METROPOLITAN EXPOSITION RECREATION COMMISSION

RESOLUTION NO. 12-21

For the purpose of selecting Cherry City Electric as the lowest responsive and responsible bidder for the Oregon Convention Center (OCC), "Lighting Fixture Upgrade Project – Phase II," and authorizing the General Manager to execute a contract with Cherry City Electric.

WHEREAS, OCC intends to implement renewable energy capital improvements by installing various lighting fixtures upgrades throughout the facility; and

WHEREAS, in the public interest, for purposes of providing cost effective and energy reducing measures, OCC desires to purchase and install hundreds of energy efficient fixtures and lamps; and

WHEREAS, Section 4(D)(1)(a) of MERC's Contracting and Purchasing Rules delegates authority to the General Manager to prepare and approve Request for Bids (RFB) documents and to solicit bids; and

WHEREAS, Section 4(D)(1)(c) of MERC's Contracting and Purchasing Rules requires that MERC select the lowest responsive and responsible bidder, approve the contract award, and approve the written contract by resolution; and

WHEREAS, MERC staff has evaluated the bids, and Cherry City Electric is the lowest responsive and responsible bidder.

BE IT THEREFORE RESOLVED as follows:

1. MERC selects Cherry City Electric as the lowest responsive and responsible bidder in response to the Request for Bids for the Oregon Convention Center Lighting Fixture Upgrade Project-Phase II;
2. MERC approves the award of a contract, in a form substantially similar to the attached Exhibit "A," to Cherry City Electric.
3. MERC delegates authority to the General Manager of Visitor Venues to execute the contract. .

Passed by the Commission on October 3, 2012.

Chair

Secretary/Treasurer

Approved As to Form:
Alison Kean Campbell, Metro Attorney

By: _____
Nathan A. Schwartz Sykes
Senior Attorney

MERC STAFF REPORT

Agenda Item/Issue: Approval of the contract award and written contract with Cherry City Electric for the Oregon Convention Center Lighting Fixture Upgrade Project – Phase II.

Resolution No: 12-21

Date: October 3, 2012 **Presented by:** Scott Cruickshank

BACKGROUND: With the existing systems technology ageing in our facility and efficiencies changing, the Oregon Convention Center (OCC) desires to replace and upgrade many of the facilities existing lighting fixtures and lamps. This capital improvement project is in the public's best interest by increasing efficiency throughout the facility while reducing energy costs by installing energy efficient fixtures and lamps. The scope of work for this project includes purchase of all fixtures and materials for complete installation as well as the labor to install all fixtures and lamps by a registered contractor. MERC Staff prepared and issued Bid Documents and a Request for Bids in accordance with MERC's Purchasing Policies for the upgrade of lighting fixtures at the Oregon Convention Center. MERC staff included in the bid documents an aspirational goal of 10% FOTA contractor participation. On August 22, 2012, MERC Staff conducted a site walk for potential bidders in which eight electrical contractors attended. Three bids were received on September 11, 2012 and ranged from $1,134,355.60 to $508,367.25. The lowest responsive and responsible bidder was Cherry City Electric, in the amount of Five hundred, eight thousand, three hundred, and sixty seven & 25/100 dollars ($508,367.25). The lowest responsive and responsible bidder, Cherry City Electric included in their bid a first-tier sub-contractor listing showing a 70% M/W/ESB and FOTA contractor participation. The first-tier subcontractor, Tri-Phase Electric is listed as the sub-contractor and vendor and is a state certified M/W/ESB as well as FOTA contractor.

FISCAL IMPACT: The Project is in the 2012-2013 adopted budget. The $508,367.25 fiscal impact will be offset by an incentive offer rebate from the Energy Trust of Oregon (ETO) in the amount of $194,853 thereby ultimately reflecting a capital outlay of $313,514.25. Upon completion of the contract and associated work, MERC will be required to pay the Contractor the full amount of the contract of $508,367.25 in order to receive the financial offset incentives as referenced above.

RECOMMENDATION: Staff recommends that the Metropolitan Exposition-Recreation Commission, by Resolution No. 12-21 approve the contract award and written contract (attached hereto) with Cherry City Electric , for the amount of Five hundred, eight thousand, three hundred, sixty seven & 25/100 dollars ($508,367.25) for the Lighting Fixture Upgrade Project – Phase II at the Oregon Convention Center.

Metro | *Exposition Recreation Commission*

600 NE Grand Ave., Portland, OR 97232-2736
503-797-1700

Standard Public Contract

MERC CONTRACT NO. 303010

For Public Contracts $50,000 & Above

THIS Contract is entered into between Metropolitan Exposition Recreation Commission (MERC), an appointed commission of Metro, whose address is 600 NE Grand Avenue, Portland, Oregon 97232-2736, and Cherry City Electric whose address is 100 NE St Johns Rd, Suite D101, Vancouver, WA 98665, hereinafter referred to as the "CONTRACTOR."

THE PARTIES AGREE AS FOLLOWS:

ARTICLE I
SCOPE OF WORK

CONTRACTOR shall perform the work and/or deliver to MERC the goods described in the Scope of Work attached hereto as Attachment A. All services and goods shall be of good quality and, otherwise, in accordance with the Scope of Work.

ARTICLE II
TERM OF CONTRACT

The term of this Contract shall be for the period commencing October 10, 2012 through and including February 28, 2013, with substantial completion by January 31, 2013. This agreement may be extended at MERC's sole discretion. By executing this Contract, Contractor confirms and accepts that the Contract Time so stated is a reasonable period for performance of all of the Work. The end date of the Contract Term is intended to allow for finalization of all closeout requirements, receipt of warranties, manuals and final payment, but does not alter requirements for substantial completion of the work by the date specified.

ARTICLE III
CONTRACT SUM AND TERMS OF PAYMENT

Contractor shall perform the above work for FIVE HUNDRED EIGHT THOUSAND, THREE HUNDRED SIXTY-SEVEN AND 25/100TH DOLLARS ($508,367.25).

The maximum price includes all fees, costs and expenses of whatever nature. Each of MERC's payments to Contractor shall equal the percentage of the work Contractor accomplished during the billing period. Contractor's billing invoices shall include the MERC contract number, Contractor name, remittance address, invoice date, invoice number, invoice amount, tax amount (if applicable), and an itemized statement of work performed and expenses incurred during the billing period, and will not be submitted more frequently than once a month. Contractor's billing invoices shall be sent to metroaccountspayable@oregonmetro.gov, or Metro Accounts Payable, 600 NE Grand Avenue, Portland, OR 97232-2736 or. The MERC contract number shall be referenced in the email subject line. Contractor's invoice must breakout 5% retainage, and Contractor must submit Certified Payroll with invoices per ARTICLE XII below. Contractor's billing invoices for services through June 30 shall be submitted to MERC by July 15. Payment shall be made by MERC on a Net 30 day basis upon approval of Contractor invoice.

ARTICLE IV
LIABILITY AND INDEMNITY

CONTRACTOR is an independent contractor and assumes full responsibility for the content of its work and performance of CONTRACTOR'S labor, and assumes full responsibility for all liability for bodily injury or physical damage to person or property arising out of or related to this Contract, and shall indemnify, defend and hold harmless MERC, its agents and employees, from any and all claims, demands, damages, actions, losses, and expenses arising out of or in any way connected with its performance of this Contract. CONTRACTOR is solely responsible for paying CONTRACTOR'S subcontractors and nothing contained herein shall create or be construed to create any contractual relationship between any subcontractor(s) and MERC.

ARTICLE V
TERMINATION

MERC may terminate this Contract upon giving CONTRACTOR seven (7) days written notice. In the event of termination, CONTRACTOR shall be entitled to payment for work performed to the date of termination. MERC shall not be liable for indirect, consequential damages or any other damages. Termination by MERC will not waive any claim or remedies it may have against CONTRACTOR.

ARTICLE VI
INSURANCE & BONDS

CONTRACTOR shall purchase and maintain at the CONTRACTOR'S expense, the following types of insurance, covering the CONTRACTOR, its employees, and agents:

A. The most recently approved ISO (Insurance Services Office) Commercial General Liability policy, or its equivalent, written on an occurrence basis, with limits not less than $1,000,000 per occurrence and $1,000,000 aggregate. The policy will include coverage for bodily injury, property damage, personal injury, contractual liability, premises and products/completed operations. CONTRACTOR'S coverage will be primary as respects METRO;
B. Automobile insurance with coverage for bodily injury and property damage and with limits not less than minimum of $1,000,000 per occurrence;
C. Workers' Compensation insurance meeting Oregon statutory requirements including Employer's Liability with limits not less than $500,000 per accident or disease.

METRO, MERC, its elected officials, departments, employees, and agents shall be named as ADDITIONAL INSUREDS on Commercial General Liability and Automobile policies.

CONTRACTOR shall provide to MERC 30 days notice of any material change or policy cancellation.

CONTRACTOR shall provide MERC with a Certificate of Insurance complying with this article upon return of the CONTRACTOR signed agreement to MERC. Certificate of Insurance shall identify the MERC contract number.

CONTRACTOR shall not be required to provide the liability insurance described in this Article only if an express exclusion relieving CONTRACTOR of this requirement is contained in the Scope of Work.

In addition, for public works subject to ORS 279C.800 to 279C.870, CONTRACTOR and every subcontractor shall have a public works bond required by 2005 Oregon Laws Chapter 360 filed with the Construction Contractors Board before starting work on the project, unless exempt under Section 2 of 2005 Oregon Laws Chapter 360.

ARTICLE VII
PUBLIC CONTRACTS

All applicable provisions of ORS chapters 187 and 279A, 279B, and 279C and all other terms and conditions necessary to be inserted into public contracts in the State of Oregon, are hereby incorporated as if such provision were a part of this Agreement. Specifically, it is a condition of this contract that CONTRACTOR and all employers working under this Agreement are subject employers that will comply with ORS 656.017 as required by 1989 Oregon Laws, Chapter 684.

For public work subject to ORS 279C.800 to 279C.870, the CONTRACTOR shall pay prevailing wages. If such public work is subject both to ORS 279C.800 to 279C.870 and to 40 U.S.C. 276a, the CONTRACTOR and every subcontractor on such public work shall pay at least the higher prevailing wage. The CONTRACTOR and each subcontractor shall pay workers not less than the specified minimum hourly rate of wage in accordance with Section 7 of 2005 Oregon Laws Chapter 360. MERC shall pay an administrative fee as provided in ORS 279C.825(1) to the Bureau of Labor and Industries pursuant to the administrative rules established by the Commissioner of Labor and Industries. CONTRACTORS must promptly pay, as due, all persons supplying to such contractor labor or material used in this contract. If the CONTRACTOR or first-tier subcontractor fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with the public contract for a public improvement within 30 days after receipt of payment from the public contracting agency or a contractor, the CONTRACTOR or first-tier subcontractor shall owe the person the amount due plus shall pay interest in accordance with ORS 279C.515. If the CONTRACTOR or first-tier

subcontractor fails, neglects, or refuses to make payment, to a person furnishing labor or materials in connection with the public contract, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580. CONTRACTOR must pay any and all contributions and amounts due to the Industrial Accident Fund from contractor or subcontractor and incurred in the performance of the contract. No liens or claims are permitted to be filed against MERC on account of any labor or material furnished. CONTRACTORS are required to pay the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

For public improvement work all CONTRACTORS must demonstrate that an employee drug-testing program is in place.

ARTICLE VIII
MODIFICATIONS

MERC may approve changes and modifications to the original contract, including deletions of work, order of additional materials, and additional services reasonably related to the original work scope. Contractor may propose changes in the work that Contractor believes are necessary, will result in higher quality work, improve safety, decrease the amount of the contract, or otherwise result in a better or more efficient work product. If such changes are approved by MERC, they shall be executed by written contract amendment signed by both parties. Such changes shall not relieve Contractor of any obligation or warranty under the contract. No oral statements by either party shall modify or affect the terms of the contract.

ARTICLE IX
QUALITY OF GOODS AND SERVICES

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of the highest quality. All workers and subcontractors shall be skilled in their trades. CONTRACTOR guarantees all work against defects in material or workmanship for a period of one (1) year from the date of acceptance or final payment by MERC, whichever is later. All guarantees and warranties of goods furnished to CONTRACTOR or subcontractors by any manufacturer or supplier shall be deemed to run to the benefit of MERC.

ARTICLE X
OWNERSHIP OF DOCUMENTS

Unless otherwise provided herein, all documents, instruments and media of any nature produced by CONTRACTOR pursuant to this agreement are Work Products and are the property of MERC, including but not limited to: drawings, specifications, reports, scientific or theoretical modeling, electronic media, computer software created or altered specifically for the purpose of completing the Scope of Work, works of art and photographs. Unless otherwise provided herein, upon MERC request, CONTRACTOR shall promptly provide MERC with an electronic version of all Work Products that have been produced or recorded in electronic media. MERC and CONTRACTOR agree that all work Products are works made for hire and Contractor hereby conveys, transfers, and grants to MERC all rights of reproduction and the copyright to all such Work Products.

A. CONTRACTOR and subcontractors shall maintain all fiscal records relating to such contracts in accordance with generally accepted accounting principles. In addition, CONTRACTOR and subcontractors shall maintain any other records necessary to clearly document:

1. The performance of the CONTRACTOR, including but not limited to the contractor's compliance with contract plans and specifications, compliance with fair contracting and employment programs, compliance with Oregon law on the payment of wages and accelerated payment provisions; and compliance with any and all requirements imposed on the CONTRACTOR or subcontractor under the terms of the contract or subcontract;
2. Any claims arising from or relating to the performance of the CONTRACTOR or subcontractor under a public contract;
3. Any cost and pricing data relating to the contract; and
4. Payments made to all suppliers and subcontractors.

B. CONTRACTOR and subcontractors shall maintain records for the longer period of (a.) six years from the date of final completion of the contract to which the records relate or (b.) until the conclusion of any audit, controversy or litigation arising out of or related to the contract.

C. CONTRACTOR and subcontractors shall make records available to METRO, and its authorized representatives, including but not limited to the staff of any METRO department and the staff of the METRO Auditor, within the boundaries of the METRO region, at reasonable times and places regardless of whether litigation has been filed on any claims. If the records are not made available within the boundaries of METRO, the CONTRACTOR or subcontractor agrees to bear all of the costs for METRO employees, and any necessary consultants hired by METRO, including but not limited to the costs of travel, per diem sums, salary, and any other expenses that Metro incurs, in sending its employees or consultants to examine, audit, inspect, and copy those records. If the CONTRACTOR elects to have such records outside these boundaries, the costs paid by the CONTRACTOR to METRO for inspection, auditing, examining and copying those records shall not be recoverable costs in any legal proceeding.

D. CONTRACTOR and subcontractors authorize and permit METRO and its authorized representatives, including but not limited to the staff of any METRO department and the staff of the METRO Auditor, to inspect, examine, copy and audit the books and records of CONTRACTOR or subcontractor, including tax returns, financial statements, other financial documents and any documents that may be placed in escrow according to any contract requirements. METRO shall keep any such documents confidential to the extent permitted by Oregon law, subject to the provisions of section E.

E. CONTRACTOR and subcontractors agree to disclose the records requested by METRO and agree to the admission of such records as evidence in any proceeding between METRO and the CONTRACTOR or subcontractor, including, but not limited to, a court proceeding, arbitration, mediation or other alternative dispute resolution process.

F. CONTRACTOR and subcontractors agree that in the event such records disclose that METRO is owed any sum of money or establish that any portion of any claim made against Metro is not warranted, the CONTRACTOR or subcontractor shall pay all costs incurred by METRO in conducting the audit and inspection. Such costs may be withheld from any sum that is due or that becomes due from METRO.

G. Failure of the CONTRACTOR or subcontractor to keep or disclose records as required by this document or any solicitation document may result in disqualification as a bidder or proposer for future METRO contracts as provided in ORS 279B.130 and Metro Code Section 2.04.070(c), or may result in a finding that the CONTRACTOR or subcontractor is not a responsible bidder or proposer as provided in ORS 279B.110 and Metro Code Section 2.04.052.

ARTICLE XI
SUBCONTRACTORS

CONTRACTOR shall contact MERC prior to negotiating any subcontracts and CONTRACTOR shall obtain approval from MERC before entering into any subcontracts for the performance of any of the services and/or supply of any of the goods covered by this Contract.

MERC reserves the right to reasonably reject any subcontractor or supplier and no increase in the CONTRACTOR'S compensation shall result thereby. All subcontracts related to this Contract shall include the terms and conditions of this agreement. CONTRACTOR shall be fully responsible for all of its subcontractors as provided in Article IV.

ARTICLE XII
RIGHT TO WITHHOLD PAYMENTS

MERC shall have the right to withhold from payments due CONTRACTOR such sums as necessary, in MERC's sole opinion, to protect MERC against any loss, damage or claim which may result from CONTRACTOR'S performance or failure to perform under this agreement or the failure of CONTRACTOR to make proper payment to any suppliers or subcontractors. In addition for public improvement work, if a CONTRACTOR is required to file certified statements under ORS 279C.845, MERC shall retain 25 percent of any amount earned by the CONTRACTOR on the public works until the contractor has filed all required certified statements with MERC.

If a liquidated damages provision is contained in the Scope of Work and if CONTRACTOR has, in MERC's opinion, violated that provision, MERC shall have the right to withhold from payments due CONTRACTOR such sums as shall satisfy that provision. All sums withheld by MERC under this Article shall become the property of MERC and CONTRACTOR shall have no right to such sums to the extent that CONTRACTOR has breached this Contract.

ARTICLE XIII
SAFETY

If services of any nature are to be performed pursuant to this agreement, CONTRACTOR shall take all necessary precautions for the safety of employees and others in the vicinity of the services being performed and shall comply with all applicable provisions of federal, state and local safety laws and building codes, including the acquisition of any required permits.

ARTICLE XIV
FULL AND INTERGRATED AGREEMENT

,This Contract represents the entire and integrated agreement between MERC and CONTRACTOR and supersedes all prior negotiations, representations or agreements, either written or oral. This Contract may be amended only by written instrument signed by both MERC and CONTRACTOR. The laws of the state of Oregon shall govern the construction and interpretation of this Contract.

ARTICLE XV
COMPLIANCE

CONTRACTOR shall comply with federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, non-discrimination, safety and health, environmental protection, waste reduction and recycling, fire protection, permits, fees and similar subjects.

ARTICLE XVI
INTERGOVERNMENTAL COOPERATIVE AGREEMENT

Pursuant to ORS 279A and the Metro public contract code, Metro participates in an Intergovernmental Cooperative Purchasing program by which other public agencies shall have the ability to purchase the goods and services under the terms and conditions of this awarded contract. Any such purchases shall be between the Contractor and the participating public agency and shall not impact the Contractor's obligation to Metro under this agreement. Any estimated purchase volumes listed herein do not include volumes for other public agencies, and Metro makes no guarantee as to their participation in any purchase. Any Contractor may decline to extend the prices and terms of this solicitation to any or all other public agencies upon execution of this contract. Unless the Contractor specifically declines to participate in the program by marking the box below, the Contractor agrees to participate in the Intergovernmental Cooperative Purchasing program. **Contractor declines to participate in the Intergovernmental Cooperative Purchasing program or is not applicable to this Contract as indicated by the following initials _____.**

ARTICLE XVII
SITUS

The situs of this Agreement is Portland, Oregon. Any litigation over this agreement shall be governed by the laws of the State of Oregon and shall be conducted in the Circuit Court of the state of Oregon for Multnomah County, or, if jurisdiction is proper, in the U.S. District Court for the District of Oregon.

ARTICLE XVIII
ASSIGNMENT

CONTRACTOR shall not assign any rights or obligations under or arising from this Contract without prior written consent from MERC.

ARTICLE XIV
SEVERABILITY

The parties agree that any provision of this Contract that is held to be illegal, invalid, or unenforceable under present or future laws shall be fully severable. The parties further agree that this Contract shall be construed and enforced as if the illegal, invalid, or unenforceable provision had never been a part of them and the remaining provisions of the Contract shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance from this Contract. Furthermore, a provision as similar to the illegal, invalid, or unenforceable provision as is possible and legal, valid and enforceable shall be automatically added to this Contract in lieu of the illegal, invalid, or unenforceable provision. Any failure by MERC to enforce a provision of the Contract is not to be construed as a waiver by MERC of this right to do so.

ARTICLE XX
COUNTERPARTS

This Contract may be executed in counterparts or multiples, any one of which will have the full force of an original.

ARTICLE XXI
GENERAL CONDITIONS

All services and materials provided by Contractor shall be of good quality, and in accordance with the Scope of Work and in compliance with the Owner's schedule. Contractor agrees to provide all labor, tools, equipment, machinery, supervision, transportation and every other item and service necessary to perform the work described in the contract documents. Contractor shall provide all services and materials necessary to complete the work in a professional manner, in compliance with applicable building codes and per industry standards and practices. Contractor agrees to comply with each and every term, condition and provision of the contract documents. Contractor may be subject to liquidated damages if work not in compliance with Contract Agreement and any and all attachments.

All work included in this Contract is subject to Prevailing Wage Laws and Rates

Contractor shall bring the Work to substantial completion by date listed in ARTICLE II - TERM OF CONTRACT, or at such date as may be extended by Change Order approved by Contractor and Owner. By executing this Contract, Contractor confirms and accepts that the Contract Time so stated is a reasonable period for performance of all of the Work. The end date of the Contract Term is intended to allow for finalization of all closeout requirements, receipt of warranties, manuals and final payment, but does not alter requirements for substantial completion of the work by the date specified. Contractor shall be liable to incur liquidated damages if not substantially complete by contract terms.

The Oregon Convention Center (OCC) is a member of the Facility Permit Program with the City of Portland. OCC will be providing permits as necessary, with coordination from contractor. If any special inspections are required OCC shall provide them.

Contractor is to maintain a worksite free of hazardous work conditions and construction debris and is responsible for cover up and protection of existing equipment/building materials. Contractor is responsible for cleanliness of work areas and should plan to pick up debris created during construction, including dust control. Contractor is to coordinate work with Project Manager and building staff and be prepared to section off and sign work areas as appropriate.

A facility events schedule will be provided for the duration of the work. This schedule indicates the dates and approximate shifts that are currently available and unavailable to the Contractor to perform the required work, depending on the location in the building of the scheduled event, the type of event and the work being conducted simultaneously with the event. Contractors work will be scheduled in accordance with the building's events schedule. Due to the likely possibility of additional "bookings" or cancellations of events in the building, this schedule may be modified, which may positively or negatively impact the work schedule. In the event of a schedule change, the Owner will notify the Contractor directly following the implementation of the change so that work plans may be modified accordingly. A formal project schedule is to be provided by the Contractor in accordance with the building event schedule and coordinated with the Project Manager prior to the start of any work.

Standard Public Contract

MERC CONTRACT NO. 303010

Due to the nature of the Public Events Facility Industry, it will be necessary for the contractor to work closely with the Project Manager to coordinate day-to-day logistical requirements for the benefit of the Contractor and to afford Owner staff the necessary time to perform event or non-event related functions. Contractor shall coordinate all work with MERC Project Manager and schedule his work so as to minimize any disruption to the ongoing operations of the Oregon Convention Center. Specific utilization of work areas on a day-to-day basis will be coordinated by the Project Manager or his designee and the Contractor Representative. Contractor shall not interfere with scheduled events or prohibit any tenants or clients from accessing other spaces in the building. Generally, Contractor will be able to conduct work activities at any time as long as those activities do not impact or impede events in progress by noise, dust or construction material blocking access routes to events or facilities. Loud noise can be an issue in the facility; therefore any work that may be louder than a hand drill or similar will need to be coordinated with OCC, so as to not disturb events/clients. This project may require Contractor to work "off hours" in order to complete the project in a timely manner as agreed upon with the OCC. Contractor will be working in an occupied functioning building and could expect to perform work in some areas prior to the building opening at 8:00 AM. It may be possible for the Contractor to work on weekends if the area is available and scheduled with the owner in advance and at no additional cost to the Owner. Safety for Contractor as well as general public and staff is a major concern.

Owner will provide Contractor access to all areas as necessary to complete the work and access to on-site parking. Contractor shall be responsible for all of Contractor's equipment, tools and materials at all times, Owner shall not be held responsible for any theft

ARTICLE XXII
DELIVERY OF NOTICES

Any notice, request, demand, instruction, or any other communications to be given to any party hereunder shall be in writing, sent by registered or certified mail or fax as follows:

To Contractor: John Halme
Cherry City Electric
8100 NE St Johns Rd, Suite D101
Vancouver, WA 98665
360-571-4410 fax

To MERC: Josh Lipscomb
MERC
600 NE Grand Ave
Portland, Oregon 97232
503-797-1795 fax

CONTRACTOR

By_____

Print Name_____

Date_____

METROPOLITAN EXPOSITION RECREATION COMMISSION

By_____

Print Name_____

Date_____

Scope of Work – Attachment A

MERC Contract No. 303010

1. Purpose and Goal of Work

MERC is contracting for all equipment, materials and labor, for removal and replacement of a number of various lighting fixtures and lamps throughout the Oregon Convention Center, located at 777 NE MLK Jr. Blvd, Portland, OR 97232.

2. Description of the Scope of Work

Contractor is to supply and install replacement fixtures as specified below and as per fixture specifications and cut sheets provided in *Attachment "B"*. Contractor is to supply all hardware, materials, parts and labor necessary for the completion of the project, in accordance with the recommendations of the specific equipment manufacturers, and in accordance with the requirements of the specifications. All electrical connections to fixtures shall use Ideal PowerPlug Disconnect 30-102. A cut sheet has been provided in the attachment.

A detailed scope of work for each fixture is listed below.

Fixture #1 – Quantity of 382

Each 2x2 fluorescent fixture in the meeting rooms of the original side of the building will be retrofitted. Remove the inside of each fixture. Replace the ballast, reflector kit and louver. Save the original housing. Install new lamps per specification.

Fixture #2 – Quantity of 572

Each can light in the meeting rooms of the original side of the building will be replaced with the newly specified 4.5" LED can lights. This is a complete 1 for 1 replacement. Eight (8) dimmer racks are to be replaced with the installation of these fixtures. This cost of the dimmer racks and labor to install are to be included in the pricing for Fixture #2. The cut sheet for Fixture #2 includes the new dimmer rack specification. New dimmer racks will have the same footprint as the existing racks.

- Fixture must be de-energized prior to installation.
- Requires removing existing reflector, pulling new wire through existing flex or provide new fixture whip to meet load requirements. Attach Nora 6160 socket cup adapter to existing cap. Install PowerPlug (UL 2459 & CSA 182.3) disconnect to wires. Secure cap to Nora fixture housing. Re-securing fixture into aperture utilizing friction blades provided with fixture.

Fixture #3 – Quantity of 314

Each can light in the meeting rooms of the expansion side of the building will be replaced with the newly specified 6" LED can lights. This is a complete 1 for 1 replacement. The new fixture requires a step down transformer, which is included in the part specification.

- Fixture must be de-energized prior to installation.
- Requires removing existing reflector, removing existing electronic ballast and replacing with 277-120 step down transformer, (per attached specification), pull new wire through existing flex or provide new fixture whip to meet load requirements. Attach Nora 6160 socket cup adapter to existing cap. Install Power Plug (UL 2459 & CSA 182.3) disconnect to wires.
- Secure cap to Nora fixture. Install NRA-6159 Torsion spring mounting ring to fit in oversize aperture. Make connection between fixture and wires with PowerPlug. Install L.E.D. fixture utilizing side mounted springs which will attach to the mounting ring.

Fixture #4 – Quantity of 232

Each can light in the Portland Ballroom will be replaced with new specified 6" can lights. This is a complete 1 of 1 replacement.

- Fixture must be de-energized prior to installation.
- Requires removing existing reflector, pull new wire through existing flex or provide new fixture whip to meet load requirements. Attach Nora 6160 socket cup adapter to existing cap. Install Power Plug (UL 2459 & CSA 182.3) disconnect to wires. Secure cap to Nora fixture. Install NRA-6159 Torsion spring mounting ring to fit in oversize aperture. Make connection between fixture and wires with PowerPlug. Install L.E.D. fixture utilizing side mounted springs which will attach to the mounting ring.

Fixture #5 – Each lighting square includes 24 fixtures. All fixtures include the removal and replacement of the ballasts, reflector and lens. The new ballasts specified are two lamp ballasts feeding two fixtures each. Existing emergency circuit wiring must be maintained. Each square in the exhibit halls has 3 circuits and all must be maintained.

- Each lighting square in halls A-C currently includes five (5) ballasts per square. The new configuration will include twelve (12) ballasts per square.
- Each lighting square in Halls D-E includes twelve (12) ballasts per square and the new configuration will include twelve (12) ballasts per square, currently installed ballasts are four (4) lamp supplying two (2) fixtures.

Dimmer Rack installation instructions as follows

- Remove existing racks. Cut and/or move existing power feed and load circuit conduit as required. Preserve existing conductors for reconnection to new rack. New racks will be electrically configured to match existing allowing for direct reconnection to existing power and load wiring.
- Mount new racks on walls. Provide secure attachment and bracing as required.
- Move low voltage control wiring conduit and boxes as required. Reconnect low voltage control wiring to new racks.
- Where racks are being combined, one power feed will be capped off and abandon for future use by the owner. The second power feed will be reconnected to the new dimmer rack.

The dimmer racks will be reprogrammed by the manufacturer's technician who will commission each piece of equipment.

There are (11) wall mounted ENR dimmer racks involved in the replacement. All existing racks will be disconnected and removed from the facility by the installing contractor. At three locations where (2) existing racks are mounted side by side they will be combined into one new rack. In two locations the new rack will be relocated to an adjacent wall in the same room.

PRODUCT LIST – Cut sheets included in Attachment "B"

Ideal PowerPlug Disconnect 30-102

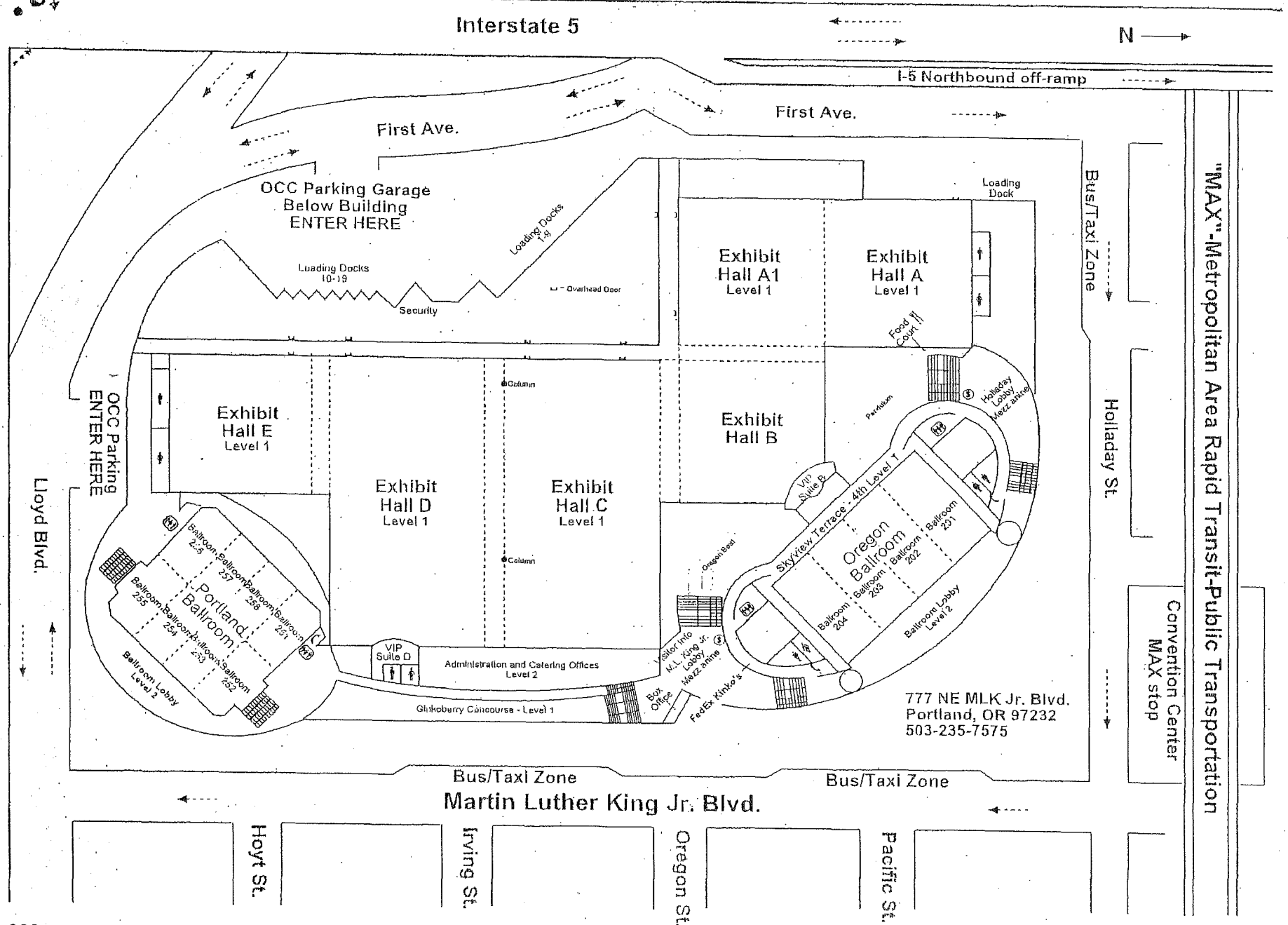
Fixture #1	Quantity 382 - Philips Optimum - FW9-22-2-24-UV-1-PS-B-841-HP
Fixture #2	Quantity 572 - NORA Lighting - LEDR-581-4.5-40-CW-NRA-6160 Quantity 14 – Leviton – MDS Dimmer Rack
Fixture #3	Quantity 314 - NORA Lighting - LEDR-681-40-CW-SDT277-NRA-6159-6160
Fixture #4	Quantity 232 – NORA Lighting - LEDR-681-40-CW-NRA-6159-6160
Fixture #5	Quantity 1584 – Philips Optimum - 4.5-1-25-UV-NB-B-S Quantity 1584 – MaxLite - Lamp - F32T8-25W-850 Watt Saver 4' Quantity 792 – MaxLite - Ballast - SKEU322HEL-SC Quantity 972 - ALP - Lens - Microlinear 5.25 x 47.75 (Original Side) Quantity 612 - ALP - Lens - Microlinear 5.5 x 48 (Expansion Side)

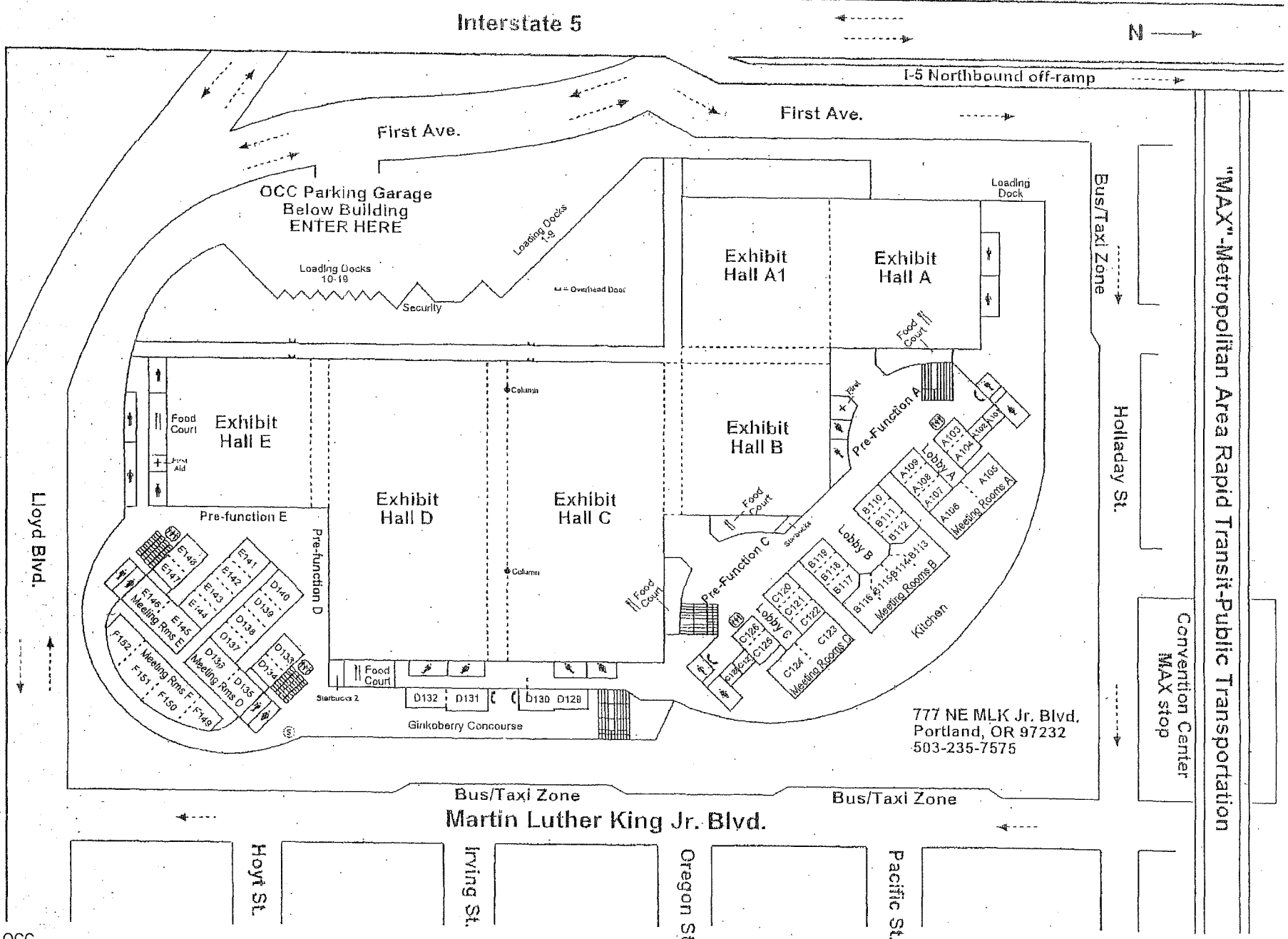
3. **Clarifications**

- Contractor responsible for field verification of all installation and quantities.
- A list of fixtures, counts and locations has been provided in *Attachment "B"*.
- All installations must comply with manufacturer's specifications.
- Contractor is responsible for any seismic upgrades as required by code.
- Contractor is responsible for removal and disposal of existing fixtures in accordance with the EPA guidelines. More information can be found regarding EPA guidelines at http://www.deq.state.or.us/lq/hw/UW.htm.
- Contractor is to provide reporting of recycling/waste disposal to MERC.
- Installing Contractor will be responsible for supplying all required lifts.
- Material submittals are required before materials are ordered and must be approved by OCC.
- Miscellaneous materials necessary for proper installation are to be provided by contractor.

4. **Deliverables/Outcomes**

Contractor is to provide three (3) sets of As-Built drawings upon project completion. This "as built" documentation is to include, but is not limited to; all warranty information, all parts information, all specific parts ordering information and requirements including vendor name, part # and model #, any drawings and a list of vendor representatives and contact information. This documentation is a record of the final systems as installed and adjusted, after all final acceptance tests have been completed. System documentation includes a clearly outlined schedule for routine maintenance operations and safety checks


Interstate 5
N
I-5 Northbound off-ramp
First Ave.
First Ave.
OCC Parking Garage
Below Building
ENTER HERE
Loading Docks
10-19
Loading Docks
1-9
Security
= Overhead Door
Loading
Dock
Exhibit
Hall A1
Level 1
Exhibit
Hall A
Level 1
Bus/Taxi Zone
"MAX"-Metropolitan Area Rapid Transit-Public Transportation
Food
Court
OCC Parking
ENTER HERE
Exhibit
Hall E
Level 1
Column
Exhibit
Hall B
Pavilion
Holladay
Lobby
Mezzanine
Holladay St.
Lloyd Blvd.
Exhibit
Hall D
Level 1
Exhibit
Hall C
Level 1
VIP
Suite B
Skyview Terrace - 4th Level 1
Oregon
Ballroom
Ballroom
201
Ballroom
202
Ballroom
203
Ballroom
204
Ballroom Lobby
Level 2
Ballroom
256
Ballroom
257
Ballroom
258
Ballroom
251
Ballroom
255
Ballroom
254
Ballroom
253
Ballroom
252
Portland
Ballroom
Ballroom Lobby
Level 2
Column
Oregon Bowl
VIP
Suite O
Administration and Catering Offices
Level 2
Visitor Info
M.L. King Jr.
Lobby
Mezzanine
Box
Office
FedEx Kinko's
Glisan Concourse - Level 1
777 NE MLK Jr. Blvd.
Portland, OR 97232
503-235-7575
Convention Center
MAX stop
Bus/Taxi Zone
Bus/Taxi Zone
Martin Luther King Jr. Blvd.
Hoyt St.
Irving St.
Oregon St.
Pacific St.


Interstate 5
N
I-5 Northbound off-ramp
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First Ave.
OCC Parking Garage
Below Building
ENTER HERE
Loading Docks 1-9
Loading Docks 10-19
Security
Overhead Door
Loading Dock
Bus/Taxi Zone
"MAX"-Metropolitan Area Rapid Transit-Public Transportation
Exhibit Hall A1
Exhibit Hall A
Exhibit Hall E
Exhibit Hall B
Exhibit Hall D
Exhibit Hall C
Food Court
First Aid
Pre-function E
Pre-function D
Pre-Function A
Pre-Function C
Lobby A
Lobby B
Lobby C
Meeting Rooms A
Meeting Rooms B
Meeting Rooms C
Meeting Rooms D
Meeting Rooms E
Meeting Rooms F
Kitchen
Starbucks
Starbucks 2
Ginkoberry Concourse
Holladay St.
Convention Center MAX stop
Lloyd Blvd.
777 NE MLK Jr. Blvd.
Portland, OR 97232
503-235-7575
Bus/Taxi Zone
Bus/Taxi Zone
Martin Luther King Jr. Blvd.
Hoyt St.
Irving St.
Oregon St.
Pacific St.

EXISTING EQUIPMENT						PROPOSED EQUIPMENT				
Location Area/Room	Fixt Qty	Existing Equipment Category	Existing Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment Category	Proposed Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture
A101	6	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	6	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A102	4	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	4	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A103	6	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	6	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A104	9	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	9	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A105	25	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	25	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A106	30	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	30	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A107	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A108	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A109	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B110	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B111	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B112	15	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	15	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B113	21	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	21	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B114	15	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	15	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B115	15	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	15	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B116	21	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	21	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B117	15	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	15	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B118	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
B119	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C120	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C121	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53

EXISTING EQUIPMENT						PROPOSED EQUIPMENT				
Location Area/Room	Fixt Qty	Existing Equipment Category	Existing Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment Category	Proposed Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture
C122	12	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	12	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C123	30	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	30	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C124	25	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	25	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C125	9	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	9	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C126	6	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	6	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C127	4	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	4	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
C128	6	OTHER	Other	3 Lamp T5 PLL 40w Lamps	121	6	Fixture #1	Other	2 lamp T5 F24 w/Louver	53
A103	12	INCAN	Incandescent	Downlights	250	12	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A104	16	INCAN	Incandescent	Downlights	250	16	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A105	36	INCAN	Incandescent	Downlights	250	36	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A106	42	INCAN	Incandescent	Downlights	250	42	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A107	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A108	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
A109	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Lobby	16	INCAN	Incandescent	Downlights	250	16	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Lobby Sign	2	INCAN	Incandescent	Downlights	250	2	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B110	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B111	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B112	19	INCAN	Incandescent	Downlights	250	19	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B113	33	INCAN	Incandescent	Downlights	250	33	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B114	17	INCAN	Incandescent	Downlights	250	17	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5

EXISTING EQUIPMENT						PROPOSED EQUIPMENT				
Location Area/Room	Fixt Qty	Existing Equipment Category	Existing Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment Category	Proposed Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture
B115	17	INCAN	Incandescent	Downlights	250	17	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B116	33	INCAN	Incandescent	Downlights	250	33	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B117	19	INCAN	Incandescent	Downlights	250	19	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B118	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
B119	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Lobby	36	INCAN	Incandescent	Downlights	250	36	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C120	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C121	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C122	15	INCAN	Incandescent	Downlights	250	15	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C123	42	INCAN	Incandescent	Downlights	250	42	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C124	36	INCAN	Incandescent	Downlights	250	36	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C125	16	INCAN	Incandescent	Downlights	250	16	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
C126	12	INCAN	Incandescent	Downlights	250	12	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Lobby	16	INCAN	Incandescent	Downlights	250	16	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Lobby Sign	2	INCAN	Incandescent	Downlights	250	2	Fixture #2	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 129	8	CFL	Compact Fluorescent	42 Watt PLT	42	8	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 130	8	CFL	Compact Fluorescent	42 Watt PLT	42	8	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 131	10	CFL	Compact Fluorescent	42 Watt PLT	42	10	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 132	10	CFL	Compact Fluorescent	42 Watt PLT	42	10	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 133	8	CFL	Compact Fluorescent	42 Watt PLT	42	8	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 134	6	CFL	Compact Fluorescent	42 Watt PLT	42	6	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5

EXISTING EQUIPMENT						PROPOSED EQUIPMENT				
Location Area/Room	Fixt Qty	Existing Equipment Category	Existing Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment Category	Proposed Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture
Room 135	16	CFL	Compact Fluorescent	42 Watt PLT	42	16	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 136	24	CFL	Compact Fluorescent	42 Watt PLT	42	24	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 137	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 138	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 139	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 140	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 141	16	CFL	Compact Fluorescent	42 Watt PLT	42	16	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 142	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 143	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 144	12	CFL	Compact Fluorescent	42 Watt PLT	42	12	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 145	24	CFL	Compact Fluorescent	42 Watt PLT	42	24	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 146	16	CFL	Compact Fluorescent	42 Watt PLT	42	16	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 147	6	CFL	Compact Fluorescent	42 Watt PLT	42	6	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 148	8	CFL	Compact Fluorescent	42 Watt PLT	42	8	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 149	15	CFL	Compact Fluorescent	42 Watt PLT	42	15	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 150	20	CFL	Compact Fluorescent	42 Watt PLT	42	20	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 151	20	CFL	Compact Fluorescent	42 Watt PLT	42	20	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Room 152	15	CFL	Compact Fluorescent	42 Watt PLT	42	15	Fixture #3	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	14.5
Ballroom 251 & 252	60	INCAN	Incandescent	400 Watt Quartz	400	60	Fixture #4	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	22
Ballroom 253 & 254	60	INCAN	Incandescent	400 Watt Quartz	400	60	Fixture #4	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	22
Ballroom 255 & 256	56	INCAN	Incandescent	400 Watt Quartz	400	56	Fixture #4	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	22

EXISTING EQUIPMENT						PROPOSED EQUIPMENT				
Location Area/Room	Fixt Qty	Existing Equipment Category	Existing Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment Category	Proposed Equipment Specific fixture, lamp type	Measure Description	Watts per Fixture
Ballroom 257 & 258	56	INCAN	Incandescent	400 Watt Quartz	400	56	Fixture #4	LED Recessed Downlights (ENERGY STAR Qualified)	LED Can Hardwire Kit	22
Halls A & A1	128	T8_4ft	4', 4 lamp T8	Rings	112	256	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Halls A & A1	128	T8_4ft	4', 2 lamp T8	Rings	58	128	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Hall B	60	T8_4ft	4', 4 lamp T8	Rings	112	120	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Hall B	60	T8_4ft	4', 2 lamp T8	Rings	58	60	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Hall C	128	T8_4ft	4', 4 lamp T8	Rings	112	256	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Hall C	128	T8_4ft	4', 2 lamp T8	Rings	58	128	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
A1/B Corridor	4	T8_4ft	4', 4 lamp T8	Strips	112	8	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
A1/B Corridor	4	T8_4ft	4', 2 lamp T8	Strips	58	4	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
B/C Corridor	4	T8_4ft	4', 4 lamp T8	Strips	112	8	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
B/C Corridor	4	T8_4ft	4', 2 lamp T8	Strips	58	4	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85)	In tandem/w reflector and lens	38
Expansion Hall D	384	T8_4ft	4', 4 lamp T8	Rings	112	384	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85) w/reflector	In tandem/w reflector and lens	38
Expansion Hall E	192	T8_4ft	4', 4 lamp T8	Rings	112	192	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85) w/reflector	In tandem/w reflector and lens	38
Expansion C/D Corridor	24	T8_4ft	4', 4 lamp T8	Strips	112	24	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85) w/reflector	In tandem/w reflector and lens	38
Expansion D/E Corridor	8	T8_4ft	4', 4 lamp T8	Strips	112	8	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85) w/reflector	In tandem/w reflector and lens	38
Expansion D/E Corridor	4	T8_4ft	4', 4 lamp T8	Strips	112	4	Fixture #5	4', 2 lamp HP T8 (25W, BF≤0.85) w/reflector	In tandem/w reflector and lens	38
	2,760	Total Quantity, Existing:				3,084	Total Quantity, Proposed:			

PowerPlug™ Disconnect

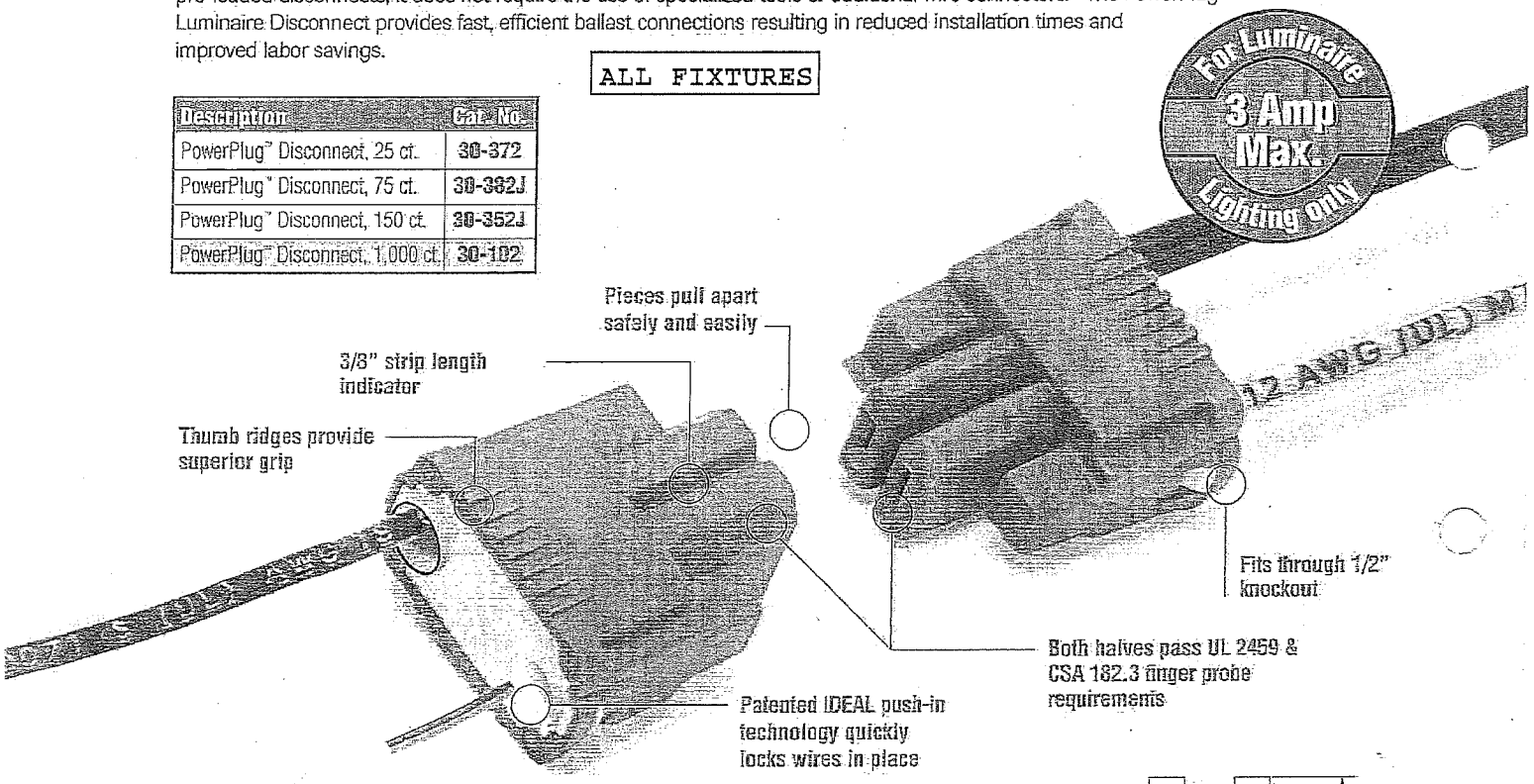
The IDEAL PowerPlug™ Luminaire Disconnect is the first push-in disconnect that fully meets the new National Electrical Code 410.73(G) and the new Canadian Electrical Code 30-308(4) for non-residential fluorescent luminaires.

PowerPlug™ helps reduce electrical shock hazard during ballast replacement by safely disconnecting hot and neutral ballast wiring. Both halves of PowerPlug™ meet UL 2459 and CSA 182.3 finger-probe safety requirements.

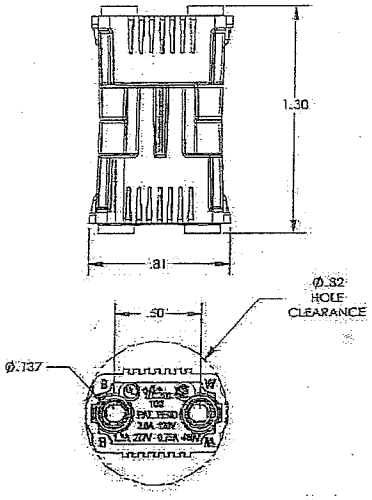
The advanced push-in technology of PowerPlug™ is compatible with solid or stranded wire. Unlike existing pin & socket disconnects or pre-leaded disconnects, it does not require the use of specialized tools or additional wire connectors. The PowerPlug™ Luminaire Disconnect provides fast, efficient ballast connections resulting in reduced installation times and improved labor savings.

ALL FIXTURES

Description	Cat. No.
PowerPlug™ Disconnect, 25 ct.	30-372
PowerPlug™ Disconnect, 75 ct.	30-382J
PowerPlug™ Disconnect, 150 ct.	30-352J
PowerPlug™ Disconnect, 1,000 ct.	30-102



Materials		Wire Range	
Housings:	Nylon	Solid	12 AWG – 18 AWG
Contacts:	Copper Alloy	Stranded	12 AWG – 14 AWG (19 strand or less)
Ratings		Stranded (Tin-Bonded)	12 AWG (19 strand or less) 14 AWG (19 strand or less) 16 AWG (26 strand or less) 18 AWG (16 strand or less)
Temperature:	105°C (221°F)		
Flammability:	UL 94V-0		
Current Interruption:	10 Cycles	**Agency Approvals**	
Max. Current Rating		UL 2459 CSA 182.3 RoHS Compliant	
120V	3 Amps	**Physical**	
277V	1.3 Amps	Strip Length:	3/8" ± 1/16"
347V	1 Amps	Number of Circuits:	2 (3 circuit coming soon)
480V	0.75 Amps	Color:	Orange and White
600V	0.60 Amps	Mating/Unmating Force:	3-6 Pounds
Patents Pending			



Listed
Luminaire Disconnect
3HME

P-2733
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Becker Place, Sycamore, IL 60178, USA / 815-895-5181 - 800-435-0705 in USA

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www.idealindustries.com

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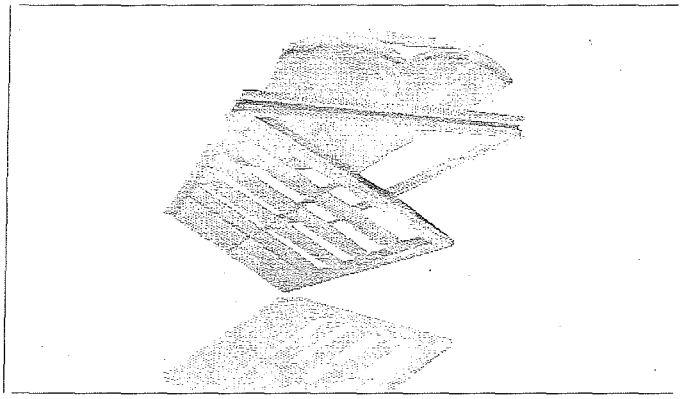
FIXTURE #1



OTR SERIES

Aesthetic troffer Retrofit Kit with louver

The OTR troffer retrofit kit is designed to offer the end user an aesthetic and cost effective way to increase the efficiency and lumen output of existing troffer fixtures.

Applications include conference rooms, offices, supermarkets and retail applications.

OTR retrofit kits are available with a variety of lamp and reflector combinations allowing the customer to design the OTR system to meet or exceed existing light levels and customize the "look" to match their specific needs. The OTR 2x4 with FW12 louver/subframe and Diffuse White reflector is a popular fixture selection, especially for retail applications.

Mounting Methods
The OTR troffer retrofit is designed for easy installation in existing troffer fixtures. A subframe is provided for retrofit with a new efficient louver.

Product Construction
The OTR fixture's socket bars are made from pre-painted heavy gauge cold rolled steel. They are designed to fit most standard troffer fixtures.

Optical Reflector
The system is precision brake formed of the selected aluminum material. The one piece reflector is removable without the use of tools and is designed to simply snap into place.

Lampholders
Made of a Polycarbonate material; these locking-style lampholders are utilized to ensure positive lamp retention. Additionally, the material contributes to a longer life product in high temperature applications.

Louver
Standard 2x4 louver is a shallow, high efficiency, white 12 cell. Optional louvers are available, see ordering information. Subframe standard with all louvers.

Ballasts
All ballasts are electronic programmed-start (T5HO) or instant-start (T8) as a standard. Optional ballasts are available, consult factory for available systems and system specifications. Available voltages: 120v, 277v, 347v, voltage sensing 120-277v and 347-480v.

Listings
All fixtures are UL and CUL listed.

Please specify when ordering

OTR	FW9	22	2	24	UV	1	PS	B		841	HP

Fixture ordering guide

OTR											
	FW6	14	1	17	BLANK	BLANK	NB*2	E	E( )	BLANK	HP
	FW9	22	2	24	12	1	HI	W	F	830	A
	FW12	24	3	U31	27	2	LI	B	SDT	835	TG
	FW18		4	32	34		SI		US*2	841	SS
				U32	UV		SI+		NS	850	ES ( )
				36	HV		PS				XL
				40			PSL				
				50			PSH				
				54			PD				
				55			SDH				
							AX				

*1 1x4 fixture available with up to 2 - 32/54w lamps; 2x2 fixture available with up to 4 - 17/24/U31/36/40/50/55w or 2 - U32w; 2x4 fixture available with up to 4 - 32/36/40/50/54/55w lamps (consult factory for custom configurations).
*2 OTR ordered with No Ballast will be shipped with Shunted Sockets, unless Unshunted Sockets are specified.
*3 Consult factory for manufacturing specific ordering codes/availability.

Available fixture selections

Louver Selections
- FW6 6 Cell White (1x4 & 2x2)
- FW9 9 Cell White (2x2)
- FW12 12 Cell White (2x4)
- FW18 18 Cell White (2x4)

Voltage Selections
- BLANK No Ballast
- 12 120V
- 27 277V
- 34 347V
- UV 120-277V
- HV 347-480V

Lamp Type Selections
- 17 F17T8 System
- 24 F24T5HO System
- U31 FU31T8 System
- 32 F32T8 System
- U32 FU32T8 System
- 36 FT36W/2G11 System
- 40 FT40W2G11 System
- 50 FT50W/2G11 System
- 54 F54T5HO System
- 55 FT55W/2G11 System

Ballast Selections
- NB Ballast Not Included
- HI High Ballast Factor (HBF) Electronic*
- LI Low Ballast Factor (LBF) Electronic*
- SI Standard Ballast Factor (NBF) Electronic**
- SI+ 1.0BF Electronic*
- PS Programmed Start (NBF)
- PSL Programmed Start LBF*
- PSH Programmed Start HBF***
- PD Programmed Start Dimming
- SDH Step Dimming HBF (100% to 60% Dimming)*
- AX Daylight Harvesting Ballast with Remote Mount Photosensor*

* T8 Only
** T8 & 40w Biax Only
*** T8, 36, 40 & 50w Biax Only

Options Selections
- E( ) Emergency Pack (# Lumens)
- F Inline Fuse
- SDT Step Down Transformer (480V to 277V)
- US Unshunted Sockets
- NS No Sockets

Reflector Selections
- E Enhanced Aluminum
- W Highly Reflective White Aluminum
- B 95% Reflective Extreme White Aluminum

Lamp Color Selections
- BLANK Lamps Not Included
- 830 80+ CRI, 3000K
- 835 80+ CRI, 3500K
- 841 80+ CRI, 4100K
- 850 80+ CRI, 5000K

Lamp Options Selections
- HP High Performance, Long Life Lamps*
- A Amalgam Tip Lamps**
- TG Tubeguarded Lamps
- SS Shattershielded Lamps
- ES( ) Energy Saver (Specify Wattage)***
- XL Long Life*

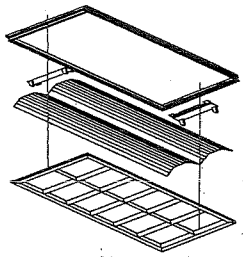
* T8 Only
** 54w, T5HO Only
*** 32, U32, 40, 54w Only

Common fixture selections

OTR FW9 22 3 17 UV HI W	T8	3	40w / 40w	3,645	3,524
OTR FW12 24 232 UV HI W	T8	2	74w / 73w	7,130	6,900
OTR FW12 24 254 UV IPSB	T5HO	2	116w / 115w	10,000	9,500
OTR FW12 24 432 UV HIE	T8	4	148w / 145w	14,632	14,160

*Wattages may vary depending on the ballast manufacturer and lamp type used.
Initial and mean system lumens are the initial/mean lumen output of the lamp/ballast system as rated by lamp and ballast manufacturer and may vary from manufacturer to manufacturer.
Specifications and dimensions subject to change without notice. Contact Philips Optimum for current availability and ordering information

Dimensional drawing



Fixture Type: _____

Catalog #: _____ **Quantity:** _____

Project: _____

FIXTURE #2

NORALIGHTING.

Type LEDR-581-4.5

Project OCC

Catalog No. LEDR-581-4.5-40-CW - NRA - 6160

Lamp/Wattage

LEDR-581-4.5
LED Retrofit Trim with Reflector
Source: LED 14.6 Watts

PRODUCT DESCRIPTION
E•LED Lighting's recessed downlight fixture solution with integrated LED power supply and thermal management system combined in a single compact unit.

FEATURES
- 5 Year Limited Warranty
- Dimmable down to 5%
- 981 Lumens using only 14.6 watts
- 3890 at 91 CRI
- Energy Star Rated, exceeds 66 lumens per watt
- Exceeds California Title 24 high efficacy requirements (mini candelabra version)
- cULus Listed for Damp Location
- Long life LEDs up to 50,000 hours, per LM-70 standards
- Save 75% compared to incandesent sources
- No harmful ultra violet light, infrared wavelengths, or light leak
- Also available as a baffled trim or with decorative glass
- Can be hard-wired

Trim
Self flanged aluminum spun reflector with deep set diffused lens for excellent visual comfort while providing high lumen output, to accommodate 65° cut off.

Construction
Scientifically and specifiable "Unitized Thermal Management" (UTM) provides exceptional cool operation exceeding all industry standards.

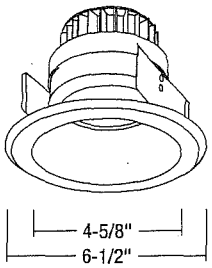
Installation
Trim includes friction blades to mount trim securely to housing.

ELECTRICAL
Voltage: 120VAC, 130mA
Power Consumption: 14.6 Watts
Lumens: 981.41m @ 3890K
Color Rendering Index: 91.1 CRI @ 3890K
Light Source: Cree LED sustainable system
LED Driver: Built-in Cree driver for maximum efficiency and longevity
Operating Temperature: 0°C to 50°C ambient temperature (32°F to 122°F)
Life Expectancy: 50,000 hours

Dimming
E•LED's retrofit works with standard leading dimmers. Dimming with leading-edge dimmers are 5-100% and for trailing-edge dimmers 10-100%. E•LED's retrofit only requires 14.6 watts of power, it has much higher efficiency and efficacy than other standard lighting fixtures. There may be some cases that require more than one lighting fixture to be used to achieve the minimum dimmer load. This will greatly depend on the particular dimmer used.

ACCESSORIES
Hardwire disconnect PBO

DIMENSIONS



Aperture: 4-5/8"
Diameter: 6-1/2"

Compatible Dimmers

Manufacturer	Part #	Type	Compatible with # of Units
Cooper	9530WS-K-L	600W STD	1 or more
Cooper	9534WS-K-L	600W STD	2 or more
Leviton	6633	600W STD	1 or more
Leviton	ENR 24	600W STD	1 or more
Leviton	RPI06	600W STD	1 or more
Lutron	DVELV-300P	300W STD	1 or more
Lutron	DVLV-600P	600W MLV	1 or more
Lutron	TGLV-600PR-WH	600W MLV	1 or more
Lutron	D-600	600W STD	1 or more
Lutron	DVCL-153P	600W STD	1 or more
Lutron	GLV-600-WH	600W STD	1 or more
Lutron	LX-600PL-WH	600W STD	1 or more
Lutron	MAELV-600	600W STD	1 or more
Lutron	S-600	600W STD	1 or more
Lutron	DV-10P	1000W MLV	1 or more
Lutron	GL-1000-WH	1000W STD	1 or more
Lutron	LX-10PL-WH	1000W STD	1 or more
Lutron	MA-1000-WH	1000W STD	1 or more
Lutron	S10P	1000W STD	1 or more
Lutron	S-1000-WH	1000W STD	1 or more

NOTE: For Compatibility Call Factory

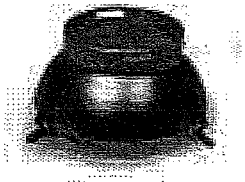
Labels and Listings
Energy Star Rated
RoHS Compliant
5 Year Limited Warranty
Conforms to IESNA LM-79 and LM-80

Assembled in U.S.A

Create a complete trim catalog number: Example: LEDR-581-4.5

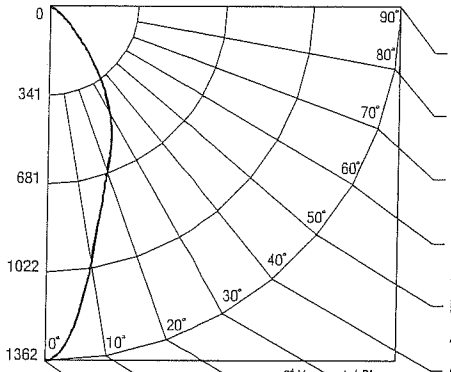
LED Retrofit Trim - *select one from each column*

Catalog No.	CCT	Finish
LEDR-581-4.5	40 = 3890K	CW = Specular Clear Reflector, White Flange



Photometrics - LED-58130CW

Lab: Luminaire Testing Laboratory Inc. **IESNA:** LM-63-2002 **Test No.** 28164 **Spacing Criteria:** 0.58 **Efficacy (Lumens Per Watt):** 66.8 lm/W
Lamp: LED **Total Watts:** 14.6 **Lumens:** 975 lm **Color Rendering Index:** 92.6 **Correlated Color Temperature:** 3070K



CANDELAS	
90	**0**
85	0
80	**0**
75	0
70	**0**
65	1
60	**18**
55	45
50	**82**
45	141
40	**234**
35	355
30	**473**
25	575
20	**673**
15	800
10	**995**
5	1238
0	**1362**

COEFFICIENTS OF UTILIZATION*

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	108	105	111	108	106	104	104	102	100	100	99	97	97	96	95	93
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	85
3	101	94	89	85	99	93	88	84	90	86	83	88	84	81	85	83	80	79
4	96	87	82	77	94	86	81	77	84	79	76	82	78	75	80	77	74	72
5	90	81	75	71	89	80	75	70	79	73	70	77	72	69	75	71	68	67
6	85	76	69	65	84	75	69	65	73	68	64	72	67	64	71	67	63	62
7	81	71	65	60	79	70	64	60	69	64	60	68	63	59	67	62	59	57
8	77	67	60	56	75	66	60	56	65	59	55	64	59	55	63	58	55	54
9	73	63	56	52	72	62	56	52	61	56	52	60	55	51	59	55	51	50
10	69	59	53	49	68	59	53	49	58	52	49	57	52	48	56	52	48	47

* Effective Floor Cavity Reflectance = 20%

LUMINANCE VALUES

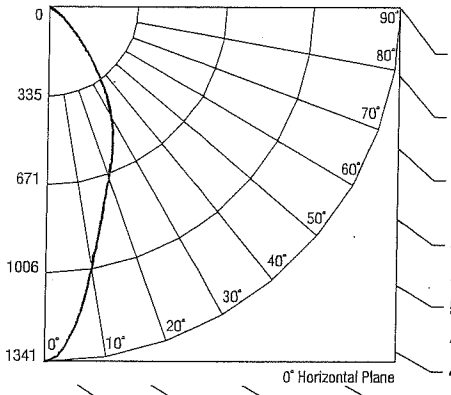
Angle in Degrees	Average 0-Deg	Average 90-Deg
45	17361	17361
55	6774	6774
65	310	310
75	0	0
85	0	0

BEAM & CONE DATA

Mounting Height	F.C. at Center	Maximum Spacing
4	85.1	2.3
5	54.5	2.9
6	37.8	3.5
8	21.3	4.6
10	13.6	5.8

Photometrics - LED-58140CW

Lab: Lighting Sciences Inc. **IESNA:** LM-63-2002 **Test No.** 28933 **Spacing Criteria:** 0.6 **Efficacy (Lumens Per Watt):** 69 lm/W
Lamp: LED **Total Watts:** 14.2 **Lumens:** 981 lm **Color Rendering Index:** 91.1 **Correlated Color Temperature:** 3890K



CANDELAS	
90	**0**
85	0
80	**0**
75	0
70	**0**
65	2
60	**17**
55	44
50	**82**
45	141
40	**236**
35	358
30	**478**
25	592
20	**682**
15	810
10	**999**
5	1227
0	**1341**

COEFFICIENTS OF UTILIZATION*

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	108	105	111	108	106	104	104	102	100	100	99	97	97	96	95	93
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	85
3	101	94	89	85	99	93	88	84	90	86	83	88	84	81	86	83	80	79
4	96	88	82	77	94	86	81	77	84	79	76	82	78	75	80	77	74	72
5	90	81	75	71	89	80	75	70	79	74	70	77	72	69	75	71	68	67
6	85	76	70	65	84	75	69	65	74	68	64	72	67	64	71	67	63	62
7	81	71	65	60	79	70	64	60	69	64	60	68	63	59	67	62	59	58
8	77	67	60	56	75	66	60	56	65	59	56	64	59	55	63	58	55	54
9	73	63	56	52	72	62	56	52	61	56	52	60	55	52	59	55	52	50
10	69	59	53	49	68	59	53	49	58	52	49	57	52	49	56	52	48	47

* Effective Floor Cavity Reflectance = 20%

LUMINANCE VALUES

Angle in Degrees	Average 0-Deg	Average 90-Deg
45	17423	17423
55	6652	6652
65	372	372
75	0	0
85	0	0

BEAM & CONE DATA

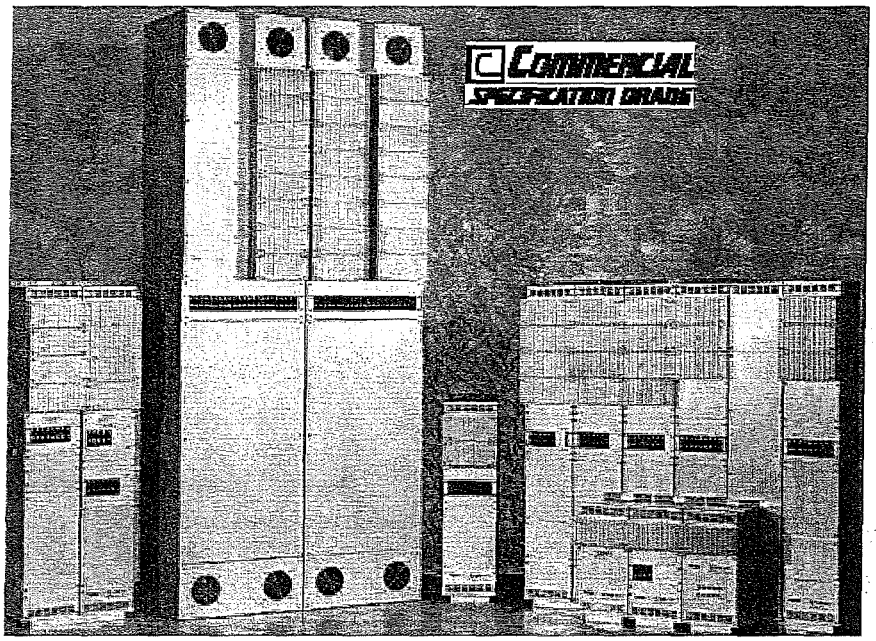
Mounting Height	F.C. at Center	Maximum Spacing
4	83.8	2.4
5	53.6	3
6	37.3	3.6
8	21	4.8
10	13.4	6

Product Specifications

MDS

FIXTURE #2 - DIMMER RACK

Modular Dimming System



FEATURES

- INTERMIX 120V AND 277V DIMMERS IN A SINGLE ENCLOSURE
- DIM VIRTUALLY ANY FLUORESCENT DIMMER BALLAST
- USE WITH ALL LEVITON CONTROL TYPES INCLUDING DMX 512
- MODULAR CONSTRUCTION
- PLUG-IN DIMMER MODULES
- 120/208, 230/400, 277/480, 347/600 VOLT
- ALL CONVECTION COOLED (NO FANS)
- FACTORY WIRED AND TESTED
- OPTION TO INCORPORATE UL1008 TRANSFER CONTRACTOR
- UL LISTED, cUL LISTED

Leviton MDS dimmer cabinets are premium quality convection cooled systems capable of intermixing multiple voltage feeds and emergency provisions in a single cabinet. It is completely factory wired and tested prior to shipment so that the Electrical Contractor has only one cabinet to mount and wire, and comes completely ready for the contractor's power and control field wiring. Barriered sections allow 120 volt, 277 volt, and emergency feeds all brought into a single cabinet for ease of field wiring. No need for jobsite conduit runs between multiple cabinets. Dimmers for this system can drive virtually any type of brand of fluorescent dimming ballasts.

A wide variety of the latest controls and control technologies are available for use with these dimmers and cabinets. Three series of Leviton digital control systems the D8000 and D4200 and DMS allow multiple presets to be stored and recalled. They offer user-friendly operation, and simple communications between the dimmer cabinet and control stations via 2 serial data wires, and 2 series low voltage control power wires. MDS cabinets accept analog inputs from DPS series control systems. The DPS four scene preset system is by far the industry's simplest and easiest control system to learn to operate today.

The robust and conservative design of this equipment makes it ideal for 24/7 continuous service applications where it is continuously on line.

MDS

LEVITON SPECIFICATIONSUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
P.O. Box 2210 • Tualatin, Oregon 97062 • Phone: (503)404-5500 • Fax: (503) 404-5600

LEVITON LIGHTING CONTROL DIVISION
Building a Connected World

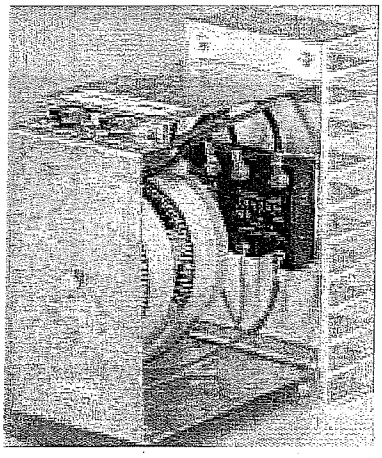
Product Specifications

MDS

DIMMER MODULES

Leviton Lighting Control Division manufactures a wide range of dimmers to control the majority of modern lighting sources available today. These include Neon/Cold Cathode, Fluorescent (using virtually any type or brand of fluorescent dimming ballasts), Low Voltage and Incandescent (including Quartz Halogen). Twenty ampere, 2400 watt dimmers are supplied as two dimmers in one chassis, larger sizes are supplied as one dimmer per chassis.

The dimmers are built on a rugged extruded aluminum chassis with a finned surface for convection cooling. Power and control connection are plug-in for ease of maintenance. The dimming function is performed by Leviton Lighting Control Division's exclusive solid state circuitry using high inrush silicon controlled rectifiers (SCR) in a back to back configuration for handling high power. Dimmer output is highly filtered, with high rise times. Each dimmer type is available in a full range of capacities from 1440 watts to 12,000 watts at 120 volts, and up to 27,700 watts at 277 volts. Primary circuit breakers and branch circuit breakers are provided as required. Canadian 347 volt dimmers are available.

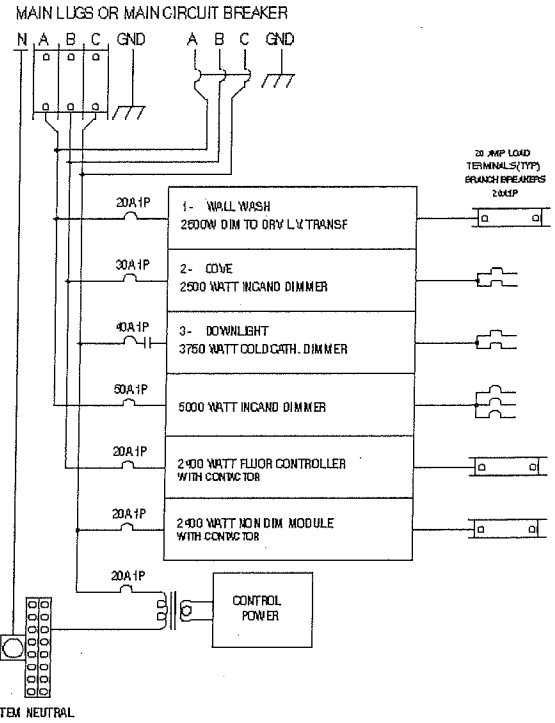


DIMMER CABINETS

The key to Leviton Lighting Control Division's Modular Dimming System (MDS) flexibility is the variety of dimming cabinets available. They go together like building blocks to make the exact size cabinet needed for any job requirements. Further, they are easily barriered into sections to accommodate multi-voltage feeds (example 120V and 277V) including emergency feeds all into the same cabinet. Dimmers are available for virtually all brands and varieties of fluorescent dimmer ballasts, as well as incandescent dimmers, and non dims. The cabinets easily accommodate main circuit breakers as well as main lugs. The cabinet can contain bypass contactors for emergency circuits, or where required, can contain UL 1008 emergency transfer contactors, all in a single cabinet structure.

Both wall mount and floor standing cabinets are available depending on the quantity of dimmers required. Typical dimmer per circuit designs require only 20 ampere dimmers. However, for special requirements such as driving 5,000 watt and 10,000 watt fresnels, larger dimmers offering up to 12,000 watts of load capacity are available. Dimmers are all convection cooled, eliminating fan noise. They are ideal for applications where fan noise would be unacceptacle.

Typical Internal Wiring Schematic



LEVITON SPECIFICATIONSUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Product Specifications

MDS

Dimmer Cabinet Size

The following method is a simple way to estimate the size of the dimmer cabinet. All dimmer cabinets are custom fabricated in the Leviton plant. If a special size or shape dimmer cabinet is required, contact your factory representative or Leviton for assistance. As change can occur during engineering and fabrication, Leviton Lighting Control Division reserves the right to change the cabinet size when necessary to meet the job requirements.

CALCULATING CABINET SIZE

1. Find the total number of 4" module units using Table 1. Note: Dual dimmer modules contain 2 dimmers in one 4-inch dimmer unit space.
2. Locate the total height on the chart below. All cabinet dimensions are based on 4 inch units.
3. Follow it across and down to the cabinet drawing.
4. Read the cabinet width and the bottom of the cabinet drawing, and the height at the side.

TABLE 1

120 VOLT DIMMERS	Height	Dimmer Unit Spaces Required
1920 watt dual dimmer	= 4 inches	one 4 inch unit
2500 watt dual dimmer	= 4 inches	one 4 inch unit
3750 watt single dimmer	= 4 inches	one 4 inch unit
5000 watt single dimmer	= 4 inches	one 4 inch unit
7200 watt single dimmer	= 12 inches	three 4 inch units
9600 watt single dimmer	= 12 inches	three 4 inch units
12000 watt single dimmer	= 12 inches	three 4 inch units

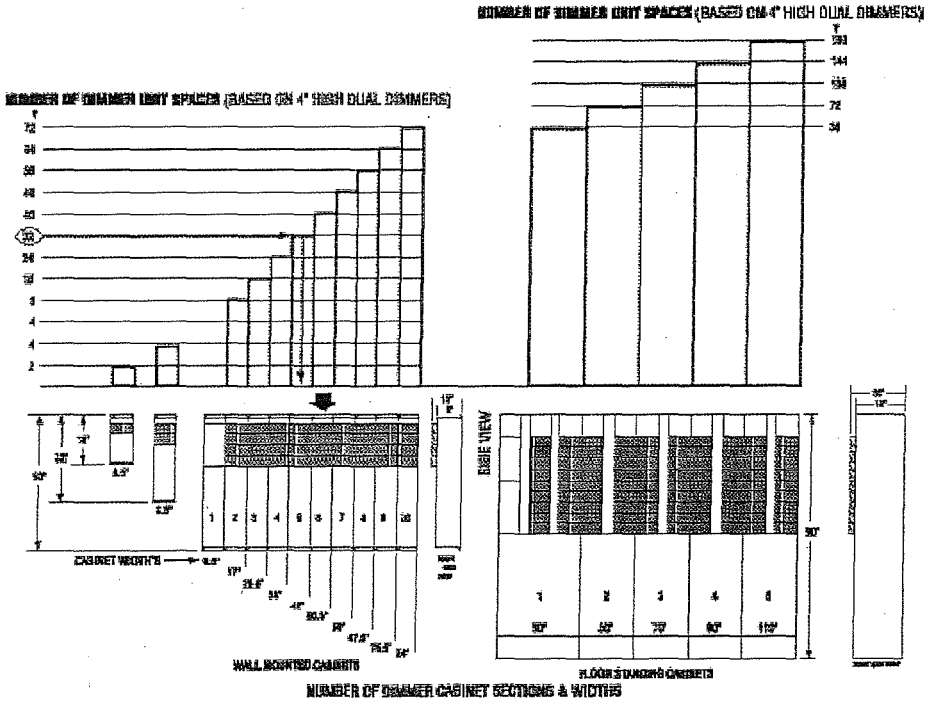
For complementary assistance in determining dimming cabinet dimensions, please call the Leviton quotations group at 1-800-996-2276.

POWER FAILURE TRANSFER

If UL 1008 Transfer Contactors are required, considerable space is required as the contactors are physically large. For 2 pole through to 8 pole (up to 4 circuits) allow two 50 inch cabinet sections, a total of 16.75 inches of width; for additional poles contact the factory. These contactors are barriered off from the normal dimmer section of the cabinet.

EMERGENCY BYPASS

For an emergency section using dimmers with by-pass relays, consider cabinet space as a dimmer module plus a non-dim module. Emergency sections require a barriered section for power separation, so at least one more cabinet section is always needed.



LEVITON SPECIFICATIONSUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
P.O. Box 2210 • Tualatin, Oregon 97062 • Phone: (503) 404-5500 • Fax: (503) 404-5600

LEVITON LIGHTING CONTROL DIVISION
Building a Connected World

Product Specifications

MDS

Dimmer Cabinet Specifications

The dimmer cabinet assembly shall contain all the dimmer modules, control circuitry, relays, contactors, power supplies, primary and secondary circuit breakers, main lugs or main circuit breakers, and barriered sections for emergency lighting circuits or different feed voltages. Main Lugs (or Main Breakers) and neutral bus shall be provided for 120/208, 120/240 (single phase), 230/400, 277/480, 347/600 voltage ratings, at 50 or 60 Hertz. Projects requiring 50 hertz operation shall be called out at time of order placement.

The dimmer cabinets shall be constructed of 14 U.S. gauge steel, welded, and coated in medium textured medium blue color powder coating. Cabinets shall be dead front, dead rear, and wall mounted or floor standing. All components shall be so arranged that they are serviceable from the front.

Internal power wiring shall be U.L. Listed 125° C. rated and shall be neatly placed and bundled. Control and power wiring shall be separate. Contractor field wiring shall terminate in compression type terminal or branch circuit breakers. For ease of service, dimmers, power supplies and other electronic components shall be plug-in. The completed dimmer cabinet assembly shall be listed by Underwriters Laboratories (U.L.) as a switchboard, and shall be so labeled when shipped to the job site.

Dimmer modules shall be fully plug-in type. They shall contain a filter choke having a minimum rise time of 500 microseconds. Dimmer modules shall employ Silicon Controlled Rectifiers (SCR) type Thyristor devices. Triac based dimming circuits shall not be acceptable. Dimmer modules shall provide voltage regulation circuitry to minimize light fluctuation in controlled spaces.Dimmer cabinets shall be cooled by natural convection air flow, and shall not require cooling fans. Dimmers shall operate in 0° to 40° C (32° to 104° F) ambient air temperature. Heat generated by the dimmer cabinet is not determined by the combined dimmer ratings, but is determined by the connected load to the dimmer cabinet. The heat generated by the dimmer cabinet shall not exceed 3% of the connected load in watts.

Dimmer cabinet shall contain necessary communication electronics to communicate with the control systems that become part of this system. The control systems and dimmer cabinet shall retain in memory the settings that were in operation at the time of any power outage, and shall return the system automatically to that light setting upon return of normal power to the system.

If an emergency system is part of this system, that emergency system shall continually monitor "normal" power and at the loss of any one or more normal supply power phases, it shall turn on all lighting circuits connected to the emergency power source. The emergency power is supplied by others, this system only provides a path to the emergency circuits. Upon sensing the return of normal power, this system shall automatically reset all lighting to the conditions at the start of the power outage.

The dimmer cabinet and associated remote control systems shall be stored in their original cartons or crates in a dry location free from dirt and dust until they are installed. Dimmers shall not be used to furnish any temporary light or power for construction activities. Dimmer cabinets and controls shall be protected from job site dust and dirt such as drywall sanding dust until ready to be energized.

Several types of Electronic Control Systems shall be available for the dimmer cabinet, depending upon the control system chosen.

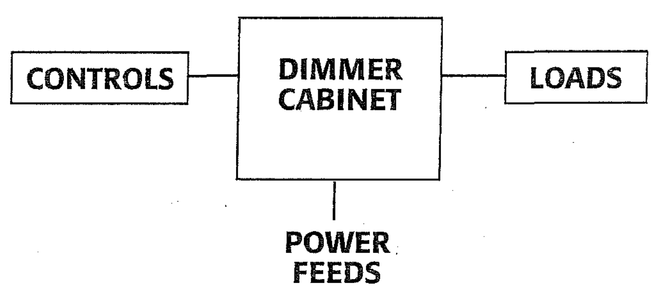
Systems employing D8000 or D4200 controls shall be fitted with a control system containing a Liquid Crystal Display (LCD) and software that allows choosing between dimmer types, dimmer response curves, and allows dimmer to control channel assignment.

Using the prompting from the LCD panel a variety of fluorescent dimmer ballast types shall be selectable and controlled by standard dimmer modules. These shall include ballasts employing zero to plus 10 volt DC control signals, dimmer ballasts like the Advance Mark X requiring only two wires for both power and control, and Hi-lume™ dimmer ballasts. Selecting ballast types shall automatically set required low light limits and other dimmer ballast requirements.

The digital electronics assembly shall be fully plug in, facilitating field change out. Digital communications shall be built in to talk via DMX 512, LumaNet® III, RS485, and RS232. System shall contain an all on and emergency full on external input. Using the digital control module, each dimmer shall be capable of controlling incandescent, fluorescent, step down transformers for low voltage lamps, plus neon and cold cathode loads.

Systems employing DMS controls shall be fitted with a digital control module and backup control system as well.

Systems employing the DPS controls shall have a choice of two different control systems available for the dimmer cabinet. They shall be designed to handle any number of controls and dimmers, but shall be applied as multiple circuits, each controlling groups of up to 24 dimmers.



LEVITON SPECIFICATIONSUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
P.O. Box 2210 • Tualatin, Oregon 97062 • Phone: (503)404-5500 • Fax: (503) 404-5600

LEVITON LIGHTING CONTROL DIVISION Building a Connected World

LEVITON

Bill of Material #141237566 R2

Oregon Convention Center
Portland, OR

August 28, 2012

This bill of material is based upon a list of equipment received from Leviton RSM on 8/27/2012.

An order will only be accepted as per the Leviton Bill of Material.

ITEM	QTY	PART NO.	DESCRIPTION
			Dimmer Rack - DJA
1.0	1	CUS-16923756-01	MDS Dimmer Cabinet containing: 18 - 20A 120V Dimmed Circuits 3 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 9 - 1920W 120V Dimmed Dual Standard Module 9 - Module Circuit Breaker Cover (per Single/Dual Module)
			Dimmer Rack - DJB
2.0	1	CUS-16923756-02	MDS Dimmer Cabinet containing: 12 - 20A 120V Dimmed Circuits 3 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 6 - 1920W 120V Dimmed Dual Standard Module 6 - Module Circuit Breaker Cover (per Single/Dual Module)
			Dimmer Rack - DJC/DJD
3.0	1	CUS-16923756-03	MDS Dimmer Cabinet containing: 28 - 20A 120V Dimmed Circuits 6 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 2 - a-2000 Control Card 14 - 1920W 120V Dimmed Dual Standard Module 14 - Module Circuit Breaker Cover (per Single/Dual Module)

LEVITON

Bill of Material #141237566 R2

Oregon Convention Center
Portland, OR

August 28, 2012

This bill of material is based upon a list of equipment received from Leviton RSM on 8/27/2012.

An order will only be accepted as per the Leviton Bill of Material.

ITEM	QTY	PART NO.	DESCRIPTION
			Dimmer Rack - DJE/DJF
4.0	1	CUS-16923756-04	MDS Dimmer Cabinet containing: 24 - 20A 120V Dimmed Circuits 4 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 12 - 1920W 120V Dimmed Dual Standard Module 12 - Module Circuit Breaker Cover (per Single/Dual Module)
			Dimmer Rack - DJG/DJH
5.0	1	CUS-16923756-05	MDS Dimmer Cabinet containing: 22 - 20A 120V Dimmed Circuits 4 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 11 - 1920W 120V Dimmed Dual Standard Module 11 - Module Circuit Breaker Cover (per Single/Dual Module)
			Dimmer Rack - DFA
6.0	1	CUS-16923756-06	MDS Dimmer Cabinet containing: 18 - 20A 120V Dimmed Circuits 3 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 9 - 1920W 120V Dimmed Dual Standard Module 9 - Module Circuit Breaker Cover (per Single/Dual Module)

LEVITON

Bill of Material #141237566 R2

Oregon Convention Center
Portland, OR

August 28, 2012

This bill of material is based upon a list of equipment received from Leviton RSM on 8/27/2012.

An order will only be accepted as per the Leviton Bill of Material.

ITEM	QTY	PART NO.	DESCRIPTION
			Dimmer Rack - DFB
7.0	1	CUS-16923756-07	MDS Dimmer Cabinet containing: 12 - 20A 120V Dimmed Circuits 3 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 6 - 1920W 120V Dimmed Dual Standard Module 6 - Module Circuit Breaker Cover (per Single/Dual Module)
			Dimmer Rack - DFC
8.0	1	CUS-16923756-08	MDS Dimmer Cabinet containing: 14 - 20A 120V Dimmed Circuits 3 - 50" x 8.5" Cabinet Sections 1 - 208/120VAC WYE, 60Hz, 3ø4W plus Ground Feed, with Main Lugs Only 1 - a-2000 Control Card 7 - 1920W 120V Dimmed Dual Standard Module 7 - Module Circuit Breaker Cover (per Single/Dual Module)
			Note: Leviton will provide new MDS dimmer racks to replace existing ENR racks to allow the use of existing control system.
			Spare Parts
9.0	1	MAC-516-124	MDS Standard Dual 20A Dimmer Module 120V
10.0	2	MAC-6015-32	MDS Circuit Breaker, 20A, 1P, 120V
11.0	1	APP-32055-00	a-2000 Control Card
			Freight
12.0	1	FREIGHT-COM	Freight: This project is quoted F.O.B. factory, surface freight prepaid to the jobsite. Any special delivery services (air-freight, expedited delivery, etc.) may incur additional charges.

LEVITON

Bill of Material #141237566 R2

Oregon Convention Center
Portland, OR

August 28, 2012

This bill of material is based upon a list of equipment received from Leviton RSM on 8/27/2012.

An order will only be accepted as per the Leviton Bill of Material.

ITEM	QTY	PART NO.	DESCRIPTION
			Field Services
13.0	6	ECO-COM	Engineering Services: System Check-Out, Commissioning and Training by a Factory Authorized Engineer. **Engineering Services require a minimum of three (3) weeks advance notice.** Service is not applicable to occupancy sensors.
			Warranty
			Warranty: Leviton lighting systems are warranted against defects in material and workmanship for two (2) years from date of shipment. Units returned to the appropriate Leviton office will be repaired at no charge, excepting surface freight. Contact your Leviton Representative for details.
			Factory Services
14.0	1	FACTSVCS-COM	Factory Services: Complete sets of working drawings detailing the equipment to be supplied, submitted for approval prior to manufacture. Operation and maintenance manuals provided upon request. As-Installed drawings, operation and maintenance manuals require 6 weeks for preparation after system startup. Leviton drawings do not include wire runs, conduit runs or floor plan placement of equipment.

This bill of material is not to be used for construction purposes. Leviton Production Drawings must be produced before construction related issues can be addressed.

This bill of material & associated pricing is valid for 90 days.

Payment Terms: Net 30 from Invoice/Shipment

All sales are subject to Leviton's Terms & Conditions of Sale

FIXTURE #3

LEDR-681 - 6.0
LED Retrofit Trim with Reflector
Source: LED 14.6 Watts

NORALIGHTING.

Type LEDR-681 - 6.0

Project OCC

Catalog No. LEDR-681-40-CW-SDT277 - NRA - 6159/6160

Lamp/Wattage

PRODUCT DESCRIPTION
E•LED Lighting's recessed downlight fixture solution with integrated LED power supply and thermal management system combined in a single compact unit.

FEATURES
- 5 Year Limited Warranty
- Dimmable down to 5%
- 981 Lumens using only 14.6 watts
- 3890 at 91 CRI
- Energy Star Rated, exceeds 66 lumens per watt
- Exceeds California Title 24 high efficacy requirements (mini candelabra version)
- cULus Listed for Damp Location
- Long life LEDs up to 50,000 hours, per LM-70 standards
- Save 75% compared to incandesent sources
- No harmful ultra violet light, infrared wavelengths, or light leak
- Also available as a baffled trim or with decorative glass
- Can be hard-wired

Trim
Self flanged aluminum spun reflector with deep set diffused lens for excellent visual comfort while providing high lumen output, to accommodate 65° cut off.

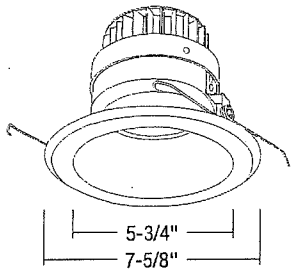
Construction
Scientifically and specifiable "Unitized Thermal Management" (UTM) provides exceptional cool operation exceeding all industry standards.

Installation
Trim includes two torsion springs to mount trim securely in existing, remodel or new construction housing. For housings without torsion spring brackets, use torsion spring mounting ring (NRA-6159).

ELECTRICAL
Voltage: 120VAC, 130mA -277VAC
Power Consumption: 14.6 Watts
Lumens: 981.4lm @ 3890K
Color Rendering Index: 91.1 CRI @ 3890K
Light Source: Cree LED sustainable system
LED Driver: Built-in Cree driver for maximum efficiency and longevity
Operating Temperature: 0°C to 50°C ambient temperature (32°F to 122°F)
Life Expectancy: 50,000 hours

Dimming
E•LED's retrofit works with standard leading dimmers. Dimming with leading-edge dimmers are 5-100% and for trailing-edge dimmers 10-100%. E•LED's retrofit only requires 14.6 watts of power, it has much higher efficiency and efficacy than other standard lighting fixtures. There may be some cases that require more than one lighting fixture to be used to achieve the minimum dimmer load. This will greatly depend on the particular dimmer used.

DIMENSIONS



Aperture: 5-3/4"
Diameter: 7-5/8"

ACCESSORIES
NRA-6159: Torsion Spring Mounting Ring
SDT277-120: Step Down Transformer from 277V to 120V

Compatible Dimmers

Manufacturer	Part #	Type	Compatible with # of Units
Cooper	9530WS-K-L	600W STD	1 or more
Cooper	9534WS-K-L	600W STD	2 or more
Leviton	6633	600W STD	1 or more
Leviton	ENR 24	600W STD	1 or more
Leviton	RPI06	600W STD	1 or more
Lutron	DVELV-300P	300W STD	1 or more
Lutron	DVLV-600P	600W MLV	1 or more
Lutron	TGLV-600PR-WH	600W MLV	1 or more
Lutron	D-600	600W STD	1 or more
Lutron	DVCL-153P	600W STD	1 or more
Lutron	GLV-600-WH	600W STD	1 or more
Lutron	LX-600PL-WH	600W STD	1 or more
Lutron	MAELV-600	600W STD	1 or more
Lutron	S-600	600W STD	1 or more
Lutron	DV-10P	1000W MLV	1 or more
Lutron	GL-1000-WH	1000W STD	1 or more
Lutron	LX-10PL-WH	1000W STD	1 or more
Lutron	MA-1000-WH	1000W STD	1 or more
Lutron	S10P	1000W STD	1 or more
Lutron	S-1000-WH	1000W STD	1 or more

NOTE: For Compatibility Call Factory

Labels and Listings
Energy Star Rated
RoHS Compliant
5 Year Limited Warranty
Conforms to IESNA LM-79 and LM-80

Assembled in U.S.A

Create a complete trim catalog number: Example: LEDR-6830BZBZ

LED Retrofit Trim - *select one from each column*

Catalog No.	CCT	Finish
☐ LEDR-681	☐ 40=3890	☐ CW = Specular Clear Relfector, White Flange

Optional Accesories

Catalog No.
☐ NRA-6159 = Torsion Spring Mounting Ring
☐ SDT277-120 = Step Down Transformer from 277V to 120V

SDT277-120

FIXTURE #4

LEDR-681 - 6.0
LED Retrofit Trim with Reflector
Source: LED 22.0 Watts

NORALIGHTING.

Type LEDR-681 - 6.0

Project OCC

Catalog No. LEDR-681-40-CW - NRA-6159/6160

Lamp/Wattage

PRODUCT DESCRIPTION
E•LED Lighting's recessed downlight fixture solution with integrated LED power supply and thermal management system combined in a single compact unit.

FEATURES
- 5 Year Limited Warranty
- Dimmable down to 5%
- 1478 Lumens using only 22.0 watts
- 3890 at 91 CRI
- Energy Star Rated, exceeds 66 lumens per watt
- Exceeds California Title 24 high efficacy requirements (mini candelabra version)
- cULus Listed for Damp Location
- Long life LEDs up to 50,000 hours, per LM-70 standards
- Save 75% compared to incandesent sources
- No harmful ultra violet light, infrared wavelengths, or light leak
- Also available as a baffled trim or with decorative glass
- Can be hard-wired

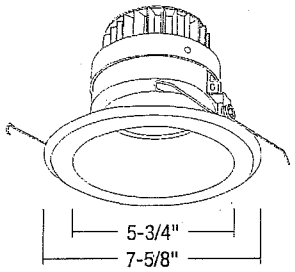
Trim
Self flanged aluminum spun reflector with deep set diffused lens for excellent visual comfort while providing high lumen output, to accommodate 65° cut off.

Construction
Scientifically and specifiable "Unitized Thermal Management" (UTM) provides exceptional cool operation exceeding all industry standards.

Installation
Trim includes two torsion springs to mount trim securely in existing, remodel or new construction housing. For housings without torsion spring brackets, use torsion spring mounting ring (NRA-6159).

ELECTRICAL
Voltage: 120VAC, 130mA
Power Consumption: 22.0 Watts
Lumens: 1478lm @ 3890K
Color Rendering Index: 1478lm @ 3890K
Light Source: Cree LED sustainable system
LED Driver: Built-in Cree driver for maximum efficiency and longevity
Operating Temperature: 0°C to 50°C ambient temperature (32°F to 122°F)
Life Expectancy: 50,000 hours

Dimming
E•LED's retrofit works with standard leading dimmers. Dimming with leading-edge dimmers are 5-100% and for trailing-edge dimmers 10-100%. E•LED's retrofit only requires 22.0 watts of power, it has much higher efficiency and efficacy than other standard lighting fixtures. There may be some cases that require more than one lighting fixture to be used to achieve the minimum dimmer load. This will greatly depend on the particular dimmer used.

DIMENSIONS


Aperture: 5-3/4"
Diameter: 7-5/8"

ACCESSORIES
NRA-6159: Torsion Spring Mounting Ring

Compatible Dimmers

Manufacturer	Part #	Type	Compatible with # of Units
Cooper	9530WS-K-L	600W STD	1 or more
Cooper	9534WS-K-L	600W STD	2 or more
Leviton	6633	600W STD	1 or more
Leviton	ENR 24	600W STD	1 or more
Leviton	RPI06	600W STD	1 or more
Lutron	DVELV-300P	300W STD	1 or more
Lutron	DVLV-600P	600W MLV	1 or more
Lutron	TGLV-600PR-WH	600W MLV	1 or more
Lutron	D-600	600W STD	1 or more
Lutron	DVCL-153P	600W STD	1 or more
Lutron	GLV-600-WH	600W STD	1 or more
Lutron	LX-600PL-WH	600W STD	1 or more
Lutron	MAELV-600	600W STD	1 or more
Lutron	S-600	600W STD	1 or more
Lutron	DV-10P	1000W MLV	1 or more
Lutron	GL-1000-WH	1000W STD	1 or more
Lutron	LX-10PL-WH	1000W STD	1 or more
Lutron	MA-1000-WH	1000W STD	1 or more
Lutron	S10P	1000W STD	1 or more
Lutron	S-1000-WH	1000W STD	1 or more

NOTE: For Compatibility Call Factory

Labels and Listings
Energy Star Rated
RoHS Compliant
5 Year Limited Warranty
Conforms to IESNA LM-79 and LM-80

Assembled in U.S.A

Create a complete trim catalog number: Example: LEDR-6830BZBZ

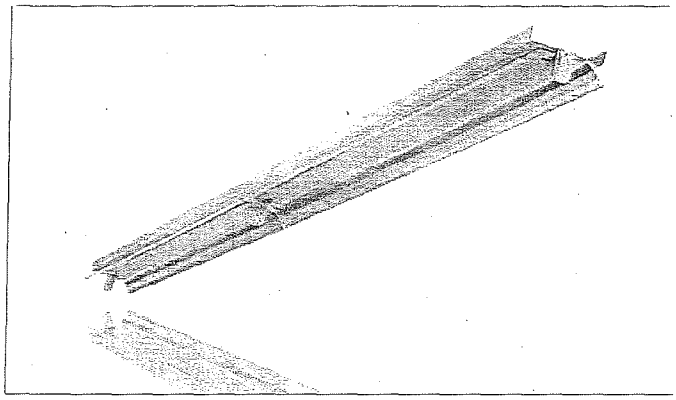
LED Retrofit Trim - *select one from each column*

Catalog No.	CCT	Finish
☐ LEDR-681	☐ 40=3890	☐ CW = Specular Clear Relfector, White Flange

Optional Accesories

Catalog No.
☐ NRA-6159 = Torsion Spring Mounting Ring
☐ NRA-6160


FIXTURE #5



SR SERIES

Strip Retrofit Kit

The SR strip retrofit kit is designed to offer the end user a cost effective way to increase the efficiency and lumen output of existing strip fixtures. Custom fabricated for the existing channel width, the SR conversion kit is easy to install and provides for high efficiency lighting.

Applications include distribution, warehouse, aisle lighting, retail applications and virtually anywhere existing strip fixtures are currently in use.

SR retrofit kits are available with a variety of lamp and reflector combinations allowing the customer to design the SR system to meet or exceed existing light levels and customize the "look" to match their specific needs. Philips Optimum recommends the coupling of the Enhanced Specular reflector with high lumen T8 lamps as a way to maximize lumen output and fixture efficiency.

The SR socket bar retrofit is designed for easy installation in existing strip fixtures.

Product Construction
The channel cover is made from 0.028" cold rolled steel, and custom fabricated to fit the existing channel width. The brake formed cover is designed with ease of installation in mind. Exterior surfaces are finished with highly reflective white paint.

Optical Reflector
The system is precision brake formed of the selected aluminum material. The reflector is removable without the use of tools, using 1/4 turn fasteners to secure it in place.

Lampholders
Made of a Polycarbonate material; these locking-style lampholders are utilized to ensure positive lamp retention. Additionally, the material contributes to a longer life product in high temperature applications.

Ballasts
All ballasts are electronic programmed-start (T5HO) or instant-start (T8) as a standard. Optional ballasts are available, consult factory for available systems and system specifications. Available voltages: 120v, 277v, 347v, voltage sensing 120-277v and 347-480v.

Listings
All fixtures are UL and CUL listed.

Please specify when ordering

SR	4.5	1	25	UV		NB	B	S				

Fixture ordering guide

SR	Specify*3	1	17	BLANK	BLANK	NB*5	BLANK	(S)	E( )	BLANK	HP
SR6T*1		2	24	12	1	HI	E	(I)	F	830	A
SRT*2		3	25	27	2	LI	W	(AS)	OS ( )	835	TG
SR12T*2			32	34	3	SI	B	(C)	WG*4	841	SS
SR16T*2			39	UV		SI+			WWG*4	850	ES ( )
SR20T*2			54	HV		PS			SDT		XL
SR24T*2						PSL			PC		
						PSH			US*5		
						PD			NS		
						SDH					
						AX					

*1 SR6T is a 6ft Tandem kit, # of lamps are for the profile of the kit (3' lamps).
*2 SRT is an 8ft Tandem kit, SR 12T is a 12ft Tandem kit, SR 16T is a 16ft Tandem kit, SR 20T is a 20ft Tandem kit & SR 24T is a 24ft Tandem kit, # of lamps are for the profile of the kit (4' lamps).
*3 Specify Existing Channel Width: 3.00" Minimum for 2 lamp profile and 4.25" Minimum for 3 lamp profile.
*4 Wireguard only available with SR when ordered with no reflector or industrial Style (I) Reflector.
*5 SR ordered with No Ballast will be shipped with Shunted Sockets, unless Unshunted Sockets are specified.
*6 Consult factory for manufacturing specific ordering codes/availability.

Available fixture selections

Channel Width Selections
( ) Specify Width (See Note 3)

Lamp Type Selections
17 F17T8 System
24 F24T5HO System
25 F25T8 System
32 F32T8 System
39 F39T5HO System
54 F54T5HO System

Voltage Selections
BLANK No Ballast
12 120V
27 277V
34 347V
UV 120-277V
HV 347-480V

Ballast Selections
NB Ballast Not Included
HI High Ballast Factor (HBF) Electronic*
LI Low Ballast Factor (LBF) Electronic*
SI Standard Ballast Factor (NBF) Electronic*
SI+ 1.0BF Electronic*
PS Programmed Start (NBF)
PSL Programmed Start LBF*
PSH Programmed Start HBF*
PD Programmed Start Dimming
SDH Step Dimming HBF (100% to 60% Dimming)*
AX Daylight Harvesting Ballast with Remote Mount Photosensor*

* T8 Only

Reflector Selections
BLANK Channel Cover Only
E Enhanced Aluminum
W Highly Reflective White Aluminum
B 95% Reflective Extreme White Aluminum

Reflector Options
(S) Standard
(I) Industrial
(AS) Asymmetrical
(C) Custom (Accurate Drawings/Description Needed)

Options Selections
E( ) Emergency Pack (# Lumens)
F Inline Fuse
OS ( ) Occupancy Sensor (Specify Lamps on Low/Lamps on High)
WG Wire Guard
WWG White Wire Guard
SDT Step Down Transformer (480V to 277V)
PC Photocell
US Unshunted Sockets
NS No Sockets

Lamp Color Selections
BLANK Lamps Not Included
830 80+ CRI, 3000K
835 80+ CRI, 3500K
841 80+ CRI, 4100K
850 80+ CRI, 5000K

Lamp Options Selections
HP High Performance, Long Life Lamps*
A Amalgam Tip Lamps**
TG Tubeguarded Lamps
SS Shattershielded Lamps
ES( ) Energy Saver (Specify Wattage)***
XL Long Life*

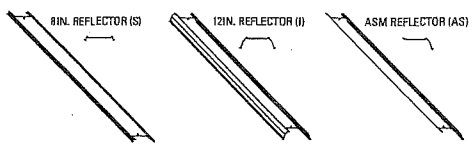
* T8 Only
** 54w T5HO Only
*** 54w T5HO & 32w T8 Only

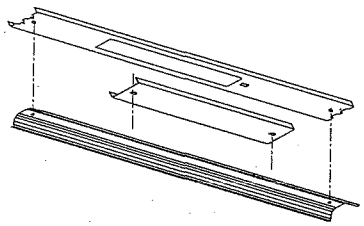
Common fixture selections

SR 4.5" 232 UV HI E(S)	T8	2	74w / 73w	7,130	6,900
SR 4-3/8" 254 UV HPS E(I)	T5HO	2	116w / 115w	10,000	9,500
SRT 5" 232 UV HPSH E(AS)	T8	2	75w / 74w	7,130	6,900
SRT 4-1/4" 232 UV HI	T8	4	148w / 145w	14,632	14,160

*Wattages may vary depending on the ballast manufacturer and lamp type used.
Initial and mean system lumens are the initial/mean lumen output of the lamp/ballast system as rated by lamp and ballast manufacturer and may vary from manufacturer to manufacturer.
Specifications and dimensions subject to change without notice. Contact Philips Optimum for current availability and ordering information

Dimensional drawing





Fixture Type: _____

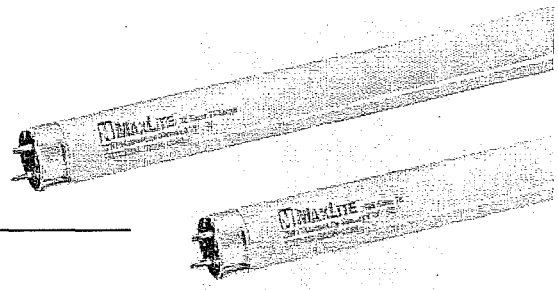
Catalog #: _____ **Quantity:** _____

FIXTURE #5 - LAMP

MAXLITE
ENERGY EFFICIENT LIGHTING PRODUCTS

PRODUCT FOCUS XL SUPER T8 SERIES, PREMIUM T8 & Watt Saver

Linear Fluorescent Lamp



F32T8/835XL — 24,000 Hour — (7) 6762751058 (8)*

F32T8/841XL — 24,000 Hour — (7) 6762751050 (2)*

F32T8/850XL — 24,000 Hour — (7) 6762751049 (6)*

F32T8/865XL — 24,000 Hour — (7) 6762751060 (1)*

F32T8/25WS/835 — 24,000 Hour — (7) 6762751031 (1)*

F32T8/25WS/841 — 24,000 Hour — (7) 6762751032 (8)*

F32T8/25WS/850 — 24,000 Hour — (7) 6762751033 (5)*

F32T8/28WS/835 — 24,000 Hour — (7) 6762711209 (6)*

F32T8/28WS/841 — 24,000 Hour — (7) 6762711208 (9)*

F32T8/28WS/850 — 24,000 Hour — (7) 6762711210 (2)*

XL SUPER T8 SERIESSPECIFICATIONS

Watts	Order Code	Description	Lumens	Lamp Life (Hrs)	CRI	Case Pack	Cathode Guard	K
32	51058	F32T8/835XL T8 4' High Lumen	3200	24,000▲	85	25	Y	3500
32	51050	F32T8/841XL T8 4' High Lumen	3200	24,000▲	85	25	Y	4100
32	51049	F32T8/850XL T8 4' High Lumen	3200	24,000▲	85	25	Y	5000
32	51060	F32T8/865XL T8 4' High Lumen	3200	24,000▲	85	25	Y	6500

Watt Saver T8 SeriesSPECIFICATIONS

Watts	Order Code	Description	Lumens	Lamp Life (Hrs)	CRI	Case Pack	Cathode Guard	K
25	51031	F32T8/25WS/835 Watt Saver 25W T8 4'	2400	24,000▲	85	25	Y	3500
25	51032	F32T8/25WS/841 Watt Saver 25W T8 4'	2400	24,000▲	85	25	Y	4100
25	51033	F32T8/25WS/850 Watt Saver 25W T8 4'	2400	24,000▲	85	25	Y	5000
28	11209	F32T8/28WS/835 Watt Saver 28W T8 4'	2725	24,000▲	85	25	Y	3500
28	11208	F32T8/28WS/841 Watt Saver 28W T8 4'	2725	24,000▲	85	25	Y	4100
28	11210	F32T8/28WS/850 Watt Saver 28W T8 4'	2725	24,000▲	85	25	Y	5000

MAX9186

All specifications are subject to change without notice

FIXTURE #5 BALLAST

MAXLITE®
Energy Efficient Lighting Products

Model No.	SKEU322HEL/SC
Ballast Type	Electronic
Lamp Operation	Parallel / Instant start
Input Voltage	120-277
Frequency	50/60hz

SPECIFICATION

Lamp Type	No. of Lamps	Input Voltage (V)	Input Current (A)	Input Power (W)	Power Factor	MAX THD (%)	Ballast Factor	Min. Starting Temperature (°F)	Lamp Current Crest Factor	B.E.F.
F32T8 32W	2	120/277	0.40/0.17	48/47	>0.98	<10%	0.77	0°F	1.7	1.60/1.62
F17T8 17W	1	120/277	0.15/0.07	18	>0.98	<10%	0.9	0°F	1.7	5.00
F17T8 17W	2	120/277	0.23/0.10	27	>0.98	<10%	0.85	0°F	1.7	3.15
F25T8 25W	1	120/277	0.20/0.09	24	>0.98	<10%	0.9	0°F	1.7	3.75
F25T8 25W	2	120/277	0.32/0.14	39	>0.98	<10%	0.78	0°F	1.7	2.00
F32T8/ES 25W	1	120/277	0.20/0.09	24	>0.98	<10%	0.9	0°F	1.7	3.75
F32T8/ES 25W	2	120/277	0.33/0.14	39	>0.98	<10%	0.77	0°F	1.7	1.97
F32T8/ES 28W	1	120/277	0.22/0.10	26	>0.98	<10%	0.9	0°F	1.7	3.46
F32T8/ES 28W	2	120/277	0.37/0.16	43	>0.98	<10%	0.77	0°F	1.7	1.79
F32T8/ES 30W	1	120/277	0.24/0.11	28	>0.98	<10%	0.9	0°F	1.7	3.21
F32T8/ES 30W	2	120/277	0.39/0.17	46	>0.98	<10%	0.77	0°F	1.7	1.67
F32T8 32W	1	120/277	0.26/0.11	31	>0.98	<10%	0.9	0°F	1.7	2.90
F40T8 40W	1	120/277	0.29/0.13	36	>0.98	<10%	0.88	0°F	1.7	2.44

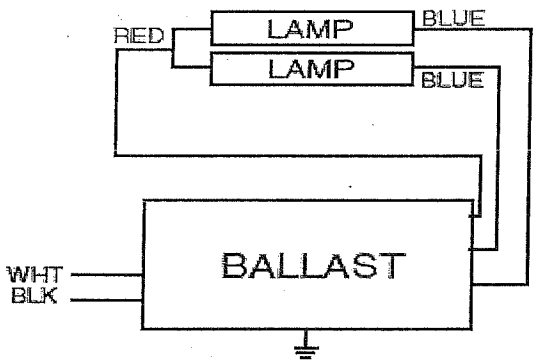
Performance:
- Meets ANSI Standard C82.11
- Meets ANSI Standard C62.41
- Meets FCC Part 18 Class A (non-Consumer Limits)
- CEE "High Performance" & "Reduced Wattage" 32W T8 Lighting System

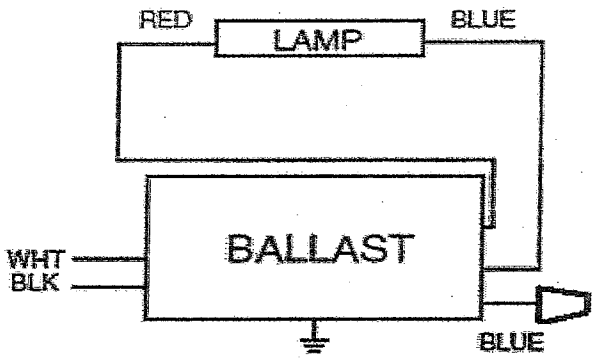
Safety:
- No PCBs
- UL/CUL Listed
- Class P, Type 1 Outdoor
- OCV 600v

Application:
- Remote Mounting: 18 ft. Max. overall lead length, 18AWG
- Maximum Case Temperature 75°C / 167° F
- Sound Rated - "A"
- Maximum Ambient Temperature 40°C / 105° F

Case	Inches
Length (L)	9.5
Width (W)	1.3
Height (H)	1
Mounting (M)	8.91
Weight (lbs.)	1.1

Lead Length		Inches (+/-1)
Black		25
White		25
Red		46
Blue		31
Yellow		N/A

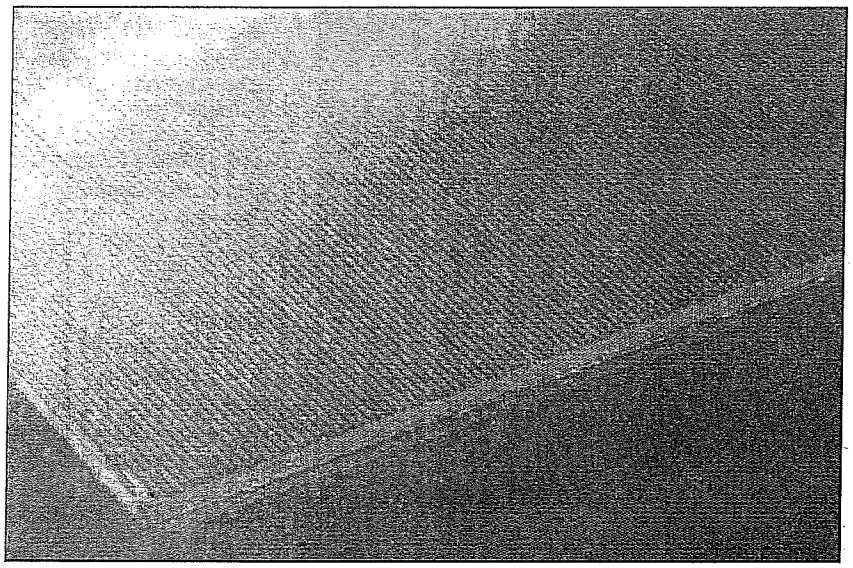




MaxLite® 12 York Avenue, West Caldwell, NJ 07006 info@maxlite.com **Web**: www.maxlite.com

FIXTURE #5 - ORIGINAL SIDE

SPECIALTY SHEET
MicroLinear® 5.25" x 47.75"



MicroLinear Sheet

Description

MicroLinear Sheet features micro-prisms to achieve high angle brightness control, excellent lamp obscuration and 90% transmission. MicroLinear is made from impact acrylic in .032" thickness, and acrylic for .080" and .118" thicknesses. Available in 50" x 50" sheet, or custom sizes.

For direct/indirect fixtures, optimum results are achieved when prisms are away from the lamp side, and run in the same axis as the lamp. For direct fixtures, overlay MicroLinear sheet to provide 90% transmission while controlling high angle brightness. Can be used as two layers with optics running in transverse directions. This arrangement provides good lamp hiding, excellent brightness control, while providing a cross-hatch optic pattern.

Notice

A.L.P. Lighting Components, Inc. assumes no responsibility for suitability of luminaires and applications. The use of lenses near and above 70°C temperatures with high UV output light sources will cause degradation of the material.

MicroLinear® Sheet

High angle brightness control
Excellent lamp obscuration
90% transmission

Materials: Acrylic, Impact Acrylic
Pattern: Linear prismatic
Thicknesses:
.032" - Impact Acrylic
.080" - Acrylic
.118" - Acrylic
Max temp:
Impact acrylic: 70°C
Acrylic: 80°C
Standard size: 50" x 50"
Max size: 50" wide x 100" length
Custom sizes available

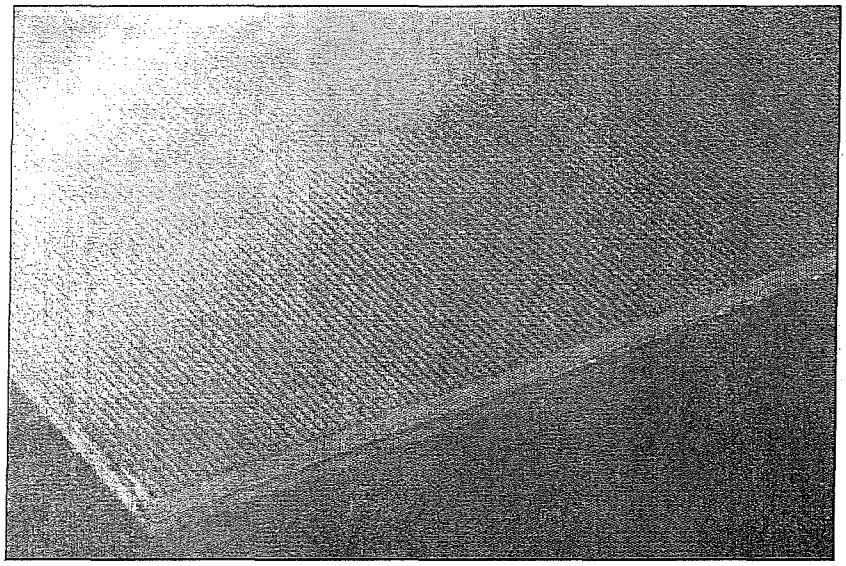
Stock#: ML5.25-47.75-.08ACRYLIC

A.L.P. LIGHTING COMPONENTS, INC.

LEXALITE

FIXTURE #5 - EXPANSION SIDE

SPECIALTY SHEET
MicroLinear® 5.5" x 48"



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Materials: Acrylic, Impact Acrylic
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Thicknesses:
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.118" - Acrylic
Max temp:
Impact acrylic: 70°C
Acrylic: 80°C
Standard size: 50" x 50"
Max size: 50" wide x 100" length
Custom sizes available

Stock#: ML5.5-48-.08ACRYLIC

A.L.P. LIGHTING COMPONENTS, INC.

LEXALITE