



Legal Department

American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
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February 12, 2014

Chairman Todd Snitchler
Ohio Power Siting Board
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3793

Yazen Alami
Regulatory Services
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Re: **In the Matter of the Application of**)
Owens Corning Sales LLC)
and Ohio Power Company) **Case No. 14-0121-EL-EEC**
for Approval of a Special Arrangement)
Agreement with a Mercantile Customer)

Dear Chairman Snitchler,

Attached please find the Joint Application of Ohio Power Company (OPCo) and mercantile customer Owens Corning Sales LLC for approval of a Special Arrangement of the commitment of energy efficiency/peak demand reduction (EE/PDR) resources toward compliance with the statutory benchmarks for 2013.

Amended Substitute Senate Bill 221 sets forth in R.C. 4928.66 EE/PDR benchmarks that electric distribution utilities shall be required to meet or exceed. The statute allows utilities to include EE/PDR resources committed by mercantile customers for integration into the utilities programs to be counted toward compliance with a utility's EE/PDR benchmarks. The statute also enables the Commission to approve special arrangements for mercantile customers that commit EE/PDR resources to be counted toward compliance with EE/PDR benchmarks.

The Commission's Order in Case No. 10-834-EL-EEC, established a streamlined process to expedite review of these special arrangements by developing a sample application process for parties to follow for consideration of such programs implemented during the prior three calendar years. Attached is OPCo's version of that application and accompanying affidavit. Any confidential information referenced in the Joint Application has been provided to the Commission Staff for filing in Commission Docket 10-1799-EL-EEC, under a request for protective treatment. OPCo respectfully requests that the Commission treat the two cases as associated dockets.

Cordially,

/s/ Yazen Alami
Yazen Alami

Attachments



Case No.: 14-0121-EL-EEC

Mercantile Customer: OWENS CORNING SALES LLC

Electric Utility: Ohio Power

Program Title or Description: AEP Ohio Business Incentives for Energy Efficiency: Self Direct Program

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.

Section 1: Company Information

Name: OWENS CORNING SALES LLC

Principal address: 2790 Columbus Road, Granville, Oh 43023

Address of facility for which this energy efficiency program applies: 2790 Columbus Rd, Granville, Oh 43023-1252

Name and telephone number for responses to questions:

Chris Peffers, Owens Corning Sales Llc, (740) 321-8181

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

- ☒ The customer uses more than seven hundred thousand kilowatt hours per year at our facility. (Please attach documentation.)

See Confidential and Proprietary Attachment 4 – Calculation of Rider Exemption and UCT which provides the facility consumption for the last three years, benchmark kWh, and the last 12 months usage.

- ☐ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.) When checked, see Attachment 6 – Supporting Documentation for a listing of the customer’s name and service addresses of other accounts in the AEP Ohio service territory.

Section 2: Application Information

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

- ☐ Individually, on our own.
- ☒ Jointly with our electric utility.

B) Our electric utility is: Ohio Power Company

The application to participate in the electric utility energy efficiency program is "Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application."

C) The customer is offering to commit (choose which applies):

- ☐ Energy savings from our 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 demand reduction 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 (choose whichever applies):

- ☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, 9/28/2011 and the date on which the customer would have replaced your equipment if you had not replaced it 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)).

The remaining life of the equipment varies and is not known with certainty. The future replacement date is unknown and has historically been at the end of equipment life. Replacement was completed early to achieve energy savings and to reduce future maintenance costs.

- ☐ 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 your energy efficiency program:

- 1) If you checked the box indicating that your 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:

Unit Quantity (watts) = Existing (watts x units) - Installed (watts x units)

kWh Reduction (Annual Savings) = Unit Quantity x (Deemed kWh/Unit)

Annual savings: 50,700 kWh

See Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation for annual energy savings calculations and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

- 2) If you checked the box indicating that you 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 the less efficient new equipment that you rejected in favor of the more efficient new equipment.

- 3) If you checked the box indicating that your 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 you rejected in favor of the more efficient new equipment.

- 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):

➤ Choose one or more of the following 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?

The coincident peak-demand savings are permanent installations that reduce demand through energy efficiency and were installed on the date specified in Section 3 A above.

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

$$\text{Unit Quantity (watts)} = \text{Existing (watts x units)} - \text{Installed (watts x units)}$$

$$\text{KW Demand Reduction} = \frac{\text{Unit Quantity (watts)}}{\text{(watts)}} \times \text{(Deemed KW/Unit)}$$

7.3 kW

See Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation for peak demand reduction calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

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 cost recovery mechanism implemented by the electric utility.

OR

☐ Commitment payment

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

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

☐ A cash rebate of \$_____. (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.)

OR

☒ A cash rebate valued at no more than 50% of the total project cost, which is equal to \$ 1,768.19. (Attach documentation and calculations showing how this payment amount was determined.)

See Confidential and Proprietary Attachment 5 – Self Direct Program Project Calculation for incentive calculations for this mercantile program.

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 an ongoing efficiency program that is practiced by our organization. (Attach documentation that establishes your organization's ongoing efficiency program. In order to continue the exemption beyond the initial 24 month period your organization 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: 8.5 (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 utility's 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 \$ 17,686.33

The utility's program costs were \$ 304.20

The utility's incentive costs/rebate costs were \$ 1,768.19.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

- Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment.

See Attachment 1 - Self Direct Project Overview and Commitment for a description of the project. See Attachment 6 - Supporting Documentation, for the specifications of the replacement equipment 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed. Due to the length of time since the equipment replacement, the make, model and year of the replaced equipment is not available.

- A copy of the formal declaration or agreement that commits your program to the electric utility, including:

- 1) any confidentiality requirements associated with the agreement;

See Attachment 2 - Self Direct Program Project Blank Application including Rules and Requirements. All confidentiality requirements are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application.)

- 2) a description of any consequences of noncompliance with the terms of the commitment;

See Attachment 2 - Self Direct Program Project Blank Application including Rules and Requirements. All consequences of noncompliance are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application.

- 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;

None required because the resources committed are permanent installations that reduce demand through increased efficiency during the Company's peak summer demand period generally defined as May through September and do not require specific coordination and communication to provide demand reduction capabilities to the Company.

- 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,

See Attachment 2 - Self Direct Program Blank Application including Rules and Requirements granting such permission pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application.

- 5) a commitment by you to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

See Attachment 1 - Self Direct Project Overview and Commitment for the commitment to comply with any information and compliance reporting requirements imposed by rule or as part of the approval of this arrangement by the Public Utilities Commission of Ohio.

- 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.

The Company applies the same methodologies, protocols, and practices to Self Direct Program retrospective projects that are screened and submitted for approval as it does to prospective projects submitted through its Prescriptive and Custom Programs. The Commission has not published a technical reference manual for use by the Company so deviations can not be identified. The project submitted is a prescriptive project and energy savings are determined as described in Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.



Public Utilities Commission

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

Case No.: 14-0121-EL-EEC

State of Ohio :

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

1. I am the duly authorized representative of:

KEMA Services, Inc agent of Ohio Power
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.

[Signature]
Signature of Affiant & Title

Energy Efficiency Engineer

Sworn and subscribed before me this 7th day of February, 2014 Month/Year

[Signature]
Signature of official administering oath

Brenda Walke, Notary
Print Name and Title

My commission expires on 01-16-2018



Brenda Walke
Notary Public, State of Ohio
My Commission Expires 01-16-2018



Self Direct Project Overview & Commitment

The Public Utility Commission of Ohio (PUCO) will soon review your application for participation in AEP Ohio's Energy Efficiency/Peak Demand Response program. Based on your submitted project, please select by initialing one of the two options below, sign and fax to 877-607-0740.

Customer Name	OWENS CORNING SALES LLC	
Project Number	AEP-13-11446	
Customer Premise Address	2790 COLUMBUS RD, GRANVILLE, OH 43023-1252	
Customer Mailing Address	2790 Columbus Road, Granville, OH 43023	
Date Received	9/26/2013	
Project Installation Date	9/28/2011	
Annual kWh Reduction	50,700	
Total Project Cost	\$35,664.11	
Unadjusted Energy Efficiency Credit (EEC) Calculation	\$2,357.58	
Simple Payback (yrs)	8.8	
Utility Cost Test (UCT) for EEC	8.53	
Utility Cost Test (UCT) for Exemption	0.04	
<i>Please Choose One Option Below and Initial</i>		
Self Direct EEC: 75%	\$1,768.19	<input checked="" type="checkbox"/> Initial: <i>CP</i>
EE/PDR Rider Exemption	4 Months (After PUCO Approval)	<input type="checkbox"/> Initial: _____

Note: This is a one time selection. By selecting EEC, the customer will receive payment in the amount stated above. Selection of EE/PDR rider exemption, will result in the customer not being eligible to participate in any other energy efficiency programs offered by AEP Ohio during the period of exemption. In addition, the term of EE/PDR rider exemption is subject to ongoing review for compliance and could be changed by the PUCO.

If EEC has been selected, will the Energy Efficiency Funds selected help you move forward with other energy efficiency projects? ☒ YES ☐ NO

Note: Exemptions for periods beyond 24 months are subject to look-back or true-up adjustments every year to ensure that the exemption accurately reflects the EEDR savings. Applicants must file for renewal for any exemption beyond 12 months.

Project Overview:

The Self Direct (Prescriptive) project that the above has completed and applied is as follows.

Replaced (55) 2F34T12 with (55) 2F32T8
Replaced (117) 2F96T12 with (117) 3F54T5HO
Replaced (15) 400W MH with (15) 6F54T5HO
Replaced (54) 2F96T12 with (54) 4F54T5HO
Added occupancy sensors on the (54) 4F54T5HO fixtures

The documentation that was included with the application proved that the energy measures applied for were purchased and installed.

By signing this document, the Mercantile customer affirms its intention to commit and integrate the above listed energy efficiency resources into the utility's peak demand reduction, demand response, and energy efficiency programs. By signing, the Mercantile customer also agrees to serve as a joint applicant in any filings necessary to secure approval of this arrangement by the Public Utilities Commission of Ohio, and comply with any information and compliance reporting requirements imposed by rule or as part of that approval.

Ohio Power Company

By: *John J. Williams*
Title: Manager
Date: 1/6/2014

OWENS CORNING SALES LLC

By: *Chris Pappas*
Title: Facilities Supervisor
Date: 1-3-14

Self-Direct Program Application

ENERGY IS PRECIOUS. LET'S NOT WASTE IT.



STEPS FOR SUBMITTING YOUR APPLICATION

Step 1: Verify Project, Equipment and Customer Eligibility

- ✓ Project must be a facility improvement that produces a permanent reduction in electrical energy usage (kWh).
- ✓ Facilities must be AEP electric customers that are considered "mercantile" under the definition of the Public Utilities Commission of Ohio (PUCO).
- ✓ Projects must operate at least 2,245 hours per year to qualify for credits. Projects with annual energy (kWh) savings greater than the facility's annual energy (kWh) consumption are not eligible.
- ✓ All installed equipment must meet or exceed the specifications outlined in the application.
- ✓ Equipment must be installed in facilities served by AEP Ohio.
- ✓ Customer must have a valid AEP Ohio account number on an eligible AEP Ohio non-residential account or approved agricultural account.

Step 2: Submit Application

- ✓ Complete the Checklist page.
- ✓ Read the Terms and Conditions.
- ✓ Attach the documentation listed:
 - Completed Applicant Information form
 - Completed and signed Customer Agreement form
 - Measure worksheet(s)
 - Scope of work (type, quantity, and wattage of old and new equipment)
 - Dated and itemized invoices for the purchase and installation of all equipment installed
 - Specifications for all equipment installed showing that it meets program specifications
- ✓ Submit a completed application via email, fax or mail prior to November 15, 2013, for any projects completed on or after January 1, 2010. Any applications received after the deadline may not be submitted to the Public Utilities Commission of Ohio (PUCO) by December 31, 2013, which may jeopardize approval.

Step 3: Project Review

- ✓ The program team will review your application. The review of some projects will require an inspection; the team will contact applicants requiring an inspection for scheduling.
- ✓ After approval by AEP Ohio, the customer will receive an Overview and Commitment form to sign and return. The project will then be submitted to the PUCO for consideration. The PUCO will assign a case number and review the project details prepared by AEP Ohio. The PUCO may request additional information, or approve or reject the energy efficiency credits.

Step 4: Receive Energy Efficiency Credits

- ✓ The program team will issue energy efficiency credits four to six weeks after the PUCO approves a project.
- ✓ In lieu of a one-time energy efficiency credit, you may elect to seek an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for the associated electric account(s) for a defined period of time as stated in this application. For this exemption, the energy efficiency credit amount (Option 1) is compared to the estimated value of the EE/PDR obligation (Option 2), as calculated by AEP Ohio. The value of Option 2 will be approximately equal to the value of Option 1. If exemption is elected, the affected account is not eligible for other programs offered by AEP Ohio during the exemption period. Unless additional resources are committed, you will, after the specified number of months exempted, again be subject to the EE/PDR rider. New construction projects are not eligible to elect Option 2. Major renovation projects that do not have a representative billing history for three years prior to the project installation also are not eligible to elect Option 2.
- ✓ If the energy efficiency credit is elected, you remain in the EE/PDR rider for the period of time that an exemption would have been in effect and may also participate in AEP Ohio programs. However, during that period of time, you are not allowed to elect the Option 2 exemption for any additional self-direct projects for the same account number.
- ✓ You are allowed and encouraged to consider using all or a portion of the energy credits, as received from AEP Ohio under this program, to help fund other energy efficiency and demand-reduction projects you choose to initiate in the future. Future projects also can qualify for credits under the prescriptive or custom programs.

AEP Ohio Business Incentives Program

2740 Airport Drive, Suite 160

Columbus, OH 43219

Phone: (877) 607-0739

Fax: (877) 607-0740

aepohioincentives@dnvkema.com

Visit our website at aepohio.com/incentives.

Self-Direct Program Application

ENERGY IS PRECIOUS. LET'S NOT WASTE IT.



CHECKLIST

FINAL APPLICATION

Required Attachments

- ☐ Completed and signed Applicant Information form
- ☐ Completed Final Payment Agreement form including Energy Efficiency Credits Requested section
- ☐ Itemized invoices
- ☐ Equipment specifications
- ☐ Scope of work
- ☐ W-9 (LLC, individual, partnership, property management companies)

Credit Worksheets¹

- ☐ Lighting
- ☐ HVAC
- ☐ Motors & Drives
- ☐ Compressed Air
- ☐ Refrigeration/Food Service
- ☐ Agriculture & Miscellaneous
- ☐ Transformer
- ☐ UPS
- ☐ Custom
- ☐ New Construction Lighting

Application date _____

Estimated project cost _____

Expected completion date _____

¹Incomplete applications will delay processing and receipt of energy efficiency credits.

Revised Submittal

Please complete below if this is a revised submittal.

Submittal date _____ AEP Project Number (if known) AEP - 1 ____ - ____ - ____ - ____

AEP Ohio Business Incentives Program

2740 Airport Drive, Suite 160

Columbus, OH 43219

Phone: (877) 607-0739

Fax: (877) 607-0740

aepohioincentives@dnvkema.com

Visit our website at aepohio.com/incentives.

TERMS AND CONDITIONS

AEP Ohio offers prescriptive and custom credits under the AEP Ohio Business Incentives Program to facilitate the implementation of past cost-effective energy efficiency improvements for non-residential customers. AEP Ohio provides energy efficiency credits (EEC) for the purchase and installation of qualifying cost-effective equipment in the customer's facility under the Terms and Conditions provided in this application and subject to regulatory approvals. EEC will only be provided in the form of a check or an Energy Efficiency/Peak Demand Reduction (EE/PDR) rider exemption under this program.

Please note that funds are limited and subject to availability.

Program Effective Dates

AEP Ohio Business Incentives Program offers credits until approved funds are exhausted or November 15, 2013, whichever comes first. The effective dates of the current AEP Ohio Business Incentives Program and application submittal requirements are as follows:

- Self-direct projects are projects completed since January 1, 2010. Self-direct projects are eligible to apply for EEC with this application. Current or future projects should apply using a prescriptive or custom application.
- All 2013 AEP Ohio Business Incentives Program applications should be received no later than November 15, 2013. Any applications received after the deadline may not be submitted to the Public Utility Commission of Ohio (PUCO) by December 31, 2013, which may jeopardize approval. AEP Ohio reserves the right to extend or shorten this timeline.

Program and Project Eligibility

The AEP Ohio Business Incentives Program offers both prescriptive credits for some of the more-common energy efficiency measures and custom credits for other eligible improvements not included on the list of prescriptive measures. Credits available under the AEP Ohio Business Incentives Program include non-residential accounts or approved agricultural accounts served on AEP Ohio's regulated retail rates.

Qualifying projects must be installed in a facility in AEP Ohio's electric service territory in Ohio. Credits are available to all non-residential accounts or approved agricultural accounts that pay into the EE/PDR rider and receive their electricity over AEP Ohio wires, regardless from which retail electric supplier the customer has chosen to purchase power. A customer may neither apply for nor receive credits for the same product, equipment or service from more than one utility.

Custom projects must involve measures that result in a reduction in electric energy usage due to an improvement in system efficiency. Projects that result in reduced energy consumption without an improvement in system efficiency are not eligible for a custom credit. The project simple payback prior to the credit payment generally should fall between 1 to 7 years, or pass cost-effectiveness test(s) determined by AEP Ohio to qualify for a credit.

Projects involving measures covered by the prescriptive credit portion of the program are not eligible for a custom credit. However, the applicant has the option to apply for a custom credit for whole building integrated projects or systems, even if they include prescriptive measures. Prescriptive elements may be capped at the deemed savings and/or credit level.

The self-direct program applies to customer facilities served by AEP Ohio's retail electric rates that are defined as "mercantile" and meet the minimum energy usage requirements of 700,000 kWh per year, or that are part of a national account involving multiple facilities in one or more states.

Facilities must be eligible under the definition of "mercantile" as designated by the PUCO. All applications are subject to review and approval by AEP Ohio, its contractor(s)/agent(s) and the PUCO prior to any EEC payments or exemptions from the EE/PDR rider in this program.

Project requirements under the AEP Ohio Business Incentives Program include the following:

- Projects must involve a new facility improvement with capital improvements that results in a permanent reduction in electrical energy usage (kWh). Existing/old equipment must be functional and in operation.
- Any measures installed at a facility must produce verifiable and persistent energy reduction and must be sustainable and provide 100% of the energy benefits as stated in the application for a period of at least five (5) years or for the life of the product, whichever is less. If the customer ceases to be a delivery service customer of AEP Ohio or removes the equipment or systems at any time during the 5-year period or the life of the product, the customer may be required to return a prorated amount of credit funds to AEP Ohio.
- All equipment must be new.
- All installed equipment must meet state, federal and local codes and requirements.
- Projects must be installed on the AEP Ohio electric account in Ohio served by an eligible electric rate.
- Equipment must be purchased, installed and operating (or capable of operating in the case of seasonal uses) prior to submitting an application for a credit.

Self-Direct Program Application

ENERGY IS PRECIOUS. LET'S NOT WASTE IT.



TERMS AND CONDITIONS

- AEP Ohio will issue credit payments in the form of checks, not utility bill credits.
- The credit is paid as a one-time, one-program offer and cannot be combined with incentive payments from other AEP Ohio programs. The customer may be eligible to participate in other programs offered by AEP Ohio, as long as no project receives more than one credit or incentive.

Confidential information contained in any documents associated with this application will be protected from public filings. However, this information may be disclosed to the PUCO for further review and approval.

Projects that are NOT eligible for a credit include the following:

- Fuel switching (e.g., electric to gas or gas to electric)
- Changes in operational and/or maintenance practices or simple control modifications not involving capital costs (Please visit aepohio.com/incentives for Retro-Commissioning Program or Continuous Improvement Program)
- Removal or termination of existing processes, facilities and/or operations
- On-site electricity generation
- Projects involving gas-driven equipment in place of or to replace electric equipment (such as a chiller)
- Projects focused primarily on power factor improvement
- Projects that involve peak-shifting (and not kWh savings)
- Used or rebuilt equipment
- Costs associated with internal labor
- Renewables (Please visit aepohio.com/save for Renewables Program)
- Projects required by state or federal law, building or other codes, or projects that are standard industry practice
- Projects easily reverted/removed or projects installed entirely for reasons other than improving energy efficiency
- Other conditions to be determined by AEP Ohio

Energy Efficiency Credit Limits

For both prescriptive and custom measures in this application, **total EEC shall be 75% the lesser of:** 1) The calculated credit as approved by AEP Ohio or 2) 50% of total project cost (not including internal labor). In calculating the savings and EEC for custom measures, please contact the AEP Ohio Business Incentives Program office to determine an appropriate baseline for savings. In addition to the above project cost limit, credit payment rates vary when a customer's calculated credit exceeds the tiers listed below:

PROGRAM ENERGY EFFICIENCY CREDITS	
Energy efficiency credit levels for one-year energy savings	See tables for prescriptive credits. Custom credits: \$0.08/kWh x 75%.
Minimum/maximum simple payback before energy efficiency credit applied	Must pass cost effectiveness test(s) determined by AEP Ohio; generally between one and seven years
Maximum payout	75% of 50% of the total cost (additional measure caps may apply)
Energy efficiency credit levels for projects completed since 1/1/2010	Calculated amount on the prescriptive or custom worksheets attached and subject to funding limits
Credit limit	See Credit Limits and Tiering section
Credit calculation order	Measure credit caps are applied first. Project-cost credit limits are applied second. Credit tiering is applied third. Lastly, 75% factor is applied to credit.

Energy Efficiency Credit Tiering

The total credit paid for any self-direct application cannot exceed 50% of the total project cost (not including internal labor). In addition to the above project cost limit, credit payment rates vary when a customer's calculated credit exceeds the tiers listed below:

- Tier 1 \$0 - \$100,000 = 100% of eligible calculated credit value
- Tier 2 \$100,001 - \$300,000 = 50% of eligible calculated credit value
- Tier 3 \$300,001 - \$500,000 = 25% of eligible calculated credit value
- Tier 4 \$500,001 - beyond = 10% of eligible calculated credit value

Application Review Process

Applications are not a guarantee of program acceptance and energy efficiency credits. AEP Ohio will review applications for eligibility and completeness. Completed applications will be reviewed in the order received. Funds are reserved for the project when AEP Ohio receives a completed application and determines that the project meets the program eligibility requirements. Upon review of the application, the program will notify applicants who submit incomplete applications of deficiencies; applicants may lose their place in the review process until receipt of all requested information. Applications must be completed and all information received by the deadlines defined above to begin processing. Applicants are encouraged to call the program hotline with any questions about documentation requirements.

TERMS AND CONDITIONS

Application

Projects completed on or after Jan 1, 2010, must submit an application and all required supporting documentation by November 15, 2013, to be applicable for the 2013 program year. Any applications received after the deadline may not be submitted to the PUCO by December 31, 2013, and could jeopardize approval.

A signed application with supporting project documentation verifying project installation and capital improvements must be submitted to AEP Ohio prior to application approval. Project documentation, such as (but not limited to) copies of dated invoices for the purchase and installation of the measures, equipment specification sheets, energy-savings analysis, complete application and W-9 forms (LLC, individual, partnership, property management companies), is required. The invoice should provide sufficient detail to separate the project cost from the costs of other services not related to the energy efficiency project and other repairs. The location or business name on the invoice must be consistent with the application information.

AEP Ohio reserves the right to request additional supporting documentation as deemed necessary to ensure measure eligibility and verify that the expected energy savings will occur. Confidential information contained in any documents associated with this application will be protected from public filings. However, this information may be disclosed to the PUCO and the evaluators. Requested information could include equipment purchase dates, installation dates, proof that the equipment is operational, manufacturer specifications, savings calculation documentation, monitoring data, warranty information and proof of customer co-payment.

Inspections

The AEP Ohio Business Incentives Program reserves the right to inspect all projects to verify compliance with the program rules and verify the accuracy of project documentation. This may include installation inspections, verification of detailed lighting layout descriptions, metering, data collection, interviews and utility bill or monitoring data analysis. Customers are required to allow access to project documents and the facility where the measures were installed for a period of five years after receipt of credit payment by AEP Ohio. In the event a building(s) are turned over to a new account holder/owner before AEP Ohio officially measures and verifies incentivized equipment, AEP Ohio reserves the right to do so under new ownership. Customer understands and agrees that program installations may also be subject to inspections by the PUCO or its designee, and photographs of installation may be required.

Requirements for Custom Project Electricity Savings Calculation

The annual electricity savings must be calculated for custom projects using industry-accepted engineering algorithms or simulation models. The applicant may estimate the annual electricity usage of both the existing and proposed equipment based on the current operation of the facility. A listing of the pre-existing information requirements is provided at the end of the custom application section. If equipment is replaced prior to the end of its rated service life in order to achieve energy savings, the existing equipment performance may be used as the baseline in the energy-savings calculations. Documentation of early replacement decision and/or actual equipment energy usage will be required. If equipment is replaced due to failure or for other reasons (such as obsolescence or a need for more capacity), the baseline performance used in the savings calculation should be either the minimum performance that would be required by code for that equipment type and application (where a code applies) or the performance of the equipment that would have been selected as the customer's standard practice when a code does not apply.

If the previous equipment was at the end of its useful life, the applicant must use, as the baseline, the equipment that would meet the applicable federal and local energy codes unless an "as found" baseline is being used by the applicant. If the applicant is using an "as found" baseline, additional specific information on the pre-existing information must be provided.

The applicant must be able to clearly describe the method used to calculate the savings. The applicant must provide all assumptions used in the calculations and document the sources for these assumptions. If no savings analysis is provided by the customer/contractors, AEP Ohio reserves the right to utilize its approved methodology and analysis to determine energy savings.

The method and assumptions used by the applicant to calculate the annual savings will be reviewed by AEP Ohio. AEP Ohio is solely responsible for the final determination of the annual energy savings and peak-demand reduction used in calculating the credit amount. AEP Ohio also reserves the right to require specific measurement and verification activities, including monitoring the retrofit to determining the credit. Verification of the pre-existing consumption may also be required.

For custom and "as found" projects, the applicant is required to provide information in order to allow AEP Ohio to verify the baseline usage of the pre-existing equipment. AEP Ohio may need to conduct inspections of projects to verify equipment and operating conditions.

TERMS AND CONDITIONS

Customers are encouraged to submit projects that warrant special treatment (i.e., non-typical projects) to be considered on a case-by-case basis by AEP Ohio.

Tax Liability

Credits are taxable and, if more than \$600, will be reported to the IRS unless the customer is exempt. AEP Ohio is not responsible for any taxes that may be imposed on your business as a result of your receipt of credit. A W-9 (for LLC, individual, partnership, property management companies) must be provided with all applications.

Disclaimer

Any and all energy savings and coincident demand generated by the project described in this application are hereby committed to AEP Ohio. That retained demand can be used to count against AEP Ohio's benchmark requirements in S.B. 221, regardless; any retained demand provided to PJM generation auctions must be done so by AEP Ohio only.

Peak-demand reduction is defined as the reduction in average load over the performance hours as a result of replacing existing electrical equipment with more-efficient electrical equipment. Peak performance hours are defined as the time between June 1 and August 31 on weekdays and non-holidays, between the hours 3:00 p.m. and 6:00 p.m. Eastern Standard Time. PJM Peak Hours are defined as the time between June 1 and August 31 on weekdays and non-holidays, between the hours 2:00 p.m. and 6:00 p.m. Eastern Standard Time.

AEP Ohio does not guarantee the energy savings and does not make any warranties associated with the measures eligible for credits under this program. AEP Ohio has no obligations regarding and does not endorse or guarantee any claims, promises, work or equipment made, performed or furnished by any contractors or equipment vendors that sell or install any energy efficiency measures. AEP Ohio is not responsible for the proper disposal/recycling of any waste generated as a result of this project. AEP Ohio is not liable for any damage caused by the operation or malfunction of the installed equipment.

Self-Direct Program Application

ENERGY IS PRECIOUS. LET'S NOT WASTE IT.



APPLICANT INFORMATION

Important: Please read the Terms and Conditions before signing and submitting this application. Complete all information and provide required documentation to avoid processing delays.

Project Information

Business Type

(Select One) _____

W-9 Tax Status

(Select One) _____

How Did You Hear About the Program?

(Select One) _____

Shift

(Select One) _____

Affected Area Square Footage

Dodge Report Number

Building Operating Hours

Equipment Operating Hours

Name of Applicant's Business _____

Project Name (if applicable) _____ Name as It Appears on Utility Bill _____

AEP Ohio Account Number Where Measure Installed _____ Taxpayer ID (SSN/FEIN) _____

Mailing Address _____ City _____ State ^{OH} Zip _____

☐ Check if mailing address and installation address are the same.

Installation Address _____ City _____ State ^{OH} Zip _____

Customer Contact

Please provide all contacts we may need to process this project. List the project decision-maker, the technical contact, etc. as the contractor contact.

Name of Contact (preferred contact for documentation) _____

Title of Contact _____ Phone # _____ Ext. _____

Contact Fax # _____ Contact Email _____

Solution Provider/Contractor Information¹

Name of Contracting Company _____

Name of Contact Person _____ Title of Contact _____

Mailing Address _____ City _____ State ^{OH} Zip _____

Phone # _____ Ext. _____ Contact Fax # _____ Contact Email _____

If there are questions about the application who should we contact? ☐ Customer ☐ Contractor

¹Solution provider/contractor is the party involved in the application submittal (i.e., specs, scope of work, etc.).

FINAL PAYMENT AGREEMENT

Final Payment Agreement

I understand that the application and all required documentation should be received by the AEP Ohio Business Incentives Program by November 15, 2013, for any projects completed on or after January 1, 2010. Any applications received after the deadline may not be submitted to the PUCO by December 31, 2013, and could jeopardize approval of any credit by the PUCO. All equipment must be purchased, installed and fully operational prior to submitting the application.

I understand that AEP Ohio or its representatives have the right to ask for additional information at any time. AEP Ohio Business Incentives Program will make the final determination of credit levels for this project.

I understand that this project must involve a facility improvement that results in improved energy efficiency.

As an eligible AEP Ohio account holder, I certify that decisions to acquire and install the indicated energy efficiency measures, which will be demonstrated with supporting documentation required by AEP Ohio, were made after January 1, 2010, and that work was completed on this project on or after January 1, 2010. The energy efficiency measures are for use in my business facility and not for resale.

I understand that the location and business name on the project documentation must be consistent with the application information. Project documentation, product specification sheets and details of measure installation are included. Documentation indicating contract dates prior to November 16, 2012, may render this application ineligible. I understand that all submissions become the property of AEP Ohio. It is recommended to keep a copy for your records.

I agree that if: (1) I did not install the related product(s) identified in my application or (2) I remove the related product(s) identified in my application before a period of five (5) years or the end of the product life, whichever is less, I shall refund a prorated amount of energy efficiency credits to AEP Ohio based on the actual period of time the related product(s) were installed and operating. This is necessary to assure that the project's related energy benefits will be achieved. (3) AEP Ohio will pay 75% of the lesser of: 1) The calculated credit as approved by AEP Ohio, subject to funding limits or 2) 50% of the project cost (subject to application caps). I understand that AEP Ohio or its representatives have the right to ask for additional information at any time. AEP Ohio Business Incentives Program will make the final determination of energy efficiency credit levels for this project.

I agree to be responsible to comply with any applicable codes

or ordinances. I also understand that all materials removed, including lamps and PCB ballasts, must be permanently taken out of service and disposed of in accordance with local codes and ordinances. I understand it is my responsibility to be aware of any applicable codes or ordinances. Information about hazardous waste disposal can be found at epa.gov/epawaste/hazard/index.htm.

I agree to verification by the utility or its representatives of both sales transactions and equipment installation. I understand that these credits are available to all non-residential accounts or approved agricultural accounts that pay into the Energy Efficiency and Demand Response (EE/PDR) rider and receive their electricity over AEP Ohio wires, regardless from which retail electric supplier the customer has chosen to purchase power.

I understand that AEP Ohio reserves the right to refuse payment and participation if the customer or contractor violates program rules and requirements. AEP Ohio is not liable for energy efficiency credits promised to customers as a result of misrepresentation of the program.

I understand that AEP Ohio does not guarantee the energy savings and does not make any warranties associated with the measure eligible for energy efficiency credits under this program. Furthermore, AEP Ohio has no obligations regarding any claims, promises, work or equipment made, performed or furnished by any contractors or equipment vendors that sell or install any energy efficiency measures and does not endorse or guarantee same.

Energy efficiency credits will be based upon the Final Application and program terms and conditions, as well as the availability of funds.

I understand that the program has a limited budget. Applications will be processed until allocated funds are reserved or spent. Final Applications should be received by November 15, 2013, to be eligible for funding under the current program period.

I certify that the information on this application is true and correct, and that the taxpayer ID number, tax status and W-9 are the applicant's. I understand that credits exceeding \$600 will be reported to the IRS, unless the applicant is exempt. I understand that credits assume related energy benefits over a period of five (5) years or for the life of the product, whichever is less.

I understand that the program may be modified or terminated without prior notice.

I understand and agree that all other terms and conditions as specified in the application, including all attachments and exhibits

FINAL PAYMENT AGREEMENT

attached to this application, will serve as a contract for the customer's commitment of energy and demand resources to AEP Ohio and shall apply.

Any and all energy savings and coincident demand generated by the project described in this application are hereby committed to AEP Ohio. That retained demand can be used to count against AEP Ohio's benchmark requirements in S.B. 221, regardless; any retained demand provided to PJM generation auctions must be done so by AEP Ohio only.

Self-Direct Program Application

ENERGY IS PRECIOUS. LET'S NOT WASTE IT.



CUSTOMER AGREEMENT

- ☐ I have read and understand the program requirements, measure specifications, and Terms and Conditions set forth in this application and agree to abide by those requirements. Furthermore, I concur that I must meet all eligibility criteria in order to be paid under this program.

All equipment must be installed and operational. A customer signature is required for payment. Signed applications received by email or fax will be treated the same as original applications received by mail.

All submissions become the property of AEP Ohio. Keep a copy for your records.

Digital Signature Instructions

1. Click in the signature box.
2. Follow the digital signature directions displayed in the "Add Digital ID" pop-up box.
3. Establish a digital ID and password.
4. In the "Sign Document" pop-up box, you can select to change the signature appearance from typed font to an imported graphic.
5. Follow directions to save signed application; signature and verification information will appear in the signature box.

Total Project Cost

Customer Signature (AEP Ohio Customer)

Date

03/08/13

Total Credits Requested¹

Print Name

Project Completion Date

SUBMIT VIA EMAIL

PRINT APPLICATION

¹AEP Ohio will pay the lesser of 1) the calculated credit as approved by AEP Ohio or 2) 50% of the total project cost.

APPROVED

COOPER LIGHTING - METALUX®

DESCRIPTION

The HBL series is ideal for high mounting height industrial or retail applications. Advanced optical designs provide maximum performance from either T5 or T8 lamps. Optional uplight component produces excellent ceiling uniformity. HBL's high lumen package allows the benefits of fluorescent to be applied at high mounting heights that were traditionally exclusive to H.I.D. Benefits include exceptional color rendering, high system efficacy, 95% lumen maintenance, long lamp life, instant on/instant re-strike, economical dimming, and uniform brightness control. Typical HBL applications include retail, shopping malls, light industrial and recreational environments.

SPECIFICATION FEATURES

A ... Construction

Channel and end plates are constructed of die formed steel. The channel provides strength, numerous KO's for easy installation, and excellent thermal dissipation without any special or proprietary components. Stiffening brackets add additional strength and rigidity to channel and reflectors. Additional side rail panels are also available as an option to help create a clean finished frame for this open body luminaire.

B ... Electrical

The HBL comes with a standard Class "P" electronic ballast and twistlock lampholders. UL/cUL listed for high ambient environments up to 55°C (131°) for all lamp and ballast combinations listed. Suitable for damp locations.

C ... Finish

Electrostatically applied baked white enamel finish is preceded by a multistage cleaning cycle, iron phosphate coating with rust inhibitor.

D ... Optics

Die formed, segmented optical design optimizes performance across three distributions. Optical choices include a narrow distribution for aisles, medium distribution for assembly and loading areas, or wide distribution for general, open area lighting. An uplight option is offered to permit ceiling uniformity and allow for ample lamp and luminaire heat dissipation.

Warranty

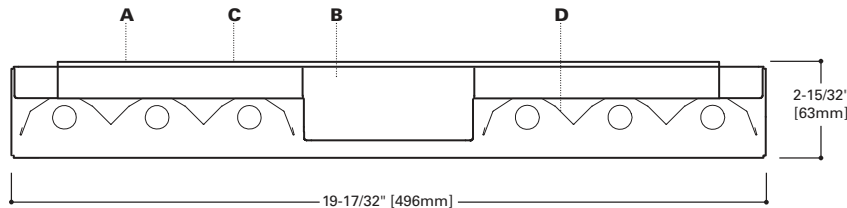
When operated in high ambient conditions, the HBL is supported by a 5 yr/55°C and 3 yr/65°C ballast warranty for T5 and T8 (277V) options when used w/high temperature ballast in open, upright configurations. To maximize your warranty, the HBL should be ordered with a high-temperature ballast in ambient environments that typically exceed 40°C (102°F).



F-BAY HBL SERIES

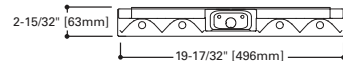
4 or 6 T5 Lamps

HIGH-BAY INDUSTRIAL
OPEN LUMINAIRE

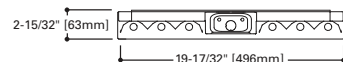


LAMP CONFIGURATIONS

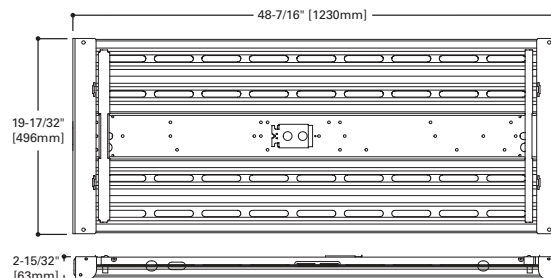
4-Lamp



6-Lamp



DIMENSIONS TOP VIEW



ENERGY DATA

Input Watts:
EB Ballast and STD Lamps
454 = 229
654 = 346

Luminaire Efficacy Rating
LER = 71 (White)
LER = 74 (Specular Inserts)
Catalog Number: HBL-654T5-UPL

Yearly Cost of 1000 Lumens,
3000 hrs. at .08 KWH = \$3.24

* Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements

** Consult Pre Sales Technical Support.

LAMPS CONTAIN MERCURY. DISPOSE ACCORDING
TO LOCAL, STATE OR FEDERAL LAWS

LINEAR DISCONNECT
Safe and convenient means of
disconnecting power



ORDERING INFORMATION

SAMPLE NUMBER: HBL-654T5-N-UNV-EBT2-UPL-U

Width Blank=20" wide (nominal)	Voltage ⁽¹⁾ UNV=Universal 120/277 Voltage UNC=Universal 347/480 Voltage 120V=120 Volt 277V=277 Volt 347V=347 Volt 480V=480 Volt	Ballast Type ^{(3), (6)} T5 Systems EBT =T5 Linear Electronic Program Rapid Start ⁽²⁾ Total Harmonic Distortion < 10% No. of Ballast 1, 2 or 3 EHT =T5 Linear Electronic Program Start High Ambient ^{(2), (3)} Total Harmonic Distortion < 10% No. of Ballast 1, 2 or 3	Options UPL =Uplight Apertures on Reflector MP =Modular Power Receptacle ⁽⁴⁾ MWS =Modular Wiring System ⁽⁵⁾ SR =Side Rails MS=360° or 180° motion sensor installed, 120V through 347V (HBL only) ⁽¹⁾ Accessories (order separately) HBAYC-CHAIN/SET/U =(2) V-Hook Hangers, 36" Chain Sets w/S-Hooks HBL-SPM =Single Monopoint Hanger w/Hub Y-TOGGLE =Y Mounting Toggle, #2 Cable (Specify 10' or 30') MC3 =3' Modular Power Cord MPC3 =3' Modular Power Cord & Plug (Specify Voltage) MC6 =6' Modular Power Cord MPC6 =6' Modular Power Cord & Plug (Specify Voltage) MMS-CPD1200H =Aisle Motion Sensor, Box, Modular Power Receptacle (120-277V) MMS-CPD500H =360° Motion Sensor, Box, Modular Power Receptacle (120-277V) WG/HBL6-4FT-B =4/6 Lamp Wireguard w/Clips RH-1 =Retrofit Hanger FH-1 =Fixture Hook FL-1 =Fixture Loop	Packaging U =Unit Pack PALC =Palletized In Carton
Series HBL=Linear High Bay	Options Lamps Installed L5835 =T5HO Lamp, 85CRI 3500K L5841 =T5HO Lamp, 85CRI 4100K L5850 =T5HO Lamp, 85CRI 5000K GL =Single Element Fuse GM =Double Element Fuse EL =Emergency Installed			
No. of Lamps 4=4 Lamps 6=6 Lamps				
Lamp Type 54T5 =54W T5HO Lamp (48" Long)				
Distribution N =Narrow Beam (Standard) M =Medium Beam W =Wide Beam				

NOTES: ⁽¹⁾Voltage must be specified when ordered with plugs, motion sensor or emergency ballasts. Exception: HBL only, for MS option, indicate UNV or 347V at time of order. ⁽²⁾EBT ballast systems suitable for operation in ambient environments up to 104°F (40°C) in upright configuration. ⁽³⁾EHT/HT5/HCT5 ballast systems are suitable for ambient environments not to exceed 149°F (65°C) in upright configurations. ⁽⁴⁾Requires use of MC_ or MPC_ cord accessories, specify voltage for plugs. ⁽⁵⁾Cannot be combined with Modular Power Receptacle (MP). For MWS with MP, choose MP in fixture logic and then choose MWS. ⁽⁶⁾Recommended when using motion sensor options or accessories.

SHIPPING INFORMATION

Catalog No.	Wt.
HBL-454T5-UNV-UPL	13.5 lbs.
HBL-654T5-UNV-UPL	15 lbs.



Quick Ship Ordering Information Sample Number: HBL454T5-MP-UPL-L5

Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.

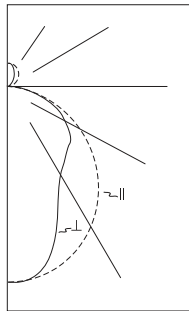
NOTE: Orders received after noon are entered on the following day.

Includes V Hangers
for rapid installation

Family HBL	Ballast Type T5HO Systems T5 =(2) 120/277V 4/2 Lamp T5 Electronic Program Rapid Start ⁽⁷⁾ HT5 =(2) 120/277V 4/2 Lamp T5 High Ambient Electronic Program Rapid Start ⁽⁸⁾ HCT5 =(2) 347/480V 2 Lamp T5 High Ambient Electronic Program Rapid Start ⁽⁸⁾	Power Receptacle MP =Modular Power Receptacle ⁽⁹⁾ Uplight Blank =No Uplight UPL =Uplight Lamping Blank =No Lamps L4 =Lamps Installed 85+CRI 4100K L5 =Lamps Installed 85+CRI 5000K
No. of Lamps 4=4 Lamps 6=6 Lamps		
Lamp Type 54=54W T5HO Lamps (48")		

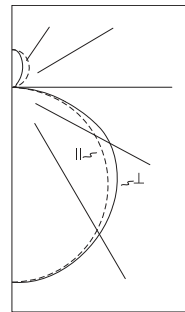
NOTES: ⁽⁷⁾T5 ballast systems suitable for operation in ambient environments up to 104°F (40°C) in upright configuration. ⁽⁸⁾EHT/HT5/HCT5 ballast systems are suitable for ambient environments not to exceed 149°F (65°C) in upright configurations. ⁽⁹⁾Requires use of MC_ or MPC_ cord accessories, specify voltage for plugs.

PHOTOMETRICS



HBL-654-N-UPL
Narrow Distribution
 (2) Electronic Ballasts
 (6) F54T5/841HO
 54WT5 lamps
 4400 lumens
 Spacing criterion:
 (II) 1.2 x mounting
 height, (⊥) 0.9 x
 mounting height
 Efficiency 97%
 Test Report:
 HBL654NUPLIES
 LER =74
 Yearly Cost of 1000
 lumens, 3000 hrs at
 .08 KWH = \$3.24

Candela				
Angle	Along II	45°	Across ⊥	
0	10583	10583	10583	
5	10534	10535	10550	
10	10391	10306	10134	
15	10154	9792	9169	
20	9809	8931	7763	
25	9377	7773	6433	
30	8862	6554	5637	
35	8262	5518	5199	
40	7587	4829	4855	
45	6853	4346	4597	
50	6074	3919	4425	
55	5252	3566	3973	
60	4399	3265	3473	
65	3522	2754	2994	
70	2632	2260	2270	
75	1755	1626	1571	
80	934	974	1066	
85	265	466	420	
90	4	11	14	



HBL-654-W-UPL
Wide Distribution
 (2) Electronic Ballasts
 (6) F54T5/841HO
 54WT5 lamps
 4400 lumens
 Spacing criterion:
 (II) 1.3 x mounting
 height, (⊥) 1.3 x
 mounting height
 Efficiency 93.3%
 Test Report:
 HBL654WUPLIES
 LER =71
 Yearly Cost of 1000
 lumens, 3000 hrs at
 .08 KWH = \$3.38

Candela				
Angle	Along II	45°	Across ⊥	
0	6850	6850	6850	
5	6814	6836	6863	
10	6739	6770	6796	
15	6607	6648	6668	
20	6418	6461	6487	
25	6179	6222	6278	
30	5891	5945	6049	
35	5558	5637	5792	
40	5183	5301	5498	
45	4773	4929	5187	
50	4335	4526	4827	
55	3866	4100	4434	
60	3370	3638	3997	
65	2843	3159	3437	
70	2283	2630	2685	
75	1672	1932	1941	
80	1012	1216	1267	
85	348	548	548	
90	4	37	50	

Coefficients of Utilization

Effective floor cavity reflectance													20%								
rc	80%				70%				50%				30%				10%				0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0			
RCR																					
0	114	114	114	114	110	110	110	110	103	103	103	97	97	97	92	92	92	89			
1	104	99	95	92	100	96	93	89	91	88	85	86	83	81	81	79	77	75			
2	95	87	80	75	91	84	78	73	80	75	71	75	71	68	71	68	65	63			
3	86	77	69	63	83	74	67	62	70	64	60	67	62	58	63	59	56	53			
4	79	68	60	54	77	66	59	53	63	56	51	60	54	50	57	52	48	46			
5	73	61	53	46	71	60	52	46	57	50	45	54	48	43	51	46	42	40			
6	68	55	47	41	65	54	46	40	51	44	39	49	43	38	47	42	37	35			
7	63	50	42	36	61	49	41	36	47	40	35	45	39	34	43	38	34	32			
8	59	46	38	33	57	45	37	32	43	36	32	41	35	31	40	34	30	28			
9	55	42	35	29	53	42	34	29	40	33	29	38	32	28	37	31	28	26			
10	52	39	32	27	50	38	31	27	37	31	26	36	30	26	34	29	25	24			

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	7354	27.9	28.7
0-40	11251	42.6	43.9
0-60	18573	70.4	72.5
0-90	23479	88.9	91.6
0-180	25621	97.0	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	16466	10442	11045
55	15557	10563	11768
65	14159	11071	12036
75	11520	10673	10312
85	5166	9084	8187

Coefficients of Utilization

Effective floor cavity reflectance													20%																			
rc	80%						70%						50%						30%						10%						0%	
rw	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0				
RCR																																
0	109	109	109	109	109	109	109	109	105	105	105	105	105	98	98	98	98	98	98	92	92	92	92	92	92	92	92	92	84			
1	99	94	90	86	95	91	87	84	85	82	79	80	77	75	75	73	71	68	68	65	62	59	56	56	56	56	56	56	68			
2	89	81	74	69	86	78	72	67	74	69	64	60	57	55	53	51	49	46	46	43	40	37	34	31	28	26	24	22	68			
3	81	71	63	57	78	68	61	55	64	58	53	48	43	40	37	34	31	28	26	24	22	20	18	16	14	12	10	8	68			
4	74	62	54	47	71	60	53	47	57	50	45	40	35	32	29	26	23	20	18	16	14	12	10	8	6	4	2	0	68			
5	68	55	47	40	65	54	46	40	51	44	38	33	28	24	21	18	15	12	10	8	6	4	2	0	0	0	0	0	68			
6	62	50	41	35	60	48	40	34	46	39	33	28	23	19	16	13	10	8	6	4	2	0	0	0	0	0	0	0	68			
7	58	45	37	31	55	44	36	30	41	34	29	24	19	15	12	9	7	5	4	2	0	0	0	0	0	0	0	0	68			
8	54	41	33	27	52	40	32	27	38	31	26	21	16	12	9	7	5	4	2	0	0	0	0	0	0	0	0	0	68			
9	50	37	30	24	48	36	29	24	35	28	23	18	13	9	7	5	4	2	0	0	0	0	0	0	0	0	0	0	68			
10	47	34	27	22	45	34	26	22	32	26	21	16	11	8	6	4	2	0	0	0	0	0	0	0	0	0	0	0	68			

Zonal Lumen Summary

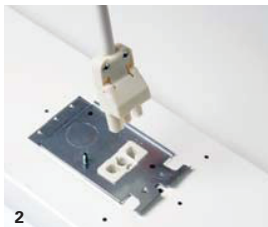
Zone	Lumens	%Lamp	%Fixture
0-30	5401	20.5	21.9
0-40	8947	33.9	36.3
0-60	16453	62.3	66.8
0-90	22065	83.6	89.6
0-180	24626	93.3	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	11468	11843	12463
55	11451	12144	13134
65	11429	12699	13817
75	10975	12682	12741
85	6784	10682	10682

Modular F-Bay Power Supply Option

Cooper Lighting's F-Bay Modular Power Supply option allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixtures power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.



1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate.
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply.

No internal fixture access required for installation or disconnecting power.

Modular Motion Sensor Option supplied with Mounting Box and Modular Power Supply Receptacle.

Code Compliance

- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating dustcap

APPROVED

DESCRIPTION

COOPER LIGHTING - METALUX®

The F-Bay I5 series is an outstanding solution for high mounting height industrial or retail applications. The F-Bay I5 optic has been optimized to provide maximum performance from T5 lamps. Optional uplight component is provided to enable excellent ceiling uniformity. The I5's high lumen package allows the benefits of fluorescent to be applied at high mounting heights that were traditionally exclusive to H.I.D. The primary benefits include exceptional color rendering, high system efficacy, 95% lumen maintenance, long lamp life, instant on/instant re-strike, economical dimming, and uniform brightness control. Primary applications include "big box" retail, shopping malls, light industrial, school gymnasiums, etc.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

Specification grade full body housing, end plates and socket tracks are die formed cold rolled steel in 4' or 8' lengths. The housing features an integral ballast channel that adds strength and provides numerous KO's for easy installation.

Electrical

Class "P" ballasts are positively secured by mounting bolts. Rotor-lock Bi-Pin lampholders and optional top ballast access plate enables service from above without disturbing the internal optics. Optional modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance. UL/cUL listed. Suitable for damp locations.

Finish

Electrostatically applied baked white enamel finish is preceded by a multistage cleaning cycle, iron phosphate coating with rust inhibitor.

Downlight/Uplight Optics

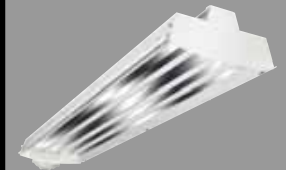
Optical modules are fully enclosed inside housing to protect against damage. Die formed reflectors are faceted with two optical distributions – medium and wide. Medium beam optical modules utilize 95% specular aluminum finish. Open downlight design optimizes performance with uplight slots available as an option for nominal 8% uplight component. An optional attractive thin blade white baffle adds longitudinal shielding. A clear or frosted white acrylic lens is also available. Optional heavy duty wireguard can be used with or without the lens or baffle. Latched retention of shielding options (safety leader restraints) allow for easy access.

Mounting

The I5 series is suited for surface, suspension mounting with optional wire hook and chain set, stem or cable mounting. Top connector box mounting is also available. Narrow 11" housing allows mounting within 12" horizontally from the nearest edge of the sprinkler deflector.

Options

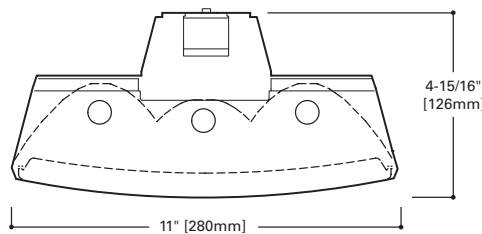
Integral Occupancy Sensor available and provides from 600 sq. ft. (MS) up to 1250 sq. ft. (MSO) of coverage at a maximum mounting height of 40'.



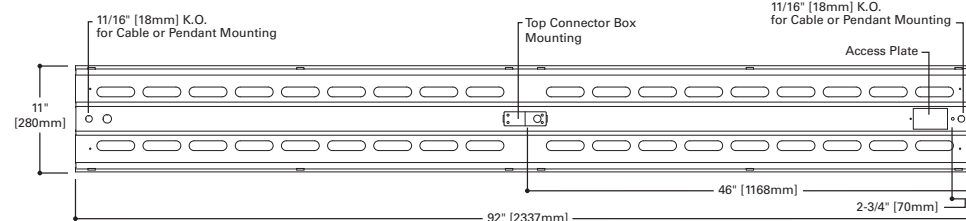
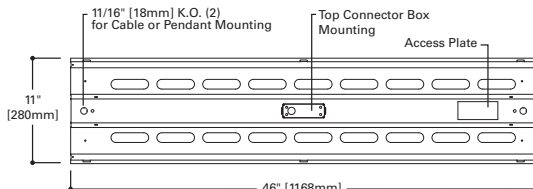
F-BAY I5 Series

**4' OR 8'
3 LAMPS**

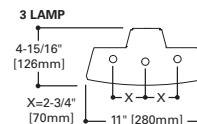
T5 Linear Fluorescent
High Bay
Lighting System



MOUNTING DATA



LAMP CONFIGURATIONS



ENERGY DATA

Input Watts:
EB Ballast & T5HO Lamps
354T5 = (182)
8T354T5 = (346)

Luminaire Efficacy Rating
LER =70
Catalog Number: I5-354T5-UPL

Yearly Cost of 1000 lumens,
3000 hrs at .08 KWH = \$3.42

* Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements

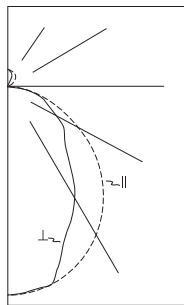
** Consult Pre Sales Technical Support.

LAMPS CONTAIN MERCURY. DISPOSE ACCORDING TO
LOCAL, STATE OR FEDERAL LAWS

LINEAR DISCONNECT
Safe and convenient means of
disconnecting power.



PHOTOMETRICS



I5-354T5-UPL
(1) Electronic Ballast
(3) F54T5 Lamps
4400 lumens
Spacing criterion:
(II) 1.2 x mounting
height, (⊥) 1.0 x
mounting height
Efficiency 93%
Test Report:
P31395C
LER =70
Yearly Cost of 1000
lumens, 3000 hrs at
.08 KWH = \$3.42

Candela				
Angle	Along II	45°	Across ⊥	
0	5377	5377	5377	
5	5372	5364	5334	
10	5296	5215	5315	
15	5163	5169	4872	
20	4981	4757	4213	
25	4747	4160	3862	
30	4469	3700	3441	
35	4158	3346	2910	
40	3804	2925	2433	
45	3390	2443	2078	
50	2976	1996	1909	
55	2512	1618	1715	
60	2077	1429	1395	
65	1634	1171	1143	
70	1195	875	1002	
75	755	670	847	
80	360	479	246	
85	96	24	16	
90	8	16	10	

Coefficients of Utilization

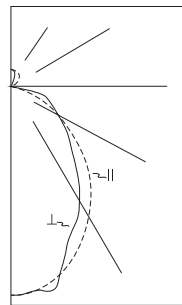
Effective floor cavity reflectance 20%												
rc	80%				70%				50%			
rw	70	50	30	10	70	50	30	10	50	30	10	0
RCR												
0	110	110	110	110	107	107	107	107	101	101	101	89
1	101	97	93	90	98	94	91	88	90	87	85	76
2	92	85	79	74	90	83	78	73	79	75	71	65
3	85	75	68	63	82	74	67	62	71	65	60	55
4	78	67	60	54	76	66	59	53	63	57	52	48
5	72	61	53	47	70	59	52	46	57	51	46	42
6	67	55	47	41	65	54	46	41	52	45	40	37
7	62	50	42	37	60	49	42	37	47	41	36	33
8	58	46	38	33	56	45	38	33	44	37	33	30
9	54	42	35	30	53	42	35	30	40	34	30	27
10	51	39	32	27	50	39	32	27	37	31	27	25

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	3905	29.6	31.9
0-40	6073	46.0	49.6
0-60	9730	73.7	79.4
0-90	11791	89.3	96.3
0-180	12248	92.8	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	16148	11637	9899
55	14752	9502	10071
65	13023	9333	9110
75	9826	8720	11023
85	3710	928	618



I5-354T5-TBW-UPL
(1) Electronic Ballast
(3) F54T5 Lamps
4400 lumens
Spacing criterion:
(II) 1.1 x mounting
height, (⊥) 1.0 x
mounting height
Efficiency 87.7%
Test Report:
P31396C
LER =66
Yearly Cost of 1000
lumens, 3000 hrs at
.08 KWH = \$3.63

Candela				
Angle	Along II	45°	Across ⊥	
0	5432	5432	5432	
5	5410	5410	5409	
10	5272	5239	5452	
15	5025	5164	4981	
20	4740	4702	4276	
25	4395	4040	3972	
30	4019	3571	3542	
35	3591	3185	3051	
40	3176	2794	2575	
45	2686	2333	2189	
50	2225	1922	1986	
55	1744	1553	1699	
60	1295	1340	1367	
65	882	1037	1168	
70	568	732	1057	
75	388	493	817	
80	238	352	270	
85	106	167	50	
90	7	79	24	

Coefficients of Utilization

Effective floor cavity reflectance 20%												
rc	80%				70%				50%			
rw	70	50	30	10	70	50	30	10	50	30	10	0
RCR												
0	103	103	103	103	100	100	100	100	94	94	94	83
1	95	91	87	84	92	88	85	83	84	82	79	71
2	87	80	75	70	84	78	73	69	75	70	67	61
3	80	71	65	60	77	70	64	59	67	61	57	52
4	73	64	57	51	71	62	56	51	60	54	50	46
5	68	58	50	45	66	56	50	45	54	48	44	40
6	63	52	45	40	61	51	44	39	49	43	39	36
7	59	48	41	36	57	47	40	35	45	39	35	32
8	55	44	37	32	53	43	37	32	42	36	32	29
9	52	41	34	29	50	40	33	29	39	33	29	26
10	48	38	31	27	47	37	31	27	36	30	26	24

Zonal Lumen Summary

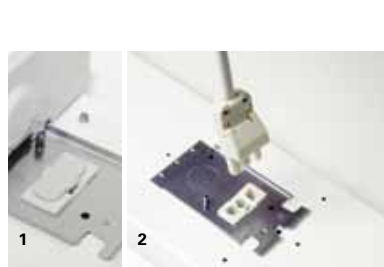
Zone	Lumens	%Lamp	%Fixture
0-30	3848	29.1	33.5
0-40	5897	44.7	51.4
0-60	9199	69.7	80.1
0-90	10967	83.1	95.5
0-180	11480	87.0	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	12795	11113	10427
55	10242	9120	9977
65	7030	8265	9309
75	5050	6416	10633
85	4097	6454	1932

Modular F-Bay Power Supply Option

Cooper Lighting's F-Bay Modular Power Supply option is available for use with all F-Bay products. The modular power supply allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixture's power supply allows servicing without turning off all the fixtures, disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – **simply plug & power.**



1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply



No internal fixture access required for installation or disconnecting power



Modular Motion Sensor Option supplied with Mounting Box and Modular Power Supply Receptacle

Code Compliance

- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dust cap

ORDERING INFORMATION

SAMPLE NUMBER: 8T15-354T5-TBW-UNV-EBT2-UPL-U

Length Blank=4' Length 8T=8' Length	Series I5=T5 Industrial	Mounting Arrangement Blank=Stand Alone R=Continuous Row Mount	No. of Lamps 3=3 Lamps	Lamp Type 28T5=28W T5 Std (4') Lamps 49T5=49W T5HO (4') Lamps 51T5=51W T5HO (4') Lamps 54T5=54W T5HO (4') Lamps	Distribution Optic Blank=Medium (Specular Aluminum) G=Wide (High Reflectance White)	Shielding Options Blank=Open TBW=Thin White Baffle FL=Frosted Acrylic Lens & Frame ⁽²⁾ CL=Clear Acrylic Lens & Door Frame ASY= Asymmetric Directional Louver ⁽²⁾ WG=Heavy Duty Wireguard	Voltage⁽¹⁾ UNV=Universal 120/277 Voltage UNC=Universal 347/480 Voltage ⁽⁶⁾ 120V=120 Volt 277V=277 Volt 347V=347 Volt 480V=480 Volt	Options I5 Lamps Installed L5830=T5 Lamp, 85CRI 3000K L5835=T5 Lamp, 85CRI 3500K L5841=T5 Lamp, 85CRI 4100K L5850=T5 Lamp, 85CRI 5000K GL=Single Element Fuse GM=Double Element Fuse EL=Emergency Installed ⁽²⁾	Ballast Type T5 Systems EBT =T5 or T5HO Linear Electronic Program Rapid Start. Total Harmonic Distortion < 10% ⁽⁴⁾ No. of Ballast 1, 2 or 3 EHT =T5HO Linear Electronic Start High Ambient. Total Harmonic Distortion < 10% ⁽⁶⁾⁽⁷⁾ No. of Ballast 1, 2 or 3	Options NUA=No Uplight Apertures In Housing (Cannot be combined w/UPL) UPL=Uplight Apertures PI/CPI=Plug-In (1, 2 or 3) TILW=Tandem Inline Wiring MWS=Modular Wiring System ⁽¹⁰⁾ MS=360° or 180° Motion Sensor, 120 through 347, or 480V ⁽⁸⁾ MP=Modular Power Receptacle (Used for all Cord or Cord and Plug options) ^{(11),(11)}	Packaging U=Unit Pack PAL=Palletized Out of Carton PALC=Palletized In Carton
--	-----------------------------------	--	----------------------------------	--	--	---	---	---	--	--	--

Accessories (order separately)
I5/I8-SPM=Single Monopoint Hanger w/Hub
RH-1=Retrofit Hanger
FH-1=Fixture Hook
FL-1=Fixture Loop
SHK=Hook w/ Safety Screw
AYC-CHAIN/SET/U=(2) Hooks, 36" Chain Sets w/S-Hooks⁽⁸⁾
TOGGLE-=Single Toggle, #2 Cable (Specify 10' or 30')
LOOP-=Loop Hanger, #2 Cable (Specify 10' or 30')
MC6=6' Modular Power Cord
MPC6=6' Modular Power Cord & Plug (Specify Voltage)
MMS=360° or 180° Aisle Motion Sensor with Modular Power Receptacle (120-277V)⁽¹⁾
MDS6=6' Modular Power Cord with MWS
27DS18/2G06MP Connector⁽¹¹⁾

Door Frames (for Field Installation)
I5-FRM/LENS=Frosted Acrylic Lens & Frame (I5)
I5-FRM/CL PK=Clear Acrylic Lens & Frame (I5)
WG/I5-4FT-B=Heavy Duty Wireguard (I5)
90800PPK=Thin White Blade Baffle (I5)
90801PPK=Asymmetrical Directional Louver (I5)

NOTES: ⁽¹⁾Requires use of MC_ or MPC_cord accessories, specify voltage for plugs. ⁽²⁾Use with wide distribution optic only. ⁽³⁾Voltage must be specified when ordered with plugs, motion sensor or emergency ballasts. ⁽⁴⁾EBT ballast systems suitable for operation in ambient environments up to 104°F (40°C). ⁽⁵⁾EBT and E88 ballast systems suitable for operation in ambient environments up to 122°F (50°C) in open upright configurations. ⁽⁶⁾2 lamp ballast configurations only in T5 UNC versions. 2/3 lamp ballast configurations in EB/PLUS only for T8 UNC. ⁽⁷⁾EHT ballast systems suitable for ambient environments not to exceed 149°F (65°C) in open upright configurations and less lens option. ⁽⁸⁾Not for use in gymnasiums or similar recreational facilities. ⁽⁹⁾When ordering MS option, specify UNV (for 120 or 277V), 347 or 480V. ⁽¹⁰⁾Cannot be combined with Modular Power Receptacle (MP). ⁽¹¹⁾For MWS with MP, choose MP in fixture logic and then choose MWS accessory such as MDS6.

STOCK CATALOG ITEMS

I5355=3 lamp, 54W T5HO, Program Rapid Start Ballast, Top Connector Plate, Uplight, 850 Lamps Installed⁽⁶⁾

SHIPPING INFORMATION

Catalog No.	Wt.
I5-354T5-TBW-UPL	15 lbs.
8T15-354T5-TBW-UPL	30 lbs.

PI OPTION ORDERING INFORMATION

Catalog Number	Number of Circuits	Circuit Wired To Ballast
PI 1 BLK	1	Black
PI 2 BLU	2	Blue
PI 2 BLK	2	Black
PI 3 RED	3	Red
PI 3 BLU	3	Blue
PI 3 BLK	3	Black

Catalog Numbering System

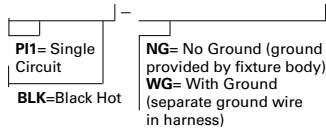
The PI System is available in sections up to 8' in length for continuous row wiring by simply plugging the sections together. Each PI section is factory wired to the ballast leads. Color coding of wires is as follows:

PI-1 = One Circuit - 2 Wires: one black, one white
PI-2 = Two Circuits - 3 Wires: one black, one blue, one white
PI-3 = Three Circuits - 4 wires: one black, one blue, one red, one white

When ordering the PI2/PI3 System it is necessary to specify the number of fixtures required for each circuit. Each circuit in fixture must be ordered as a separate line item, with a different hot wire color specified. All wiring to external feeds, using cord or cord & plug, are responsibility of installing licensed contractor. Cord and cord & plug sets must be ordered separately if PI option is chosen.

PI1 - Single Circuit Plug-In

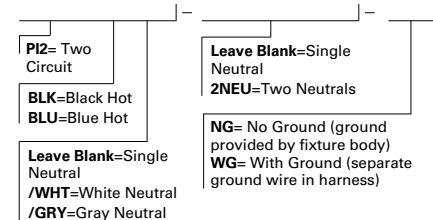
SAMPLE NUMBER: PI1BLK-WG



For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

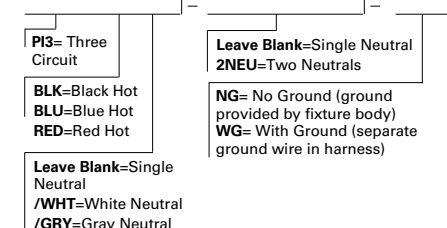
PI2 - Two Circuit Plug-In

SAMPLE NUMBER: PI2BLK-WG



PI3 - Three Circuit Plug-In

SAMPLE NUMBER: PI3BLK-WG



**APPROVED**

Notes

Type

FEATURES & SPECIFICATIONS

INTENDED USE — Designed for use in open area applications and electronic offices where optical control, visual comfort and light cut-off are important.

Attributes: Design optimized for use with T8 lamps and low-profile electronic ballasts.

Aluminum louvers utilize the latest developments in louver finishing for minimized louver iridescence.

CONSTRUCTION — Black reveal provides floating louver appearance, conceals optional air-supply slots.

Square corner end plates improve strength and durability.

Integral T-bar safety clips hold fixture to T-bar securely; no fasteners required.

Heavy-gauge hinges die-formed for maximum strength; spring action latches concealed in black reveal.

Housing formed from cold-rolled steel. Louver formed from anodized aluminum. No asbestos used in this product.

Finish: Five-stage iron-phosphate pretreatment ensures superior paint adhesion. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL — Electronic ballasts are sound rated A. NEMA Premium®/CEE qualified ballast. Full light output, reduced energy. Less than 10% THD multi-volt operation (120-277).

Fixture conforms to UL1570 and is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

MVOLT ballasts are NEMA Premium/CEE qualified ballasts. Full light output - reduced energy. Less than 10% THD. Multi-volt operation, 120-277V.

120V ballasts are ENERGY STAR® qualified FCC Class B for residential and commercial applications. Less than 10% THD. Quieter applications.

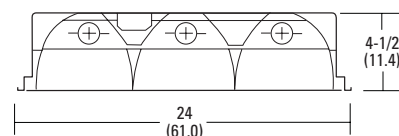
LISTINGS — UL Listed (Standard).

WARRANTY — Fixtures, including ballasts, are covered by Lithonia Lighting 24-month warranty against defects in manufacture.

Note: Specifications subject to change without notice.

Contractor Select

Parabolics



Specifications PT2U 2x2: 9-cell

Length: 24 (61.0)
Width: 24 (61.0)
Depth: 4-1/2 (11.4)
Weight: 32 lbs (14.5 kg)

Specifications PT3 2x4: 18-cell

Length: 48 (122.0)
Width: 24 (61.0)
Depth: 4-1/2 (11.4)
Weight: 32 lbs (14.5 kg)

All dimensions are inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION

Catalog Number	UPC	Description	# of Lamps	# of Cells	Wattage	Voltage	Ballast type	# of Ballasts	Lamp type	Pre-wired	Lamp included	Pallet qty.
PT3 MV	745975079155	2x4 recessed, static	3	18	32	120-277	NEMA Premium, instant start	1	N/A	N	N	20
PT3L MV	745975079421	2x4 recessed, static	3	18	32	120-277	NEMA Premium, instant start	1	700 series, 3500K	N	Y	20
PT3LW MV	745975079360	2x4 recessed, static	3	18	32	120-277	NEMA Premium, instant start	1	700 series, 3500K	Y	Y	20
PT3 2MV	745975118373	2x4 recessed, static	3	18	32	120-277	NEMA Premium, instant start	2	N/A	N	N	20
PT3A MV	745975079513	2x4 recessed, air	3	18	32	120-277	NEMA Premium, instant start	1	N/A	N	N	20
PT2U MV	745975079247	2x2 recessed, static	2	9	32-U lamp	120-277	NEMA Premium, instant start	1	N/A	N	N	40
PT2UA MV	745975490417	2x2 recessed, air	2	9	32-U lamp	120-277	NEMA Premium, instant start	1	N/A	N	N	40

APPROVED

Specification Data

Catalog # _____ Type _____
Project _____
Comments _____
Prepared by _____ Date _____

Ordering Information

FB032/700/6/ECOLOGIC – 75 CRI, 20,000 hours average rated life

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Leg Spacing	Avg. Rated Life (hrs.) ¹	Initial Lumens ²	Mean Lumens ³	CCT	CRI
22046	FB032/730/6/ECO	32	T8	Medium bi-pin	6"	20,000	2750	2475	3000K	75
22051	FB032/735/6/ECO	32	T8	Medium bi-pin	6"	20,000	2750	2475	3500K	75
22052	FB032/741/6/ECO	32	T8	Medium bi-pin	6"	20,000	2750	2475	4100K	75
22053	FB032/750/6/ECO	32	T8	Medium bi-pin	6"	20,000	2625	2363	5000K	75

FB032/800/6 ECOLOGIC – 82 CRI, 20,000 hours average rated life

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Leg Spacing	Avg. Rated Life (hrs.) ¹	Initial Lumens ²	Mean Lumens ³	CCT	CRI
21663	FB032/830/6/ECO	32	T8	Medium bi-pin	6"	20,000	2850	2622	3000K	82
21670	FB032/835/6/ECO	32	T8	Medium bi-pin	6"	20,000	2850	2622	3500K	82
21671	FB032/841/6/ECO	32	T8	Medium bi-pin	6"	20,000	2850	2622	4100K	82

FB032/800XP/6/ECOLOGIC – 85 CRI, 24,000 hours average rated life

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Leg Spacing	Avg. Rated Life (hrs.) ¹	Initial Lumens ²	Mean Lumens ³	CCT	CRI
22054	FB032/830XP/6/ECO	32	T8	Medium bi-pin	6"	24,000	2900	2755	3000K	85
22055	FB032/835XP/6/ECO	32	T8	Medium bi-pin	6"	24,000	2900	2755	3500K	85
22057	FB032/841XP/6/ECO	32	T8	Medium bi-pin	6"	24,000	2900	2755	4100K	85
22168	FB032/850XP/6/ECO	32	T8	Medium bi-pin	6"	24,000	2980	2830	5000K	85

1. Lamp Life base on operation at 3 hours per start on rapid start ballast. Lamp life on instant start ballast will be lower (15,000 hours for FB032700 and 800, and 18,000 hours for FB032/800XP).

2. Initial lumens measure at 100 hours of operation.

3. Mean lumens measured at 8000 hours, 40% of 20,000 hours.

4. Mean lumens measured at 8000 hours. Mean lumens at 40% of 24,000 hours (9600 hours) are 94% of initial lumens.

Ordering Guide

FB0	32	/	8	35	XP®	/	6	/	ECO
Fluorescent	Wattage:		8 = 82 or 85 CRI	35 = 3500K	EXTended		6" leg		ECOLOGIC
Bent	32 Watts		7= 75 CRI	30 = 3000K	Performance		spacing		
OCTRON				41 = 4100K					
				50 = 5000K					

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Summary: Application Owens Corning Sales LLC and Ohio Power Company for approval of a special arrangement agreement with a mercantile customer electronically filed by Mr. Yazen Alami on behalf of Ohio Power Company