



# Public Utilities Commission

Application to Commit  
Energy Efficiency/Peak Demand  
Reduction Programs  
(Mercantile Customers Only)

Case No.: 13-1541 -EL-EEC

Mercantile Customer: OSU Marion

Electric Utility: Ohio Edison Company

Program Title or  
Description: Other Lighting Upgrades

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. 10-834-EL-POR

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at [ee-pdr@puc.state.oh.us](mailto:ee-pdr@puc.state.oh.us).

## Section 1: Mercantile Customer Information

Name: OSU Marion

Principal address: 1465 Mount Vernon Avenue Marion OH 43302

Address of facility for which this energy efficiency program applies: See Exhibit 1

Name and telephone number for responses to questions: Dan Dumond 614-949-5203

Electricity use by the customer (check the box(es) that apply):

- ☒ The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- ☐ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

## Section 2: Application Information

A) The customer is filing this application (choose which applies):

- ☐ Individually, without electric utility participation.
- ☒ Jointly with the electric utility.

B) The electric utility is: Ohio Edison Company

C) The customer is offering to commit (check any that apply):

- ☐ Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
- ☐ Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
- ☒ Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)

### Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

- ☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)). **If Checked, Please see Exhibit 1 and Exhibit 2**
- ☐ Installation of new equipment to replace equipment that needed to be replaced. The customer installed new equipment on the following date(s):  
\_\_\_\_\_
- ☐ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):  
\_\_\_\_\_
- ☐ Behavioral or operational improvement.

B) Energy savings achieved/to be achieved by the energy efficiency program:

- 1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) - (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: 46375 kWh

- 2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: \_\_\_\_\_ kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

- 3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: \_\_\_\_\_ kWh

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

- 4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

#### Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- ☒ Coincident peak-demand savings from the customer's energy efficiency program.
- ☐ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- ☐ Potential peak-demand reduction (check the one that applies):
  - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
  - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

See Exhibit 1

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

9 kW

**Section 5: Request for Cash Rebate Reasonable  
Arrangement (Option 1) or Exemption from Rider (Option 2)**

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

☒ Option 1: A cash rebate reasonable arrangement.

OR

☐ Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

☐ Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

☒ A cash rebate of \$1739. (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

☐ An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for \_\_\_\_\_ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

☐ A commitment payment valued at no more than \$\_\_\_\_\_. (Attach documentation and calculations showing how this payment amount was determined.)

OR

- ☐ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

### Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

- ☐ Total Resource Cost (TRC) Test. The calculated TRC value is: \_\_\_\_\_ (Continue to Subsection 1, then skip Subsection 2)
- ☒ Utility Cost Test (UCT). The calculated UCT value is: See Exhibit 3 (Skip to Subsection 2.)

#### Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were \_\_\_\_\_.

Our program costs were \_\_\_\_\_.

The incremental measure costs were \_\_\_\_\_.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **See Exhibit 3**

The utility's program costs were **See Exhibit 3**

The utility's incentive costs/rebate costs were **See Exhibit 3**

**Section 7: Additional Information**

Please attach the following supporting documentation to this application:

- Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.
- A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:
  - 1) any confidentiality requirements associated with the agreement;
  - 2) a description of any consequences of noncompliance with the terms of the commitment;
  - 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
  - 4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
  - 5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.
- A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.





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Commission**

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State of Ohio :

, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

OSU

[Insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

*fm SLK*

Geoffrey S. Chatas, Sr. Vice President For  
Business & Finance, and CFO  
The Ohio State University



Sworn and subscribed before me this 14<sup>th</sup> day of March, 2013 Month/Year

Korrena Query  
Signature of official administering oath

Korrena Query  
Print Name and Title

My commission expires on 5/29/16



Korrena Query  
Notary Public, State of Ohio  
My Commission Expires 05-29-16

**Mercantile Customer Project Commitment Agreement**  
**Cash Rebate Option**

**THIS MERCANTILE CUSTOMER PROJECT COMMITMENT AGREEMENT** ("Agreement") is made and entered into by and between Ohio Edison Company, its successors and assigns (hereinafter called the "Company") and OSU Marion, Taxpayer ID No. 34-6401447 its permitted successors and assigns (hereinafter called the "Customer") (collectively the "Parties" or individually the "Party") and is effective on the date last executed by the Parties as indicated below.

**WITNESSETH**

**WHEREAS**, the Company is an electric distribution utility and electric light company, as both of these terms are defined in R.C. § 4928.01(A); and

**WHEREAS**, Customer is a mercantile customer, as that term is defined in R.C. § 4928.01(A)(19), doing business within the Company's certified service territory; and

**WHEREAS**, R.C. § 4928.66 (the "Statute") requires the Company to meet certain energy efficiency and peak demand reduction ("EE&PDR") benchmarks; and

**WHEREAS**, when complying with certain EE&PDR benchmarks the Company may include the effects of mercantile customer-sited EE&PDR projects; and

**WHEREAS**, Customer has certain customer-sited demand reduction, demand response, or energy efficiency project(s) as set forth in attached Exhibit 1 (the "Customer Energy Project(s)") that it desires to commit to the Company for integration into the Company's Energy Efficiency & Peak Demand Reduction Program Portfolio Plan ("Company Plan") that the Company will implement in order to comply with the Statute; and

**WHEREAS**, the Customer, pursuant to the Public Utilities Commission of Ohio's ("Commission") September 15, 2010 Order in Case No. 10-834-EL-EEC, desires to pursue a cash rebate of some of the costs pertaining to its Customer Energy Project(s) ("Cash Rebate") and is committing the Customer Energy Project(s) as a result of such incentive.

**WHEREAS**, Customer's decision to commit its Customer Energy Project(s) to the Company for inclusion in the Company Plan has been reasonably encouraged by the possibility of a Cash Rebate.

**WHEREAS**, in consideration of, and upon receipt of, said cash rebate, Customer will commit the Customer Energy Project(s) to the Company and will comply with all other terms and conditions set forth herein.

**NOW THEREFORE**, in consideration of the mutual promises set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties, intending to be legally bound, do hereby agree as follows:

1. **Customer Energy Projects.** Customer hereby commits to the Company and Company accepts for integration into the Company Plan the Customer Energy Project(s) set forth on attached Exhibit 1. Said commitment shall be for the life of the Customer Energy Project(s). Company will incorporate said project(s) into the Company Plan to the extent that such projects qualify. In so committing, and as evidenced by the affidavit attached hereto as Exhibit A, Customer acknowledges that the information provided to the Company about the Customer Energy Project(s) is true and accurate to the best of its knowledge.

- a. By committing the Customer Energy Project(s) to the Company, Customer acknowledges and agrees that the Company shall control the use of the kWh and/or kW reductions resulting from said projects for purposes of complying with the Statute. By committing the Customer Energy Project(s), Customer further acknowledges and agrees that the Company shall take ownership of the energy efficiency capacity rights associated with said Project(s) and shall, at its sole discretion, aggregate said capacity into the PJM market through an auction. Any proceeds from any such bids accepted by PJM will be used to offset the costs charged to the Customer and other of the Company's customers for compliance with state mandated energy efficiency and/or peak demand requirements.
  - b. The Company acknowledges that some of Customer's Energy Projects contemplated in this paragraph may have been performed under certain other federal and/or state programs in which certain parameters are required to be maintained in order to retain preferential financing or other government benefits (individually and collectively, as appropriate, "Benefits"). In the event that the use of any such project by the Company in any way affects such Benefits, and upon written request from the Customer, Company will release said Customer's Energy Project(s) to the extent necessary for Customer to meet the prerequisites for such Benefits. Customer acknowledges that such release (i) may affect Customer's cash rebate discussed in Article 3 below; and (ii) will not affect any of Customer's other requirements or obligations.
  - c. Any future Customer Energy Project(s) committed by Customer shall be subject to a separate application and, upon approval by the Commission, said projects shall become part of this Agreement.
  - d. Customer will provide Company or Company's agent(s) with reasonable assistance in the preparation of the Commission's standard joint application for approval of this Agreement ("Joint Application") that will be filed with the Commission, with such Joint Application being consistent with then current Commission requirements.
  - e. Upon written request and reasonable advance notice, Customer will grant employees or authorized agents of either the Company or the Commission reasonable, pre-arranged access to the Customer Energy Project(s) for purposes of measuring and verifying energy savings and/or peak demand reductions resulting from the Customer Energy Project(s). It is expressly agreed that consultants of either the Company or the Commission are their respective authorized agents.
2. **Joint Application to the Commission.** The Parties will submit the Joint Application using the Commission's standard "Application to Commit Energy Efficiency/Peak Demand Reduction Programs" ("Joint Application") in which they will seek the Commission's approval of (i) this Agreement; (ii) the commitment of the Customer Energy Project(s) for inclusion in the Company Plan; and (iii) the Customer's Cash Rebate.

The Joint Application shall include all information as set forth in the Commission's standard form which, includes without limitation:

- i. A narrative description of the Customer Energy Project(s), including but not limited to, make, model and year of any installed and/or replaced equipment;
- ii. A copy of this Agreement; and
- iii. A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results.

3. **Customer Cash Rebate.** Upon Commission approval of the Joint Application, Customer shall provide Company with a W-9 tax form, which shall at a minimum include Customer's tax identification number. Within the greater of 90 days of the Commission's approval of the Joint Application or the completion of the Customer Energy Project, the Company will issue to the Customer the Cash Rebate in the amount set forth in the Commission's Finding and Order approving the Joint Application.
- a. Customer acknowledges: i) that the Company will cap the Cash Rebate at the lesser of 50% of Customer Energy Project(s) costs or \$250,000; ii) the maximum rebate that the Customer may receive per year is \$500,000 per Taxpayer Identification Number per utility service territory; and iii) if the Customer Energy Project qualifies for a rebate program approved by the Commission and offered by the Company, Customer may still elect to file such project under the Company's mercantile customer self direct program, however the Cash Rebate that will be paid shall be discounted by 25%; and
  - b. Customer acknowledges that breaches of this Agreement, include, but are not limited to:
    - i. Customer's failure to comply with the terms and conditions set forth in the Agreement, or its equivalent, within a reasonable period of time after receipt of written notice of such non-compliance;
    - ii. Customer knowingly falsifying any documents provided to the Company or the Commission in connection with this Agreement or the Joint Application.
  - c. In the event of a breach of this Agreement by the Customer, Customer agrees and acknowledges that it will repay to the Company, within 90 days of receipt of written notice of said breach, the full amount of the Cash Rebate paid under this Agreement. This remedy is in addition to any and all other remedies available to the Company by law or equity.
4. **Termination of Agreement.** This Agreement shall automatically terminate:
- a. If the Commission fails to approve the Joint Agreement;
  - b. Upon order of the Commission; or
  - c. At the end of the life of the last Customer Energy Project subject to this Agreement.

Customer shall also have an option to terminate this Agreement should the Commission not approve the Customer's Cash Rebate, provided that Customer provides the Company with written notice of such termination within ten days of either the Commission issuing a final appealable order or the Ohio Supreme Court issuing its opinion should the matter be appealed.

5. **Confidentiality.** Each Party shall hold in confidence and not release or disclose to any person any document or information furnished by the other Party in connection with this Agreement that is designated as confidential and proprietary ("Confidential Information"), unless: (i) compelled to disclose such document or information by judicial, regulatory or administrative process or other provisions of law; (ii) such document or information is generally available to the public; or (iii) such document or information was available to the receiving Party on a non-confidential basis at the time of disclosure.
- a. Notwithstanding the above, a Party may disclose to its employees, directors, attorneys, consultants and agents all documents and information furnished by the other Party in connection with this Agreement, provided that such employees, directors, attorneys,

consultants and agents have been advised of the confidential nature of this information and through such disclosure are deemed to be bound by the terms set forth herein.

- b. A Party receiving such Confidential Information shall protect it with the same standard of care as its own confidential or proprietary information.
  - c. A Party receiving notice or otherwise concluding that Confidential Information furnished by the other Party in connection with this Agreement is being sought under any provision of law, to the extent it is permitted to do so under any applicable law, shall endeavor to: (i) promptly notify the other Party; and (ii) use reasonable efforts in cooperation with the other Party to seek confidential treatment of such Confidential Information, including without limitation, the filing of such information under a valid protective order.
  - d. By executing this Agreement, Customer hereby acknowledges and agrees that Company may disclose to the Commission or its Staff any and all Customer information, including Confidential Information, related to a Customer Energy Project, provided that Company uses reasonable efforts to seek confidential treatment of the same.
6. **Taxes.** Customer shall be responsible for all tax consequences (if any) arising from the payment of the Cash Rebate.
7. **Notices.** Unless otherwise stated herein, all notices, demands or requests required or permitted under this Agreement must be in writing and must be delivered or sent by overnight express mail, courier service, electronic mail or facsimile transmission addressed as follows:

**If to the Company:**

FirstEnergy Service Company  
76 South Main Street  
Akron, OH 44308  
Attn: Victoria Nofziger  
Telephone: 330-384-4684  
Fax: 330-761-4281  
Email: [vmnofziger@firstenergycorp.com](mailto:vmnofziger@firstenergycorp.com)

**If to the Customer:**

OSU Marion Campus  
1465 Mt Vernon Ave  
Marion OH 43302  
Attn: Ron Turner Superintendent-Pac Mtn & Secry  
Telephone: 740-725-6225  
Fax:  
Email: [turner.27@osu.edu](mailto:turner.27@osu.edu)

or to such other person at such other address as a Party may designate by like notice to the other Party. Notice received after the close of the business day will be deemed received on the next business day; provided that notice by facsimile transmission will be deemed to have been received by the recipient if the recipient confirms receipt telephonically or in writing.

8. **Authority to Act.** The Parties represent and warrant that they are represented by counsel in connection with this Agreement, have been fully advised in connection with the execution thereof, have taken all legal and corporate steps necessary to enter into this Agreement, and that the undersigned has the authority to enter into this Agreement, to bind the Parties to all provisions herein and to take the actions required to be performed in fulfillment of the undertakings contained herein.
9. **Non-Waiver.** The delay or failure of either party to assert or enforce in any instance strict performance of any of the terms of this Agreement or to exercise any rights hereunder conferred, shall not be construed as a waiver or relinquishment to any extent of its rights to assert or rely upon such terms or rights at any later time or on any future occasion.
10. **Entire Agreement.** This Agreement, along with related exhibits, and the Company's Rider DSE, or its equivalent, as amended from time to time by the Commission, contains the Parties' entire understanding with respect to the matters addressed herein and there are no verbal or collateral representations, undertakings, or agreements not expressly set forth herein. No change in, addition to, or waiver of the terms of this Agreement shall be binding upon any of the Parties unless the same is set forth in writing and signed by an authorized representative of each of the Parties. In the event of any conflict between Rider DSE or its equivalent and this document, the latter shall prevail.
11. **Assignment.** Customer may not assign any of its rights or obligations under this Agreement without obtaining the prior written consent of the Company, which consent will not be unreasonably withheld. No assignment of this Agreement will relieve the assigning Party of any of its obligations under this Agreement until such obligations have been assumed by the assignee and all necessary consents have been obtained.
12. **Severability.** If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement, and the Parties further agree to substitute for the invalid portion a valid provision that most closely approximates the economic effect and intent of the invalid provision.
13. **Governing Law.** This Agreement shall be governed by the laws and regulations of the State of Ohio, without regard to its conflict of law provisions.
14. **Execution and Counterparts.** This Agreement may be executed in multiple counterparts, which taken together shall constitute an original without the necessity of all parties signing the same page or the same documents, and may be executed by signatures to electronically or telephonically transmitted counterparts in lieu of original printed or photocopied documents. Signatures transmitted by facsimile shall be considered original signatures.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized officers or representatives as of the day and year set forth below.

Ohio Edison Company..  
(Company)

By: *John C. Laigne*

Title: V.P. Of Energy Efficiency

Date: 7-29-13

OSU Marion..  
(Customer)

By: *Geoffrey S. Chatas*

Title: — Geoffrey S. Chatas, Sr. Vice President For  
Business & Finance, and CFO  
Date: — The Ohio State University

7.17.13



Affidavit of OSU Marion - Exhibit A

STATE OF OHIO

COUNTY OF Marion )

SS:

1. Ron Turner, being first duly sworn in accordance with law, deposes and states as follows:

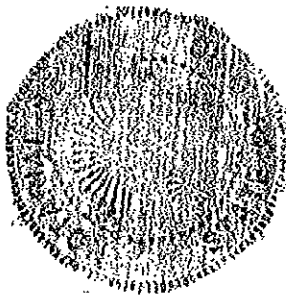
1. I am the Superintendent OSU Marion ("Customer") As part of my duties, I oversee energy related matters for the Customer.
2. The Customer has agreed to commit certain energy efficiency projects to Ohio Edison Company ("Company"), which are the subject of the agreement to which this affidavit is attached ("Project(s)").
3. In exchange for making such a commitment, the Company has agreed to provide Customer with Cash ("Incentive"). This Incentive was a critical factor in the Customer's decision to go forward with the Project(s) and to commit the Project(s) to the Company.
4. All information related to said Project(s) that has been submitted to the Company is true and accurate to the best of my knowledge.

FURTHER AFFIANT SAYETH NAUGHT.

Ronald Turner

Sworn to before me and subscribed in my presence this 18th day of July 2013

Karin E. Lanius  
Notary



**Karin E. Lanius**  
**Marion County**  
**Expires: June 25, 2015**



## Lighting Inventory Form

Applicant Name:	OSU Marion
Facility Name:	OSU Marion Campus
Date:	

Instructions: Please use one line for each fixture type in a room or area.

For existing or proposed control, choose OCC for Occupancy Sensor, DAYLTO for photosensor, or NONE for none. Controls must save energy to qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION						PRE-INSTALLATION						POST-INSTALLATION						ENERGY CALCULATIONS																					
Item	Building Address	Floor	Area Description	Interior or Exterior Fixture	Predominant Space Type	Area to be Lit	Pre Fixture Qty	Pre Fixture Code	Pre Fixture Fixture (W)	Pre Fixture Spikes (V)	Existing Controls and dim	Existing Sensor Quantity	Post Fixture Qty	Post Fixture Code	Post Fixture Fixture (W)	Post Fixture Spikes (V)	Proposed Sensor Quantity	Proposed Control Strategy	Proposed Sensor Quantity	Fixture Change (in Connected Load kW) including CFLs or Exit Signs	Estimated Change in Connected Load (kW) including CFLs or Exit Signs	Change in Connected Load (kW) CFL or LED only	Approximate Occupancy Factor (CFL Estimate)	Correction Factor	Installation Factor (demand)	Usage Factor (energy)	Power Controls Factor	Interior Demand Savings (kW) including CFLs or Exit Signs	Estimated Demand Savings (kW) including CFLs or Exit Signs	Estimated Savings (kW) CFL or LED only	Estimated Equivalent Full Load Hours	Estimated Equivalent Full Load Hours	Annual Interior Fixture kWh Saved (including CFLs or Exit Signs)	Annual Exterior Fixture kWh Saved (including CFLs or Exit Signs)	Annual kWh Saved (CFL or LED only)	Annual kWh Saved (Sensors only)	Peak Fixture kWh		
0-0	402 North Street	2	Office	Interior	Office - Small	Cooled Space	3	F4461	112	0.34	NONE		3	CF7501-BX	66	0.17	0CC		3			0.17	0.17	84%	84%	34%	12%		30%		0.19	2.69	3.436			228	648	194	1
1	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 2	25	0.09	NONE					0.58	0.32															1,420	
2	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 2	25	0.09	NONE					0.58	0.32															1,420	
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9	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
10	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
11	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
12	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
13	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
14	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
15	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
16	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
17	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
18	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
19	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
20	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
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22	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
23	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
24	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
25	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
26	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
27	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
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29	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
30	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
31	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
32	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
33	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
34	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
35	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
36	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
37	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
38	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
39	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
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42	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
43	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
44	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
45	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
46	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
47	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25	0.09	NONE					0.58	0.32															1,420	
48	Varner Ave. Mission, OK	1	Maintenance Building	Exterior	Over-the-Door Lighting	Uncooled Space	2	HP91103-1	188	0.58	NONE		2	Cut Sheet 3	25																								

Line Item	Building Address	Floor	PROJECT BASIC INFORMATION				PRE-INSTALLATION				POST-INSTALLATION				BATTERY CALCULATIONS										Post-Install Sheet Number													
			Area Description	Interior or Exterior Fixture	Predominant Space Type	Area Coding	Pix Fixture Qty	Pix Fixture Code	Pix Watts Fixture (W)	Pix Vol / Spans (Vol)	Existing Current and use	Existing Sensor Quantity Item Name	Pix Fixture Qty	Pix Fixture Code	Pix Watts Fixture (W)	Pix Vol / Spans (Vol)	Proposed Sensor Name, Qty, and use	Proposed Sensor Mounting	Initial Change in Connected Load (kW) including CFLs or Exit Signs	Estimate Change in Connected Load (kW) including CFLs or Exit Signs	Change in Connected Load (kW) CFL or LED only sign	Applicable Multiplier Factor (LF) Estimate	Correction Factor	Installation Factor (demand)		Reduction Factor (energy)	Pix Controls Factor	Pix Controls Factor	Unmetered Demand Savings (kW)	Unmetered Demand Savings (kW) CFLs or Exit Signs	Unmetered Savings (kW) CFLs or Exit Signs	Applicable Appointed Part Load Hours (DPLH) Estimate	Proposed Equipment Part Load Hours	Annual Interior Fixture kWh Based (including CFLs or Exit Signs)	Annual Exterior Fixture kWh Based (including CFLs or Exit Signs)	Annual kWh CFL or LED only	Annual kWh Based (Sensors only)	
131									NONE						NONE																							
132									NONE						NONE																							
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## Project Estimated Annual Savings Summary

Estimated Annual kWh Savings	46,375
Total Change in Connected Load	8.85

Annual Estimated Cost Savings	\$4,637.50
Annual Operating Hours	4,169

Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$1,968.40
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$350.35
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard-wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00
Total Lighting Controls Incentive @ \$25/sensor (includes all Lighting Controls, both interior and exterior)	\$0.00

Total Calculated Incentive	\$2,318.75
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Total Fixture Quantity excluding retrofit CFLs and LED Exit Sign	47
Total Lamp Quantity for retrofit Screw-In CFLs	0
Total Lamp Quantity for retrofit Hard-Wired CFLs	0
Total Fixture Quantity for retrofit LED Exit Signs	0
Total Quantity for Occupancy Sensors	0
Total Quantity for Daylight Sensors	0

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type "Other" indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)

6.02

Customer Legal Entity Name: OSU Marion Campus  
Site Address: OSU Marion  
Principal Address: 1465 Mount Vernon Avenue

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	What date would you have replaced your equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Lighting Replacements	This project includes the replacement of metal halide and high pressure sodium fixtures with new LED fixtures	Data was gathered from attachments A and B, and entered into the lighting rebate calculator to determine savings and rebate	No specific timeframe. Existing equipment had no known obsolescence date, and was repaced for increased efficiency.	N/A

## Exhibit 2

**Customer Legal Entity Name:** OSU Marion Campus

**Site Address:** OSU Marion

**Principal Address:** 1465 Mount Vernon Avenue

	Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (C) <i>Note 1</i>
2011	3,549,877	3,549,877	3,549,877
<b>Average</b>	<b>3,549,877</b>	<b>3,549,877</b>	<b>3,549,877</b>

Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ <i>Note 2</i>
1	Lighting Replacements	07/30/2012	\$19,991	\$9,996	46,375	46,375	9	\$2,319	\$1,739
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
		Total	\$19,991		46,375	46,375	9	\$2,319	\$1,739

Docket No. 13-1541

**Site:** 1465 Mount Vernon Avenue

## Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.

Commitment  
Payment  
\$

\$0

### Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoided Cost \$/MWh (B)	Utility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	46	\$ 308	\$ 14,296	\$ 4,050	\$1,739	\$464	\$ 6,253	2.3
<b>Total</b>	<b>46</b>	<b>\$ 308</b>	<b>14,296</b>	<b>4,050</b>	<b>\$1,739</b>	<b>\$464</b>	<b>6,253</b>	<b>2.3</b>

#### Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).
- (C) = (A) \* (B)
- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.
- (G) = (D) + (E) + (F)
- (H) = (C) / (G)

**OSU Marion Campus ~ OSU Marion**  
**Docket No. 13-1541**

**Site:** 1465 Mount Vernon Avenue





# 6" LED Retrofit Downlight

## RD6LED

120V, 277V  
High Efficacy or  
High Output

Attachment A

### APPLICATIONS:

Architektür RD6LED Series is a 6" specification grade Retrofit LED downlight that combines superior brightness control with energy savings and low maintenance costs. The RD6LED is designed specifically to Retrofit into ceilings with existing recessed downlight fixtures without the need to remove the existing fixture. Suitable for a variety of commercial, retail, and institutional applications with ambient temperature up to 35°C (95°F) during operation with a minimum space around fixture of 15"L x 12"W x 6-3/4"D. Optional optical lens provide choice of spot, medium, or wide distribution to allow for higher ceiling applications.

### HOUSING:

All components are made from quality die cast aluminum or galvanized steel. Pre-wired J-box with snap-on cover for easy access. Snap-in connection from driver compartment allows easy installation of light engine/trim assembly without tools above or below the ceiling and can be upgraded to accommodate technology improvements. Approved for 8 (4 in/4 out) No.12 AWG conductors rated for 90°C through wiring. Thermally activated insulation detector.

### INSTALLATION:

All installation can be performed from below the ceiling without removing existing fixture.

### REFLECTOR:

High purity spun aluminum self-flanged reflector with iridescence suppressed Alzak anodized finish. Provides 45° cutoff for a glare-free ceiling appearance. Slots in reflector for added heat dissipation and optimal LED life. Cable attachment for added safety and ease of installation.

### LED LIGHT ENGINE:

High efficacy or high output LED light engine equipped with (10) high brightness white LEDs (2700K, 3500K, 4000K, or 5000K) on a metal clad circuit board. Secured to an integral die cast aluminum heat sink for excellent thermal management. System designed for optimal life and lumen maintenance (minimum of 50,000 hours at 70% lumen maintenance).

Optics: Vacuum metalized injection molded optical reflector features (10) parabolic LED modules with Prescolite's patented (U.S. Patent No. 6,254,256) American Matte™ finish to produce uniform illumination. Also available in spot, medium, or wide distribution to best fit higher ceiling applications.

Reflector/light engine assembly attaches with a single tamper resistant screw (tool provided) for added security and ensures ceiling appearance free of sagging throughout life of the product.

### LED DRIVER:

Energy efficient solid state constant current electronic driver with 50,000 hour minimum anticipated life. Meets UL Class 2, inherent short-circuit protection, self limited, overload protected. Optional 0-10V dimming available to provide flicker-free dimming from 100% to 20%.

### CERTIFICATIONS:

CSA certified to US safety standards. Suitable for damp locations. Wet locations consult technical support. Approved for through wiring. Non-IC rated.

### WARRANTY:

3 year warranty  
5 year warranty available\*  
(See NOTES on page 5)

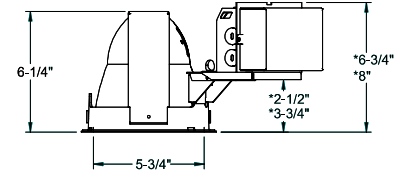
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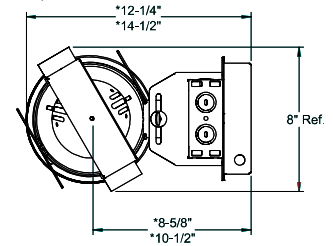
PROJECT:



Ceiling Cutout: See Guide  
Maximum Ceiling Thickness 1 1/2"  
For conversion to millimeters,  
multiply inches by 25.4  
Not to Scale

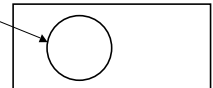


\*Dimensions shown are for range of adjustability



HOUSING COMPATIBILITY GUIDE		
ORDERING GUIDELINES	6 INCH	
	MIN	MAX
REQUIRES SD HOUSING OPTION	5-15/16	6-1/8
ALL STANDARD HOUSINGS	6-1/8	6-1/2
REQUIRES RWD KIT ACCESSORY & WF REFLECTOR OPTION	6-1/2	6-7/8

Dimensions shown are for the diameter of the frame flange at it's narrowest point



CATALOG NUMBER:

EXAMPLE: RD6LED3 DM-6D9LED335K7FL35SSWT

HOUSING	VOLTAGE	HSG OPTIONS	LIGHT ENGINE	LED COLOR TEM	BEAM ANGLE	REF. FINISH	REF. COLOR	REF. OPTIONS	ACCESSORIES
<input type="checkbox"/> <b>RD6LED</b> 6" LED Housing	<input type="checkbox"/> <b>Blank</b> 120V <input type="checkbox"/> <b>277V</b> 277V	<input type="checkbox"/> <b>DM<sup>1,2</sup></b> 0-10V Dimming <input type="checkbox"/> <b>SD<sup>6</sup></b> Small Diameter	<input type="checkbox"/> <b>6D9LED</b> 6" Light Engine/ Reflector Assembly	<input type="checkbox"/> <b>27K</b> 2700 Kelvin <input type="checkbox"/> <b>35K</b> 3500 Kelvin <input type="checkbox"/> <b>40K</b> 4000 Kelvin <input type="checkbox"/> <b>50K</b> 5000 Kelvin	<input type="checkbox"/> <b>Blank</b> Vacuum metalized reflector with 45° cutoff <input type="checkbox"/> <b>SP18</b> Lensed optic with 18° spot distribution and Zet painted faceplate <input type="checkbox"/> <b>MD25</b> Lensed optic with 25° medium distribution and Zet painted faceplate <input type="checkbox"/> <b>FL35</b> Lensed optic with 35° wide distribution and Zet painted faceplate	<input type="checkbox"/> <b>Blank</b> Specular <input type="checkbox"/> <b>SS</b> Semi- Specular <input type="checkbox"/> <b>MFC</b> American Matte™	<input type="checkbox"/> <b>Blank</b> Clear Alzak <input type="checkbox"/> <b>CG</b> Champagne Gold Alzak <input type="checkbox"/> <b>BL</b> Black Alzak <input type="checkbox"/> <b>WE</b> Wheat Alzak <input type="checkbox"/> <b>LW</b> Light Wheat Alzak <input type="checkbox"/> <b>PW</b> Pewter Alzak <input type="checkbox"/> <b>WH</b> White Paint	<input type="checkbox"/> <b>WT</b> White Trim <input type="checkbox"/> <b>WF<sup>6</sup></b> Wide Flange <input type="checkbox"/> <b>TRG</b> Trim Ring Basket (Factory Installed)	<input type="checkbox"/> <b>RWD<sup>6</sup></b> Retrofit Wide Diameter Housing Kit (6")
LED GENERATION			LED GENERATION	CRI					
<input type="checkbox"/> <b>3<sup>5</sup></b> For 14W high efficacy light engine			<input type="checkbox"/> <b>3<sup>2</sup></b> For 14W high efficacy light engine	<input type="checkbox"/> <b>7</b> Nominal 70+ CRI					
<input type="checkbox"/> <b>4<sup>4</sup></b> For 28W high output light engine			<input type="checkbox"/> <b>4<sup>3</sup></b> For 28W high output light engine	<input type="checkbox"/> <b>8<sup>4</sup></b> Nominal 80+ CRI <input type="checkbox"/> <b>9<sup>5</sup></b> Nominal 90+ CRI					

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RTF-005

# PHOTOMETRIC DATA

## Architektūr - 6" RD6LED3 Retrofit Downlight

DRIVER DATA	D6LED3	D6LED3 DM	D6LED3 277V
Input Voltage	120V +/- 10%	120V +/- 10%	277V
Input Frequency	60 Hz	50/60 Hz	50/60 Hz
Input Current	0.13A	0.125A	0.07A
Input Power	14W	13.7W	15W
Constant Current Output	700mA	700mA	700mA
Power Factor	≥0.90	≥0.90	≥0.90
THD	<20%	<20%	<20%
EMI Filtering	FCC 47CFR	FCC 47CFR	FCC 47CFR
	Part 15, Class A	Part 15, Class A	Part 15, Class B
Operating Temperature	-40°C to 60°C	-40°C to 60°C	-30°C to 60°C
Dimming	No	0-10V to 20%	No
Over-voltage, over-current, short-circuit protected			

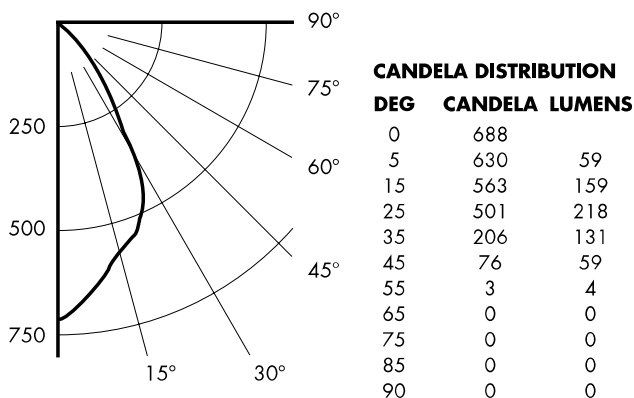
### LUMEN MULTIPLIER

	2700K	3500K	4000K	5000K
70+ CRI	.93	Baseline	1.06	1.25
90+ CRI	.68	.75	.81	.87

**Note:** Multipliers shown are based on LED manufacturer data and can be used to approximate the lumen intensity of a fixture with different LED color temperature and/or CRI with identical optical configuration and reflector finish. For reference only.

### RD6LED3-6D9LED335K7

LED Light Engine: (10) LED Array 3500K Std. CRI  
System Wattage: 14.0  
Fixture delivered lumens: 631  
Fixture Efficacy: 44  
Spacing Criteria: 0.9



Test No. 3117

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	437	69.2
0-40	568	89.9
0-60	631	100.0
0-90	631	100.0
90-180	0	0.0
0-180	631	100.0

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	5890
55°	287
65°	0
75°	0
85°	0

### COEFFICIENTS OF UTILIZATION

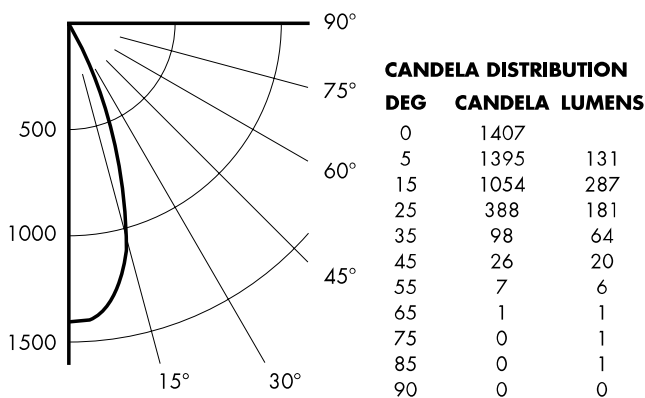
Room Cavity Ratio	% Effective Floor Cavity Reflectance																			
	80%				70%				50%				30%				10%			
	20% Effective Floor Cavity Reflectance																			
	% Wall Reflectance																			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	113	111	108	104	111	108	105	104	104	103	101	101	99	98	97	96	95			
2	108	103	99	95	106	101	97	94	98	95	92	95	92	90	92	90	88			
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82			
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76			
5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71			
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66			
7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	64	61			
8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57			
9	74	64	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54			
10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50			

RD6LED3-6D9LED335K7

Test No. 3117

### RD6LED3-6D9LED335K7FL35

LED Light Engine: (10) LED Array 3500K Std CRI with Flood Lens  
System Wattage: 13.9  
Fixture delivered lumens: 692  
Fixture Efficacy: 50  
Spacing Criteria: 0.6



Test No. 3113

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	600	86.6
0-40	664	95.9
0-60	690	99.6
0-90	692	100.0

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	2015
55°	669
65°	130
75°	0
85°	0

### COEFFICIENTS OF UTILIZATION

Room Cavity Ratio		% Effective Floor Cavity Reflection																			
		80%				70%				50%				30%				10%			
		20% Effective Floor Cavity Reflection																			
		% Wall Reflection																			
		70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	98	98	97	96			
2	110	105	102	99	107	104	100	98	100	98	96	97	95	93	95	93	92	92			
3	105	99	95	92	103	98	94	91	96	92	90	93	91	88	91	89	87	87			
4	101	94	90	86	99	93	89	85	91	87	84	89	86	83	87	85	83	83			
5	97	90	85	81	95	89	84	81	87	83	80	85	82	79	84	81	79	79			
6	93	85	80	77	92	85	80	76	83	79	76	82	78	75	81	77	75	75			
7	89	82	76	73	88	81	76	73	80	75	72	79	75	72	78	74	72	72			
8	86	78	73	69	85	77	73	69	76	72	69	75	72	68	75	71	68	68			
9	83	75	70	66	82	74	69	66	73	69	66	73	69	65	72	68	66	66			
10	80	72	67	63	79	71	67	63	71	66	63	70	66	63	69	66	63	63			

RD6LED3-6D9LED335K7FL35

Test No. 3113

### NOTES

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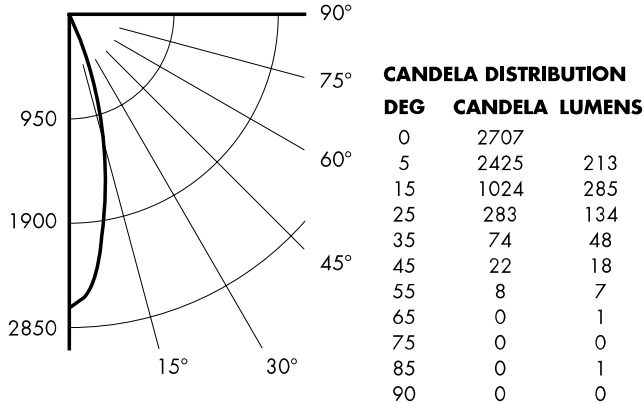
Hubbell Lighting, Inc.

# PHOTOMETRIC DATA

## Architektūr - 6" RD6LED3 Retrofit Downlight

### RD6LED3-6D9LED335K7MD25

LED Light Engine: (10) LED Array 3500K Std CRI with Medium Lens  
System Wattage: 13.9  
Fixture delivered lumens: 707  
Fixture Efficacy: 51  
Spacing Criteria: 0.4



Test No. 3114

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	633	63.3
0-40	681	68.1
0-60	706	70.6
0-90	707	70.7
90-180	0	0.0
0-180	707	70.7

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	1705
55°	764
65°	0
75°	0
85°	0

### COEFFICIENTS OF UTILIZATION

Zonal Cavity Method

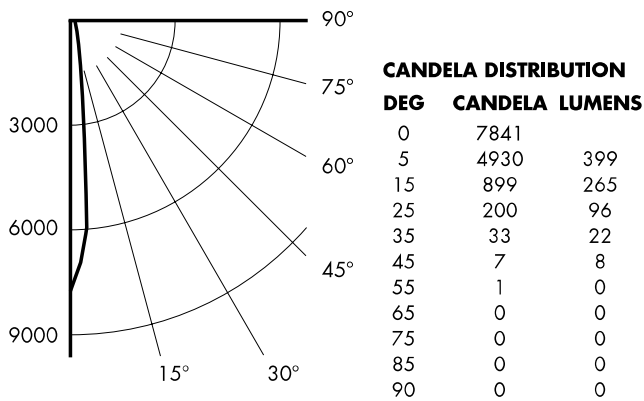
Room Cavity Ratio	% Effective Floor Cavity Reflectance																			
	80%				70%				50%				30%				10%			
	20% Effective Floor Cavity Reflectance																			
	% Wall Reflectance																			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	81	79	78	77	79	78	77	75	75	74	73	72	72	71	70	69	69			
2	78	75	73	71	77	74	72	70	72	70	69	70	68	67	68	67	66			
3	75	72	69	67	74	71	68	66	69	67	65	69	66	64	66	64	63			
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7	66	61	57	55	65	60	57	55	59	57	55	59	56	54	58	56	54			
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9	62	56	53	51	61	56	53	51	55	53	51	55	52	51	54	52	51			
10	60	55	51	49	59	54	51	49	54	51	49	54	51	49	53	51	49			

RD6LED3-6D9LED335K7MD25

Test No. 3114

### RD6LED3-6D9LED335K7SP18

LED Light Engine: (10) LED Array 3500K Std CRI with Spot Lens  
System Wattage: 13.9  
Fixture delivered lumens: 791  
Fixture Efficacy: 57  
Spacing Criteria: 0.2



Test No. 3115

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	760	96.2
0-40	782	98.9
0-60	791	100.0
0-90	791	100.0
90-180	0	0.0
0-180	791	100.0

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	542
55°	96
65°	0
75°	0
85°	0

### COEFFICIENTS OF UTILIZATION

Zonal Cavity Method

Room Cavity Ratio	% Effective Floor Cavity Reflectance																			
	80%				70%				50%				30%				10%			
	20% Effective Floor Cavity Reflectance																			
	% Wall Reflectance																			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	115	113	112	110	113	111	110	108	107	106	105	104	103	102	100	100	99			
2	112	109	106	104	110	107	105	103	104	102	100	101	100	98	99	97	96			
3	109	105	102	99	107	104	101	98	101	99	97	99	97	95	97	95	94			
4	106	101	98	95	105	100	97	95	98	96	93	97	94	92	95	93	91			
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9	95	89	85	83	94	88	85	83	88	85	82	87	84	82	86	84	82			
10	93	87	83	81	92	86	83	81	86	83	81	85	83	81	85	82	80			

RD6LED3-6D9LED335K7SP18

Test No. 3115

### NOTES

Refer to [www.prescolite.com](http://www.prescolite.com) for additional photometric tests (IES Files).



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# PHOTOMETRIC DATA

## Architektür - 6" RD6LED4 Retrofit Downlight

### DRIVER DATA

	D6LED4	D6LED4 277V
Input Voltage	120V +/- 10%	277V +/- 10%
Input Frequency	50/60 Hz	50/60 Hz
Input Current	0.235A	0.13A
Input Power	28W	28.5W
Constant Current Output	1400mA	1400mA
Power Factor	≥0.90	0.78 at 277V
THD	<20%	<20%
EMI Filtering	FCC 47CFR	FCC 47CFR
	Part 15, Class A	Part 15, Class B
Operating Temperature	-40°C to 60°C	-40°C to 60°C
Over-voltage, over-current, short-circuit protection		

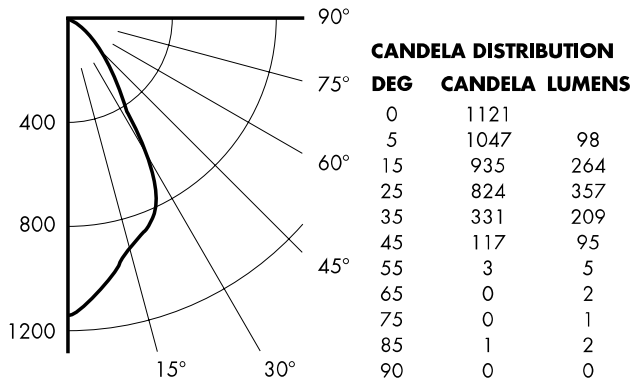
### LUMEN MULTIPLIER

	2700K	3500K	4000K	5000K
70+ CRI	1.06	1.13	1.20	1.41
80+ CRI	0.89	Baseline	1.10	1.15

**Note:** Multipliers shown are based on LED manufacturer data and can be used to approximate the lumen intensity of a fixture with different LED color temperature and/or CRI with identical optical configuration and reflector finish. For reference only.

### RD6LED4-6D9LED435K8

LED Light Engine: (10) LED Array Nichia 3500K Mid CRI  
System Wattage: 27.7  
Fixture delivered lumens: 1034  
Fixture Efficacy: 37  
Spacing Criteria: 0.9



Test No. 3116

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	719	69.5
0-40	928	99.8
0-60	1029	99.5
0-90	1034	100.0
90-180	0	0.0
0-180	1034	100.0

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	9067
55°	287
65°	0
75°	0
85°	629

### COEFFICIENTS OF UTILIZATION

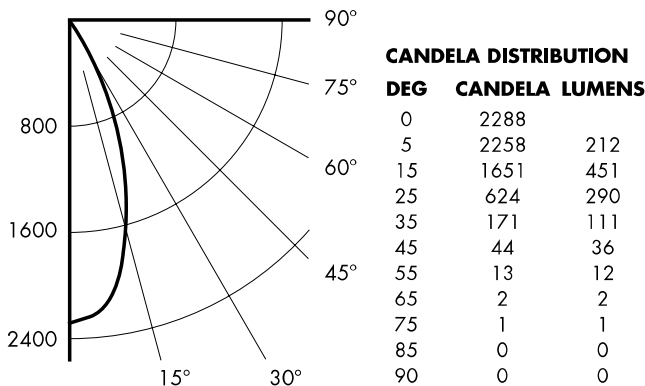
Room Cavity Ratio	% Effective Floor Cavity Reflectance																
	80%				70%				50%				30%			10%	
	20% Effective Floor Cavity Reflectance																
	% Wall Reflectance																
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	111	108	104	111	108	106	104	104	102	101	101	99	98	97	96	95
2	108	103	99	95	105	101	97	94	98	95	92	92	90	92	90	88	88
3	102	96	90	86	100	94	89	86	91	88	84	89	86	83	87	84	82
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76
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10	71	61	55	51	70	61	55	51	60	54	51	59	54	51	58	54	51

RD6LED4-6D9LED435K8

Test No. 3116

### RD6LED4-6D9LED435K8FL35

LED Light Engine: (10) LED Array 3500K Mid CRI with Flood Lens  
System Wattage: 27.6  
Fixture delivered lumens: 1116  
Fixture Efficacy: 40  
Spacing Criteria: 0.6



Test No. 3112

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	953	85.4
0-40	1064	95.4
0-60	1113	99.7
0-90	1116	100.0
90-180	0	0.0
0-180	1116	100.0

### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	3410
55°	1242
65°	259
75°	212
85°	0

### COEFFICIENTS OF UTILIZATION

Room Cavity Ratio	% Effective Floor Cavity Reflectance																
	80%			70%			50%			30%			10%				
	20% Effective Floor Cavity Reflectance																
	% Wall Reflectance																
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97
2	109	105	102	99	107	104	106	98	100	98	96	97	95	93	95	93	92
3	105	99	95	92	103	98	101	91	95	92	89	93	90	88	91	89	87
4	101	94	89	86	99	93	97	85	91	87	84	89	86	83	87	85	82
5	97	89	84	81	95	89	93	80	87	83	80	85	82	79	84	81	78
6	93	85	80	76	91	84	90	76	83	79	76	82	78	75	80	77	75
7	89	81	76	72	88	81	87	72	79	75	72	78	74	72	77	74	71
8	86	78	73	69	85	77	85	69	76	72	69	75	71	68	74	71	68
9	83	74	69	66	82	74	82	66	73	69	66	72	68	65	71	68	65
10	80	71	66	63	79	71	80	63	70	66	63	69	65	63	69	65	62

RD6LED4-6D9LED435K8FL35

Test No. 3112

### NOTES

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# PHOTOMETRIC DATA

## Architektür - 6" RD6LED4 Retrofit Downlight

### RD6LED4-6D9LED435K8MD25

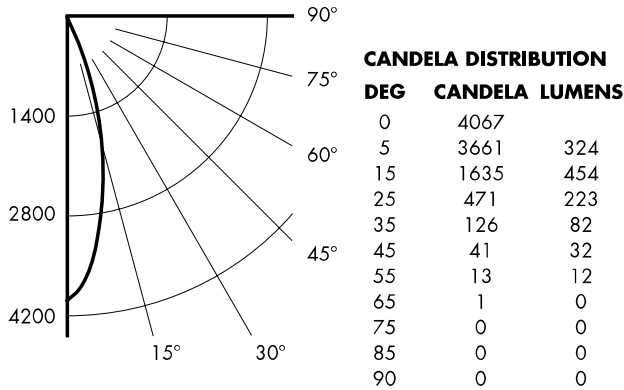
LED Light Engine: (10) LED Array 3500K Mid CRI with Medium Lens  
System Wattage: 27.8  
Fixture delivered lumens: 1128  
Fixture Efficacy: 41  
Spacing Criteria: 0.4

#### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	1001	88.7
0-40	1083	96.0
0-60	1127	100.0
0-90	1128	100.0
90-180	0	0.0
0-180	1128	100.0

#### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	3177
55°	1242
65°	130
75°	0
85°	0



Test No. 3111

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

#### COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Floor Cavity Reflectance																			
	80%				70%				50%				30%				10%			
	20% Effective Floor Cavity Reflectance																			
	% Wall Reflectance																			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	115	112	110	108	112	110	108	107	106	105	100	103	101	100	99	98	98			
2	110	106	103	100	108	105	102	99	102	99	95	99	97	95	96	95	93			
3	106	101	97	94	104	100	96	93	97	93	90	95	93	90	93	91	89			
4	102	97	92	89	101	95	91	88	93	90	86	92	89	86	90	87	85			
5	99	92	88	84	97	91	87	84	90	86	83	88	85	83	87	84	82			
6	95	89	84	81	94	88	83	80	86	83	79	85	82	79	84	81	79			
7	92	85	80	77	91	84	80	77	83	79	76	82	79	76	81	78	76			
8	89	82	77	74	88	81	77	74	80	77	73	80	76	73	79	76	73			
9	87	79	75	71	86	79	74	71	78	74	71	77	73	71	76	73	71			
10	84	76	72	69	83	76	72	69	75	71	69	75	71	69	74	71	68			

RD6LED4-6D9LED435K8MD25

Test No. 3111

### RD6LED4-6D9LED435K8SP18

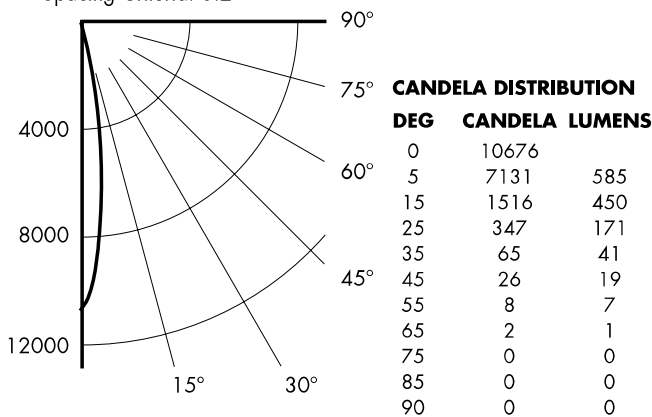
LED Light Engine: (10) LED Array 3500K Mid CRI with Spot Lens  
System Wattage: 27.8  
Fixture delivered lumens: 1274  
Fixture Efficacy: 46  
Spacing Criteria: 0.2

#### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	1205	94.6
0-40	1247	97.8
0-60	1273	99.9
0-90	1274	100.0

#### LUMINANCE DATA IN CANDELA/SQ. METER

Angle in Vertical	Average - 0°
45°	2015
55°	764
65°	259
75°	0
85°	0



Test No. 3110

Tested at 25°C Ambient in accordance to IESNA LM-79-2008

#### COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Floor Cavity Reflectance																			
	80%				70%				50%				30%				10%			
	20% Effective Floor Cavity Reflectance																			
	% Wall Reflectance																			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10			
1	115	113	111	110	113	111	109	108	107	106	105	103	103	102	100	99	99			
2	112	108	105	103	110	107	104	102	104	101	100	101	99	98	98	97	96			
3	108	104	101	98	107	103	100	97	100	98	96	98	96	94	96	94	93			
4	105	100	97	94	104	99	96	93	97	94	92	95	93	91	94	92	90			
5	102	97	93	90	101	96	93	90	95	91	89	93	90	88	92	89	88			
6	100	94	90	87	99	93	90	87	92	89	86	91	88	86	90	87	85			
7	97	91	87	85	96	91	87	84	90	86	84	89	86	84	88	85	83			
8	95	89	85	82	94	88	85	82	88	84	82	87	84	82	86	83	81			
9	93	87	83	80	92	86	83	80	85	82	80	85	82	80	84	81	80			
10	91	85	81	78	90	84	81	78	84	80	78	83	80	78	82	80	78			

RD6LED4-6D9LED435K8SP18

Test No. 3110

#### NOTES

Refer to [www.prescolite.com](http://www.prescolite.com) for additional photometric tests (IES Files).

- 5 year warranty requires product registration. Warranty limited to repair and replacement of defective parts of the LED system and does not include labor or installation after first year. See [www.prescolite.com](http://www.prescolite.com) for details.
- Operation in ambient temperatures higher than those specified may shorten life and will void warranty.



Web: [www.prescolite.com](http://www.prescolite.com) • Tech Support: (888) 777-4832

701 Millennium Blvd., • Greenville, SC 29607 U.S.A. • Phone (864) 678-1000

Copyright ©2012 Prescolite, Inc., a division of Hubbell Lighting, Inc. All Rights Reserved

Specifications subject to change without notice. • Printed in U.S.A. • RTF-005 • 3/28/12

## Round Tube Surface Mount

Very Bright Low Voltage



100,000 hour 6,000 lumen highbay 10 year or 60,000 hr Warranty

### FIXTURE FEATURES

**Housing:** Die Formed heavy gauge steel with White or Bronze powder coat finish. Neoprene gasket eliminates moisture, dust & insects.

**Diffuser:** Injection molded prismatic polycarbonate with UV inhibitors. Standard clear with white

prismatic as option. Drill points for maximum security. Integral (molded) locking lugs opposite the retention screws.

**Light Source:** Induction RT UL lamp and ballast

**Hardware:** Standard stainless steel screws or optional tamper proof torx screws.

**Mounting:** Wall or ceiling mounting for indoor or outdoor locations.

**Regulatory:** UL & CUL listed for wet locations with ceiling mount and damp locations for wall mounting.

**Applications:** Industrial factory, Warehouses, Stadium, Parking Garages & Work Shops. Security, public, or high abuse area. Correctional facilities.

**Class:** IP43



Model: HLRTSMR

Two sizes 11" & 15"  
Two Colors Bronze & White

Assembled in USA by Americans



- 80+ CRI Color Rendering Index
- No flicker/ Instant start / Instant restrike
- Temp available 2700K to 6500K
- Stable light output
- Operating temperature -20c to +60c

Model Number	Wattage	Measured Lumen	VCL Lumen
HLRTSMR40	40	2800	4600
HLRTSMR50	50	3500	6000
HLRTSMR60	60	4800	9000
HLRTSMR80	80	6400	11100
HLRTSMR100	100	8000	15000
HLRTSMR120	120	9600	18000
HLRTSMR150	150	12000	22000
HLRTSMR200	200	16000	30000



\* Visual Effective Lumens

[www.GedTL.com](http://www.GedTL.com)

[Sales@GedTL.com](mailto:Sales@GedTL.com)

+1-859-620-0705



Vivid Leds is your *complete source* for Energy Efficient Lighting!

>LED

## Replacement Lamps

### Maize Basic Series

#### LED Features:

- Epistar SMD LED Maize Lamp from 6W-60W
- Excellent CRI RA>78
- Fast turn on, no warm up or cold start problems
- Integrative LED design for heat sink and housing
- Energy efficient and eco-friendly
- Contains no mercury or lead and cool to the touch
- No Infrared or UV radiation - Reduced bugs
- Generates very low heat - Reducing your HVAC loads
- 50,000 hour lamp lifespan
- CE and RoHS approved LED lamp

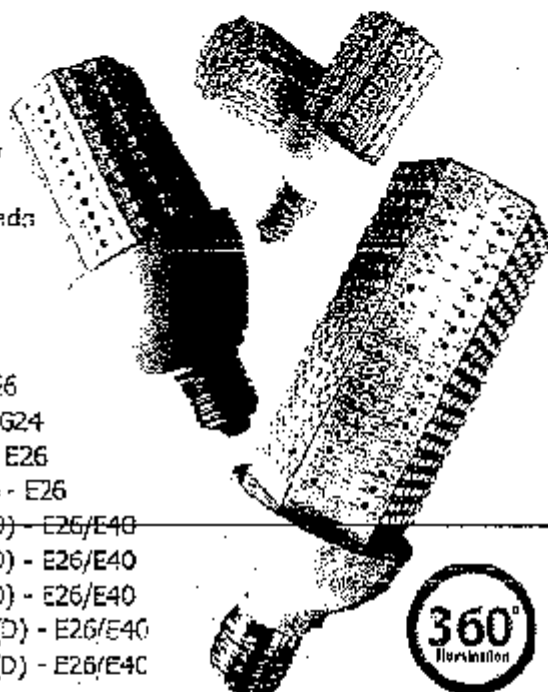
#### Models:

- VVDNSCL001: 6W LED - 580 Lm - 4"(L) x 1.6"(D) - E26
- VVDNSCL002: 7W LED - 680 Lm - 4.4"(L) x 1.7"(D) - G24
- VVDNSCL003: 9W LED - 900 Lm - 3.9"(L) x 2.4"(D) - E26
- VVDNSCL004: 12W LED - 1150 Lm - 5.1"(L) x 2.4"(D) - E26
- VVDNSHBL004: 15W LED - 1400 Lm - 5.9"(L) x 2.9"(D) - E26/E40
- VVDNSHBL005: 20W LED - 2000 Lm - 6.3"(L) x 2.9"(D) - E26/E40
- VVDNSHBL001: 30W LED - 3100 Lm - 8.6"(L) x 3.5"(D) - E26/E40
- VVDNSHBL002: 40W LED - 4000 Lm - 10.2"(L) x 3.5"(D) - E26/E40
- VVDNSHBL003: 60W LED - 5900 Lm - 10.9"(L) x 3.5"(D) - E26/E40

#### LED Specifications:

- Luminescence Beam Angle: 350 Degrees
- Operating Temp: -10 to +45 C
- Line Frequency: 50/60 Hz
- Luminous Efficacy: 93 lm/W
- Warranty: 2 years

The Maize Basic Series is an excellent choice for CFL, Incandescent, MH or HPS replacement. The 6W through 12W models are a very popular replacement for the A19 offering 360 degrees of illumination. Widely used in hotels, restaurants and retail environments, this is the perfect replacement for a desk lamp, ceiling fixture or wall sconce. The 15W through 60W lamps work extremely well in wall packs, bollards, down lighting, goffit lights, low bays and high bays. When replacing your existing bulb with a Maize lamp, bypass the ballast if needed and simply screw in the lamp. This is an easy retrofit with high energy saving results.



#### Orderings:

Part #	Kelvin Choice	Base Type	Voltage
VVDNSCL001*	W - Warm - 2700-3500K	E26 - Medium Base	UNV1 - 85-265 VAC
VVDNSCL002**	N - Natural - 4000-5300K	E40 - Mogul Base	UNV2 - 85-300 VAC
VVDNSCL003*	C - Cool - 5500-6700K	EX39 - Mogul Base	
VVDNSCL004*		G24 - G24 Base	
VVDNSHBL004			
VVDNSHBL005	*E26 Medium Base and UNV1 Only		
VVDNSHBL001	**G24 Base and UNV1 Only		
VVDNSHBL002			
VVDNSHBL003			

Ordering Example: VVDNSHBL003-N-E26-UNV1

LED POWERED BY:

**EPISTAR**

Internal  
Power Supply



#### Cautions:

- No unventilated or wet applications
- Remove ballast before installing
- Check dimensions of lamp for fitment



www.vividleds.us



info@vividleds.us



800.974.3570

10 H = 10,000 Lumens

Revised 2/2011



## DESCRIPTION

The patent pending Lumark Crosstour™ LED Wall Pack Series of luminaires provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks.

## SPECIFICATION FEATURES

### Construction

Slim, low profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and large design. The small housing is available in 10W and 20W. The large housing is available in the 30W model. Patent pending secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three (3) half-inch, NPT threaded conduit entry points. The universal back box supports both the small and large forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

### Optical

Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Solid state LED Crosstour luminaires are thermally optimized with five (5) lumen packages in cool 5000K or neutral warm 3500K LED color temperature (CCT).

### Electrical

LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 10W models operate in -40°C to 40°C [-40°F to 104°F]. 20W and 30W models operate in -30°C to 40°C [-22°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 70% of initial light output after 72,000 hours

of operation. Three (3) half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 60Hz models.

### Finish

Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

### Warranty

Five-year limited warranty.

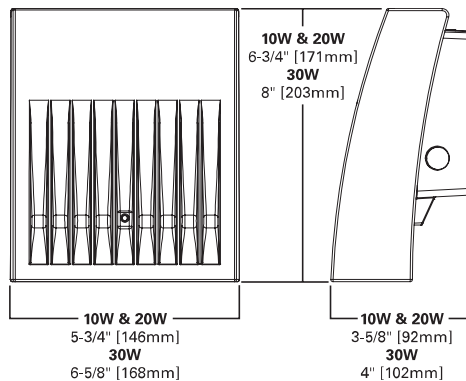


## XTOR CROSSTOUR LED

**APPLICATIONS:**  
WALL / SURFACE  
POST / BOLLARD  
LOW LEVEL  
FLOODLIGHT  
INVERTED  
SITE LIGHTING

**DESIGNLIGHTS**   
CONSORTIUM

## DIMENSIONS



### CERTIFICATION DATA

UL/cUL Wet Location Listed  
LM79 / LM80 Compliant  
ROHS Compliant  
ARRA Compliant  
ADA Compliant  
NOM Compliant Models  
IP66 Ingress Protection Rated  
Lighting Facts® Registered  
DesignLights™ Consortium Qualified  
Title 24 Compliant

### TECHNICAL DATA

40°C Maximum Ambient Temperature  
External Supply Wiring 90°C Minimum

### EPA

Effective Projected Area:  
(Sq. Ft.)  
XTOR1A/XTOR2A=0.34  
XTOR3A = 0.45

### SHIPPING DATA:

Approximate Net Weight:  
3.7 – 5.25 lbs. [1.7 – 2.4 kgs.]



## ORDERING INFORMATION

SAMPLE NUMBER: XTOR2A-N-WT-PC1

<b>Series</b> XTOR1A=Small Door, 10W XTOR2A=Small Door, 20W XTOR3A=Large Door, 30W	<b>LED Kelvin Color</b> <sup>1</sup> ____ = Bright White (Standard) 5000K N = Neutral Warm White, 3500K	<b>Housing Color</b> ____ = Carbon Bronze (Standard) WT = Summit White	<b>Options</b> <sup>2</sup> 347V=347V <sup>3,4</sup> PC1=Photocontrol 120V <sup>3</sup> PC2=Photocontrol 208-277V <sup>3,4</sup> HA=50°C High Ambient <sup>5</sup>	<b>Accessories</b> <sup>6</sup> WG/XTOR=Wire Guard <sup>7</sup> XTORFLD-KNC=Knuckle Floodlight Kit <sup>8</sup> XTORFLD-KNC-W=Knuckle Floodlight Kit, White <sup>8</sup> XTORFLD-TRN=Trunnion Floodlight Kit <sup>8</sup> XTORFLD-TRN-WT=Trunnion Floodlight Kit, White <sup>8</sup>

## Notes:

- XTOR1A not available in 3500K.
- Add as suffix.
- Photocontrols are factory installed.
- Order PC2 for 347V models.
- Thru-branch wiring not available with HA option or with 347V.
- Order separately.
- Wire guard for wall/surface mount. Not for use with Floodlight Kit accessory.
- Floodlight kit accessory supplied with Knuckle (KNC) or Trunnion (TRN) base, small and large top visors and small and large impact shields.

DesignLights™ Consortium Qualified. Refer to [www.designlights.org](http://www.designlights.org) Qualified Products List under Family Models for details.

## STOCK ORDERING INFORMATION

10W Series	20W Series	30W Series
XTOR1A=10W, 5000K, Carbon Bronze	XTOR2A=20W, 5000K, Carbon Bronze	XTOR3A=30W, 5000K, Carbon Bronze
XTOR1A-WT=10W, 5000K, Summit White	XTOR2A-N=20W, 3500K, Carbon Bronze	XTOR3A-N=30W, 3500K, Carbon Bronze
XTOR1A-PC1=10W, 5000K, 120V PC, Carbon Bronze	XTOR2A-WT=20W, Summit White	XTOR3A-WT=30W, Summit White
	XTOR2A-PC1=20W, 120V PC, Carbon Bronze	XTOR3A-PC1=30W, 120V PC, Carbon Bronze



## 5-DAY QUICK SHIP ORDERING INFORMATION

10W Series	20W Series	30W Series
XTOR1A-WT-PC1=10W, 5000K, Summit White, 120V PC	XTOR2A-PC2=20W, 5000K, 208-277V PC, Carbon Bronze	XTOR3A-PC2=30W, 5000K, 208-277V PC, Carbon Bronze
	XTOR2A-WT-PC1=20W, 5000K, Summit White, 120V PC	XTOR3A-WT-PC1=30W, 5000K, Summit White, 120V PC
	XTOR2A-WT-PC2=20W, 5000K, Summit White, 208-277V PC	XTOR3A-WT-PC2=30W, 5000K, Summit White, 208-277V PC
	XTOR2A-N-WT=20W, 3500K, Summit White	XTOR3A-N-WT=30W, 3500K, Summit White
	XTOR2A-N-PC1=20W, 3500K, 120V PC, Carbon Bronze	XTOR3A-N-PC1=30W, 3500K, 120V PC, Carbon Bronze
	XTOR2A-N-PC2=20W, 3500K, 208-277V PC, Carbon Bronze	XTOR3A-N-PC2=30W, 3500K, 208-277V PC, Carbon Bronze
	XTOR2A-N-WHT-PC1=20W, 3500K, Summit White, 120V PC	XTOR3A-N-WHT-PC1=30W, 3500K, Summit White, 120V PC
	XTOR2A-N-WT-PC2=20W, 3500K, Summit White, 208-277V PC	XTOR3A-N-WT-PC2=30W, 3500K, Summit White, 208-277V PC

## LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (72,000 Hours)	Theoretical L70 (Hours)
<b>10W Model</b>		
25°C	> 91%	> 350,000
40°C	> 91%	> 340,000
50°C	> 91%	> 330,000
<b>20W Model</b>		
25°C	> 91%	> 340,000
40°C	> 90%	> 320,000
50°C	> 90%	> 300,000
<b>30W Model</b>		
25°C	> 91%	> 340,000
40°C	> 91%	> 320,000
50°C	> 90%	> 300,000

## LUMENS - CRI/CCT TABLE

LED Information	XTOR1A	XTOR2A	XTOR2A-N	XTOR3A	XTOR3A-N
Delivered Lumens (Wall Mount)	734	1432	1323	2649	2273
Delivered Lumens (With Flood Accessory Kit)	713	1424	1315	2614	2243
B.U.G. Rating*	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0
CCT (Kelvin)	5000	5000	3500	5000	3500
CRI (Color Rendering Index)	67	65	68	65	68
Power Consumption (Watts)	8W	21W	21W	30W	30W
* B.U.G. Rating does not apply to floodlighting.					

## CURRENT DRAW

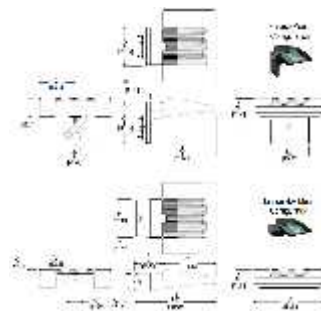
Voltage	Model Series		
	10W	20W	30W
120V	0.06A	0.21A	0.29A
208V	0.04A	0.13A	0.18A
240V	0.04A	0.12A	0.16A
277V	0.03A	0.10A	0.14A
347V	0.03A	0.08A	0.11A

# WPLED26

26 Watt LED Wallpack. Equivalent to 175W MH wallpack. Includes both junction box and surface mount for recessed box. IESNA Full Cutoff, Fully Shielded optics. 5 Year warranty.

Color: Bronze

Weight: 7.5 lbs



## LED Info

Watts: 26W  
Color Temp: 5000K (Cool)  
Color Accuracy: 66  
L70 Lifespan: 100000  
LM79 Lumens: 1,816  
Efficacy: 61 LPW

## Driver Info

Type: Constant Current  
120V: 0.26 A  
208V: 0.16 A  
240V: 0.14 A  
277V: 0.12 A  
Input Watts: 30W  
Efficiency: 87%

## Technical Specifications

### UL Listing:

Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

### Lumen Maintenance:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

### IP Rating:

Ingress Protection rating of IP66 for dust and water.

### Finish:

Chip and fade resistant polyester powder coat finish.

### Color Stability:

LED color temperature is warranted to shift no more than 200K in CCT over a 5 year period.

### Color Uniformity:

RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

### Ambient Temperature:

Suitable for use in 40°C ambient temperatures.

### Fixture Efficacy:

61 Lumens per Watt.

### Color Accuracy:

66 CRI.

### Color Temperature (Nominal CCT):

5000K.

### Driver:

Multi-chip 26W high output long life LED Driver  
Constant Current, 720mA, Class 2, 6 KV Surge  
Protection, 100V-277V, 50-60 Hz, 100-240V .4 Amps.

### Cold Weather Starting:

The minimum starting temperature is -40°C.

### Thermal Management:

Cast aluminum Thermal Management system for optimal heat sinking. The LPACK is designed for cool operation, most efficient output and maximum LED life by minimizing LED junction temperature.

### California Title 24:

WPLED complies with California Title 24 building and electrical codes.

### Equivalency:

The WPLED26 is Equivalent in delivered lumens to a 175W Metal Halide Wallpack.

### HID Replacement Range:

The WPLED26 can be used to replace 150 - 200W Metal Halide Wallpacks based on delivered lumens.

### Green Technology:

RAB LEDs are Mercury, Arsenic and UV free.

### Patents:

The WPLED design is protected by U.S. PATENT D608,040 and patents pending in the U.S., Canada, China, Taiwan and Mexico.

### For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

### Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.



Tech Help Line: 888 RAB-1000

Email: [sales@rabweb.com](mailto:sales@rabweb.com)

On the web at: [www.rabweb.com](http://www.rabweb.com)

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Note: Specifications are subject to change without notice

Page 1 of 2

WPLED26 - continued

**Country of Origin:**

Designed by RAB in New Jersey and assembled in Taiwan.

**Trade Agreements Act Compliant:**

This product is a product of Taiwan and a "designated country" end product that complies with the Trade Agreements Act.

**GSA Schedule:**

Suitable in accordance with FAR Subpart 25.4.

**DLC Listed:**

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.



**Tech Help Line:** 888 RAB-1000

**Email:** [sales@rabweb.com](mailto:sales@rabweb.com)

**On the web at:** [www.rabweb.com](http://www.rabweb.com)

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Note: Specifications are subject to change without notice

Page 2 of 2

## FEATURES & SPECIFICATIONS

### INTENDED USE

Provides years of maintenance-free general illumination for outdoor use in commercial applications such as retail, education, multi-unit housing and storage. Ideal for lighting building facades, parking areas, walkways, garages, loading areas and any other outdoor space requiring reliable safety and security.

### CONSTRUCTION

Sturdy weather-resistant aluminum housing with a bronze finish, standard unless otherwise noted. A clear polycarbonate lens protects the optics from moisture, dirt and other contaminants.

### OPTICS

8 high performance LEDs are powered by a multi-volt (120V-277V) LED driver that uses 20 input watts and provides 1,337 delivered lumens. 100,000 hour LED lifespan based on IESNA LM-80-08 results and calculated per IESNA TM-21-11 methodology.

### ELECTRICAL

Rated for outdoor installations, -40°C minimum ambient.

Adjustable Dusk-to-dawn, multi-volt photocell standard automatically turns light on at dusk and off at dawn for convenience and energy savings.

Photocell can be disabled by rotating the photocell cover.

6KV surge protection standard.

### INSTALLATION

Surface or recessed mount. A universal junction box is included standard.

All mounting hardware included.

### LISTINGS

UL Certified to US and Canadian safety standards. Wet location listed for mounting higher than 4 feet off the ground.

Tested in accordance with IESNA LM-79 and LM-80 standards.

### WARRANTY

5-year limited warranty. Complete warranty terms located at

[www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

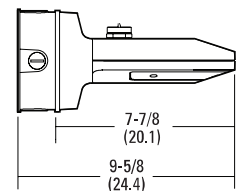
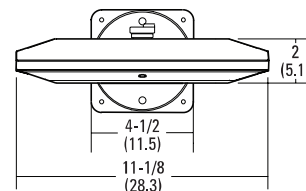
Outdoor General Purpose

# OLW14

LED WALL PACK



DESIGNLIGHTS  
CONSORTIUM



All dimensions are inches (centimeters) unless otherwise indicated.

### ORDERING INFORMATION

For shortest lead times, configure product using **bolded options**.

Example: OLW14

OLW14				
Series		Color temperature (CCT) <sup>1</sup>	Voltage	Control
<b>OLW14</b> 1400 lumen LED wall pack		<b>(blank)</b> 5000K <sup>1</sup>	<b>(blank)</b> MVOLT (120V-277V)	<b>(blank)</b> MVOLT photocell included
				<b>(blank)</b> WH White

<b>Accessories:</b> Order as separate catalog number.	
FCOS M24	Full cutoff shield
FCOS WH M24	Full cutoff shield, white

### Notes

1 Correlated Color Temperature (CCT) shown is nominal per ANSI C78,377-2008.

PHOTOMETRIC DIAGRAMS

Full photometric data report available within 2 weeks from request. Consult factory. Tested in accordance with IESNA LM-79 and LM-80 standards.





**High-Power, Rugged Outdoor Area Floodlight — Uses Only 27 Watts of Power – Up to 70% Energy Savings**

**Operates on 100-277VAC — 1,296 Lumens — 6000K Pure White — Replaces MH or HPS up to 100 Watts**

## FEATURES

- **Lamp Warranty:** 5 Years
- **Low Energy Consumption:** Only 27 Watts
- **Long Lifespan:** White LED Lumen Maintenance Greater than 70% at 50,000 Hours of Operation (*Rated average life based on engineering testing and probability analysis*)
- **Wide-Range Input Voltage:** 100-277VAC
- **Wide-Angle Beam Spread:** Projecting from a 54° Angle to the Mounting Surface Plane
- **Solid State:** High Shock and High-Vibration Resistant
- **Optimized Circuitry:** Power Factor Corrected for Maximum Efficiency
- **Highest-Grade LEDs:** Uses White Premium Lighting-Class LEDs that Are Test-Verified to LM-79 Standard
- **Instant-Start:** No Delay in Re-Strike
- **Even Lighting:** High Intensity / No Halation
- **Reduces Light Pollution:** No Wasted Light
- **Meets IP65 Requirements:** Totally Protected against Dust; Protected against Low-Pressure Jets of Water from All Directions. Limited Ingress Permitted.
- **Safety Assurance:** ETL Listed
- **Made in the USA** from Imported Parts — Meets Buy American Requirements within the ARRA Program



Intertek



ARRA Compliant

## SPECIFICATIONS

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

PART NO.	WWL12-8X2W-XPW-001
Emitted Color	Pure White
Color Temperature	6000K
Viewing Angle	Hor 54° x Ver 38° [Full Beam Width @ 50% Intensity]
Input Voltage	100-277VAC [Tested @ 120VAC]
Input Current	233mA @120VAC
LED Forward Current	910mA
Energy Used	27.3 Watts
Power Factor	0.98
Efficacy	47.5 lm/W
Total Lumens	1,296 lm
Max. Candela	493 cd @ Horiz: 135, Vert: 72.5
CRI	76
IP Code	IP65
Ambient Operating Temp.	~-22°F to ~+122°F / ~-30°C to ~+50°C
Dimensions	W8.74" x H8.79" x D9.84"



Typical Mounting Height: 10ft

**Ideal for Use with Alternate or Renewable Energy Resources – Solar & Wind Power**

## APPLICATIONS

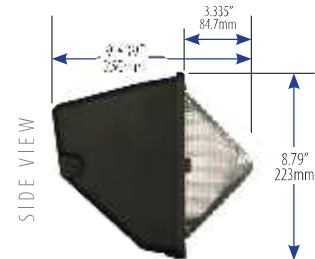
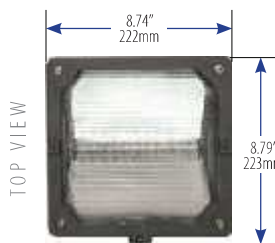
- Ideal High-Wattage Luminaire for Mounting Heights below 15 Feet
- Exterior Wall / Area Lighting
- Recreational Areas
- Walkways / Stairwells / Corridors / Alcoves & Corners
- Building Entrance
- Perimeter Security Lighting
- Loading Platforms / Warehouses

## BENEFITS

- **Major Energy Savings:** Up to 70% Compared to Incandescents
- **Extended Life:** Maintenance-Free for over 5 Years; Reduced Re-lamps
- **Emissions-Free, Eco-Friendly:**
- No Harmful IR, No UV, No Mercury Content
- **Enhances Night Vision:** Better Optical Acuity, Little or No Disability Glare

## MATERIALS / CONSTRUCTION

- **High-Impact, Heat-Resistant Lens:** One-piece, molded prismatic borosilicate glass lens for widespread distribution of light.
- **Die-Cast Aluminum Housing:** Hinged front frame, 1/2" coin plugs with O-rings for conduit and photocell.
- **Durable, All-Weather Finish:** Textured architectural bronze powdercoat finish over a chromate conversion coating.
- **Power Supply:** High power factor, constant-current
- **Weatherproof:** One-piece silicone gasket seals housing and lens frame, locking out moisture and dust. Lens frame secured with 2 stainless-steel screws.
- **Easy Mounting:** Cast-in template for mounting directly over a 4" recessed outlet box, or use 1/2" surface conduit.





## LED Compact Wall-Pack All-Weather Luminaire for Security Lighting

WWL12-8X2W-XPW-001

### Luminaire Photometric Report

Filename: WWL12-8X2W-XPW-001

Manufacturer: LEDTRONICS -

Luminaire: WITH PRISMATIC LENS, 10.3D ANGLE  
BRACKET, 120VAC, 27.3W

Luminaire Cat: WWL12-8X2W-XPW-001

Lamp: LUMEN RATING: 1296.4Lms.

Lamp Output: 1 lamp(s), rated lamp lumens: 1296.4

Max Candela: 493.0 at Horizontal: 135, Vertical: 72.5

Luminous Opening: Point

Test: 3-23-10

#### Zonal Lumen Summary

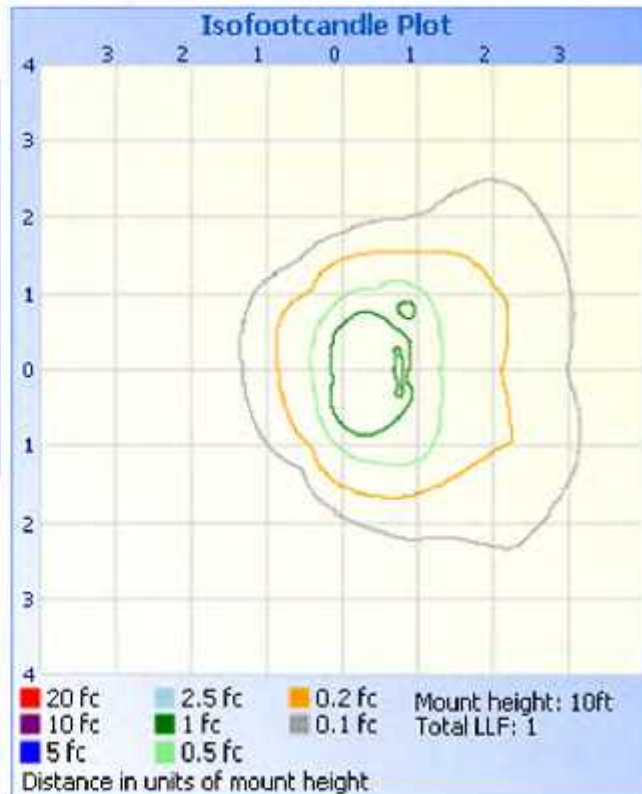
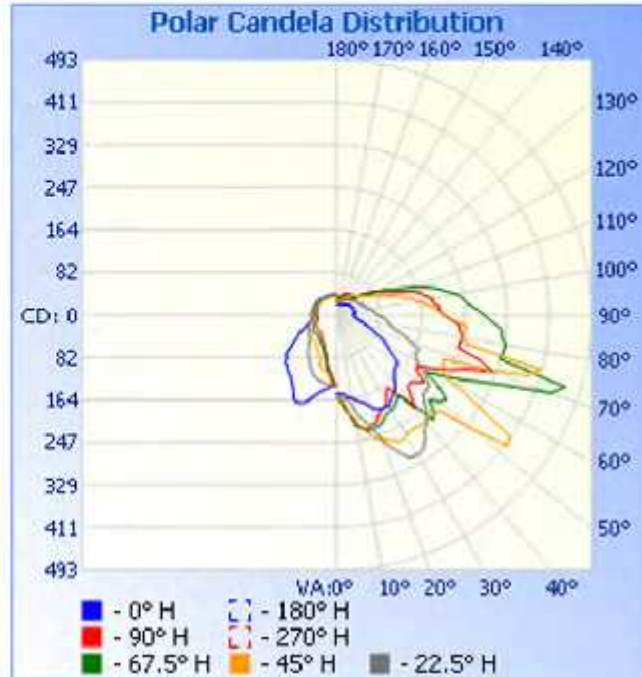
Zone	Lumens	% Lamp	% Luminaire
0-30	139.0	10.7%	10.7%
0-40	236.7	18.3%	18.3%
0-60	488.4	37.7%	37.7%
60-90	417.5	32.2%	32.2%
0-90	905.8	69.9%	69.9%
90-180	390.5	30.1%	30.1%
0-180	1,296.4	100%	100%

Total Efficiency: 100%

#### Illuminance at a Distance

	Center Beam FC	Beam Width	
1.7ft	54.72 fc	1.1ft	1.7ft
3.3ft	13.68 fc	2.3ft	3.4ft
5.0ft	6.08 fc	3.4ft	5.1ft
6.7ft	3.42 fc	4.6ft	6.8ft
8.3ft	2.19 fc	5.7ft	8.5ft
10.0ft	1.52 fc	6.9ft	10.2ft

■ Vert. Spread: 38.0° ■ Horiz. Spread: 54.1°



www.LEDtronics.com



25-watt LEDtronics WWL12-8X2W-XPW-001 wall-paks replaced 250-watt HPS at Union Sanitation District's wastewater treatment plant in Union City, California

White LED technology is patent protected in the United States. LEDtronics white LED products are covered under these patents.

**This foregoing document was electronically filed with the Public Utilities**

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**Case No(s). 13-1541-EL-EEC**

Summary: Application electronically filed by Ms. Lindsey E Sacher on behalf of OSU Marion and Ohio Edison Company