REQUEST FOR PROPOSAL (RFP) # 2043
LED LIGHTING CONVERSION AND ENERGY EFFICIENCY PROJECT – Y3

DEADLINE TO SUBMIT PROPOSAL
Before 2:00pm - December 10, 2015

Mandatory Pre-Submission Meeting And Job Walk
Rio Hondo College
3600 Workman Mill Road
Whittier, CA 90601
Science Building – S-121

Mandatory Pre-Submission Date/Time
November 24, 2015 at 1:30pm

Deadline to Submit RFIs
Prior to 12:00 NOON, November 30, 2015

Recommendation for Award
January 13, 2016

Submit RFP in a sealed envelope to:
Rio Hondo Community College District
Contract Management and Vendor Services
3600 Workman Mill Road, Room A-122
Whittier, CA 90601-1699

Mark outside of envelope:
Request for Proposal # 2043
LED Lighting Conversion
and Energy Efficiency
Project – Y3
1. INVITATION

Rio Hondo Community College District (RHCCD) desires to engage a qualified electrical contractor for the: 1) Retrofit of existing lighting with a new LED lights at the interior and exterior of the Administration Building and, 2) Retrofit or replace exiting light fixtures at the Lot A Bridge, and 3) Upgrade HVAC equipment and systems at the Administration Building. Also, this project contains two Add Alternates #1 & #2 to Retrofit existing lighting and upgrade existing HVAC equipment at the RHC Fire Academy. This project has been identified as energy efficiency improvements to the District with any contract(s) to be procured under the authority of California Government Code Section 4217.10 through 4217.18.

The District’s goal is to improve the energy efficiency performance of the interior and exterior lighting systems and HVAC equipment and systems, and to improve maintenance costs and energy consumption through the use of various utility incentives and the Prop 39 program. See Exhibits for the Rio Hondo College LED lighting Study and HVAC Study which was the basis for the fixture selection, rebate application, and proposition 39 funding application.

2. INTRODUCTION

2.1 This Request for Proposal (RFP) contains specifications and related documents covering the desired design services for the Rio Hondo Community College District.

2.2 This RFP and all subsequent modifications thereto are hereby designated as the sole reference and authority for the preparation of proposals. This release of the RFP supersedes all other documents related to the work to be done. The contents of this RFP and subsequent modifications thereto take precedence over any and all information related to LED Lighting Conversion and Energy Efficiency Project, for the College obtained from any source, either by verbal or written communications.

2.3 This RFP shall not be construed to (1) create an obligation on the part of the District to enter into a contract with any firm or (2) serve as the basis for a claim for reimbursement of expenditures related to the development of a proposal.

2.4 Notwithstanding other provisions of the RFP, Contractors are hereby advised that this request for proposal is an informal solicitation of proposals only. It is not intended, nor is it to be construed as engaging in formal competitive bidding pursuant to any statute, ordinance, policy or regulation.
2.5 Issuance of this RFP and receipt of proposals does not commit the District to award a contract. The District expressly reserves the right to postpone the proposal opening date for its own convenience, to accept or reject any or all proposals received in response to this RFP, to negotiate with more than one Contractor concurrently, or to cancel all or part of this RFP.

3. BACKGROUND INFORMATION

3.1 The Rio Hondo Community College District (RHCCD), established in 1961, primarily serves residents of Whittier, El Monte, South El Monte, Pico Rivera, and Santa Fe Springs. The district also serves residents of unincorporated Los Angeles County and several cities outside district boundaries. The district includes one college, Rio Hondo College (RHC), which provides transfer, vocational, and short-term courses for roughly 20,000 students per semester.

3.2 The District is a single college district located in Southeast Los Angeles County near the intersection of the 60 and 605 freeways, enrolls over 20,000 students each semester. Rio Hondo College is fully accredited by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges.

3.3 The District serves students from a variety of educational backgrounds, including recent high school graduates, people seeking new skills or careers, and lifelong learners wanting to add to their knowledge base. The District’s educational programs prepare students for transfer to four-year colleges and universities, grant two-year degrees in a number of specialties, issue certificates in technical or professional fields, provide contract training for employer workforces, and offer community service classes in subjects ranging from computer skills to cultural event fieldtrips. The college graduates close to 600 students every year, awarding two-year, Associate of Arts/Sciences degrees and nearly 500 specialty certificates.

3.4 The District serves the cities of Whittier, Pico Rivera, Santa Fe Springs, El Monte, and South El Monte, as well as portions of Downey, La Mirada, La Puente, Industry, and some unincorporated portions of Los Angeles County. There are over 318,000 people residing in nearly 107,000 households served by the college. The diverse student population averages about 68% Hispanic, 12% Asian, 10% White Non-Hispanic, 2% Black, and 8% other or undeclared ethnicities.

3.5 The District is governed by an independent five member Governing Board who are elected at large to overlapping four-year terms. The District’s affairs are administered by the President, who is appointed by the Governing Board.

4. INFORMATION AND GENERAL CONDITIONS

4.1 Definitions
The term “Rio Hondo” as used herein shall be construed to include the Rio Hondo College District, Rio Hondo College, Rio Hondo Board of Trustees, and all employees, officers, and agents of the District.
The Firm or Contractor is named as such in the contract documents and is referred to in generic terms as if of singular number. Firm or Contractor is used interchangeable.

4.2 Preparation of Proposal Documents
Interested individual, firm, partnership or joint venture submitting a proposal shall submit one (1) original proposal plus three (3) copies in a sealed envelope. The envelope shall be prominently marked with the Request for Proposal number, title, due date, deadline for submitting proposal and the name of the entity submitting the proposal.

Proposal shall be submitted by no later than December 10, 2015, before 2:00pm. It is the sole responsibility of the person submitting the proposal to see that it is delivered on time. Proposals shall be mailed or delivered to the attention of Timothy L. Connell, Director, Contract Management and Vendor Services, Rio Hondo College, 3600 Workman Mill Road A-122, Whittier, CA 90601-1699.

The District will time stamp all proposals submitted. For the purpose of determining the time that a Proposal is submitted, the District time clock shall be the controlling factor.

RFP submittals received after the specified time and date will not be considered and will be returned unopened to the sender.

Responses to this RFP must follow the format described in this RFP. Firms are encouraged to submit concise responses that fully provide the information requested. Elaborate responses or the inclusion of extensive marketing material is discouraged.

4.3 Signature
Proposals shall be signed by an authorized individual or officer of the Firm submitting the proposal. If the Firm is a corporation, the proposal and any attachment thereto shall be executed by either the chairman of the board, president, or vice president, and if a different individual, also by the secretary, chief financial officer or assistant treasurer.

4.4 Completion of Proposals
Proposals shall be completed in all respects as required by the instructions herein. A proposal may be rejected if it is conditional or incomplete, or if it contains alterations of form or other irregularities of any kind. A proposal will be rejected if, in the opinion of the District, the information contained therein was intended to erroneously and fallaciously mislead the District in the evaluation of the proposal.

4.5 Erasures
The proposal submitted must not contain erasures, interlineations, or other corrections unless each correction is authenticated by signing in the margin, immediately opposite the correction, the name of the person signing the proposal.

4.6 Examination of Contract Documents
Firms shall thoroughly examine the contents of this RFP. The failure or omission of any Firm to receive or examine any contract document, form, instrument, addendum, or other document shall in no way relieve the Firm from obligations with respect to this RFP or to the contract to
be awarded. The submission of a proposal shall be taken as prima facie evidence of compliance with this section.

If the Firm discovers any ambiguity, conflict, discrepancy, omission or other errors on the RFP, he shall immediately notify the District of the error in writing and request modification or clarification of the document. Clarifications shall be given by written notice to all Firms participating in the RFP, without divulging the source of the request for the same. Modifications shall be made by addendum.

If a Firm fails to notify District if an error in the RFP before the date scheduled for submission of proposals, or of an error, which reasonably should have been known to him, he shall submit the proposal at his own risk. If the contract is awarded to the Firm, he shall not be entitled to additional compensation or time by reason of the error or its subsequent correction.

4.7 NOT USED

4.8 Confidential and Proprietary Information
All materials received relative to this RFP will be kept confidential until such time an award is made or the RFP is canceled. At such time, all materials received must be made available to the public. If any part of any firm’s proposal is proprietary or confidential, the firm must so identify and so state. However, any information that must be used by District to aid in proposal selection must be restricted from the public. District reserves the right to retain all proposals submitted. Any restrictions on the use of hardware or software proposed, arising from the use or incorporation of confidential and/or proprietary information or materials, must be clearly stated in the proposal.

4.9 Addenda
District may modify this RFP before the date scheduled for submission of proposals by issuance of an addendum to all parties who received the RFP for the purpose of submitting a proposal. Addendum shall be numbered consecutively as a suffix by the RFP reference number. (For example, the first addenda would be RFP A-1).

4.10 Modification of RFP Response
No amendment, addendum or modification will be accepted after the proposal has been submitted to the District. The audit proposal may be modified after its submission by written notice to the District of withdrawal and resubmission before the date and time specified for receipt of proposals. Modifications will not be considered if offered in any other manner.

4.11 Withdrawal of Proposals
The RFP proposal may be withdrawn by submitting a written request to the District at any time before the deadline date scheduled for proposal submission. The Firm may thereafter submit a new proposal before the deadline date for proposal submission. Proposals may not be withdrawn after the proposal submission date for a period of ninety (90) days.

4.12 Rejection of Proposals
The District reserves the right to reject any or all proposals received in response to the RFP or to negotiate separately with any Firm when it is determined to be in the best interest of the District to do so.
4.13 Misunderstandings
The RFP documents will be clarified by District upon written request from a firm. District’s decision shall be final in any matter of interpretation of the documents.

4.14 Requests for Clarification
To control information disseminated regarding this RFP, parties interested in submitting proposals are directed not to make personal contact with members of the Board of Trustees or the District Administration. All requests for information and/or clarification must be in writing and received by the District no later than 4:00 p.m. February 5, 2014 and shall be faxed or emailed to Timothy L. Connell, Director, Contract Management and Vendor Services, at 562-463-7020, or tconnell@riohondo.edu.

4.15 Cost of Preparation of Proposals
The sole responsibility for compliance with the requirements of this RFP lies with each Firm submitting a response. Each Firm is solely responsible for all costs in preparing a response to this RFP and other activities associated with this RFP and shall not be chargeable to District.

4.16 Evaluation Process
Proposals will be evaluated by staff of the District. During the evaluation, validation and selection process, District may request meetings with a firm’s representative(s) to request answers to specific questions or may request that the Firm answer specific questions in writing. District may require that the Firm make presentations that are pertinent to the evaluation process. If a question and/or questions are asked by District in a meeting and these questions and the answers thereto are pertinent to the proposal and the contract to be awarded, the question(s) and the answer(s) will be sent to the firm in writing for verification before they are included in the contract documents.

4.17 Prohibited Interest:
No official of the District who is authorized in such capacity and on behalf of the District to take part in negotiations or to make, accept or approve this contract, shall not have direct or indirect financial interest in the award or any part thereof. Bidder shall receive no compensation hereunder should bidder aid, abet or knowingly participate in violation of this article. For breach or violation of this article, the District shall have the right to terminate the contract either in part or in whole and any lost or damage sustained by the District in procuring the services on the open market which the Contractor agreed to supply, shall be borne and paid for by the Contractor.

4.18 Award of the Contract
If the contract is awarded, it will be to the responsible Firm whose proposal is deemed to be the best proposal and whose proposal best meets the requirements of the RFP District, cost and other factors considered. It is anticipated that award of the contract will be made within ninety (90) working days after the submission of proposals. If award cannot be made within this time period, the Firms will be requested, in writing, to extend the time period during which the firm agrees to be bound by his proposal. Written notification will be made to unsuccessful proposals.

4.19 Error in Proposal
Proposals shall be bound by the terms and conditions of the proposal, notwithstanding the fact that errors are contained therein. However, if material errors are found in a proposal, District
will notify the firm that the proposal, as submitted, appears to contain errors and require the 
firm to correct the errors.

4.20 **Workers’ Compensation**
In accordance with the provision of Section 3700 of the Labor Code of the State of California, 
each firm shall sign and file with District the following certificate before performing the work 
under the contract:

“I am aware of the provisions of Section 3700 of the Labor Code, which requires every 
employer to be insured against liability for workers’ compensation or to undertake self-
insurance in accordance with the provisions of that code before commencing the performance 
of the work of the contract.”

4.21 **Related Experience**
All Firms must submit information that indicates specific qualifications to perform the services 
as specified herein. Each Firm shall submit with the proposal a list of clients for whom such 
services have been provided during the past two (2) years. The reference list shall include the 
names and addresses of each client; the names, titles, and current telephone numbers of each 
client’s cognizant-manager, and the dates the work was performed. During the evaluation and 
selection process, the District may contact each of the referenced clients. Firms are hereby 
advised that the District maintains the sole and exclusive right to determine whether or not the 
Firm can perform the work to be done. This determination will specifically address the level, 
background, and experience of individuals to be assigned to perform the audit services.

4.22 **Covenant Against Contingent Fees**
The firm warrants that no person or selling agency has been employed or retained to solicit or 
secure the contract to be executed as a result of the RFP upon an agreement of understanding 
for a commission, percentage, brokerage or contingent fee, except bona fide established 
commercial or selling agencies, which are so declared and maintained by the firm for the 
purpose of securing business.

For breach or violation of this warranty, the District shall have the right to terminate any 
contract that may be entered into with the Firm and, in its sole discretion, to deduct from the 
contract price or consideration, or otherwise recover, the full amount of such commission, 
percentage, brokerage or contingent fees.

4.23 **Compensation**
District shall pay the Firm an amount not to exceed the maximum cost proposed in the RFP. 
Payments shall be made upon receipt of itemized invoices delivered to the attention of the 
Interim Vice President - Finance and Business for review and processing.

4.24 **Firm’s Obligation to Perform Work in Accordance with Standards**
If the work performed by the Firm is not in accordance with the standards as specified herein, 
or if the work product submitted by the Firm are not complete. The Firm, at no additional cost, 
shall complete the work to the satisfaction of the College.

4.25 **Insurance and Indemnification**
The Firm shall hold harmless and indemnify the District and all officers, agents, employees, and members of the District from and against any such actions, suits or other proceedings.

4.26 Independent Contractor Status
It is expressly understood that the Firm named in any contract entered into by the District is acting as an “independent contractor” and not as an agent or employee of the District.

4.27 Assignment of Contract
The Firm shall not assign or transfer, by operation of law or otherwise, any or all of the Firm’s rights, burdens, duties, or obligations with regard to this Agreement, without prior written consent of the District.

4.28 Insurance
Firm shall maintain public liability and property damage insurance in the amount of no less than One Million Dollars ($1,000,000) combined single limit, which shall be primary over any other insurance carried by District. The Firm shall also maintain Errors and Omissions coverage of no less than One Million Dollars ($1,000,000). Firm shall not commence work under the Contract until he had obtained all required insurance and certificates of insurance have been delivered to, and approved by the Director, Purchasing. Certificates of insurance shall include the following clause:

“This policy shall not be canceled or reduced in required limits of liability until written notice has been given to the District of such cancellation or reduction. The date of cancellation or reduction shall not be less than sixty (60) days after the date the notice is given.”

Certificates of insurance shall name the Rio Hondo Community College District, Rio Hondo College and the Rio Hondo Board of Trustees as additional insured’s. In addition, said certificates shall state the extent of insurance, the locations and operations to which insurance applies, and the expiration date of the insurance.

4.29 Permits and Licenses
The Firm, its employees and agents, shall secure and maintain valid certifications and licenses as require by law for the execution of services pursuant to the contractual terms.

4.30 Termination of Agreement
District may terminate the Agreement at any time without penalties by providing Firm with 30 days written notification.

4.31 Termination for Nonperformance
If the Firm fails to perform services as required including furnishing properly trained personnel, or if he should be adjudged bankrupt, or if a receiver should be appointed on account of his insolvency, or should fail to provide services as required, then District may, with prejudice to any other right or remedy, or penalties, serve written notification of intention to terminate the Agreement. Such notice shall contain the reasons for such intention to terminate.

5. STATEMENT OF WORK

Rio Hondo Community College District (RHCCD) desires to engage a qualified electrical contractor for the: 1) Retrofit of existing lighting with a new LED lights at the interior and exterior of the Administration
Building and, 2) Retrofit or replace exiting light fixtures at the Lot A Bridge, and 3) Upgrade HVAC equipment and systems at the Administration Building. Also, this project contains two Add Alternates #1 & #2 to Retrofit existing lighting and upgrade existing HVAC equipment at the RHC Fire Academy. This project has been identified as energy efficiency improvements to the District with any contract(s) to be procured under the authority of California Government Code Section 4217.10 through 4217.18.

The District’s goal is to improve the energy efficiency performance of the interior and exterior lighting systems and HVAC equipment and systems, and to improve maintenance costs and energy consumption through the use of various utility incentives and the Prop 39 program.

See Exhibits for the Rio Hondo College LED lighting Study and HVAC Study which was the basis for the fixture selection, rebate application, and proposition 39 funding application.

**SCOPE OF WORK – LIGHTING RETROFIT (Includes information below and clouded information on Exhibits)**

5.1 Campus site visitations is required to become familiar with each unique site and each respective operation.

5.2 Present schedule and work plan to College representatives for approval.

5.3 Purchase and install qualified luminaires as per the performance criteria outlined, in the quantities and locations identified in the contract documents.

5.4 Provide all necessary equipment, hardware, adapters, and any other materials necessary for a quality installation. Ensure installation quality, compliance with project schedule and proper disposal and/or recycling of old luminaires. Provide the District with all hazardous materials manifests.

5.5 Contractor shall warrant all labor and replace defective LED luminaires and parts thereof for a period of one year from the date of project acceptance. The warranty for the luminaires shall be no less than ten (10) years. For screw in fixtures, a five (5) year warranty is acceptable.

5.6 Manage deliveries and staging of material to site including any secured storage considerations.

5.7 Prepare and manage appropriate waste disposal facility and facilitate proper disposal of waste material including old luminaires. All excess property for this job shall be coordinated with the campus for either disposal or salvaging.

5.8 The District shall meet on a weekly basis with contractor to review installation, work safety, public safety and waste material handling procedures and requirements. Inspect final work and correct any “punch list” items.
5.9 The Contractor shall test and commission all LED lights outlined in the plans to ensure that they work as per the performance specifications.

5.10 Train District personnel in all aspects of routine operation, maintenance, and safety of the LED lighting luminaires, variable frequency drive, that were installed per contract.

5.11 Where Bi-Level switching is required a 2nd LED driver will need to be installed.

5.12 The contractor will be responsible cleaning of all prismatic lenses where applicable.

5.13 Contractor to replace only existing damaged lenses per 5.21. Contractor is responsible to replace damaged lenses that occur during retrofit work.

5.14 NOT USED

5.15 All work shall be performed under written contract, which shall be in a form provided by and acceptable to the District.

5.16 Where AB switching occurs on four (4) lamp fixtures, two (2) drivers are required and shall be included in cost.

5.17 Contractor replace any damaged diffusers that are discovered.

5.18 Contractor to survey all rooms at buildings identified in RFP and prepare a spreadsheet of existing light fixture count and information that will be used later in the closeout phase.

5.19 The College conducts classes M-TH from 6:30am to 10:00pm. Friday from 8:00am to 1:30pm. Saturday from 8:00am to 1:30pm. Contractor to schedule work at a time for maximum efficiency, but not to disrupt the College operations. The College has security 24/7 and the Contractor may schedule work after hours, at graveyard shift, or on weekends.

5.20 Contractor is required to provide any safety equipment and work lighting needed when scheduling work hours.

5.21 Allowance: Each firm shall include, within their Proposed Price, an allowance of $20,000.00. The intention of the allowance is for the replacement of items such as: battery backup drivers, damaged tombstones, or missing/damaged lenses that are pre-existing conditions. Successful contractor shall list the allowance on Schedule of Values, and when the condition arises, submit an Allowance Proposal Request prior to performing any work that falls under the intention of this allowance. The College representative will evaluate the proposal request.

5.22 It is not necessary to change out all fixture tombstones as part of the basic scope. The external drivers will accommodate both shunted and non-shunted tombstones.

5.23 Not all four (4) lamp fixtures have B fixtures. Not all Three (3) lamp fixtures have AB fixtures.
5.24 On drivers that are specified as dimming, the drivers will operate at 100% if the dimming feature is not connected. College classes of offices do not require dimming, so it is not necessary to connect the dimming feature. However, contractor is responsible to train all workers on manufacturers wiring requirements.

5.24 For Information Only: The College recently completed an LED interior lighting retrofit project and used Linmore LED fixtures for tube replacements and Cree for screw in fixtures.

SCOPE OF WORK – HVAC SYSTEMS (See clouded information on Exhibits)

POST INSTALLATION ACTIVITIES INCLUDING ADMINISTRATION

5.26 Following District acceptance, produce final project reporting to the District including a final as-build of all of the LED lighting luminaries and HVAC upgrades in an electronic PDF form and hardcopy. Project report to include spreadsheet of existing fixture count and information as well as new retrofit fixture count and information delineating energy saving information.

5.27 Assist the District and it’s consultants in the preparation of all documentation including validation of the cost associated with the project as part of the final audit.

5.28 Coordinate with the designated District consultant and or SCE representative for a final review of all energy savings and construction cost estimates to ensure accuracy and compliance.

6. CONTRACTOR QUALIFICATIONS & BID REQUIREMENTS

General Proposal Requirements.
6.1 Proposals shall be submitted in accordance with the instructions outlined in this RFP.

6.2 Proposals received by the District that omit any portion of these submittal requirements may be deemed non-responsive.

6.3 Respondent warrants upon submission of Proposal that the Respondent has visited and observed the site conditions to provide a complete and operational system in accordance with referenced specifications in this RFP.

Respondent Qualifications
6.4 The Respondent shall be a licensed contractor, in good standing, pursuant to the California Business and Professions Code, and licensed to perform the work called for in the contract documents. The successful Respondent must possess a valid active Class C-10 License at time of award of contract. The Contractor's State License number shall be clearly stated on the Respondent’s proposal.
6.5 The Respondent shall show credentials related to sustainable construction and/or energy efficiency standards (e.g. Coalition for High Performance Schools and Leadership in Energy and Environmental Design).

6.6 The Respondent shall show experience related to sustainable construction and/or energy efficiency standards, including a list of specific projects the firm has completed in the past five years (This should include the project name, owner, dates of the period of service, and dollar value of the services performed by the firm).

6.7 The Respondent shall show experience related to Community College Districts administration including a list of specific projects the firm has completed in the past five years (This should include the project name, owner, dates of the period of service, and dollar value of the services performed by the firm).

6.8 The Respondent shall show experience on projects involving LED interior and exterior retrofit lighting projects including all electrical systems and electrical distribution throughout a campus or building complex. Also, Respondent shall show experience on projects regarding HVAC upgrades specific to the upgrade scope of work described within this RFP, including a list of specific projects the firm has completed in the past five years (This should include the project name, owner, dates of the period of service, and dollar value of the services performed by the firm).

6.9 NOT USED

6.10 Experience and knowledge working with educational agencies in project auditing and measuring energy savings

6.11 NOT USED

6.12 NOT USED

6.13 Schedule of Work: Work to begin immediately upon Notice To Proceed (NTP) issued by the College and work to completion on May 6, 2015. Testing Punch List and Balancing activities to be completed by May 13, 2015. As Built and Close Out activities to be completed by May 20, 2015.
7. **Non-collusion Affidavit**  
Firm must complete, sign, date, and include with its proposal, the Non-collusion Affidavit attached to this RFP.

8. **Acknowledgement Statement**  
Firm must complete, sign, date, and include with its proposal, the Acknowledgement Statement attached to this RFP.

9. **Award of Contract**  

The District reserves the right to reject any or all proposals, or to waive irregularities or informalities in any proposals.

The award of the contract will be by action of the governing board and will be based on the determination, made in the good discretion of the District, as to which Proposal offers the best value for the District and meets the requirements of Government Code sections 4217.10 through 4217.18.

Each proposal must conform and be responsive to the contract documents as defined in this RFP.

The District does not debrief about its RFP process.

The Districts decision is final in all matters related to this RFP.

10. **Evaluation Criteria**  
The following criteria will be considered, although not exclusively, in determining which firm is hired.

10.1 Contractor’s demonstrated experience in completing projects of a similar type.

10.2 Costs of providing the entire scope of work.

10.3 Ability of proposed luminaires to meet the required performance specifications.

10.4 Ability to achieve reductions in energy consumption and maintenance costs.

10.5 Ability to complete the project within the stated schedule in 6.13 and as stated in this RFP.

11. **Mandatory Job Walk**  
There will be a mandatory Pre-Submission Meeting and Job Walk on **November 24, 2015 at 1:30 P.M.** starting at Rio Hondo College, 3600 Workman Mill Rd., Whittier, CA 90601.  
**Meeting will start in Science Building Classroom S-121.** Visitor parking spaces are available in Parking Lot C.
12. Submission

Submit the Response to this RFP. Responses failing to address the listed requirements will be deemed non-responsive.

Submit responses in sealed envelopes:
Proposal shall be submitted by no later than December 10, 2015, before 2:00pm. It is the sole responsibility of the person submitting the proposal to see that it is delivered on time.

Proposals shall be mailed or delivered to the attention of:

Timothy L. Connell, Director, Contract Management and Vendor Services
Rio Hondo College, 3600 Workman Mill Road A-122
Whittier, CA 90601-1699.
PROPOSAL FORM

TO: Rio Hondo Community College District, acting by and through its Governing Board, herein called “DISTRICT”.

1. Pursuant to and in compliance with your Request for Proposals and other documents relating thereto, the undersigned Respondent, having familiarized himself with the terms of the contract, the local conditions affecting the performance of the contract and the cost of the work at the place where the work is to be done, hereby proposes and agrees to perform within the time stipulated, the contract, including all of its component parts, and everything required to be performed, including its acceptance by the DISTRICT, and to provide and furnish any and all labor, materials, tools, expendable equipment, and utility and transportation services necessary to perform the contract and complete all of the work in a workmanlike manner required in connection with the RFP # 2043 LED LIGHTING CONVERSION AND ENERGY EFFICIENCY PROJECT - Y3, in the DISTRICT described above, all in strict conformance with the Exhibits and specifications and other contract documents on file at the Purchasing Office of said DISTRICT for amounts set forth herein.

2. ADDENDA: The undersigned has thoroughly examined any and all Addenda (if any) issued during the Proposal period and is thoroughly familiar with all contents thereof and acknowledges receipt of the following Addenda: (Respondent to list all addenda).

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3. PROPOSED PRICE

3.1 TOTAL: ________________________________________________

TOTAL CASH PURCHASE PRICE IN WORDS & NUMBERS:

__________________________________________________________ DOLLARS

($ ____________________________)

3.2 ADD ALTERNATE #1 TOTAL: ________________________________

TOTAL CASH PURCHASE PRICE IN WORDS & NUMBERS:

__________________________________________________________ DOLLARS

($ ____________________________)

3.3 ADD ALTERNATE #2 TOTAL: ________________________________

TOTAL CASH PURCHASE PRICE IN WORDS & NUMBERS:

__________________________________________________________ DOLLARS

($ ____________________________)

RFP# 2043
Rio Hondo Community College District
4. **TIME FOR COMPLETION:** The DISTRICT may give a notice to proceed within ninety (90) days of the award of the Proposal by the DISTRICT. Once the CONTRACTOR has received the notice to proceed, the CONTRACTOR shall complete the work within the following schedule: One Hundred Three (103) consecutive calendar days. Time is of the essence. The undersigned agrees that failure to complete the work within the time set forth herein will result in the imposition of liquidated damages for each consecutive calendar day of delay, in the amount of One Thousand Dollars ($1,000) per day. (Government Code Section 53069.85)

5. In the event that the DISTRICT desires to postpone giving the notice to proceed beyond this ninety (90) day period, it is expressly understood that with reasonable notice to the CONTRACTOR, giving the notice to proceed may be postponed by the DISTRICT. It is further expressly understood by the CONTRACTOR, that the CONTRACTOR shall not be entitled to any claim of additional compensation as a result of the postponement of giving the notice to proceed.

If the CONTRACTOR believes that a postponement will cause a hardship to it, the CONTRACTOR may terminate the contract with written notice to the DISTRICT within ten (10) days after receipt by the CONTRACTOR of the DISTRICT’s notice of postponement. It is further understood by the CONTRACTOR that in the event that the CONTRACTOR terminates the Contract as a result of postponement by the DISTRICT, the DISTRICT shall only be obligated to pay the CONTRACTOR for work performed by the CONTRACTOR at the time of notification of postponement. Should the CONTRACTOR terminate the contract as a result of a notice of postponement, the DISTRICT shall have the authority to award the contract to the next lowest responsible Respondent.

6. It is understood that the DISTRICT reserves the right to reject any or all Proposals and/or waive any irregularities or informalities in this Proposal or in the Proposal process. The CONTRACTOR understands that it may not withdraw this Proposal for a period of ninety (90) days after the date set for the opening of Proposals.

7. The required Non-collusion Declaration is attached hereto.

8. It is understood and agreed that if written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned after the opening of the Proposal, and within the time this Proposal is required to remain open, or at any time thereafter before this Proposal is withdrawn, the undersigned will execute and deliver to the DISTRICT a contract in the form attached hereto in accordance with the Proposal as accepted, and that he will also furnish and deliver to the DISTRICT the Performance Bond and Payment Bond, all within five (5) calendar days after receipt of notification of award, and that the work under the contract shall be commenced by the undersigned Respondent, if awarded the contract, by the start date provided in the DISTRICT’s Notice to Proceed, and shall be completed by the CONTRACTOR in the time specified in the contract documents.

9. Notice of Intent to Award Contract or other correspondence should be addressed to the undersigned at the address stated below.
10. The names of all persons interested in the foregoing proposal as principals are as follows:


(IMPORTANT NOTICE: If Respondent or other interested person is a corporation, state the legal name of such corporation, as well as the names of the president, secretary, treasurer, and manager thereof; if a co-partnership, state the true names of the firm, as well as the names of all individual co-partners comprising the firm; if Respondent or other interested person is an individual, state the first and last names in full.)

11. The undersigned Respondent shall be licensed and shall provide the following information:

Respondent’s California Contractor’s License Number: License expiration date: Name on License: Type of License:  

Respondent’s California DIR Department of Industrial Relations Current & Valid Registration Number: 

If the Respondent is a joint venture, each member of the joint venture must include the above information.

12. Time is of the essence regarding this contract, therefore, in the event the Respondent to whom the Notice of Intent to Award Contract is given fails or refuses to post the required bonds and return executed copies of the Agreement form within five (5) calendar days from the date of receiving the Notice of Intent to Award Contract, the DISTRICT may declare the Respondent’s Proposal deposit or bond forfeited as damages.

13. Pursuant to Government Code Section 4552, in submitting a Proposal to the DISTRICT, the Respondent offers and agrees that if the Proposal is accepted, it will assign to the DISTRICT all rights, title, and interest in, and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. § 15) or under the Cartwright Act (Business and Professions Code Sections 16700, et seq.), arising from the purchase of goods, materials, or services by the Respondent for sale to the DISTRICT pursuant to the Proposal. Such assignment shall be made and become effective at the time the DISTRICT tenders final payment to the Respondent.

14. The Respondent declares that he/she has carefully examined the location of the proposed work, that he/she has examined all component parts of the RFP and all information provided by DISTRICT related thereto, including the proposed Design-Build Agreement, and read the accompanying instructions to Respondents, and hereby proposes and agrees, if this Proposal is accepted, to furnish all services, equipment, and materials and do all work required to
complete the said Project in accordance with the RFP, in the time and manner therein prescribed for the unit cost and lump sum amounts set forth in this Proposal Form.

15. The Respondent is familiar with Government Code Sections 12650, et seq., and Penal Code Section 72 and understands that false claims can lead to imprisonment.

I, the below-indicated Respondent, declare under penalty of perjury that the information provided and representations made in this Proposal are true and correct.

______________________________
Proper Name of Respondent

______________________________
Address

By: ___________________________ Date: ___________________________
Signature of Respondent

NOTE: If Respondent is a corporation, the legal name of the corporation shall be set forth above together with the signature of authorized officers or agents and the document shall bear the corporate seal; if Respondent is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if Respondent is an individual, his signature shall be placed above.

All signatures must be made in permanent blue ink.
Acknowledgement Statement

Sealed Proposals: All proposal sheets and this original acknowledgement form must be executed and submitted under sealed cover. The face of the cover must contain, in addition to the address, the date and time of the proposal opening and the proposal number. All proposals are subject to the conditions stated within the RFP. Proposal must contain a manual signature of authorized representative in the space provided below. Proposals must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made to the attached proposal must be initialed. The company name must appear on each page of the proposal. Each page of the proposal must be sequentially numbered. Proposals not presenting rates or establishing a basis for their rates will be considered non-responsive and not responsible. Original plus three copies (4-total) of the proposal shall be provided.

I certify by my signature below that I have been given District’s RFP# 2043 including EXHIBITS and materials that summarize the terms and conditions of the REQUEST FOR PROPOSAL (RFP # 2043 LED LIGHTING CONVERSION AND ENERGY EFFICIENCY PROJECT – Y3, and will submit said RFP on or prior to December 10, 2015, before 2:00 P.M.

Firm Name: ____________________________________________________________

Firm’s Address: _______________________________________________________

Phone: __________________________________________________________________ Fax: __________________________________________________________________

E-mail: __________________________________________________________________

Federal Tax Identification Number: ________________________________

Authorized Signature (manual)________________ (Typed or Printed) Name & Title of Signatory

If a Corporation, place corporate seal here:

[Seal]

Acknowledgement Statement must be completed and submitted along with the RFP otherwise bidders submission will be considered not responsive and not responsible. (Bidder shall not redesign this form)
NON-COLLUSION AFFIDAVIT

STATE OF CALIFORNIA
COUNTY OF __________________________

I, ___________________________ being first duly sworn, deposes and says that I am the
(Typed or Printed Name)
__________________________________________ of ___________________________, the party
(Title) (Bidder Name)
submitting the foregoing Proposal (the “Bidder”). In connection with the foregoing Bid Proposal, the
undersigned declares, states and certifies that:

1.01 The Proposal is not made in the interest of, or on behalf of, any undisclosed person,
partnership, company, association, organization or corporation.

1.02 The Proposal is genuine and not collusive or sham.

1.03 The Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or
sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any
other bidder or anyone else to put in sham bid, or to refrain from bidding.

1.04 The Bidder has not in any manner, directly or indirectly, sought by agreement, communication,
or conference with anyone to fix the bid price, or that of any other bidder, or to fix any
overhead, profit or cost element of the bid price or that of any other bidder, or to secure any
advantage against the public body awarding the contract or of anyone interested in the
proposed contract.

1.05 All statements contained in the Proposal and related documents are true.

1.06 The Bidder has not, directly or indirectly, submitted the bid price or any breakdown thereof, or
the contents thereof, or divulged information or data relative thereto, or paid, and will not pay,
any fee to any person, corporation, partnership, company, association, organization, bid
depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Executed this ___ day of __________, 20___ at __________ (City, County and State)

I declare under penalty of perjury under the laws of the State of California that the foregoing is
true and correct.

__________________________________________
Signature

__________________________________________
(Address)

__________________________________________
Name Printed or Typed

__________________________________________
(City, County and State)

__________________________________________
(Area Code and Telephone Number)
LIST OF SUBCONTRACTORS
RFP # 2043 LED Lighting Conversion and Energy Efficiency Project – Y3

<table>
<thead>
<tr>
<th>License No.</th>
<th>DIR Registration No.</th>
<th>Name of Subcontractor Address of Subcontractor</th>
<th>Trade or Portion of Work</th>
<th>Dollar value of Work</th>
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</table>

Name of Bidder: __________________________________________

Authorized Signature: ________________________________
VERIFICATION OF CONTRACTOR AND
SUBCONTRACTORS’ DIR REGISTRATION

I am the __________________________ of __________________________ (“Bidder”) (Title/Position) (Bidder Name)

Submitting the accompanying Bid Proposal for the work described as LED Lighting Conversion and Energy Efficiency Project – Y3.

1. The Bidder is currently registered as a contractor with the Department of Industrial Relations (“DIR”).

2. The Bidder’s DIR Registration Number is: ____________. The expiration date of the Bidder’s DIR Registration is ________, 20____.

3. If the Bidder is awarded the Contract for the Work and expiration date of the Bidder’s DIR Registration will occur: (i) prior to expiration of the Contract Time for the Work; or (ii) prior to the Bidder completing all obligations under the Contract for the Work, the Bidder will take all measures necessary to renew the Bidder’s DIR Registration so that there is no lapse in the Bidder’s DIR Registration while performing Work under the Contract.

4. The Bidder, if awarded the Contract for the Work will remain a DIR registered contractor for the entire duration of the Work.

5. The Bidder has independently verified that each subcontractor identified in the Subcontractors List submitted with the Bid Proposal of the Bidder is currently a DIR registered contractor.

6. The Bidder has provided the DIR Registration Number for each subcontractor identified in the Bidder’s Subcontractors’ List or within twenty-four (24) hours of the opening of Bid Proposals for the Work, The Bidder will provide the District with the DIR Registration Number for each subcontractor identified in the Bidder’s Subcontractors List.

7. The Bidder’s solicitation of subcontractor bids included notice to prospective subcontractors that (i) all sub-tier subcontractors must be DIR registered contractors at all times during performance of the Work; and (ii) prospective subcontractors may only solicit sub-bids from and contract with lower-tier subcontractors who are DIR registered contractors.

8. If any of the statements herein are false or omit material facts rendering a statement to be false or misleading, the Bidder’s Bid Proposal is subject to rejection for non-responsiveness.

9. I have personal first hand-knowledge of all of the foregoing.

I declare under penalty of perjury under California law that the foregoing is true and correct.

Executed this __ day of __________________________, 20__ at __________________________. (City and State)

______________________________
(Signature)

______________________________
(Name, typed or printed)
DRUG-FREE WORKPLACE CERTIFICATION

I, _____________________________ the _____________________________
of _____________________________, declare, state and certify that:

1.01 I am aware of the provisions and requirements of California Government Code §§8350 et seq., the Drug Free Workplace Act of 1990.

1.02 I am authorized to certify, and do certify, on behalf of Contractor that a drug free workplace will be provided by Contractor by doing all of the following:

   A. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited in Contractor's workplace and specifying actions which will be taken against employees for violation of the prohibition;

   B. Establishing a drug-free awareness program to inform employees about all of the following:

      1. The dangers of drug abuse in the workplace;
      2. Contractor's policy of maintaining a drug-free workplace;
      3. The availability of drug counseling, rehabilitation and employee-assistance programs; and
      4. The penalties that may be imposed upon employees for drug abuse violations;

   C. Requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by subdivision (A), above, and that as a condition of employment by Contractor in connection with the Work of the Contract, the employee agrees to abide by the terms of the statement.

1.03 Contractor agrees to fulfill and discharge all of Contractor's obligations under the terms and requirements of California Government Code §8355 by, inter alia, publishing a statement notifying employees concerning: (a) the prohibition of any controlled substance in the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the Work of the Contract be given a copy of the statement required by California Government Code §8355(a) and requiring that the employee agree to abide by the terms of that statement.

DATE: ________________

By: _____________________________ _____________________________
    Signature                      Name and Title
CONTRACTOR’S CERTIFICATE REGARDING ALCOHOLIC BEVERAGE and TOBACCO-FREE CAMPUS POLICY

The CONTRACTOR agrees that it will abide by and implement the DISTRICT’s Alcoholic Beverage and Tobacco-Free Campus Policy, which prohibits the use of alcoholic beverages and tobacco products, at any time, on DISTRICT-owned or leased buildings, on DISTRICT property and in DISTRICT vehicles. The CONTRACTOR shall procure signs stating “ALCOHOLIC BEVERAGE AND TOBACCO USE IS PROHIBITED” and shall ensure that these signs are prominently displayed in all entrances to DISTRICT campus property at all times.

DATE: __________________________

CONTRACTOR NAME: ________________________________

By: ___________________________  __________________________
    Signature                        Name and Title
STATEMENT OF ANTICIPATED DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION
RIO HONDO COMMUNITY COLLEGE DISTRICT

Project: RFP# 2035 LED Lighting Conversion and Energy Efficiency Project

The Rio Hondo Community College District has a participation goal for Disabled Veteran Business Enterprises of at least three percent (3%) per year of the overall dollar amount of funds expended each year by the District for all contracts.

( ) Our firm anticipates using Disabled Veteran Business Enterprise (DVBE) participation on this project to the maximum degree possible and will, following execution of an agreement, make a Good Faith Effort to invite and encourage DVBE participation.

At the conclusion of the project, we will report to the District the total dollar amount of DVBE participation (service/materials) used under our contract in compliance with the District’s Policy.

OR

( ) Our firm anticipates using Disabled Veteran Business Enterprise (DVBE-supplied services/materials amounting to $___________or ________% on this project. Attached is the DVBE Certification Letter(s) for the DVBE firms/individuals we anticipate using.

At the conclusion of the project, we will report to the District the total dollar amount of DVBE participation (service/materials) used under our contract in compliance with the District’s Policy.

I certify that I have read the above and will comply with the anticipated participation of Disabled Veteran Business Enterprises in this contract.

________________________________________________________________________
Signature                  Typed or Printed Name

________________________________________________________________________
Title                     Company

________________________________________________________________________
Address                   City, State, Zip
HAZARDOUS MATERIALS

Discovery of Hazardous Materials.

In the event the Contractor encounters or suspects the presence on the job site of material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by § 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the District and the Architect in writing, whether or not such material was generated by the Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the District and the Contractor.

Hazardous Material Work Limitations.

In the event that the presence of hazardous materials is suspected or discovered on the Site (except in cases where asbestos and other hazardous material work in the Contractor’s responsibility), the District shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required pursuant to Article 7 to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by District, as certified by an independent testing laboratory and approved by the appropriate government agency.

Indemnification by Contractor for Hazardous Material Caused by Contractor.

In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the District for any additional costs incurred as a result of Contractor’s generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless District and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

Terms of Hazardous Material Provision.

The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.
EXHIBIT 1
Rio Hondo College- Main Campus Map

CAMPUS DIRECTORY

- Bicycle Racks
- Designated Smoking Area
- Elevator
- EV Charging Station
- Free Speech Area
- Metered Parking
- Publicity Posting Area
- Security Office (A117)

STUDENT PARKING

STAFF PARKING

BUILDING LEGEND

A Administration
AJ Administration of Justice
AJA Administration of Justice Annex
AT Applied Technology
ART Art
B Business
BB Black Box Theater

Bo Bookstore
C Campus Inn
CP Central Plant
CR Central Receiving
CDC Child Development Center
CT Courts (Tennis)
G Gymnasium
L L Building
LQ Lower Quad
LRC Learning Resource Center
M Music
MC Modular Classrooms
MN Maintenance
O Observatory
PB Information/Parking Booth
PE Physical Education
S Science and Math
SS Student Services
SU Student Union
UQ Upper Quad
W Wray Memorial Theater

Rio Hondo College
Administration Building – Lighting Systems

The Administration Building consists of classrooms, offices, conference rooms and administrative storage rooms. The lighting in this building is comprised mostly of 4 foot T8 Recessed troffer fixtures, with some surface mounted fluorescent fixtures, recessed can fixtures, screw in incandescent and compact fluorescent lamps. The classrooms, offices, hallways and conference rooms use 2-lamp, 3-lamp and 4-lamp 32W T8 recessed troffers, while restrooms, facilities support areas, some hallways and some offices use surface mounted 2-lamp and 3-lamp 32W T8 fixtures. The screw-in and recessed can fixtures use both incandescent and compact fluorescent lamps are found in some classrooms and in the large conference rooms. There are also some large recessed arrays of T8 lamps located in the large conference room and some offices. The controls for the lighting consists mostly of wall switches, with some old and faulty occupancy sensors in some offices and classrooms. DEER operating hours of 2,420 hours for community college interior lighting are assumed.

The exterior lighting consists of several metal halide floodlights mounted on the building roof perimeter, surface mount 2-lamp 32W T8 fixtures mounted in the exterior hallways and some small exterior wall mounted fixtures. The fixtures operate 4,100 hours annually based on a time clock as per DEER for exterior fixtures.
Administration building is conditioned by two dual duct air handling units with variable air volume configuration. The air handling units were installed during the original construction year of 1963 and all the interior components are from the original construction. Air handling units are installed inside a separate mechanical room in the building and all the zone mixing boxes are installed above ceiling spaces. One air handler serves the first floor area and the other air handler serves the second floor areas of the building.

In construction, Air handler-1 has chilled and hot water coils with 3-way pneumatic valves that are supplied with chilled and heating hot water from the campus central plant for heating and cooling respectively. Airflow from the unit is provided by a belt-driven fan with 15 HP standard motor that is connected to the Variable Frequency Drive (VFD) for Variable Air Volume adjustment. Additionally, as the air handler is a dual duct system, each duct has a pneumatic modulating damper that is controlled based on the zone temperature and supply air requirement. Further, the unit is supplied with outside air through economizing damper section. It was observed during the walkthrough that all the control valves and damper actuators are pneumatic type systems. During the walkthrough it was observed that even though the air handler fan is connected to a VFD, the fan was operating at a constant 85% speed.

Air Handler-2 serves just the second floor of the building and has chilled and hot water valves receiving chilled and hot water from the campus central plant respectively. Conditioned air from air handler 2 is provided by a belt-driven fan with 25 HP standard motor that is connected to the Variable Frequency Drive (VFD) for Variable Air Volume adjustment. Additionally, as the air handler is a dual duct system, each duct has a DDC modulating damper that is controlled based on the zone temperature and supply air requirement. Additionally, AHU-2 was recently refurbished with chilled and hot water valves replaced by 2-way DDC system. Along with the valves, all the dampers such as cold deck, hot deck, economizer, and return air dampers were converted to DDC type units. During the walkthrough it was observed that control strategies such as hot deck and cold deck reset are also in place at AHU-2. Economizer control is also programmed to use "free cooling" whenever the outside air temperature is less than 55 Deg F.

**High Level Sequence of operation:**

1. Space thermostats senses the zone temperature, and based on the zone temperature cooling or heating is requested.

2. Based on the cooling/heating requirement in the space, the cooling and heating valves modulate to achieve specific supply air temperatures in each duct section.

3. Further down the ducting, cold and hot air from the dual ducts are mixed inside a mixing box near the zone to attain a certain supply air zone temperature setpoint.

4. Additionally, modulating dampers at the each duct changes damper positions based on the zone temperature/flow condition, which in turn varies the duct static pressure resulting in supply fan speed variation.

5. The fixed outside air damper on the air handler modulates to provide minimum outside air to the space. At suitable outside air conditions, economizer function is activated to provide "free cooling". During free cooling, economizer damper brings in cold outside air to cool the space instead of chilled water resulting in central plant cooling energy savings.

6. Above sequence is continuously repeated to supply conditioned air at certain flow and temperature in order to maintain the zone at a specific temperature setpoint.
Fire Academy – Lighting Systems

The Fire Academy building consists of classrooms, offices, reception area, locker rooms and a gym. The lighting in this building is comprised mostly of 4 foot T8 and T12 Recessed troffer fixtures, with some surface mounted fluorescent, screw in incandescent and compact fluorescent lamps and recessed can fixtures. The classrooms, locker rooms, hallways and some offices use 2-lamp and 3-lamp T8 recessed troffers, while the rest of the offices and part of the men’s locker room use 2-lamp and 4-lamp T12 recessed troffers. The screw-in A-lamps and recessed can fixtures are found in the restrooms and reception. The controls for the lighting consists mostly of wall switches, with occupancy sensors in the gym and file room. DEER operating hours of 2,420 hours for interior lighting and 4,100 hours for exterior lighting for a typical community college are assumed for the building.

The exterior lights consist of several metal halide wall mounted floodlights, pole mounted mercury vapor flood lights on top of the building and screw-in CFL lamps in the exterior break area. The fixtures operate 4,100 hours per year.
Fire Academy – Mechanical Systems

Air conditioning at the Fire Academy is provided by (4) multi-zone rooftop package units. HVAC systems at the Fire Academy were installed in two phases. Phase-1 comprised of (2) rooftop package units each 10 tons cooling capacity and 224 MBH heating capacity installed during the year 2002 and phase-2 had (2) additional package units of each 12 tons cooling capacity and 224 MBH heating capacity installed during the year 2006. Rooftop units serve spaces such as classrooms, lobby, offices, computer lab, etc.

In construction, a rooftop package unit has DX coils for cooling and gas based heating. Airflow from the unit is provided by a belt-driven fans with capacities ranging between 3 HP and 5 HP with standard efficiency motors. Fans are not equipped with Variable Frequency Drives (VFD) as a result, they run continuously at 100% speed. The unit has outside air damper section to provide economizing operation. As all the package units are multi-zone type, supply airflow at individual zones are controlled by modulating automated zone dampers based on the space temperatures. During the minimum zone damper position, excess air supplied from the package unit is returned back to the unit through bypass ducts.

![Figure 4.15 - Rooftop Package Unit](image1)
![Figure 4.16 - Supply Fan Section](image2)

**High Level Sequence of operation:**

1. Space thermostats senses the zone temperature, and based on the zone temperature, cooling or heating is requested.

2. During cooling, the compressor in the package units operate to provide necessary cooling until space temperature reaches the setpoint.

3. Heating from the package units is provided by utilizing natural gas.

4. As the units do not have VFDs, supply fans continuously run at 100% speed irrespective of the zone temperature/duct static condition.

5. Zone dampers modulate based on the zone temperature condition to provide either design flow or minimum flow.

6. When the zone dampers are at minimum condition, the airflow is returned to the package units through bypass ducts.

7. Outside air damper on the air handler modulates to provide minimum outside air to the space. Additional controls need to be programmed to achieve 100% economizing function for ‘free cooling’ based on the outside air conditions.

Above sequence is continuously repeated to supply conditioned air at a certain flow and temperature in order to maintain the zone at a specific temperature setpoint.
Administration Building – Energy Efficiency Measures (EEM)

Based on the building operation, age of the equipment, type of equipment and spaces served, several energy measures were identified and analyzed at the Business building. Measures recommendation involves improvements in construction of the HVAC systems and also operational recommendations in order to achieve energy efficiency. Below table presents a summary of the energy measures with related analytics. Sections below provides detailed explanation for each measure.

<table>
<thead>
<tr>
<th>EEM</th>
<th>Measure Description</th>
<th>SCE Solution Code</th>
<th>BGE Solution Code</th>
<th>Program Type</th>
<th>On-Site Savings</th>
<th>ISU Program Savings</th>
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<th>Potential Incentive</th>
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<th>Net Simple Payback Period</th>
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<td>1.1</td>
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<td>HVAC05 HVAC/AC- Controls</td>
<td>REA</td>
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<td>3.2</td>
<td>Implement Hot and Cold Deck Reset strategy</td>
<td>AC-75342- Pneumatic to DDC- VAV and Cold Deck Warm Up</td>
<td>HVAC05 HVAC/AC- Controls</td>
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</table>

TOTAL: 286,164 81,424 9,174 193,185 64.01 8,974

EEM 1 – Re-building Air Handling Unit

Air conditioning at the Administration building is provided by (2) dual-duct air handling units which were installed during the original construction year 1966. As the air handling units were installed during the original construction, all the interior components are aged and assumed to be operating at lower performance indices, however, out of the two air handlers, Air Handler-2 has been refurbished and does not need any modifications. Air Handler-1 has not been modified and has all the original components. Conditioned air from Air Handler-1 is provided by a 15 HP belt driven supply fan. Cooling and heating inside the cold and hot decks are provided by originally installed chilled and hot water coils respectively.
Considering and age and condition of the existing equipment, this measure proposed re-building Air Handler-1 in two steps:

1. Replacement of supply fan motor with premium efficiency motor: This measure proposes replacing existing motor that is a part of the original construction with new premium efficiency motor to reduce energy use from supply fan operation.

2. Replacement of existing chilled and hot water coils with new efficient coils resulting in the improvement of delta-T and reduction in pump and fan energy use.

Detailed description is provided in the sections below for each proposed measure.

**EEM 1.1 – Replacement of Supply Fan Motor with Premium Efficiency Motor**

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,824</td>
<td>3.42</td>
<td>120</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Air conditioning at the first floor of the Administration building is provided by (1) dual-duct air handling unit which was installed during the original construction year 1965. As the air handling unit was installed during the original construction, all the interior components are from the original construction. The supply fan is attached to a 15 HP standard efficiency motor through a belt drive to provide hot and cold air to the occupied spaces in the building. Based on the walkthough, it was observed that the motor assembly in the air handling unit is aged and the motor efficiency is assumed to decrease over time due to continuous operation.

This project proposes replacing existing supply fan motor with new premium-efficiency motor. The existing units is approximately 50 years old and is expected to have standard motor installation with efficiency of around 82%. Latest premium efficiency motors can provide up to 92% efficiency. Replacement of standard motor with premium motor will have substantial energy savings potential for the facility considering the extensive use pattern of supply fan.

This measure is not eligible for incentive under the SCE Customized Incentive Program, thus no program savings are calculated, however, savings estimated are potential savings from measure implementation.

**EEM 1.2 – Replacement of existing cooling and heating coils with new coils**

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
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</thead>
<tbody>
<tr>
<td>39,654</td>
<td>9.30</td>
<td>558</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Administration building air handler (AHU-1) that serves the first floor is a dual duct system with hot and cold deacks to maintain a specific supply air temperature by mixing hot and cold air from the air handler. To provide hot and cold air, the air handler construction consists of hot and chilled water coils that are provided with hot and chilled water from the central plant boiler and chiller respectively. The chilled and hot water coils were installed during the original construction and no changes have been made since then. During the walkthrough it was observed that the coils are aged and are assumed to operate at lower efficiencies compared to the design resulting in excess cooling and fan operation.
This measure proposes replacement of existing chilled and hot water coils with new coils. Installation of new coils will lead to effective heat transfer resulting in energy efficient cooling or heating of supply air. When supply air is adequately heated or cooled, savings are realized through reduction in pumping and fan energy use.

This measure is not eligible for incentive under the SCE Customized Incentive Program, thus no program savings are calculated, however, savings estimated are potential savings from measure implementation.

**EEM 2 – Pneumatic to DDC Conversion and Integration to Existing EMS**

Administration building first floor HVAC system has several control elements such as zone thermostats, air handling damper controllers, chilled/hot water valves, static pressure sensors etc. All the control elements were originally installed pneumatic type systems and do not provide efficient control in terms of temperature control, airflow and/or chilled/hot water flow. Existing pneumatic controllers makes use of compressed air for temperature detection, pressure sensing, damper position and valve position control which is unreliable considering the sensitivity and accuracy requirements of controlling a complex air conditioning system. In the case of pneumatic systems, it is difficult to attain high levels of accuracy considering the indirect correlation of air compression and actual temperature, pressure, and damper/valve positions.

This measure proposes replacement of all pneumatic controllers on the first floor HVAC system with Direct Digital Control (DDC) based system for better controllability and accuracy. Further, integrating all the DDC points to the existing Allerton Energy Management System (EMS) for better visibility and controllability. DDC systems are basically electronically controlled systems which can provide direct damper/valve controlling based on inputs such as zone temperature, duct static pressures, etc. DDC controllers make use of Proportional Integral and Derivative (PID) functions that offers precise controlling of physical damper/valve positions which can be directly correlated to space conditioning requirements. Another major advantage of DDC systems are that the points controlled through DDC can be viewed/controlled through a remote workstation which will result in on-going and easy maintenance of systems. As a part of the Pneumatic to DDC measure additional control measures are proposed as below:

A. Variable Air Volume Control Strategy
B. Hot and Cold Deck Temperature Reset Control

Control elements to be replaced at the minimum under this measure are:

2. Valve Actuators : Chilled and hot water
3. Sensors: Zone thermostats, static pressure sensor, airflow sensors, cold and hot deck temperature sensors.

This measure is eligible for incentive under the SCE Customized Solution code, AC-75342-Pneumatic to DDC Controls and SCG Solution Code, HWS06 HW/HVAC – Controls.

As this measure proposes only control addition to the existing unit, 2013 Title-24 code is not triggered and the reported savings are estimated post-implementation of EEM-1 as a baseline. Actual or true meter savings will be the same as reported savings.
EEM 2.1 – Variable Air Volume Control Strategy

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings Electric Demand Reduction (kW)</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>67,464</td>
<td>16.41</td>
<td>3,559</td>
<td>4</td>
</tr>
</tbody>
</table>

Currently, as all the control elements at Air Handler-1 are pneumatic type and are not controlled through the existing Allerton EMS, supply fan speed is not effectively controlled during air handler operation. The existing air handler however has a Variable Frequency Drive (VFD) installed. Considering the age of the equipment and as all the control elements connected to the air handler are pneumatic type, which does not effectively allow VFD to decrease the fan speed based on specific duct static setpoints, minimum speed of the fan is considered as 85% for the existing condition, which was verified from the supply fan VFD control panel during the walkthrough.

This measure proposes controlling the supply fan speed based on the static pressure in each deck. Static pressure setting in each deck depends on zone temperature requirements. Basic control strategy would include:

1. Measuring zone temperatures with new thermostats and providing the signal back to controller.
2. If the zone temperature is below the heating setpoint, hot deck damper is opened and cold deck damper is relatively closed resulting in hot air flow to the space until the zone temperature reaches a value that is between the heating and cooling setpoints.
3. Similarly during cooling, cold deck damper is opened and hot deck damper is relatively closed to provide cold air to the space until the setpoint is reached.
4. Additionally, during this operation, based on the zone airflow requirements for cooling and heating, as cold deck and hot deck dampers modulates, the supply fan speed is regulated to maintain a specific duct static pressure.
5. Such a demand based variation of cooling, heating, and supply fan speeds will result in energy and gas savings.
6. Proposed minimum supply fan speed of 30% is considered for this measure to estimate the savings.

The reported savings are estimated post-implementation of EEM-1 which is using proposed fan motor efficiency of 92% as a baseline.

EEM 2.2 – Hot and Cold Deck Reset Strategy

As the business building first floor air handler (AHU-1) is a dual-duct system, there are two ducts providing cold and hot air separately to the conditioned zones. A mixing box at the zone mixes hot and cold air from the air handler and provides tempered air to the space based on the zone temperature condition. In construction, each duct has a separate chilled and hot water coils that cools or heats the air through the individual ducts. Currently, cold deck temperature is maintained at around 55 Deg F and the hot deck temperature is maintained at around 80 Deg F irrespective of the zone temperature condition. This results in continuous energy and gas use to maintain the air at specific temperatures throughout air handler operation.
This measure proposes resetting cold and hot deck temperatures based on the zone temperature condition. Cold deck reset strategy involves resetting the cold deck supply temperature setpoint from 55 Deg F through 65 Deg F based on the warmest zone. Hot deck reset strategy involves resetting the hot deck supply temperature setpoint from 90 Deg F through 80 Deg F based on the coldest zone.

**Cold Deck Reset - High level proposed sequence of operation:**

1. Warmest zone is identified through the EMS by comparing all the zone temperatures.

2. Cold deck temperature setpoint is reset upwards from 55 Deg F through 65 Deg F based on the temperature differential between the actual zone temperature and the cooling setpoint. Closer the actual zone temperature to the cooling setpoint higher the cold deck temperature.

3. When the zone temperature continues to increase above the cooling setpoint the cold deck setpoint is decreased from 65 Deg F through 55 Deg F. Increase in actual zone temperature above the cooling setpoint results in lowering the cold deck setpoint.

**Hot Deck Reset - High level proposed sequence of operation:**

1. Coldest zone is identified through the EMS by comparing all the zone temperatures.

2. Hot deck temperature setpoint is reset downwards from 90 Deg F through 80 Deg F based on the temperature differential between the actual zone temperature and the heating setpoint. Closer the actual zone temperature to the heating setpoint lower the hot deck temperature setpoint.

When the zone temperature continues to decrease below the heating setpoint, the hot deck setpoint is increased from 80 Deg F through 90 Deg F. Decrease in actual zone temperature below the heating setpoint results in increase in hot deck setpoint.

**EEM 3 – Replace Screw-Ins and pin-based incandescent and CFLs with LEDs**

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCG Solution Code</th>
<th>Electricity Savings (kWh/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>IOU Program Savings (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($/yr)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure SIR</th>
<th>EUL (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT-10965          -</td>
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<td>654</td>
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<tr>
<td>LT-12834          -</td>
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<td>0</td>
<td>44</td>
<td>0.01</td>
<td>0</td>
<td>8</td>
<td>2.5</td>
<td>22.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LT-89789          -</td>
<td>4,680</td>
<td>1.30</td>
<td>-26</td>
<td>3,128</td>
<td>0.94</td>
<td>-16</td>
<td>1</td>
<td>18.3</td>
<td>18.3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The interior of the Administration Building features both directional and omnidirectional screw-in incandescent lamps and screw-in and pin-based CFLs. The lamps are located in the classrooms and large conference rooms. The lamps operate during the normal hours of the facility, which is estimated using DEER hours of 2,420.

This measure proposes replacing the screw-in incandescent and CFL A-lamps with 11W and 18W LED A-lamps. The BR30 directional incandescent lamps will be replaced with 8W LED BR30 lamps and the pin based CFLs will be replaced 13W Lunera Helen LED lamps. The Helen lamps are not found on the Energy Star approved list, but they are found on Southern California Edison's preapproved lamp list. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED lamps are found on the Energy Star Approved list or SCE's preapproved fixture list.

These lighting solutions are eligible for incentive under the SCE Customized Solution Code, LT-58676-interior LED recessed, surface and pendant-mounted downlights and SCE Express Solution Codes LT-10965 - A-lamps: 41- to 100 watts existing, up to 30 watts LED A-lamp, LT-12834 - A-lamps: < 40 watts
existing, up to 10 watts LED A-lamp and LT-89789 - PAR30: 51- to 75 watts existing, up to 21 watts LED PAR30.

**EEM 4 – Replace Surface Mounted Fluorescent Fixtures with LED fixtures**

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCG Solution Code</th>
<th>Electricity Savings (kWh/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electricity Savings (kW)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure SIR</th>
<th>EUL (yrs)</th>
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</thead>
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<tr>
<td>LT-17492</td>
<td></td>
<td>3,041</td>
<td>1.15</td>
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<td>1,992</td>
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<td>17</td>
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<td>22.0</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Surface mounted fluorescent T8 fixtures are found in some offices, restrooms, hallways, facilities support rooms, the vaults and the exterior overhang. The fixtures come in 2-lamp and 3-lamp configurations. The fixtures are typically controlled by a switch in the room but the exterior fixtures are controlled by a time clock.

This measure proposes replacing the interior 4 foot wrap fixtures with 31.5W 4 foot surface mounted LED fixtures. The exterior surface mounted fixtures will be replaced with 31W 4 foot vapor tight surface mounted LED fixtures. These fixtures are rated for exterior environments. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED fixtures are found on the Design Lights Consortium (DLC) Qualified Product List or Energy Star approved list.

This measure triggers 2013 Title 24 Code, thus will require additional dimming and occupancy controls. An additional cost was considered to install dimming switches some areas and occupancy sensors in hallway areas. Since the occupancy sensors are required by Title 24, SCE program savings cannot be claimed for them. However, the energy savings from the occupancy sensors are included into the Prop 39 savings.

The above Title 24 code energy savings and peak demand reduction are eligible for incentive under the SCE Customized Solution Code, LT-17492 - Interior LED fixture replacement (utilizing approved luminaries). All savings are eligible for the exterior fixtures using Customized Solution Code LT-85834 - Exterior LED fixture replacements (utilizing approved luminaries) because at this time SCE does not enforce any Title 24 code for exterior fixtures.

**EEM 5 – Retrofit Surface Mounted and Recessed Troffer Fluorescent Fixtures to LED Retrofit Kits**

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCG Solution Code</th>
<th>Electricity Savings (kWh/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electricity Savings (kW)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure SIR</th>
<th>EUL (yrs)</th>
</tr>
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<tbody>
<tr>
<td>LT-78496</td>
<td></td>
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<td>1.7</td>
<td>22.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The offices, classrooms, conference rooms and hallways at the Administration Building feature 2-lamp, 3-lamp and 4-lamp 4 foot T8 recessed troffers and some 2-lamp and 4-lamp 2 foot recessed troffers. Additionally, the facility includes both 2 foot and 4 foot surface mounted troffer fixtures. Lighting is controlled manually and are assumed to operate for 2420 hours based on DEER operating hours.

This measure proposes retrofitting the existing 2 foot and 4 foot recessed troffers with LED retrofit kits ranging from 23W to 44W. The surface mounted troffer fixtures will also be retrofit with LED retrofit kits ranging from 23W to 44W. The LED retrofit kits offer equivalent or greater lighting output than the existing fixtures, thus maintaining or improving lighting levels. Due to the extended operating lifetime of
the LEDs, no maintenance will be required for the fixtures for several years. The proposed LED retrofit kits are found on the Design Lights Consortium (DLC) Qualified Product List.

This measure triggers 2013 Title 24 Code, thus will require additional dimming and occupancy controls. An additional cost was considered to install dimming switches in some areas and occupancy sensors in offices and hallway areas. Since the occupancy sensors are required by Title 24, SCE program savings cannot be claimed for them. However, the energy savings from the occupancy sensors are included into the Prop 39 savings.

The above Title 24 code energy savings and peak demand reduction are eligible for incentive under the SCE Customized Solution Code, LT-78496 - LED Retrofit Kit for Lay-in Troffer Luminaire.

**EEM 6 – Replace Exterior Wall Mounted and Flood Fixtures with LED Fixtures**

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCE Solution Code</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure S/P</th>
<th>EUL (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT-85834</td>
<td>-</td>
<td>15,141</td>
<td>0</td>
<td>15,141</td>
<td>0</td>
<td>17</td>
<td>1.7</td>
<td>12.2</td>
</tr>
</tbody>
</table>

The exterior lighting of the Administration Building includes several roof mounted 400W metal halide flood fixtures and some wall mounted HID flood and wall pack fixtures. These fixtures operate roughly 4,100 hours per year.

This measure proposes replacing the roof mounted flood fixtures with 155W LED flood lights. The measure also proposes installing new wall mounted LED lamps or fixtures for the other exterior wall mounted fixtures. The LED replacement fixtures offer equivalent lighting output as the existing fixtures, thus maintaining lighting levels.

Furthermore, much less backlight, uplight and glare will be created due to the greater directionality of LED fixtures. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions.

All savings for this measure are eligible for the exterior fixtures using Customized Solution CodeLT-85834 - Exterior LED fixture replacements (utilizing approved luminaries) because at this time SCE does not enforce any Title 24 code for exterior fixtures.

**EEM 7 – Replacing T8 Lamps with LED T8 lamps**

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCE Solution Code</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure S/P</th>
<th>EUL (yrs)</th>
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<tr>
<td>NA-28631</td>
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<td>7,826</td>
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<td>-46</td>
<td>699</td>
<td>0.10</td>
<td>50</td>
<td>17</td>
</tr>
</tbody>
</table>

The Administration Building makes use of some lighting fixtures that do not currently have cost effective LED equivalents. These fixtures include wall wash indirect lighting in the hallways, indirect over sink fixtures in the restrooms and large recessed arrays in the conference room, first floor hallway and some offices. All of these fixtures make use of either 2 foot or 4 foot T8 lamps as their light source. The fixtures are controls by switches.

This measure proposes replacing the existing 2 foot and 4 foot T8 lamps with new 2 foot and 4 foot LED T8 lamps with wattages of 10W and 15W, respectively. These lamps are ballast compatible and will be installed directly into the existing fixture and ballast. These lamps are also dimmable when installed in a dimming ballast. The proposed lamps are found on the DLC Qualified Products List and will equivalent lighting output as the existing fixtures, thus maintaining lighting levels.
Rio Hondo Bridge Lighting

EEM – 1 Replacement of Multiple Fixture Types

<table>
<thead>
<tr>
<th>SCE Solution Code</th>
<th>SCG Solution Code</th>
<th>Electricity Savings (kWh/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
<th>Measure SH</th>
<th>EUL (yrs)</th>
</tr>
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<tbody>
<tr>
<td>LT-85834</td>
<td>-</td>
<td>4,322</td>
<td>0.00</td>
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<td>5</td>
<td>3.1</td>
<td>12.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Rio Hondo Bridge lighting consists of (6) 150W metal halide bullet flood fixtures used to illuminate the top and underside of the bridge and (1) 100W metal halide post top fixture. The current fixtures are controlled by a time clock and operate 4,100 hours per year.

This measure proposes replacing the 150W flood fixtures with 29W LED bullet flood fixtures. The 100W metal halide post top fixture will be replaced with a 40W LED post top fixture. Both of the proposed fixtures were chosen to maintain the current aesthetic of the bridge lighting. The proposed floodlight fixtures are DLC approved and the post top fixture is found on Lighting Facts. Since the post top fixture is not found on the DLC Qualified Product List it is ineligible for SCE incentives. However, it is still counted towards the on-bill savings.

Furthermore, much less backlight, uplight and glare will be created due to the greater directionality of LED fixtures. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions.

All savings for the floodlight fixtures are eligible for the exterior fixtures using Customized Solution Code LT-85834 - Exterior LED fixture replacements (utilizing approved luminaries) because at this time SCE does not enforce any Title 24 code for exterior fixtures.
## Fire Academy – Energy Efficiency Measures (EEM)

Based on the building operation, age of the equipment, type of equipment and spaces served, several energy measures were identified and analyzed at the Fire Academy building. Measures recommendation involves improvements in construction of the HVAC systems and also operational recommendations in order to achieve energy efficiency. Below table presents a summary of the energy measures with related analytics. Sections below provides detailed explanation for each measure.

<table>
<thead>
<tr>
<th>EEM</th>
<th>Measure Description</th>
<th>OSP Solution Code</th>
<th>DOE Solution Code</th>
<th>Program Type</th>
<th>Electricity Savings (kWh/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (therm/yr)</th>
<th>Annual Utility Cost Savings (Var)</th>
<th>Potential Incentive (t)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conversion from CAT to VAV</td>
<td>AC-7922</td>
<td>HVAC-010</td>
<td>REA</td>
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<td>917</td>
<td>41,420</td>
<td>6.29</td>
<td>917</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Replace existing in-ceiling and downlighting with LED A19 lamps</td>
<td>LT-10665 – Express</td>
<td>-</td>
<td>ROB</td>
<td>632</td>
<td>0.30</td>
<td>-4</td>
<td>329</td>
<td>0.10</td>
<td>-1</td>
<td>Immediate</td>
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<tr>
<td>3</td>
<td>Replace existing in-ceiling and downlighting with LED A19 lamps</td>
<td>LT-10665 – Express</td>
<td>-</td>
<td>ROB</td>
<td>385</td>
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<td>-2</td>
<td>88</td>
<td>0.03</td>
<td>0</td>
<td>1</td>
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<tr>
<td>4</td>
<td>Replacing surface mounted T-8 fluorescent fixtures with LED fixtures</td>
<td>LT-17492 – Customized</td>
<td>-</td>
<td>ROB</td>
<td>2,814</td>
<td>1.02</td>
<td>-14</td>
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<tr>
<td>5</td>
<td>Replacing existing exterior screw-in CFL lamps with LED Adapters</td>
<td>LT-45672 – Customized</td>
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<td>RGB</td>
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</tr>
<tr>
<td>6</td>
<td>Interior LED recessed, surface and pendant-lit small wall lights, - Replacing CFL-based wall fixtures with LED pin-based lamps,</td>
<td>LT-5676 – Customized</td>
<td>-</td>
<td>ROB</td>
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<tr>
<td>7</td>
<td>Replacing existing 24W T8 and 12W fluorescent fixtures with LED equivalent</td>
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<tr>
<td>8</td>
<td>Replacing existing exterior metal halide and mercury vapor flood and wall fixtures with LED fixtures</td>
<td>LT-45674 – Customized</td>
<td>-</td>
<td>ROB</td>
<td>4,215</td>
<td>0.00</td>
<td>0</td>
<td>4,215</td>
<td>0.00</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

*ON**
EEM 1 – Conversion from Constant Air Volume (CAV) to Variable Air Volume (VAV)

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41,420</td>
<td>6.29</td>
<td>917</td>
<td>41,420</td>
<td>6.29</td>
<td>917</td>
<td>4</td>
</tr>
</tbody>
</table>

Fire Academy has (4) rooftop package units having supply fans with capacities of 5 HP with standard efficiency motors operating at constant speed condition. All the fans operate at 100% speed throughout the operation irrespective of the zone temperature resulting in excessive fan energy consumption. Additionally, conditioned air is supplied to the occupied spaces at a constant temperature irrespective of the heating or cooling load resulting in excess operation of the compressors and gas use intake.

This project proposes converting the existing constant volume system to a variable air volume system in two steps:
3. Addition of a Variable Frequency Drive (VFD) to the existing supply fans and regulating the fan speeds based on the zone temperature.
4. Resetting Supply Air Temperature (SAT) setpoint based on the zone temperature condition.

High Level Sequence of Operation:
5. Measure all the zone temperatures served by the package unit and relay the temperature back to the controls.
6. If the zone temperature is close or below the cooling setpoint, provide lower fan speeds and reset higher supply air temperature setpoint to a higher value.
7. When the zone temperature increases above the cooling setpoint, provide higher fan speeds and lower supply air temperature setpoint.
8. The above sequence can be implemented during both economizing and non-economizing modes.

This measure is eligible for incentive under the SCE Customized Solution code, AC-78722-Ventilation Fan – VFD and SCG Solution Code, HWS06 HWHVAC – Controls.

As this measure proposes only control addition to the existing unit, 2013 Title-24 code is not triggered and the reported savings are estimated based on 2013 Title-24 efficiency of 11.2 EER is used for the baseline. Actual or true meter savings will be the same as reported savings.

EEM 2 – Replace Screw-ins and pin-based incandescent and CFLs with LEDs

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>832</td>
<td>0.30</td>
<td>-4</td>
<td>329</td>
<td>0.10</td>
<td>-1</td>
<td>0.1</td>
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</tbody>
</table>

The interior of the Fire Academy features several screw-in incandescent and CFL A-lamps and pin-based CFLs. The lamps are located in the restrooms and lobby area. The lamps operate during the normal hours of the facility, which is estimated using DEER hours of 2,420.
This measure proposes replacing the screw-in incandescent and CFL A-lamps with 6W and 9W LED A-lamps. The pin based CFLs will be replaced 13W Lunera Helen LED lamps. The Helen lamps are not found on the Energy Star approved list, but they are found on Southern California Edison’s preapproved fixture list.

LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED lamps are found on the Energy Star Approved list or SCE’s preapproved fixture list.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-58676 - Interior LED recessed, surface and pendant-mounted downlights and SCE Express Solution Codes LT-10965 - A-lamps: 41- to 100 watts existing, up to 30 watts LED A-lamp and LT-12834 - A-lamps: < 40 watts existing, up to 10 watts LED A-lamp.

**EEM 3 – Replace Screw-ins and pin-based incandescent and CFLs with LEDs**

<table>
<thead>
<tr>
<th>Electricity Savings (kW/m²/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electricity Savings (kW/m²/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>385</td>
<td>0.14</td>
<td>-2</td>
<td>88</td>
<td>0.03</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>0.9</td>
</tr>
</tbody>
</table>

The interior of the Fire Academy features several screw-in incandescent and CFL A-lamps and pin-based CFLs. The lamps are located in the restrooms and lobby area. The lamps operate during the normal hours of the facility, which is estimated using DEER hours of 2,420.

This measure proposes replacing the screw-in incandescent and CFL A-lamps with 6W and 9W LED A-lamps. The pin based CFLs will be replaced 13W Lunera Helen LED lamps. The Helen lamps are not found on the Energy Star approved list, but they are found on Southern California Edison’s preapproved fixture list.

LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED lamps are found on the Energy Star Approved list or SCE’s preapproved fixture list.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-58676 - Interior LED recessed, surface and pendant-mounted downlights and SCE Express Solution Codes LT-10965 - A-lamps: 41- to 100 watts existing, up to 30 watts LED A-lamp and LT-12834 - A-lamps: < 40 watts existing, up to 10 watts LED A-lamp.

**EEM 4 – Replace Surface Mounted Fluorescent Fixtures with LED fixtures**

<table>
<thead>
<tr>
<th>Electricity Savings (kW/m²/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electricity Savings (kW/m²/yr)</th>
<th>Electric Demand Reduction (kW)</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,814</td>
<td>1.02</td>
<td>-14</td>
<td>2,405</td>
<td>0.86</td>
<td>-12</td>
<td></td>
<td></td>
<td></td>
<td>24.7</td>
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</table>

Surface mounted fluorescent T8 fixtures are found in the locker rooms, gym and hallways. The fixtures in the locker room and gym are all 2-lamp 4 foot T8 fixtures. The fixtures in the corridors are surface mounted.
circular fixtures with one 6 inch U-lamp T8. In the locker rooms and gym the fixtures are controlled manually with a switch and in the hallways by a control panel.

This measure proposes replacing the 4 foot fluorescent fixtures with 30W 4 foot surface mounted LED fixtures. The circular fixtures are to be replaced with 14W 11 inch circular LED fixtures. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED fixtures are found on the Design Lights Consortium (DLC) Qualified Product List or Energy Star approved list.

This measure triggers 2013 Title 24 Code, thus will require additional dimming and occupancy controls. An additional cost was considered to install dimming switches some areas and occupancy sensors in hallway areas. Since the occupancy sensors are required by Title 24, SCE program savings cannot be claimed for them. However, the energy savings from the occupancy sensors are included into the Prop 39 savings.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-17492 - Interior LED fixture replacement (utilizing approved luminaries).

**EEM 5 – Exterior Screw-in Downlight CFLs with LED A-lamp**

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electric Demand Reduction (kWh)</th>
<th>IOU Program Savings</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electric Demand Reduction (kWh)</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,180</td>
<td>0.00</td>
<td>0</td>
<td>1,180</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td>1,180</td>
<td>0.00</td>
<td>0</td>
<td>1.2</td>
</tr>
</tbody>
</table>

The exterior break area features several surface mounted downlight fixtures with 42W screw-in CFLs. The lamps operate on the same schedule as the other exterior fixtures, for 4,100 hours per year.

This measure proposes replacing the 42W CFLs with 18W screw-in LED A-lamps. The proposed lamps offer a viable lighting solution with exceptional quality light and extended operating life over the compact fluorescent lamps. The proposed LED lamps are found on the Energy Star Approved list.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-45872 - Exterior Screw-in LED Lamps.

**EEM 6 – Replace Screw-ins and pin-based incandescent and CFLs with LEDs**

<table>
<thead>
<tr>
<th>Electricity Savings (kWh/yr)</th>
<th>On-Bill Savings</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electric Demand Reduction (kWh)</th>
<th>IOU Program Savings</th>
<th>Natural Gas Savings (Therm/yr)</th>
<th>Electric Demand Reduction (kWh)</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>176</td>
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<td>149</td>
<td>0.05</td>
<td>-1</td>
<td>0</td>
<td>149</td>
<td>0.05</td>
<td>0</td>
<td>15.0</td>
</tr>
</tbody>
</table>

The interior of the Fire Academy features several screw-in incandescent and CFL A-lamps and pin-based CFLs. The lamps are located in the restrooms and lobby area. The lamps operate during the normal hours of the facility, which is estimated using DEER hours of 2,420.

This measure proposes replacing the screw-in incandescent and CFL A-lamps with 6W and 9W LED A-lamps. The pin based CFLs will be replaced 13W Lunera Helen LED lamps. The Helen lamps are not found on the Energy Star approved list, but they are found on Southern California Edison's preapproved fixture list.
LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions. All proposed LED lamps are found on the Energy Star Approved list or SCE’s preapproved fixture list.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-58676- Interior LED recessed, surface and pendant-mounted downlights and SCE Express Solution Codes LT-10965 - A-lamps: 41- to 100 watts existing, up to 30 watts LED A-lamp and LT-12834 - A-lamps: < 40 watts existing, up to 10 watts LED A-lamp.

**EEM 7 – Retrofit Recessed Troffer Fluorescent Fixtures to LED Retrofit Kits**

<table>
<thead>
<tr>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Savings (kWh/yr)</td>
<td>Electric Demand Reduction (kW)</td>
<td>Natural Gas Savings (Therm/yr)</td>
<td>Electricity Savings (kWh/yr)</td>
<td>Electric Demand Reduction (kW)</td>
<td>Natural Gas Savings (Therm/yr)</td>
</tr>
<tr>
<td>18,909</td>
<td>6.9</td>
<td>-96</td>
<td>16,376</td>
<td>5.65</td>
<td>-83</td>
</tr>
</tbody>
</table>

The offices and classrooms at the Fire Academy feature 2-lamp 4 foot T8 fluorescent troffers. Lighting is controlled manually and are assumed to operate for 2420 hours based on DEER operating hours.

This measure proposes retrofitting the existing 4 foot recessed troffers with 33W LED retrofit kits. The LED retrofit kits offer equivalent or greater lighting output than the existing fixtures, thus maintaining or improving lighting levels. Due to the extended operating lifetime of the LEDs, no maintenance will be required for the fixtures for several years. The proposed LED retrofit kits are found on the Design Lights Consortium (DLC) Qualified Product List.

This measure triggers 2013 Title 24 Code, thus will require additional dimming and occupancy controls. An additional cost was considered to install dimming switches in some areas and occupancy sensors in offices and hallway areas. Since the occupancy sensors are required by Title 24, SCE program savings cannot be claimed for them. However, the energy savings from the occupancy sensors are included into the Prop 39 savings.

This measure is eligible for incentive under the SCE Customized Solution Code, LT-78496 - LED Retrofit Kit for Lay-in Troffer Luminaire.

**EEM 8 – Replace Exterior Wall Pack and Flood Fixtures with LED Fixtures**

<table>
<thead>
<tr>
<th>On-Bill Savings</th>
<th>IOU Program Savings</th>
<th>Annual Utility Cost Savings ($/yr)</th>
<th>Potential Incentive ($)</th>
<th>Net Implementation Cost ($)</th>
<th>Net Simple Payback Period (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Savings (kWh/yr)</td>
<td>Electric Demand Reduction (kW)</td>
<td>Natural Gas Savings (Therm/yr)</td>
<td>Electricity Savings (kWh/yr)</td>
<td>Electric Demand Reduction (kW)</td>
<td>Natural Gas Savings (Therm/yr)</td>
</tr>
<tr>
<td>4,215</td>
<td>0.00</td>
<td>0</td>
<td>4,215</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

The exterior lighting of the Fire Academy includes (10) 65W wall mounted flood lights and (2) 150W mercury vapor pole mounted flood lights. These fixtures operate roughly 4,100 hours per year.

This measure proposes replacing the wall mounted flood fixtures with 12W LED bullet flood lights and the pole mounted flood lights with 39W LED flood lights. The LED replacement fixtures offer equivalent lighting output as the existing fixtures, thus maintaining lighting levels.

Furthermore, much less backlight, uplight and glare will be created due to the greater directionality of LED fixtures. LED lighting technology has advanced in recent years and offers viable lighting solutions with exceptional quality light and extended operating life over typical solutions.
This is an Energy Savings Project and the approved system must be able to achieve the following energy reduction.

**2x4 Troffer:**
- When replacing 2-32W Fluorescent tubes with LED retrofit kit, the new system must not exceed 26W with a single driver.
- When replacing 3-32W Fluorescent tubes with LED retrofit kit, the new system must not exceed 26W with a single driver.
- When replacing 4-32W Fluorescent tubes with LED retrofit kit, the new system must not exceed 36W with a single driver.

**2x2 Troffer:**
- When replacing 2-32W Fluorescent U bend tubes or 3- F017 with LED retrofit kit, the new system must not exceed 22W with a single driver.

**1x4 Troffer:**
- When replacing 1-32W Fluorescent tube with LED retrofit kit, the new system must not exceed 15W with a single driver.
- When replacing 2-32W Fluorescent tubes with LED retrofit kit, the new system must not exceed 22W with a single driver.

**Open Strip fixtures:**
- When replacing 1-32W Fluorescent tube with LED retrofit kit, the new system must not exceed 15W with a single driver.
- When replacing 2-32W Fluorescent tubes with LED retrofit kit, the new system must not exceed 22W with a single driver.

**Bi-Level Switching:**
- If Bi-level switching is required the system must allow the use of two drivers per fixture to power individual strips to achieve multi-level switching.

All LED PCB Boards must be mechanically bonded to an aluminum extrusion to ensure proper heat dissipation and must include integral diffusers to assist with light distribution and eliminate glare.

- Efficacy rate: >135 LM/W as measured with the 26 watt single driver.
- Color Rendering Index: (CRI) >82 (+/-0.5)
- Color Temperature: 4100K (+/-200K)
- Color Temperature: 5000K (+/-200K) (when required)
- Voltage: 110-277VAC 50-60 Hz
- Power Factor: (PF) >0.96; Measured at 120 Vac
- Total Harmonic Distortion (THD) <10%; Measured at 120 Vac
- All drivers must have 0-10V dimming
- Printed Circuit Board that carries the LEDs must be an aluminum core PCB design to provide optimal thermal management for the LEDs.
- LED count per 4’ strip: Must have a minimum of 288 LED’s to ensure proper light distribution.
- LED count per 2’ strip: Must have a minimum of 144 LED’s to ensure proper light distribution.
- Must be cULus listed
- Must be DLC Qualified
- 10 year Warranty on Driver and LEDs (product replacement only)
- Must have a manufacturer rated lifetime of >88,000 hours
- Must provide LM79, ISTMT and LM80 by NVLAP accredited testing laboratory approved by the DOE and DLC at the time of submittal.