit conductors. Fixture should be used in ceilings with 25°C ambient temperature as standard. Non-IC rated luminaires shall be installed with 3" of clearance on all sides from insulation or 1/2" clearance on all sides from non-combustible materials (unless marked spacing noted otherwise.) IC rated luminaires can be installed in direct contact with insulation.

Construction

Luminaire features LED module with quick-disconnect harness and strain relief for ease of inspection and service. Servicing and maintaining the light engine, driver and branch circuit conductors is possible without tools from below the ceiling. Luminaire is constructed with 20 gauge galvanized steel.

Listings

Fixtures are CSA certified to meet US and Canadian Standards: All fixtures manufactured in strict accordance with the appropriate and current requirements of the "Standards for Safety" to UL, damp location standard; wet location (WL) optional, covered ceiling only.

Photometrics

All photometry is conducted by IESNA standard LM-79-08 in an accredited lab. LEDs are tested by LM-80 standards and used to calculate via TM-21.

Warranty

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note:

Actual performance may differ as a result of end user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C.



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Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F
Note:

Type
R1X



4"

Round Shallow Recessed Downlight

Tables of Use

IVO4S NCH - 3000 Lumens Max.			
Marked Spacing in Inches			
Lumen Package	Fixture Center to Center Min	Fixture Center to Building Member MIN	Space Above Fixture
3000	24	12	0.5

Dimming Configurations	Dimming Level		Control Input	Dimming Level	Driver Dim Curve	Recommended Control Dim Curve
	MIN10	+	ZT	100% to 10%	Linear	Linear/Logarithmic
		+	EZT	100% to 10%	Linear	Linear/Logarithmic
	MIN1	+	ZT	100% to 1%	Linear	Linear/Logarithmic
		+	EZT	100% to 1%	Linear	Linear/Logarithmic
		+	ELV	100% to 1%*	n/a	n/a
	DARK	+	EZT	100% to 0.1%	Logarithmic	Linear
		+	DMX	100% to 0.1%	Square	Linear
		+	DALI	100% to 0.1%	Logarithmic	Linear

* ELV Minimum Dimming level depends on dimmer and dimmer load

Embedded NLight Configurations	Dimming Level		Control Input	Dimming Level	Control Provided	Driver Provided
	MIN10	+	NLIGHT	100% to 10%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 10%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 10%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 10%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	MIN1	+	NLIGHT	100% to 1%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 1%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 1%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 1%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	DARK	+	NLIGHT	100% to 0.1%	NIO EZDXA	eldoLED 0-10V SOLOdrive
		+	NLIGHTER	100% to 0.1%	NIO EZDCL ER	eldoLED 0-10V SOLOdrive
		+	NLTAIR2	100% to 0.1%	RIO EZDL G2	eldoLED 0-10V SOLOdrive
		+	NLTAIREM2	100% to 0.1%	RIO EZDL EM G2	eldoLED 0-10V SOLOdrive

How to Estimate Delivered Lumens in Emergency Mode
Delivered Lumens = P x LPW
P = Output power of emergency driver. P = 6W for E6WR
LPW = Lumen per watt rating of the luminaire. This information is available on the ABL luminaire spec sheet.

Flangeless

Flangeless Installation

Gotham's flangeless option utilizes a micro-thin polymer mud ring that minimizes the amount of drywall compound required to finish the ceiling. The end result is a virtually undetectable flangeless downlight installation. The polymer mud ring is installed independent of the of the recessed frame, therefore floating with the ceiling. This innovation minimizes any surface cracks during reflector installation, ceiling movement and any future service to the recessed frame, wiring, electronics, etc.



Partially finished mud ring, showing cross-section detail.



An IVO downlight requires only approximately 3" of plaster to finish.



IVO with flangeless trim



4"

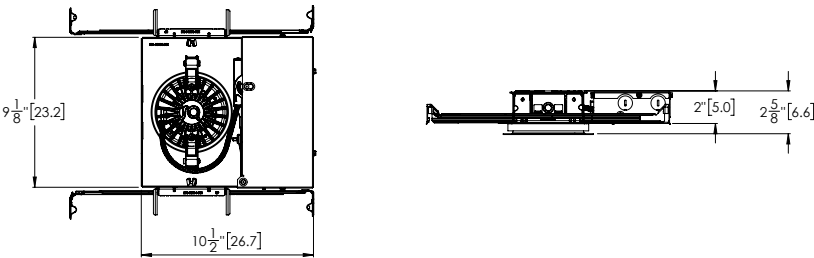
Round Shallow Recessed Downlight

New Construction Dimensions

Dimensions in inches [centimeters]
1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

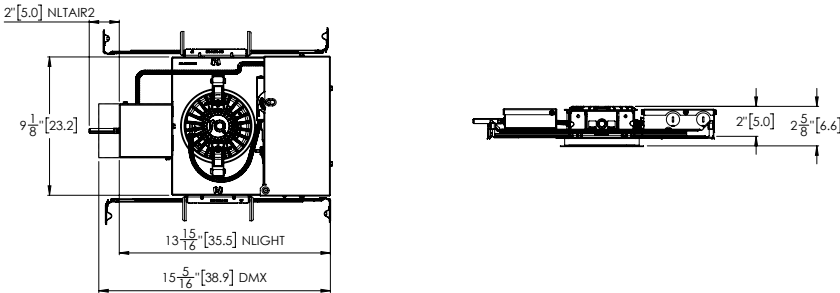
Trim Aperture: 4-5/16" (11) Ceiling Cutout (flanged): 5" (12.7)
Trim Flange O.D.: 5-1/2" (14) Ceiling Cutout (flangeless): 5-1/4" (13.3)

Standard New Construction Housing (NCH)



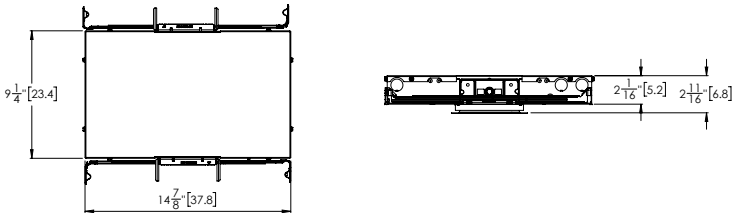
Shipping Weight: 5.7 lbs

NCH with NLIGHT, NLTAIR2, DMX



Shipping Weight: 7.2 lbs

IC Airtight (ICAT) or Chicago Plenum (CP) (dimensions are the same when E6WR added)



Shipping Weight: 8.7 lbs



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F
Note:

Type
R1X



4"

Round Shallow Recessed Downlight

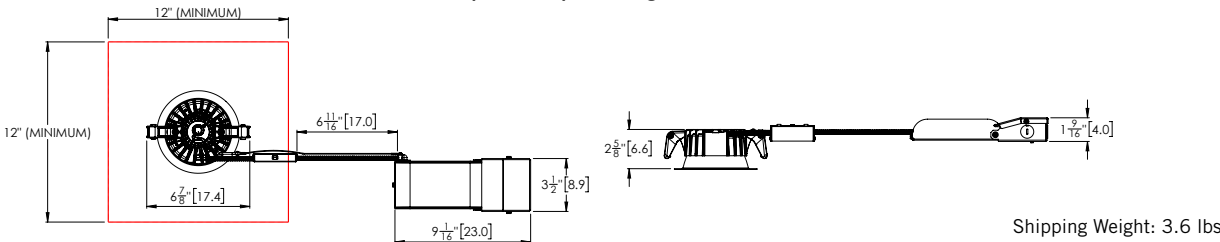
Remodel Dimensions

Dimensions in inches [centimeters]
1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

Trim Aperture: 4-5/16" (11) Ceiling cutout (flanged): 5" (12.7)
Flanged Trim O.D.: 5-1/2" (14) Ceiling cutout (flangeless): 5-1/4" (13.3)

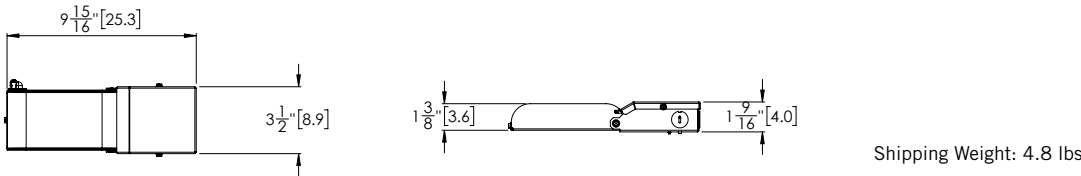
Remodel Construction (RM)

Requires 2" of plenum height



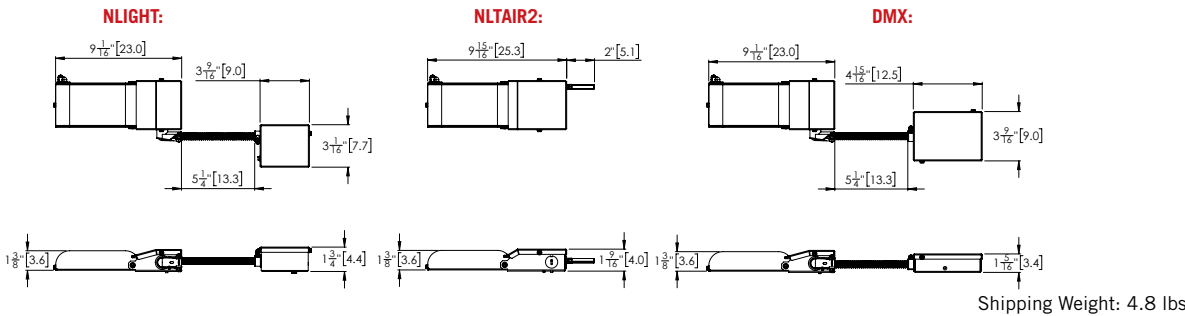
Remodel Construction (RM) Driver Enclosure with Fuse (SF)

Requires 3" of plenum height



Remodel Construction (RM) Driver Enclosures with Control Options

Requires 3" of plenum height





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MVOLT ZT NCH P AR LD F

Note:

Type
R1X



4"

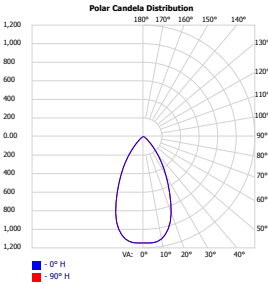
Round Shallow Recessed Downlight

Photometry

MD MEDIUM BEAM

IVO4S D 20LM 35K 80CRI MD P AR LSS

WATTAGE: 22.4, LUMENS: 1894, LPW: 85, S/MH: .86, TEST NO: 23-460-4P351



Candela Summary	
0°	2082
10°	2036
20°	1587
30°	885
40°	377
50°	111
60°	28
70°	4
80°	1
90°	0

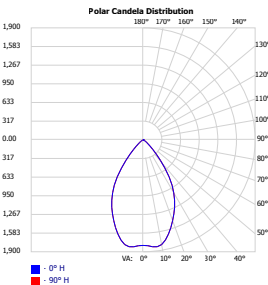
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1270.2	67.1%
0-40	1652.7	87.3%
0-60	1880.3	99.3%
0-90	1894.2	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	32.53	8.3	8.2
10'	20.82	10.4	10.2
12'	14.46	12.5	12.3
14'	10.62	14.5	14.3
16'	8.13	16.6	16.3

MWD MEDIUM WIDE BEAM

IVO4S D 20LM 35K 80CRI MWD P AR LSS

WATTAGE: 22.4, LUMENS: 1929, LPW: 86, S/MH: .97, TEST NO: 23-561-1P351



Candela Summary	
0°	1793
10°	1805
20°	1460
30°	1037
40°	455
50°	108
60°	24
70°	1
80°	0
90°	0

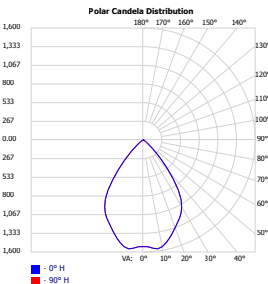
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1210.5	62.8%
0-40	1678.2	87.0%
0-60	1920.3	99.5%
0-90	1929.1	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	28.01	10.2	9.8
10'	17.93	12.7	12.3
12'	12.45	15.3	14.7
14'	9.15	17.8	17.2
16'	7	20.3	19.7

WD WIDE BEAM

IVO4S D 20LM 35K 80CRI WD P AR LSS

WATTAGE: 22.4, LUMENS: 1936.9, LPW: 87, S/MH: 1.1, TEST NO: 23-561-7P351



Candela Summary	
0°	1524
10°	1551
20°	1334
30°	1100
40°	546
50°	112
60°	25
70°	1
80°	0
90°	0

Zonal Lumen Summary		
Zone	Lumens	%
0-30	1119.3	57.8%
0-40	1648.6	85.1%
0-60	1928	99.5%
0-90	1945.9	100.0%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	23.82	11.8	11.5
10'	15.24	14.7	14.4
12'	10.58	17.7	17.3
14'	7.78	20.6	20.1
16'	5.95	23.6	23

CRI/CCT Multiplier Table		
CRI	CCT	Multiplier
80	2700K	0.92
	3000K	0.96
	3500K	1.00
	4000K	1.01
	5000K	1.04
90	2700K	0.80
	3000K	0.85
	3500K	0.85
	4000K	0.89
95	2700K	0.68
	3000K	0.75

Reflector Finish Multiplier		
Trim Color	Optical Finish	Multiplier
AR	LSS	1.00
AR	LS	1.03
AR	LD	0.98
GR	LSS	1.01
GR	LS	0.99
GR	LD	0.99
PR	LSS	0.96
PR	LS	0.96
PR	LD	0.93
WTR	LSS	0.95
WTR	LS	0.95
WTR	LD	0.92
WR		1.03
BZR		0.81
BR		0.80

UGR (70% 50% 20% reflectance using a 4H x 8H room size)						
Lumen Package	Crosswise			Endwise		
	MD	MWD	WD	MD	MWD	WD
05LM	7.9	4.9	4.9	7.9	4.9	4.9
07LM	9.2	6.2	6.2	9.2	6.2	6.2
10LM	10.3	7.3	7.3	10.3	7.3	7.3
15LM	11.4	8.4	8.4	11.4	8.4	8.4
20LM	12.3	9.4	9.3	12.3	9.4	9.3
25LM	13	10.1	10.1	13	10.1	10.1
30LM	13.6	10.6	10.6	13.6	10.6	10.6

*UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered "Luminaire-UGR" and/or "Point-UGR" values. To determine a more precise maximum UGR value ("Application-UGR"), a full lighting design layout should be completed with the selected luminaire configuration for each application.

**Calculated using an AR (Clear reflector) with LSS (Semi-Specular) finish



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 20LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R1X



4" Round Shallow Recessed Downlight

NLIGHT AIR

nLight® AIR is the ideal solution for retrofit or new construction spaces where adding communication wiring is cost prohibitive. The integrated nLight AIR rPP20 Power Pack is part of each IVO Luminaire ordered with the NLTAIR option. These individually addressable controls offer the ultimate in flexibility during initial setup and for space repurposing.

nLight® AIR Control Accessories	
Order as separate catalog number. Visit nLight AIR .	
Wall Switches	Model Number
On/Off single pole	rPODB (color) G2
On/Off two pole	rPODB 2P (color) G2
On/Off & raise/lower single pole	rPODB DX (color) G2
On/Off & raise/lower two pole	rPODB 2P DX (color) G2

nLight® AIR Control Accessories (cont.)	
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	rCMS 9 / rCMS PDT 9
Large motion 360°, ceiling	rCMS 10 / rCMS PDT 10

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

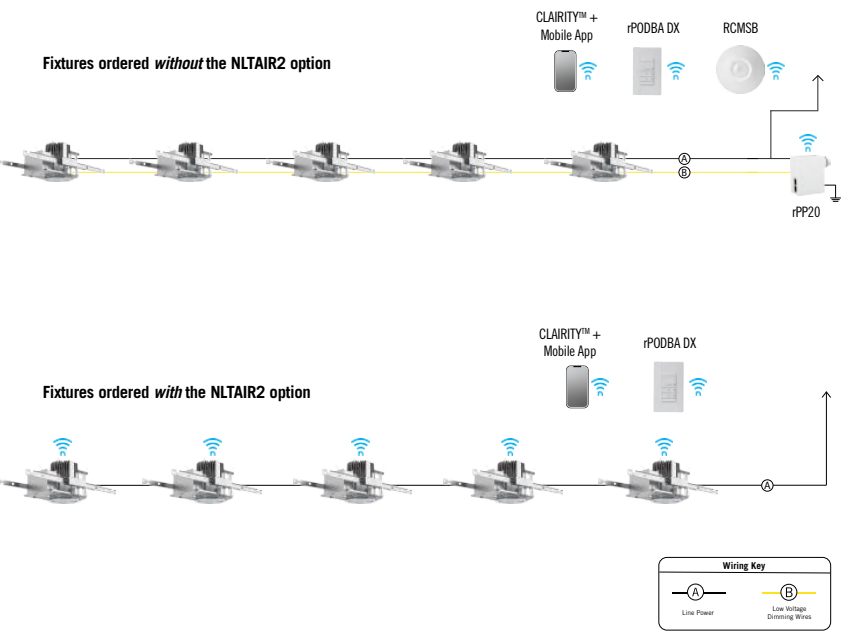
- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.

nLight® The nLight® solution is a digital networked lighting control system that provides both energy savings and increased user configurability by cost effectively integrating time-based, daylight-based, sensor-based and manual lighting control schemes.

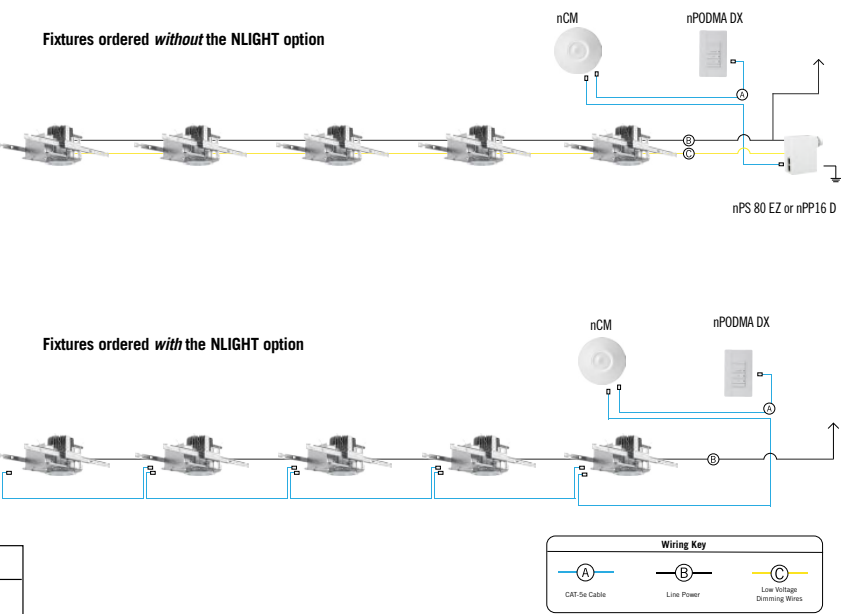
nLight® Wired Control Accessories	
Order as separate catalog number. Visit nLight .	
Wall Switches	Model Number
On/Off single pole	nPODM (color)
On/Off two pole	nPODM 2P (color)
On/Off & raise/lower single pole	nPOD DX (color)
On/Off & raise/lower two pole	nPODM 2P DX (color)
Graphic touchscreen	nPOD GFX (color)
Photocell Controls	
Dimming	nCM ADCX

nLight® Wired Control Accessories (cont.)	
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	nCM 9 / nCM PDT 9
Large motion 360°, ceiling	nCM 10 / nCM PDT 10
Wide View	nWV 16 / nWV PDT 16
Wall switch with raise/lower	nWSX LV DX / nWSX PDT LV DX
Cat-5 Cables (plenum rated)	
10', CAT5	CAT5 10FT J1
15', CAT5	CAT5 15FT J1

Possibilities for nLight® AIR



Possibilities for nLight® wired



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands' controls products. All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency – including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing, visit www.acuitybrands.com/aplus.



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Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 30LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F
Note:

Type
R2



Luminaire Type:
Catalog Number:



Round Shallow Recessed Downlight
New Construction & Remodel

IVO4S | 4"

OVERVIEW

Feature Set

- Ultra Shallow recessed downlight fits in plenums as small as 2 inches above ceiling
- Perfect color consistency of less than 0.5 step MacAdam Ellipse fixture to fixture
- Exceptional color rendering with 80 CRI, 90 CRI, or 95 CRI minimum.
- Bounding Ray™ optical design delivers low brightness apertures for a comfortable lighting experience.
- 65 deg cutoff to source and source image.
- Patent pending optics available in three batwing distributions deliver exceptional lighting uniformity.
- Field adaptable with interchangeable optics and trims
- Up to 90% lumen maintenance at 55,000 hours.

Distribution



Superior Performance*

Nominal Lumens	05LM	07LM	10LM	15LM	20LM	25LM	30LM
Delivered Lumens	529	780	1065	1481	1937	2384	2809
Wattage	5.3	7.8	10.5	15.7	22.4	25.0	30.7
Lumens per Watt	100	100	101	94	87	95	92

*Based on 3500K WD 80CRI P AR LSS



Flanged



Flangeless

PRODUCT FAMILY

New Construction



NCH
New Construction Housing



ICAT/CP
IC Airtight/Chicago Plenum Housing

- Optimal for new construction projects with ceilings as shallow as 2" in plenum depth

Remodel



RM
Remodel Fixture

- Optimal for renovation or remodel projects where installation from below the ceiling is necessary



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Catalog Number: IVO4S D 30LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R2



4"

Round Shallow Recessed Downlight

ORDERING INFORMATION

Luminaire Type:

Catalog Number:

EXAMPLE: IVO4S D 10LM 35K 80CRI MWD MVOLT MIN10 ZT NCH P AR LSS F

Series	Function	Lumen Packages	Kelvin Temperature	Color Rendering Index ²	Distribution	Voltage
IVO4S Round Shallow Recessed	D Downlight	05LM ¹ 500 Lumens	27K 2700K	80CRI 80+ CRI	MD Medium (0.8 s/mh, 60°)	MVOLT 120V-277V
		07LM 750 Lumens	30K 3000K	90CRI 90+ CRI	MWD Medium Wide (1.0 s/mh, 65°)	120 120V
		10LM 1000 Lumens	35K 3500K	95CRI 95+ CRI	WD Wide (1.2 s/mh, 75°)	277 277V
		15LM 1500 Lumens	40K 4000K			347 ³ 347V
		20LM 2000 Lumens	50K 5000K			
		25LM 2500 Lumens				
		30LM 3000 Lumens				

Dimming Level	Control Input	Emergency Option	Housing Style	Options
MIN1 Constant current, dimming to 1%	ZT ⁴ 0-10V Generic.	(Blank) No Emergency	NCH New Construction Housing	SF ⁸ Single Fuse. Specify 120 or 277.
MIN10 Constant current, dimming to 10%	EZT 0-10V e/d0LED.	E6WR ⁷ 6W integral emergency battery, CA Title 20 compliant emergency battery pack with remote test switch. 2000 lumen max.	ICAT IC/Airtight Housing (new construction only). 2000LM max.	
DARK Constant current, dimming to 0.1%	ELV ⁵ Electronic line voltage. Forward phase-cut (120V only)		CP Chicago Plenum (new construction only). 2000LM max.	
	DMX ⁶ DMX with RDM (remote device management).		RM Remodel/Install from below. Not available with Emergency Pack options. 2500LM max.	
	DALI ⁶ DALI Compatible.			
	NLIGHT nLight enabled			
	NLTAIR2 nLight Air			
	NLIGHTER nLight enabled emergency circuit			
	NLTAIREM2 nLight AIR Gen2 with UL924 compliant EM			

Trim Style	Trim Color	Trim Finish	Flange Option
P Open Reflector	AR Clear Anodized	LD Matte Diffuse	F Self Flanged (color matches trim)
	BR Black Anodized	LS Specular	FL Flangeless (Drywall)
	GR Gold Anodized	LSS Semi Specular	FBL ¹¹ Flange Only Black
	PR Pewter Anodized		FWR ¹² Flange Only White
	WTR Wheat Anodized		FRALTBD ¹⁰ Flange Only RAL
	WR ⁹ White Gloss (painted)		FCPC Flange Only Custom Finish
	WMR ⁹ Soft White Matte (painted)		
	WRAMF ⁹ White with Anti-Microbial		
	BZR ⁹ Dark Bronze painted		
	TRALTBD ^{9,10} Trim RAL # TBD (TBD for pricing only)		
	TCPC ⁹ Trim Custom Paint Color		

ACCESSORIES — order as separate catalog numbers (shipped separately)

IVO4SOPTC D MD U	Field Replaceable Optic, Medium Distribution
IVO4SOPTC D MWD U	Field Replaceable Optic, Medium Wide Distribution
IVO4SOPTC D WD U	Field Replaceable Optics, Wide Distribution

ORDERING NOTES

- 05LM only available with ELV or ZT.
- 50K CCT is not available with 90CRI. 35K, 40K or 50K is not available with 95CRI.
- 347 only available with ZT at MIN1 or MIN10.
- Not available with ELV
- ZT is not available with DARK.
- DMX and DALI are not available with MIN1 or MIN10.
- E6WR is not available with DMX, NLIGHT, NLIGHTER, or NLTAIREM2
- RM with SF is not valid with DMX or nLight.
- Not available with Optical Finish.
- Replace with applicable RAL number and finish when ready to order. See [RAL BROCHURE](#) for available color options.
- For use with different reflector flange colors only (i.e. AR, BZR, GR, PR, WR, WTR options). Not applicable with BR (black reflector) or FL (flangeless) option.
- For use with different reflector flange colors only (i.e. AR, BR, BZR, GR, PR, WTR options). Not applicable with WR (white reflector) or FL (flangeless) option.





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Catalog Number: IVO4S D 30LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R2



4"

Round Shallow Recessed Downlight

SPECIFICATIONS

Optical System

Bounding Ray™ optical design delivers top-down flash for superior brightness control. Source and source image present simultaneously. Unitized optical system has mechanical attachment of the light engine to the trim for optimized optical alignment. Source regression delivers 65 degrees of visual cutoff to source and source image. Patent pending optics are available in three (3) batwing distributions for optimal uniformity, free of shadows, hot spots or striations. Optics are field interchangeable without tools via twist-lock feature.

LED Light Engine

Proprietary light engines are custom binned to deliver perfect color consistency of less than 0.5-step MacAdam Ellipse fixture to fixture. LED light engine is rated for L90 / 55,000 hours up to 2500 lumens and L80 / 55,000 hours at 3000 lumens. Available in 80, 90, or 95 CRI minimum. 90 CRI has an R9 greater than 50. 95 CRI has an R9 greater than 80.

Trims

Trims are field interchangeable via twist-lock mechanism. Trims are available in nine (9) standard colors and three standard finishes that can be customized.

Electrical

Luminaire operates from a 50 or 60 Hz ±3 Hz AC line over a voltage ranging from 120 VAC to 347 VAC. The fluctuations of line voltage have no visible effect on the luminous output. Luminaire has a power factor of 85% or greater at all standard operating voltages and full luminaire output. Sound Rated A+. Input wires are 18AWG, 600V minimum, solid copper.

Controls (Optional)

Luminaire is equipped with interface for nLight wired, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. Luminaire is equipped with interface for nLight Air, meaning it can communicate over the wireless nLight control platform. It pairs to other luminaires and wall switches through our mobile app, CLAIRITY+, which allows for single fixture control.

Dimming

The luminaire is capable of continuous dimming without perceivable stroboscopic flicker as measured by flicker index (ANSI/IES RP-16-10) over a range of 100 – 10%, 100 – 1.0% or 100 – 0.1% of rated lumen output with a smooth shut off function to step to 0%. eldoLED LED drivers (EZT) conforms to IEEE P1789 standards. The driver is inaudible in 24dB environment, and stable when input voltage conditions fluctuate over what is typically experienced in a commercial environment.

Emergency Battery (Optional)

Self testing integral emergency battery (E6WR) provides a emergency lighting for a duration of 90 minutes to meet egress code requirements. Emergency battery is accessible from below the ceiling. Emergency battery is CEC T20 Compliant.

Installation

Luminaire installs in 3 1/2" plenum depth ceiling (unless noted otherwise). Fixture is suitable for installation in ceilings from 5/8" to 2" in ceiling thickness via patented retention spring design. Luminaire has telescopic mounting bars with maximum 24" and minimum 10 1/2" extension and 1 1/8" vertical adjustment (supplied separated). Mounting brackets also work with C-Channel from 3/4" to 1 1/2", Flat Strap from 1/2" to 3/4", Conduit up to 3/4" in diameter, and 1/2" angle bar. Luminaire is rated for up to (8) No. 12 AWG 90°C through branch circuit conductors. Fixture should be used in ceilings with 25°C ambient temperature as standard. Non-IC rated luminaires shall be installed with 3" of clearance on all sides from insulation or 1/2" clearance on all sides from non-combustible materials (unless marked spacing noted otherwise.) IC rated luminaires can be installed in direct contact with insulation.

Construction

Luminaire features LED module with quick-disconnect harness and strain relief for ease of inspection and service. Servicing and maintaining the light engine, driver and branch circuit conductors is possible without tools from below the ceiling. Luminaire is constructed with 20 gauge galvanized steel.

Listings

Fixtures are CSA certified to meet US and Canadian Standards: All fixtures manufactured in strict accordance with the appropriate and current requirements of the "Standards for Safety" to UL, damp location standard; wet location (WL) optional, covered ceiling only.

Photometrics

All photometry is conducted by IESNA standard LM-79-08 in an accredited lab. LEDs are tested by LM-80 standards and used to calculate via TM-21.

Warranty

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note:

Actual performance may differ as a result of end user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C.



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Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 30LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R2



4"

Round Shallow Recessed Downlight

Tables of Use

IVO4S NCH - 3000 Lumens Max.			
Marked Spacing in Inches			
Lumen Package	Fixture Center to Center Min	Fixture Center to Building Member MIN	Space Above Fixture
3000	24	12	0.5

Dimming Configurations	Dimming Level		Control Input	Dimming Level	Driver Dim Curve	Recommended Control Dim Curve
	MIN10	+	ZT	100% to 10%	Linear	Linear/Logarithmic
		+	EZT	100% to 10%	Linear	Linear/Logarithmic
	MIN1	+	ZT	100% to 1%	Linear	Linear/Logarithmic
		+	EZT	100% to 1%	Linear	Linear/Logarithmic
		+	ELV	100% to 1%*	n/a	n/a
	DARK	+	EZT	100% to 0.1%	Logarithmic	Linear
		+	DMX	100% to 0.1%	Square	Linear
		+	DALI	100% to 0.1%	Logarithmic	Linear

* ELV Minimum Dimming level depends on dimmer and dimmer load

Embedded NLight Configurations	Dimming Level		Control Input	Dimming Level	Control Provided	Driver Provided
	MIN10	+	NLIGHT	100% to 10%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 10%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 10%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 10%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	MIN1	+	NLIGHT	100% to 1%	NIO EZDXA	eldoLED 0-10V ECOdrive
		+	NLIGHTER	100% to 1%	NIO EZDCL ER	eldoLED 0-10V ECOdrive
		+	NLTAIR2	100% to 1%	RIO EZDL G2	eldoLED 0-10V ECOdrive
		+	NLTAIREM2	100% to 1%	RIO EZDL EM G2	eldoLED 0-10V ECOdrive
	DARK	+	NLIGHT	100% to 0.1%	NIO EZDXA	eldoLED 0-10V SOLOdrive
		+	NLIGHTER	100% to 0.1%	NIO EZDCL ER	eldoLED 0-10V SOLOdrive
		+	NLTAIR2	100% to 0.1%	RIO EZDL G2	eldoLED 0-10V SOLOdrive
		+	NLTAIREM2	100% to 0.1%	RIO EZDL EM G2	eldoLED 0-10V SOLOdrive

How to Estimate Delivered Lumens in Emergency Mode
Delivered Lumens = P x LPW
P = Output power of emergency driver. P = 6W for E6WR
LPW = Lumen per watt rating of the luminaire. This information is available on the ABL luminaire spec sheet.

Flangeless

Flangeless Installation

Gotham's flangeless option utilizes a micro-thin polymer mud ring that minimizes the amount of drywall compound required to finish the ceiling. The end result is a virtually undetectable flangeless downlight installation.

The polymer mud ring is installed independent of the of the recessed frame, therefore floating with the ceiling. This innovation minimizes any surface cracks during reflector installation, ceiling movement and any future service to the recessed frame, wiring, electronics, etc.



Partially finished mud ring, showing cross-section detail.



An IVO downlight requires only approximately 3" of plaster to finish.



IVO with flangeless trim





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: IVO4S D 30LM 40K 80CRI MWD MIN10
MVOLT ZT NCH P AR LD F

Note:

Type
R2



4"

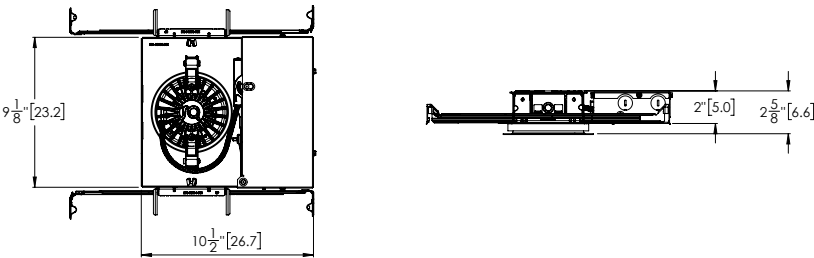
Round Shallow Recessed Downlight

New Construction Dimensions

Dimensions in inches [centimeters]
1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

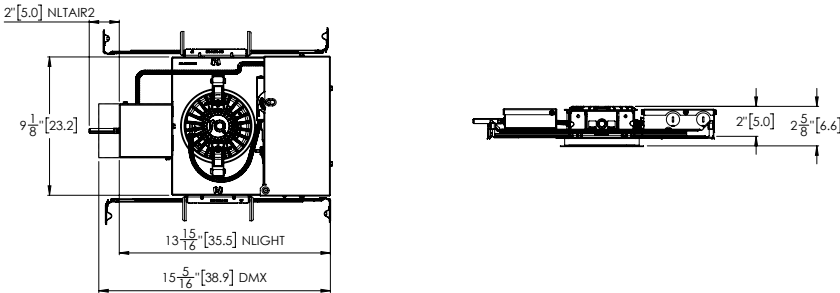
Trim Aperture: 4-5/16" (11) Ceiling Cutout (flanged): 5" (12.7)
Trim Flange O.D.: 5-1/2" (14) Ceiling Cutout (flangeless): 5-1/4" (13.3)

Standard New Construction Housing (NCH)



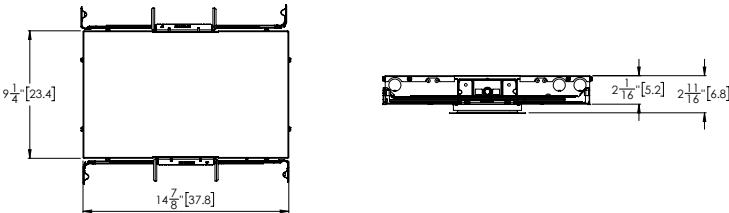
Shipping Weight: 5.7 lbs

NCH with NLIGHT, NLTAIR2, DMX



Shipping Weight: 7.2 lbs

**IC Airtight (ICAT) or Chicago Plenum (CP)
(dimensions are the same when E6WR added)**



Shipping Weight: 8.7 lbs





4"

Round Shallow Recessed Downlight

Remodel Dimensions

Dimensions in inches [centimeters]

1/2" clearance on all sides required from non-combustible materials in non-IC applications, unless marked spacing noted otherwise.

Trim Aperture: 4-5/16" (11)

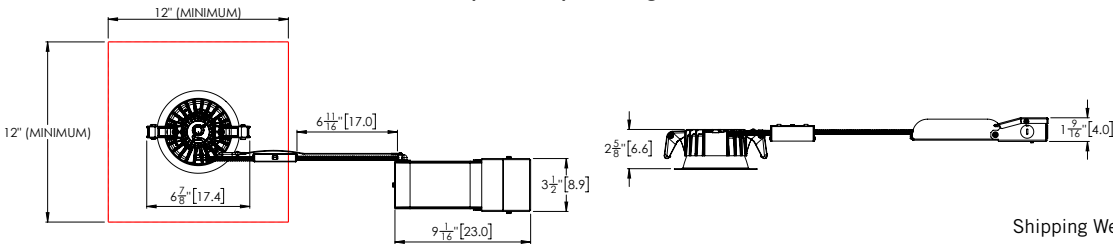
Ceiling cutout (flanged): 5" (12.7)

Flanged Trim O.D.: 5-1/2" (14)

Ceiling cutout (flangeless): 5-1/4" (13.3)

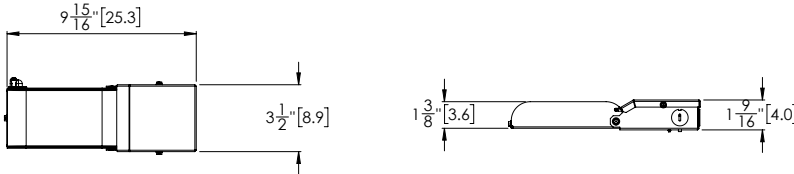
Remodel Construction (RM)

Requires 2" of plenum height



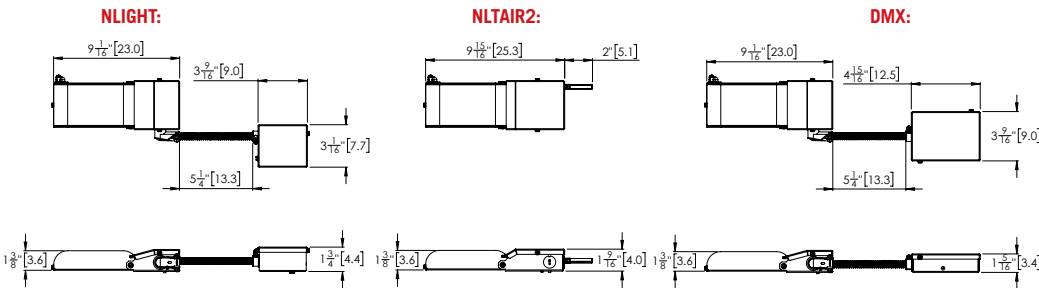
Remodel Construction (RM) Driver Enclosure with Fuse (SF)

Requires 3" of plenum height



Remodel Construction (RM) Driver Enclosures with Control Options

Requires 3" of plenum height





4"

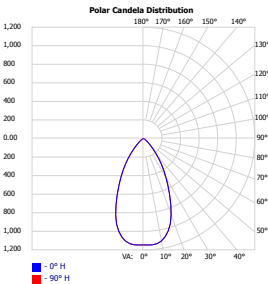
Round Shallow Recessed Downlight

Photometry

MD MEDIUM BEAM

IVO4S D 20LM 35K 80CRI MD P AR LSS

WATTAGE: 22.4, LUMENS: 1894, LPW: 85, S/MH: .86, TEST NO: 23-460-4P351



Candela Summary	
0°	2082
10°	2036
20°	1587
30°	885
40°	377
50°	111
60°	28
70°	4
80°	1
90°	0

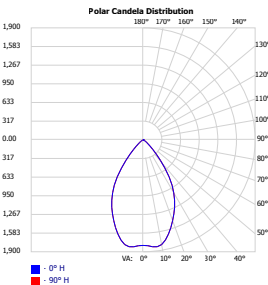
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1270.2	67.1%
0-40	1652.7	87.3%
0-60	1880.3	99.3%
0-90	1894.2	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	32.53	8.3	8.2
10'	20.82	10.4	10.2
12'	14.46	12.5	12.3
14'	10.62	14.5	14.3
16'	8.13	16.6	16.3

MWD MEDIUM WIDE BEAM

IVO4S D 20LM 35K 80CRI MWD P AR LSS

WATTAGE: 22.4, LUMENS: 1929, LPW: 86, S/MH: .97, TEST NO: 23-561-1P351



Candela Summary	
0°	1793
10°	1805
20°	1460
30°	1037
40°	455
50°	108
60°	24
70°	1
80°	0
90°	0

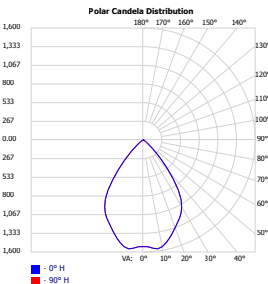
Zonal Lumen Summary		
Zone	Lumens	%
0-30	1210.5	62.8%
0-40	1678.2	87.0%
0-60	1920.3	99.5%
0-90	1929.1	100%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	28.01	10.2	9.8
10'	17.93	12.7	12.3
12'	12.45	15.3	14.7
14'	9.15	17.8	17.2
16'	7	20.3	19.7

WD WIDE BEAM

IVO4S D 20LM 35K 80CRI WD P AR LSS

WATTAGE: 22.4, LUMENS: 1936.9, LPW: 87, S/MH: 1.1, TEST NO: 23-561-7P351



Candela Summary	
0°	1524
10°	1551
20°	1334
30°	1100
40°	546
50°	112
60°	25
70°	1
80°	0
90°	0

Zonal Lumen Summary		
Zone	Lumens	%
0-30	1119.3	57.8%
0-40	1648.6	85.1%
0-60	1928	99.5%
0-90	1945.9	100.0%

Cone of Light			
Mounting Height	Initial FC Center Beam	Beam Diameter (ft)	
		Horizontal	Vertical
8'	23.82	11.8	11.5
10'	15.24	14.7	14.4
12'	10.58	17.7	17.3
14'	7.78	20.6	20.1
16'	5.95	23.6	23

CRI/CCT Multiplier Table		
CRI	CCT	Multiplier
80	2700K	0.92
	3000K	0.96
	3500K	1.00
	4000K	1.01
	5000K	1.04
90	2700K	0.80
	3000K	0.85
	3500K	0.85
	4000K	0.89
95	2700K	0.68
	3000K	0.75

Reflector Finish Multiplier		
Trim Color	Optical Finish	Multiplier
AR	LSS	1.00
AR	LS	1.03
AR	LD	0.98
GR	LSS	1.01
GR	LS	0.99
GR	LD	0.99
PR	LSS	0.96
PR	LS	0.96
PR	LD	0.93
WTR	LSS	0.95
WTR	LS	0.95
WTR	LD	0.92
WR		1.03
BZR		0.81
BR		0.80

UGR (70% 50% 20% reflectance using a 4H x 8H room size)						
Lumen Package	Crosswise			Endwise		
	MD	MWD	WD	MD	MWD	WD
05LM	7.9	4.9	4.9	7.9	4.9	4.9
07LM	9.2	6.2	6.2	9.2	6.2	6.2
10LM	10.3	7.3	7.3	10.3	7.3	7.3
15LM	11.4	8.4	8.4	11.4	8.4	8.4
20LM	12.3	9.4	9.3	12.3	9.4	9.3
25LM	13	10.1	10.1	13	10.1	10.1
30LM	13.6	10.6	10.6	13.6	10.6	10.6

*UGR varies based on luminaire options and is affected by application dependent parameters. Numbers depicted here are considered "Luminaire-UGR" and/or "Point-UGR" values. To determine a more precise maximum UGR value ("Application-UGR"), a full lighting design layout should be completed with the selected luminaire configuration for each application.

**Calculated using an AR (Clear reflector) with LSS (Semi-Specular) finish



4" Round Shallow Recessed Downlight

NLIGHT AIR

nLight® AIR is the ideal solution for retrofit or new construction spaces where adding communication wiring is cost prohibitive. The integrated nLight AIR rPP20 Power Pack is part of each IVO Luminaire ordered with the NLTAIR option. These individually addressable controls offer the ultimate in flexibility during initial setup and for space repurposing.

nLight® AIR Control Accessories
Order as separate catalog number. Visit [nLight AIR](#).

Wall Switches	Model Number
On/Off single pole	rPODB (color) G2
On/Off two pole	rPODB 2P (color) G2
On/Off & raise/lower single pole	rPODB DX (color) G2
On/Off & raise/lower two pole	rPODB 2P DX (color) G2

nLight® AIR Control Accessories (cont.)

Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	rCMS 9 / rCMS PDT 9
Large motion 360°, ceiling	rCMS 10 / rCMS PDT 10

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.

nLight® The nLight® solution is a digital networked lighting control system that provides both energy savings and increased user configurability by cost effectively integrating time-based, daylight-based, sensor-based and manual lighting control schemes.

nLight® Wired Control Accessories
Order as separate catalog number. Visit [nLight](#).

Wall Switches	Model Number
On/Off single pole	nPODM (color)
On/Off two pole	nPODM 2P (color)
On/Off & raise/lower single pole	nPOD DX (color)
On/Off & raise/lower two pole	nPODM 2P DX (color)
Graphic touchscreen	nPOD GFX (color)

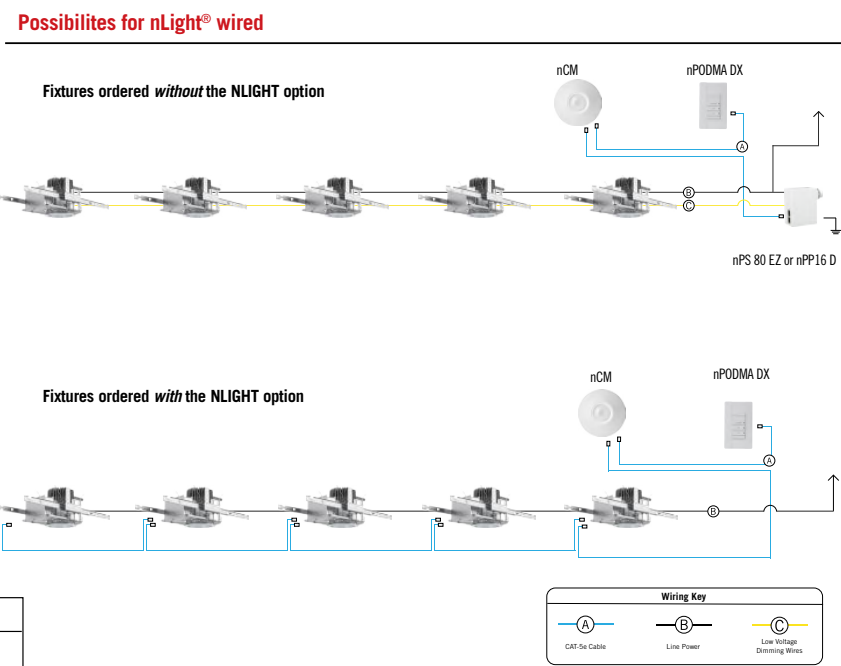
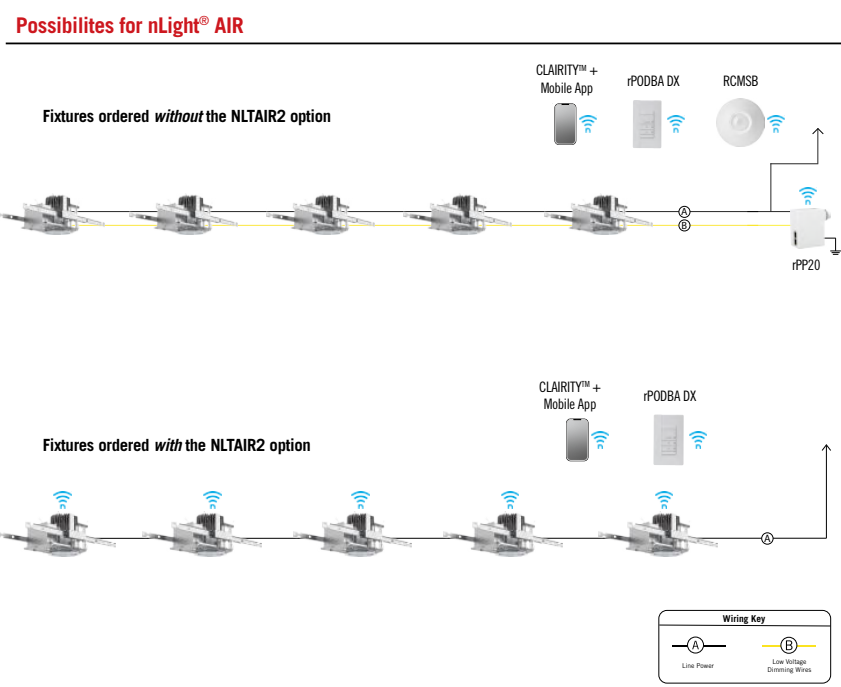
Photocell Controls	
Dimming	nCM ADCX

nLight® Wired Control Accessories (cont.)

Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	nCM 9 / nCM PDT 9
Large motion 360°, ceiling	nCM 10 / nCM PDT 10
Wide View	nWV 16 / nWV PDT 16
Wall switch with raise/lower	nWSX LV DX / nWSX PDT LV DX

Cat-5 Cables (plenum rated)

10', CAT5	CAT5 10FT J1
15', CAT5	CAT5 15FT J1



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands' controls products. All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency – including color rendering, color fidelity, and color temperature tolerance around standard CIE chromaticity coordinates.

To learn more about Acuity A+ standards, specifications, and testing, visit www.acuitybrands.com/aplus.



FEATURES & SPECIFICATIONS

INTENDED USE — Available in several color temperatures, lumen packages and lengths. Ideal for use in commercial, retail, office, warehouse and display applications. **Certain airborne contaminants can diminish integrity of acrylic and/or polycarbonate.** [Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.](#)

Certain airborne contaminants may adversely affect the functioning of LEDs and other electronic components, depending on various factors such as concentrations of the contaminants, ventilation, and temperature at the end-user location. [Click here for a list of substances that may not be suitable for interaction with LEDs and other electronic components.](#)

CONSTRUCTION — Compact-design channel and cover are formed from code compliant, 22 gauge cold-rolled steel.

SENSOR SWITCH JUST ONE TOUCH TECHNOLOGY — Single room control wireless technology available for easy install and commissioning to aid in code compliance. The JOT option enables the fixture with Just One Touch pairing capability. The JOTVIX15 option features a luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space.

SENSOR SWITCH VISIBLE LIGHT PROGRAMMING TECHNOLOGY — Standalone sensor programming via VLP mobile app and smart device's camera flash from up to 8ft away.

FINISH — High-gloss, baked white enamel (standard).

OPTICS — LEDs provide 80+ color rendering index (CRI) at 3500K, 4000K and 5000K. Diffuse acrylic lens with ultra-sonically welded end caps provides smooth, linear illumination.

ELECTRICAL — Luminaire Surge Protection Level: Designed to withstand up to 2.5kV/0.75kA per ANSI C82.77-5-2015. For applications requiring higher level of protection additional surge protection must be provided.

Driver is standard 0-10V dimming class 2.

Optional internal pluggable wiring harness for reduced labor cost in row mounting applications. (See PLR_ordering information on page 5.)

INSTALLATION — Fixture may be surface or suspension mounted with appropriate mounting options (see accessories). Easy to install row aligner bracket included for continuous row mounting.

LISTINGS — CSA certified to US and Canadian safety standards and listed suitable for damp locations. Minimum starting temperature of -22°F (-30°C). Maximum ambient operating temperature of 104°F (40°C) for 4ft models and 95°F (35°C) for 2ft & 8ft models. See notes for controls temperature restrictions. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Suitable for use within closet spaces when installed per NEC 410.16 (A)(1) and 410.16(C)(3)(5) spacing requirements.

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type

LED Strip Light

CSS



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® or XPoint™ Wireless control networks marked by a **shaded background***

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: CSS L24 ALO15 MVOLT SWW3 80CRI M6

Note:

Type
S2X

CSS LED Strip Light



Looking for Contractor Select readily available configurations? Click here to visit Contractor Select™ spec sheet or go to www.contractorselect.com

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: CSS L96 ALO4 MVOLT SWW3 80CRI

Series	Nominal Length	Lumen Output	Voltage	Color temperature	Color rendering index
CSS Contractor Single Strip LED	L24 ‡ 22"	2000LM 2000 Lumens ‡ ALO15 Switchable lumens, 1500LM / 2000LM / 2500LM	MVOLT 120-277V UVOLT 120-347V ‡	35K 3500K ‡ 40K 4000K ‡ 50K 5000K ‡ SWW3 Switchable white, 35K / 40K / 50K	80CRI 80 CRI
	L48 48"	4000LM 4000 Lumens ‡ ALO3 Switchable lumens, 3000LM / 4000LM / 5000LM			
	L96 96"	8000LM 8000 Lumens ‡ ALO4 Switchable lumens, 6000LM / 8000LM / 10000LM			

Options

Emergency Battery: ‡

IE7WCP Emergency battery pack, **7W**, CA Title 20 Noncompliant
IE10WCPHE Emergency battery pack, **10W**, Certified in CA Title 20 MAEDBS

Plug-in Wiring: ‡

PLR Plug-in wiring, see page 5 for ordering information
PLR1LVG Plug-in wiring, low voltage dimming

JOT Enabled Wireless Controls: ‡

JOT Wireless room control with "Just One Touch" pairing
JOTVTX15 Wireless occupancy sensor with "Just One Touch" pairing

VLP Enabled Controls: ‡

VTX15FADC Vertex sensor with Visible Light Programming; On/Off Occupancy with Auto Dimming Photocell (default)
VTX15FANL Vertex sensor with Visible Light Programming; High/Low/(Off) Occupancy Dimming with Auto Dimming Photocell (default)

Individual Controls: ‡

SFR30CSS Factory installed 360°, large motion, high bay sensor, SFR 30
SFR7CSS Factory installed 360°, small motion, low bay sensor, SFR 7 ‡

Wire Guard (ships separately):

WG Wire Guard ‡

NOTE: ‡ indicates option chosen has ordering restrictions. Please reference ordering restrictions chart.

Switchable White & Adjustable Lumen Output – BAA Compliant:
CSS L48 ALO3 MVOLT SWW3 80CRI BAA CSS L96 ALO4 MVOLT SWW3 80CRI BAA CSS L48 ALO3 MVOLT SWW3 80CRI IE10WCPHE BAA CSS L96 ALO4 MVOLT SWW3 80CRI IE10WCPHE BAA

Accessories: Order as separate catalog number.
HC36 M12 Hanger chain, 36" (1 pair)
ZACVH M100 Adjustable 10' aircraft cable with Y hanger (1 pair)
SQ Swivel stem hanger (specify length in 2" increments up to 48")
rPP20D nLight® air dimming/switching module
SFR30CSS Field installed 360°, large motion, high bay sensor, SFR 30 ‡
SFR7CSS Field installed 360°, small motion, low bay sensor, SFR 7 ‡
Y J10 Y hanger in multiples of 10 (five pair)
WGCSS Wire Guard with Mounting hardware (one 4ft)
MNLK JBOXCVR M12 Junction box cover and hardware, white

‡ Option Value Ordering Restrictions	
Option value	Restriction
L24	Not available with IE7WCP, IE10WCPHE, JOT, JOTVTX15, VTX15FADC, VTX15FANL, SFR30CSS, SFR7CSS, WG.
35K, 40K, 50K	Not available with ALO lumen packages.
2000LM, 4000LM, 8000LM	Not available with SWW3.
Emergency Battery	Not available with PLR
JOT Enabled Controls	Not available with ALO3, ALO4, UVOLT or SWW3. Minimum starting temp of 14°F (-10°C). Maximum operating temp of L48 at 95°F (35°C) & L96 at 86°F (30°C). Controls contained in endcap.
VLP Enabled Sensors	Not available with ALO15, ALO3, ALO4, UVOLT or SWW3. See page 5 for default programming and coverage pattern information. Sensors contained in endcap.
SFR Sensors	Can only be mounted at the end of continuous row mount applications. On/off function only. Minimum starting temp of 14°F (-10°C). Sensors mount to end of fixture. 120-277V operation only. NOT for use on UVOLT fixtures operating at 347V.
Wire Guard	Does not cover SFR controls. Not recommended for use with endcap integrated JOT or VLP enabled controls due to potential detection obstruction.
PLR & PLR1LVG	Not available with Emergency or Controls. L24 only available with PLR1LVG.
UVOLT	Not available with JOT or VTX.
UVOLT/347	Not available with Emergency.
ILBHI CP10 HE SD A	High voltage emergency driver (347-480V). For use with UVOLT fixtures ONLY at 347V operation.

CSS LED Strip Light

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter / 2 Hour Runtime
ILB CP10 A	10W	90	1200	
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.
 *Minimum delivered lumen output to assist in product selection for increased fixture mounting height.
 The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.
 Please contact us at productsupportemergency@acuitybrands.com for any Emergency Battery related questions.





+



Field Installed Emergency LED Driver
ILB CP10 HE AELR A

Compliance Just Got Easier!

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLAIRTY+ mobile app. **Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!**

Life Safety Code (NFPA101) Testing & Reporting Requirements

-  30 seconds every 30 days
-  90 minutes every year
-  Keep records for 5 years





DOWNLOAD CLAIRTY+






Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: CSS L24 ALO15 MVOLT SWW3 80CRI M6

Note:

Type
S2X

CSS LED Strip Light

OPERATIONAL DATA

MVOLT

Nominal Length	Nominal Lumen Package	Color Temperature	Delivered Lumens	Wattage	Lumens/Watt
L24	2000 LM	4000K	2144	15.3	140
		3500K	1889	13.2	143
	ALO15 (1500LM)	4000K	1872	13.0	144
		5000K	1842	13.3	139
	ALO15 (2000LM)	3500K	2256	16.5	137
		4000K	2386	16.1	148
		5000K	2357	16.5	143
	ALO15 (2500LM)	3500K	2600	19.7	132
		4000K	2757	19.0	145
		5000K	2634	19.6	135
L48	4000 LM	4000K	4298	35.3	122
		3500K	3708	27.3	136
	ALO3 (3000LM)	4000K	3931	26.3	150
		5000K	3851	27.1	142
		3500K	4732	36.2	131
	ALO3 (4000LM)	4000K	5076	34.8	146
		5000K	4896	36.2	135
		3500K	5437	43.3	126
	ALO3 (5000LM)	4000K	5884	41.5	142
		5000K	5622	43.4	130
L96	8000 LM	4000K	8596	72.0	119
		3500K	6272	46.2	136
	ALO4 (6000LM)	4000K	6575	44.7	147
		5000K	6510	46.1	141
		3500K	8173	64.1	128
	ALO4 (8000LM)	4000K	8702	61.7	141
		5000K	8450	64.5	131
		3500K	11089	90.4	123
	ALO4 (10000LM)	4000K	12046	86.5	139
		5000K	11437	90.8	126

Note: All values are typical and are at 25C.
Actual performance may vary and is dependent on operating environment.

UVOLT

Nominal Length	Nominal Lumen Package	Color Temperature	Delivered Lumens	Wattage	Lumens/Watt
L24	2000 LM	4000K	2120	14.8	143
		3500K	1438	10.6	136
	ALO15 (1500LM)	4000K	1464	10.3	142
		5000K	1449	10.6	137
		3500K	1891	15.3	124
	ALO15 (2000LM)	4000K	1961	14.9	131
		5000K	1918	15.3	125
		3500K	2541	19.2	132
	ALO15 (2500LM)	4000K	2654	18.7	142
		5000K	2569	19.2	134
L48	4000 LM	4000K	4803	37.9	127
		3500K	3501	25.7	136
	ALO3 (3000LM)	4000K	3659	27.1	135
		5000K	3540	27.1	131
		3500K	4435	34.5	129
	ALO3 (4000LM)	4000K	4727	36.0	131
		5000K	4521	36.0	126
		3500K	5665	46.0	123
	ALO3 (5000LM)	4000K	6109	43.7	140
		5000K	5710	45.7	125
L96	8000 LM	4000K	9606	75.8	127
		3500K	6867	49.9	138
	ALO3 (6000LM)	4000K	7199	49.9	144
		5000K	7128	49.9	143
		3500K	8736	65.3	134
	ALO3 (8000LM)	4000K	9301	65.3	142
		5000K	9032	65.3	138
		3500K	10989	90.9	121
	ALO3 (10000LM)	4000K	11937	90.9	131
		5000K	11333	90.9	125

PROJECTED LUMEN MAINTENANCE			
Lumen Maintenance Factor	0.91	0.81	0.75
Operating Hours	40,000	90,000	120,000

Note: Actual performance may vary based on ambient temperature of installed location.

CSS LED Strip Light

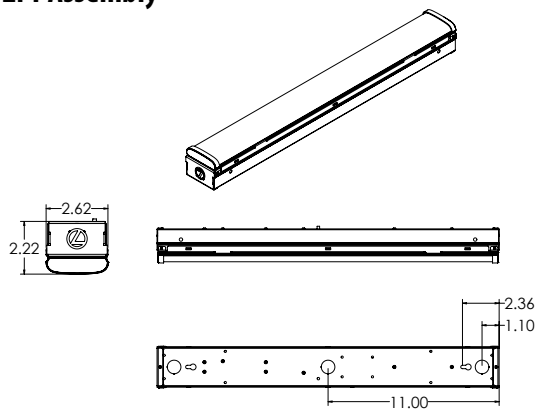
DIMENSIONS

All dimensions are shown in inches unless otherwise noted.

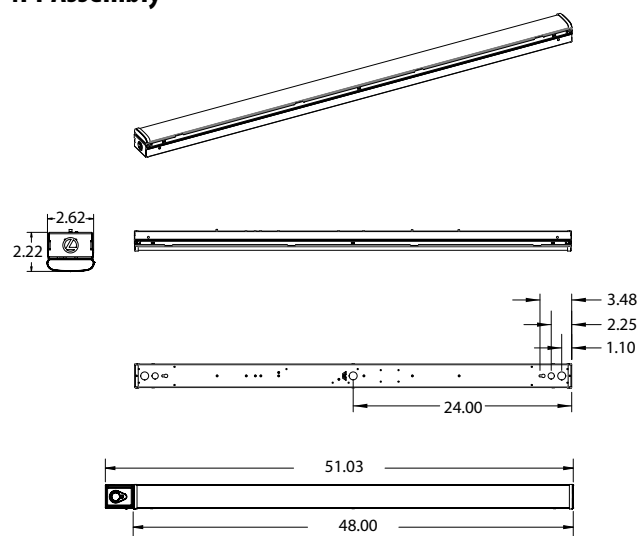
Nominal Length	Length	Width	Height	Approximate weight	Fixtures per pallet	Pallet Dimensions
L24	22"	2.62	2.22	2.5 lbs	336	40 x 48
L48	48"	2.62	2.22	5 lbs	135	46 x 57
L96	96"	2.62	2.22	10 lbs	102	46 x 98.5

*Weights will vary slightly with added options.

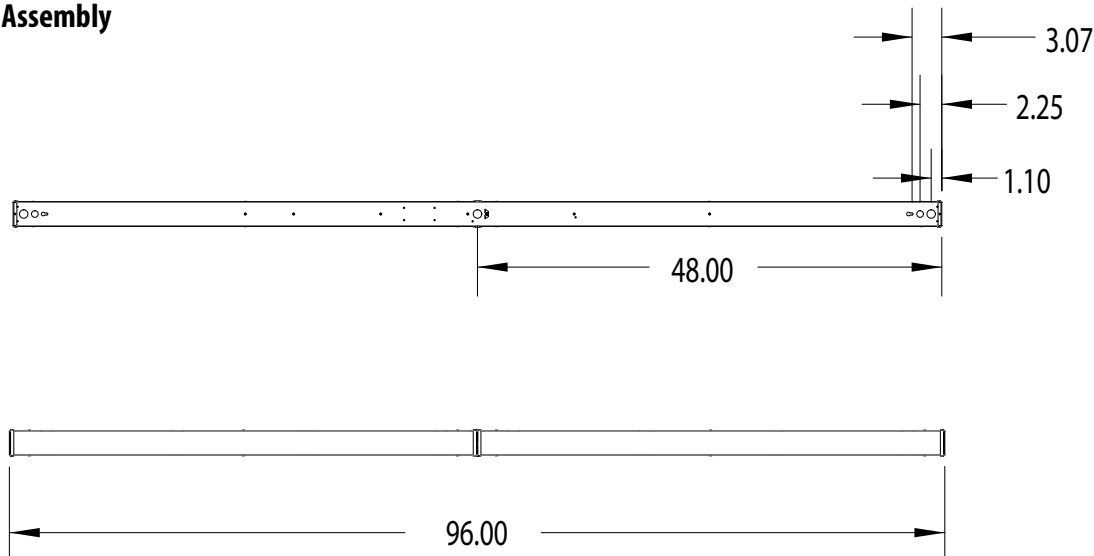
2FT Assembly



4FT Assembly



8FT Assembly



ZL1D LED Striplight

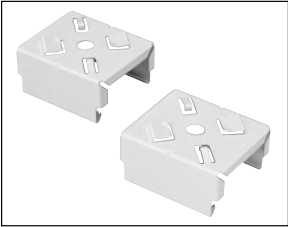
OPTIONS AND ACCESSORIES

The Z Series fixture offers numerous options for almost every electrical and optical component, including a long list of field-installable accessories.



HANGER CHAIN
36" chain with Y hanger.

Order as:
HC36



Z SPRING HANGER
Snap 'n' lock design requires no fasteners and can be used on T-grid ceiling or universal mounting systems.

Order as:
ZSPRG



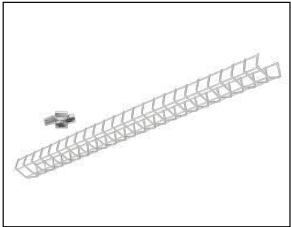
ZACVH HANGER
10' Aircraft cable with Y hanger.

Order as:
ZACVH



ANGLE MOUNTING BRACKET
Luma-tilt™ angle bracket ships as a pair

Order as:
ZLANGBKT



WIRE GUARD

Order as:
WGZ24
WGZ48



FEATURES & SPECIFICATIONS

INTENDED USE — Available in several color temperatures, lumen packages and lengths. Ideal for use in commercial, retail, office, warehouse and display applications. **Certain airborne contaminants can diminish integrity of acrylic and/or polycarbonate.** [Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.](#)

Certain airborne contaminants may adversely affect the functioning of LEDs and other electronic components, depending on various factors such as concentrations of the contaminants, ventilation, and temperature at the end-user location. [Click here for a list of substances that may not be suitable for interaction with LEDs and other electronic components.](#)

CONSTRUCTION — Compact-design channel and cover are formed from code compliant, 22 gauge cold-rolled steel.

SENSOR SWITCH JUST ONE TOUCH TECHNOLOGY — Single room control wireless technology available for easy install and commissioning to aid in code compliance. The JOT option enables the fixture with Just One Touch pairing capability. The JOTVTX15 option features a luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space.

SENSOR SWITCH VISIBLE LIGHT PROGRAMMING TECHNOLOGY — Standalone sensor programming via VLP mobile app and smart device's camera flash from up to 8ft away.

FINISH — High-gloss, baked white enamel (standard).

OPTICS — LEDs provide 80+ color rendering index (CRI) at 3500K, 4000K and 5000K. Diffuse acrylic lens with ultra-sonically welded end caps provides smooth, linear illumination.

ELECTRICAL — Luminaire Surge Protection Level: Designed to withstand up to 2.5kV/0.75kA per ANSI C82.77-5-2015. For applications requiring higher level of protection additional surge protection must be provided.

Driver is standard 0-10V dimming class 2.

Optional internal pluggable wiring harness for reduced labor cost in row mounting applications. (See PLR_ordering information on page 5.)

INSTALLATION — Fixture may be surface or suspension mounted with appropriate mounting options (see accessories). Easy to install row aligner bracket included for continuous row mounting.

LISTINGS — CSA certified to US and Canadian safety standards and listed suitable for damp locations. Minimum starting temperature of -22°F (-30°C). Maximum ambient operating temperature of 104°F (40°C) for 4ft models and 95°F (35°C) for 2ft & 8ft models. See notes for controls temperature restrictions. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Suitable for use within closet spaces when installed per NEC 410.16 (A)(1) and 410.16(C)(3)(5) spacing requirements.

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type

LED Strip Light

CSS



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® or XPoint™ Wireless control networks marked by a **shaded background***

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: CSS L48 ALO3 MVOLT SWW3 80CRI
Note:

Type
S4X

CSS LED Strip Light



Looking for Contractor Select readily available configurations? Click here to visit Contractor Select™ spec sheet or go to www.contractorselect.com

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: CSS L96 ALO4 MVOLT SWW3 80CRI

Series	Nominal Length	Lumen Output		Voltage		Color temperature		Color rendering index
CSS Contractor Single Strip LED	L24 22"	2000LM	2000 Lumens	MVOLT	120-277V	35K	3500K	80CRI 80 CRI
		ALO15	Switchable lumens, 1500LM / 2000LM / 2500LM	UVOLT	120-347V	40K	4000K	
	L48 48"	4000LM	4000 Lumens			50K	5000K	
		ALO3	Switchable lumens, 3000LM / 4000LM / 5000LM			SWW3	Switchable white, 35K / 40K / 50K	
	L96 96"	8000LM	8000 Lumens					
		ALO4	Switchable lumens, 6000LM / 8000LM / 10000LM					

Options

Emergency Battery: ‡

IE7WCP Emergency battery pack, **7W**, CA Title 20 Noncompliant
IE10WCPHE Emergency battery pack, **10W**, Certified in CA Title 20 MAEDBS

Plug-in Wiring: ‡

PLR Plug-in wiring, see page 5 for ordering information
PLR1LVG Plug-in wiring, low voltage dimming

JOT Enabled Wireless Controls: ‡

JOT Wireless room control with "Just One Touch" pairing
JOTVTX15 Wireless occupancy sensor with "Just One Touch" pairing

VLP Enabled Controls: ‡

VTX15FADC Vertex sensor with Visible Light Programming; On/Off Occupancy with Auto Dimming Photocell (default)
VTX15FANL Vertex sensor with Visible Light Programming; High/Low/(Off) Occupancy Dimming with Auto Dimming Photocell (default)

Individual Controls: ‡

SFR30CSS Factory installed 360°, large motion, high bay sensor, SFR 30
SFR7CSS Factory installed 360°, small motion, low bay sensor, SFR 7 ‡

Wire Guard (ships separately):

WG Wire Guard ‡

NOTE: ‡ indicates option chosen has ordering restrictions. Please reference ordering restrictions chart.

Switchable White & Adjustable Lumen Output – BAA Compliant:
CSS L48 ALO3 MVOLT SWW3 80CRI BAA CSS L96 ALO4 MVOLT SWW3 80CRI BAA CSS L48 ALO3 MVOLT SWW3 80CRI IE10WCPHE BAA CSS L96 ALO4 MVOLT SWW3 80CRI IE10WCPHE BAA

Accessories: Order as separate catalog number.
HC36 M12 Hanger chain, 36" (1 pair)
ZACVH M100 Adjustable 10' aircraft cable with Y hanger (1 pair)
SQ Swivel stem hanger (specify length in 2" increments up to 48")
rPP20D nLight® air dimming/switching module
SFR30CSS Field installed 360°, large motion, high bay sensor, SFR 30 ‡
SFR7CSS Field installed 360°, small motion, low bay sensor, SFR 7 ‡
Y J10 Y hanger in multiples of 10 (five pair)
WGCSS Wire Guard with Mounting hardware (one 4ft)
MNLK JBOXCVR M12 Junction box cover and hardware, white

‡ Option Value Ordering Restrictions	
Option value	Restriction
L24	Not available with IE7WCP, IE10WCPHE, JOT, JOTVTX15, VTX15FADC, VTX15FANL, SFR30CSS, SFR7CSS, WG.
35K, 40K, 50K	Not available with ALO lumen packages.
2000LM, 4000LM, 8000LM	Not available with SWW3.
Emergency Battery	Not available with PLR
JOT Enabled Controls	Not available with ALO3, ALO4, UVOLT or SWW3. Minimum starting temp of 14°F (-10°C). Maximum operating temp of L48 at 95°F (35°C) & L96 at 86°F (30°C). Controls contained in endcap.
VLP Enabled Sensors	Not available with ALO15, ALO3, ALO4, UVOLT or SWW3. See page 5 for default programming and coverage pattern information. Sensors contained in endcap.
SFR Sensors	Can only be mounted at the end of continuous row mount applications. On/off function only. Minimum starting temp of 14°F (-10°C). Sensors mount to end of fixture. 120-277V operation only. NOT for use on UVOLT fixtures operating at 347V.
Wire Guard	Does not cover SFR controls. Not recommended for use with endcap integrated JOT or VLP enabled controls due to potential detection obstruction.
PLR & PLR1LVG	Not available with Emergency or Controls. L24 only available with PLR1LVG.
UVOLT	Not available with JOT or VTX.
UVOLT/347	Not available with Emergency.
ILBHI CP10 HE SD A	High voltage emergency driver (347-480V). For use with UVOLT fixtures ONLY at 347V operation.

CSS LED Strip Light

Emergency Battery Pack Options - Field Installable

Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter / 2 Hour Runtime
ILB CP10 A	10W	90	1200	
ILBLP CP10 HE SD A	10W	90	1200	Title 20, Self Diagnostic
ILB CP10 HE AELR A	10W	90	1200	Title 20; Enabled with Self Testing, Automated Reporting (STAR)
ILBLP CP15 HE SD A	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic

All the above are UL Listed products that are certified for field install external/remote to the fixture.

*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.

The CP10 delivered emergency illumination outperforms legacy 1400 lumen fluorescent emergency ballast.

Please contact us at productsupportemergency@acuitybrands.com for any Emergency Battery related questions.





SELF-TESTING AUTOMATED REPORTING

+

Compliance Just Got Easier!

Field Installed Emergency LED Driver



ILB CP10 HE AELR A

Emergency Lighting with Self Testing Automated Reporting (STAR), enables self-testing and automated reporting to aid in life safety code compliance. Emergency lighting equipment enabled with STAR, automatically conducts the required monthly and annual tests, logs results within the units, and wirelessly communicates test data on demand to the CLAIRTY+ mobile app. **Leave the ladders, disruptions and written records behind with emergency lighting solutions with STAR!**

Life Safety Code (NFPA101)
Testing & Reporting Requirements



30 seconds every 30 days



90 minutes every year



Keep records for 5 years





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ANDROID APP ON Google play



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: CSS L48 ALO3 MVOLT SWW3 80CRI

Note:

Type
S4X

CSS LED Strip Light

OPERATIONAL DATA

MVOLT

Nominal Length	Nominal Lumen Package	Color Temperature	Delivered Lumens	Wattage	Lumens/Watt
L24	2000 LM	4000K	2144	15.3	140
		3500K	1889	13.2	143
	AL015 (1500LM)	4000K	1872	13.0	144
		5000K	1842	13.3	139
	AL015 (2000LM)	3500K	2256	16.5	137
		4000K	2386	16.1	148
		5000K	2357	16.5	143
	AL015 (2500LM)	3500K	2600	19.7	132
		4000K	2757	19.0	145
		5000K	2634	19.6	135
L48	4000 LM	4000K	4298	35.3	122
		3500K	3708	27.3	136
	AL03 (3000LM)	4000K	3931	26.3	150
		5000K	3851	27.1	142
		3500K	4732	36.2	131
	AL03 (4000LM)	4000K	5076	34.8	146
		5000K	4896	36.2	135
		3500K	5437	43.3	126
	AL03 (5000LM)	4000K	5884	41.5	142
		5000K	5622	43.4	130
L96	8000 LM	4000K	8596	72.0	119
		3500K	6272	46.2	136
	AL04 (6000LM)	4000K	6575	44.7	147
		5000K	6510	46.1	141
		3500K	8173	64.1	128
	AL04 (8000LM)	4000K	8702	61.7	141
		5000K	8450	64.5	131
		3500K	11089	90.4	123
	AL04 (10000LM)	4000K	12046	86.5	139
		5000K	11437	90.8	126

Note: All values are typical and are at 25C.
Actual performance may vary and is dependent on operating environment.

UVOLT

Nominal Length	Nominal Lumen Package	Color Temperature	Delivered Lumens	Wattage	Lumens/Watt
L24	2000 LM	4000K	2120	14.8	143
		3500K	1438	10.6	136
	AL015 (1500LM)	4000K	1464	10.3	142
		5000K	1449	10.6	137
		3500K	1891	15.3	124
	AL015 (2000LM)	4000K	1961	14.9	131
		5000K	1918	15.3	125
		3500K	2541	19.2	132
	AL015 (2500LM)	4000K	2654	18.7	142
		5000K	2569	19.2	134
L48	4000 LM	4000K	4803	37.9	127
		3500K	3501	25.7	136
	AL03 (3000LM)	4000K	3659	27.1	135
		5000K	3540	27.1	131
		3500K	4435	34.5	129
	AL03 (4000LM)	4000K	4727	36.0	131
		5000K	4521	36.0	126
		3500K	5665	46.0	123
	AL03 (5000LM)	4000K	6109	43.7	140
		5000K	5710	45.7	125
L96	8000 LM	4000K	9606	75.8	127
		3500K	6867	49.9	138
	AL03 (6000LM)	4000K	7199	49.9	144
		5000K	7128	49.9	143
		3500K	8736	65.3	134
	AL03 (8000LM)	4000K	9301	65.3	142
		5000K	9032	65.3	138
		3500K	10989	90.9	121
	AL03 (10000LM)	4000K	11937	90.9	131
		5000K	11333	90.9	125

PROJECTED LUMEN MAINTENANCE			
Lumen Maintenance Factor	0.91	0.81	0.75
Operating Hours	40,000	90,000	120,000

Note: Actual performance may vary based on ambient temperature of installed location.

CSS LED Strip Light

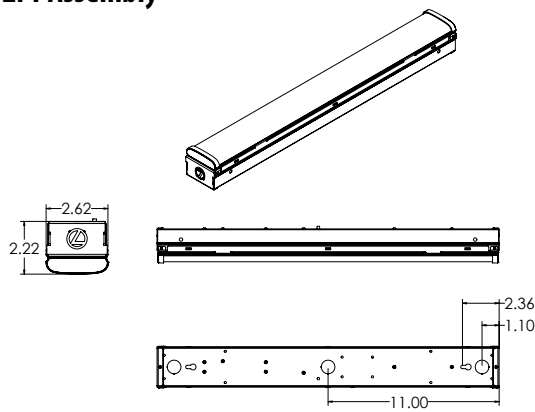
DIMENSIONS

All dimensions are shown in inches unless otherwise noted.

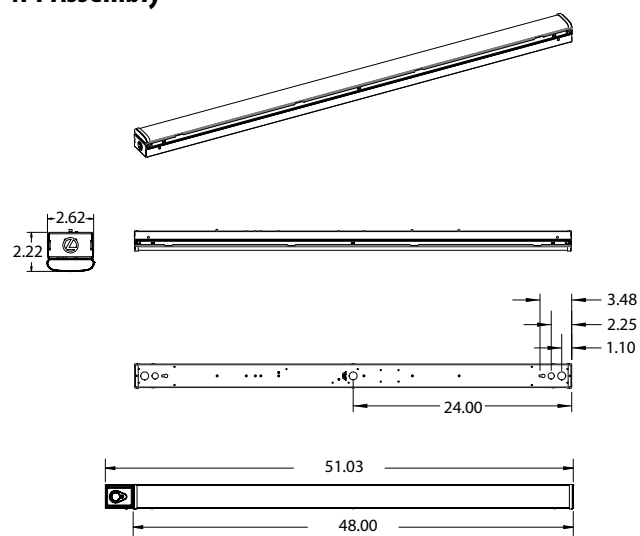
Nominal Length	Length	Width	Height	Approximate weight	Fixtures per pallet	Pallet Dimensions
L24	22"	2.62	2.22	2.5 lbs	336	40 x 48
L48	48"	2.62	2.22	5 lbs	135	46 x 57
L96	96"	2.62	2.22	10 lbs	102	46 x 98.5

*Weights will vary slightly with added options.

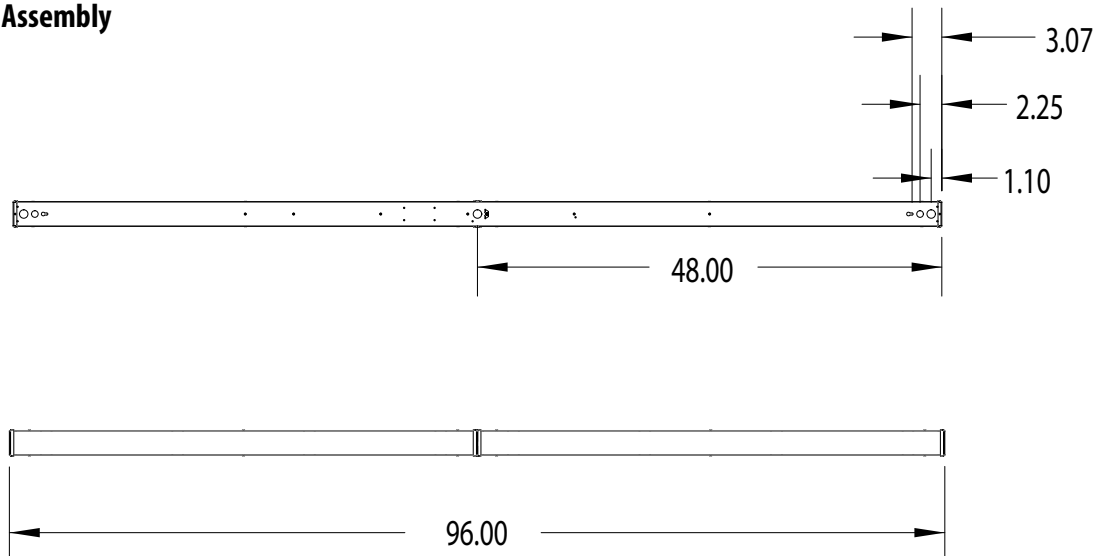
2FT Assembly



4FT Assembly



8FT Assembly





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: WPX1 LED P1 40K MVOLT DDBXD
Note:

Type
W1X



WPX LED Wall Packs



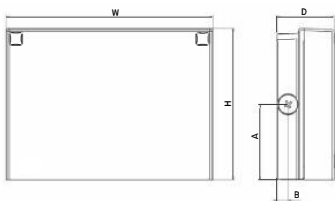
Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications



Front View Side View

Luminaire	Height (H)	Width (W)	Depth (D)	Side Conduit Location		Weight
				A	B	
WPX1	8.1" (20.6 cm)	11.1" (28.3 cm)	3.2" (8.1 cm)	4.0" (10.3 cm)	0.6" (1.6 cm)	6.1 lbs (2.8kg)
WPX2	9.1" (23.1 cm)	12.3" (31.1 cm)	4.1" (10.5 cm)	4.5" (11.5 cm)	0.7" (1.7 cm)	8.2 lbs (3.7kg)
WPX3	9.5" (24.1 cm)	13.0" (33.0 cm)	5.5" (13.7 cm)	4.7" (12.0 cm)	0.7" (1.7 cm)	11.0 lbs (5.0kg)

Introduction

The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in three sizes, the WPX family delivers 1,550 to 9,200 lumens with a wide, uniform distribution.

The WPX full cut-off solutions fully cover the footprint of the HID glass wall packs that they replace, providing a neat installation and an upgraded appearance. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Photocell and emergency egress battery options make WPX ideal for every wall mounted lighting application.

Ordering Information

EXAMPLE: WPX2 LED 40K MVOLT DDBXD

Series		Color Temperature	Voltage	Options	Finish
WPX1 LED P1	1,550 Lumens, 11W ¹	30K 3000K	MVOLT 120V - 277V	(blank) None	DDBXD Dark bronze
WPX1 LED P2	2,900 Lumens, 24W	40K 4000K	347 347V ³	E4WH Emergency battery backup, CEC compliant (4W, 0°C min) ²	DWHXD White
WPX2 LED	6,000 Lumens, 47W	50K 5000K		E14WC Emergency battery backup, CEC compliant (14W, -20°C min) ²	DBLXD Black
WPX3 LED	9,200 Lumens, 69W			PE Photocell ³	Note : For other options, consult factory.

Note: The lumen output and input power shown in the ordering tree are average representations of all configuration options. Specific values are available on request.

- NOTES
- All WPX wall packs come with 6kV surge protection standard, except WPX1 LED P1 package which comes with 2.5kV surge protection standard. Add SPD6KV option to get WPX1 LED P1 with 6kV surge protection.
Sample nomenclature: WPX1 LED P1 40K MVOLT SPD6KV DDBXD
 - Battery pack options only available on WPX1 and WPX2.
 - Battery pack options not available with 347V and PE options.

FEATURES & SPECIFICATIONS

INTENDED USE
The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs. The WPX1, WPX2 and WPX3 are ideal for replacing up to 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution. WPX is rated for -40°C to 40°C.

CONSTRUCTION
WPX feature a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and sealed against moisture or environmental contaminants.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs and LED lumen maintenance of L90/100,000 hours. Color temperature (CCT) options of 3000K, 4000K and 5000K with minimum CRI of 70. Electronic drivers ensure system power factor >90% and THD <20%. All luminaires have 6kV surge protection (Note: WPX1 LED P1 package comes with a standard surge protection rating of 2.5kV. It can be ordered with an optional 6kV surge protection). All photocell (PE) operate on MVOLT (120V - 277V) input.

Note: The standard WPX LED wall pack luminaires come with field-adjustable drive current feature. This feature allows tuning the output current of the LED drivers to adjust the lumen output (to dim the luminaire).

INSTALLATION
WPX can be mounted directly over a standard electrical junction box. Three 1/2 inch conduit ports on three sides allow for surface conduit wiring. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all cases. WPX is only recommended for installations with LEDs facing downwards.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: WPX1 LED P1 40K MVOLT DDBXD
Note:

Type
W1X

Performance Data

Electrical Load

Luminaire	Input Power (W)	120V	208V	240V	277V	347V
WPX1 LED P1	11W	0.09	0.05	0.05	0.04	0.03
WPX1 LED P2	24W	0.20	0.12	0.10	0.09	0.07
WPX2	47W	0.39	0.23	0.20	0.17	0.14
WPX3	69W	0.58	0.33	0.29	0.25	0.20

Projected LED Lumen Maintenance

Data references the extrapolated performance projections in a 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.94	>0.92	>0.90

Lumen Output

Luminaire	Color Temperature	Lumen Output
WPX1 LED P1	3000K	1,537
	4000K	1,568
	5000K	1,602
WPX1 LED P2	3000K	2,748
	4000K	2,912
	5000K	2,954
WPX2	3000K	5,719
	4000K	5,896
	5000K	6,201
WPX3	3000K	8,984
	4000K	9,269
	5000K	9,393

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

HID Replacement Guide

Luminaire	Equivalent HID Lamp	WPX Input Power
WPX1 LED P1	100W	11W
WPX1 LED P2	150W	24W
WPX2	250W	47W
WPX3	400W	69W

Emergency Egress Battery Packs

The emergency battery backup is integral to the luminaire — no external housing or back box is required. The emergency battery will power the luminaire for a minimum duration of 90 minutes and deliver minimum initial output of 550 lumens. Both battery pack options are CEC compliant.

Battery Type	Minimum Temperature Rating	Power (Watts)	Controls Option	Ordering Example
Standard	0°C	4W	E4WH	WPX2 LED 40K MVOLT E4WH DDBXD
Cold Weather	-20°C	14W	E14WC	WPX2 LED 40K MVOLT E14WC DDBXD

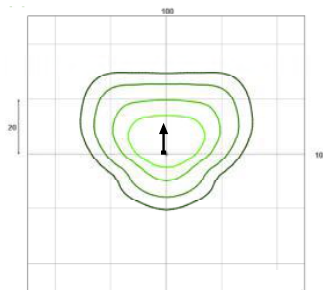
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting [WPX LED](#) homepage. Tested in accordance with IESNA LM-79 and LM-80 standards

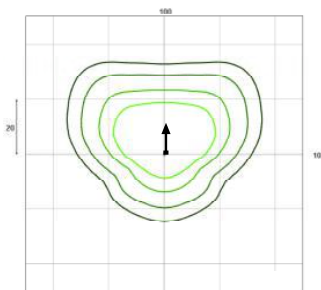
LEGEND

0.1 fc
0.2 fc
0.5 fc
1.0 fc

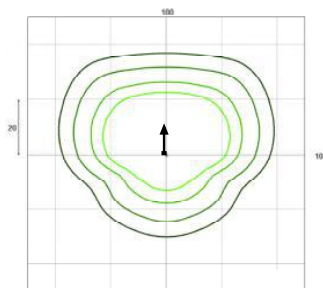
WPX1 LED P1



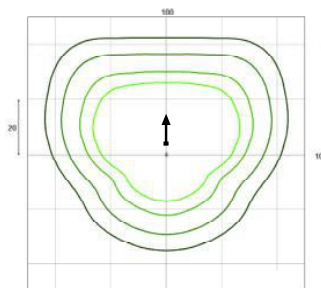
WPX1 LED P2



WPX2 LED



WPX3 LED



Mounting Height = 12 Feet.



COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • [www.lithonia.com](#)
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WPX LED
Rev. 03/08/22



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: EDG 1 G EL M6
Note:

Type
XC1



FEATURES & SPECIFICATIONS

INTENDED USE — Suitable for applications requiring attractive edge-lit exit signage, universal installation and low energy consumption.

CONSTRUCTION — Extruded brushed aluminum finish.

Clear acrylic panels- letters measure 6" high with 3/4" stroke, with 100 ft viewing distance rating, based upon UL 924 standard.

For single-face clear panels, EXIT is seen as a reversed image from the back.

OPTICS — LEDs mounted on printed circuit board. The typical life of the exit LED lamp is 5 years, based on 24/7 operation.

The LED operating frequency is 120Hz.

ELECTRICAL — Dual voltage input capacity (120/277V).

Battery: (EL Option) — Sealed, maintenance free nickel-cadmium battery delivers 90 minutes capacity to emergency lamps. Test switch provides manual activation of 30-second diagnostic testing for on-demand visual inspection.

Self-diagnostic testing (EL Option Only) for 30 seconds every 30 days and 90 minutes annually. Diagnostic evaluation of LED light source, AC to DC transfer, charging and battery condition.

INSTALLATION — EDG — Universal mounting canopy for top or end mount. Back mount standard for single face only. Canopy provided.

EDGR — Recessed mounting. Bar hanger and brackets provided for both new or restricted ceiling access installation applications. Available for use in drop ceiling applications. Back wall mount (WM) option.

Universal directional indicators. Field selected and attached.

LISTINGS — UL damp location listed 32°-122°F (0°-50°C) standard. Meets UL924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards. Meets all applicable FCC Title 47, Part 15, Subpart B requirements.

Government Procurement:

BAA - Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.

BABA - Build America Buy America: Product with a BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America.

Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY — 5-year limited warranty (Battery is prorated). This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:

www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

† Exit Signs Certified in the CA Title 20 Appliance Efficiency Database.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.

*See ordering tree for details

Catalog Number
Notes
Type



EDG (surface mount)



EDGR (recessed mount)



LED Edge-Lit Exits

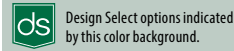
EDG
EDGR



Specifications

EDG (End Mount)	EDG (Top Mount)
Length: 13 (33.0)	Length: 13-5/8 (34.6)
Depth: 5-1/2 (14.0)	Depth: 4-5/16 (11.0)
Height: 11-1/8 (28.3)	Height: 11-3/4 (29.8)
Shipping Weight: 4 lbs (1.8 kgs)	Shipping Weight: 4 lbs (1.8 kgs)
EDG (Back Mount)	EDGR
Length: 13 (33.0)	Length: 13 (33.0)
Depth: 3 (7.6)	Depth: 1-3/4 (4.4)
Height: 11-1/8 (28.3)	Height: 8 (20.3)
Shipping Weight: 4 lbs (1.8 kgs)	Shipping Weight: 6.8 lbs (3.1 kgs)
	Shipping Weight (WM option): 8.1 lbs (3.7 kgs)

All dimensions are inches (centimeters) unless otherwise noted.



ORDERING INFORMATION

For shortest lead times, configure products using **bolded options**.

Example: EDG 1 R EL

Family	Housing color	Number of faces	Letter color	Operations	Options
EDG Surface mount LED edge-lit exit	(blank) Brushed aluminum	1 Single face	R Red on clear (single face only) ¹	(blank) AC only	(blank) None
EDGR Recessed LED edge-lit exit	W White	2 Double face	G Green on clear (single face only) ¹	EL Nickel-cadmium battery	WM Recessed wall mount ²
			RMR Red on mirror ² GMR Green on mirror ² RW Red on white ³ GW Green on white ³	X2 Lamp wired on two separate AC circuits (specify 120V or 277V) ^{4,5} SD Self-diagnostics ⁶	BAA Buy America(n) Act and/or Build America Buy America Qualified

Accessories: Order as separate item.	
ELA US12	12" stem kit with brushed aluminum canopy ⁸
ELA W US12	12" stem kit with white canopy ⁸
ELA WG1	Wireguard (13 3/4"H x 15 1/4"W x 6" D, back mount only)

Notes

- For single-face clear panels, EXIT is seen as a reversed image from the back.
- Available with single and double face.
- White panel standard for double and single face.
- Both circuits can be energized at the same time.
- Not available with EL and SD options.
- Available with EL option only.
- Available on EDGR single face only
- See spec sheet [ELA-StemKits](#). Only available for EDG.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: EDG 1 G EL M6
Note:

Type
XC1

EDG-EDGR LED, Quantum® Surface and Recessed Mount Edge-Lit Exits

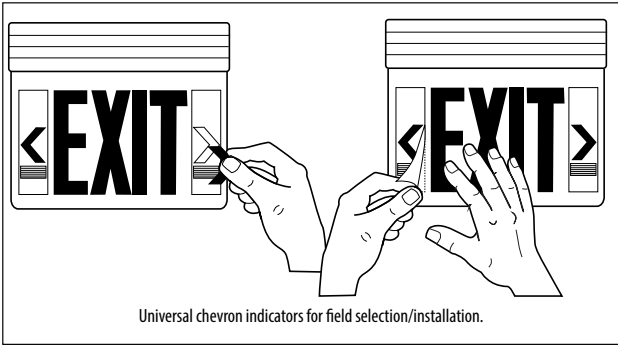
SPECIFICATIONS

ELECTRICAL						
Primary Circuit						
Type	Typical LED life¹	Supply voltage	EDG		EDGR	
			Input Watts	Max amps.	Input Watts	Max amps.
Red LED AC only	>5 years	120	2.5	0.020	3.8	0.030
		277	2.8	0.010	4.5	0.014
Green LED AC only	>5 years	120	2.2	0.020	3.8	0.030
		277	2.2	0.010	4.5	0.020
Red LED emergency	>5 years	120	3.0	0.030	3.8	0.031
		277	3.1	0.010	4.5	0.015
Green LED emergency	>5 years	120	2.6	0.020	3.8	0.031
		277	2.8	0.010	4.5	0.020

BATTERY (EL option)			
Sealed Nickel-Cadmium			
Shelf life²	Typical life²	Maintenance³	Temperature range⁴
3 years	6-8 years	none	32-122°F (0-50°C)

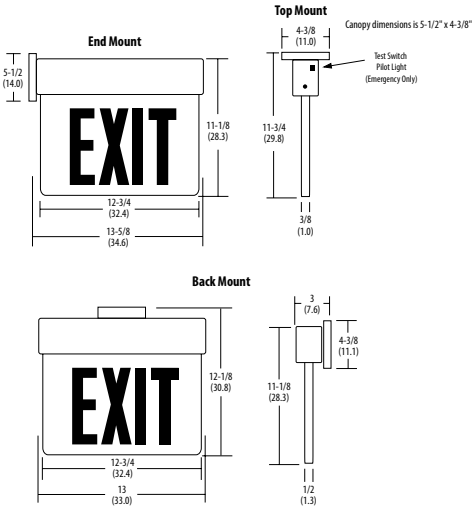
- Notes
- Based on 24/7 operation. The typical life of the exit LED lamp is 5 years.
 - At 77°F (25°C).
 - All life safety equipment, including emergency lighting for path of egress must be maintained, serviced, and tested in accordance with all National Fire Protection Association (NFPA) and local codes. Failure to perform the required maintenance, service, or testing could jeopardize the safety of occupants and will void all warranties.
 - Temperature range where unit will provide capacity for 90 minutes. Higher and lower temperatures affect life and capacity.

KEY FEATURES



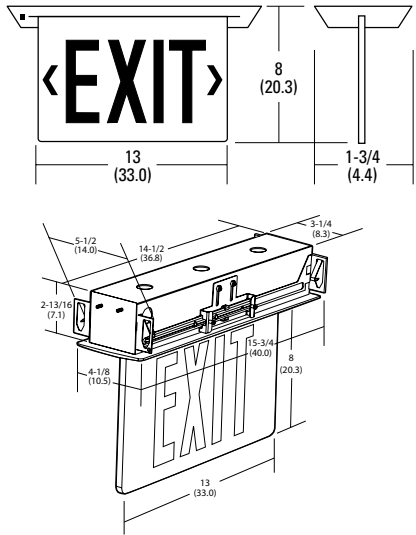
MOUNTING

EDG

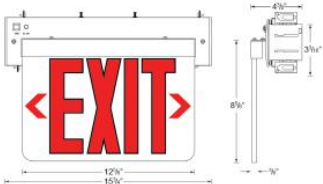


EDGR

Note: For drop ceiling applications refer to the standard installation section of the instruction sheet. Not applicable for "bracket mount" installation.



EDGR WM option





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NPODMA DX XX

Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The nPODMA Series WallPods are single gang nLight-enabled decorator wall switches that enable toggle/raise/lower/scene control of lighting zones. Equipped with soft-click push-buttons, and a green LED indicator for each button, these devices allow field replaceable and custom engraved button options. nPODMA WallPods communicate with other nLight devices, via CAT-5e cable, through RJ-45 connectors and can be daisy-chained to work with nLight power packs and/or nLight-enabled fixtures to provide switch control operations.

The scene control option presents a convenient method of selecting a custom lighting control scene for spaces in which installed, or requesting a global profile scene be run across several remote zones. By default, scene control wall switches are configured as on/off toggle switches and are to be customized programmatically through the SensorView software.

*In order to utilize a blink warning, system gateway and additional programming is required.

FEATURES

- Communicates with nLight network
- Remotely configurable/upgradeable
- Soft-click push-button control
- Sets lights to one of two or four preset levels with single button push (nPODMA xL versions only)
- Scene controllers run locally stored scenes or global scenes (stored on gateway)
 - Capable of Programming 4 Different Scene Types
 - Local "Profile" Scene – Modifies the operational configuration of up to 80 devices in the local zone. Stopping scene will revert devices to default settings.
 - Local "Preset" Scene – Modifies on/off/dim levels for up to 16 local switch groups. Exit scene through additional "preset" scene or WallPod control.
 - Global "Profile" Scene – Modifies the operational configuration of any devices on the system. Stopping scene will revert devices to default settings. Scene is stored on the system Gateway.
 - Global "Preset" Scene – Modifies on/off/dim levels for up to 128 global switch groups. Exit scene through additional "preset" scene or WallPod control.
- Easy-to-install screwless wall plate design offers a clean, uninterrupted aesthetic for a more refined look in the space.
- A full range of color options provides a variety of choices for your building designs with the assurance that the housing and the wall plate match.
- 1, 2, or 4 channel on/off
- 1, 2, or 4 channel raise/lower
- "Dynamic" options for custom button names when pairing with Acuity Brands nTUNE fixtures

CUSTOM BUTTON ENGRAVING

- Standard Button labeling is shown on back
- Custom lettering for units can be specified and ordered at: [nGrave Form](#)
- To ensure color uniformity, ordering templates facilitate specifying all buttons on a unit as custom lettered. Replacing single buttons not recommended
- Buttons may ship separately and require field installations



This item is an A+ capable component, which has been designed and tested to provide out-of-the-box luminaire compatibility with simple commissioning, when included as part of an A+ Certified™ Solution.

To learn more about A+, visit www.acuitybrands.com/aplus.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.

*See ordering tree for details



nPODMA
Wallpod: On/Off & On/
Off+Raise/Lower



Buy American Act

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.



ORDERING INFORMATION

nPODMA						Example: nPODMA DX WH	
Series	Poles & Scenes	Dimming Control	Dynamic	Color	DEFINE	Temp/Humidity	Buy America(n) ⁶⁷
nPODMA	[blank] None	[blank] Standard	[blank] Standard	WH	White	[blank] Normal	[blank] Standard
	2P Two channels	DX On/off + raise/lower control	CCI ³ Correlated color temperature	IV	Ivory	LT Low temp	BAA Buy America(n) Act Compliant
	4P Four channels			GY	Gray		
	2L ¹ Two levels			AL	Lt Almond		
	2L AB ¹ High/low step control		GRSC ⁵ Grayscale	BK	Black		
	4L ² Four levels with raise/lower		COLOR ⁵ Color control	RD	Red		
	1SB ¹ 1 Scene control (2 buttons)		EDUTW ⁴ Tuneable White				
	2S 2 Scene control (2 buttons)						
	2SB ¹ 2 Scene control (4 buttons)						
	4S 4 Scene control (4 buttons)						
	4SB ¹ 4 Scene control (8 buttons)						

ACCESSORIES											
Series		# of Gangs		Mounting		Color			Packaging		
WS xPODA	Wall Plates (Standard)	1 GNG	Single Gang	[blank]	Standard	WH	White	BK °	Black	[blank]	Single Unit ¹¹
SSW ¹⁰	Sealed Cover					IV	Ivory	RD	Red	M5 °	5 Pack
						GY °	Gray	VP °	Variety Pack	M6 ^{8,9}	6 Pack
						AL °	Lt Almond				

All nPODMA switches are shipped with wall plates and mounting flanges (WS XPODA), and mounting flanges (WS XPODA), however, the following order information is available to acquire replacement wall plates. Also compatible with the WALL Series.

Notes

1. Not available with DX option.
2. Only available with DX option.
3. Only available with 2P DX version.
4. Only available with 4S and 4S DX versions.
5. Only available with 2P DX and 4S DX versions.
6. Only available in WH, IV, or GY.
7. Not available with LT option.
8. Only available for Variety Packs.
9. Not available for SSW Series.
10. Ships with custom screwless wall plate.
11. Single units only available with SSW series.

WALL SWITCH CLEANING

It will occasionally be necessary to clean the wall switches. All nPODMA switches may be wiped down with a soft cloth or paper towel dampened with glass cleaner, vinegar and water, hydrogen peroxide, or a mild abrasive. Spray a limited amount on the cloth or paper towel prior to applying. Do not spray cleaner on the switches directly, and do not wipe the switches down with a towel saturated (drips when wrung out) with cleaner.

If the ability to clean the switches using chemical spray disinfectants is desired, we recommend the use of the Sealed Screwless Wall Plate (SSW). The Sealed Screwless Wall Plate is a cover for the standard wall plate, designed with an IP54 rating. It consists of a transparent silicone rubber layer that covers the wall switch to prevent liquids from entering the wall switch while maintaining a tactile button feel. The Sealed Screwless Wall Plate is the ideal solution to help protect a wall switch from fluid entering the device while enabling the use of disinfectants recommended by the EPA for use against SARS-CoV-2, the coronavirus that causes COVID-19, which often require spraying or saturating the surface.

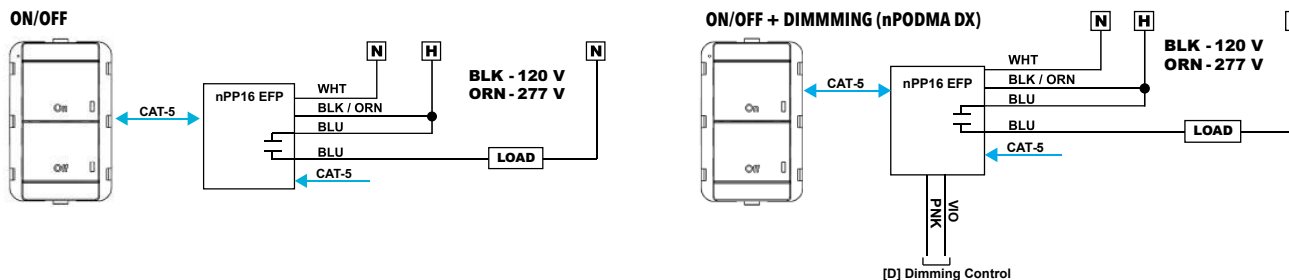


For more information on
the [Sealed Covers](#)

WIRING

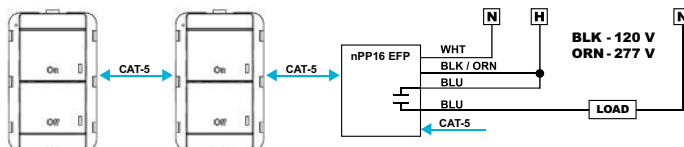
TYPICAL WIRING

Power to WallPod device is provided via the CAT-5e connection to an nLight enabled fixture, nLight power pack (e.g. **nPP16**), power supply (**nPS80**), or Bridge (**nBRG 8**)



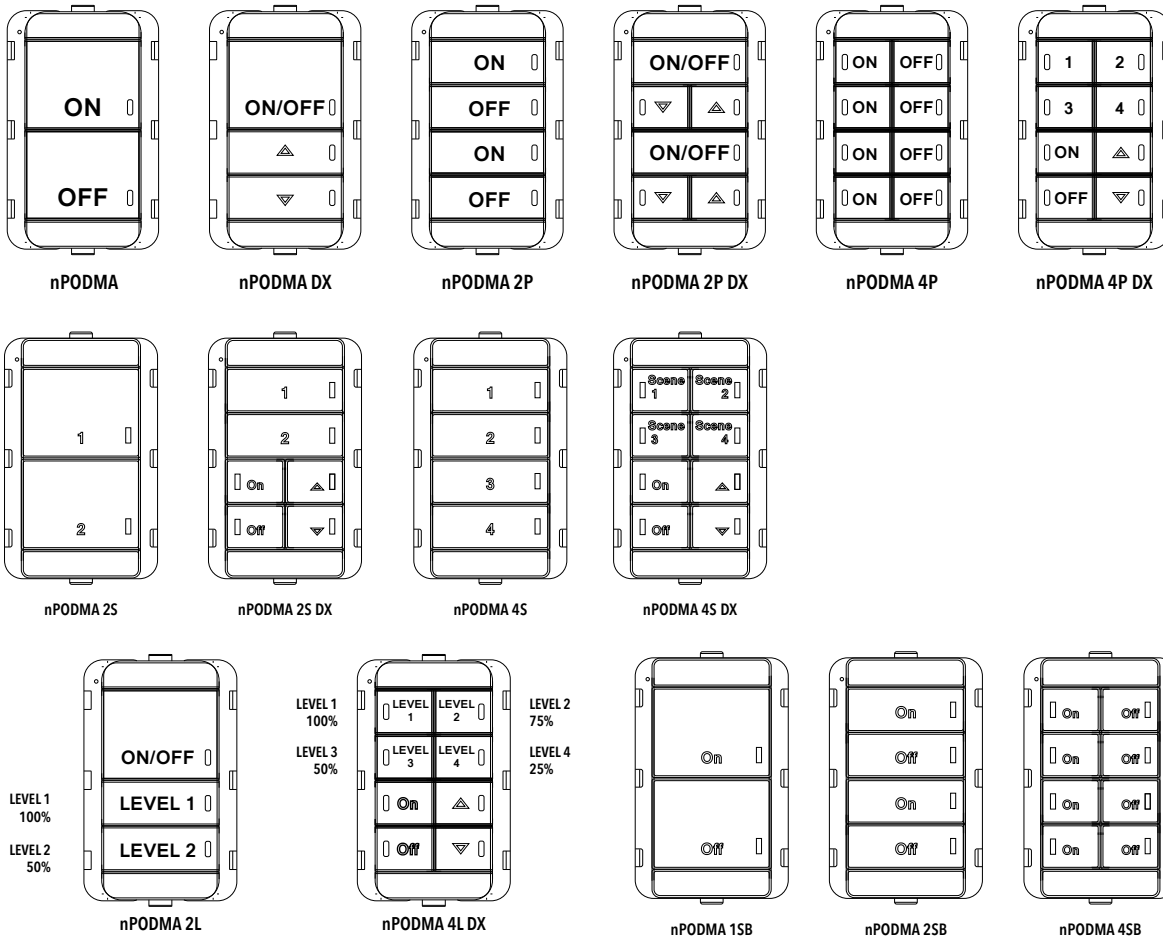
3-WAY CONFIGURATION WIRING

WallPods and/or nLight wall switch sensors can be configured together to create zones with multiple switching locations.

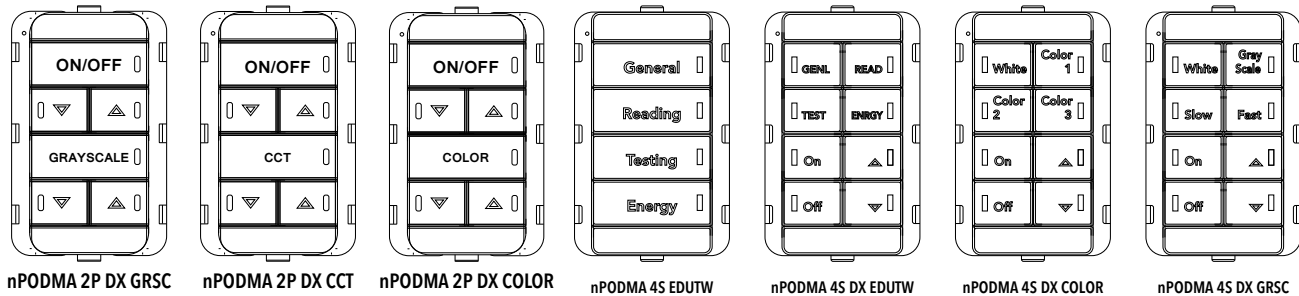




DEFAULT LABELING

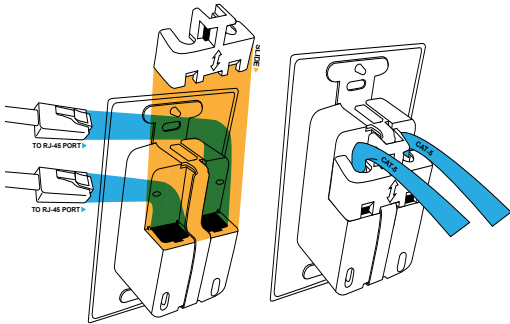


Dynamic wallpods below are paired with Acuity Brands nTUNE fixtures for out-of-box operation. Reference fixture cut sheets for additional details.



INSTALLATION

- Ensure CAT-5e cable(s) are effectively fed through the gang box
 - Push the CAT5e cables through the back of the gang box
- Remove the wall plate from the device by pulling the sides out to expand the wall plate and release it from the mounting flanges.
- Access RJ-45 port(s) on the WallPod by sliding the plastic guard up
- Insert the CAT-5e cable(s) to the RJ-45 port(s)
- Slide the guard back onto metal strap
- Connect the unit to the gang box
 - The unit will connect to the gang box by screws, one at the top and one at the bottom
 - To ensure correct wall plate installation, drive the screws until the mounting flanges contact the wall surface. If the screws are overdriven, the mounting flanges will disengage, preventing wall plate installation. If this happens, reattach the mounting flange(s) and install to correct position. (The flanges may be reattached by inserting the two tabs in the side of the unit and pushing the part inward to engage the three snaps.)
- Reattach the wall plate
 - Expand the wall plate horizontally
 - Place the wall plate onto the unit
 - Contract the horizontally expanded wall plate onto the unit such that the side flange features seat inside the wall plate



Attention! Only use non-booted CAT5e cables.

PROGRAMMING

- Refer to instruction card IN-11.3 for directions on programming the switch via the upper-most left push-button. All buttons are factory set to the matching switch channel (button 1 - channel 1, button 2 - channel 2, etc). For nPODMA 4P DX, channels to be controlled are selected first, then the control button (on/off or raise/lower).
- For 2L and 4L variants, the preset dim level of a button can be changed by first adjusting the light level with either the unit's raise/lower buttons (nPODM 4L DX) or via another raise/lower WallPod broadcasting on the same switch channel (necessary with a nPODM 2L). Once lights are at desired level, hold a LEVEL button for 8 seconds until the LED flashes. Levels can also be set via SensorView.

SPECIFICATIONS

Electrical	Input Ratings	15-24VDC, 5mA, Class 2 (nLight network power)
	Standards/Ratings	Energy Management Equipment, UL916 (E167435)
Mechanical	Dimensions	2.74"H x 1.68"W x 1.63"D (70mm x 43mm x 41mm) - does not include ground strap
	Mounting	Single-Gang Box or Low Voltage Ring
	Connection Type	RJ-45 nLight Network Ports (2)
Environmental	Warrantied Operating Temperature	32°F to 140°F (0°C to 60°C) LT Option: -4°F to 140°F (-20°C to 60°C)
	Relative Humidity	Up to 90%, Non-Condensing
	Standards/ Ratings	RoHS
	Security	Complies with California Civil Code Title 1.81.26, Security of Connected Devices, approved under Senate Bill No. 327 (2018)



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NCM PDT 10 RJB

Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The nCM xx RJB family of nLight ceiling/surface mount occupancy sensors provide a range of networked sensor solutions for applications with finished ceilings (e.g. ceiling tiles, sheetrock, plaster). nCM xx RJB family sensors utilize 100% digital Passive Infrared (PIR) detection and are available with several lens options, providing flexibility for multiple mounting height and coverage pattern requirements. Dual technology occupancy detection can also be added as an option for applications where occupants are stationary for long periods of time. nCM xx RJB family sensors are also available with an optional auxiliary low voltage relay for simple integration with a BMS system or other building system.

nCM xx RJB family sensors are powered via the nLight network bus and typically communicate with one or more nLight enabled luminaires (e.g. Lithonia VTLED Series) or nLight relay/dimming packs to enable control of fixtures individually or in groups. These configurations work standalone and do not require a connection to a larger nLight network.

FEATURES

- 100% digital PIR detection
- Optional dimming photocell (ADCX option)
- Optional auxiliary low voltage relay (AR option) for dry contact output - relay only tracks occupancy by default, ignoring switch and photocell commands
- LED status indicator
- Adjustable settings (e.g. occupancy time delays, photocell set-points) via push-button or SensorView software application
- Broadcasts occupancy and photocell information over a local nLight channel
- Remotely upgradeable firmware

Buy American Act

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.

Specifications subject to change without notice.



nCM xx RJB
nCM PDT xx RJB



nCM 9 RJB
nCM PDT 9 RJB



nCM 10 RJB
nCM PDT 10 RJB



nCM 6 RJB



This item is an A+ capable component, which has been designed and tested to provide out-of-the-box luminaire compatibility with simple commissioning, when included as part of an A+ Certified™ Solution.

To learn more about A+, visit www.acuitybrands.com/aplus.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.

*See ordering tree for details





ORDERING INFORMATION

nCM xx RJB		Example: nCM PDT 9 ADCX RJB		
Series / Detection	Coverage Type	Options (See Below)	RJ45 Port Location	Buy America(n) ²
nCM PIR Detection	9 Small Motion 360°		RJB Rear RJ45 (CAT5e patch cable & RJ45 splitter included)	blank Standard
nCM PDT Dual Tech (PIR/ Microphonics)	10 Large Motion 360°			BAA Buy America(n) Act Compliant
	6 High Mount 360° (not available with PDT version)			

nCM xx RJB Options				
Photocell	Auxiliary Relay	Preset Type ¹	Time Delay	Temp/ Humidity
[blank] Standard (No photocell)	[blank] None	[blank] Single Time Delay	[blank] Standard	[blank] Standard
ADCX Automatic Dimming Control (of remote dimming output)	AR Low Voltage Aux. Relay	2P Dual Time Delay	15M 15 Minutes 20M 20 Minutes 30M 30 Minutes	LT Low Temp / High Humidity

NOTES:

1. Not available with AR or ADCX options.
2. Not available with AR, 2P, Time Delay, or LT options

COVERAGE PATTERNS*

SMALL MOTION 360° (Model # nCM 9/nCM PDT 9¹)

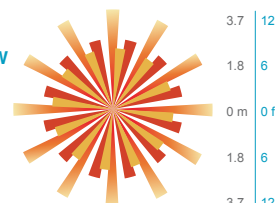


- Best choice for small motion (e.g. hand movements) detection
- 360° conical shaped pattern
- Provides 12 ft (3.66 m) radial coverage (~500 ft²) when mounted to standard 9 ft (2.74 m) ceiling
- 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage

SIDE VIEW



TOP VIEW



¹ Sensors with Microphonics™ provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is also utilized to prevent non-occupant noises from keeping the lights on.

LARGE MOTION 360° (Model # nCM 10/nCM PDT 10¹)

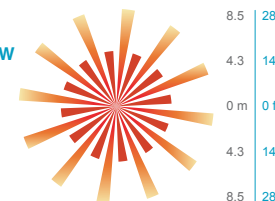


- Best choice for large motion detection (e.g. walking)
- 360° conical shaped pattern
- Provides ~24 ft (7.32 m) radial coverage (~2000 ft²) when mounted at 9 ft (2.74 m)
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage
- Detection range improves when walking across beams compared to into beams

SIDE VIEW



TOP VIEW



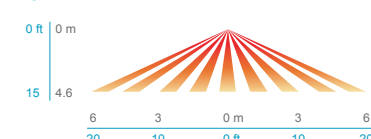
¹ Sensors with Microphonics™ provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is also utilized to prevent non-occupant noises from keeping the lights on.

HIGH MOUNT 360° (Model # nCM 6)

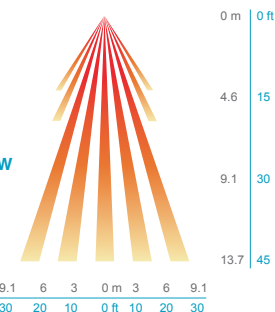


- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent detection of large motion (e.g. walking) up to 35 ft (10.76 m)
- Excellent detection of extra large motion (e.g. forklifts) up to a 45 ft (13.72 m)

LOW VIEW



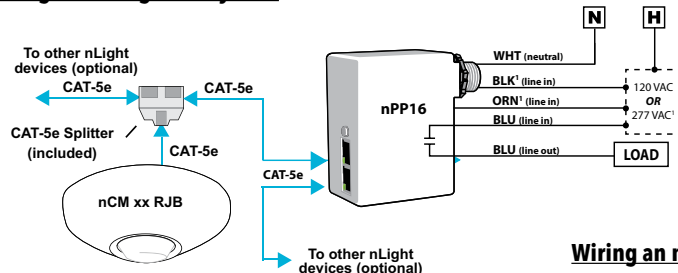
HIGH VIEW



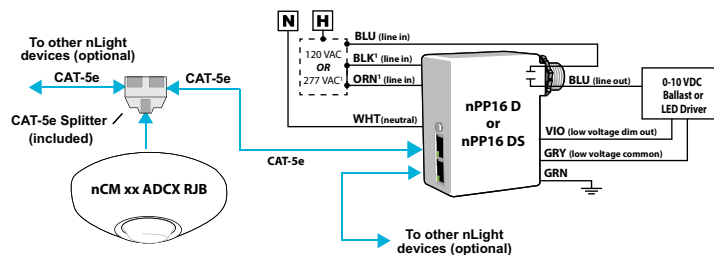
* Coverage pattern shown is derived from NEMA WD7 testing

TYPICAL APPLICATIONS

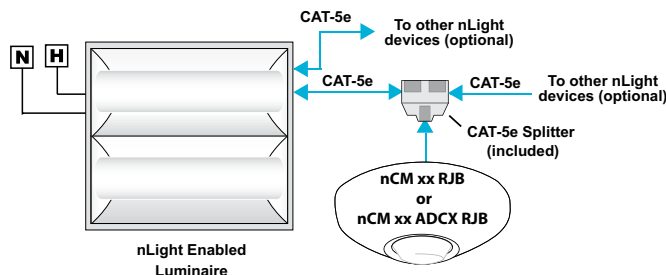
Wiring to an nLight Relay Pack



Wiring an nCM xx ADCX RJB to an nLight Dimming Pack



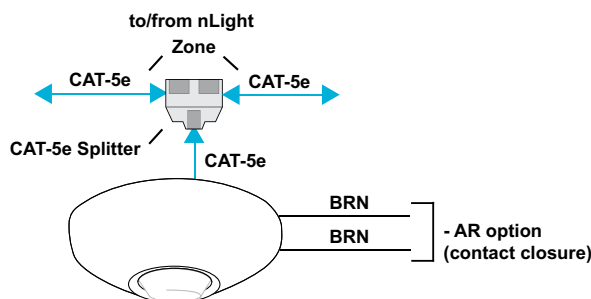
Wiring to an nLight Enabled Luminaire



TYPICAL APPLICATIONS

The following instructions are for mounting sensor directly to a ceiling tile or sheetrock surface.¹ Sensor's mounting holes also align with standard round fixture or single gang handy box (screws not provided).

1. Using template included with unit, mark spots on ceiling tile/sheetrock for cable hole and mounting anchors/screws
2. Drill 1/2" hole through ceiling surface at location indicated on template
3. Insert provided anchors into ceiling surface at locations indicated on template
4. Remove provided RJ-45 splitter from sensor's attached CAT5e cable and then thread cable (and low voltage wires if -AR option included) through hole from underside
5. Mount sensor to anchors using two screws provided
6. Attach provided RJ45 splitter device (model **CAT5 Y**) above ceiling to cable from sensor (see diagram on right)
7. Interconnect CAT-5e cables to/from rest of nLight zone to RJ45 splitter²
8. Once power is received via CAT-5e connection, all devices in zone will automatically begin functioning together according to each device's defaults
9. Install decorative sensor lid by rotating clockwise
10. Refer to included instruction card for default settings and directions on push-button programming.



Note:

1. Recommended mounting 4' or more away from HVAC vents.
2. T568B pin/pair assignment is recommended for all CAT-5e cables. Sensor power is provided via a CAT-5e connection to an nLight power pack/supply, nLight enabled digital luminaire, or nLight Bridge.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NCM PDT 10 RJB

Note:

Type

SPECIFICATIONS

Electrical	Input Ratings	15-24VDC, 3mA, Class 2 (nLight network power)
	Output Ratings	24 VAC/VDC, 1A - Resistive (AR option)
	Relay Type	Latching (AR option)
	Standards/ Ratings	Energy Management Equipment, UL916 (E167435)
Mechanical	Dimensions	4.55"W x 1.55"D (116mm x 40mm)
	Mounting	Single-Gang or Octagonal Box, Surface Mount
	Color	White
	Finish	Matte
	Connection Type	RJ-45 nLight Network Ports (2 ports via included RJ-45 splitter) Low-Voltage Leads (AR option)
Environmental	Warrantied Operating Temperature	Standard: 14°F to 185°F (-10°C to 85°C) PDT option: 14°F to 140°F (-10°C to 60°C) LT option: -4°F to 185°F (-20°C to 85°C) PDT LT options: -4°F to 140°F (-20°C to 60°C)
	Relative Humidity	Up to 90%, Non-Condensing
	Standards/ Ratings	RoHS
General	Standards/ Ratings	System Component to aid in compliance with Title 24, ASHRAE 90.1, IECC



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NPP16 D EFP
Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The nLight nPP16 EFP family of power packs is the workhorse of an nLight system, delivering robust system performance and design versatility for commercial and industrial lighting control applications. The nPP16 EFP family is capable of switching loads via an internal latching relay designed with robust protection from the harsh switching requirements of T5 fluorescent and LED loads. These power packs also provide nLight system bus power - up to 40mA from each of its two RJ-45 ports - by transforming Class 1 line voltage (120/277 VAC or 347 VAC) to Class 2 low voltage (15 VDC). This power is typically utilized by other nLight devices within the power pack's local control zone; however, remaining power is also made available over the network for Bridges and devices in other zones to utilize.

FEATURES

- Communicates w/ nLight Network
- Self-Contained Relay Switches Line Voltage Load
- Supplies 40mA of Bus Power / RJ-45 port
- Optional out-of-box vacancy and partial-on modes
- Remotely Configurable/Upgradeable
- Push-Button Programmable
- Configurable Relay Logic
- Extended Chase Nipple
- Plenum rated
- Includes fuse integrated to relay wirelead for protection from load faults
- Meets NEMA410 ratings for LED/electronic ballast inrush

Buy American Act

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



nPP16 EFP
Power/Relay Pack



Model #: nPP16 (D) EFP



Design Select options indicated by this color background.

ORDERING INFORMATION

Series	Dimming	Fault Protection	Default Mode	Voltage	Temp/humidity	Buy America(n) ²
nPP16 Power/Relay Pack	[blank] None D 0-10VDC Dimming output (via chase nipple) DS 0-10VDC Dimming output (via side slot)	EFP External Fault Protection	[blank] Auto On (Switch Ch. 1) SW2 Auto On (Switch Ch. 2) SW3 Auto On (Switch Ch. 3) SW4 Auto On (Switch Ch. 4) SA Manual On (Switch Ch. 1) SA2 Manual On (Switch Ch. 2) PA70 Auto On to 70% (Partial On) ¹ PA Auto On to 50% (Partial On) ¹	[blank] 120/277VAC 230 220-240VAC 347 120/347VAC	[blank] Standard LT Low temp	[blank] Standard BAA Buy American(n) Act Compliant

ACCESSORIES	
NPP FUSE J10	Replacement Fuse

Notes:

- Requires D or DS option
- Not available with 230, 347, or LT options



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NPP16 D EFP

Note:

Type

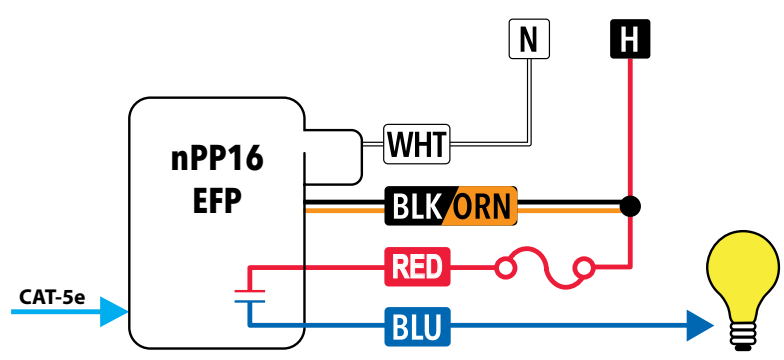
SPECIFICATIONS

Electrical	Input Ratings	120/277VAC, 50/60 Hz 220-240VAC, 50/60Hz (with 230 option) 120/347VAC, 50/60 Hz (with 347 option)
	Output Ratings	120/277VAC, 50/60 Hz 220-240VAC, 50/60Hz (with 230 version) 120/347VAC, 50/60 Hz (with 347 version) 16A - Tungsten, Standard Ballast, Electronic Ballast, General Purpose 120VAC, 50/60 Hz, 1/2 HP -Motor SCCR: 5KA 100mA, 0-10VDC Dimming Sink Current
	Relay Type	Latching
	Low Voltage Output Ratings	15VDC, 40mA per RJ-45 Port (80mA total)
	Class Rating	0-10V Dimming can be wired Class 1 or 2
	Standards/ Ratings	Energy Management Equipment, UL916 (E167435)
Mechanical	Dimensions	3.38"H x 2.53"W x 1.83"D (86mm x 64mm x 47mm) - does not include 1/2" chase nipple
	Mounting	1/2" Knockout (7/8" hole)
	Color	White
	Connection Type	RJ-45 nLight Network Ports (2) Non-Dimming Model: Line Voltage Leads Dimming Model: Line and Low Voltage Leads
Environmental	Warrantied Operating Temperature	Standard: 14°F to 122°F (-10°C to 50°C) Standard: 14°F to 113°F (-10°C to 45°C) if enclosed within a junction box LT option: -4°F to 122°F (-20°C to 50°C)
	Relative Humidity	Up to 90%, Non-Condensing
	Standards/ Ratings	RoHS, Plenum UL2043
General	Standards/ Ratings	System Component to aid in compliance with Title 24, ASHRAE 90.1, IECC

WIRING

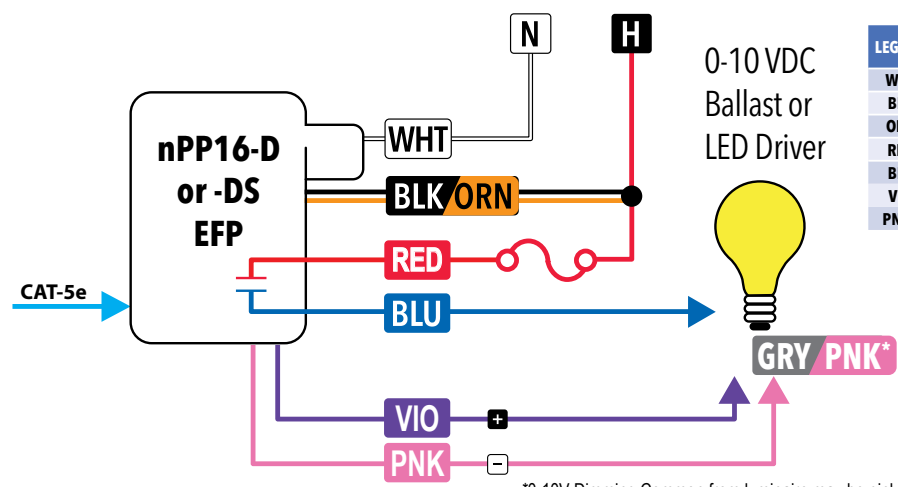
T568B pin/pair assignment is recommended for all CAT-5e cables. For Supply Connections, use 14 AWG or larger wires rated for at least 90° C.

Diagram for non-dimming units



LEGEND	Base (120/277VAC)	230 (220/240VAC)	347 (120/347VAC)
WHT	Neutral		
BLK	120VAC	N/A	120VAC
ORN	277VAC	220-240VAC	347VAC
RED	120/277VAC	220-240VAC	120/347VAC
BLU	Load (Switched Out)		

Diagram for units with a dimming option (-D or -DS suffix)



LEGEND	Base (120/277VAC)	230 (220/240VAC)	347 (120/347VAC)
WHT	Neutral		
BLK	120VAC	N/A	120VAC
ORN	277VAC	220-240VAC	347VAC
RED	120/277VAC	220-240VAC	120/347VAC
BLU	Load (Switched Out)		
VIO	0-10V Dim (+)		
PNK*	0-10V Com (-)		

NOTE: If there is a GREEN wire present, connect to earth ground.

*0-10V Dimming Common from luminaire may be pink or as otherwise indicated per section 410.69 of the 2020 NEC.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NECY MVOLT ENC GFXK
Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The nLight ECLYPSE™ system controller connects an nLight® lighting network to support connectivity and management over an IP network, control and device setting adjustment, integration with building management, integration with demand response, and more.

FEATURES

- Communicates over IP, allowing the system controller and connected lighting controls devices to be accessed and configured across a local area network
- Each system controller supports up to 750 nLight and nLight AIR devices. Additional controllers can connect and scale a system of lighting controls to a maximum of 20,000 devices
- BACnet Testing Laboratories (BTL) listed as a BACnet Building Controller (B-BC)
- Can be discovered and managed through free SensorView software and through an onboard web GUI
- Provides time-of-day and astronomical time clock capabilities for scheduled lighting control events
- Manages forwarding of global control channels and system profiles to affect devices on multiple controllers at the same time
- Enhanced security through toggleable HTTP or HTTPS connections, a FIPS 140-2, Level 1 compliant security interface, SSO or Radius Server capabilities, and more
- Optional demand response client allows activation of configurable load shed dimming levels by utility DRAS through OpenADR 2.0a

Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.



BACnet is a registered trademark of ASHRAE.
ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet International (BI). BTL is a registered trademark of BI.

Patents:
- US9819544B2 - US10073423B2
- EP3250970B1 - US9608538B2
- EP3139697B1 - CA2971061A1
- US9924243B2



nLight ECLYPSE™ System Controller





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NECY MVOLT ENC GFXK

Note:

Type

ORDERING INFORMATION

NECY					Example: NECY MVOLT BAC ENC
Series	Voltage	BACnet	AutoDR	Visualization Software	
nECY nLight ECLYPSE	MVOLT 120-277VAC 347 120-277VAC, 347VAC	[blank] Not Enabled BAC BACnet/IP & MS/IP Enabled	[blank] Not Enabled ADR Open ADR VEN	[blank] Not Enabled SVS ¹ Envysion	

Cellular Modem	Enclosure	Wi-Fi Adapter	Options	
[blank] No Cellular Modem REM ⁵ Prewired CLAIRITY™ Link router with cellular SIM REMR ^{2,5} Prewired CLAIRITY™ Link router with cellular SIM and cloud-toggleable relay	ENC NEMA Type 1 metal enclosure	[blank] Includes Wi-Fi Adapter NW No Wi-Fi Adapter Included	[blank] None SEP Single Ethernet Port GFXK ³ Touchscreen interface (model nGWY2 GFX, mounted separately), PS 150 power supply, CAT5 cable AIR ⁴ Includes NECYD NLTAIR G2	

ACCESSORIES	
nECY ENC	NEMA 1 Enclosure and pre-mounted 120-277VAC input, 24VDC output (Max 50W) power supply
nECYD NLTAIR G2	nLight AIR wireless adapter
nECYREPL INTF	nLight Interface module (introduces 750 device limit if added to an ECLYPSE with AIR option)

Notes

- Requires BACnet option.
- Cloud-toggleable relay is prewired and intended to powercycle the nLight ECLYPSE remotely.
- If 347 voltage option is selected, includes PS150 347.
- AIR option supports 150 devices. RJ45 ports for connecting nLight wired devices are not available with the AIR option. GFXK option is not available with AIR option.
- 347 option is required for cellular connectivity in Canada. MVOLT versions will support connectivity in the United States and Mexico only. Active connectivity plan required for cellular connectivity. All routers ship with 12-months Ethernet connectivity enabled. See CLAIRITY Link router specification sheet for more information.
- Cellular connectivity performance may be affected by carrier coverage and antenna placement. Coverage by supported carriers should be verified prior to purchase.
- See the Specifications section for a list of all supported carriers per country.
- Use of default SIM included with hardware is required for REMCONN CELL connectivity plan. REMCONN ETH does not require use of a cellular SIM but is required for connectivity with the portal using a non-standard, third-party SIM, provided by, paid for, and maintained by others. Compatibility with non-default, third party SIMs is not guaranteed or warranted.

CONNECTIVITY PLANS

Remote support via the CLAIRITY Link solution is enabled through a connectivity plan (REMCONN). Purchase of a CLAIRITY Link router includes an initial 12-month Ethernet connectivity plan that begins upon shipment of hardware from the factory. For extended periods of connectivity, or for cellular connectivity, supplementary plans can be purchased. Flexible plans are offered in 3-month to 24-month durations and can be purchased at any time.

FEATURES

- Flexible connectivity periods offer affordable, connected assistance from nLight technical experts
- With no hidden fees and no continuous costs, CLAIRITY Link connectivity is an on-demand service that can be purchased at any time
- On-premise systems continue to operate when a connectivity plan is inactive
- Optional service plans affordably supplement the ability to remotely connect, adding comprehensive programming, sustainment, and preventative maintenance options

Example: REMCONN ETH 24MO CAR1					
Series	Connection Type	Service Length	Supported Countries		
REMCONN	ETH	Uses Ethernet connection to a customer-provided network with Internet access for communication with the CLAIRITY Link portal	3MO	3-month length	CAR1 US, Mexico, and Canada
			6MO	6-month length	
			9MO	9-month length	
	CELL ^{6,7,8}	Includes a cellular plan to supplement or replace Ethernet connectivity for communication with the CLAIRITY Link portal	12MO	12-month length	
			18MO	18-month length	
			24MO	24-month length	



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NECY MVOLT ENC GFFX

Note:

Type

SPECIFICATIONS

Control Module

Microprocessor: Single core 1.0 GHz
Sitara ARM processor
Size: 4.74" H x 3.57" W x 2.31" D
(12.03 cm x 9.07 cm x 5.86 cm)
Mounting: DIN rail mounted
nLight ECLYPSE Assembly Size: 4.74" H x 14.76" W x 2.43" D
(12.03 cm x 37.5 cm x 6.16 cm)
Ports: Ethernet: (2) switched RJ-45 Ethernet ports
USB Connections: 2 x USB 2.0 ports
RS-485 Serial Communications: Screw terminals
(Used for either BACnet MS/TP
Subnet: RJ-45
Real Time Clock (RTC): Real Time Clock with rechargeable battery.
Supports SNTP network time synchronization
RTC Battery: 20 hours charge time, 20 days discharge time.
Up to 500 charge / discharge cycles
Enclosure: FR/ABS UL94-V0 flammability rating
Environmental: Operating Temperature: 32°F to 122°F
(0 to 50°C)
Storage Temperature: -22°F to 158°F
(-30 to 70°C)
Relative Humidity: 0 to 90% non-condensing
Ingress Protection Rating: IP20
Security: FIPS Publication 140-2, Level 1 Compliant
Complies with California Civil Code Title
1.81.26, Security of Connected Devices,
approved under Senate Bill No. 327 (2018)

nLight Network Interface Module

Size: 4.74" H x 3.20" W x 2.31" D
(12.03 cm x 8.12 cm x 5.86 cm)
Mounting: DIN rail mounted
Ports: 3 nLight bus ports (RJ-45)
nLight Bus Power Output: 0mA per port

Power Supply Module (24V)

Size: 24V: 4.74" H x 2.85" W x 2.31" D
(12.03 cm x 7.24 cm x 5.86 cm)
Operating Voltage: 24V: 24VAC/DC; $\pm 15\%$; Class 2
Output Voltage,
Rated Current & Power: 24V: 18VDC regulated, 0-1.6A, 30W max

Enclosure

Type: NEMA 1 rated surface mount screw cover
Size: 14.25"H x 14.25"W x 4.00"D (36.20cm x
36.20cm
x 10.16cm)
Rating: UL 2043 (Plenum) Rated

CLAIRITY Link Router

Size: 2.92"H x 3.27"W x 0.99"D (74mm x 83mm x
25mm)
Power Consumption: < 6.5W
Input Voltage Range: 9-30VDC
Mobile: 4G LTE - up to 150Mbps
3G - up to 42Mbps
2G - up to 236.8kbps
United States - ATT, T-Mobile/Sprint, US
Cellular, Alaska Wireless
Mexico - Telefonica
Canada - Tellus, Bell, SaskTel⁶
Ethernet: WAN - 10/100Mbps; connects to an owner-
provided, Internet-connected network. May be
used for nLight ECLYPSE controller discovery on
the same network.
LAN-10/100Mbps; used for discovery of nLight
ECLYPSE controllers that are connected to a
network without Internet connectivity
Wireless Mode - IEEE 802.11b/g/n
Security - WPA2-Enterprise
Wi-Fi Hotspot - used for modem and SIM
diagnostics
Wi-Fi Client - not supported
Environmental: Operating temperature - -40C to 75C
Operating humidity - 10% to 90% non-
condensing
Storage temperature - -45C to 75C
Security: Firewall - pre-configured firewall
Attack Prevention - DDOS prevention, port scan
prevention
WEB filter - whitelist for specifying allowed sites
only
Access control - control of TCP, UDP, ICMP
packets, MAC address filter
Complies with California Civil Code Title
1.81.26, Security of Connected Devices,
approved under Senate Bill No. 327 (2018)
Ingress Protection
Regulatory IP30
FCC, IC/ISED, EAC, RCM, PTCRB, RoHS, CE/RED,
WEEE, Wi-Fi Certified, CCC, Anatel, GCF, REACH,
Thailand NBTC, Ukraine UCRF, SDPPI (POSTEL)
Antennas: Mobile - 698-960/1710-2690 MHz, SMA male
connector
Wi-Fi - 2400-2483.5 MHz, SMA male connector
Input/Output Input - 1x digital, non-isolated input (on 4 pin
power connector)
Output - 1 x digital, open collector output (30 V,
300 mA, on 4 pin power connector)
SIM 1 x SIM slot (Mini SIM - 2FF), 1.8V/3V, external
SIM holder
Dimensions 83 x 25 x 74 mm

COMMUNICATION

Ethernet Connection Speed: 10/100 Mbps
Internet Protocol: IPv4
BACnet Profile: BACnet Building Controller (B-BC)
BACnet Listing: BTL, B-BC
BACnet Interconnectivity: BBMD forwarding capabilities
BACnet/IP to BACnet MS/TP routing
BACnet Transport Layer: MS/TP & IP (optional)
Web Server Protocol: HTML5
Web Server Application Interface: REST API

Supported BACnet MS/TP Connectivity:

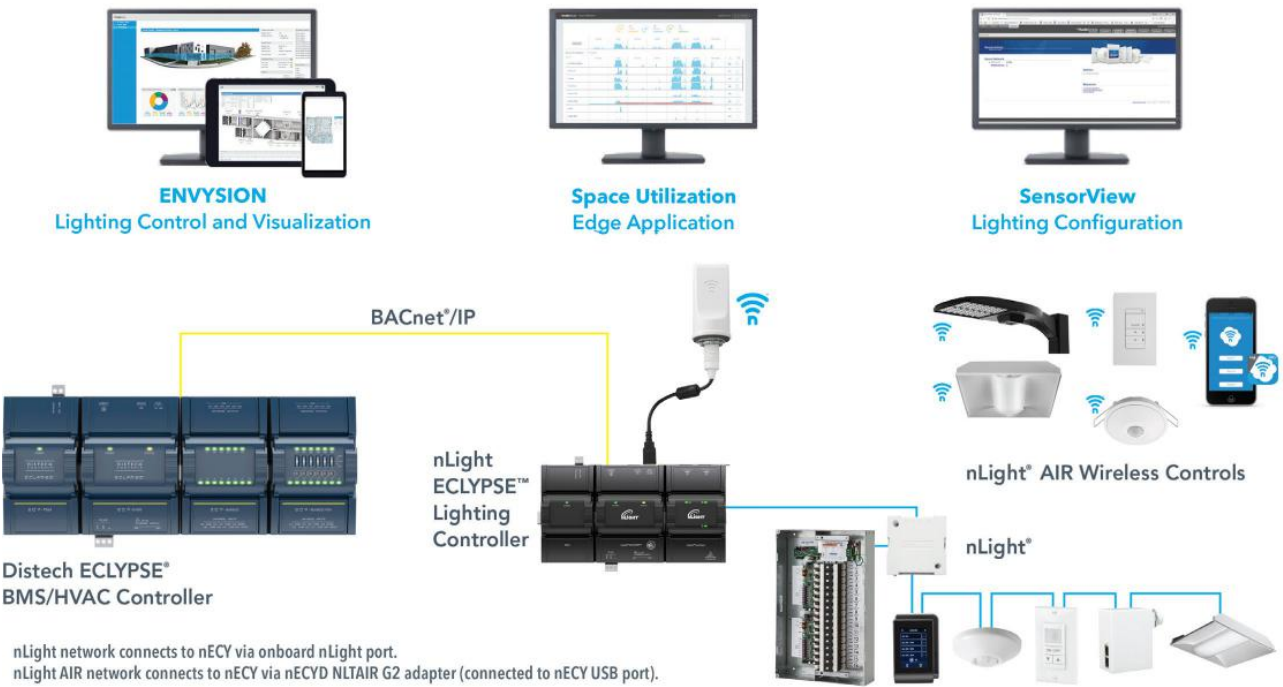
- 1 x RS-485 serial communications port for BACnet MS/TP
- RS-485 EOL Resistor - Built-in
- RS-485 Baud Rates - 9600, 19200, 38400, or 76800 bps

Supported Wireless Connectivity:

- Wireless Adapter - USB Port Connection
- Wi-Fi Communication Protocol - IEEE 802.11b/g/n
- Wi-Fi Network Types - Client, Access Point, Hotspot

SYSTEM ARCHITECTURE

The nLight ECLYPSE serves as the backbone for nLight and nLight AIR digital lighting networks. The nLight ECLYPSE provides networked devices with schedule management and remote software programming via SensorView web-based software. The backbone also provides support for system-wide controls such as master override switches, automated demand response, and BACnet integration. One nLight ECLYPSE is capable of handling up to 750 total devices and up to 128 global channels for the entire network. The nLight ECLYPSE is also compatible with other Distech ECLYPSE products, offering a full suite of BAS capabilities.





Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NBRG 8 KIT

Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The nLight Bridge increases the number of lighting control zones in an nLight system. This ability stems from the fact that each Bridge has 8 RJ-45 ports into which zones of daisy-chained nLight devices can connect. The Bridge also is an integral component of the communication backbone in an nLight network. Fundamentally, Bridges act as hubs by aggregating traffic from the connected downstream zones and placing it onto the backbone. They also act as routers by forwarding information from the backbone out to the applicable downstream zones.

FEATURES

- Communicates with nLight Network
- Remotely configurable/upgradeable
- Push-button programmable
- Green LED indicators for each Port
- Redistributes bus power between ports
- Supports up to 128 devices per port

Buy American Act

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.



This item is an A+ capable component, which has been designed and tested to provide out-of-the-box luminaire compatibility with simple commissioning, when included as part of an A+ Certified™ Solution. To learn more about A+, visit www.acuitybrands.com/aplus.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



nBRG 8 8-Port nLight Bridge



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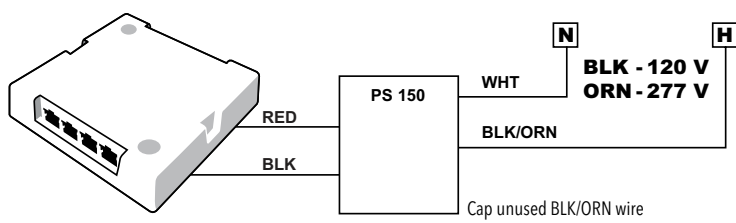
ORDERING INFORMATION

nBRG 8				
Series	Voltage	Temp/Humidity	Power Supply	Buy America(n) ¹
nBRG 8 Bridge	[blank] 120/277VAC 347 347VAC	[blank] Standard LT Low temp	[blank] Unit Only KIT Kit w/ power supply	[blank] Standard BAA Buy America(n) Act Compliant

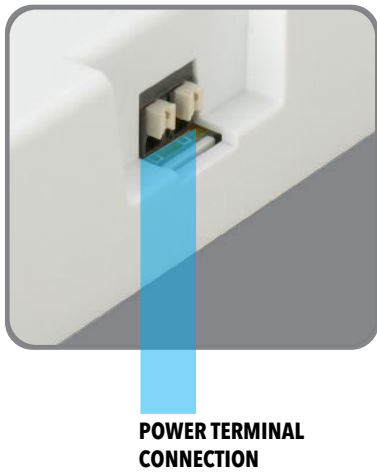
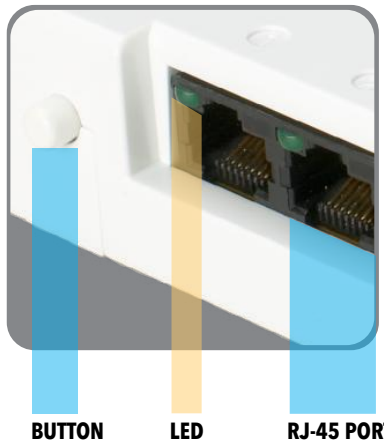
Notes:
1. Not available with 347, LT, or KIT options.

WIRING (DO NOT WIRE HOT)

A 15-24 VDC or VAC power supply can deliver power to the Bridge via the terminal connections on the side of the unit. The **PS 150** version power supply (included in the **KIT** option) is recommended, as it conveniently mounts through a knock-out on the side of the junction box where the Bridge unit is mounted.

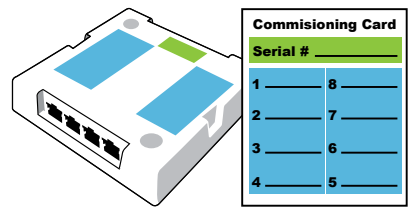
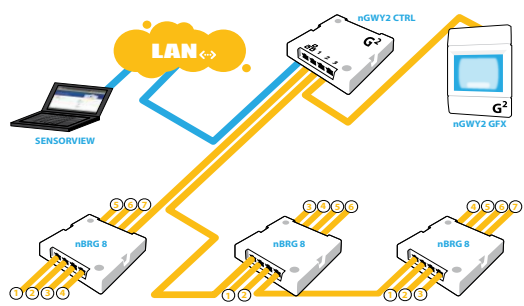
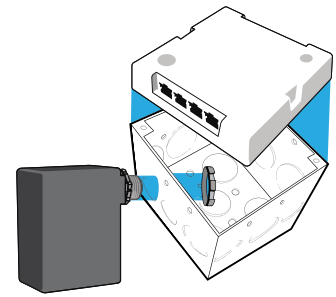


DETAILED DIAGRAM



INSTALLATION

1. Mount power supply to a 4" x 4" square junction box (through a 1/2" knockout)
2. Connect the power supply's class 1 line voltage wires. Cap any unused wires.
3. Mount Bridge unit to top of same junction box
4. Connect the power supply's low voltage wires to the Bridge's terminal connectors. Upon power up, unit's LEDs will flash.
5. Attach CAT-5e cables from lighting zones to the appropriate Bridge RJ-45 ports according to system design. Individual port LEDs will blink according to the following pattern:
 - Rapid Flash - Port is in discovery
 - 1 Blink - Healthy zone of devices
 - 2 Blinks - Upstream bridge or gateway is detected
 - 4 Blinks - Downstream bridge is detected
6. Fill out Bridge's port identification sticker(s) and commissioning card



NETWORK CONFIGURATION

An nLight network backbone consists of one or more Bridges and a Gateway (nGWY2 CTRL & nGWY2 GFX) communicating over CAT-5e wired connections. The architecture can be topology-free, however wide branching backbone networks are recommended over linear runs. Any one or more RJ-45 ports on a Bridge may be used to connect to other Bridge or Gateway devices.

Note: A maximum of 9 bridges may be used in a row (ie: bridge jumps from the gateway to the last bridge should remain less than 9).

PROGRAMMING

Refer to included instructions on LED indications and push button functionality.



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING

Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: NBRG 8 KIT

Note:

Type

SPECIFICATIONS

Electrical	Input Ratings	15-24VDC, 60mA, Class 2 (via included PS-150 or PS-150-347 power supply with KIT option) 15-24VDC, 40mA, Class 2 per port (e.g. from a connected nPP16)
	Low Voltage Output Ratings	15VDC, 40mA per RJ-45 Port (90mA total with connected PS-150 or PS-150-347 power supply)
	Standards/ Ratings	Energy Management Equipment, UL916 (E167435)
Mechanical	Dimensions	4.90H" x 4.90W"x 1.05D" (124mm x 124mm x 27mm)
	Mounting	Directly to 4" x 4" Square Box Surface Mount
	Color	White
	Connection Type	RJ-45 nLight Network Ports (8) Low-Voltage Terminals
Environmental	Warrantied Operating Temperature	Standard: 32°F to 140°F (0°C to 60°C) LT option: -4°F to 140°F (-20°C to 60°C)
	Relative Humidity	Up to 90%, Non-Condensing
	Standards/ Ratings	RoHS, Plenum UL2043
General	Standards/ Ratings	System Component to aid in compliance with Title 24, ASHRAE 90.1, IECC
	Security	Complies with California Civil Code Title 1.81.26, Security of Connected Devices, approved under Senate Bill No.327 (2018)



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: WSXA PDT D XX
Note:

Type

Catalog Number:

Date:

Project:

OVERVIEW

The WSXA Family of wall switch occupancy sensors provides simple and cost effective solutions for commercial and residential lighting control applications. All WSXA Family sensors have a stylish low profile appearance, soft-click buttons, and provide small motion detection up to 20 ft (6.10 m), making them perfect for private offices, private restrooms, closets, copy rooms, or any other small enclosed space. Additionally, all WSXA Family sensors have a patent-pending wiring method that enables them to function either with or without a neutral connection. WSXA units come pre-configured for wiring without a neutral, however if connection to neutral is required by code, contractors can convert the unit in seconds.

MULTI-WAY (MWO)

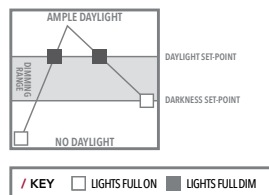
Our new WSXA MWO series allows for multi-location On/Off or 0-10 dimming up to 9 devices (2 device limit when neutral-less wiring used) on a single traveler.

FEATURES

- Single Pole devices can be programmed with Sensor Switch VLP app or traditional push button programming
- WSXA MWO can be used in conjunction with sPODMRA MWO
- Devices can be spaced up to 250 ft with MWO option
- MWO option support up to 9 additional MWO enabled devices (2 neutral-less) on a single traveler
- Compatible w/LEDs, electronic & magnetic ballasts, CFLs, & incandescents
- 100% passive detection, no potential for interference with other building systems
- Small motion detection up to 20 ft, Large motion detection up to 36ft
- Push-button programmable without removing cover plate - adjustable time delays & operating modes
- Dual technology (PDT) utilizes PIR/Microphonics™ detection (patented)
- Device accommodates powering over ground or neutral connection (patent pending)
- Fully meets NEC 2017 Section 404.2C neutral requirements - no current leakage to ground when connected to neutral
- Line power and load wires are interchangeable - impossible to wire backwards (patented)
- Integrated Photocell (disabled by default) prevents light from turning on if sufficient daylight is present
- New aesthetic with vandal resistant lens

ADAPTIVE DAYLIGHT HARVESTING (ADH)

With Sensor Switch's Adaptive Daylight Harvesting (ADH), automatic dimming has never been more reliable - even in a wall switch. It works by establishing two state change set-points; daylight and darkness. The light level in the space will then be automatically maintained by intelligently controlling the dim level of the electric light source. Set-points can be established using the "Set Now" option or programmed using desired light levels as measured in foot candles (fc).



Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.



WSXA Series Wall Switch Sensor



WSXA/WSXA MWO
On/Off
Single Relay



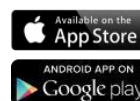
WSXA D/WSXA MWO D
On/Off/Dimming
Single Relay



WSXA 2P FAN
On/Off Dual Relay



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details



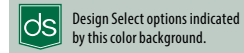


Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: WSXA PDT D XX

Note:

Type



ORDERING INFORMATION

WSXA Single Pole

Example: WSXA MWO PDT D WH

Series Option	Detection Mode	eldoLED	Dimming ⁷	Operating Mode ³
WSXA Wall Switch Sensor (Occupancy and Daylighting) WSXA MWO WSXA with Multi-way Operation	[blank] Passive Infrared (PIR) PDT Dual Technology	[blank] none EZ ² eldoLED Driver Compatibility	[blank] On/Off D Dimming	[blank] Automatic on (default) or Vacancy SA Manual On (default) or Automatic On VA Vacancy ASL ^{3,4} Automatic Start Level 5VDC
Voltage	Color ⁵ DEFINE	Max Dim Level ^{6,7}	Min Dim Level ^{6,7}	Temp / Humidity
[blank] 120-277 VAC 347 347 VAC	WH White IV Ivory GY Gray AL Light Almond BK Black RD Red	[blank] 10 VDC 9H 9 VDC 8H 8 VDC 7H 7 VDC	[blank] 0 VDC 4V 4 VDC 1V 1 VDC 2V 2 VDC 3V 3 VDC 5V 5 VDC 6V 6 VDC	[blank] Standard LT Low Temp/ High Humidity

- Notes:
- 1 Max Dim Level default set to 9.1VDC. Min Dim Level default set to 1.5VDC.
 - 2 EZ only available with D option.
 - 3 Operating Modes re-programmable via push-button except for VA version.
 - 4 Not available with EZ, Max Dim, or Min Dim Level. Also requires the D option.
 - 5 Matching wall plate provided for 120-277 VAC units.
 - 6 Only available with D option.
 - 7 Minimum order qty of 30 units for Max or Min Dim Level settings. Additional time may be required.

WSXA 2P

Example: WSXA 2P FAN WH LT

Series Option		Detection Mode		Poles		Fan ²		Operating Mode ³	
WSXA	Wall Switch Sensor (Occupancy and Daylighting)	[blank]	Passive Infrared(PIR)	2P ¹	2 Poles	[blank]	No Fan	[blank]	Pole 1 auto-on
		PDT	Passive Dual Technology			FAN	Fan Operation		Pole 2 Manual On
								2SA	Both poles Manual On (default)
								2VA	Both poles vacancy (only)
Voltage		Run Time ⁴		Color ⁵				Temp/Humidity	
[blank]	120-277 VAC	[blank]	Pole 1 Lights	WH	White	AL	Lt. Almond	[blank]	Standard
347	347 VAC		Pole 2 Fan	IV	Ivory	RD	Red	LT	Low Temp/ High Humidity
		ASHRT	Pole 1 Lights	GY	Gray	BK	Black		
			Pole 2 Fan, Minimum Fan						
			Run Time per Ashrae 62.2						

- Notes:
- 1 2P does not have VLP functionality.
 - 2 If Fan Operation is selected Operating Mode must be blank.
 - 3 Operating Modes re-programmable via push-button except for VA version.
 - 4 Only available if 2P FAN is selected.
 - 5 Matching wall plate provided for 120-277VAC Units.

SSW

Example: SSW 1GNG OCC WH

Series	Number of Gangs	Mount	Color
SSW Sealed Screwless Wall-Plate	1GNG Single Gang	[blank] Standard Wall Switch OCC Occ. Wall Switch	WH White IV Ivory RD Red

WALLP

Series	Color	Multi-Pack Size
WALLP1 Screwless Wall Plate Single Gang WALLP2 Screwless Wall Plate Dual Gang	WH White IV Ivory GY Gray AL Light Almond BK Black RD Red	M5 (5 Wall Plates)



Project 24-23937-0
MARSHALL HEALTH STRAYER BUILDING
Submitted By
LAFACE & MCGOVERN OF WV, LLC

Catalog Number: WSXA PDT D XX

Type

Note:

SPECIFICATIONS

Electrical

Input Ratings 120-277VAC, 50/60 Hz
347VAC, 50/60 Hz (with 347 option)

Output Ratings 120VAC, 800W, 6.7A - Tungsten, Standard Ballast, Electronic Ballast
277VAC, 1200W, 4.3A - Tungsten, Standard Ballast, Electronic Ballast
347VAC, 1500W, 4.3A - Tungsten, Standard Ballast, Electronic Ballast
120/277/347VAC, 1/4 HP - Motor

Relay Type Latching

Low Voltage Output Ratings 0-10VDC, Sinks <50mA

Standards/ Ratings Energy Management Equipment, UL916 (E167435)

Mechanical

Dimensions 2.74"H x 1.68"W x 1.63"D (70mm x 43mm x 41mm) - does not include ground strap

Mounting Single-Gang Box

Connection Type Low-Voltage Leads, Line-Voltage Leads

Environmental

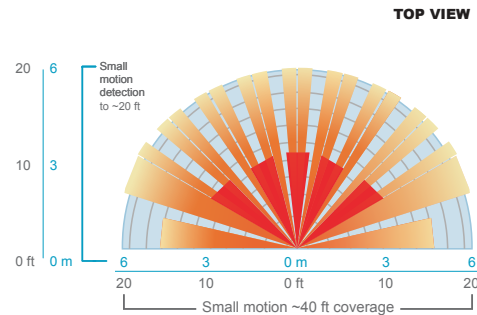
Warrantied Operating Temperature 32°F to 140°F (0°C to 60°C)

Relative Humidity Up to 90%, Non-Condensing

Standards/ Ratings RoHS

COVERAGE PATTERNS

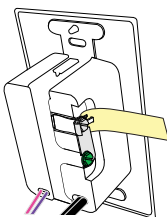
- Small motion (e.g. hand movements) detection up to 20 ft (6.10 m), ~625 ft²
- Large motion (e.g. walking) detection greater than 36 ft (10.97 m), ~2025 ft²
- Wall-to-wall PIR coverage
- Units with -PDT (Passive Dual Technology) option (also called Microphonics) provide overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is utilized to prevent non-occupant noises from keeping the lights on.
- Tested to NEMA WD 7-2011



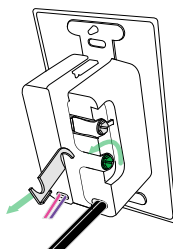
CONVERSION FROM GROUND ONLY (NO NEUTRAL) TO NEUTRAL WIRING

This product is pre-configured for wiring without a neutral; however, if connection to neutral is required by code, the unit easily converts in seconds.

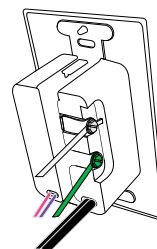
Step 1:
Remove Yellow
Label



Step 2:
Loosen Screws and
Remove Metal Link



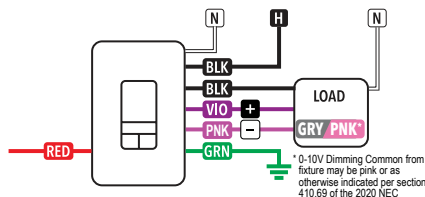
Step 3:
Connect Neutral to
Silver Screw and
Ground to Green
Screw



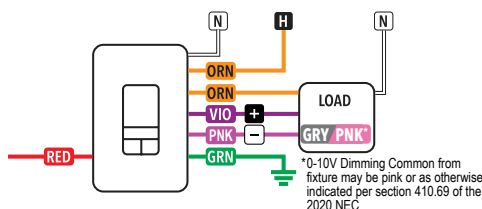
WIRING

CONVERTIBLE NEUTRAL

SINGLE RELAY, 120-277 VAC

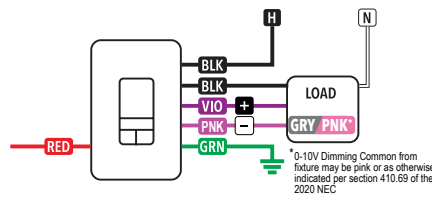


SINGLE RELAY, 347 VAC

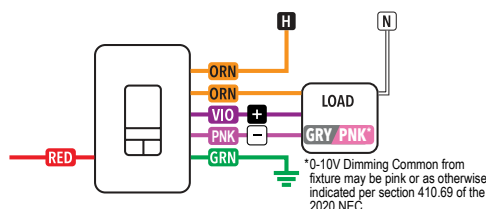


GROUND ONLY

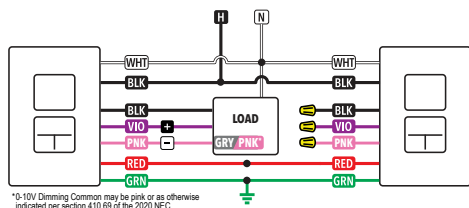
SINGLE RELAY, 120-277 VAC



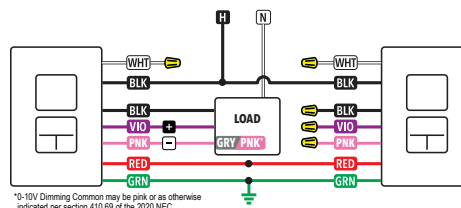
SINGLE RELAY, 347 VAC



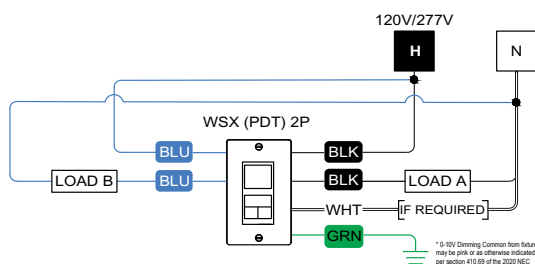
SINGLE RELAY, MULTI-WAY CONFIGURATION, 120-277 VAC



SINGLE RELAY, MULTI-WAY CONFIGURATION, 120-277 VAC



2 POLE CONFIGURATION



WIRE COLOR KEY

120-277 VAC WIRING

BLK	-	Line Input
BLK	-	Line Output
VIO	-	Low Voltage Dim Output (0-10 VDC)
PNK	-	Low Voltage Common
RED	-	Low Voltage Communication Wire

347 VAC WIRING (-347 Option)

Orange (ORN) wires replace black (BLK) wires

***Some Pink wires may come as Gray

Notes:

- All load controls act in unison
- Black wires can be used interchangeably
- Violet and pink wires are not present on devices without D option
- Cap off violet and pink wires if dimming functionality is not being used
- Red Wire is not present on devices without MWO option
- Cap off red wire if Multi-Way functionality is not being used
- For ground Multi-Way Configurations ground must come from same source
- For neutral conversion Multi-Way Configurations power must come from the same panel
- Per NEC requirements, the 0-10V violet and pink wires must be installed as Class One.
- SPODMRA MWO paired with WSXA MWO will act accordingly with WSXA occupancy settings
- The 0-10V control wires must not exceed 250 ft (76 m) in length and must be sized at no less than 20 AWG
- The Low Voltage Communication BUS must not exceed 250 ft (76 m) in length and must be sized at no less than 20 AWG
- Dimming wires from individual MWO devices should only connect with fixture/driver dimming wires and never to another MWO device



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: Marshall Health Strayer Building Renovations

Substitution Request Number: _____

100 Corporate Center Dr, Teays Valley, WV, 25560

From: Saniflow Corp. / Attn: Samantha Layedra

To: The Thrasher Group, Inc.

Date: 3/4/2024

Re: Substitution/Equal

A/E Project Number: T60-11110

Contract _____

Specification Title: TOILET, BATH, AND LAUNDRY ACCESSORIES

Description: CHILDCARE ACCESSORIES

Paragraph: 2.I

Section: 102800

Page: 5/6

Proposed Substitution: Babymedi

Manufacturer: Saniflow Corp. Address: 3325 NW 70th Ave., Miami FL, 33122 Phone: 305-424-2433

Trade Name: Saniflow, a Mediclinics Company Model No.: CP0016HCS-ASTM

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Samantha Layedra

Signed by: Samantha Layedra

Firm: Saniflow Corp

Address: 3325 NW 70th Ave, Miami, FL, 33122

Telephone: 305-424-2433 x. 2021

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittal in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittal in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☒ Reports ☐ _____

Changing diapers has never been safer, more hygienic and comfortable. **BABYMEDI®**, freedom to leave home.



CP0016H-ASTM
Material: polypropylene
Finish: white



CP0016HCS-ASTM
Material: polypropylene / stainless steel AISI 304
Finish: satin

For maximum safety, it is recommended to install according to manufacturer's instructions.

Safety

- Robust. Supports loads up to 220 lb.⁽¹⁾
- Sturdy and very firm. No deflection.
- Nylon protection straps with quick fixing fastener.
- Certified according to the European safety standards EN 12221-1 and EN 12221-2 and the American standard ASTM F2285-04

Hygiene

- Biocote® antimicrobial additive embedded onto its surface, inhibiting the spread of viruses and bacteria and reducing the risk of cross-contamination.
- Easy to clean with its smooth-textured surface, seamless, and rounded corners.
- Bed liner dispenser holds capacity of approximately 80 liners.

Comfort

- Spacious. 295 sq in. to get your baby comfortably changed.
- Seamless, harmless to the baby.
- Comes with 2 hooks to hang diaper handbags or other personal belongings.

Durability

- Concealed opening mechanism consisting of 2 steel hinges and a pneumatic cylinder that guarantees smooth opening and great durability.
- Steel Wall mounting chassis with cathaphoresis treatment.

Design

- Ergonomic. Babymedi® can be opened and closed with a single hand for a hassle free experience.
- Modern, smart, and comfortable curves for pleasant use.
- AISI 304 Stainless steel finish for perfect integration in any bathroom spaces.

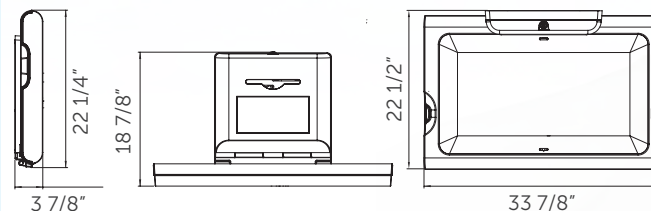
(1) Ensure that the suitable wall-mounting elements are used and that unit is properly installed according to manufacturer's guidelines.



TECHNICAL SPECIFICATIONS		
Dimensions	CP0016H and CP0016HCS	L: 33 7/8" x W: 3 7/8" (closed) / 22 1/2" (open) x H: 18 7/8"
Plastic parts thickness	1/8" - 1/4"	
Mounting-chassis thickness	1/8"	
Frontal chassis thickness ⁽²⁾	0.03"	
Recommended installation Height	31 1/2"	
Recommended installation Height ⁽²⁾	27 1/2"	

⁽²⁾ Only CP0016HCS

CP0016H - CP0016HCS



CP0016H-ASTM / CP0016HCS-ASTM / CP0016HCSB-ASTM

General Description

- Surface-mounted baby changing stations made of bacterial-resistant polypropylene and with stainless steel AISI 304 exterior (CP0016HCS-ASTM and CP0016HCSB-ASTM).
- High level of safety and cleanliness.
- Models offer great strength and durability, suitable for high traffic facilities.
- Trendy and stylish design.
- Biocote® antimicrobial additive into its own surface.
- Includes a pair of bag hooks to keep personal belongings close and at hand.
- Fully comply with the American standard ASTM F2285-04 and the European EN 12221-1 and EN 12221-2 standards.

Components & Materials

- **CP0016H:** surface-mounted baby changing station made of polypropylene in white finish.
- **CP0016HCS:** surface-mounted baby changing station made of polypropylene and with a stainless steel AISI 304 exterior, in satin finish.
- **CP0016HCSB:** surface-mounted baby changing station made of polypropylene and with a stainless steel AISI 304 exterior, in black finish.
- **BED:** with approximately 295 in² contoured changing surface area is made of polypropylene in white finish Biocote® antimicrobial additive embedded into its surface, promoting easy cleaning and reducing the growth of odor-causing and staining microbes.
- **LINER DISPENSER:** is made of polypropylene and holds approximately 80 bed liners, minimizing operator refills and discouraging potential vandalism.
- **OPEN/CLOSE MECHANISM:** concealed from the user's view, it consists of a pair of reinforced hinges and a pneumatic cylinder, ensuring high durability and a smooth opening and closing of the baby changing station.
- **MOUNTING CHASSIS:** made of steel with a cathaphoresis treatment. The corresponding mounting hardware is supplied, making the unit installation to the wall easy.
- **FRONTAL CHASSIS:** (CP0016HCS / CP0016HCSB) made of one-piece AISI stainless steel, 1/32" thick, fixed to the bottom of the bed by means of 4 bolts and 4 nuts, always concealed from the user's view, without joints or edges to ensure the user's safety, a better cleaning and a seamless blending with other satin finish accessories in the washroom.

Technical Specifications

Dimensions	L: 33 7/8" x W: 3 7/8" (closed) / 22 1/2" (open) x H: 18 7/8"
Weight (empty)	27.12 lb (CP0016H) 35.3 lb (CP0016HCS / CP0016HCSB)
Liner dispenser capacity	80 units
Recommended installation height	31 1/2" at lowest point
Recommended installation height (handicapped)	27 1/2" at lowest point

Operation

Open the BabyMedi® baby changing station. Place the baby on the centre of the bed and change your baby's diapers. Close the BabyMedi® station.

Under no circumstance should the baby be left unattended at any time on top of the baby changing station in order to avoid injury from falling or slipping.

Please mark the selected item

☐


code

CP0016H-ASTM

material

polypropylene
finish
white


☐


code

CP0016HCS-ASTM

material

polypropylene /
stainless steel
finish
white / satin


☐


code

CP0016HCSB-ASTM

material

polypropylene /
stainless steel
finish
white / black



Installation

According to the installation and safety instructions manual supplied with the unit.

IMPORTANT: in order to ensure BabyMedi is properly installed it is recommended that a qualified person carries out the installation of the unit. The unit must be properly installed on a wall that is able to sustain a considerable weight and can accommodate the supplied installation hardware.

Certificates & Qualifications

Unit shall be ASTM approved, according F2285-04 standard and GS according EN 12221-1 and EN 12221-2 standards.

Ideal location

Public spaces such as, shopping centers, airports, public buildings, childcare centers, etc. Models suitable for high traffic facilities with high strength and durability.

IMPORTANT: the Congress of the United has taken a further step towards gender equality by implementing law 114-235 (10/07/2016). By this law, the American Government states that restrooms, both for men and women, in public buildings all around the country, must have diaper changing facilities in place.

Guide specification

Surface-mounted baby changing stations made of bacterial-resistant polypropylene (CP0016H, CP0016HCS and CP0016HCSB) and with stainless steel AISI 304 exterior (CP0016HCS and CP0016HCSB).

BabyMedi® changing stations offer a very high level of safety and cleanliness being the ideal solution for public spaces such as, shopping centers, airports, public buildings, childcare centers, etc. Models are suitable for high traffic facilities where great strength and durability is needed.

Their trendy and stylish design, allow these baby changing stations to blend into any space perfectly.

Biocote® antimicrobial additive, based on ion silver technology, is embedded into the surface, promoting an easy cleaning and reducing the growth of odor causing and staining microbes.

BabyMedi® baby changing stations are supplied with child protection straps made of nylon assembled.

A pair of bag hooks (one at the right side and the other one at the left) help to keep personal belongings close and at hand.

BabyMedi® units fully compliant with the American standard ASTM F2285-04 and the European EN 12221-1 and EN 12221-2 standards that require baby changing stations be able to support a 110 lb static load test during one hour. Moreover, units tested in our own laboratories have withstood loads over 220 lb.

Overall dimensions:

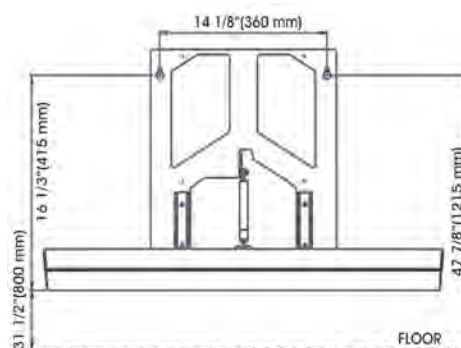
L: 33 7/8" x W: 3 7/8" (closed) / 22 1/2" (open) x H: 18 7/8"

Weight: 27.12 Lbs. (CP0016H) / 35.3 Lbs. (CP0016HCS and CP0016HCSB)

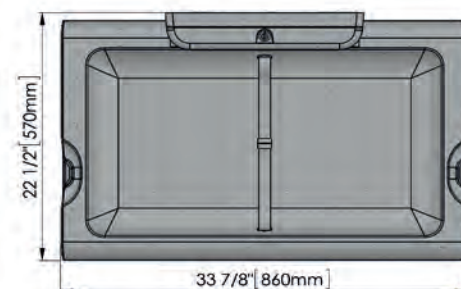
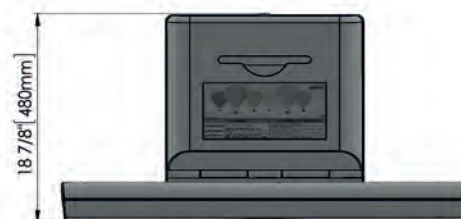
Recommended heights from floor

	Male	Female	Disabled
x To bottom of unit	31 1/2" (800 mm)	31 1/2" (800 mm)	27 1/2" (700 mm)
y To mounting brackets	16 3/8" (415 mm)	16 3/8" (415 mm)	12 13/32" (315 mm)

MOUNTING



CP0016H-ASTM / CP0016HCS-ASTM /
CP0016HCSB-ASTM



Job:

Model number:

Variations:

Architect / Engineer:

Contractor:

Customer / Wholesaler:

City / State / Country:

Date:

Quantity:

Saniflow Corp reserves the right to make changes and/or modifications to the products and their specifications without warning or notice.

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babymedi®



baby changing stations



Babymedi® baby changing stations are made of polypropylene that incorporates a BioCote® antimicrobial additive, allowing an easy cleaning and minimizing the growth of microbes, which are a source of diseases, odors and stains.

The diaper changing station comes with an adjustable safety belt with quick fastening. In addition to this, it has two hooks for hanging diaper bags, handbags and other articles that you might want to keep at hand.

All BabyMedi® baby changing stations have a bed liner dispenser with a capacity of approximately 80 bed liners, which cuts down the number of refills. The opening/closing mechanism of the baby changing unit is always concealed to the user's view.

The chassis for mounting the baby changing station on the wall is made of steel with a cathoporesis treatment that makes it very robust against corrosion.



babymedi[®]





SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: Marshall Health Strayer Building Renovations

Substitution Request Number: _____

100 Corporate Center Dr, Teays Valley, WV, 25560

From: Saniflow Corp. / Attn: Samantha Layedra

To: The Thrasher Group, Inc.

Date: 3/4/2024

Re: Substitution/ Equal

A/E Project Number: T60-11110

Contract _____

Specification Title: TOILET, BATH, AND LAUNDRY ACCESSORIES

Description: HAND DRYERS

Section: 102800

Page: 5

Article/Paragraph: 2.3

Proposed Substitution: Machflow

Manufacturer: Saniflow Corp. Address: 3325 NW 70th Ave., Miami FL, 33122

Phone: 305-424-2433

Trade Name: Saniflow, a Mediclinics Company

Model No.: M09AB-UL-ION (Recess kit and
Wall Guard available)

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Samantha Layedra

Signed by: Samantha Layedra

Firm: Saniflow Corp

Address: 3325 NW 70th Ave, Miami, FL, 33122

Telephone: 305-424-2433 x. 2021

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittal in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittal in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☒ Reports ☐ _____



Machflow Plus (M09A, M09ACS, M09AB) High Speed, Eco-friendly with minimum consumption and ADA Compliant Recessed Kit Available	 	
Comparison	Machflow Plus	XLERATOReco®
Electrical	100V-277V (Universal Voltage)	110-120; 208-277V; 230V
Air Velocity	18,000 LFM (Adjustable)	16,000 - 19,000 LFM
Power	350-1,300 W	425-530 W
Motor type	1/2hp-1 2/5hp 19,000-28,000 rpm (Adjustable)	5/8hp / 20,000 rpm
Heater	250 Watts waved wire Ni-Cr heating self-resettable thermal cut-off at 180°F	No Heat: 4.3 - 4.5 A @ 110-120V
Standby power consumption (W)	2 W	1W
Construction materials	Vandal resistant Epoxy or steel or Stainless Steel	Die-cast Zinc Alloy, (BMC), and Stainless Steel
Air temperature (at 70F ambient)	106°F	No Heat
Color finish	White, Black, S/S Satin	White, Black, Graphite and S/S Satin
Dimensions	13"Hx8-3/8"Wx6-11/16"D	12-11/16"Hx11-3/4"Wx 6-11/16"D
Operation	Touch free infrared sensor. Auto 2 second shutoff after hands are removed	Automatic Sensor Operated
Price Comparison (MAP Price)	\$450	\$585
Weight	11.24 lbs	15-17 lbs
Safety shut off	Shut off after 60 seconds if hands are not removed	Shut off after 35 seconds if hands are not removed
Drying time	Approx. 10-15 seconds	Approx. 12 Seconds
Limited Warranty	5 years	5 years
Noise Level	67-74 dB	65-75 dB
Sensor	infrared (Adjustable 2"-8")	Automatic Sensor
BuildingGreen Approved	Yes	Yes
ADA Compliant Recessed Kit	\$160	\$243

HEPA Filter included

HEPA (Optional Accessory)

M09A-UL-ION / M09AB-UL-ION / M09ACS-UL-ION

General Description

- High-speed hand dryer with HEPA filter media and ionizer Ion Hygienic, recommended for very high traffic areas.
- HEPA filter media filters the solid particles in suspension (pollen, dust mites, tobacco smoke, etc.)
- Ionizer cleans and purifies the air
- California Air Resources Board (CARB) Certified Air Cleaning Device
- Maximum robustness and vandal-proof.
- Air concentrator nozzle which helps to channel better the airflow on the hands
- ADA-Compliant with recessed kit
- Green Spec approved & offering LEED Credits.



Please mark the selected item

☐


code

M09A-UL-ION

material

steel

finish

white epoxy

Components & Materials

- **M09A-UL-ION:** 1/16" (1.5 mm) thick one-piece steel cover; white epoxy finish
 - **M09AB-UL-ION:** 1/16" (1.5 mm) thick one-piece steel cover; black epoxy finish
 - **M09ACS-UL-ION:** 1/16" (1.5 mm) thick one-piece stainless steel cover; satin finish
- Cover fixed to the base with 2 vandal-proof lock screws and lock with special key wrench.

- **BASE PLATE:** Fire retardant UL 94V0 plastic base, with four Ø 7/32" (6 mm) holes for wall mounting. Includes silent-blocks to damp mechanical vibrations.
- **ADJUSTABLE MOTOR:** High pressure universal brush, fully adjustable (19,000-28,000 rpm) potentiometer, Class A.
- **HEATING ELEMENT:** 250 Watts waved wire Ni-Cr heating that incorporates a self-resettable thermal cut-off at 180°F.
- **ADJUSTABLE SENSOR:** Electronic infrared detection sensor with fully adjustable (2"-8") potentiometer. Includes polycarbonate viewing windows.
- Automatic disconnection system after 60 seconds of continuous use.
- **HEPA FILTER MEDIA:** Which filters the solid particles in suspension (pollen, dust mites, tobacco smoke, etc.) significantly improving air quality.
- **IONIZER:** Cleans and purifies the air through negative ions (anions), removing microscopic particles from the air and make it healthier.

☐


code

M09AB-UL-ION

material

steel

finish

black epoxy

☐


code

M09ACS-UL-ION

material

stainless steel

AISI 304

finish

satin

Technical Specifications

Voltage - 100-120V; 208V; 220-240V; 277V	Total power – 350-1,300 W
Frequency - 50/ 60 Hz	Motor Power – 350-1,050 W
Insulation - Grounding required (Class I)	Heating element: 250 W
	Consumption
Dimensions - 13"H x 8 3/8"W x 6 11/16"D	5.6-10 A (120 V) 7.5 - 11A (230 V)
Weight - 11.24 Lbs.	r.p.m. - 19,000-28,000 rpm
Effective airflow - 72.54 CFM	Air temperature – (at 4" distance/ T amb. 70 °F) 106 °F
Max air velocity - 300 mph / 18.000 LFM	Drying time - 10 – 15 sec
Protection level - IP23	Noise level (at 79") - 67 – 74 dBA
Mounting -	
Surface-mounted: not ADA compliant	
Recessed (with recessed kit): ADA compliant	

Operation

Place the hands under the air outflow valve. The dryer will start automatically, and go on with no interruption as long as the hands are kept in the detection range of the sensor. The appliance will stop 2 seconds after the hands are removed from the airflow.

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Installation

Verify all rough-in dimensions prior to installation. Hand dryers require a dedicated circuit and must be properly grounded. a GFCI (Ground fault circuit interrupter) is recommended. One side of dryer show be mounted to a stud.

Certificates & Qualifications

Unit shall be UL and CSA approved, according to UL 499, CSA C22.2 standards, CARB-Certified Air Cleaning Device and GreenSpec approved.

N° dryers to be fitted

- In toilet areas with a normal frequency of use and only one wash-basin: 1 dryer.
- In toilet areas with a normal frequency of use and more than one wash-basin: 1 dryer for each 2-3 wash-basins.
- In toilet areas with multiple wash basins: 4 wash basins: 2 dryers; 1 row of 6 wah basins: 2-3 dryers; 1 row of 8 wash basins: 3 dryers.

Ideal location

Between the wash-basin and exit. It is not recommended to install dryer between wash-basins, next to urinals, lavatories and showers. If installing automatic dryers over marble surface or ledge, the minimum distance from the dryer to the ledge must be 15-3/4". It is recommended that hand dryers be distributed throughout the washroom area to avoid overcrowding.

Guide specification

Surface-mounted hand dryer shall have a one-piece steel cover with white epoxy finish (M09A-UL-ION), steel cover with black finish (M09AB-UL-ION), or stainless steel cover with satin finish (M09ACS-UL-ION). Hand dryer shall include a fire resistant UL V0 plastic base, fully adjustable (2" to 8") infrared sensor potentiometer and fully adjustable (19,000 - 28,000 RPM) universal brush motor. Dryer shall operate at 67-74 dBA while delivering 68-108 CFM of air at 106 °F and 203 mph as maximum air velocity (Max - 18,000 LFM) during user controlled drying cycle. Dryer shall have a total power of 350-1,300 W with a consumption of 6.4 to 10 A. Hand dryer shall assembly an HEPA filter media which filters the solid particles in suspension (pollen, dust mites, tobacco smoke, etc.) significantly improving air quality and an ionizer (Ion Hygienic Technology) which cleans and purifies the air through negative ions (anions) removing microscopic particles from the air and make it healthier

Unit shall be UL and CSA approved, according to UL 499, 13th Edition, CSA C22.2 standards, CARB-Certified Air Cleaning Device and Green Spec approved

Overall dimensions:

13"H x 8 3/8"W x 6 11/16"D (330 mm x 213 mm x 170 mm)

Weight: 11.24 Lbs. (5.1 Kg)

Recommended heights from floor

	Male	Female	Child	Disabled
x To top of machine	59" / 150 cm	57-1/8" / 145 cm	49-1/4" / 125 cm	51-1/8" / 130 cm
y To mounting brackets	57-1/2" / 146 cm	55-1/2" / 141 cm	47-5/8" / 121 cm	49-5/8" / 126 cm
z To sensor top	46-1/8" / 117 cm	44-1/8" / 112 cm	36-1/4" / 92 cm	38-1/4" / 97 cm

Job:

Model number:

Variations:

Architect / Engineer:

Contractor:

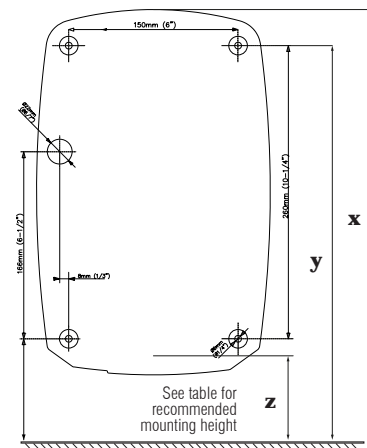
Customer / Wholesaler:

City / State / Country:

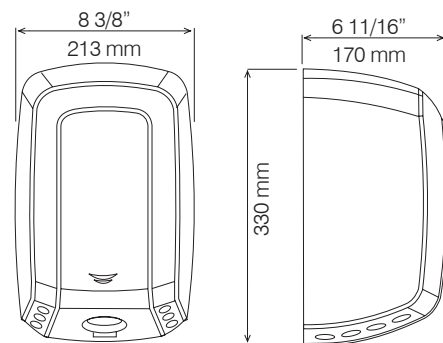
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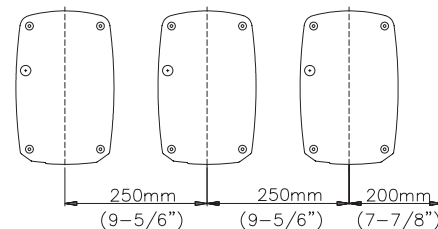
MOUNTING



M09A-UL-ION/ M09AB-UL-ION / M09ACS-UL-ION



Serial mounting



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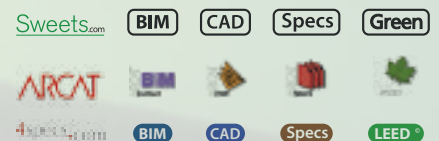
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machflow[®]



- Ultra-fast drying time
- Minimum energy consumption
- Minimum CO₂ emissions
- Minimum noise pollution
- Universal Voltage Out of the box: from 110 to 240 V
- Adjustable High Speed motor: turn up for fast drying; turn down for quiet operation
- Rock solid & Compact Design
- ADA recessed kit available
- GreenSpec listed

To download technical data sheets, 3 CSI Specs, CADs, BIM and Green Info, please go to www.saniflowcorp.com or visit your preferred specification website:





HIGH SPEED



A ROCK SOLID & COMPACT DESIGN

Our most powerful & energy efficient high speed hand dryer incorporates a low energy, high pressure, adjustable motor that allows you to choose noise levels between 67 to 74 dBA. Reduces drying times to 10-15 seconds and utilizes an incredibly energy efficient 6.4 Amps per drying cycle.

HAND DRYERS

machflow®

Who is using MACHFLOW M09A Hand dryers:

- Northwestern University, Kellogs Dorms, Chicago, IL
- Citrus College Football Stadium, Glendora, CA
- Downing University Center, Western Kentucky University, Bowling Green, KY
- Pennsylvania State University, Residential Housing, PA
- Glendale Community College, Glendale, CA
- North Myrtle Beach Park & Sport Complex, SC
- Old Pueblo Gymnastic Academy, Tucson, AZ
- Tegeler High School, Pasadena, TX
- City of SouthPort Public Works, SouthPort, NC
- City of Gridley, KS
- Main Lodge Custodial, Mammoth Lakes, CA
- Vittoria Caffè, Boston, MA

