RFB NO. 316002

CONSTRUCTION DOCUMENTS
PROJECT MANUAL

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS ENGINEERING DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

REQUEST FOR BIDS NO. 316002
EXPOSITION HALL LIGHTING UPGRADES
ALLIANT ENERGY CENTER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN

Due Date / Time: **THURSDAY, MARCH 17, 2016, 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

Bid Deposit: **5% OF BID AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

J. ERIC URTES, AIA - PROJECT MANAGER
TELEPHONE NO.: 608/266-4798
FAX NO.: 608/267-1533
E-MAIL: URTES.ERIC@COUNTYOFDANE.COM

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DRAWINGS

Plot drawings on 11” x 17” (ANSI B) or 24” x 36” (ARCH D) paper for correct scale or size.

E2.01 - Partail Plan- South Lobby & Exterior Soffit
E2.02 - Partail Plan- Atrium Meeting Rooms
E2.03 - Partail Plan- Mezz Meeting Rooms
E3.01 - Partail Plan- Upper Level Exhibit Hall A
E3.02 - Partail Plan- Upper Level Exhibit Hall B
E3.03 - Partail Plan- Upper Level Exhibit Hall C
E3.04 - Partail Plan- Upper Level Exhibit Hall D
E3.05 - Partail Plan- North Corridor and New Work Fixture Schedule
E4.00 - Lighting Retrofit Fixture Schedule

LEGAL NOTICE

INVITATION TO BID

Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., THURSDAY, MARCH 17, 2016

REQUEST FOR BIDS NO. 316002

EXPOSITION HALL LIGHTING UPGRADES

ALLIANT ENERGY CENTER

1919 ALLIANT ENERGY CENTER WAY

MADISON, WISCONSIN

Dane County is inviting Bids for construction services for lighting upgrades to the Exposition Hall on the grounds of the Alliant Energy Center. Only firms with capabilities, experience & expertise with similar projects should obtain this Request for Bids document & submit Bids.

Request for Bids document may be obtained after **2:00 p.m. on Tuesday, February 23, 2016** by downloading it from countyofdane.com/pwbids. Please call J. Eric Urtes, AIA - Project Manager, at 608/266-4798, or our office at 608/266-4018, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee & must be pre-qualified as a Best Value Contractor before award of Contract. Complete Vendor Registration Form at https://www.danepurchasing.com/Account/Login?ReturnUrl=%2fvendor or obtain one by calling 608/266-4131. Complete Pre-qualification Application for Contractors at countyofdane.com/pwht/BVC_Application.aspx or obtain one by calling 608/266-4029.]

A pre-bid facility tour will be held Tuesday, March 1, 2016 at 1:00 p.m. at the Alliant Energy Center – Administration Building, starting in the Main Conference Room. Bidders are strongly encouraged to attend this tour.

PUBLISH: 2/23/2016 & 3/1/2016 - WISCONSIN STATE JOURNAL

2/23/2016 & 3/1/2016 - THE DAILY REPORTER

INSTRUCTIONS TO BIDDERS

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1. GENERAL

A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.

B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.

C. A **Pre-bid meeting is scheduled on Tuesday, March 1, 2016 at 1:00 p.m.** at the Alliant Energy Center – Administration Building (1919 Alliant Energy Center Way; Madison, WI) starting in the Main Conference Room.. Attendance by all bidders is optional, however bidders and subcontractors are strongly encouraged to attend.

D. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

A. Drawings and Specifications that form part of this Contract, as stated in Article 1 of General Conditions of Contact,, are enumerated in Document Index of these Construction Documents.

B. Complete sets of Drawings and Specifications for all trades will be available to all Bidders, irrespective of category of work to be bid on, in order that all Bidders may be familiar with work of other trades as they affect their bid.

3. INTERPRETATION

A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Due Date. Bidders shall bring inadequacies, omissions or conflicts to Owner or Energy Engineer's attention at least ten (10) calendar days before Bid Due Date. Prompt clarification will be available to all bidders by Addendum.

B. Failure to so request clarification or interpretation of Drawings and Specifications will not relieve successful Bidder of responsibility. Signing of Contract will be considered as implicitly denoting that Contractor has thorough understanding of scope of the Work and comprehension of Construction Documents.

C. Owner or Energy Engineer will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

A. Before award of Contract can be approved, Owner shall be satisfied that Bidder involved meets following requirements:

1. Has completed at least one (1) project of at least fifty percent (50%) of size or value of Division of work being bid and type of work completed is similar to that being bid. If greater magnitude of experience is deemed necessary, other than size or value of work, such requirements will be described in appropriate section of Specifications.

2. Maintains permanent place of business.

3. Can be bonded for terms of proposed Contract.

4. Has record of satisfactorily completing past projects[and supplies list of no more than three (3)most recent, similar projects, with architect or engineer's and owner's names, addresses and telephone numbers for each project. **Submit with Bid on Bid Date**. Criteria which will be considered in determining satisfactory completion of projects by bidder will include:

    a. Completed contracts in accordance with drawings and specifications.
    b. Diligently pursued execution of work and completed contracts according to established time schedule unless Owner grants extensions.
    c. Fulfilled guarantee requirements of construction documents.
    d. Is not presently on ineligible list maintained by County's Department of Administration for noncompliance with equal employment opportunities and affirmative action requirements.
    e. Authorized to conduct business in Wisconsin. By submitting Bid, bidder warrants that it has: complied with all necessary requirements to do business in State of Wisconsin; that persons executing contract on its behalf are authorized to do so; and, if corporation, that name and address of bidder's registered agent are as set forth in Contract. Bidder shall notify Owner immediately, in writing, of any change in its registered agent, their address, and bidder's legal status. For partnership, term "registered agent" shall mean general partner.

B. County's Public Works Project Engineer will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to

County's Public Works Project Engineer or designee all such information and data for this purpose as County's Public Works Project Engineer may request. Owner reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy Owner that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) business days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.

B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Due Date.

C. If successful Bidder so delivers Contract, Certificate of Insurance, and Performance and Payment Bonds, check will be returned to Bidder. In case Bidder fails to deliver such Contract, insurance, and bond, amount of bid guarantee will be forfeited to County as liquidated damages.

D. All checks tendered as bid guarantee, except those of three (3) lowest qualified, responsible bidders, will be returned to their makers within three (3) business days after Bid Due Date. All such retained checks will be returned immediately upon signing of Contract and Performance and Payment Bonds by successful Bidder.

6. WITHDRAWAL OF BIDS

A. Bids may be withdrawn by written request received from bidder or authorized representative thereof prior to time fixed for Bid Due Date, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.

B. No Bid may be withdrawn for period of sixty (60) calendar days after Bid Due Date.

C. If Bid contains error, omission or mistake, bidder may limit liability to amount of bidder's guarantee by giving written Notice of Intent not to execute Contract to Owner within seventy-two (72) hours of Bid Due Date.

7. CONTRACT FORM

A. Sample copy of contract that successful Bidder will be required to enter into is included in these Construction Documents and bidders are required to familiarize themselves with all conditions contained therein.

8. CONTRACT INTERESTS BY COUNTY PUBLIC OFFICIALS

A. In accordance with Wisconsin Statute 946.13, county official may not bid for or enter into any contract involving receipts or disbursements of more than $15,000.00 in a year, in which they have private pecuniary interest, direct or indirect if at same time they are authorized to take official action with respect to making of this Contract. Any contract entered into in violation of this Statute is void and County incurs no liability thereon. This subsection does not affect application and enforcement of Wisconsin Statute 946.13 by state prosecutors in criminal courts of this state.

9. EMERGING SMALL BUSINESS PROVISIONS

A. **Emerging Small Business Definition.** For purposes of this provision, ESB is defined as:

1. Independent business concern that has been in business minimum of one year;

2. Business located in State of Wisconsin;

3. Business comprised of less than twenty-five (25) employees;

4. Business must not have gross sales in excess of three million dollars ($3,000,000.00) over past three years; and

5. Business does not have history of failing to complete projects.

B. **Emerging Small Business (ESB) Involvement.** Bidder shall make good faith effort to award minimum of ten percent (10%) of the Work to ESBs. Bidder shall submit report to Dane County Contract Compliance Officer within ten (10) days after Bid Due Date demonstrating such efforts. Good faith efforts means significant contact with ESBs for purposes of soliciting bids from them. Failure to make or demonstrate good faith efforts will be grounds for disqualification.

C. **Emerging Small Business Report.** Emerging Small Business Enterprise Report is to be submitted by Bidder in separate envelope marked "Emerging Small Business Report". This report is due by 2:00 p.m. following specified ten (10) days after Bid Due Date. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive.

D. **ESB Goal.** Goal of this project is ten percent (10%) ESB participation. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.

E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:

1. Form A - Certification;

2. Form B - Involvement;

3. Form C - Contacts;

4. Form D - Certification Statement (if appropriate); and

5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).

F. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Certification Application to Dane County Contract Compliance Program.

G. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless firm provides "Form D - Certification Statement". Certification statement must be completed and signed by ESB firm.

H. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:

Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623

I. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.

J. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:

1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.

2. Advertising in general circulation, trade associations and women / minority focus media concerning subcontracting opportunities.

3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.

4. Following up on initial solicitations of interest by contacting ESBs within five (5) business days prior to Bid Due Date to determine with certainty whether ESB were interested, to allow ESBs to prepare bids.

5. Providing interested ESB with adequate information about Drawings, Specifications and requirements of Contract.

6. Using services of available minority, women and small business organizations and other organizations that provide assistance in recruitment of MBEs / WBEs / ESBs.

7. Negotiating in good faith with interested ESBs, not rejecting ESBs as unqualified without sound reason based on thorough investigation of their capabilities.

8. Submitting required project reports and accompanying documents to County's Contract Compliance Officer within twenty-four (24) hours after Bid Due Date.

K. **Appeals Disqualification of Bid.** Bidder who is disqualified may appeal to Public Works & Transportation Committee and Equal Opportunity Commission.

10. METHOD OF AWARD - RESERVATIONS

A. Following will be basis of award of Contract, providing cost does not exceed amount of funds then estimated by County as available to finance Contract(s):

1. Lowest dollar amount submitted by qualified responsible bidder on Base Bid for all work comprising project, combined with such additive Owner accepted alternates.

2. Owner reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.

3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

A. Simultaneous with delivery of signed Contract, Bidder shall be required to furnish Performance and Payment Bonds as specified in Article 29 of General Conditions of Contract. Surety Company shall be licensed to do business in Wisconsin. Performance and Payment Bonds must be dated same date or subsequent to date of Contract. Performance and Payment Bonds must emulate information in Sample Performance and Payment Bonds in Construction Documents.

B. Provide certified copy of power of attorney from Surety Company showing that agent who signs Bond has power of attorney to sign for Surety Company. Secretary or Assistant Secretary of company must sign this certification, not attorney-in-fact. Certification must bear same or later date as Bond. Power of Attorney must emulate model power of attorney information detailed in Sample Performance and Payment Bonds.

C. If Bidder is partnership or joint venture, State certified list, providing names of individuals constituting partnership or joint venture must be furnished. Contract itself may be signed by one partner of partnership, or one partner of each firm comprising joint venture, but Performance and Payment Bonds must be signed by all partners.

D. If Bidder is a corporation, it is necessary that current certified copy of resolution or other official act of directors of corporation be submitted showing that person who signs Contract is authorized to sign contracts for corporation. It is also necessary that corporate seal be affixed to resolution, contract, and performance and payment bonds. If your corporation has no seal, it is required that above documents include statement or notation to effect that corporation has no seal.

12. TAXES

A. Wisconsin Statute 77.54 (9m) allows building materials that become part of local unit government facilities to be exempt from sales & use tax. Vendors & materials suppliers may not charge Bidders sales & use tax on these purchases. This does not include highways, streets or roads. Any other Sales, Consumer, Use & other similar taxes or fees required by law shall be included in Bid.

B. In accordance with Wisconsin Statute 71.80(16)(a),successful nonresident bidder, whether incorporated or not, and not otherwise regularly engaged in business in this state, shall file surety bond with State of Wisconsin Department of Revenue payable to Department of Revenue, to guarantee payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees, together with any penalties and interest thereon. Amount of bond shall be three percent (3%) of Contract or subcontract price on all contracts of $50,000 or more.

13. SUBMISSION OF BIDS

A. All Bids shall be submitted on standard Bid Form bound herein and only Bids that are made on this Bid Form will be considered. Entire Bid Form and other supporting documents, if any, shall be removed or copied from Construction Documents, filled out, and submitted in manner specified hereinafter. Submit completed Bid Bond with Bid as well.

B. No bids for any subdivision or any sub-classification of this Work, except as indicated, will be accepted. Any conditional Bid, amendment to Bid Form or appended item thereto, or inclusion of any correspondence, written or printed matter, or details of any nature other than that specifically called for, which would alter any essential provision of Construction Documents, or require consideration of unsolicited material or data in determining award of Contract, will disqualify Bid. Telecommunication alterations to Bid will not be accepted.

C. Bidders must submit single Bid for all the Work.

D. Bid amounts shall be inserted in words and in figures in spaces provided on Bid Form; in case of conflict, written word amounts will govern.

E. Addenda issued after Bid Letting shall become part of Construction Documents. Bidders shall acknowledge receipt of such addenda in appropriate space provided on Bid Form. Bid may be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.

F. Bids shall be signed, placed in envelope, sealed and delivered before due time to place designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Due Date, name and address of bidder.

G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Due Date on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.

H. Bid will be considered invalid and will be rejected if bidder has not signed it.

I. Faxed or emailed Bids will not be accepted.

J. Bidder's organization shall submit completed with Bid, Fair Labor Practices Certification form, included in these Construction Documents.

14. SUBCONTRACTOR LISTING

A. Bidders shall be required to submit list of major subcontractors for General Construction, Plumbing, HVAC, and Electrical work proposed for this project to include committed prices for each subcontractor. List shall be placed in separate sealed envelope that must be clearly identified as "Major Subcontractor List", for named project and name of Bidder submitting it. County must receive envelope no later than date by which successful Bidder is required to submit his or her signed Contract, as established in Construction Documents.

15. ALTERNATE BIDS

A. Not Applicable

16. INFORMATIONAL BIDS

A. Not Applicable

17. UNIT PRICES

A. Provide unit prices where requested on Bid Form. Unit prices will include all costs for materials, labor, insurance, taxes, overhead and profit necessary to perform specified work. Estimated quantities are approximate only. Payment will be based upon actual quantities

placed, provided or installed. Failure to provide requested unit prices may result in rejection of entire Bid.

B. Owner reserves right to accept or reject any unit prices as given in Bid.

C. Bidder shall refer to Bid Form and applicable specification section to determine basis of unit measure and detailed information related to each unit price item requested.

18. COMMENCEMENT AND COMPLETION

A. Successful Bidder shall commence work when schedule and weather permit, but no later than stated in Bid Form. Contractor shall pursue the Work regularly and continuously at reasonable rate to insure completion of the Work within time stated in Bid.

B. Should it be found impossible to complete the Work on or before time specified for completion, written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. Refer to Article 20 of General Conditions of Contract, titled "Time for Completion".

19. WORK BY OWNER

A. Work will be accomplished by Owner or will be let under separate contracts and will not be included under this Contract: Work by Owner (not included in the scope of Work by the Contractor) is outlined in Specification Section 14 21 00 (2.2 RELATED WORK PROVIDED BY OTHERS).

20. SPECIAL HAZARDS COVERAGE

A. Not Applicable.

FORM A

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within ten (10) days after Bid Due Date.

PROJECT NAME: _____

_____

BID NO.: _____ BID DUE DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

_____

TELEPHONE NO.: _____

CONTACT PERSON: _____

EMAIL ADDRESS: _____

FORM B

DANE COUNTY (Copy this Form as necessary to provide complete information)
EMERGING SMALL BUSINESS REPORT - INVOLVEMENT

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

_____

PHONE NO & EMAIL.: _____

_____

Indicate percentage of financial commitment to this ESB: _____% Amount: $_____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

_____

PHONE NO & EMAIL.: _____

_____

Indicate percentage of financial commitment to this ESB: _____% Amount: $_____

FORM C

DANE COUNTY (Copy this Form as necessary to provide complete information)
EMERGING SMALL BUSINESS REPORT - CONTACTS

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

	ESB FIRM NAME CONTACTED	DATE	PERSON CONTACTED	DID ESB BID?	ACC-EPT BID?	REASON FOR REJECTION
1)						
2)						
3)						
4)						
5)						
6)						
7)						
8)						

FORM D

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION STATEMENT

I, _____ , _____ of
Name Title

_____ certify to best of my knowledge and
Company

belief that this business meets Emerging Small Business definition as indicated in Article 9 and that information contained in this Emerging Small Business Report is true and correct.

_____ _____
Bidder's Signature Date

Name of Bidding Firm: _____

BID FORM

BID NO. 316002
PROJECT: EXPOSITION HALL LIGHTING UPGRADES
ALLIANT ENERGY CENTER

TO: DANE COUNTY DEPARTMENT OF PUBLIC WORKS, HIGHWAY & TRANSPORTATION PROJECT MANAGER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

NOTE: WISCONSIN STATUTE 77.54 (9M) ALLOWS FOR NO SALES & USE TAX ON THE PURCHASE OF MATERIALS FOR COUNTY PUBLIC WORKS PROJECTS.

BASE BID - LUMP SUM:
Upgrade of lighting and control systems for the Exposition Hall of the Alliant Energy Center. The undersigned, having examined the site where the Work is to be executed and having become familiar with local conditions affecting the cost of the Work and having carefully examined the Drawings and Specifications, all other Construction Documents and Addenda thereto prepared by Dane County Department of Public Works, Highway & Transportation hereby agrees to provide all [design expertise,]labor, materials, equipment and services necessary for the complete and satisfactory execution of the entire Work, as specified in the Construction Documents, for the Base Bid stipulated sum of:

_____ and _____ /100 Dollars
Written Price

$_____
Numeric Price

Receipt of the following addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

Dane County [Department of Public Works, Highway & Transportation must have this project completed by September 1, 2016. Assuming this Work can be started by April 19, 2016, what dates can you commence and complete this job?

Commencement Date: _____ Completion Date: _____
(final, not substantial)

I hereby certify that all statements herein are made on behalf of:

_____
(Name of Corporation, Partnership or Person submitting Bid)

Select one of the following:
1. A corporation organized and existing under the laws of the State of _____, or

2. A partnership consisting of _____, or

3. A person conducting business as _____;

Of the City, Village, or Town of _____ of the State of _____.

I have examined and carefully prepared this Bid from the associated Construction Documents and have checked the same in detail before submitting this Bid; that I have full authority to make such statements and submit this Bid in (its) (their) (my) behalf; and that the said statements are true and correct. In signing this Bid, we also certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a Bid; that this Bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; that this Bid has not been knowingly disclosed prior to the Bids Due Date to another bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned further agrees to honor the Base Bid and the Alternate Bid(s) for sixty (60) calendar days from date of Award of Contract.

SIGNATURE: _____
(Bid is invalid without signature)

Print Name: _____ Date: _____

Title: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:
These items **must** be included with Bid:
☐ Bid Form ☐ Bid Bond ☐ Fair Labor Practices Certification
☐ Project Experience / Reference Summary (See ITB - 4. Qualifications of Bidder)

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

Any person bidding on any County contract must be registered with the Dane County Purchasing Division & pay an annual registration fee. A contract will not be awarded to an unregistered vendor. Obtain a *Vendor Registration Form* by calling 608/266-4131 or complete a new form or renewal online at:
www.danepurchasing.com/registration

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:
www.countyofdane.com/pwht/BVC_Application.aspx

EQUAL BENEFITS REQUIREMENT

By submitting a Bid, the contractor acknowledges that a condition of this contract is to provide equal benefits as required by Dane County Code of Ordinances Chapter 25.016. Contractor shall provide equal benefits as required by that Ordinance to all required employees during the term of the contract. Equal Benefits Compliance Payment Certification shall be submitted with final pay request. For more information:
www.danepurchasing.com/partner_benefit.aspx

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DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Joseph T. Parisi

1919 Alliant Energy Center Way ◆ Madison, Wisconsin 53713
Phone: (608) 266-4018 ◆ FAX: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

BEST VALUE CONTRACTING APPLICATION

CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires all contractors to be pre-qualified as a best value contractor with the County prior to being awarded a contract. In addition, the County pre-qualifies potential contractors and sub-contractors who wish to work on County contracts. Subcontractors must become pre-qualified ten (10) days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become pre-qualified as early as possible. This document shall be completed, properly executed, along with the necessary attachments and additional information that the County requires for the protection and welfare of the public in the performance of a County contract.

Contractors or subcontractors of any tier who attain pre-qualification status will retain that status for a period of two (2) years from the date of qualification. Contractors shall notify the Dane County Department of Public Works, Highway & Transportation within fifteen (15) days of any changes to its business or operations that are relevant to the pre-qualification application. Failure to do so could result in suspension, revocation of the contractor's pre-qualification, debarment from County contracts for up to three (3) years and / or other sanctions available under the law.

No contracts will be awarded for construction work performed on Dane County projects unless the contractor is currently approved as a Wisconsin Trade Trainer or has applied for approval as an Apprenticeship Trade Trainer to the Wisconsin Department of Workforce Development and agrees to an acceptable apprenticeship program. If you are not currently approved as a Wisconsin Trade Trainer, or have not applied for approval as an Apprenticeship Trade Trainer, please contact the Department of Workforce Development - Bureau of Apprenticeship Standards at 608/266-3133 or visit their web site at: dwd.wisconsin.gov/apprenticeship/.

EXEMPTIONS

- Contractors who employ less than five (5) apprenticeable trade workers are not required to pre-qualify.
- Contractors performing work that does not apply to an apprenticeable trade, as outlined in Appendix A.
- The contractor / subcontractor provides sufficient documentation to demonstrate one or more of the following:
    - apprentices are not available in a specific geographic area;
    - the applicable apprenticeship program is unsuitable or unavailable; or
    - there is a documented depression of the local construction market which prevents compliance.

SEC.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	Does your firm possesses all technical qualifications and resources, including equipment, personnel and financial resources, necessary to perform the work required for any project or obtain the same through the use of responsible, pre-qualified subcontractors?	Yes: ☐ No: ☐
2	Will your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, which are necessary for the type of work to be performed including, but not limited to, those for any type of trade work or specialty work?	Yes: ☐ No: ☐
3	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: ☐ No: ☐
4	Will your firm meet all insurance requirements as required by applicable law or specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements?	Yes: ☐ No: ☐
5	Will your firm maintain a substance abuse policy for employees hired for public works contracts that comply with Wis. Stats. Sec. 103.503?	Yes: ☐ No: ☐
6	Does your firm acknowledge that it must pay all craft employees on public works projects the wage rates and benefits required under Section 66.0903 of the Wisconsin Statutes?	Yes: ☐ No: ☐
7	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: ☐ No: ☐
8	In the past three (3) years, has your firm had control or has another corporation, partnership or other business entity operating in the construction industry controlled it? If so, please attach a statement explaining the nature of the firm relationship?	Yes: ☐ No: ☐ If Yes, attach details.
9	In the past three (3) years, has your firm had any type of business, contracting or trade license, certification or registration revoked or suspended?	Yes: ☐ No: ☐ If Yes, attach details.
10	In the past three (3) years, has your firm been debarred by any federal, state or local government agency?	Yes: ☐ No: ☐ If Yes, attach details.
11	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: ☐ No: ☐ If Yes, attach details.
12	In the past three (3) years, has your firm committed a willful violation of federal, state or local government safety laws as determined by a final decision of a court or government agency authority.	Yes: ☐ No: ☐ If Yes, attach details.
13	In the past three (3) years, has your firm been in violation of any law relating to your contracting business where the penalty for such violation resulted in the imposition of a penalty greater than $10,000?	Yes: ☐ No: ☐ If Yes, attach details.
14	Is your firm Executive Order 108 precertified with the State of Wisconsin?	Yes: No: ☐
15	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: ☐ No: ☐
16	Is your firm exempt from being pre-qualified with Dane County?	Yes: ☐ No: ☐ If Yes, attach reason for exemption.
17	Does your firm acknowledge that in doing work under any County Public Works Contract, it will be required to use as subcontractors only those contractors that are also pre-qualified with the County or become so ten days prior to commencing work?	Yes: ☐ No: ☐
18	Contractor has been in business less than one year?	Yes: ☐ No: ☐
19	Is your firm a first time Contractor requesting a one time exemption, but, intend to comply on all future contracts and are taking steps typical of a “good faith” effort?	Yes: ☐ No: ☐
20	Not applicable. My firm does not intend to work on Best Value Contracts. Note: Best Value Contracting is required to bid on most Public Works Contracts (if unclear, please call Jan Neitzel Knox 608-266-4029).	Yes: ☐ No: ☐

SIGNATURE SECTION

Your firm's Officer, or the individual who would sign a bid and / or contract documents must sign this document.

I do hereby certify that all statements herein contained are true and correct to the best of my knowledge:

Signature _____ Date _____

Printed or Typed Name and Title _____

NAME AND ADDRESS OF CONTRACTOR	
Name of Firm:	
Address:	
City, State, Zip:	
Telephone Number:	
Fax Number:	
E-mail Address:	

REMEMBER!

Return all to forms and attachments, or questions to:

JAN NEITZEL KNOX
EMAIL: NEITZEL-KNOX@COUNTYOFDANE.COM
OFFICE: (608)266-4029, FAX: (608)267-1533

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason (Concrete Finisher)
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
Elevator Mechanic / Technician
Environmental Systems Technician / HVAC Service Technician / HVAC Install & Service
Glazier
Heavy Equipment Operator / Operating Engineer
Insulation Worker (Heat & Frost)
Iron Worker (Assembler, Metal Buildings)
Painter / Decorator
Plasterer
Plumber
Roofer / Waterproofer
Sheet Metal Worker
Sprinkler Fitter
Steamfitter (Service & Refrigeration)
Taper & Finisher
Telecommunications (Voice, Data & Video) Installer / Technician
Tile Setter

FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has a submitted a bid, application or proposal for a contract or agreement with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

Officer or Authorized Agent Signature _____ Date _____

Printed or Typed Name and Title _____

Printed or Typed Business Name _____

NOTE: You can find information regarding the violations described above at: www.nlrb.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder's responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

Include this completed Certification with your bid, application or proposal.

COUNTY OF DANE

PUBLIC WORKS CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 316002

Authority: 2015 RES -_____

THIS CONTRACT, made and entered into as of the date by which authorized representatives of both parties have affixed their signatures, by and between the County of Dane (hereafter referred to as "COUNTY") and _____ (hereafter, "CONTRACTOR"), and

W I T N E S S E T H :

WHEREAS, COUNTY, whose address is c/o Assistant Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide lighting upgrades to Exposition Hall on the grounds of the Alliant Energy Center ("the Project"); and
WHEREAS, CONTRACTOR, whose address is _____ _____ is able and willing to construct the Project, in accordance with the Construction Documents

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is acknowledged by each party for itself, COUNTY and CONTRACTOR do agree as follows:
1. CONTRACTOR agrees to construct, for the price of $_____ the Project and at the CONTRACTOR'S own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence labor, insurance, and other accessories and services necessary to complete the Project in accordance with the conditions and prices stated in the Bid Form and the General Conditions of Contract, the drawings which include all maps, plats, plans, and other drawings and printed or written explanatory matter thereof, and the specifications therefore as prepared by Sustainable Engineering Group, LLC (hereinafter referred to as "the Energy Engineer"), and as enumerated in the Project Manual Table of Contents, all of which are made a part hereof and collectively evidence and constitute the Contract.

2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the General Conditions of Contract, and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the General Conditions of Contract.
3. During the term of this Contract, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places, available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) business days of the effective date of this Contract. During the term of this Contract CONTRACTOR shall also provide copies of all announcements of employment opportunities to COUNTY'S Contract Compliance Office, and shall report annually the number of persons, by race, ethnicity, gender, and disability status, which apply for employment and, similarly classified, the number hired and number rejected.

5. During the term of this Contract, all solicitations for employment placed on CONTRACTOR'S behalf shall include a statement to the effect that CONTRACTOR is an "Equal Opportunity Employer".

6. CONTRACTOR agrees to comply with provisions of Chapter 25.016 of the Dane County Code of Ordinances, which pertains to domestic partnership benefits.

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and the provisions of this Contract.

8. CONTRACTOR agrees that all persons employed by CONTRACTOR or any subcontractor shall be paid no less than the minimum wage established under Chapter 40, Subchapter II, Dane County Code of Ordinances. CONTRACTOR agrees to abide by and comply with the provisions of Chapter 40, Subchapter II of the Dane County Code of Ordinances, and said Subchapter is fully incorporated herein by reference.

9. This Contract is intended to be a Contract solely between the parties hereto and for their benefit only. No part of this Contract shall be construed to add to, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties including, but not limited to, employees of either of the parties.

10. The entire agreement of the parties is contained herein and this Contract supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that the express terms of this Contract shall not be amended in any fashion except in writing, executed by both parties.

11. CONTRACTOR must be pre-qualified as a Best Value Contractor with Dane County Public Works Engineering Division before award of Contract. Subcontractors must be pre-qualified ten (10) business days prior to commencing Work under this Contract.

12. Attachment A is the Contractor's Bid Form and the RFB Construction Documents and is made a part of this Contract.

IN WITNESS WHEREOF, COUNTY and CONTRACTOR, by their respective authorized agents, have caused this Contract and its Schedules to be executed, effective as of the date by which all parties hereto have affixed their respective signatures, as indicated below.

* * * * * * *

FOR CONTRACTOR:

Signature Date

Printed or Typed Name and Title

Signature Date

Printed or Typed Name and Title

NOTE: If CONTRACTOR is a corporation, Secretary should attest. In accordance with IRS Regulations, unincorporated entities are required to provide either their Social Security or Employer Number in order to receive payment for services rendered.

* * * * * * *

This Contract is not valid or effectual for any purpose until approved by the appropriate authority designated below, and no work is authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Assistant Public Works Director.

FOR COUNTY:

Joseph T. Parisi, County Executive Date

Scott McDonell, County Clerk Date

ATTACHMENT A

PUBLIC WORKS CONSTRUCTION CONTRACT

CONTRACTOR BID FORM AND RFB DOCUMENTS

Follows on subsequent page(s)

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT:

PROJECT:
(Name, location or address, and Project number, if any)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of

(Witness)	*(Contractor as Principal)* *(Seal)*
	(Title)
(Witness)	*(Surety)* *(Seal)*
	(Title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.
/

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Nam	Name and Title:	e

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Name	Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

EQUAL BENEFITS COMPLIANCE PAYMENT CERTIFICATION FORM

PURPOSE

25.016(8) of the Dane County Ordinance requires that each contractor receiving payment for contracted services must certify that he or she has complied fully with the requirements of Chapter 25.016 "Equal Benefits Requirement" of the Dane County Ordinances. Such certification must be submitted prior to the final payment on the contract.

This form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

CERTIFICATION

I, _____ certify that
Printed or Typed Name and Title

_____
Printed or Typed Name of Contractor

has complied fully with the requirements of Chapter 25.016 of the Dane County Ordinances "Equal Benefits Requirements".

Signed _____

Date _____

For questions on this form, please contact Chuck Hicklin at 608-266-4109 or your contract representative at Dane County.

GENERAL CONDITIONS OF CONTRACT

TABLE OF CONTENTS

1. CONSTRUCTION DOCUMENTS

A. Construction Documents, listed in Table of Contents of this Specification volume shall form part of this Contract and provisions of Construction Documents shall be as binding upon parties as if they were fully set forth in Contract itself.

B. These shall also be considered as part of Construction Documents: Addenda, including additions and modifications incorporated in such addenda before execution of Contract; requests for information; construction bulletins; change orders; and written interpretations by Energy Engineer or Public Works Project Manager that are made after execution of Contract.

C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

A. These terms as used in this Contract are respectively defined as follows:
   1. All uses of term "County" in Construction Documents shall mean Dane County.
   2. All uses of term "Department" in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
   3. Public Works Project Manager is appointed by and responsible to Department. Public Works Project Manager has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
   4. Public Works Project Manager is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
   5. Term "Work" includes all labor, equipment and materials necessary to produce project required by Construction Documents.
   6. Term "Substantial Completion" is date when project or specified area of project is certified by Energy Engineer that construction is sufficiently completed, in accordance with Construction Documents, and as modified by any subsequent changes agreed to by parties, so that County may occupy project or specified area of project for use for which it was intended subject to permit approval for occupancy.
   7. Contractor is person, firm, or corporation with whom County makes Contract. Though multiple contracts may be involved, Construction Documents treat them throughout as if each were of singular number.

3. ADDITIONAL INSTRUCTIONS AND DRAWINGS

A. Contractor may be furnished additional instructions and detail drawings as necessary to carry out the Work included in Contract. Additional drawings and instructions thus supplied to Contractor will coordinate with Construction Documents and will be so prepared that they can be reasonably interpreted as part thereof. Contractor shall carry out the Work in accordance with additional detail drawings and instructions.

4. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Unless otherwise specified, Contractor shall submit three (3) copies of all Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution and such other copies as may be required.

B. Contractor shall submit, on an on-going basis and as directed, Product Data such as brochures that shall contain catalog cuts and specifications of all furnished mechanical and electrical equipment. After Energy Engineer's approval, one (1) copy shall remain in Energy Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.

C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
   1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Energy Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
   2. Submit transmittal letter requesting approval, and prepay transportation charges to Energy Engineer's office on samples forwarded.
   3. Materials installed shall match approved Samples.

D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Energy Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Energy Engineer will not consider partial lists.

E. Energy Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Energy Engineer's approval shall not relieve Contractor from responsibility for errors or omissions in Shop Drawings.

F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Energy Engineer has approved submission. All such work shall be in accordance with approved Shop Drawings, Product Data and Samples.

G. Contractor shall keep on site of the Work, approved or conformed copy of Shop Drawings and shall at all time give Department access thereto.

H. By stamping and submitting Shop Drawings, Product Data and Samples, Contractor thereby represents that he or she has or will determine and verify all field measurements, field construction criteria, materials, catalog numbers, and similar data and that he or she has checked and coordinated each Shop Drawing, Product Data and Sample with requirements of the Work and of Construction Documents. Energy Engineer shall return without examination, Shop Drawings, Product Data and Samples not so noted.

I. All Shop Drawings from any one Contractor should be numbered consecutively and on cover sheet shall bear name and location of project, name of Contractor, date of submittal and date of each correction or revision and associated Specification section and page number.

5. CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

B. Contractor shall not damage or endanger portion of the Work or fully or partially completed construction of County or separate contractors by cutting, patching or otherwise altering such

construction, or by excavation. Contractor shall not cut or otherwise alter such construction by County or separate contractor except with written consent of County and of such separate contractor; such consent shall not be unreasonably withheld. Contractor shall not withhold unreasonably from County or separate contractor, Contractor's consent to cutting or otherwise altering the Work.

6. CLEANING UP

A. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. Contractor shall remove from and about the Work waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials at completion of the Work. Contractor shall maintain assigned loading dock area in clean condition. Contractor shall remove all spillage and prevent tracking of spillage arising from performance of the Work, into, out of, and within the Work site. Contractor shall establish regular maintenance program of sweeping, vacuuming and / or hosing to minimize accumulation of dirt and dust upon such areas.

B. If Contractor fails to clean up as directed in Construction Documents, County may do so and shall charge Contractor cost thereof.

C. In addition to general cleaning (sweeping, vacuuming and / or hosing, as is appropriate to work surface), Contractor shall perform following final cleaning for all trades at completion of the Work:
   1. Remove temporary protections;
   2. Remove marks, stains, fingerprints and other soil or dirt from painted, decorated and finished woodwork and wall surfaces;
   3. Remove spots, plaster, soil and paint from ceramic tile, marble and other finished materials, and wash or wipe clean;
   4. Clean fixtures, cabinet work and equipment, removing stains, paint, dirt and dust, and leave same in undamaged, new condition;
   5. Clean aluminum in accordance with recommendations of manufacturer; and
   6. Clean resilient floors thoroughly with well-rinsed mop containing only enough moisture to clean off any surface dirt or dust and buff dry by machine to bring surfaces to sheen.

7. USE OF SITE

A. Contractor shall provide County and Energy Engineer access to the Work under all circumstances.

B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site and interior areas with materials or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all areas adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.

B. All equipment and materials incorporated in the Work covered by this Contract are to be new. Use recycled content and / or recovered materials content on new equipment and materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.

C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Energy Engineer, for approval, manufacturer name and model, performance capacities and other pertinent information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.

D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.

E. Reference to "Standard" specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.

F. Whenever reference is made in Specifications that work shall be "performed", "applied", in accordance with "manufacturer's directions or instructions", Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Energy Engineer before execution of the Work.

9. CONTRACTOR'S TITLE TO MATERIALS

A. Contractor or any subcontractor shall not purchase materials or supplies for the Work subject to any chattel mortgage or under conditional sale contract or other agreement by which seller retains interest. Contractor warrants that all materials and supplies used in the Work are free from all liens, claims or encumbrances and Contractor has good title to them.

10. "OR EQUAL" CLAUSE

A. Whenever equipment or materials are identified on Drawings or in Specifications by reference to manufacturer's or vendor's name, trade name, catalog number, and other identifying information, it is intended to establish standards; and any equipment or material of other manufacturers and vendors which will perform adequately duties imposed by general design will be considered equally accepted provided equipment or material so proposed is, in opinion of Energy Engineer, of equal substance and function. Energy Engineer and Department shall provide written approval before Contractor may purchase or install it.

B. Equipment or materials of manufacturers, other than those named, may be used only upon following conditions:
   1. That, in opinion of Energy Engineer and Department, proposed material or equipment item is fully equal or superior (in design, materials, construction, workmanship, performance, finish, etc.) to named item. No compromise in quality level, however small, is acceptable.
   2. That, in substituting materials or equipment, Contractor assumes responsibility for any changes in system or for modifications required in adjacent or related work to accommodate such substitution despite Energy Engineer's and Department's approval, and all costs growing out of approval of "or equal" items shall be responsibility of

Contractor. No extra costs resulting from such approval shall become responsibility of Department, Energy Engineer or any other separate Contractor.

3. It shall be understood that use of materials or equipment other than those specified, or approved equal by Energy Engineer and Department, shall constitute violation of Contract, and that Energy Engineer and Department shall have right to require removal of such materials or equipment and their replacement with specified materials or equipment at Contractor's expense.
4. Product and manufacturer named first in Specifications or on information shown on Drawings is basis of selection of manufactured items and equipment, particularly mechanical equipment. In using other than first named products or manufacturers, including those specified as additionally approved or acceptable, Contractor assumes responsibility for any changes in system and for modifications in any work required to accommodate them. Energy Engineer's approval of such additionally acceptable products or manufacturers, either in Specifications or in Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Energy Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Department, Energy Engineer or any other separate Contractor.

C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Department may in its sole discretion allow substitutions of materials.

11. PATENTS AND ROYALTIES

A. If Contractor uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood, that, without exception, contract prices shall include all royalties or costs arising from use of such design, device or materials, in any way involved in the Work.

B. Contractor shall indemnify and save harmless County from any and all claims for infringement by reason of use of such patent or copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify County for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during prosecution of the Work or after completion of the Work.

12. SURVEYS, PERMITS, REGULATIONS AND TAXES

A. Department will furnish to Contractor all site, topography and property surveys necessary for execution of the Work.

B. Contractor shall procure all permits, licenses and approvals necessary for execution of this Contract.

C. Contractor shall give all notices and comply with all State of Wisconsin, Federal and local laws, codes, rules and regulations relating to performance of the Work, protection of adjacent property, and maintenance of passageways, guard fences or other protective facilities.

D. Contractor shall pay all Sales, Consumer, Use and other similar taxes required by law.

E. Contractor shall promptly notify Energy Engineer of any variances of Drawings or Specifications with that of any State of Wisconsin, federal or local law, code, rule or regulation. Upon such notification, Energy Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.

F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.

G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.

B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Manager.

C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.

D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.

E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ construction superintendent or foreman, experienced in character of work covered by Contract, who shall have full authority to act for Contractor. Understand that such superintendent or foreman shall be acceptable to Energy Engineer and Department.

F. Remove from project or take other corrective action upon notice from Energy Engineer or Department for Contractor's employees whose work is considered by Energy Engineer or Department to be unsatisfactory, careless, incompetent, unskilled or otherwise objectionable.

G. Contractor and subcontractors shall be required to conform to Labor Laws of State of Wisconsin and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable to the Work.

H. Presence and observation of the Work by Energy Engineer or Public Works Project Manager shall not relieve Contractor of any obligations.

14. TEMPORARY SUSPENSION OF WORK

A. In event of temporary suspension of work, or during inclement weather, or whenever Energy Engineer shall direct, Contractor shall, and shall cause subcontractors to protect carefully all work and materials against damage or injury. If, in opinion of Energy Engineer or Department, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in Contract, or by County, or County's duly authorized representative.

B. Contractor may act diligently, without previous instructions from Energy Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Energy Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Energy Engineer and / or Department for approval as provided for in Article 18 herein.

16. INSPECTION AND TESTING OF MATERIALS

A. Authorized representatives and agents of County government shall have access at all times to the Work wherever it is in preparation or progress and Contractor shall provide facilities for such access and for inspection.

B. Should it be considered necessary or advisable at any time before final acceptance of the Work to make examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction. Contractor will be reimbursed for such examination and replacement in accordance with Article 18 - A.3., of these General Conditions of Contract if such work is found to meet requirements of Contract.

C. If Specifications, Energy Engineer's, or Public Works Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Energy Engineer and Public Works Project Manager timely notice of its readiness for testing or inspection. Test all materials and equipment requiring testing in accordance with accepted or specified standards, as applicable. Energy Engineer shall recommend laboratory or inspection agency and Department will select and pay for all initial laboratory inspection services. Should retesting be required, due to failure of initial testing, cost of such retesting shall be borne by Contractor.

D. Cost of any testing performed by manufacturers or Contractor for substantiating acceptability of proposed substitution of materials and equipment, or necessary conformance testing in conjunction with manufacturing processes or factory assemblage, shall be borne by Contractor or manufacturer responsible.

17. REPORTS, RECORDS AND DATA

A. Contractor shall submit to Energy Engineer and Public Works Project Manager such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Department. Charges or credits for the Work covered by approved change shall be determined by one of these methods:
   1. Unit bid prices previously approved.
   2. Agreed lump sum based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.
      c) Ownership or rental cost of construction tools and equipment during time of use on extra work.
      d) Power and consumable supplies for operation of power equipment.
      e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
      f) Social Security and old age and unemployment contributions.
      g) Add to cost under (2), fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit and any other general expense.
      h) On that portion of the Work under (2) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit and any other general expense.
      i) Department may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
   3. Cost-plus work, with not-to-exceed dollar limit, based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.
      c) Ownership or rental cost of construction tools and equipment during time of use on extra work. Rental cost cannot exceed fifty percent (50%) replacement value of rented equipment.
      d) Power and consumable supplies for operation of power equipment.
      e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
      f) Social Security and old age and unemployment contributions.
      g) To cost under (3), there shall be added fixed fee to be agreed upon but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit, and any other general expense.
      h) On that portion of the Work under (3) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit, and any other general expense.
      i) Contractor shall keep and present, in such form as directed, correct amount of cost together with such supporting vouchers as may be required by Department.

B. If Contractor claims that by any instructions given by Energy Engineer, Department, by drawings or otherwise, regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Department written notice of cost thereof within two (2) weeks after receipt of such instructions and in any event before proceeding to execute work, unless delay in executing work would endanger life or property.

C. No claim for extra work or cost shall be allowed unless it was done in pursuance of written Change Order from Energy Engineer and approved by Department, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.

D. Negotiation of cost for change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Manager to proceed.

19. EXTRAS

A. Without invalidating Contract, Department may order extra work or make changes by altering, adding to or deducting from the Work, contract sum being adjusted in accordance with Article 18 herein.

20. TIME FOR COMPLETION

A. Contractor agrees that the Work shall be prosecuted regularly and diligently and complete the Work as stated in Construction Documents.

21. CORRECTION OF WORK

A. All work, all materials whether incorporated in the Work or not, and all processes of manufacture shall at all times and places be subject to inspection of Energy Engineer and Public Works Project Manager who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Energy Engineer's and Public Works Project Manager's approval they shall be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.

B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, Department may, after ten (10) business days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Energy Engineer's additional services made necessary by such default, neglect or failure.

22. CONDITIONS FOUND DIFFERENT

A. If Contractor encounters latent conditions at site materially differing from those shown on Drawings or indicated in Specifications, Contractor shall immediately give notice to Energy Engineer and Public Works Project Manager of such conditions before they are disturbed. Energy Engineer will thereupon promptly investigate conditions, and if Energy Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, Energy Engineer will at once make such changes as necessary, any increase or decrease of cost resulting from such changes to be adjusted in manner provided in above Article 18 entitled "Changes in the Work".

23. RIGHT OF DEPARTMENT TO TERMINATE CONTRACT

A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) business days after serving of such notice upon Contractor, such

violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) business days, cease and terminate.

B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) business days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by contract, or by force account, at expense of Contractor; Contractor and Surety shall be liable to County for any excess cost occasioned County thereby, and in such event County may take possession of and utilize in completing the Work, such materials and equipment as may be on the Work site and therefore necessary.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

A. Contractor shall be responsible for Construction Schedule and coordination. Immediately after execution and delivery of Contract and before making first payment, Contractor shall notify all subcontractors to furnish all required information to develop Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:
   1. List of construction activities;
   2. Start, finish and time required for completion of each activity;
   3. Sequential relationships between activities;
   4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
   5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
   6. Other information as determined by Public Works Project Manager.

B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by Department under separate contracts such as asbestos abatement, air and water balancing, etc. Indicate on Construction Schedule these associated delivery and installation dates.

C. Progress Reporting:
   1. Contractor shall update and publish Construction Schedule on monthly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by explanation of reasons for revision; and shall be subject to approval by Department.
   2. Failure of Contractor to keep Schedule in updated format shall result in County hiring firm specializing in construction schedule development and deducting those costs associated with updating process from payments due Contractor.
   3. Contractor shall submit show actual percentage of each activity completed, estimated future progress, and anticipated completion time.

D. Responsibility for timely completion requires:
   1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
   2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
      a) Increase construction labor in such quantities and crafts as will eliminate backlog of work.

b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
c) Reschedule work (yet remain in conformance with Drawings and Specifications).

3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Manager.

E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Energy Engineer and Public Works Project Manager.

25. PAYMENTS TO CONTRACTOR

A. Contractor shall provide:
1. Detailed estimate giving complete breakdown of contract price by Specification Division; and
2. Periodic itemized estimates of work done for purpose of making partial payments thereon.

B. Submit these estimates for approval first to Energy Engineer, then to Public Works Project Manager. Costs employed in making up any of these schedules are for determining basis of partial payments and not considered as fixing basis for additions to or deductions from Contract price.

C. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Energy Engineer and approval of Department.

D. Contractor shall submit for approval first to Energy Engineer, and then to Public Works Project Manager all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.

E. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as storage in bonded warehouse with adequate coverage. If there is any error in payment, Contractor is obligated to notify Department immediately, but no longer than ten (10) business days from receipt of payment.

F. Payments by County will be due within forty-five (45) business days after receipt by Department of Application and Certificate for Payment.

G. County will retain five percent (5%) of each Application and Certificate for Payment until final completion and acceptance of all the Work covered by Contract. However, anytime after fifty percent (50%) of the Work has been furnished and installed at site, County will make remaining payments in full if Energy Engineer and Public Works Project Manager find that progress of the Work corresponds with Construction Schedule. If Energy Engineer and Public Works Project Manager find that progress of the Work does not correspond with

Construction Schedule, County may retain up to ten percent (10%) of each Application and Certificate for Payment for the Work completed.

H. All material and work covered by partial payments made shall become sole property of County, but this provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made, or restoration of any damaged work, or as waiver of right of County to require fulfillment of all of terms of Contract.

I. County will make final payment within sixty (60) calendar days after final completion of the Work, and will constitute acceptance thereof. Submit Equal Benefits Compliance Payment Certification with final pay request. Payment may be denied if Certification is not included.

J. County may make payment in full, including retained percentages and less authorized deductions, upon completion and acceptance of each Division where price is stated separately in Contract.

K. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit(s) as required to prove that all debts and claims against this Work are paid in full or otherwise satisfied, and give final evidence of release of all liens against the Work and County. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

26. WITHHOLDING OF PAYMENTS

A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which Department has written notice, or withhold from Contractor's unpaid compensation sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged; whereupon, payment to Contractor shall be resumed in accordance with terms of this Contract, but in no event shall these provisions be construed to impose any obligations upon County to either Contractor or Contractor's Surety.

B. In paying any unpaid bills of Contractor, County shall be deemed agent of Contractor, and any payment so made by County, shall be considered as payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.

C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workers, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.

D. At Department's request, Contractor shall furnish satisfactory evidence that all obligations of nature designated above have been paid, discharged or waived.

27. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

A. Making of final payment shall constitute waiver of all claims by County except those arising from:
   1. Unsettled lien;
   2. Faulty or defective work appearing after substantial completion;
   3. Failure of the Work to comply with requirements of Construction Documents; or
   4. Terms of any special guarantees required by Construction Documents.

B. Acceptance of final payment shall constitute waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

A. Contractor shall pay following not later than fifth (5^{th}) business day following each payment received from County:
   1. All transportation and utility services rendered;
   2. All materials, tools, and other expendable equipment that have been delivered at site of the Work to extent of ninety percent (90%) of cost thereof, and balance of cost thereof when said balance is paid to Contractor; and
   3. Each subcontractor, respective amount allowed Contractor because of work performed by subcontractor to extent of subcontractor's interest therein.

29. CONTRACT SECURITY

A. Contractor shall furnish Performance and Payment Bonds in amount at least equal to one hundred percent (100%) of Contract price as security for faithful performance of this Contract and payment of all persons performing labor on project under this Contract and furnishing materials in connection with this Contract.

B. Sample Performance and Payment Bonds that Contractor will be required to execute is bound into these Construction Documents. Before construction Contract is consummated, completed Performance and Payment Bonds must be approved by Department.

30. ASSIGNMENTS

A. Contractor shall not assign whole or any part of this Contract or any moneys due or to become due hereunder without written consent of Department. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of assignment shall contain clause substantially to effect that it is agreed that right of assignee in and to any moneys due or to become due to Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for performance of the Work called for in this Contract.

31. MUTUAL RESPONSIBILITY OF CONTRACTORS

A. If, through acts of neglect on part of Contractor or any subcontractor shall suffer loss or damage on the Work, Contractor agrees to settle with such subcontractor by agreement or arbitration if such other subcontractor will so settle. If such subcontractor shall assert any claim against County on account of any damage alleged to have been sustained, Department shall notify Contractor, who shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives against any such claim.

32. SEPARATE CONTRACTS

A. Department may award other contracts for the Work and all Contractors shall fully cooperate with each other and carefully adjust their work to that provided under other contracts as may be directed by Department. No Contractor shall commit or permit any act that will interfere with performance of the Work by any other Contractor.

B. Contractor shall coordinate the Work with those of other Contractors. Cooperation will be required in arrangement for storage of materials and in detailed execution of the Work. Contractor, including subcontractors, shall keep informed of progress and detail work of others and shall notify Energy Engineer or Department immediately of lack of progress or defective workmanship on part of others. Failure of Contractor to keep informed of the Work progressing on site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by Contractor of status of the Work as being satisfactory for proper coordination with Contractor's own work.

33. SUBCONTRACTS

A. Contractor may use services of specialty subcontractors on those parts of the Work that, under normal contracting practices, are performed by specialty subcontractors.

B. Contractor shall not award any work to any subcontractor without prior approval of Department. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Department fifteen (15) business days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Department in writing.

C. Contractor shall be as fully responsible to County for acts and omissions of subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for acts and omissions of persons directly employed by Contractor.

D. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by terms of General Conditions of Contract and other Construction Documents insofar as applicable to work of subcontractors and to give Contractor same power as regards terminating any subcontract that Department may exercise over Contractor under any provision of Construction Documents.

E. Nothing contained in this Contract shall create any contractual relation between any subcontractor and County.

F. Contractor shall insert in all subcontracts, Articles 26, 33, 43 and 45, respectively entitled: "Withholding of Payments", "Subcontracts", "Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises", and "Minimum Wages", and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT MANAGER'S AUTHORITY

A. Public Works Project Manager shall:
   1. Administer and ensure compliance with Construction Documents;

2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
3. Convene and chair project meetings and foreman's coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and Department; and
4. Check and inspect material, equipment and installation procedures of all trades for proper workmanship and for compliance with Drawings, Specifications and Shop Drawings, permit no material on project site that is not satisfactory and reject work not in compliance with Construction Documents.

35. ENERGY ENGINEER'S AUTHORITY

A. Energy Engineer is retained by, and is responsible to Department acting for County.

B. Energy Engineer shall determine amount, quality, acceptability, and fitness of several kinds of work and materials that are provided under this Contract and shall decide all questions that may arise in relation to said work and construction thereof.

C. Energy Engineer shall decide meaning and intent of any portion of Specifications and of any Drawings where they may be found obscure or be in dispute.

D. Energy Engineer shall provide responsible observation of construction. Energy Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.

E. Energy Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.

F. Within reasonable time, Energy Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.

G. Energy Engineer's decisions are subject to review by Public Works Project Manager.

36. STATED ALLOWANCES

A. Not Applicable

37. ESTIMATES OF QUANTITIES

A. Whenever estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of Construction Documents, they are given for use in comparing bids and right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable by Department to complete the Work included in this Contract, and cost for such increase or diminution shall be adjusted in manner provided for in General Conditions of Contract Article 18 entitled "Changes in the Work".

38. LANDS AND RIGHTS-OF-WAY

A. Not Applicable

39. GENERAL GUARANTEE

A. Neither final certificate of payment nor any provision in Construction Documents nor partial or entire occupancy of premises by County shall constitute acceptance of work not done in accordance with Construction Documents or relieve Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.
   1. In no event shall making of any payment required by Contract constitute or be construed as waiver by County of any breach of covenants of Contract or waiver of any default of Contractor and making of any such payment by County while any such default or breach shall exist shall in no way impair or prejudice right of County with respect to recovery of damages or other remedy as result of such breach or default.

B. Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work resulting there from, which appear within period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. Department will give notice of observed defects with reasonable promptness.

C. Guarantee on work executed after certified date of substantial completion will begin on date when such work is inspected and approved by Energy Engineer and Public Works Project Manager.

D. Where guarantees or warrantees are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

40. CONFLICTING CONDITIONS

A. Any provision in any of Construction Documents which may be in conflict or inconsistent with any Articles in these General Conditions of Contract or Supplementary Conditions shall be void to extent of such conflict or inconsistency.

B. In case of ambiguity or conflict between Drawings and Specifications, Specifications shall govern.

C. Printed dimensions shall be followed in preference to measurements by scale. Large-scale drawings take precedence over small-scale drawings. Dimensions on Drawings and details are subject to field measurements of adjacent work.

41. NOTICE AND SERVICE THEREOF

A. Any notice to Contractor from Department relative to any part of this Contract shall be in writing and considered delivered and service thereof completed, when said notice is posted, by certified or registered mail, to Contractor at Contractor's last given address, or delivered in person to said Contractor, or Contractor's authorized representative on the Work.

42. PROTECTION OF LIVES AND HEALTH

A. In order to protect lives and health of Contractor's employees under Contract, Contractor shall comply with all pertinent provisions of Wisconsin Administrative Code, Rules of Department of Commerce, relating to Safety and Health.

B. Contractor alone shall be responsible for safety, efficiency and adequacy of Contractor's tools, equipment and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

43. AFFIRMATIVE ACTION PROVISION AND MINORITY / WOMEN / DISADVANTAGED BUSINESS ENTERPRISES

A. Affirmative Action Provisions.
   1. During term of their Contract, Contractor agrees not to discriminate on basis of race, religion, color, sex, handicap, age, sexual preference, marital status, physical appearance, or national origin against any person, whether recipient of services (actual or potential), employee, or applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall no be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
   2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives $10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) business days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment, and, similarly classified, number hired and number rejected.
   3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
   4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include statement to affect Contractor is "Equal Opportunity Employer". Contractor agrees to furnish all information and reports required by County's Contract Compliance Officer as same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and provision of this Contract.

B. Minority / Women / Disadvantaged / Emerging Small Business Enterprises.
   1. Chapter 19.508 of Dane County Code of Ordinances is official policy of Dane County regarding utilization of, to fullest extent of, Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs) Disadvantage Business Enterprises (DBEs) and Emerging Small Business Enterprises (ESBEs).
   2. Contractor may utilize MBEs / WBEs / DBEs / ESBEs as subcontractors or suppliers. List of subcontractors will be required of low bidder as stated in this Contract. List shall indicate which are MBEs / WBEs / DBEs / ESBEs and percentage of subcontract awarded, shown as percentage of total dollar amount of bid.

44. COMPLIANCE WITH FAIR LABOR STANDARDS

A. During term of this Contract, Contractor shall report to County Contract Compliance Officer, within ten (10) business days, any allegations to, or findings by National Labor Relations Board (NLRB) or Wisconsin Employment Relations Commission (WERC) that Contractor has violated statute or regulation regarding labor standards or relations. If investigation by Contract Compliance Officer results in final determination that matter adversely affects Contractor's responsibilities under this Contract, and which recommends termination, suspension or cancellation of this Contract, County may take such action.

B. Contractor may appeal any adverse finding by Contract Compliance Officer as set forth in Dane County Ordinance 25.015(11)(c) through (e).

C. Contractor shall post this statement in prominent place visible to employees: "As condition of receiving and maintaining contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation or union organizing."

45. DOMESTIC PARTNERSHIP BENEFITS

A. Contractor agrees to provide same economic benefits to all of its employees with domestic partners as it does to employees with spouses, or cash equivalent if such benefit cannot reasonably be provided. Contractor agrees to make available for County inspection Contractor's payroll records relating to employees providing services on or under this Contract or subcontract. If any payroll records of Contractor contain any false, misleading or fraudulent information, or if Contractor fails to comply with provisions of Chapter 25.016, Dane County Ordinances, contract compliance officer may withhold payments on Contract; terminate, cancel or suspend Contract in whole or in part; or, after due process hearing, deny Contractor right to participate in bidding on future County contracts for period of one year after first violation is found and for period of three years after second or subsequent violation is found.

46. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

A. Contractor agrees to use and occupancy of portion or unit of the Work before formal acceptance by Department, provided Department:
   1. Secures written consent of Contractor; except when in opinion of Public Works Project Manager, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
   2. Secures endorsement from insurance carrier and consent of Surety permitting occupancy of building or use of the Work during remaining period of construction, or, secures consent of Surety.
   3. Assumes all costs and maintenance of heat, electricity and water.
   4. Accepts all work completed within that portion or unit of the Work to be occupied, at time of occupancy.

47. MINIMUM WAGES

A. Contractor shall post, at appropriate conspicuous point on site of project, schedule showing all determined minimum wage rates for various classes of laborers and mechanics to be engaged in the Work under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by laborers and mechanics so engaged.

B. Supplementary Conditions section in Construction Documents lists wage determinations required by State Law.

C. If, after award of Contract, it becomes necessary to employ any person in trade or occupation not classified in wage determinations, such person shall be paid at not less than such rate as shall be determined by Wisconsin Department of Workforce Development. Such approved minimum rate shall be retroactive to time of initial employment of such person in such trade or occupation. Contractor shall notify Department of Contractor's intention to employ persons in trades or occupations not so classified in sufficient time for Department to obtain approved rates for such trades or occupations.

D. Specified wage rates are minimum rates only, and Department will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.

E. Submit required affidavit(s) to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract. Affidavit(s) shall clearly indicate name, trade or occupation, and paid wages of every laborer, worker or mechanic employed by Contractor and all subcontractors during billing period including accurate record of number of hours worked by each employee and actual wages paid as stipulated in Wisconsin Statue 66.0903. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

48. CLAIMS

A. No claim may be made until Department's Assistant Public Works Director has reviewed Energy Engineer's decision as provided for in Article 35 of General Conditions of Contract. If any claim remains unresolved after such review by Department's Assistant Public Works Director the claim may be filed under Wisconsin Statute 893.80. Work shall progress during period of any dispute or claim. Unless specifically agreed between parties, venue will be in Dane County, Wisconsin.

49. ANTITRUST AGREEMENT

A. Contractor and County recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by County. Therefore, Contractor hereby assigns to County any and all claims for such overcharges as to goods and materials purchased in connection with this Contract, except as to overcharges which result from antitrust violations commencing after price is established under this Contract and any change order thereto.

50. INSURANCE

A. Contractor Carried Insurance:
   1. Contractor shall not commence work under this Contract until Contractor has obtained all insurance required under this Article and has provided evidence of such insurance to Risk Manager, 425 City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703. Contractor shall not allow any subcontractor to commence work until insurance required of subcontractor has been so obtained and approved. Company providing insurance must be licensed to do business in Wisconsin.

2. Worker's Compensation Insurance:
   a) Contractor shall procure and shall maintain during life of this Contract, Worker's Compensation Insurance as required by statute for all of Contractor's employees engaged in work at site of project under this Contract and, in case of any such work sublet, Contractor shall require subcontractor similarly to provide Worker's Compensation Insurance for all of latter's employees to be engaged in such work unless such employees are covered by protection afforded by Contractor's Worker's Compensation Insurance.
   b) If any claim of employees engaged in hazardous work on project under this Contract is not protected under Worker's Compensation Statute, Contractor shall provide and shall cause each subcontractor to provide adequate Employer's Liability Insurance for protection of such of Contractor's employees as are not otherwise protected.
3. Contractor's Public Liability and Property Damage Insurance:
   a) Contractor shall procure and maintain during life of this Contract, Contractor's Public Liability Insurance and Contractor's Property Damage Insurance in amount not less than $1,000,000 bodily injury, including accidental death, to any one person, and subject to same limit for each person, in amount not less than $1,000,000 on account of one accident, and Contractor's Property Damage Insurance in amount not less then $1,000,000 or combined single limit of at least $1,000,000 with excess coverage over and above general liability in amount not less than $5,000,000. Contractor shall add "Dane County" as additional insured for each project.
   b) Contractor's Public Liability and Property Damage Insurance shall include Products, Completed Operation, and Contractual Liability under Insurance Contract. "Contractor shall in all instances save, defend, indemnify and hold harmless County and Energy Engineer against all claims, demands, liabilities, damages or any other costs which may accrue in prosecution of the Work and that Contractor will save, defend, indemnify and hold harmless County and Energy Engineer from all damages caused by or as result of Contractor's operations" and each shall be listed as additional insured on Contractor's and sub-contractors' insurance policies.
   c) Obligations of Contractor under Article 50.A.2.b) shall not extend to liability of Energy Engineer, agents or employees thereof, arising out of:
      1) Preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or
      2) Giving of or failure to give directions or instructions by Energy Engineer, agents or employees thereof provided such giving or failure to give is primary cause of injury or damage.
   d) Contractor shall procure and shall maintain during life of this Contract, Comprehensive Automobile Liability Insurance covering owned, non-owned and hired automobiles for limits of not less than $1,000,000 each accident single limit, bodily injury and property damage combined with excess coverage over and above general liability in amount not less than $5,000,000.
   e) Contractor shall either:
      1) Require each subcontractor to procure and to maintain during life of subcontract, subcontractor's Public Liability Property Damage Insurance, and Comprehensive Automobile Liability Insurance of type and in same amount specified in preceding paragraphs; or
      2) Insure activities of subcontractors in Contractor's own policy.
4. Scope of Insurance and Special Hazards: Insurance required under Article 50.A.2 & 50.A.3. hereof shall provide adequate protection for Contractor and subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operation be by insured or by anyone directly or indirectly employed by insured and also against any of special hazards which may be encountered in performance of this Contract as enumerated in Supplementary Conditions.

5. Proof of Carriage of Insurance: Contractor shall furnish Risk Manager with certificates showing type, amount, class of operations covered, effective dates, dates of expiration of policies and "Dane County" listed as additional insured. Such certificates shall also contain (substantially) following statement: "Insurance covered by this certificate will not be canceled or materially altered, except after ten (10) business days written notice has been received by Risk Manager."

B. Builder's Risk:
   1. County shall provide Builder's Risk policy. Terms of this policy will be made available by County's Risk Manager, upon Contractor's request. By executing this Contract, Contractor warrants it is familiar with terms of said policy.

C. Indemnification / Hold Harmless:
   1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by part indemnified hereunder.
   2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
   3. Obligations of Contractor under this Contract shall not extend to liability of Energy Engineer, its agents or employees arising out of:
      a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or
      b) Giving of or failure to give directions or instruction by Energy Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.
   4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.

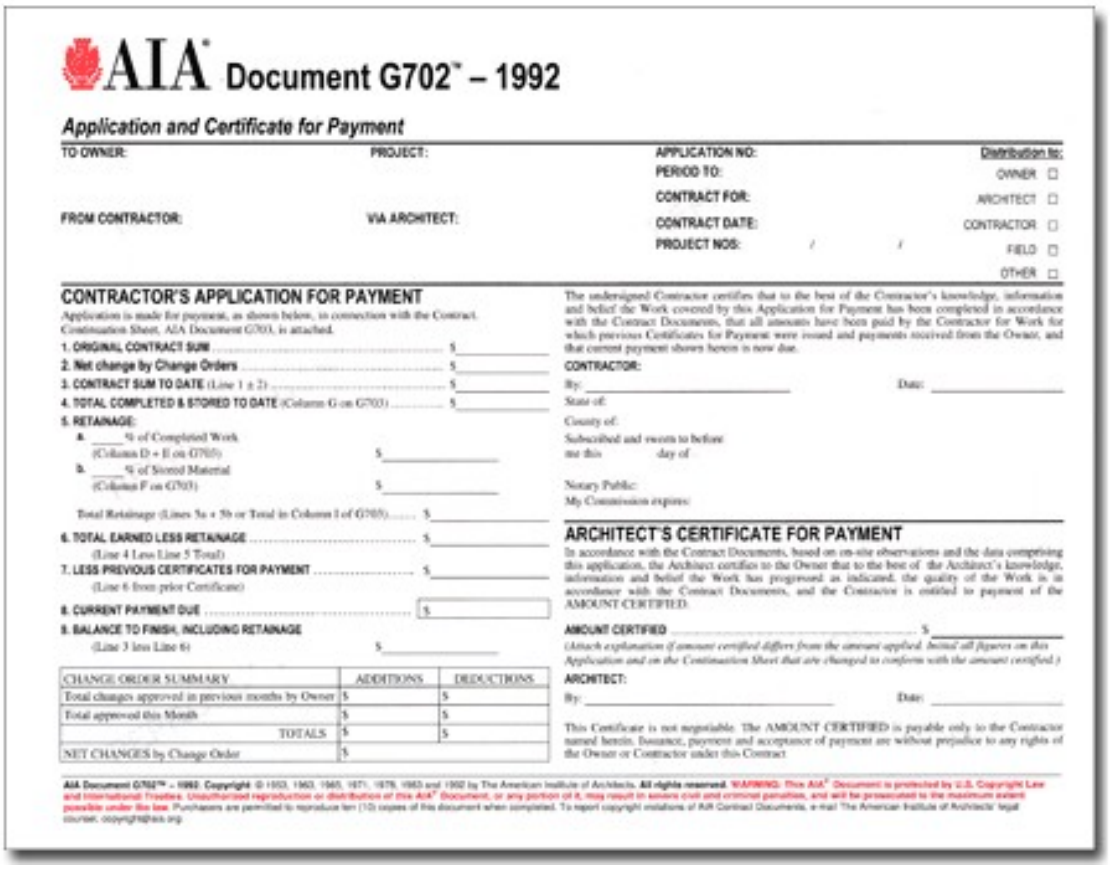
51. WISCONSIN LAW CONTROLLING

A. It is expressly understood and agreed to by parties hereto that in event of any disagreement or controversy between parties, Wisconsin law shall be controlling.

SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit partial and final Application & Certificate for Payment for work under said contract. Form shall provide similar information as shown on AIA G702™ and G703™ forms (samples shown below). Forms shall be submitted to Public Works Project Manager for approval.



AIA Document G702™ – 1992

Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: Distribution to:
PERIOD TO: OWNER ☐
CONTRACT FOR: ARCHITECT ☐
FROM CONTRACTOR: VIA ARCHITECT: CONTRACT DATE: CONTRACTOR ☐
PROJECT NOS: / / FIELD ☐
OTHER ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM ..... $
2. Net change by Change Orders ..... $
3. CONTRACT SUM TO DATE (Line 1 ± 2) ..... $
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) ..... $
5. RETAINAGE:
   a. ____ % of Completed Work (Column D + E on G703) $
   b. ____ % of Stored Material (Column F on G703) $
   Total Retainage (Lines 5a + 5b or Total in Column I of G703) ..... $
6. TOTAL EARNED LESS RETAINAGE ..... $ (Line 4 Less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... $ (Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE ..... $
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6) $

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this Month	$	$
TOTALS	$	$
NET CHANGES by Change Order	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: Date:
State of:
County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires:

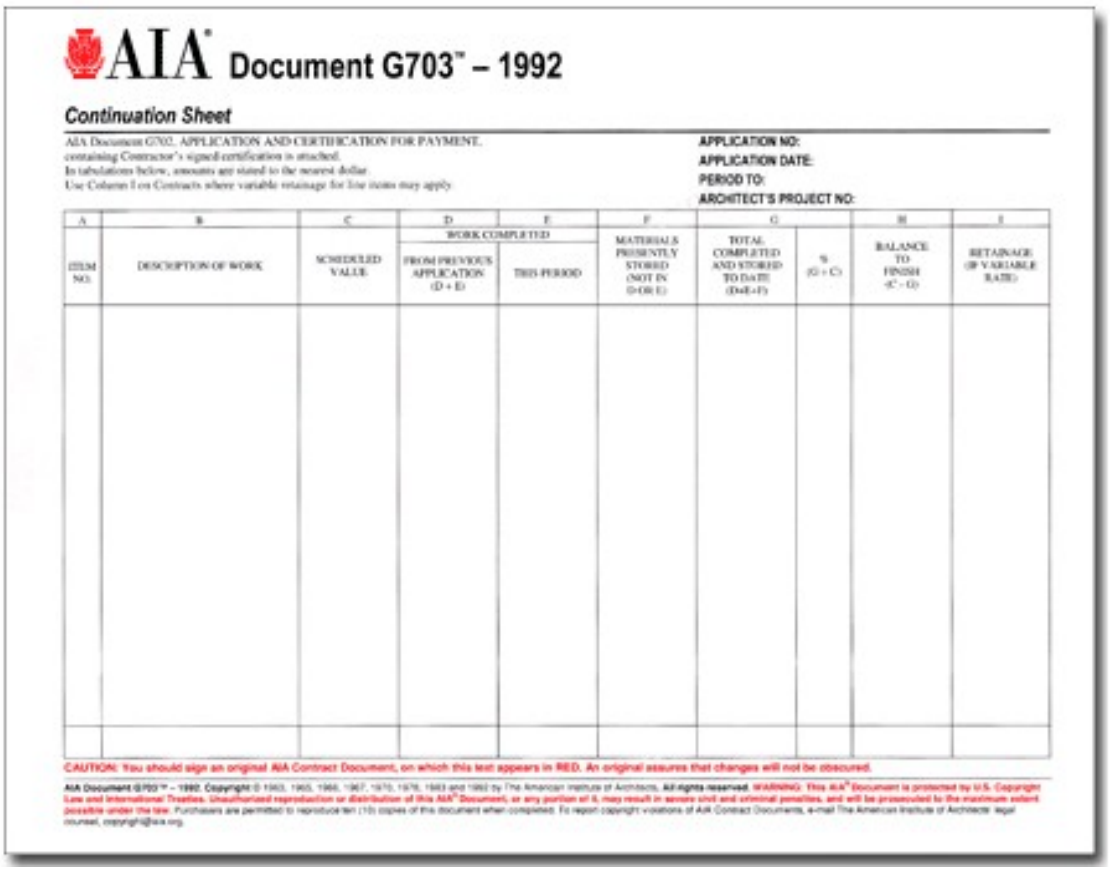
ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:
By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.



AIA Document G703™ – 1992

Continuation Sheet

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED: FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED: THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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2. PREVAILING WAGE RATE DETERMINATION

A. A prevailing wage rate determination (PWRD) may be required on this project depending on the total project cost. A PWRD is not required if the total bid is below $100,000. If the bid is $100,000 or more, the Contractor shall apply the PWRD. The PWRD shall also be applied if the bid is a single trade project for $48,000 or more. A single trade project is one in which no single trade accounts for eighty-five percent (85%) or more of the total labor cost of the project.

B. These supplements shall modify, delete, and / or add to General Conditions of Contract. Where any article, paragraph, or subparagraph in General Conditions of Contract is supplemented by one of these paragraphs, provisions of such article, paragraph, or subparagraph shall remain in effect and supplementary provisions shall be considered as added thereto. Where any article, paragraph, or subparagraph in [General Conditions of Contract][Conditions of Contract] is amended, voided, or superseded by any of these paragraphs, provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.
   1. General Conditions of Contract Article 47, "Minimum Wages", paragraph B. Following Prevailing Wage Rate Determination No. 201600504 is added to General Conditions of Contract.

C. These State of Wisconsin forms, hereinafter set forth in this section, shall be filled out and submitted to Department of Public Works, Highway & Transportation:
   1. Disclosure of Ownership (ERD-7777)
   2. Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-5724)

3. List of Agents and Subcontractors (Page 2 - ERD-5724)
4. Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-10584)
5. List of Agents and Subcontractors (Page 2 - ERD-10584)
6. Request To Employ Subjourneyperson (ERD-10880)

D. At a minimum, these wage rates must be displayed in a place where all workers can access them, but not inside the job trailer. If this isn't easily done based on job conditions, the State requires they be displayed at a library or other public building.

State of Wisconsin Department of Workforce Development Equal Rights Division	**DEPARTMENTAL ORDER**

ISSUE DATE: 2/12/2016

PROJECT:

EXPOSITION HALL LIGHTING UPGRADES ALLIANT ENERGY CENTER
MADISON TOWN, DANE COUNTY, WI
Determination No. 201600504 [Owner Project No. 316002]

PROJECT OWNER:	REQUESTER:
ERIC URTES, PROJECT MANAGER DANE COUNTY PUBLIC WORKS 1919 ALLIANT ENERGY CENTER WAY MADISON, WI 53713	ERIC URTES, PROJECT MANAGER DANE COUNTY PUBLIC WORKS 1919 ALLIANT ENERGY CENTER WAY MADISON, WI 53713
ADDITIONAL CONTACT:	**NOTE:** The Requester must provide a copy of this Project Determination and enclosures to the Project Owner and Additional Contact.

The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.

If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), Stats., or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.

Enclosures

It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
P.O. Box 8928, Madison, WI 53708-8928
(608)266-6861

Web Site: http://dwd.wisconsin.gov/er/

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 2/12/2016

DETERMINATION NUMBER: 201600504

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2016. If NOT, You MUST Reapply.

PROJECT NAME: EXPOSITION HALL LIGHTING UPGRADES ALLIANT ENERGY CENTER

PROJECT NO: 316002

PROJECT LOCATION: MADISON TOWN, DANE COUNTY, WI

CONTRACTING AGENCY: DANE COUNTY PUBLIC WORKS

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm.
OVERTIME:	Time and one-half must be paid for all hours worked: - over 10 hours per day on prevailing wage projects - over 40 hours per calendar week - Saturday and Sunday - on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; - The day before if January 1, July 4 or December 25 falls on a Saturday; - The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whevenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journeyperson's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project** . A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.
(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.
(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.
3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.
5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
102	Boilermaker	33.35	28.29	61.64
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $1.45 on 06/06/2016 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.86	20.03	52.89
104	Cabinet Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
107	Cement Finisher	33.15	16.40	49.55
108	Drywall Taper or Finisher	29.97	20.08	50.05
109	Electrician Future Increase(s): Add $1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
110	Elevator Constructor	46.05	27.09	73.14
111	Fence Erector	18.72	5.78	24.50

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
112	Fire Sprinkler Fitter	36.78	19.97	56.75
113	Glazier	38.27	14.42	52.69
114	Heat or Frost Insulator	33.53	27.31	60.84
115	Insulator (Batt or Blown) Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
116	Ironworker	32.50	20.58	53.08
117	Lather	32.72	16.00	48.72
118	Line Constructor (Electrical)	40.81	18.06	58.87
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	32.82	18.67	51.49
121	Metal Building Erector	22.40	6.27	28.67
122	Millwright Future Increase(s): Add $1.47/hr on 6/1/2016.	34.79	17.17	51.96
123	Overhead Door Installer	31.93	13.39	45.32
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add $1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68
127	Pipeline Fuser or Welder (Gas or Utility)	44.20	18.26	62.46
129	Plasterer	32.82	18.81	51.63
130	Plumber	38.82	18.02	56.84
132	Refrigeration Mechanic	45.55	18.71	64.26
133	Roofer or Waterproofer	29.65	1.71	31.36
134	Sheet Metal Worker	35.55	24.67	60.22
135	Steamfitter	45.55	18.71	64.26
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	34.97	19.67	54.64
139	Terrazzo Finisher	25.72	18.54	44.26

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
140	Terrazzo Mechanic Future Increase(s): Add $1.60 on 06/06/2016	33.98	18.96	52.94
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add $1.45/hr on 6/06/2016.	31.59	19.61	51.20
143	Tuckpointer, Caulker or Cleaner Future Increase(s): Add $1.45 on 06/06/2016 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.86	20.03	52.89
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72
147	Siding Installer	17.00	6.71	23.71
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	20.41	57.14
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	25.00	12.55	37.55

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	33.69	19.78	53.47
203	Three or More Axle	18.25	21.61	39.86
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.25	21.61	39.86
207	Truck Mechanic	18.25	21.61	39.86

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.25/hr eff. 06/06/2016 Premium Increase(s): Add $1.00/hr for certified welder and pipelayer; Add $.25/hr for mason tender.	25.81	15.63	41.44
302	Asbestos Abatement Worker	17.00	4.22	21.22
303	Landscaper	21.90	9.83	31.73
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	20.83	18.39	39.22
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96
315	Final Construction Clean-Up Worker	29.01	7.20	36.21

HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket). Future Increase(s): Add $1.60/hr on 6/3/2016.	35.22	20.38	55.60
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under). Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery. Future Increase(s): Add $1.25/hr on 1/1/2017.	39.20	23.09	62.29
507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s):	37.67	20.38	58.05

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
	Add $.50/hr for >200 Ton; Add $1/hr at 300 Ton; Add $1.50/hr at 400 Ton; Add $2/hr at 500 Ton & Over.			
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.25/hr for all >45 Ton lifting capacity cranes.	36.42	20.38	56.80
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type). Future Increase(s): Add $1.60/hr on 6/3/2016.	35.22	20.38	55.60
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	31.99	20.38	52.37
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $1/hr on 5/30/2016.	37.04	22.44	59.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	33.82	20.30	54.12
516	Fiber Optic Cable Equipment	29.50	0.68	30.18

SEWER, WATER OR TUNNEL CONSTRUCTION

Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.82	18.67	51.49
105	Carpenter	32.72	16.00	48.72
107	Cement Finisher Future Increase(s): Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	35.97	17.85	53.82
109	Electrician	52.00	1.50	53.50
111	Fence Erector	18.72	5.78	24.50
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver	33.24	16.00	49.24
130	Plumber Future Increase(s): Add $1.50 on 6/1/16	39.95	19.45	59.40
135	Steamfitter	44.20	18.26	62.46
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)	31.00	20.43	51.43
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	19.00	0.00	19.00
203	Three or More Axle	19.00	0.00	19.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.69	19.78	53.47
205	Pavement Marking Vehicle	19.00	0.00	19.00
207	Truck Mechanic	19.00	0.00	19.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.25/hr eff. 06/06/2016 Premium Increase(s): Add $.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add $.55 for pipelayer; Add $1.00 for tunnel work 0-15 lbs. compressed air; Add $2.00 for over 15-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	27.18	15.64	42.82
303	Landscaper	41.00	0.00	41.00
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Add $.25/hr for operating tower crane.	38.09	20.80	58.89
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add $1.60/hr on 6/3/2016.	35.22	20.38	55.60
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	33.69	21.75	55.44
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	31.99	20.38	52.37
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	30.99	19.78	50.77
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.82	18.67	51.49
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
107	Cement Finisher Future Increase(s): Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add $1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
111	Fence Erector	18.72	5.78	24.50
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add $1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
133	Roofer or Waterproofer	29.65	1.71	31.36
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	18.00	0.00	18.00
203	Three or More Axle	18.00	0.00	18.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.00	0.00	18.00
206	Shadow or Pilot Vehicle	18.00	0.00	18.00
207	Truck Mechanic	18.00	0.00	18.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	26.34	15.17	41.51

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper Future Increase(s): Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	30.67	15.65	46.32
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.50/hr for >200 Ton; Add $1/hr at 300 Ton; Add $1.50/hr at 400 Ton; Add $2/hr at 500 Ton & Over.	37.67	20.38	58.05

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62
543	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
544	Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (WIth or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12
545	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.	31.62	19.78	51.40
546	Fiber Optic Cable Equipment.	29.50	0.68	30.18
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87

550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	36.67	19.78	56.45
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	36.17	19.19	55.36
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00
556	Fiber Optic Cable Equipment.	29.50	0.68	30.18

********** END OF RATES **********

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STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary

The documents following the Prevailing Wage Rate Determination consist of twenty pages (including this one) of various forms/documents that will be used throughout the completion of the project. This prevailing wage rate determination and its underlying legal requirements outlined in the attached documents apply for the life of this project even though work on the project continues into 2017 or beyond. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
	July 2015 description of recent changes to Wisconsin's prevailing wage laws resulting from enactment of the 2015-17 State Budget Bill.		1
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
16056	Post the White Sheet	Contracting agency	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	4
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Additional General Prevailing Wage Law Information	General information for public entity or any other interested party	3

12/22/2015

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary

THE 2015-17 BUDGET BILL MADE SIGNIFICANT CHANGES TO WISCONSIN'S PREVAILING WAGE LAWS. HOWEVER, THOSE CHANGES DO NOT GO INTO EFFECT UNTIL JANUARY 1, 2017.

During calendar year 2016, DWD will continue to enforce prevailing wage laws for local governmental unit and state agency public works projects under current prevailing wage laws.

2015 Wisconsin Act 55 (the budget bill) repealed the state prevailing wage law for **local governmental units** such as villages, towns, cities, school districts, or sewerage districts effective January 1, 2017. However, if a local governmental unit:

- issues a Request for Bids before January 1, 2017, for a project of public works that is subject to bidding or,
- enters into a contract before January 1, 2017, for a project of public works that is not subject to bidding,

then those public works projects are subject to the current prevailing wage law (§66.0903, Wis. Stats.) through the life of the project. Projects of public works with prevailing wage project determinations issued prior to 2017 continue to be subject to the current prevailing wage law through the life of the project even though the project may have work going on in 2017 or subsequent years.

Contractors working on local governmental unit projects with prevailing wage rate determinations must continue to pay employees the appropriate prevailing wage and maintain required prevailing wage payroll records. For instance, if a contractor is working in 2018 on a public works project with a project determination issued prior to 2017, then the contractor is required to comply with the "old" prevailing wage rate law (§66.0903, Wis. Stats.). After January 1, 2017, DWD will continue to enforce prevailing wage requirements for projects with DWD prevailing wage determinations issued under the "old" prevailing wage laws (§§ 66.0903 & 103.49, Wis. Stats.).

For new public works projects starting on January 1, 2017, state prevailing wage law will only apply to **state agency** and **state highway** projects. Prevailing wage rates applicable to state agencies will be those issued by the U.S. Department of Labor under the Davis-Bacon Act, 40 U.S.C. 3142. The Wisconsin Department of Administration will enforce the new state agency prevailing wage law (§16.856, Wis. Stats.) and the Wisconsin Department of Transportation will continue to enforce prevailing wage on state highway projects (under a law renumbered as §84.062, Wis. Stats.).

(Updated-122215)

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STATE OF WISCONSIN
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PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

Thresholds

A "single-trade project of public works" means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is $48,000.

A "multiple-trade project of public works" means a project in which no single trade accounts for 85% or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

A local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm
  To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user's computer. Use this project determination on line application at the following address:

http://dwd.wisconson.gov/er/prevailing_wage_rate/pw_online_determinations.htm

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.

- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.

- Award contracts to contractors who do *not* appear on the "Consolidated List of Debarred Contractors."

- Notify contractors that they are required to have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the prevailing wage project.

- Post the prevailing wage rate determination on the project site. (This document is often referred to as "the white sheet.")

- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,

- when one public entity does work for another public entity,

- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

POST THE WHITE SHEET

As the public entity receiving this prevailing wage rate determination, YOU ARE REQUIRED by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.
[*See,* Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

Consolidated List of Debarred Contractors
Prepared and Issued By
State of Wisconsin - Department of Workforce Development

January 1, 2016

This list has been prepared in accordance with the provisions of §§66.0903(12) and 103.49(7), Wis. Stats., and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Jim Chiolino, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3345. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
A-1 Duran Roofing & Insulation Services, Inc.	3700 N Fratney St Milwaukee, WI 53212 or 8095 NW 64th St Miami, FL 33166	11/1/14	10/31/17	1, 2 and 4	2011-2012	None
Abel, Mike	*See,* Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/15	1	2011	None
Alpha Electric, LLC	350 Business Park Dr Sun Prairie, WI 53590	8/1/15	7/31/18	4	2014	None
Arnie Christiansen Mason Contractors, LLC	2304 65th Dr Franksville, WI 53126	9/1/14	8/31/16	1, 2 and 4	2011	None
Atkins, Scott	*See,* Freedom Insulation, Inc					
Boecker, Roger	*See,* R-Way Pumping, Inc					
Brechtl, Mark G	*See,* Ecodec, Inc					
Cargill Heating and Air Conditioning Company, Inc	3049 Edgewater La La Crosse, WI 54603	3/1/14	2/28/17	1 and 2	2011	None

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Christiansen, Andy	*See,* Arnie Christiansen Mason Contractors, LLC					
Christiansen, Arnold	*See,* Arnie Christiansen Mason Contractors, LLC					
Darnick, Gregory L	*See,* Darnick Trucking, LLC					
Darnick Trucking, LLC	W914 County Rd V Berlin, WI 54923	11/1/14	10/31/15	1, 2 and 4	2012 & 2013	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Duran, Bernardo	*See,* A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ecodec, Inc	5106 Wintergreen Dr Madison, WI 53704	10/1/14	9/30/17	1	2011 & 2012	None
Fisher, Ed &/or Fisher, Rhonda	*See,* Dem/Ex Group, Inc					
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008-2010	None
Froode, Kathleen M	*See,* Masonry Specialists II, LLC					
Galstad, Michael E (aka Michael Earl Galstad)	*See,* Cargill Heating and Air Conditioning Company, Inc					
Gjolaj, Ded	*See,* Horizon Bros Painting Corp					

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Grade A Construction, Inc	157 Enterprise Rd Delafield, WI 53018	1/1/16	12/31/19	1, 2 and 4	2014	None
Horizon Bros Painting Corp	1053 Kendra La Howell, MI 48843	10/1/14	9/30/16	4	2012	None
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/12	5/31/15	1, 2 and 4	2007 & 2008	None
Jinkins, Richard	*See,* Castlerock Commercial Construction, Inc					
John's Concrete	*See,* Wagner Companies, Inc, dba John's Concrete					
Kott, Joseph J	*See,* Alpha Electric, LLC					
Masonry Specialists II, LLC	5109 Briarwood Ct Racine, WI 53402	8/1/15	7/31/18	4	2014	None
Mid-W Enterprises, Inc	1730 22nd Avenue Kenosha, WI 53140	6/1/15	5/31/17	1, 2 and 4	2013	None
Midwest Construction Co, Inc	*See,* Mid-W Enterprises, Inc					
Oden, Cassie	*See,* A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ofstie, Darin	*See,* Precision Excavating and Grading, LLC					
Peret, Robert	*See,* A-1 Duran Roofing & Insulation Services and RRS2 Inc					

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006-2008	None
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
RRS2 Inc.	133 N Jackson St, #427 Milwaukee, WI 53202 or 1313 N Franklin Pl, #805 Milwaukee, WI 53202	11/1/14	10/31/17	1, 2 and 4	2011-2012	None
Thull, Gerald T	*See,* JT Roofing, Inc					
Ventura, Robert	*See,* Mid-W Enterprises, Inc					
Wagner, Cory L	*See,* Wagner Companies, Inc					
Wagner Companies, Inc, dba John's Concrete	2063 Georgia Ave Racine, WI 53404	8/1/15	7/31/18	1	2013	None
Yaresh, Kathleen R	*See,* Grade A Construction, Inc					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

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STATE OF WISCONSIN
DWD
Department of Workforce Development

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PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage laws that apply to local governmental units and their contractors are §§66.0903 and 103.503, Wis. Stats. The prevailing wage laws that apply to state agencies and their contractors are §§103.49 and 103.503, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the project.

- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.

- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.

- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.

- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.

- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes].

(1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business," which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met**.

(A) The contractor, or a shareholder, officer or partner of the contractor:
(1) Owns at least a 25% interest in the "other construction business," indicated below, on the date the contractor submits a bid or completes negotiations; or
(2) Has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.

(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.

Other Construction Business

Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer			
Authorized Officer Signature	Date Signed		
Corporation, Partnership or Sole Proprietorship Name			
Street Address or P O Box	City	State	Zip Code

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of))SS County Of)	Project Name	
	DWD Determination Number	Project Number (if applicable)
	Date Determination Issued	Date of Contract
	Awarding Agency	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____)	Project Name	
	DWD Determination Number	Project Number (if applicable)
)SS	Date Determination Issued	Date of Subcontract
County Of _____)	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number ( )
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Request to Employ Subjourneyperson

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].
The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination			
County	City, Village or Town		
DWD Project Determination Number	Project Number (if applicable)		
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)			
a.	b.		
c.	d.		
3. Employer Name (Print)	Requester Name (Print)		
Address	City	State	Zip Code
Telephone Number ( )	Requester Title		
Email address (if you prefer to receive your response via email)	Fax Number (if you prefer to receive your response via fax) ( )		

READ CAREFULLY: I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed

MAIL the completed request to:
EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU
PO BOX 8928, MADISON WI 53708
OR
FAX the completed request to: (608) 267-4592 / **DO NOT e-mail your request.**
Call (608) 266-6861 for assistance in completing this form.

ERD-10880 (R. 6/2013)

ADDITIONAL GENERAL PREVAILING WAGE LAW INFORMATION

(This document updated July 2015)

NOTE: Recent prevailing wage law changes enacted by the 2015-17 Budget Bill (2015 Wisconsin Act 55) do not go into effect until calendar year 2017.

For prevailing wage laws and frequently asked questions, refer to the prevailing wage website at: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability	All public entities	Prevailing wage rates do not apply to minor service or maintenance work, warranty work, or work under a supply and installation contract.
Non-applicability: Minor service or maintenance work	Local governmental units & Contractors	Minor service or maintenance work means a project of public works that is limited to • minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years or that is performed for a TOWN and is not funded under §86.31, regardless of projected life span; • the depositing of gravel on an existing gravel road applied solely to maintain the road; • road shoulder maintenance; • cleaning of drainage or sewer ditches or structures; or • any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Minor service or maintenance work	State agencies	Minor service or maintenance work means a project of public works that is limited to • minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years; • cleaning of drainage or sewer ditches or structures; or • any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Supply & installation contract	All public entities	Supply and installation contract means a contract under which the material is installed by means of simple fasteners or connectors such as screws or nuts and bolts and no other work is performed on the site of the project of public works, and the total labor cost to install the material does not exceed 20 percent of the total cost of the contract.
Non-applicability: Work which a contractor or individual donates to a public entity	All public entities	Prevailing wage laws §§66.0903 & 103.49, Stats., do not apply to work performed on a project of public works for which the local governmental unit or the state or the state agency contracting for the project is not required to compensate any contractor, subcontractor, contractor's or subcontractor's agent, or individual for performing the work.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability: Residential	All public entities	A prevailing wage rate determination is not required for the erection, construction, repair, remodeling, or demolition of a residential property containing 2 dwelling units or less.
Non-applicability: Residential subdivision infrastructure	All public entities	A prevailing wage rate determination is not required for a road, street, bridge, sanitary sewer, or water main project that is a part of a development in which at least 90 percent of the lots contain or will contain 2 dwelling units or less, as determined by the local governmental unit at the time of approval of the development, and that, on completion, is acquired by, or dedicated to, a local governmental unit (including under §236.13(2), Stats.), or the state, for ownership or maintenance by the local governmental unit or the state.
Electronic certified payroll record	Contractors	The requirement that every contractor on a prevailing wage project submit to DWD monthly a certified record of employees who worked on the project and that DWD post these certified records on its Internet website was discontinued effective July 1, 2011. Contractors are still required to maintain payroll records and provide them upon request from DWD &/or the project owner.
Payroll record inspection request by any person	Contractors & Complainants	Any person may request DWD to inspect the payroll records of any contractor working on a prevailing wage project. On receipt of such a request, the contractor must submit to DWD a certified record of its payroll records, other than personally identifiable information relating to an employee of the contractor, for no longer than a 4-week period. DWD may request records from a contractor under this provision no more than once per calendar quarter for each project of public works on which the contractor is performing work. The department may not charge a requester a fee for obtaining that information. DWD must make these certified records available for public inspection.
Statewide uniformity	Local govern-mental units	A local governmental unit may not enact & administer a prevailing wage ordinance/provision for public works or publicly funded private construction projects. Any extant laws to that effect are void.
Substance Abuse Testing	Contractors & Workers	Before commencing work on a prevailing wage project, a contractor must have a written substance abuse testing program in place that complies with §103.503, Wis. Stats. No employee may use, possess, attempt to possess, distribute, deliver, or be under the influence of a drug or under the influence of alcohol while performing work on a prevailing wage project.

Topic	Who's affected	Brief description of requirement under §66.0903 or §103.49
Covered employees	Truck drivers & Other workers & Contractors	A laborer, worker, mechanic, or truck driver who is employed to process, manufacture, pick up, or deliver materials or products from a commercial establishment that has a fixed place of business from which the establishment supplies processed or manufactured materials or products or from a facility that is not dedicated exclusively, or nearly so, to a project of public works is NOT entitled to receive the prevailing wage rate UNLESS any of the following applies: 1) the laborer, worker, mechanic, or truck driver is employed to go to the source of mineral aggregate such as sand, gravel, or stone and deliver that mineral aggregate to the site of a project of public works by depositing the material directly in final place, from the transporting vehicle or through spreaders from the transporting vehicle. 2) the laborer, worker, mechanic, or truck driver is employed to go to the site of a project of public works, pick up excavated material or spoil from the site of the project, and transport that excavated material or spoil away from the site of the project.

SECTION 01 00 00

BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION SUMMARY

A. Section Includes:

1. Section Summary
2. Summary of the Work
3. Contractor Use of Premises
4. Applications for Payment
5. Change Procedures
6. Alternates
7. Coordination
8. Cutting and Patching
9. Conferences
10. Progress Meetings
11. Submittal Procedures
12. Proposed Products List
13. Shop Drawings
14. Product Data
15. Samples
16. Manufacturers' Instructions
17. Manufacturers' Certificates
18. Quality Assurance / Quality Control of Installation
19. References
20. Interior Enclosures
21. Protection of Installed Work
22. Parking
23. Staging Areas
24. Occupancy During Construction and Conduct of Work
25. Protection
26. Progress Cleaning
27. Products
28. Transportation, Handling, Storage and Protection
29. Product Options
30. Substitutions
31. Starting Systems
32. Demonstration and Instructions
33. Contract Closeout Procedures
34. Final Cleaning
35. Adjusting
36. Operation and Maintenance Data
37. Spare Parts and Maintenance Materials
38. As-Built and Record Drawings and Specifications

1.2 SUMMARY OF THE WORK

A. Project Description: Perform the Work as specified and detailed in Construction Documents package. Contractor to provide lighting and control improvements for the Exposition Hall at the Alliant Energy Center.

B. Permits: Prior to commencement of the Work, Contractor to secure any and all necessary permits for completion of the Work and facility occupancy.

1.3 CONTRACTOR USE OF PREMISES

A. Limit use of premises to allow work by Contractors or Subcontractors and access by AEC Staff.

B. Coordinate utility outages and shutdowns (including electrical panel disconnects) with AEC Staff..

1.4 APPLICATIONS FOR PAYMENT

A. Submit two (2) original copies with “wet” signatures of each application on AIA G702™ and G703™ forms or approved contractors invoice form.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly.

D. Submit Applications for Payment to Public Works Project Manager for approval & processing for payment.

1.5 CHANGE PROCEDURES

A. Provide Contractor Change Order Request with appropriate back up material to Project Manager once proposed change has been reviewed with the Energy Engineer and AEC Staff. Change Order Requests must be authorized by issuance of a Change Order and/or a written Notice-to-Proceed prior to the beginning of any Work.

B. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from contingency allowance.

1.6 ALTERNATES

A. Not Applicable

1.7 COORDINATION

A. Coordinate scheduling, submittals, and work of various sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

C. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on Drawings.

1.8 CUTTING AND PATCHING

A. Employ a skilled and experienced installer to perform cutting and patching new work; restore work with new Products.

B. Submit written request in advance of cutting or altering structural or building enclosure elements.

C. Fit work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

D. Refinish surfaces to match adjacent finishes.

1.9 CONFERENCES

A. There will be pre-bid conference for this project; see Instructions to Bidders.

B. Owner will schedule a pre-construction conference after Award of Contract for all affected parties.

C. Contractor shall submit Construction Schedule at pre-construction meeting.

D. When required in individual Specification section, convene a pre-installation conference at project site prior to commencing work of Section.

1.10 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at minimum of two (2) per month with Public Works Project Engineer and AEC Staff.

B. Preside at meetings, record minutes, and distribute copies within two (2) business days to those affected by decisions made.

C. Owner shall schedule and administer meetings throughout progress of the Work at minimum of one (1) per week.

D. Owner shall preside at meetings, record minutes, and distribute copies within two (2) business days to those affected by decisions made.

1.11 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, Subcontractor or supplier; and pertinent Construction Documents references.

B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Construction Documents.

C. Identify variations from Construction Documents and Product or system limitations that may be detrimental to successful performance of completing the Work.

D. Revise and resubmit submittals as required; identify all changes made since previous submittal.

1.12 PROPOSED PRODUCTS LIST

A. Within twenty-five (25) business days after date of Award of Contract, submit complete list of major Products proposed for use, with name of manufacturer, trade name, and model number of each Product.

1.13 SHOP DRAWINGS

A. Refer to General Conditions – Article 4: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.14 PRODUCT DATA

A. Refer to General Conditions – Article 4: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.15 SAMPLES

A. Refer to General Conditions – Article 4: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.16 MANUFACTURERS' INSTRUCTIONS

A. When specified in individual Specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.17 MANUFACTURERS' CERTIFICATES

A. When specified in individual Specification sections, submit manufacturers' certificate to Public Works Project Manager for review, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.18 QUALITY ASSURANCE / QUALITY CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply fully with manufacturers' instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.19 REFERENCES

A. Conform to reference standard by date of issue current as of date for receiving bids.

B. Should specified reference standard conflict with Construction Documents, request clarification from Public Works Project Manager before proceeding.

1.20 INTERIOR ENCLOSURES

A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent distribution of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.21 PROTECTION OF INSTALLED WORK

A. Protect installed work and provide special protection where specified in individual Specification sections.

1.22 PARKING

A. One stall shall be dedicated on the loading dock for Contractor use throughout the project. The stall location will be assigned by the AEC staff. Additional parking areas outside of the loading dock area will be made available to accommodate construction vehicle and employee parking.

1.23 STAGING AREAS

A. Coordinate staging areas inside the building and on the loading dock with Public Works Project Manager prior to starting the Work. Contractor shall be responsible for safety of equipment and materials that are stored on site

1.24 OCCUPANCY DURING CONSTRUCTION AND CONDUCT OF WORK

A. Areas of existing facility will be occupied during period when the Work is in progress. Work may be done during normal business hours (7:00 am to 4:30 pm), but confer with Owner, schedule work and store materials so as to interfere as little as possible with normal use of premises. Notify Owner when coring or similar noise making work is to be done and obtain Owner's written approval of schedule. If schedule is not convenient for Owner, reschedule and resubmit new times for Owner approval. Noisy work may have to be done on second and third shifts.

B. Work shall be done and temporary facilities furnished so as not to interfere with access to any occupied area and so as to cause least possible interference with normal operation of facility or any essential service thereof.

C. Contractor shall, at all times, provide approved, safe walkways and facility entrances for use by Owner, employees and public.

D. Contractor shall provide adequate protection for all parts of facility, its contents and occupants wherever the Work under this Contract is to be performed.

E. Contractor is not responsible for providing & maintaining temporary toilet facilities.

F. Each Contractor shall arrange with Owner to make necessary alterations, do new work, make connections to all utilities, etc., at such times as will not cause interruption of utility services to facility. Contractor doing this work shall protect, cap, cut off and / or replace and relocate existing pipes, electrical work and other active utilities encountered which may interfere with new construction work.

G. New work in extension of existing work shall correspond in all respects with that to which it connects or similar existing work unless otherwise indicated or specified.
   1. Existing work shall be cut, altered, removed or replaced as necessary for performance of Contract obligations.
   2. Work remaining in place, damaged or defaced by reason of work done under this Contract shall be restored equal to its condition at time of Award of Contract.
   3. If removal of work exposes discolored or unfinished surfaces or work out of alignment, such surfaces shall be refinished or materials replaced as necessary to make continuous work uniform and harmonious.

1.25 PROTECTION

A. Contractor shall provide and maintain barricades and signage to control public access around areas of work. Coordinate with AEC Staff.

1.26 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain areas in clean and orderly condition. Refer to General Conditions – Article 6: Cleaning Up.

1.27 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by Construction Documents.

1.28 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

A. Transport, handle, store and protect Products in accordance with manufacturer's instructions.

1.29 PRODUCT OPTIONS

A. Where definite material is specified, it is not intentional to discriminate against "equal" product made by another manufacturer. Intention is to set definite standard of material quality. Should bidder choose to bid materials other than those specified, bidder shall submit said materials specifications to Public Works Project Manager for approval at least seven (7) business days prior to Bid Due Date.

B. Products and materials that are not specified, but have been approved for use by Public Works Project Manager shall be identified in addenda to all bidding contractors.

C. Owner reserves right to approve or reject substitutions based on Specification requirements and intended use.

1.30 SUBSTITUTIONS

A. Public Works Project Manager shall consider requests for Substitutions only up to seven (7) business days prior to date off Bid Due date..

B. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.

C. Submit three (3) copies of requests for Substitution for consideration. Limit each request to one (1) proposed Substitution.

1.31 STARTING SYSTEMS

A. Provide written notification prior to start-up of each equipment item or system.

B. Ensure that each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturers' instructions.

D. Submit written report that equipment or system has been properly installed and is functioning correctly.

1.32 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final inspection.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

C. Owner may choose to videotape demonstration session; demonstration and demonstrator shall be to level of satisfaction of Owner.

1.33 CONTRACT CLOSEOUT PROCEDURES

A. Submit written certification that Construction Documents have been reviewed, the Work has been inspected, and the Work is complete in accordance with Construction Documents and ready for Public Works Project Manager's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

1.34 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

.

1.35 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.36 OPERATION AND MAINTENANCE MANUAL

A. Provide operation and maintenance manual for all mechanical and electrical equipment and systems supplied and installed in the Work.

1.37 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.

B. Deliver to the Work site and place in location as directed.

1.38 AS-BUILT AND RECORD DRAWINGS AND SPECIFICATIONS

A. Contractor-produced Drawings and Specifications shall remain property of Contractor whether Project for which they are made is executed or not. Contractor shall furnish Energy Engineer, with original marked up redlines of Construction Documents' drawings and specifications that shall include all Addendums, Change Orders, Construction Bulletins, on-site changes, field corrections, etc. These are project As-Built Drawings & Specifications

B. Energy Engineer shall update original Construction Documents to include all Addendums & any other changes including those provided by Contractor in As-Built Drawings & Specifications. These updates are project Record Drawings & Specifications.

C. Energy Engineer shall furnish Public Works Project Manager with Record Drawings as detailed in Professional Services Agreement.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 74 19

RECYCLING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Summary
2. Waste Management Goals
3. Waste Management Plan
4. Reuse
5. Recycling
6. Materials Sorting and Storage On Site
7. Lists of Recycling Facilities Processors and Haulers
8. Waste Management Plan Form

B. Related Sections:
1. Section 01 00 00 - Basic Requirements

1.2 WASTE MANAGEMENT GOALS

A. Dane County requires that as many waste materials as possible produced as result of this project be salvaged, reused or recycled in order to minimize impact of construction waste on landfills and to minimize expenditure of energy and cost in fabricating new materials. Additional information may be found in The Dane County Green Building Policy, Resolution 299, 1999-2000.

B. Contractor shall develop, with assistance of Public Works Project Manager and Energy Engineer, Waste Management Plan (WMP) for this project. Outlined in RECYCLING section of this specification are examples of materials that can be recycled or reused as well as recommendations for waste sorting methods.

1.3 WASTE MANAGEMENT PLAN

A. Contractor shall complete WMP and include cost of recycling / reuse in Bid. WMP will be submitted to Public Works Project Manager within fifteen (15) business days of Notice to Proceed date. Copy of blank WMP form is in this Section. Submittal shall include cover letter and WMP form with:
1. Information on:
a. Types of waste materials produced as result of work performed on site;
b. Estimated quantities of waste produced;
c. Identification of materials with potential to be recycled or reused;
d. How materials will be recycled or reused;
e. On-site storage and separation requirements (on site containers);
f. Transportation methods; and
g. Destinations.

1.4 REUSE

A. Contractors and subcontractors are encouraged to reuse as many waste materials as possible. Salvage should be investigated for materials not reusable on site.

1.5 RECYCLING

A. These materials can be recycled in Dane County area:
   1. Wood.
   2. Wood Pallets.
   3. Fluorescent Lamps.
   4. Foam Insulation & Packaging (extruded and expanded).
   5. PVC Plastic (pipe, siding, etc.).
   6. Asphalt & Concrete.
   7. Bricks & Masonry
   8. Corrugated Cardboard.
   9. Metal.
   10. Carpet Padding.
   11. Gypsum Drywall.
   12. Shingles.
   13. Barrels & Drums.
   14. Solvents.

1.6 MATERIALS SORTING AND STORAGE ON SITE

A. Contractor shall provide separate containers for recyclable materials. Number of containers will be dependent upon project and site conditions.

B. Contractor shall provide on-site locations for subcontractors supplied recycling containers to help facilitate recycling.

1.7 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

A. Web site www.countyofdane.com/pwht/recycle/categories.aspx lists current information for Dane County Recycling Markets. Contractors can also contact Jan Neitzel-Knox at 608/266-4029, or local city, village, town recycling staff listed at site www.countyofdane.com/pwht/recycle/contacts.aspx. Statewide listings of recycling / reuse markets are available from UW Extension at www4.uwm.edu/shwec/wrmd/search.cfm.

1.8 WASTE MANAGEMENT PLAN FORM

A. Contractor Information:
Name: _____
Address: _____
_____
Phone No.: _____ Recycling Coordinator: _____

MATERIAL	ESTIMATED QUANTITY	DISPOSAL METHOD (CHECK ONE)	RECYCLING / REUSE COMPANY OR DISPOSAL SITE
Salvaged & reused building materials	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Glass	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood Pallets	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Fluorescent Lamps	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Foam Insulation	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Asphalt & Concrete	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Bricks & Masonry	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
PVC Plastic	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Corrugated Cardboard	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Metals	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Carpet Padding	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Gypsum / Drywall	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____

Shingles	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Barrels & Drums	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Solvents	_____ gallons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 26 05 00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

The electrical work included in all other divisions is the responsibility of the contractor performing the division 26 work unless noted otherwise.

PROJECT OVERVIEW

The work under this section includes electrical work for lighting design for partial replacement of existing lighting, head end and local controls to replace existing controls, as well as power and wiring for lighting systems.

SCOPE

The work under this section includes basic electrical requirements, which are applicable to all Division 26 sections. This section includes information common to two or more technical specification sections or items that are of a general nature, not conveniently fitting into other technical sections. Included are the following topics:

PART 1 - GENERAL
- Project Overview
- Scope
- Related Work
- Reference Standards
- Regulatory Requirements
- Quality Assurance
- Continuity of Existing Services and Systems
- Protection of Finished Surfaces
- Approved Electrical Testing Laboratories
- Sleeves and Openings
- Sealing and Fire Stopping
- Intent
- Omissions
- Submittals
- Project/Site Conditions
- Work Sequence and Scheduling
- Offsite Storage
- Salvage Materials
- Certificates and Inspections
- Operating and Maintenance Data
- Record Drawings

PART 2 - PRODUCTS
- Access Panels and Doors
- Sealing and Fire Stopping

PART 3 - EXECUTION
- Cutting and Patching
- Equipment Access
- Coordination
- Sleeves and Openings
- Sealing and Fire Stopping
- Housekeeping and Clean Up
- Agency Training

RELATED WORK

Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

Abbreviations of standards organizations referenced in this and other sections are as follows:

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories, Inc.

IEEE Institute of Electrical and Electronics Engineers
IES Illuminating Engineering Society
NEC National Electric Code
NEMA National Electrical Manufacturers Association
NFPA National Fire Protection Association
UL Underwriters Laboratories Inc.

REGULATORY REQUIREMENTS

All work and materials are to conform in every detail to applicable rules and requirements of the Wisconsin State Electrical Code (SPS 316), the National Electrical Code (NFPA 70), other applicable National Fire Protection Association codes and present manufacturing standards (including NEMA).

All Division 26 work shall be done under the direction of a currently licensed State of Wisconsin Master Electrician.

QUALITY ASSURANCE

Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space, and for obtaining the performance from the system into which these items are placed.

Manufacturer references used herein are intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

All materials shall be listed by and shall bear the label of an approved electrical testing laboratory.

CONTINUITY OF EXISTING SERVICES AND SYSTEMS

No outages shall be permitted on existing systems except at the time and during the interval specified by the owner. Any outage must be scheduled when the interruption causes the least interference. No extra costs will be paid to the Contractor for such outages which must occur outside of regular weekly working hours.

This Contractor shall restore any circuit interrupted as a result of this work to proper operation as soon as possible. Note that institutional operations are on a seven-day week schedule.

PROTECTION OF FINISHED SURFACES

Furnish one can of touch-up paint for each different color factory finish furnished by the Contractor. Deliver touch-up paint with other "loose and detachable parts" as covered in the General Requirements.

APPROVED ELECTRICAL TESTING LABORATORIES

The following laboratories are approved for providing electrical product safety testing and listing services as required in these specifications:

Underwriters Laboratories Inc.
Electrical Testing Laboratories, Inc.

SEALING AND FIRE STOPPING

Sealing and fire stopping of sleeves/openings shall be the responsibility of the contractor whose work penetrates the opening.

INTENT

The Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the electrical equipment and systems installation herein specified, except such parts as are specifically exempted herein.

If an item is either called for in the specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract. If a conflict exists within the Specifications or exists within the Drawings, the Contractor shall furnish the item, system, or workmanship, which is the highest quality, largest to satisfy the intent. Refer to the General Conditions of the Contract for further clarification.

It must be understood that the details and drawings are diagrammatic. The Contractor shall verify all dimensions at the site and be responsible for their accuracy.

All sizes as given are minimum except as noted.

Materials and labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be subject at all times to the owner's and/or A/E's inspections, tests and approval from the commencement until the acceptance of the completed work.

Whenever a particular manufacturer's product is named, it is intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

OMISSIONS

No later than ten (10) days before bid opening, the Contractor shall call the attention of the owner to any materials or apparatus the Contractor believes to be inadequate and to any necessary items of work omitted.

SUBMITTALS

Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents. Failure to do this may result in the submittal(s) being returned to the Contractor for correction and resubmission. Failing to follow these instructions does not relieve the Contractor from the requirement of meeting the project schedule.

On request from the owner, the successful bidder shall furnish additional drawings, illustrations, catalog data, performance characteristics, etc.

Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electrically powered equipment.

The submittals must be approved before fabrication is authorized.

Submit sufficient quantities of submittals to allow the following distribution:

Operating and Maintenance Manuals	2 copies
Owner	1 copy
A/E	2 copies

PROJECT/SITE CONDITIONS

Install Work in locations shown on drawings, unless prevented by project conditions.

Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections.

Tools, materials and equipment shall be confined to areas designated by the owner.

WORK SEQUENCE AND SCHEDULING

Install work in phases to accommodate user agency's occupancy requirements. During the construction period coordinate electrical schedule and operations with the owner.

OFFSITE STORAGE

Prior approval by owner will be needed. In general, building wire, conduit, fittings and similar rough-in material will not be accepted for off-site storage. No material will be accepted for off-site storage unless shop drawings for the material have been approved.

SALVAGE MATERIALS

No materials removed from this project shall be reused unless noted on the drawings. All materials removed shall become the property of and shall be disposed of by the Contractor.

CERTIFICATES AND INSPECTIONS

Obtain and pay for all required State installation inspections in accordance with the Wisconsin Administrative Code. Deliver originals of these certificates to the owner.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. Manufacturer's wiring diagrams for electrically powered equipment.

RECORD DRAWINGS

The Contractor shall maintain at least one copy each of the specifications and drawings on the job site at all times.

The owner will provide the Contractor with a suitable set of contract drawings on which daily records of changes and deviations from contract shall be recorded. Dimensions and elevations on the record drawings shall locate all buried or concealed piping, conduit, or similar items.

The daily record of changes shall be the responsibility of Contractor's field superintendent. No arbitrary mark-ups will be permitted.

At completion of the project, the Contractor shall submit the marked-up record drawings to the Architect/Engineer prior to final payment.

PART 2 - PRODUCTS

ACCESS PANELS AND DOORS

Lay-in Ceilings:

Removable lay-in ceiling tiles in 2 x 2 foot or 2 x 4 foot configuration provided under other divisions are sufficient; no additional access provisions are required unless specifically indicated.

Plaster Walls and Ceilings:

16 gauge frame with not less than a 20 gauge hinged door panel, painted to match existing, stainless steel for use in toilets, showers and similar wet areas, concealed hinges, screwdriver operated cam latch for general application, key lock for use in public areas, UL listed for use in fire rated partitions if required by the application. Use the largest size access opening possible, consistent with the space and the equipment needing service; minimum size is 12" by 12".

SEALING AND FIRE STOPPING

Avoid penetrating any rated enclosure where possible.

FIRE AND/OR SMOKE RATED PENETRATIONS:

Provide all fire stopping of fire rated penetrations and sealing of smoke rated penetrations.

NON-RATED PENETRATIONS:

At conduit penetrations of non-rated interior partitions, floors and exterior walls above grade, use urethane caulk in annular space between conduit and sleeve, or the core drilled opening.

PART 3 - EXECUTION

CUTTING AND PATCHING

Refer to Division 1, General Requirements, Cutting and Patching.

EQUIPMENT ACCESS

Install all piping, conduit, ductwork, and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors with the owner, making sure that access is available for all equipment and specialties. Where access is required in plaster or drywall walls or ceilings, furnish the access doors.

COORDINATION

The Contractor shall cooperate with owner in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical work to better fit the general installation, such work shall be done at no extra cost, provided such decision is reached prior to actual installation. The Contractor shall check location of electrical outlets with respect to other installations before installing.

The Contractor shall verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to light fixtures, panelboards, devices, etc.

SLEEVES AND OPENINGS
Conduit penetrations in existing concrete floors: Core drill openings.

Where penetrating conduit weight is supported by floor, provide manufactured product or structural bearing collar designed to carry load.

SEALING AND FIRE STOPPING
FIRE AND/OR SMOKE RATED PENETRATIONS:
Provide all fire stopping of fire rated penetrations and sealing of smoke rated partitions.

NON-RATED PENETRATIONS:
At all interior walls and exterior walls, conduit penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the sleeve or cored opening and the conduit is completely blocked.

HOUSEKEEPING AND CLEAN UP
The Contractor shall clean up and remove from the premises, on a daily basis, all debris and rubbish resulting from its work and shall repair all damage to new and existing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and equipment, etc., from the site.

AGENCY TRAINING
All training provided for agency shall comply with the format, general content requirements and submission guidelines.

Contractor to provide factory authorized representative and/or field personnel knowledgeable with the operations, maintenance and troubleshooting of the system and/or components defined within this section for a minimum period of 8 hours.

END OF SECTION

SECTION 26 05 02
ELECTRICAL DEMOLITION FOR REMODELING

PART 1 - GENERAL

SCOPE
The work under this section includes demolition of existing lighting fixtures and control as well as associated power and control wiring and raceway.

PART 1 - GENERAL
- Scope
- Related Work

PART 2 - PRODUCTS
- Materials and Equipment

PART 3 - EXECUTION
- Examination
- Demolition and Extension of the Existing Electrical Work
- PCB Ballast Handling
- Lamp and PCB Ballast Disposal

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

PART 2 - PRODUCTS

MATERIALS AND EQUIPMENT
Materials and equipment for patching and extending work as specified in the individual Sections.

PART 3 - EXECUTION

EXAMINATION
Verify field measurements and circuiting arrangements as shown on Drawings.

Verify that abandoned wiring and equipment serve only abandoned facilities.

All materials, fixtures, equipment removed are property of the contractor to remove from premise and disposed of at the contractor's expense. Coordinate removal and disposal of hazardous materials such as lamps and ballasts with owner's requirements.

If PCB light fixture ballasts exist, then follow owner's requirements. Coordinate requirement with owner prior to start of work.

Demolition Drawings are based on casual field observation and/or existing record documents. Report discrepancies to the owner and Architect/Engineer before disturbing existing installation.

Beginning of demolition means installer accepts existing conditions.

DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK
Demolish and extend existing electrical work to meet all requirements of these specifications.

If certain raceways and boxes are abandoned but not scheduled for removal, those items must be shown on the "As Built Drawings".

Remove, relocate, and extend existing installations to accommodate new construction.

Remove abandoned wiring to source of supply.

Provide revised typed circuit directory in panelboards that have circuits removed.

Remove exposed abandoned conduit and abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit and wiring servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.

Disconnect and remove from premise electrical devices and equipment serving utilization equipment that has been removed.

Disconnect and remove from premise abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

Repair adjacent construction and finishes damaged during demolition and extension work.

Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

Extend existing installations using materials and methods compatible with existing electrical installations, or as specified. This includes the extension of the circuit from the last active device to the next device in the system to be activated.

PCB BALLAST HANDLING

If present, coordinate removal, handling and disposal with owner

LAMP AND PCB BALLAST DISPOSAL

All lamps (fluorescent, incandescent, and HID) contain mercury and/or lead (in the base) as well as other heavy metals and compounds which are regulated by the EPA and DNR during the disposal process. As a result, regulations have been issued covering the handling and disposal of all lamps. Coordinate disposal of lamps and ballasts which have been removed from service with the owner.

END OF SECTION

SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLE

PART 1 - GENERAL

SCOPE
The work under this section includes furnishing and installing required wiring and cabling systems including pulling, terminating and splicing. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- References
- Project Conditions

PART 2 - PRODUCTS
- General
- Building Wire
- Wiring Connectors

PART 3 - EXECUTION
- General Wiring Methods
- Wiring Installation in Raceways
- Wiring Connections and Terminations
- Field Quality Control
- Wire Color
- Branch Circuits

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

REFERENCES
Wisconsin Administrative Code SPS 316 - Electrical

PROJECT CONDITIONS
Verify that field measurements are as shown on Drawings.

Conductor sizes are based on copper.

Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet project conditions.

Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 - PRODUCTS

GENERAL
All wire shall be new, delivered to the site in unbroken cartons and shall be less than one-year-old out of manufacturer's stock.

All conductors shall be copper. Aluminum conductors size #1/0 and larger may be substituted for copper and used for phase and neutral conductors for panelboard feeders. All ground conductors shall be copper.

The following requirements shall be met when aluminum conductors are used:

Aluminum alloy conductors shall be compact stranded conductors of a recognized Aluminum Association 8000 Series aluminum alloy conductor material (AA-8000 series alloy).

It is the responsibility of the contractor to increase the size of the conduit, wire gutter, or enclosure, if necessary, to accommodate the aluminum conductors and meet allowable code requirements.

It is the responsibility of the contractor to increase the size of the aluminum conductor and associated termination lugs to match the ampacity of the copper conductor circuit shown on the Drawings.

All aluminum conductors shall terminate on a mechanical screw-type connector or mechanical compression-type connector. Connector shall be dual rated (AL7CU or AL9CU) and Listed by UL for use with aluminum and copper conductors, and sized to accept aluminum conductors of the required ampacity. When using compression-type connectors, the lugs shall be marked with wire size, die index, number and location of crimps and shall be suitably color-coded. Using a suitable stripping tool, remove insulation from the required length of the conductor. Wire brush the conductor and apply a Listed joint compound. Tighten or crimp the connection per the connector manufacturer's recommendation. Wipe off any excess joint compound.

When terminating aluminum conductors to aluminum bus, prepare a mechanical screw-type or compression-type connection. Bolts shall be anodized alloy and conform to current ANSI and ASTM chemical and mechanical property limits. Nuts shall be aluminum alloy and conform to current ANSI standards. Washers shall be flat aluminum alloy, Type A plain, standard wide series conforming to current ANSI standards. Lubricate and tighten the hardware per manufacturer's recommendations.

When terminating aluminum conductors to copper bus, prepare a mechanical screw-type or compression-type connection. Bolts shall be plated or galvanized medium carbon steel; heat treated, quenched and tempered equal to current ASTM standard or SAE grade 5. Nuts shall conform to current ANSI standards. Washers shall be steel, Type A plain, standard wide series conforming to current ANSI standards. Belleville conical spring washers shall be of hardened steel, cadmium plated or silicone bronze. Lubricate and tighten the hardware per manufacturer's recommendations.

The final tightening torque shall be recorded for all aluminum conductor mechanical screw-type connections and provided in report form, in the completed O&M manuals.

No copper-to-aluminum transitions permitted when splicing onto existing copper feeders.

Insulation shall have a 600 volt rating.

All conductors shall be stranded.

Stranded conductors may only be terminated with UL OR ETL Listed type terminations or methods: e.g. stranded conductors may not be wrapped around a terminal screw but must be terminated with a crimp type device or must be terminated in an approved back wired method.

BUILDING WIRE
Description: Single conductor insulated wire 90 degree C.

Insulation: Type THHN/THWN-2, XHHW-2 insulation.

WIRING CONNECTORS
Split Bolt Connectors: Not acceptable.

Solderless Pressure Connectors: High copper alloy terminal. May be used only for cable termination to equipment terminals. Not approved for splicing.

Twist Type Wire Connectors: Solderless twist type spring connector (wire-nut) with insulating cover for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller. The manufacturer's wire fill capacity must be followed.

Compression (crimp) Connectors: Long barrel; seamless, tin-plated electrolytic copper tubing; internally beveled barrel ends. Connector shall be clearly marked with the wire size and type and proper number and location of crimps. Connector must be installed with a crimper tool listed for use with the manufacturer and type of compression connector.

Insulation Piercing Connectors: Molded insulated body, copper teeth, wrench tightened, UL 486B Listed. May be used only for connection of a tap conductor in run and tap type applications when main conductor is 8 AWG and larger.

PART 3 - EXECUTION

GENERAL WIRING METHODS

All wire and cable shall be installed in conduit.

Do not use wire smaller than 12 AWG for power and lighting circuits.

All phase, neutral and ground conductors shall be sized to prevent excessive voltage drop at rated circuit ampacity. As a minimum use 10 AWG conductors for 20 ampere, 120 volt branch circuit home runs longer than 100 feet (30 m), and for 20 ampere, 277 volt branch circuit home runs longer than 200 feet (61 m).

Splice only in junction or outlet boxes.

Identify ALL low voltage wire, 600V and lower, per section 26 05 53.

Neatly train and lace wiring inside boxes, equipment, and panelboards.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use Listed water or silicone based wire pulling lubricant for pulling 4 AWG and larger wires and for other conditions when necessary. Wax based lubricants are not allowed. Pulling lubricant is not required for low friction type products where the cable manufacturer recommends that cables be pulled without lube.

Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

Completely and thoroughly swab raceway system before installing conductors.

Place all conductors of a given circuit (this includes phase wires, neutral (if any), and ground conductor) in the same raceway. If parallel phase and/or neutral wires are used, then place an equal number of phase and neutral conductors in same raceway or cable.

In high ambient spaces, mechanical rooms, utility rooms and exterior exposed conduit, 90-degree C conductors shall be utilized.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Wire splices and taps shall be made firm, and adequate to carry the full current rating of the respective wire without soldering and without perceptible temperature rise.

All splices shall be so made that they have an electrical resistance not in excess of two feet (600 mm) of the conductor.

Use solderless twist type spring connectors (wire nuts) with insulating covers for wire splices and taps, 10 AWG and smaller.

Use mechanical or compression connectors for wire splices and taps, 8 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of the wiring.

Thoroughly clean wires before installing lugs and connectors.

At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

FIELD QUALITY CONTROL

Additional testing as follows shall be performed if aluminum conductors are used:

Feeders terminated with aluminum conductors shall be tested with a thermal imager and recorded.

Conductors shall be closely checked for loose or poor connections, and for signs of overheating or corrosion.

Test procedures shall meet NETA guidelines.

Test results and report shall be provided to the engineer and included in O&M manual under AL conductors/ tests.

Contractor shall correct all deficiencies reported in the test report.

WIRE COLOR

General:

Solid colored insulation is required for all THHN/THWN-2 wire. For other wire types use colored wire or identify wire with colored tape at all terminals, splices and boxes. Wire shall be colored as indicated below.

In existing facilities, use existing color scheme.

In new facilities, use black and red for single phase circuits at 120/240 volts, use Phase A black, Phase B red and Phase C blue for circuits at 120/208 volts single or three phase, and use Phase A brown, Phase B orange and Phase C yellow for circuits at 277/480 volts single or three phase. Note: This includes fixture whips except for Listed whips mounted by the fixture manufacturer on the fixture and Listed as a System.

Switch legs shall be the same color as their associated circuit, except for the second switch leg used for dual-level switching. The second switch leg shall be the next phase color, e.g. if the first switch leg is brown (277/480V phase A), the second switch leg shall be orange (277/480V phase B).

Traveler conductors run between 3 and 4 way switches shall be colored pink or purple.

Neutral Conductors: White for 120/208V and 120/240V systems, Gray for 277/480V systems. Where there are two or more neutrals in one conduit, each shall be individually identified with a different stripe.

Branch Circuit Conductors: Three or four wire home runs shall have each phase uniquely color coded.

Feeder Circuit Conductors: Each phase shall be uniquely color coded.

Ground Conductors: Green colored insulation for THHN/THWN-2 wire. For other wire types use green colored wire or identify wire with green tape at both ends and at all access points, such as panelboards, motor starters, disconnects and junction boxes. When isolated grounds are required, contractor shall provide green with yellow tracer.

BRANCH CIRCUITS

The use of single-phase, multi-wire branch circuits with a common neutral is not permitted. All single-phase branch circuits shall be furnished and installed with an individual accompanying neutral, sized the same as the phase conductors.

END OF SECTION

SECTION 26 05 23
CONTROL-VOLTAGE ELECTRICAL POWER CABLES

PART 1 - GENERAL

SCOPE
The work under this section includes furnishing and installing required remote control and signal cabling. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- References
- Project Conditions

PART 2 - PRODUCTS
- General
- Remote Control and Signal Cable
- Wiring Connectors

PART 3 - EXECUTION
- General Wiring Methods
- Wiring Installation in Raceways
- Free-Air Cable Installation
- Wiring Connections and Terminations
- Field Quality Control

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

REFERENCES
NFPA 70 - National Electrical Code.

PROJECT CONDITIONS
Verify that field measurements are as shown on Drawings.

Conductor sizes are based on copper.

Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 - PRODUCTS

GENERAL
All wire shall be new, delivered to the site in unbroken cartons and shall be less than one-year-old out of manufacturer's stock.

All conductors shall be copper.

Insulation shall have a 600-volt rating.

All conductors must be suitable for the application intended. Conductors #12 and smaller may be solid or stranded with the following requirements or exceptions:

All conductors terminated with crimp type devices must be stranded.

Stranded conductors may only be terminated with UL OR ETL Listed type terminations or methods: e.g. stranded conductors may not be wrapped around a terminal screw but must be terminated with a crimp type device or must be terminated in an approved back wired method.

REMOTE CONTROL AND SIGNAL CABLE
All other systems cabling shall meet the requirements of NEC Article 725 and the following:

Control Cable for Class 1 Remote Control and Signal Circuits: 600-volt insulation, individual conductors twisted together, shielded, and covered with an overall PVC jacket. Cable shall be Listed, temperature rated, and general purpose, riser or plenum rated for the application as required in the National Electrical Code.

Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits shall be Listed, temperature rated, and general purpose, riser or plenum rated for the application as required in the National Electrical Code.

WIRING CONNECTORS

Split Bolt Connectors: Not acceptable.

Spring Wire Connectors: Solderless spring type pressure connector with insulating covers for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Low voltage control and signal cables may be installed without conduit above accessible ceilings if the cable meets NEC requirements for the application, unless specified to be in conduit in other sections of the specifications. See requirements for free-air cable installation below.

Control cables for controlling lighting equipment connected to emergency power shall be routed in raceway.

Do not use wire smaller than 14 AWG for control wiring greater than 60 volts, or 18 AWG for voltages less than 60 volts, all sizes subject to NEC 725 requirements.

Splice only in junction boxes.

Neatly train and lace wiring inside boxes, and equipment.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use Listed wire pulling lubricant for pulling conditions when necessary.

Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

FREE-AIR CABLE INSTALLATION

Cabling shall be neatly run at right angles and be kept clear of other trades work.

Cabling shall be supported at a maximum of 4-foot intervals utilizing ‘bridal-type’ mounting rings anchored to ceiling concrete, piping supports or structural steel beams. If cable sag at mid-span exceeds 12-inches, another support shall be provided. Mounting rings shall be designed to maintain cables bend to larger than the minimum bed radius (typically 4 x cable diameter).

Cabling shall not be attached to or supported by existing cabling, plumbing or steam piping, ductwork, suspended ceiling supports or electrical or communications conduit. Additionally, cabling shall not be laid directly on the ceiling grid.

To reduce or eliminate Electro-Magnetic Interference (EMI), the following minimum separation distances for ‘Free-Air’ cabling installations shall be adhered to:

- Twelve (12) inches from power lines of less than 5kV.
- Thirty-nine (39) inches from power lines of 5kV or greater.
- Five (5) inches from lighting fixtures.
- Thirty-nine (39) inches from transformers and motors.

A coil of 4 feet in each cable shall be placed in the ceiling at each ‘free-air’ wired device. These coils shall be secured (wire tied) at the last cable support before the cable reaches the device and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.

All cable shall be free of tension at both ends. Nylon strain relief connectors shall be provided at each device and junction box where cables enter. In cases where the cable must bear some stress, Kellum type grips may be used to spread the strain over a longer length of cable.

Cable manufacturers minimum bend radius shall be observed in all instances. Care should be taken in the use of cable ties to secure and anchor the station cabling. Ties should not be over tightened as to compress the cable jacket. No sharp burrs should remain where excess length of the cable tie has been cut.

All exposed vertical cable extensions to devices located below the finished ceiling shall be in conduit.

Provide protection for exposed cables where subject to damage.

Use suitable cable fittings and connectors.

When permitted in exposed ceiling areas as designated on the plan drawings, Free-Air wiring runs shall avoid areas of high traffic (i.e. aisle way), shall be run as close as possible to outlining walls and shall be a minimum of ten (10) feet above finished floor.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes (except splices to low voltage occupancy sensor power packs and terminations to temperature control devices).

All splices shall be so made that they have an electrical resistance not in excess of two feet (600 mm) of the conductor.

Use solderless spring type pressure connectors with insulating covers for wire splices and taps, 10 AWG and smaller.

Thoroughly clean wires before installing lugs and connectors.

At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

END OF SECTION

SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SCOPE
The work under this sections includes conduit and equipment supports, straps, clamps, steel channel, etc., and fastening hardware for supporting electrical work. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Quality Assurance

PART 2 - PRODUCTS
- Material

PART 3 - EXECUTION
- Installation

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

QUALITY ASSURANCE
Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

MATERIAL
Support Channel: Steel, Galvanized, Enameled or other corrosion resistant.

Hardware: Corrosion resistant.

Minimum sized threaded rod for supports shall be 3/8” for trapezes and single conduits 1-1/4” and larger, and ¼” for single conduits 1” and smaller.

Conduit clamps, straps, supports, etc., shall be steel or malleable iron. One-hole straps shall be heavy duty type. All straps shall have steel or malleable backing plates when rigid steel conduit is installed on the interior or exterior surface of any exterior building wall.

PART 3 - EXECUTION

INSTALLATION
Fasten hanger rods, conduit clamps, outlet, junction and pull boxes to building structure using pre-cast insert system, preset inserts, beam clamps, expansion anchors, or spring steel clips (interior metal stud walls only).

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs and wood screws in wood construction. If nail-in anchors are used, they must be removable type anchors.

File and de-bur cut ends of support channel and spray paint with cold galvanized paint to prevent rusting.

Do not fasten supports to piping, ductwork, mechanical equipment, cable tray or conduit. Do not fasten to suspended ceiling grid system.

Support wires that are installed in addition to the ceiling grid support wires to provide secure support for raceways, cables assemblies, boxes, cabinets, and fittings shall be secured at both ends (e.g. the ceiling structure at the top and the ceiling grid at the bottom) per NEC 300.11(A).

Do not drill structural steel members unless approved by owner.

Fabricate supports from galvanized structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface-mounted cabinets and panelboards with a minimum of four anchors. At all cabinet and panelboard locations on concrete or concrete block walls, and at ALL locations below grade, provide steel channel supports to stand cabinet one inch (25 mm) off wall (7/8" Uni-strut or 3/4" painted fire-retardant plywood is acceptable). In above-grade equipment rooms that have drywall walls, the cabinets and panelboards may be mounted to the drywall if backing is provided in the stud walls behind the equipment.

Furnish and install all supports as required to fasten all electrical components required for the project, including free standing supports required for those items remotely mounted from the building structure, catwalks, walkways etc.

END OF SECTION

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SCOPE
This section describes the products and execution requirements relating to furnishing and installing raceways and boxes and related systems as part of a raceway system for electrical and low-voltage systems for the project. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- References

PART 2 - PRODUCTS
- General
- Electrical Metallic Tubing (EMT) and Fittings
- Flexible Metal Conduit (FMC) and Fittings
- Pull and Junction Boxes

PART 3 - EXECUTION
- Conduit Sizing, Arrangement, and Support
- Conduit Installation
- Conduit Installation Schedule
- Coordination of Box Locations
- Pull and Junction Box Installation
- Outlet Box Installation

RELATED WORK
Applicable provisions of Division 1 govern work under this section.

REFERENCES
Wisconsin Administrative Code SPS 316 - Electrical

PART 2 - PRODUCTS

GENERAL
All steel fittings and conduit bodies shall be galvanized.

No cast metal or split-gland type fittings permitted.

Mogul-type condulets larger than 2 inch (50 mm) not permitted except as approved or detailed.

All condulet covers must be fastened to the condulet body with screws and be of the same manufacture.

C-condulets shall not be used in lieu of pull boxes.

All boxes shall be of sufficient size to provide free space for all conductors enclosed in the box and shall comply with NEC requirements.

ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS
Conduit: Steel, galvanized tubing.

Fittings: All steel, set screw type. No push-on or indenter types permitted.
Conduit Bodies: All steel threaded conduit bodies.

FLEXIBLE METAL CONDUIT (FMC) AND FITTINGS
Conduit: steel, galvanized, spiral strip.

Fittings and Conduit Bodies: All steel, galvanized, or malleable iron (except as allowed in specification 26 51 13).

CONDUIT WATER SEALANT
Description: Conduit sealant used to prevent water from entering buildings via conduits.

Sealant shall seal conduits against water and gas intrusion, such as Polywater® FST™-250 Foam Duct Sealant, Raychem RDSS Rayflate Duct Sealing System, or approved alternate. Sealant shall be re-enterable, shall be compatible with the conduit and conductor types being used, and shall comply with NEC 225.27, 230.8, and 300.5(G).

Manufacturer names and catalog numbers are used to develop quality and performance requirements only. Products manufactured by others may be acceptable provided they meet or exceed the specifications.

PULL AND JUNCTION BOXES
Interior Sheet Metal Boxes: code gauge galvanized steel, screw covers, flanged and spot welded joints and corners.

Interior Sheet Metal Boxes larger than 12 inches (300 mm) in any dimension shall have a hinged cover or a chain installed between box and cover.

Exterior Boxes and Wet Location Installations: Type 4 and Type 6, flat-flanged, surface-mounted junction box, UL listed as rain-tight. Galvanized cast box and cover with ground flange, neoprene gasket and cover screws.

Box extensions and adjacent boxes within 48 inches of each other are not allowed for the purpose of creating more wire capacity.

Junction boxes 6 inch-by-6 inch or larger size shall be without stamped knock-outs.

Wireways shall not be used in lieu of junction boxes.

OUTLET BOXES
Sheet Metal Outlet Boxes: galvanized steel, with stamped knockouts.

Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 3/8-inch male fixture studs where required.

Cast Boxes: Cast ferroalloy or aluminum, deep type, gasketed cover, threaded hubs.

PART 3 - EXECUTION

CONDUIT SIZING, ARRANGEMENT, AND SUPPORT
EMT is permitted to be used in sizes 4 inch (100 mm) and smaller for power and low-voltage systems. See CONDUIT INSTALLATION SCHEDULE below for other limitations for EMT and other types of conduit.

Size power conductor raceways for conductor type installed. Conduit size shall be 1/2 inch (16 mm) minimum except **all homerun conduits shall be 3/4 inch (21 mm),** or as specified elsewhere. **Caution: Per the NEC, the allowable conductor ampacity is reduced when more than three current-carrying conductors are installed in a raceway. Contractor must take the NEC ampacity adjustment factors into account when sizing the raceway and wiring system.**

Size low-voltage systems raceways as follows:

Control, security, signal, video, and other low-voltage applications: 3/4 inch minimum.

Arrange conduit to maintain 6’-8” clear headroom and present a neat appearance.

Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

Maintain minimum 6 inch (150 mm) clearance between conduit and piping. Maintain 12 inch (300 mm) clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized pipe straps, conduit racks (lay-in adjustable hangers), clevis hangers, or bolted split stamped galvanized hangers.

Group conduit in parallel runs where practical and use conduit rack (lay-in adjustable hangers) constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

Do not fasten conduit with wire or perforated pipe straps. Before conductors are pulled, remove all wire used for temporary conduit support during construction.

Support and fasten metal conduit at a maximum of 8 feet (2.4 m) on center.

Supports shall be independent of the installations of other trades, e.g. ceiling support wires, HVAC pipes, other conduits, etc., unless so approved or detailed.

Conceal all conduits except exposed structure areas.

Changes in direction shall be made with symmetrical bends, cast steel boxes, stamped metal boxes or cast steel conduit bodies.

For indoor conduits, no continuous conduit run shall exceed 100 feet (30 meters) without a junction box.

All conduits installed in exposed areas shall be installed with a box offset before entering box.

CONDUIT INSTALLATION

Cut conduit square; de-burr cut ends.

Conduit shall not be fastened to the corrugated metal roof deck.

Bring conduit to the shoulder of fittings and couplings and fasten securely.

Use conduit hubs for fastening conduit to cast boxes. Use sealing locknuts or conduit hubs for fastening conduit to sheet metal boxes in damp or wet locations.

Terminate all conduit (except for terminations into conduit bodies) using conduit hubs, or connectors with one locknut, or utilize double locknuts (one each side of box wall).

Provide bushings for the ends of all conduit not terminated in box walls. Refer to Section 26 05 26 – Grounding and Bonding for Electrical Systems for grounding bushing requirements.

Provide insulated bushings where raceways contain 4 AWG or larger conductors.

Install no more than the equivalent of:

Three 90-degree bends between boxes for electrical systems.
Two 90-degree bends between boxes for communications and other low voltage systems.
No single bend may exceed 90 degrees.

Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch (50 mm) size unless sweep elbows are required.

Bend conduit according to manufacturer’s recommendations.

Use suitable conduit caps or other approved seals to protect installed conduit against entrance of dirt and moisture.

Provide 1/8 inch (3 mm) nylon pull string in empty conduit, except sleeves and nipples.

Install expansion-deflection joints where conduit crosses building expansion joints. Note: expansion-deflection joints are not required where conduit crosses building control joints if the control joint does not act as an expansion joint.

Avoid moisture traps where possible. Where moisture traps are unavoidable, provide junction boxes with drain fittings at conduit low points.

Where conduit passes between areas of differing temperatures such as unheated and heated spaces, buildings, etc., provide condulet or box with duct seal or other means to prevent the passage of moisture and water vapor through the conduit.

CONDUIT INSTALLATION SCHEDULE

Conduit other than that specified below for specific applications shall not be used.

- Concealed Dry Interior Locations: Electrical metallic tubing.
- Exposed Dry Interior Locations: Electrical metallic tubing.
- Light fixtures: Refer to specification section 26 51 13.

COORDINATION OF BOX LOCATIONS

Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.

No outlet, junction, or pull boxes shall be located where it will be obstructed by other equipment, piping, lockers, benches, counters, etc.

Conduit and boxes shall not be fastened to the metal roof deck. If conduit and boxes are required to be located and installed on roof decks, the conduit and boxes are required to be spaced minimum 1-5/8 inch off the lowest part of the metal roof decking material, per NEC 300.4 (E).

The proper location of each outlet is considered a part of this contract and no additional compensation will be paid to the Contractor for moving outlets which were improperly located.

Locate and install boxes to allow access to them. Where installation is inaccessible, coordinate locations and provide 18 inch (450 mm) by 24 inch (600 mm) access doors. Boxes must be installed within 12” from edge of the access door.

Locate and install to maintain headroom and to present a neat appearance.

Install boxes to preserve fire resistance rating of partitions and other elements, using approved materials and methods.

PULL AND JUNCTION BOX INSTALLATION

Pull boxes and junction boxes shall be minimum 4 inches square (100 mm) by 2 1/8 inches (54 mm) deep for use with 1 inch (25 mm) conduit and smaller. On conduit systems using 1 1/4 inch (31.75 mm) conduit, minimum junction box size shall be 4 11/16 inches square by 2 1/8 inches deep.

Where used with raceway(s) containing conductors of 4 AWG or larger, pull box shall be sized as required unless otherwise noted on the drawings.

Locate pull boxes and junction boxes above accessible ceilings, in unfinished areas or furnish and install access panels in non-accessible ceilings where boxes are installed. All boxes are to be readily-accessible.

Provide Pull and Junction boxes for low voltage applications (a) in any section of conduit longer than 100 feet, (b) where there are bends totaling more than 180 degrees between pull points or pull boxes and (c) wherever there is a reverse bend in run. Locate boxes on straight section of raceway (e.g. do not use boxes in place of raceway bends).

Support pull and junction boxes independent of conduit.

Use multiple-gang boxes where multiple devices are mounted together; do not use sectional boxes. Provide non-metallic barriers to separate wiring of different voltage systems.

Install boxes in walls without damaging wall insulation.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SCOPE
The work under this section includes the products and execution requirements relating to labeling of power, control, and signal wiring. Further, this section includes the installation of labels, nameplates, and directories for electrical junction boxes, wiring devices, and electrical equipment. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work

PART 2 - PRODUCTS
- Materials

PART 3 - EXECUTION
- General
- Junction and Pullbox Identification
- Power, Control and Signal Wire Identification
- Nameplate Engraving for Electrical Equipment
- Panelboard Directories

RELATED WORK
Applicable provisions of Division 1 shall govern work under this section.

PART 2 - PRODUCTS

MATERIALS
Labels: All labels shall be permanent, and machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS ARE ALLOWED.

All wiring labels shall be white/transparent vinyl or vinyl-cloth, self-laminating, wraparound type. Flag type labels are not allowed. The labels shall be of adequate size to accommodate the circumference of the cable being labeled and properly self-laminate over the full extent of the printed area of the label.

Tape (wiring phase identification only): Scotch #35 tape in appropriate colors for system voltage and phase.

Nameplates: Engraved three-layer laminated plastic. Normal system shall use nameplates with black letters on white background, emergency system (NEC 700) shall use white letters on red background, legally required standby system (NEC 701) shall use white letters on blue background, and optional standby system (NEC 702) shall use white letters on yellow background.

Adhesive type labels not permitted except for identification of wires, wiring devices (device plates), 8" square and smaller junction boxes, and control devices.

See Junction and Pullbox Identification and Wiring Device Identification sections for allowed usage of permanent marker.

PART 3 - EXECUTION

GENERAL
Where mixed voltages are used in one building each junction box, equipment, etc., on each system shall be labeled for voltage in addition to other requirements listed herein.

All branch circuit panels shall be identified with the same designation used in circuit directory at its source.

Clean all surfaces before attaching labels with the label manufacturer's recommended cleaning agent. Install all labels firmly as recommended by the label manufacturer. Labels shall be installed plumb and neatly on all equipment.

Install nameplates parallel to equipment lines. Secure nameplates to equipment fronts using screws, rivets or manufacturer approved adhesive or cement.

Embossed tape will not be permitted for any application.

JUNCTION AND PULLBOX IDENTIFICATION

The following junction and pullboxes shall be identified utilizing spray painted covers:

System	Color(s)
Secondary Power – 480Y/277V	Brown
Secondary Power – 208Y/120V, 240/120V	White

Additional required junction and pullbox identification shall include:

Provide circuit numbers and source panel designations for power wiring junction boxes. Other system junction boxes shall be identified as shown on details or approved shop drawings.

Where exposed, junction boxes larger than 8" square shall utilize engraved nameplates with ½" minimum letter height. Identify system source(s) and load(s) served.

Where exposed, 8" square and smaller junction boxes shall utilize machine generated, adhesive labels.

Where located above an accessible ceiling, junction boxes may be neatly identified using a permanent marker.

POWER, CONTROL AND SIGNAL WIRE IDENTIFICATION

Provide wire labels on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with wire number as indicated on schematic and interconnection diagrams or equipment manufacturer's shop drawings for control and signal wiring.

All wiring shall be labeled within 2 to 4 inches of terminations. Each end of a wire or cable shall be labeled as soon as it is terminated including wiring used for temporary purposes.

WIRING DEVICE IDENTIFICATION

Wall switches, occupancy sensors, wall dimmers, device plates and box covers, photocells, and time clocks shall be identified with circuit numbers and source (ex. Panel ABC-3). In exposed areas, identifications should be made inside of device covers, unless directed otherwise. Use machine-generated adhesive labels, or neatly hand-written permanent marker.

NAMEPLATE ENGRAVING FOR ELECTRICAL EQUIPMENT

Provide nameplates of minimum letter height as scheduled below.

Branch Panelboards: 1 inch (25 mm); identify equipment designation. 1/2 inch (13 mm); identify voltage rating, source and room location of the source.

PANELBOARD DIRECTORIES

Typed directories for panels must be covered with clear plastic, and have a metal frame. Room number on directories shall be Owner's numbers, not Plan numbers unless Owner so specifies.

END OF SECTION

SECTION 26 09 28
LIGHTING CONTROL

PART 1 - GENERAL

SCOPE

The work under this section includes power supplies, relays, control equipment, enclosures, and low-voltage switches and controllers associated with low voltage lighting control. Included are the following topics:

PART 1 - GENERAL
- Scope
- Submittals
- Record Documents
- Operation and Maintenance Data
- Warranty

PART 2 - PRODUCTS
- System Performance /Operation
- Operator Interface
- Inputs and Outputs
- Diagnostic Aids
- Communication Accessories
- Programming Software
- System Management Software
- Miscellaneous

PART 3 - EXECUTION
- Examination
- Installation
- Factory Commissioning and Programming
- Factory Support
- Agency Training

SUBMITTALS

Preapproval:

Substitute equipment other than that identified in the design documents, which meets the requirements and design intent of this contract must be submitted for preapproval by A/E prior to formal shop drawing submittal.

Shop drawing submittal:

Submit product data indicating system and component construction, ratings, and operating parameters.

Due to the variations between systems include a narrative of how each item in the PRODUCTS section below is addressed

Submit manufacturer's installation instructions.

RECORD DOCUMENTS

Provide drawings showing where the lighting control panels are located within the building. Provide schedules indicating switch locations (room numbers) in the building and the associated relay number(s) in the panels. If multiple lighting control panels are networked together, provide a riser diagram showing how the lighting control panels are connected to each other.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

WARRANTY

Manufacturer shall supply a 3-year warranty on all hardware and software. A limited 10-year warranty shall be provided on all relay cards.

PART 2 - PRODUCTS

SYSTEM PERFORMANCE/OPERATION

Due to the various lighting control system types, architecture and network capabilities the following products and descriptions as well as associated drawings are intended to identify the performance basis of the system. The goal being to provide a functional yet cost effective system for this facility. As such panel based or distributed type systems are acceptable if providing the same functionality described herewith.

The new system will only control areas which are currently controlled by an overall control system. This is the majority of the facility however many areas have local control only. As such the new system must be flexible and scalable to allow additions as areas are added to the control system in the future.

Due to the size and complexity of the facility all new control equipment, relays, dimming modules, power supplies, etc. serving an area require group mounting in accessible locations. In general, the drawings indicate locating the new equipment where the existing lighting control panels are being removed due to access to existing circuits however any grouped location is acceptable if approved by the owner.

Programming of the complete system shall be accomplished via head end PC. Each controller shall have local programmability, control and diagnostic functions.

Remote access shall be provided via the local area network and also WEB based for access remote locations and devices.

Functionally there are two separate types of control required. These are Building Wide Control and Localized Grouped Meeting Room control.

Building Wide Control:
The proposed building wide control shall consist of a programmable, remotely accessible, web based operating system with main head end cpu and software, local network interface(s), controllers and a data network controlling networked low voltage relay and dimming modules. All control functions shall be accessible from the head end cpu. In addition, some areas require local control.

The basis for this control is Acuity nLight controls. This control will be replacing 8 existing Lithonia low voltage lighting relay panels, head end cpu and software. Local control would be provided by the Acuity Fresco touch screen with additional push button control stations.

Localized Grouped Meeting Room Control:
Localized control is required in 3 separate control areas each comprised of 4 meeting rooms each. Each group of 4 must be able to be grouped for control in any configuration. These three areas are the lower level meeting rooms, both north and south as well as the mezzanine meeting rooms. When grouped the grouped areas shall be controlled as one room. On/Off and dimming shall be uniform.

The proposed localized control shall consist of programmable control providing a data network controlling networked low voltage relay and dimming modules. All control functions in each group of 4 rooms shall be accessible by local control.

The basis for this control is Acuity nLight controls replacing 3 existing Lithonia low voltage lighting relay and dimming control panels. Local control would be provided by the Acuity touch screen control for complete scene control with additional 4 button push button control stations for scene control.

These three areas shall have occupancy sensing automated control to turn all lighting off when areas are not occupied.

SYSTEM REQUIRMENTS

Building Wide Control:
Programmable intelligence shall include Time-Of-Day control, 32 holiday dates, exterior lighting control photo sensor, warn occupants of an impending off, timed inputs, preset control, auto daylight savings, astronomical clock w/offsets, local control, digital switches, and network overrides:

Time-Of-Day Scheduling
64 Time-Of-Day/holiday schedules for 365-day programming

Holidays
32 holiday dates

Warn Off

Flash lights and provide an extra 1 second to 99 minutes of illumination

Preset
Pre-programmed switch patterns

Timed Inputs
Switch input timers 1-999 minutes

Timed Overrides
Timed override from the touch-screen 1-999 Overrides minutes, resumes to normal schedule

Local Controls
Touch-screen and local switches as indicated on drawings

Astronomical Clock
Longitude and latitude input with sunset-sunrise offsets to customize outdoor lighting

Auto Daylight Savings Adjust
Automatically adjusts the clock at the appropriate dates, selectable

Priorities
Establishes a hierarchy for inputs and network control commands

Masking
Masking provides permissions related to switch inputs and network commands, thereby ensuring software security.

Soft-Linking
Group linking for rapid programming

Global Linking
Each panel shall provide 64 addressable groups for network linking of control commands

Analog Inputs
Four analog inputs

The control shall:
Be capable of reporting whether the relays are overridden via software, override switches, or via on board hardware override. Relay status shall not only disclose commanded relay status but next scheduled state to occur.

Provide a Warn Off (flashing of the lights) to inform the occupants of an impending OFF command. The Warn Off command shall provide adjustable time duration of 1 second to 99 extra minutes. The occupants may exit the premises with adequate lighting or cancel the Warn Off by overriding the lighting zone. This option occurs with all OFF commands except local overrides.

Permit lighting to be overridden ON for after-hours use or cleaning. The controller shall provide optional switch timer assignments or timed overrides. The override choices for various relays shall provide special event occurrences and the controller shall return to the programmed state after the override event. Also, the controller shall provide priority and masking choices to customize the functions of switch inputs, thereby enabling switches to function differently at different times of the day to meet special facility operational requirements. These overrides shall be digital, network, or hard-wired inputs.

The lighting control system shall be fully programmed through PC programming software.

Programming of the individual controllers shall be accomplished through the local user interface. Descriptive information shall assist the user to employ the system without a programming manual.

Priorities shall be assigned to inputs and global commands to ensure building integrity. Priorities enable or disable the inputs based on user actuation of overrides and permit: ON only, OFF only and ON & OFF control for intelligent after-hours utilization of the controlled facility based on Time-Of-Day scheduling in the controller.

The control system shall provide networking between lighting control panels but allow each controller to operate independently in the event networking is interrupted. One network may support a maximum of 254 control panels. Panels shall permit data sharing for global control. All inputs (no limitation) are transferable over the network to create any switching pattern required. The maximum length of the lighting control network shall be 1500 feet. Provide repeaters to extend the network as needed. Networks that rely on a single time clock for system operation shall not be acceptable.

The lighting control system shall log all control events. The controller shall monitor all relay actuations, switch inputs and user intervention. Log reports shall be available for any duration of time the operator chooses through the user interface or through the network software.

OPERATOR INTERFACE

The control programming shall be by software residing on the head end cpu. capable of linking switch inputs to relay outputs and schedule assignments. Systems that utilize blocking diode technology for relay assignments shall not be acceptable.

The software shall provide access to all programming features and permit the user to manually command any or all relays individually. Each area's grouped equipment shall control its own loads from internal memory. A control system that solely relies on a central control computer/processor or external time clocks shall not be permitted.

INPUTS AND OUTPUTS

The controller shall provide timers for each input/output. Each input/output timer shall be capable of 0-999 minutes. Software shall enable or disable input/outputs based on Priorities, Masks or Time-Of-Day scheduling.

ON/OFF/DIMMING Control/Switches

The lighting controller shall support digitally addressable switches and touch screen controllers. The digital switches and controllers shall be programed to control any relay group combination on the lighting control network.

Switches shall be organized as one (1) to six (6) momentary contact buttons on a single mounting plate intended to fit into a single gang wall box. Each button shall have an integral status LED indicator.

The switch configuration shall permit custom labeling for multiple button switch locations.

Dry Contact Inputs

The control system shall permit 32 dry contacts inputs for override purposes. Momentary 3 wire or 2 wire (toggle) inputs shall be supported. Inputs shall be dry contacts (24 VDC @ 12 ma. internally supplied to the inputs).

Photocell Control

The controller shall accept either dry contact or analog ambient light sensors. The controller shall provide power for the sensor thereby eliminating any external power supply. Sensors shall provide for outdoor, indoor or skylight applications and issue a command to the controller once the threshold is reached. The sensor shall provide either software or user adjustable dead band control.

Network Overrides

The controller shall accept network commands issued from other inputs or controllers on the network. The controller shall provide this feature without the need to add extra equipment to the controller. Network overrides can be issued from the Photocells, Motion Sensors, Digital or Dry Contact Switches, or other controllers.

Service Override & Priority Override

Service override provides the option of All Off, Auto, and All On, respectively. This shall override and supersede all commands from the logic board when in the All On or All Off mode.

The system shall report all master service overrides and shall be accessible via network query.

The system shall remember the last command to the individual relays. Upon returning the master override switch to the Auto position, the relays shall return to the most recent command state. This will occur even if the last command happened during the master override condition.

Additionally, the system shall provide external priority override for a controller. Through an externally maintained contact the override card shall place the panel in a priority state. This external contact will supersede any other programmed state and will command all the relays ON or OFF depending on operational choice. This priority state will continue until the external contact is removed. Once the external override is removed the control panel will return the relays to the appropriate programmed state.

Building Automation System Interface
The Lighting Control Panel network shall permit data protocol translation through an Automation Interface Module. The Automation Interface Module permits systems that utilize the BACnet communication protocol to operate individual relays or relay groups and to read system status.

Relays
Relay Card: The system shall utilize normally open magnetically held control relays, which are rated to 20 amps at 120/277 VAC. The relays shall be rated for 10 million mechanical operations. The wire terminations shall be able to accept 10 AWG. A limited 10-year warranty shall be provided on the individual relays.

Provide 2-pole relays as required for loads.

DIAGNOSTIC AIDS
Each controller shall incorporate diagnostic aids for confirmation of proper operation, or in case of failure these aids shall guide the individual in rapid troubleshooting of the system.
The control panels shall employ both a backlit touch-screen and LED's to indicate:

- POWER (LED)
- SYSTEM OK (LED)
- NETWORK COMMUNICATIONS (LED)
- ON/OFF STATUS of EACH RELAY (LED & touch-screen)
- SYSTEM CLOCK and DATE (touch-screen)
- PROGRAMMING CONFIRMATION (touch-screen)
- CONTROL PANEL SUBNET NETWORK COMMUNICATIONS (TX & RX LED's)

Status Indication of Relays
The system shall provide visible status indication of all relays through the window of each control panel. The visual indication shall disclose On/Off status and relay number.

Relay status shall also be visible via actual indication on the relay card. The serial standard relay cards shall provide visual status of the relay state and also the override state. The relay status LED shall also provide indication to the user if the relay is in a hand actuation condition. Each serial standard relay card shall permit manual overrides for each individual relay. The serial latched relay card shall provide relay status and permit hand actuation.

COMMUNICATION ACCESSORIES
Provide two (2) mobile wireless remote control devices, (iPad, laptop PC, proprietary remote, etc.) for access to local and master control functions. Device shall include control software and be programmable to allow password protected custom access levels to user. Device shall allow WEB Based access to assigned functions when onsite or at a remote location.

Ethernet Interface Module (EIM)
The EIM control system accessory provides easy access to control panels over a TCP/IP. Manufacturer shall provide proper cabling from lighting control panel controller to Ethernet Interface Modules. The EC shall provide data cabling from the EIM to the owner's data rack. The owner shall provide the IP address.

VPN hardware device accessory
Provide a VPN hardware device to the lighting control network and building LAN to ensure security of the building LAN and lighting control network. The controller shall provide an RJ-12 connection for RS-232 communications. Programming shall be permitted through either a local connection or remotely through a modem.

Automation Interface Module
The Lighting Control Panel network shall permit data protocol translation through an Automation Interface Module. The Automation Interface Module permits systems that utilize the BACnet communication protocol to operate individual relays or relay groups and to read system status (status read).

PROGRAMMING SOFTWARE

The PC based interface software accessory provides access to lighting control system files within a Microsoft Windows®, environment. The software shall support Windows 7 and above. The software shall allow individual and network panel programming to be executed locally via direct connection, or remotely through a TCP/IP connection or modem. The central programming software shall permit the user to modify the control panel programming or configuration in an "OFF-LINE" mode. This software package shall store all programmed data and archive for future use. Systems using third party software are not acceptable. Systems that are not capable of creating program backups are not acceptable.

The following features shall be standard in the PC based software:

Standard Software Features:

- Real Time Relay Status Monitoring
- Alpha-Numeric Descriptors
- Communications: Direct, Network, TCP/IP and Modem
- Network Status Indication
- Global Software Modifications
- Manual Relay Commands
- Remote Pattern Commands
- Preset Options
- User Management – Password protection and privilege modification for multi-user security
- Logging of Controller Actions (switch inputs, TIM commands, and relay actuations)
- Remote Commander – (entire network global commands from one screen)

File Maintenance:
Archive Programs
Data Base Restoration
Uploading and Downloading of Programs
Snap Shots indication of changes and flawless panel restoration.

Software package shall permit the PC to be utilized for other functions (i.e. word processing, database, etc.) besides lighting control. Systems that require an "on-line" dedicated computer for control system operation shall not be acceptable.

SYSTEM MANAGEMENT SOFTWARE

System Management Software requires the Ethernet Interface Module (EIM) accessory, connection to the building LAN, and Windows® 7 operating system or above.

The lighting zones may be controlled through a graphical representation software package. The software permits up to 255 floors or site plans to be illustrated for intuitive control. The software provides real-time feedback to the operator of network control overrides. The software shall be accessible through an Ethernet network permitting more than one location control access to the site. The software shall accept AutoCAD® drawing files to reduce programming set up of the control software.

MISCELLANEOUS

Modular Design

The control system shall employ all modular connectors.

Memory Back-up

The system shall utilize an integrated memory back-up device. The data in Flash Memory shall be protected against power interruptions for the life of the product. The power interrupt protection circuit shall be entirely maintenance-free.

Power Supply

A power supply shall be provided integral to the lighting controllers. The power supply shall incorporate the use of a multi-tapped transformer. The panel shall not require specification of voltage for each control location.

Enclosure

Each controller shall be enclosed in a lockable NEMA class 1 enclosure. Include space for 10-percent minimum additional relays in each cabinet and enclosure.

Barriers

The control panel enclosure shall be provided with barriers for separating line and low voltage circuits. Barriers shall also be provided for voltage separation or for separation of emergency circuits from normal power circuits. Emergency circuit barriers shall be painted red to denote the emergency circuits.

Switch Plates
Switch Plates shall be thermoplastic. The switch plate color shall match the switches furnished by the Lighting Control Panel manufacturer.

PART 3 - EXECUTION

INSTALLATION
Install in accordance with manufacturer's instructions.

Network all components together.

Connect the lighting controllers to the facility's data network. Coordinate required IP addresses with facility staff.

FACTORY COMMISSIONING and PROGRAMMING
Provide factory commissioning for a complete and operational system. Program the system for scheduled time or local switch ON operation of local lighting, with sweep OFF operation at times as directed by the facility staff.

Provide one additional factory commissioning follow-up site visit for making any agency-desired programming changes after one month of operation.

Turn over programming software to user agency staff.

FACTORY SUPPORT
Factory telephone support shall be available 24 hours per day 365 days per year. Factory assistance shall consist of solving programming or application questions concerning the control equipment. Phone support shall include the ability for telephone support to provide remote control of lighting control PC to assess and resolve technical or software issues.
If required a factory trained technician must be available to be on site within one business day of request.
All factory support shall be available free of charge during warranty period.

AGENCY TRAINING
Provide two eight-hour training sessions to owner's staff on two separate days. These days may be spaced apart as designated by the owner to allow operations staff to develop a working understanding of the system and develop operation and maintenance questions.

END OF SECTION

SECTION 26 24 16
PANELBOARDS

PART 1 - GENERAL

SCOPE
The work under this section includes branch circuit panelboards. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Submittals
- Operation and Maintenance Data
- Spare Parts

PART 2 - PRODUCTS
- Branch Circuit Panelboards

PART 3 - EXECUTION
- Installation
- Field Quality Control

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

SUBMITTALS
Include outline and support point dimensions, voltage, main bus ampacity, circuit breaker arrangement and sizes, and interrupting ratings confirming a fully-rated system for all equipment and components.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

SPARE PARTS
Keys: Furnish 2 keys for each panelboard to Owner.

PART 2 - PRODUCTS

BRANCH CIRCUIT PANELBOARDS
Lighting and Appliance Branch Circuit Panelboards: Circuit breaker type.

The panelboard and overcurrent devices contained within shall be **fully-rated.**

Enclosure: Type 1. Minimum cabinet size: 5-3/4 inches (144 mm) deep; 20 inches (508 mm) wide with 5" minimum gutter space top and bottom. Constructed of galvanized code gauge steel. Panel enclosure (back box) shall be of non-stamped type (without KO's) to avoid concentric break out problem.

Provide surface cabinet front with concealed trim clamps, concealed hinge and flush cylinder lock all keyed alike. Front cover shall be hinged to allow access to wiring gutters without removal of panel trim. Hinged trim shall be held in place with screw fasteners. Finish in manufacturer's standard gray enamel.

Provide metal directory holders with clear plastic covers.

Provide panelboards with copper bus (phase buses, bus fingers, etc.), ratings as scheduled on Drawings. Provide ground bars in all panelboards. Phase, neutral and ground bar terminations can be dual rated ALCU9. All spaces shall have bus fully extended and drilled for the future installation of breakers.

Incoming conductors shall terminate at lug landing pads rated for the panelboard.

Provide compression type lugs to accommodate the conductor shown on drawings.

Minimum System (i.e. individual component) Short Circuit Rating: 10,000 AIC.

Molded Case Circuit Breakers: Bolt-on type thermal magnetic trip circuit breakers. Provide UL Class A ground fault interrupter circuit breakers where shown on Drawings.

Do not use tandem circuit breakers.

Circuit breakers shall be bolt-on type with common trip handle for all poles. No handle ties of any sort will be approved.

Provide a minimum of 10% spare circuit breakers in branch panelboards.

All of the panelboards provided under this section shall be by the same manufacturer.

PART 3 - EXECUTION

INSTALLATION

Install panelboards plumb with wall finishes.

Height:

Power Distribution panelboards: Minimum 12" above finished floor and maximum of 6'-7" to center of the grip of the operating handle of the top most mounted switch or circuit breaker, when at its highest position.

Branch panelboards: 6'-0" to top of panelboard.

Install a crimp type stud termination to stranded conductor when terminating on circuit breakers without a captive assembly rated for terminating stranded conductors.

Provide filler plates for unused spaces in panelboards.

Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

FIELD QUALITY CONTROL

If aluminum conductors size #1/0 and larger (per Section 26 05 19) are to be used as panelboard feeders, it is the responsibility of the contractor to provide panelboards with adequate wire bending space to accommodate the aluminum conductors and terminators to meet allowable code requirements. The Contractor shall circuit the panelboards as shown on the drawings. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 10 percent, rearrange circuits in the panelboard to balance the phase loads within 10 percent.

Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections.

END OF SECTION

SECTION 26 51 13
INTERIOR LIGHTING FIXTURES, LAMPS, AND BALLASTS

PART 1 - GENERAL

SCOPE

The work under this section includes interior luminaires and accessories. Included are the following topics:

RELATED WORK

Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

RoHS - Restriction of Hazardous Substances. Council of the European Union (EC) Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

LM-79-08 (or latest) - IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

LM-80-08 (or latest) - IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.

TM-21-11 (or latest) - IES Technical Memorandum on Projecting Long Term Lumen Maintenance of LED Light Sources.

NEMA SSL 1-2010 (or latest) - Electronic Drivers for LED Devices, Arrays, or Systems.

DEFINITIONS

Driver - the power supply used to power LED luminaires, modules, or arrays.

L70, $L_{70,}$ or $L_{70\%}$ - The reported life of an LED component or system to reach 70% lumen maintenance, or 70% of the LED's original light output. This test is being developed by the IES and is currently described by TM-21-11.

LED's - Broadly defined as complete luminaire with light emitting diode (LED) packages, modules, light bars or arrays, complete with driver.

LED luminaire failure - Negligible light output from more than 10 percent of the LED's constitutes luminaire failure.

SUBMITTALS

Preapproval:

Substitute equipment other than that identified in the design documents, which meets the requirements and design intent of this contract must be submitted for preapproval by A/E prior to formal shop drawing submittal.

Shop drawing submittal:

Include outline drawings, lamp and ballast data, support points, weights, accessory information and performance data for each luminaire type.

For each luminaire type, submit luminaire information including catalog cuts with highlighted catalog numbers and required accessories:

- Luminaire:
  - Manufacturer and catalog number.
  - Type (identification) as indicated on the plans and schedule.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

EXTRA MATERIAL
Provide one (1) of each type of LED module, light bar, or array (if applicable). If the LED's are integrated into the luminaire and are not separate components, then extra LED's are not required.

Provide one (1) ballast of each type. This includes LED drivers.

PART 2 - PRODUCTS

INTERIOR LUMINAIRES AND ACCESSORIES
See the Luminaire Schedule on the drawings for type of luminaires and catalog numbers. Catalog numbers are shown on the drawings for quality and performance requirements only. Luminaires manufactured by others are equally acceptable provided they meet or exceed the performance of the indicated luminaires, meet the intent of the design and receive pre approval by A/E.

Luminaire shall be certified by a Nationally Recognized Testing Laboratory (UL, ETL, or IEC).

Provide luminaires with quick-connect disconnecting means, similar to Thomas & Betts Sta-Kon.

LED LUMINAIRES

- LED Luminaires shall meet all DesignLights Consortium® (DesignLights.org) Product Qualification Criteria. This does not require that the luminaire be listed on the DesignLights Consortium's® Qualified Products List, but they must meet the Product Qualification Criteria. The technical requirements that the luminaire shall meet for each Application Category are:
  - Minimum Light Output.
  - Zonal Lumen Requirements.
  - Minimum Luminaire Efficacy.
  - Minimum CRI.
  - L70 Lumen Maintenance.
  - Minimum Luminaire Warranty of 5 years (not pro-rated) to include LED driver and all LED components.

Additional requirements:

- Color Temperature of 4000K for interior luminaires as listed in the Luminaire Schedule on the plans.
- Color Consistency: LED manufacturer shall use a maximum 3-step MacAdam Ellipse binning process to achieve consistent luminaire-to-luminaire color for interior luminaires. Exterior luminaires shall use a maximum 5-step MacAdam Ellipse binning process.
- Glare Control: Exterior luminaires shall meet DesignLights Consortium's® criteria for Zonal Lumen Distribution requirements or Backlight-Uplight-Glare (BUG) standards for exterior luminaires.
- Luminaire shall be mercury-free, lead-free, and RoHS compliant.
- Luminaire shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.
- Light output of the LED system shall be measured using the absolute photometry method following IES LM-79 and IES LM-80 requirements and guidelines.
- Luminaire shall maintain 70% lumen output (L70) for a minimum of 50,000 hours.
- Driver shall have a rated life of 50,000 hours, minimum.
- Lumen output shall not depreciate more than 20% after 10,000 hours of use.
- Driver and LEDs shall be furnished from a single manufacturer to ensure compatibility.
- Luminaire Color Rendering Index (CRI) shall be a minimum of 80 for interior luminaires, and a minimum of 70 for exterior luminaires.
- LED luminaire shall be thermally designed as to not exceed the maximum junction temperature of the LED for the ambient temperature of the location the luminaire is to be installed. Rated case temperature shall be suitable for operation in the ambient temperatures typically found for the

intended installation. Exterior luminaires to operate in ambient temperatures of -20°F to 122°F (-29°C to 50°C).

- LED driver shall have a minimum power factor (pf) of 0.9 and a maximum crest factor (cf) of 1.5 at full input power and across specified voltage range.
- Luminaire shall operate normally for input voltage fluctuations of plus or minus 10 percent.
- Luminaire shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Wiring connections to LED drivers shall utilize polarized quick-disconnects for field maintenance.
- All connections to luminaires shall be reverse polarity protected and provide high voltage protection in the event connections are reversed or shorted during the installation process.
- Fuse Protections: All luminaires shall have built-in fuse protection. All power supply outputs shall be either fuse protected or be Polymeric Positive Temperature Coefficient (PTC)-protected as per Class 2 UL listing.
- All luminaires shall be provided with knockouts for conduit connections.
- The LED luminaire shall carry a limited 5-year warranty minimum for LED light engine(s)/board array, and driver(s).
- Provide all of the following data on submittals:
    - Delivered lumens
    - Input watts
    - Efficacy
    - Color rendering index.

LED Luminaires used for Emergency Egress Lighting:

- The failure of one LED shall not affect the operation of the remaining LEDs.

Dimming:

- LED driver shall be compatible with dimming controls where dimming is indicated on the plans. Dimmable drivers shall use Dimming Constant Current (DCC) or Pulse Width Modulation (PWM) operation.
- LED luminaires shall dim as specified in the Luminaire Schedule on the plans without visible flicker or “popcorn effect”. “Popcorn effect” is defined as the luminaire being on a pre-set dimmed level (less than 100%), and going to 100% prior to returning to the pre-set level when power is returned to the luminaire.

PART 3 - EXECUTION

INSTALLATION

Verify ceiling types with existing ceilings. Verify specified luminaires are compatible with specified ceiling type(s) prior to ordering luminaires.

Install in accordance with manufacturer’s instructions.

Install suspended luminaires using aircraft cable, or pendants supported from swivel hangers. Heavy duty chain supports may be used where indicated on the luminaire schedule. Provide aircraft cable, pendants, or chain lengths required to suspend luminaire at indicated height. All aircraft cables or pendant supported luminaires shall have an independent support to structure at all cable or pendant support locations. When chain is used, tie-wrap the luminaire whip to the chain.

Support luminaires larger than 2 x 4 foot (600 x 1200 mm) size independent of ceiling framing.

Provide independent support for all luminaires over 50 lbs.

Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prohibit movement.

The Contractor shall install luminaire supports as required. Luminaire installations with luminaires supported only by insecure boxes will be rejected. It shall be the Contractor's responsibility to support all luminaires adequately, providing extra steel work for the support of luminaires if required. Any components necessary for mounting luminaires shall be provided by the Contractor. No plastic, composition or wood type anchors shall be used.

Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.

Install code required hardware to secure recessed grid-supported luminaires in place.

Install wall mounted luminaires and exit signs at height as scheduled. Use pendants supported from swivel hangers in exposed ceiling/structure locations where necessary to mount exit signs at the specified height.

Install accessories furnished with each luminaire.

Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

Bond luminaires and metal accessories to branch circuit equipment grounding conductor.

Dimmed luminaire circuits shall have separate neutrals.

Dimmed LED luminaires shall have a positive OFF, which requires turning off the circuit to the luminaire so that the luminaires don't "glow" at the lowest dimmed setting. This shall be accomplished using a switch, relay, or some other means.

ADJUSTING AND CLEANING

Align luminaires and clean lenses and diffusers at completion of Work. Clean paint splatters, dirt, and debris from installed luminaires.

Aim and adjust luminaires as indicated on Drawings or as directed by the A/E.

Touch up luminaire finish at completion of work.

FIELD QUALITY CONTROL

Operate each luminaire after installation and connection. Inspect for proper connection and operation.

LUMINAIRE CONNECTIONS

Provide direct box or conduit connections for surface mounted and recessed luminaires. Use a luminaire fixture whip from a J-box for recessed lay-in luminaires. Luminaire fixture whips shall be aluminum or steel AC Cable (Armored Cable) or Flexible Metal Conduit (FMC). Cable/Conduit whips shall be 3/8" (10 mm) minimum diameter and six foot (1.8 m) maximum length. Flexible whips between master and satellite luminaires may be supported off of the ceiling grid wires. Cable/conduit whip length shall allow movement of the luminaire for maintenance purposes. Flexible metal conduit shall not be used for connections to luminaires where the conduit is exposed in finished spaces.

The flexible connectors shall be steel, galvanized, clamp type with locknut, snap-in type with locknut, or snap-in connector type, including those used on the master-satellite unit.

AGENCY TRAINING

All training provided for agency shall comply with the format, general content requirements and submission guidelines.

END OF SECTION

SECTION 26 56 29
SITE LIGHTING

PART 1 - GENERAL

SCOPE
The work under this section includes exterior luminaires and accessories includes building-mounted exterior lighting. Also included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Reference Standards
- Definitions
- System Description
- Submittals
- Project Record Documents
- Operation and Maintenance Data
- Coordination
- Extra Material

PART 2 - PRODUCTS
- Luminaires
- LED Luminaires
- Fuses

PART 3 - EXECUTION
- Installation
- Field Quality Control
- Adjusting
- Cleaning
- Construction Verification Items
- Agency Training

RELATED WORK
Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS
RoHS - Restriction of Hazardous Substances. Council of the European Union (EC) Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
LM-79-08 (or latest) - IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
LM-80-08 (or latest) - IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
TM-21-11 (or latest) - IES Technical Memorandum on Projecting Long Term Lumen Maintenance of LED Light Sources.
NEMA SSL 1-2010 (or latest) - Electronic Drivers for LED Devices, Arrays, or Systems.

DEFINITIONS
Driver - the power supply used to power LED luminaires, modules, or arrays.

L70, $L_{70,}$ or $L_{70\%}$ - The reported life of an LED component or system to reach 70% lumen maintenance, or 70% of the LED's original light output. This test is being developed by the IES and is currently described by TM-21-11.

LED's - Broadly defined as complete luminaire with light emitting diode (LED) packages, modules, light bars or arrays, complete with driver.

LED luminaire failure - Negligible light output from more than 10 percent of the LED's constitutes luminaire failure.

SYSTEM DESCRIPTION
Exterior entry canopy and façade lighting.

SUBMITTALS

Preapproval:

Substitute equipment other than that identified in the design documents, which meets the requirements and design intent of this contract must be submitted for preapproval by A/E prior to formal shop drawing submittal.

Shop Drawings:

Indicate dimensions and components for each luminaire.

Product Data: Provide dimensions, ratings, performance data, lamp and ballast data, weights and accessory information for each type.

Manufacturer's Instructions:

Indicate application conditions and limitations of use stipulated by product testing agency specified under "Regulatory Requirements".

Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.

PROJECT RECORD DOCUMENTS

Accurately record actual locations of each luminaire.

Provide record drawings for each area involved.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

EXTRA MATERIAL

Provide one (1) of each type of LED module, light bar, or array (if applicable). If the LED's are integrated into the luminaire and are not separate components, then extra LED's are not required.

Provide five (5) percent of total fuses provided for each size, but not less than one (1) of each size.

PART 2 - PRODUCTS

LUMINAIRES

See the Luminaire Schedule on the drawings for type of luminaires and catalog numbers. Catalog numbers are shown on the drawings for quality and performance requirements only. Luminaires manufactured by others are equally acceptable provided they meet or exceed the performance of the indicated luminaires, and meet the intent of the design.

Luminaire shall be certified by a Nationally Recognized Testing Laboratory (UL, ETL, or IEC).

Provide luminaires with quick-connect disconnecting means, similar to Thomas & Betts Sta-Kon.

LED LUMINAIRES

- LED Luminaires shall meet all DesignLights Consortium® (DesignLights.org) Product Qualification Criteria. This does not require that the luminaire be listed on the DesignLights Consortium's® Qualified Products List, but they must meet the Product Qualification Criteria. The technical requirements that the luminaire shall meet for each Application Category are:
  - Minimum Light Output.
  - Zonal Lumen Requirements.
  - Minimum Luminaire Efficacy.
  - Minimum CRI.
  - L70 Lumen Maintenance.
  - Minimum Luminaire Warranty of 5 years (not pro-rated) to include LED driver and all LED components.

Additional requirements:

- Color Temperature of 4000K as listed in the Luminaire Schedule on the plans. The color temperature of exterior LED luminaires should not exceed 4100K (nominal).

- Color Consistency: LED manufacturer shall use a maximum 3-step MacAdam Ellipse binning process to achieve consistent luminaire-to-luminaire color for interior luminaires. Exterior luminaires shall use a maximum 5-step MacAdam Ellipse binning process.
- Glare Control: Exterior luminaires shall meet DesignLights Consortium's® criteria for Zonal Lumen Distribution requirements or Backlight-Uplight-Glare (BUG) standards for exterior luminaires.
- Luminaire shall be mercury-free, lead-free, and RoHS compliant.
- Luminaire shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.
- Light output of the LED system shall be measured using the absolute photometry method following IES LM-79 and IES LM-80 requirements and guidelines.
- Luminaire shall maintain 70% lumen output (L70) for a minimum of 50,000 hours.
- Driver shall have a rated life of 50,000 hours, minimum.
- Lumen output shall not depreciate more than 20% after 10,000 hours of use.
- Driver and LEDs shall be furnished from a single manufacturer to ensure compatibility.
- Luminaire Color Rendering Index (CRI) shall be a minimum of 80.
- LED luminaire shall be thermally designed as to not exceed the maximum junction temperature of the LED for the ambient temperature of the location the luminaire is to be installed. Rated case temperature shall be suitable for operation in the ambient temperatures typically found for the intended installation. Exterior luminaires to operate in ambient temperatures of -20°F to 122°F (-29°C to 50°C).
- LED driver shall have a minimum power factor (pf) of 0.9 and a maximum crest factor (cf) of 1.5 at full input power and across specified voltage range.
- Luminaire shall operate normally for input voltage fluctuations of plus or minus 10 percent.
- Luminaire shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Wiring connections to LED drivers shall utilize polarized quick-disconnects for field maintenance.
- All connections to luminaires shall be reverse polarity protected and provide high voltage protection in the event connections are reversed or shorted during the installation process.
- Fuse Protections: All luminaires shall have built-in fuse protection. All power supply outputs shall be either fuse protected or be Polymeric Positive Temperature Coefficient (PTC)-protected as per Class 2 UL listing.
- All luminaires shall be provided with knockouts for conduit connections.
- The LED luminaire shall carry a limited 5-year warranty minimum for LED light engine(s)/board array, and driver(s).
- Provide all of the following data on submittals:
    - Delivered lumens
    - Input watts
    - Efficacy
    - Color rendering index.

PART 3 - EXECUTION

INSTALLATION

Install in accordance with manufacturers' instructions.

Exterior wire shall be type XHHW-2 or USE-2.

FIELD QUALITY CONTROL

Operate each luminaire after installation and connection. Inspect for improper connections and operation.

ADJUSTING

Aim and adjust luminaires as indicated on Drawings or as directed by the A/E.

All new lamps shall be operational at the Substantial Completion of the project.

CLEANING

Clean photometric control surfaces.

Clean finishes and touch up damage.

AGENCY TRAINING

All training provided for agency shall comply with the format, general content requirements and submission guidelines.

END OF SECTION

EXHIBIT A

HOLOPHANE
LEADER IN LIGHTING SOLUTIONS

Catalog Number	
Notes	Type

Phuzion™ PHS

LED High Bay with Uplight

Description

The Phuzion PHS LED High Bay luminaire takes high-bay lighting to new levels of lumen output with intentional uplight. By marrying the latest in LED technology with the legendary illuminating dynamics of Holophane's prismatic glass, PHS is designed for use in applications where uplight may be desired.

Optics

- Prismatic borosilicate glass maintains highest levels of luminosity over time.
- Glass doesn't fade, discolor or otherwise degrade in harsh environments.
- Two distributions (narrow and wide).
- Highly engineered LED system ensures superior uniformity and maximizes spacing.
- 14% uplight on all lumen packages.

Mechanical

- Robust cast aluminum housing with low copper content (0.6% CU content) withstands hot and dirty environments.
- Pendant mount standard. (3/4" entry)
- Suitable for use in ambient temperatures for -4 °F (-20 °C) to 122 °F (50 °C)
- Several mounting options available, Pendant mount (3/4" entry), Quick Disconnect (3/4" entry or surface mounted), Non-disconnect thru wiring (3/4" entry or surface mounted), Quick Disconnect retrofit, can mount to existing quick disconnect, Non-disconnect retrofit, can mount to existing non-disconnect.

Electrical

- Features eldoLED® driver with 1% dimming capability, flicker free performance and low current inrush.
- 70, 80 and 90 CRI are available.
- 3000K, 3500K, 4000K OR 5000K CCT available.
- Fault-tolerant LED light engine continues to provide light even in failure of one LED.
- 20kA/10kV in line surge standard. Provides end of life protection on all 4 drivers in the event of a surge.
- 88 % lumen maintenance at 60,000 hours

Listings

- 12000LM, 15000LM, 18000LM 50°C rated, 24000LM 45°C rated.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.
- CSA Certified for use in damp locations.
- Patents pending

Warranty

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_Conditions.aspx

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

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

Typical Applications

- Retail
- Institutional
- Industrial
- Light manufacturing
- Warehousing
- Convention Centers

Dimensions: *Inches (millimeters) unless otherwise noted.*

Diameter: 22.00 (558.8)

Height: 21.50-25.40 (546.140-645.16)

Weight: 49.5

ORDERING INFORMATION

Example: PHS 18000LM 40K 80CRI AS P GR N

Series	Lumens	Color temperature	Color rendering index	Voltage	Mounting	Finish	Optics
PHS	12000LM 12,000 nominal lumens 15000LM 15,000 nominal lumens 18000LM 18,000 nominal lumens 24000LM 24,000 nominal lumens[1]	30K 3000 K CCT 35K 3500 K CCT 40K 4000 K CCT 50K 5000 K CCT	70 CRI 80 CRI 90 CRI	AS Auto sensing (120-277) 12 120V 20 208V 24 240V 27 277V AH Auto sensing (347/480) 34 347V 48 480V	P Pendant Q Quick disconnect N Non-disconnect thru-wiring QR Quick disconnect retrofit NR Non-disconnect thru-wiring retrofit	GR Gray WH White SN Satin nickel paint TDC Custom paint Tiger Drylac	N Narrow W Wide

Options

MSI6DL	High bay 360° motion sensor, fixture mounted, line voltage passive infrared 15-45 ft., on/off.(CMRB 6)	FR	Frosted glass	PF-121-A	Safety hook, 3/4" male [15]
MSI6 DSCDL	High bay 360° photocell sensor, fixture mounted, line voltage passive infrared 15-45 ft.. Two modes of operation: On/off mode: Photocell has full control during periods of occupancy. Inhibit mode: Photocell can prevent light from turning on if adequate daylight is available, but cannot turn off. (CMRB 6 P) [2]	CDP-L5-15-X	120V cord and plug [5,6]	PF-455	Safety hook, 3/4" male cast aluminum [16]
		CDP-L6-15-X	208V/240V cord and plug [6,7]	CD-3	3 ft. cord [17]
		CDP-L7-15-X	277V cord and plug [6,8]	CD-6	6 ft. cord [17]
MSI6XADL	XPoint™ Wireless High bay 360° is a relay sensor and photo controller all in one device, fixture mounted, passive infrared 15-45 ft., on/off. Sensor is a point of control for a flexible wireless network. XPoint™ Wireless enabled, dimmed 1% [2]	CDP-L24-20-X	347V cord and plug [6,9]	CD-X	X ft. cord [18]
		CDP-L8-20-X	480V cord and plug [6,10]	WG	Wire guard installed
EXA1	XPoint™ wireless enabled, dimmed 1% [2]	A	Hook and Holoflex I, 6 foot cord drop [11]	C3	3 ft safety chain
D	Dimming terminal [3]	S	Hook and Holoflex II, 5 foot cord drop [11]	C6	6 ft safety chain
EL	Remote emergency battery pack [4]	PHCB	Powerhook cord for 120V-277V, 347V [12]	CX	X ft safety chain [19]
		PHCB-L8-480	Powerhook cord for 480V [13]	SC10	10 ft safety cable
		PF-129-A	Anti-rotational hook, 3/4" male [14]	JP8	Bulk pack of 8 units[20]
		PF-105-A	Loop, 3/4" male [15]		

For footnotes, see page 2.

ORDERING INFORMATION (cont'd.)

Accessories: *Order as separate catalog number.*

ILCHAIN3	3 ft. safety chain	UPH-35-L8-480-WH	Thru-way powerhook for 480V	PF-455	Safety hook, 3/4" male cast aluminum
ILCHAIN6	6 ft. safety chain	UPH-36-***-WH	Powerhook for 120V, 208V, 240V, 277V and 347V [20]	PF-129-A	Anti-rotational hook, 3/4" male
ILCHAINX	X ft. safety chain [19]	UPH-36-L8-480-WH	Pendant powerhook for 480V	PF-105-B	Loop, 3/4" male
WGPHS	Wire guard	PF-116-A	Loop, 3/4" female	PF-121-A	Safety hook, 3/4" male
UPH-35-***-WH	Thru-way powerhook for 120V, 208V, 240V, 277V and 347V [21]	PF-122-A	Safety hook, 3/4" female		

Notes
1 Max. 45 °C rated.
2 Not available with "D" option.
3 Not available with MSI6DL, MSI6 DSCDL, MSI6C01DL DCC01L, MSI6XADL, EXA1 options.
4 Available with P mount only. Available with AS, 12, 20, 24, 27 voltages. Not available with CDP cord/plug options. Available with CD cord options. X = Color, Match color from Step 7. Option requires unswitched power for the emergency module, fixture can use switched power. Max ambient rating 45 °C 1
5 Available with 12 voltage only. Must order Hook or Loop option. 3ft and 6ft length standard. P or N mount only
6 X = Length of cord in feet; 3 and 6 feet is standard.
7 Available with 20, 24 voltages only. Must order Hook or Loop option. 3ft and 6ft length standard. P or N mount only
8 Available with 27 voltage only. Must order Hook or Loop option. 3ft and 6ft length standard. P or N mount only
9 Available with 34 voltage only. Must order Hook or Loop option. 3ft and 6ft length standard. P or N mount only.
10 Available with 48 voltage only. Must order Hook or Loop option. 3ft and 6ft length standard. P or N mount only.
11 Includes PF-455 Safety Hook. Pendant mount only. Not available with Hook or Loop option. Must specify voltage. Dry location only.
12 Available with 12, 20, 24, 27, 34 voltages. For new installation, order matching UPH accessory. For existing installation with UPH accessory, match PHCB voltage to existing UPH.
13 Available with 48 voltage only. For new installation, order matching UPH accessory. For existing installation with UPH accessory, match PHCB voltage to existing UPH.
14 Not available with PF-105-B, PF-121-A, PF-455.
15 Not available with PF-129-A, PF-121-A, PF-455.
16 Not available with PF-129, PF-105. P or N mount only.
17 Must order Hook or Loop option. P or N mount only.
18 Must order Hook or Loop option. P or N mount only. X = Length
19 X = Length of chain in feet.
20 Bulk pack consists of 8 luminaries: otherwise each luminaire ships in a single carton.
21 *** = Voltage.

OPERATIONAL DATA

Ambient Temperature Ratings

Mounting	Lumen Package	Voltage	Ambient	Supply Wire Temperature
ALL	12000LM	120-277 347/480	50C	90C
ALL	15000LM	120-277 347/480	50C	90C
ALL	18000LM	120-277 347/480	50C	90C
ALL	24000LM	120-277 347/480	45C	90C

Wattage

Lumen Package	120V	277V	347V	480V
12000LM	107	111	114	118
15000LM	140	142	144	149
18000LM	166	168	173	176
24000LM	232	230	237	238

Projected Lumen Maintenance (TM-21)

Lumen Package	Ambient	0 Hours	15,000 Hours	30,000 Hours	45,000 Hours	60,000 Hours	100,000 Hours
12000LM	25C	1.00	0.96	0.93	0.90	0.87	0.80
15000LM							
18000LM							
24000LM							
12000LM	50C	1.00	0.93	0.89	0.86	0.83	0.74
15000LM							
18000LM							
24000LM	45C						

OPERATIONAL DATA (continued)

Operating Characteristics*

Lumen Package	Distribution	"Delivered Lumens 3000K 70 CRI @ 25C"	"Delivered Lumens 3000K 70 CRI @ 25C Frosted"	"Delivered Lumens 3500K 70 CRI @ 25C"	"Delivered Lumens 3500K 70 CRI @ 25C Frosted"	"Delivered Lumens 4000K 70 CRI @ 25C"	"Delivered Lumens 4000K 70 CRI @ 25C Frosted"	"Delivered Lumens 5000K 70 CRI @ 25C"	"Delivered Lumens 5000K 70 CRI @ 25C Frosted"
12000LM	N	12347	10772	12223	10664	12483	10891	13824	12060
15000LM		15533	13551	15377	13415	15705	13701	17391	15173
18000LM		17936	15648	17756	15491	18135	15821	20082	17520
24000LM		22863	19414	22634	19746	23116	20167	25598	22333
12000LM	W	12895	11018	12766	10908	13038	11140	14438	12337
15000LM		16223	13862	16060	13723	16403	14015	18164	15520
18000LM		18733	16006	18545	15846	18941	16184	20975	17922
24000LM		23879	20403	23639	20198	24143	20629	26736	22844

Lumen Package	Distribution	"Delivered Lumens 3000K 80 CRI @ 25C"	"Delivered Lumens 3000K 80 CRI @ 25C Frosted"	"Delivered Lumens 3500K 80 CRI @ 25C"	"Delivered Lumens 3500K 80 CRI @ 25C Frosted"	"Delivered Lumens 4000K 80 CRI @ 25C"	"Delivered Lumens 4000K 80 CRI @ 25C Frosted"	"Delivered Lumens 5000K 80 CRI @ 25C"	"Delivered Lumens 5000K 80 CRI @ 25C Frosted"
12000LM	N	11266	9828	11153	9730	11390	9937	12614	11004
15000LM		14173	12365	14031	12241	14330	12502	15869	13844
18000LM		16366	14278	16202	14135	16547	14436	18324	15986
24000LM		20861	18200	20652	18017	21092	18401	23357	20377
12000LM	W	11766	10054	11648	9953	11897	10165	13174	11257
15000LM		14803	12648	14654	12521	14967	12788	16574	14161
18000LM		17093	14605	16591	14458	17282	14767	19138	16352
24000LM		21788	18616	21570	18430	22029	18823	24395	20844

Lumen Package	Distribution	"Delivered Lumens 3000K 90 CRI @ 25C"	"Delivered Lumens 3000K 90 CRI @ 25C Frosted"	"Delivered Lumens 3500K 90 CRI @ 25C"	"Delivered Lumens 3500K 90 CRI @ 25C Frosted"	"Delivered Lumens 4000K 90 CRI @ 25C"	"Delivered Lumens 4000K 90 CRI @ 25C Frosted"	"Delivered Lumens 5000K 90 CRI @ 25C"	"Delivered Lumens 5000K 90 CRI @ 25C Frosted"
12000LM	N	8932	7793	8843	7714	9031	7879	10001	8725
15000LM		11237	9804	11125	9804	11362	9912	12582	10977
18000LM		12976	11320	12897	11207	13120	11446	14529	12675
24000LM		16540	14430	16374	14285	16723	14590	18519	16157
12000LM	W	9329	7971	9236	7891	9433	8059	10445	8925
15000LM		11737	10028	11619	9928	11867	10139	13141	10139
18000LM		13553	11580	13417	11464	13703	11708	15174	11708
24000LM		17275	14761	17102	14613	17467	14924	19342	16527

Emergency Lumens*

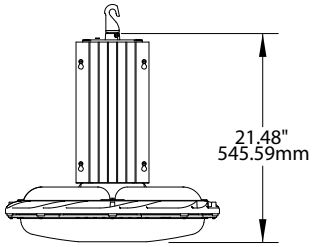
Distribution	Delivered Lumens 3000K CCT 70 CRI @ 25C	Delivered Lumens 3500K CCT 70 CRI @ 25C	Delivered Lumens 4000K CCT 70 CRI @ 25C	Delivered Lumens 5000K CCT 70 CRI @ 25C
N	1916	2015	2091	2230
W	1847	1942	2015	2149

Distribution	Delivered Lumens 3000K CCT 70 CRI @ 25C	Delivered Lumens 3500K CCT 70 CRI @ 25C	Delivered Lumens 4000K CCT 70 CRI @ 25C	Delivered Lumens 5000K CCT 70 CRI @ 25C
N	1864	1960	2024	2169
W	1796	1889	1951	2090

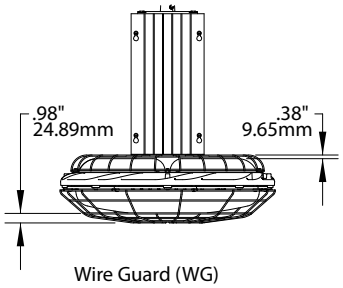
Distribution	Delivered Lumens 3000K CCT 70 CRI @ 25C	Delivered Lumens 3500K CCT 70 CRI @ 25C	Delivered Lumens 4000K CCT 70 CRI @ 25C	Delivered Lumens 5000K CCT 70 CRI @ 25C
N	1814	1907	1970	2111
W	1748	1838	1899	2035

* Values based on testing at 25°C.

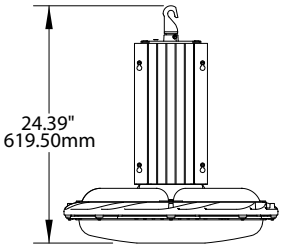
DIMENSIONAL DATA



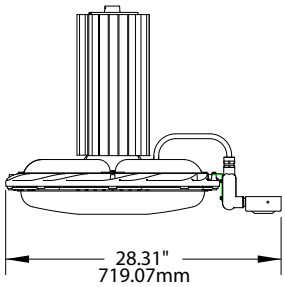
Pendant (P)



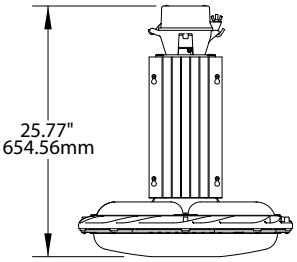
Wire Guard (WG)



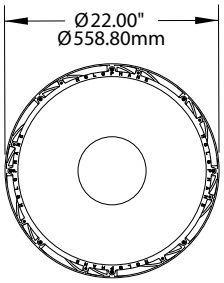
Hook



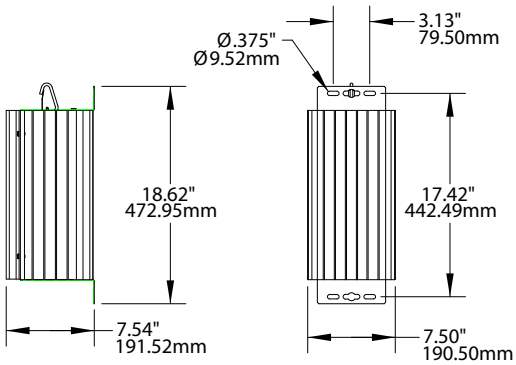
Occupancy Sensor



Quick Disconnect (Q)

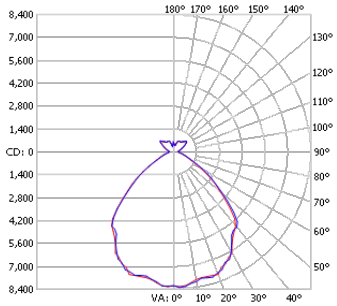


Diameter

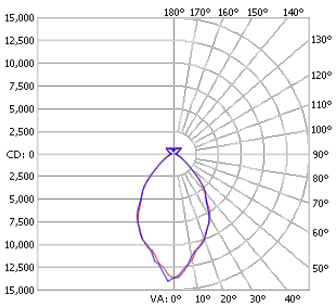


Emergency Battery Pack

DISTRIBUTION DATA

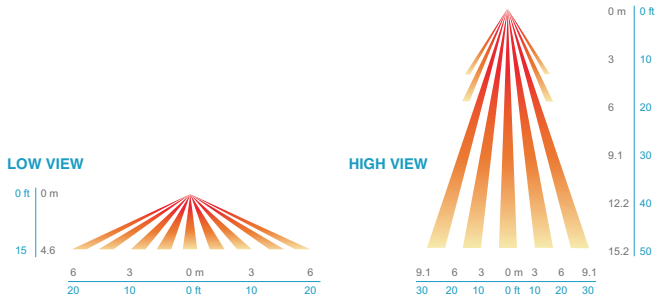


Wide



Narrow

CONTROLS



MSI6NDL, MSI6 DSCDL, MSI6 XADL, EXA1; Sensor Coverage Data

- Best choice for 15 to 45 ft. (4.57 to 13.72 m) mounting heights
- 15 to 20 ft. (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Large motion (e.g., walking) detection up to a 35-ft. (10.76 m) mounting height
- Extra large motion (e.g., forklifts) detection up to a 45-ft. (13.72 m) mounting height
- EXA1, means wireless dimming control with XPoint™ Wireless, down to 1%. Lights on 100% output when energized. The 0-10 dimming leads of the drivers are connected internally to the XPoint™ Wireless device so the fixtures are capable of dimming, but only in response to XPoint™ Wireless mesh network.
- MSI6 XADL, means XPoint™ Wireless High Bay 360° is a relay sensor and photcontol all in one, fixture mounted. Sensor is a point of control for a flexible XPoint™ Wireless mesh network. Fixture operation is 100% on at start up and dims to 30% when not occupied.
- Photcontol is disabled by default until an XPoint™ Wireless control mesh network has been field programmed.

COMPONENTS & OPTIONS DATA

XPoint™ wireless
Integrated wireless control technology connecting fixtures, sensors, and other modules together.

Dimming drivers standard
Drivers use 0-10V protocol with dimming down to 1% dimming power.

Surge protection
Phuzion surge protection is standard and provides 20kV of protection.

Uplight Optics
Standard prismatic, borosilicate glass that doesn't fade or degrade. Optional frosted optics.

EXHIBIT B

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE — The STL combines digital LED lighting and controls technologies with high-performance optical design to offer the most advanced surface-mount luminaire for general ambient lighting applications. High-efficacy light engine delivers long life and excellent color, ensuring a superior quality lighting installation that is highly efficient and sustainable.

CONSTRUCTION — Housing is roll formed from code-gauge steel.

Impact modified linear-faceted refractor with light diffusing film. Refractor attaches to die cast ends by simple hook and pin design with controlled tension provided by sonically welded end plate, providing secure installation and easy maintenance.

Decorative die-cast end caps provide added durability.

Finish: All metal parts are post-painted in white polyester powder coat for smooth, finished edges and uniform light distribution. Natural aluminum finish available on end caps (see Options).

Injection-molded plastic light traps prevent light leaks between shielding and end plates and centers diffuser on channel.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to vertical and horizontal work surfaces, rendering interior space, objects and occupants in a more balanced luminous environment.

Light distribution is carefully controlled at high angles, providing just enough luminous flux to create the volumetric effect.

Angled mounting surface combined with crescent-shape linear faceted refractor system obscures and integrates individual LED images and uniformly washes fixture surface with light.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. STL is rated to deliver L90 performance at 60,000 hours. The LEDs have a CRI of 82.

eldoLED driver options deliver choice of dimming range and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional nLight® embedded controls continuously monitor system performance, allow for constant lumen management / compensation function, facilitate simple "plug-and-play" network and controls upgrading via Cat-5 cable. Ballast disconnect provided where required to comply with US and Canadian codes.

LISTINGS — CSA certified to meet U.S. and Canadian standards.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Patents pending. Damp listed.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

ST SERIES

Surface Volumetric

STL4

4'

LED

INDUSTRY RECOGNITION/AWARDS

NGL'12
2012 BEST IN CLASS

2011 ARCHITECTURAL SSL PRODUCT INNOVATION AWARD

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

ORDERING INFORMATION

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

Example: STL4 20L EZ1 LP840

STL4							
Series	**Lumens**[1]	**Voltage**	**Driver**	**Color temperature**	**Control**	**Options**	**Finish**[6]
STL4 4' surface volumetric LED	20L 30L 40L 48L 60L	(blank) MVOLT (120-277) 347 347V[2]	EZ1 eldoLED dims to 1%, 0-10V EZB eldoLED dims to dark, 0-10V SLD Step-level dimming[3] EXA1 Dims to 1%, XPoint wireless enabled[3,4] EXAB Dims to dark, XPoint wireless enabled[3,4]	LP830 3000K LP835 3500K LP840 4000K LP850 5000K	(blank) No controls N80 nLight with 80% (L80) lumen management N80EMG nLight with 80% (L80) lumen management for use with generator supply EM power N100 nLight without lumen management N100EMG nLight without lumen management for use with generator supply EM power LSXRHL Sensor Switch® fixture mount sensor with High/Low occupancy operation[5] LSXR10 Sensor Switch® fixture mount sensor with On/Off occupancy operation	EL7L LED Emergency battery pack (nominal 700 lumens); see Life Safety section EL14L LED Emergency battery pack (nominal 1400 lumens); see Life Safety section SC1 Surface conduit end cap provisions for one endcap SC2 Surface conduit end cap provisions for both end caps	(blank) White DNA Natural aluminum

Accessories: *Order as separate catalog number.*

STCR	Continuous row connector (see mounting data)
STACG___	ST adjustable aircraft cable gripper suspension kit (specify length as 36 or 72 inches) (specify ceiling type F1 or F2 - see mounting data)
STACGF___	ST adjustable aircraft cable gripper with power feed (specify length as 36 or 72 inches) (specify ceiling type F1 or F2 - see mounting data)
STACGE___	ST adjustable aircraft cable gripper with emergency power feed (specify length as 36 or 72 inches) (specify ceiling type F1 or F2 - see mounting data)

Notes

1 Approximate lumen output.
2 Not available with EL battery packs or SLD driver.
3 Not available with controls options
4 Gateway not included. Requires on-site commissioning. Visit www.lightingcontrols.com/XPointWireless for more information.
5 Requires SC1 option. Dims to approximately 10% light output when unoccupied. See sensor details on next page.
6 For additional paint finishes refer to: Architectural Colors.

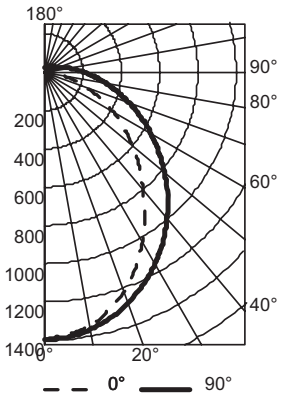
STL4 LED Surface Volumetric

Performance Data			
Lumen Package	**Input Watts[1]**	**Lumens**	**LPW**
30L LP830	26.7	2904	108.8
30L LP835	26.7	3049	114.2
30L LP840	26.7	3195	119.7
30L LP850	26.7	3282	122.9
40L LP830	34.9	3688	105.7
40L LP835	34.9	3834	109.9
40L LP840	34.9	3979	114.0
40L LP850	34.9	4124	118.2
48L LP830	45.2	4615	102.1
48L LP835	45.2	4850	107.3
48L LP840	45.2	5088	112.6
48L LP850	45.2	5184	114.7
60L LP830	53.2	5294	99.5
60L LP835	53.2	5559	104.5
60L LP840	53.2	5811	109.2
60L LP850	53.2	5954	111.9

Sensor Switch LSXR Sensor	
Lens type:	**10** - Low Mount 360°
Dimming:	**HL** - High/Low Occupancy operation
Min Dim Level:	**3V** - approximately 10% light output when unoccupied
Time Delay:	**5M** - 5 minutes

PHOTOMETRICS

STL4 40L EZ1 LP840, 3979 delivered lumens, test no. LTL25690, tested in accordance to IESNA LM-79.



CP Summary

	0°	90
0°	1395	1395
5°	1374	1389
15°	1289	1329
25°	1126	1221
35°	911	1080
45°	699	910
55°	507	729
65°	322	553
75°	158	393
85°	38	260
90	3	207

Coefficients of Utilization

RCR	pf	80%			70%			50%		
	pc	20%			20%			20%		
	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0		117	117	117	114	114	114	107	107	107
1		106	101	97	98	94	90	93	89	86
2		97	88	81	86	79	74	81	76	71
3		88	77	69	75	68	61	71	65	60
4		81	69	60	67	59	52	63	56	51
5		74	61	52	60	52	45	57	50	44
6		69	55	46	54	46	40	52	44	39
7		64	50	42	49	41	35	47	40	34
8		59	46	38	45	37	31	43	36	31
9		56	42	34	41	34	28	40	33	28
10		52	39	31	38	31	26	37	30	25

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	1043	26.2	26.2
0° - 40°	1668	41.9	41.9
0° - 60°	2829	71.1	71.1
0° - 90°	3703	93.1	93.1
90° - 120°	175	4.4	4.4
90° - 130°	207	5.2	5.2
90° - 150°	252	6.3	6.3
90° - 180°	276	6.9	6.9
0° - 180°	3979	100.0	100.0

MOUNTING DATA

Suspension Kit Ceiling Types: F1 for use with most T-bar and screw slot grid ceiling applications. Designed for on-grid and off-grid installations.

F2 for use with recessed or surface-mount horizontal J-box applications.

For unit or row installation; surface or suspend mounting.

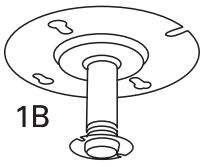
Individual installation — One double-stem or two single-stem hangers required.

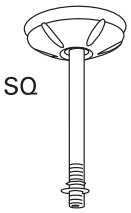
For aircraft cable, one STACG_, STACGF_, or STACGE_ required for each suspension point.

Row installation — Order one (1) STCR accessory per fixture for continuous row applications. Not required for last fixture in row. One hanger per fixture plus one per row required.

Note: 2' configurations with emergency option cannot be stem mounted.

See ACCESSORIES below for hanging devices.





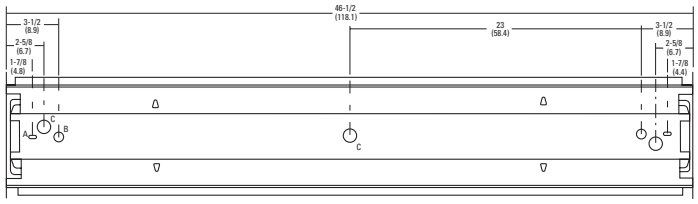
DIMENSIONS

All dimensions are inches (centimeters) unless otherwise noted.

Specifications

Length: 46-3/8 (117.8)
Width: 10-1/8 (25.7)
Depth: 3-7/8 (9.8)
Weight: 13LB

A = 1/4 x 1/2 (.635 x 1.27) Oval Hole
B = 11/16 (1.75) Dia. K.O.
C = 7/8 (2.22) Dia.K.O.



LITHONIA LIGHTING®
An AcuityBrands Company

LED: One Lithonia Way Conyers, GA 30012 Phone: 800-858-7763 Fax: 770-929-8789 www.lithonia.com

EXHIBIT C

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE — The Avante 2x2 is a general lighting luminaire for large spaces including open offices, circulation areas, classrooms, libraries, cafeterias, airport ticketing and wait areas, and numerous other commercial applications. Static or air function available. **Certain airborne contaminants can diminish integrity of acrylic. Click here for Acrylic Environmental Compatibility table for suitable uses.**

CONSTRUCTION — Housing is gloss white enamel on cold-rolled steel. All edges hemmed or rounded.

All shieldings pivot on light traps and swing down for easy access.

Molded light traps prevent light leaks between shielding and end-plates.

All air and screw slot units supplied with screw-on tee bar clips. Driver access is from below.

OPTICS — Matte white polyester powder paint finished reflectors provide uniform light distribution.

All diffusers control direct light distribution and glare by shielding LEDs from direct view.

Metal diffuser staggered round holes (MDR) 52% open perforated metal with .075" diameter holes backed with white acrylic diffuser.

Straight blade louver (SBL) sides of perforated metal with staggered round holes and solid blade louvered center. Sides and louver backed with white acrylic diffuser.

Acrylic diffuser prismatic lens (ADP) extruded acrylic lens backed with white acrylic diffuser.

ELECTRICAL— Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000).

eldoLED driver options deliver choice of dimming range and choice of control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight®controls make each luminaire addressable - allowing it to digitally communicate with other nLight-enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight-enabled control devices and the AVL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission.

Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Driver disconnect provided where required to comply with US and Canadian codes.

INSTALLATION — Trims available for standard 1" and 9/16" tee bar or screw slot grids.

Fixtures can be row mounted end-to-end. Suitable for damp locations.

Drywall ceiling adapters available.

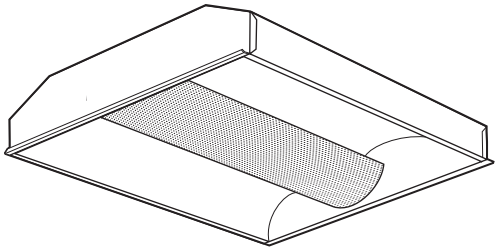
LISTINGS — CSA certified to meet US and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Avante is covered by one or more of the following patents: 5,988,829; 399,586; 411,641; 413,402; 2,212,513; 87,513.

Avante® Direct/Indirect Lighting

2AVL

2' X 2' LED



eldoLED

Specifications

Length:	24 (61.0)
Width:	24 (61.0)
Diffuser width:	8 (20.3)
Depth:	5-1/2 (14.0)
	5-7/8 (14.9) for air fixture
Weight:	20 lbs

All dimensions are inches (centimeters) unless otherwise indicated.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

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

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

ORDERING INFORMATION

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

Example: 2AVL2 20L MDR EZ1 LP835

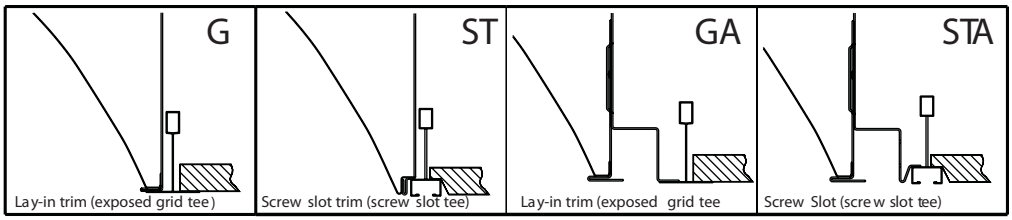
2AVL2										
Series	**Trim type**	**Air function**	**Lumens**[1]	**Diffuser**	**Voltage**	**Driver**	**Color temperature**	**Controls**		**Options**	
2AVL2 AV LED	**(blank)** Grid trim	**(blank)** Static (no air function)	**20L** 2000 lumens	**MDR** Metal diffuser, round holes	**(blank)** MVOLT (120 - 277V)	**EZ1** eldoLED dims to 1% (0-10 volt dimming)	LP830 3000 K	**(blank)**	No controls	JP20	Palletized job pack, qty. 20
	ST Screw slot	A Air return/ Supply	**30L** 3000 lumens	SBL Straight louver, round holes			**LP835** 3500 K	N80	nLight® with 80% lumen management	EL7L	700 lumen battery pack
			40L 4000 lumens	ADP Acrylic diffuser, linear prismatic lens			LP840 4000 K	N80EMG	nLight® with 80% lumen management. For use with generator supply EM power	EL14L	1400 lumen battery pack[1]
							LP850 5000 K	N100	nLight® without lumen management	CP	Chicago plenum
								N100EMG	nLight® without lumen management. For use with generator supply EM power		

Notes

1 Approximate lumen output.

MOUNTING DATA

Ceiling Type	Appropriate Trim Type
Exposed grid tee (1' and 9/16")	**G**
Concealed grid tee	**G**
Screw slot	**ST**
Plaster or plasterboard	**G***



*DGA accessory available to provide ceiling trim flange and fixture support for plaster or plasterboard ceiling. Recommended rough-in dimensions for DGA installation is 24-3/4" x 48-3/4" (Tolerance is +1/8", -0").

Performance Data			
Lumen Package	**Lumens**	**Input Watts**	**LPW**
20L MDR LP830	2044	24	85
20L MDR LP835	2034	24	85
20L MDR LP840	2025	24	84
20L MDR LP850	2106	24	88
30L MDR LP830	2759	36	77
30L MDR LP835	2704	36	75
30L MDR LP840	2734	36	76
30L MDR LP850	2843	36	79
40L MDR LP830	3884	57	68
40L MDR LP835	3806	57	67
40L MDR LP840	3848	57	67
40L MDR LP850	4001	57	70

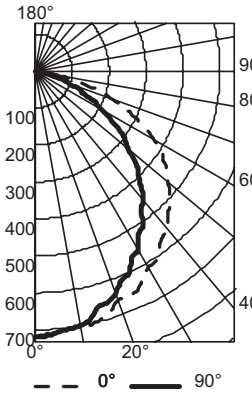
Accessories: *Order as separate catalog number.*

DGA22	Drywall ceiling adapter, unit installation. Use G trim plus DGA accessory for fixture trim flange and fixture support in plaster or plasterboard ceilings.

LED: One Lithonia Way, Conyers, GA 30012 Phone: 800-858-7763 Fax: 770-929-87891 www.lithonia.com

PHOTOMETRICS

2AVL2 20L MDR LP835, 2034 delivered lumens, test no. 69075P0, tested in accordance to IESNA-LM79.



CP Summary

	0°	90
0°	718	718
5°	708	709
15°	695	661
25°	654	602
35°	585	507
45°	516	395
55°	423	280
65°	300	142
75°	141	51
85°	1	1
90	1	1

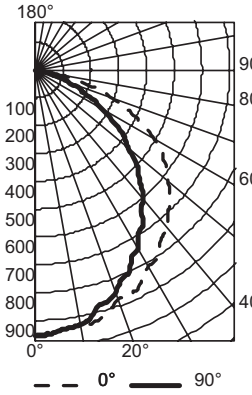
Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
	0	60	60	60	58	58	58	56	56	56
	1	54	52	50	51	49	47	49	47	46
	2	49	45	42	44	41	39	43	40	38
	3	45	40	36	39	35	32	37	34	32
	4	41	35	31	35	30	27	33	30	27
	5	38	31	27	31	27	23	30	26	23
	6	35	28	24	28	24	20	27	23	20
	7	32	26	21	25	21	18	24	21	18
	8	30	23	19	23	19	16	22	19	16
	9	28	21	17	21	17	14	21	17	14
	10	26	20	16	20	16	13	19	15	13

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	555	13.7	27.3
0° - 40°	907	22.3	44.6
0° - 60°	1607	39.5	79.0
0° - 90°	2034	50.0	100.0
90° - 180°	0	0.0	0.0
0° - 180°	2034	50.0	100.0

2AVL2 30L MDR LP835, 2704 delivered lumens, test no. 69075P5, tested in accordance to IESNA-LM79.



CP Summary

	0°	90
0°	955	955
5°	942	942
15°	924	879
25°	869	801
35°	777	674
45°	685	525
55°	563	373
65°	399	189
75°	188	68
85°	2	2
90	1	1

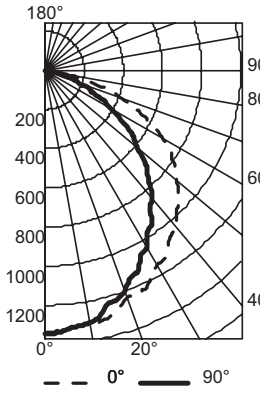
Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
	0	60	60	60	58	58	58	56	56	56
	1	54	52	50	51	49	47	49	47	46
	2	49	45	42	44	41	39	43	40	38
	3	45	40	36	39	35	32	37	34	32
	4	41	35	31	35	30	27	33	30	27
	5	38	31	27	31	27	23	30	26	23
	6	35	28	24	28	24	20	27	23	20
	7	32	26	21	25	21	18	24	21	18
	8	30	23	19	23	19	16	22	19	16
	9	28	21	17	21	17	14	21	17	14
	10	26	20	16	20	16	13	19	15	13

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	738	13.7	27.3
0° - 40°	1207	22.3	44.6
0° - 60°	2137	39.5	79.0
0° - 90°	2705	50.0	100.0
90° - 180°	0	0.0	0.0
0° - 180°	2705	50.0	100.0

2AVL2 40L MDR LP835, 3806 delivered lumens, test no. 69075P9, tested in accordance to IESNA-LM79.



CP Summary

	0°	90
0°	1344	1344
5°	1326	1326
15°	1300	1237
25°	1223	1127
35°	1094	949
45°	965	738
55°	792	525
65°	561	266
75°	264	95
85°	2	2
90	1	1

Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
	0	60	60	60	58	58	58	56	56	56
	1	54	52	50	51	49	47	49	47	46
	2	49	45	42	44	41	39	43	40	38
	3	45	40	36	39	35	32	37	34	32
	4	41	35	31	35	30	27	33	30	27
	5	38	31	27	31	27	23	30	26	23
	6	35	28	24	28	24	20	27	23	20
	7	32	26	21	25	21	18	24	21	18
	8	30	23	19	23	19	16	22	19	16
	9	28	21	17	21	17	14	21	17	14
	10	26	20	16	20	16	13	19	15	13

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	1039	13.7	27.3
0° - 40°	1698	22.3	44.6
0° - 60°	3007	39.5	79.0
0° - 90°	3806	50.0	100.0
90° - 180°	0	0.0	0.0
0° - 180°	3806	50.0	100.0

LED: One Lithonia Way, Conyers, GA 30012 Phone: 800-858-7763 Fax: 770-929-87891 www.lithonia.com

EXHIBIT D

Project Name:	
Catalog Number:	Fixture Type:
Volts/Watts:	Lamps/Board:

GRID FRAME HIGH BAY - 140W LED

RECESSED HIGH BAY

FEATURES

- 2x2 Recessed Grid High Bay
- Specification Grade for New Construction or Renovation of any Building
- .040 Aluminum Prepainted Housing
- Standard Configuration
  - No Lens
  - No Wire Cage
- Frosted Lens Option Available
- Polycarbonate Lens Option Available
- Wire Cage Option Available
- Flange Kit Option Available
- 0-10V Dimmable Driver
- ETL Listed
- DesignLights Consortium® Qualified

LED SYSTEM

Calculated L_{70} (TM-21)	**>100K** (1)
Delivered Lumens	**16,865 lm**
Total Input Watts	**140 W**
Luminaire Efficacy Rating (LER)	**121 lm/W**
Correlated Color Temperature (CCT)	**5000 K**
Color Rendering Index (CRI)	**>80**
Max Ambient Temp	**120˚ F**
Universal Driver	**120-277 V**

*LED System data above based on an estimate of GH22-140WLED-UNIV-5000K

SUITABLE APPLICATIONS

- Gymnasium
- Multipurpose Room
- Car Dealership
- Racquetball Court

5 YEAR WARRANTY

Intertek

ORDERING GUIDE:

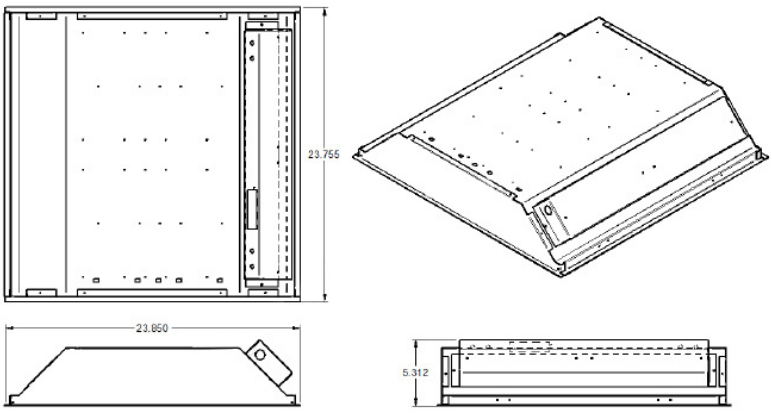
GH22	140WLED	UNIV	5000K	eg:CORDx

Series	LED	Driver	Color	Options
☐ **GH22** High Bay 2ft	☐ **140WLED**	☐ **UNIV** 120-277 Driver	☐ **4000K** ☐ **5000K**	☐ **SD480** 480V Step Down Transformer ☐ **FRL** Frosted Acrylic Lens ☐ **PCL** Polycarbonate Lens ☐ **FLGK** Flange Kit ☐ **WC** Wire Cage ☐ **G*** Single Gasket ☐ **G2*** Double Gasket ☐ **G3*** Triple Gasket

*Does not make fixture wet location or dust tight rated

GRID FRAME HIGH BAY - 140W LED

RECESSED HIGH BAY



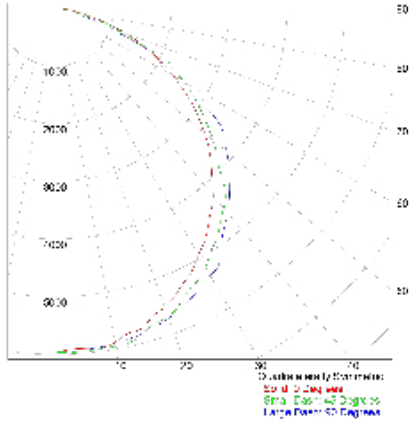
GH22-140WLED-UNIV-5000K

LUMINAIRE OUTPUT = 16275.5 Lms
119.9V 1.1823A 139.88W PF=0.986

SUMMARY DATA

HEMISPHERES TESTED:	BOTH
EFFICIENCY (Total);	100.0%
EFFICIENCY (Downlight):	100.0%
EFFICIENCY (Uplight)	0.0%
CIE CLASSIFICATION:	DIRECT
SPACING CRITERION:	1.24
SPACING CRITERION:	1.33
LUMENS/LAMP:	16275.5
NO. OF LAMPS:	1
LUMINOUS OPENING: RECTANGULAR	
WIDTH:	1.92(FEET)
Length:	1.91
Height:	0.00
INPUT WATTS:	139.885

PLANE AND CONE DIAGRAM



Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

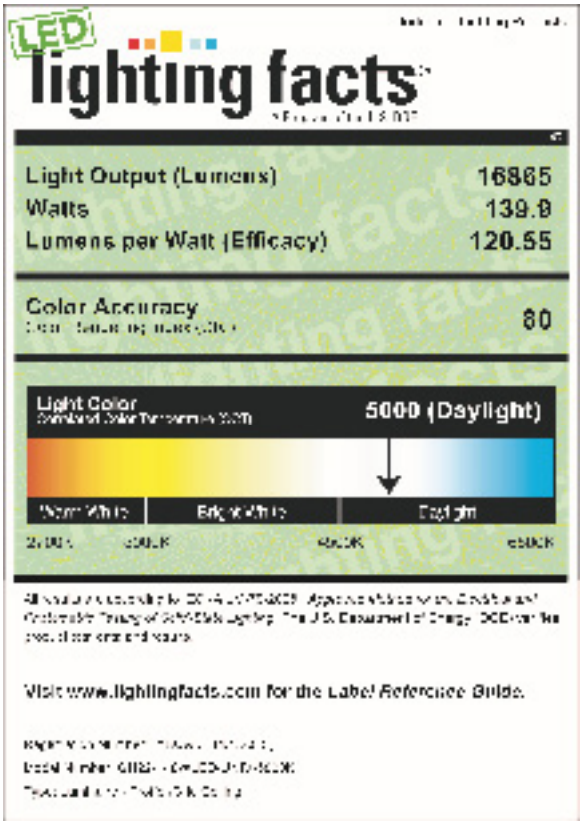


EXHIBIT E

Project Name:	
Catalog Number:	Fixture Type:
Volts/Watts:	Lamps/Board:

LOW PROFILE CANOPY - 60W LED

PARKING GARAGE

FEATURES

- Die Cast Aluminum Housing
- ½″ Coin Plugs with O-rings for Conduit & Photocell on Two Sides & Back
- Textured Architectural Bronze Powdercoat Finish Over a Chromate Conversion Coating
- Mount Directly Over a 4″ Recessed Outlet Box, or Quick-Mount Bracket Option
- Multiple Dimming and Sensor Options to Fully Control Occupied and Unoccupied Light Levels
- Custom Colors Available Upon Request
- Constructed to meet IP66 Standards
- 5 Year Warranty
- ETL Listed for Wet Locations
- DesignLights Consortium® Qualified (2)

REPLACES 175W MH

Shown with USDC Option

LED SYSTEM

Board (CREE Chips)	**4 x 6**
Calculated L_{70} (TM-21)	**76,000 hours**
Delivered Lumens	**4,945 lm**
Total Input Watts	**65.97 W**
Luminaire Efficacy Rating (LER)	**74.96 lm/W**
Correlated Color Temperature (CCT)	**5000 K**
Color Rendering Index (CRI)	**77.3**
Max Ambient Temp	**100˚ F**
Universal Driver	**120-277 V**

LED System data above based on CP-60WLED-UNIV-5000K
(1) LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25˚C ambient
(2) Specific Configurations Listed on DLC.

SUITABLE APPLICATIONS

- Parking Garage
- Freezers
- Outdoor Areas

ORDERING GUIDE:

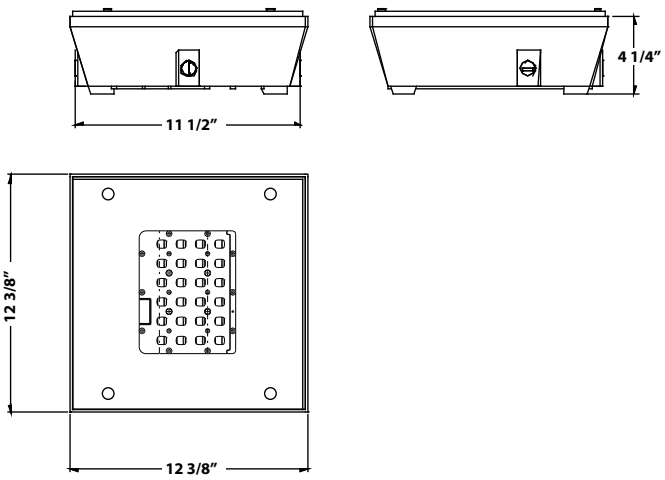
CP	60WLED	UNIV	5000K	eg: QMB

Series		LED		Driver		Color	Options	
☐ **CP**	Low Profile Canopy	☐ **60WLED**	4x6 Board	☐ **UNIV**	120-277 Driver	☐ **3000K***	☐ **CORDx**	Cord (X = ft)
						☐ **4000K**	☐ **PLUGx**	Plug (X = Type, eg. L715P)
						☐ **5000K****	☐ **SD480**	480V Step Down Transformer
							☐ **QMB**	Quick-Mount Bracket (details on back)
							☐ **DIM**	0-10V Dimmable Driver
							☐ **FIOS**	Factory Installed Occupancy Sensor
							☐ **FIOSPC**	On/Off Occupancy Sensor w/ Photocell
							☐ **WLOS**	Wet Location Sensor Installed
							☐ **USDC**	User Selectable Dimming Control
							☐ **USBD**	User Select Bi-level Dim w/ Occ. Sensor
							☐ **BDxx**	Bi-level Dimming (xx=% - eg. 10%, 20%, 30%...)
							☐ **BDxxPC**	Bi-level Dimming with Photocell
							☐ **DHPC**	Daylight Harvesting
							☐ **PCxxx**	Photocell (xxx = Voltage)

*Call for Availability
**DLC Listed Configuration

LOW PROFILE CANOPY - 60W

PARKING GARAGE



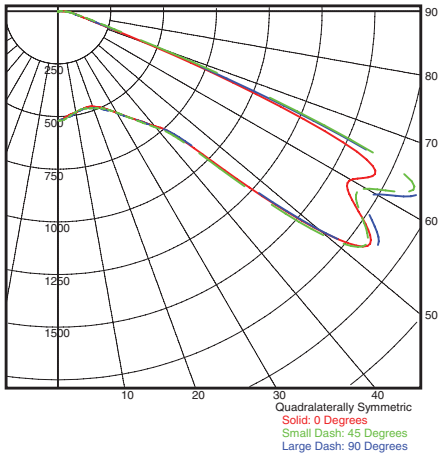
CP-60WLED-UNIV

LUMINAIRE OUTPUT = 4941 LMS
120VAC, 550.99mA 65.965W, 0.9969PF

SUMMARY DATA

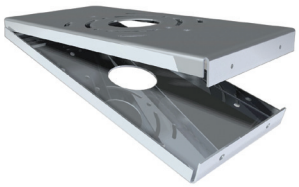
HEMISPHERES TESTED:	BOTH
EFFICIENCY (Total):	100.0 %
EFFICIENCY (Downlight):	99.9 %
EFFICIENCY (Uplight):	0.1 %
CIE CLASSIFICATION:	DIRECT
SPACING CRITERION (0-Deg.):	3.12
SPACING CRITERION (90-Deg.):	3.19
LUMENS/LAMP:	4955.391
NO. OF LAMPS:	1
LUMINOUS OPENING: RECTANGULAR	
Width:	0.46 (Feet)
Length:	0.58
Height:	0.00
INPUT WATTS:	66

PLANE AND CONE DIAGRAM



Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

MOUNTING OPTIONS



QMB

T-Hinged Quick-Mount Bracket,
16 ga Galvanized Steel, Surface Mount
or Over Recessed Electrical Box.

Industrial Lighting Products

LED lighting facts®

A Program of the U.S. DOE

Light Output (Lumens)	4945
Watts	65.97
Lumens per Watt (Efficacy)	74
Color Accuracy Color Rendering Index (CRI)	77

Light Color
Correlated Color Temperature (CCT) 5289 (Daylight)

Warm White | Bright White | Daylight

2700K 3000K 4500K 6500K

All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

Registration Number: 8QYC-EVE1JK (2/19/2013)
Model Number: CP-60WLED-UNIV UPGRADE (02/2013)
Type: Parking garage fixture

EXHIBIT F

Project Name:	
Catalog Number:	Fixture Type:
Volts/Watts:	Lamps/Board:

SMALL FLOOD - 20W LED

OUTDOOR LIGHTING

REPLACES 70W MH

FEATURES

- Die Cast Aluminum Housing
- Hinged Front Frame for Easy Tool-less Access
- Textured Architectural Bronze Powdercoat Finish
- Dimple Textured Diffusive Tempered Glass Lens
- Watertight Cord Grip Installed
- Standard Yoke Included
- Box Mounting Options Also Available (3' Cord and Watertight Bushing Included)
- 4000K (Std)
- Rated for Outdoor Use
- 5 Year Warranty
- IP65 Rating
- DesignLights Consortium® Qualified [2]

LED SYSTEM

Calculated L_{70} (TM-21)	**73,000 hours**
Delivered Lumens	**1,475 lm**
Total Input Watts	**18.9 W**
Luminaire Efficacy Rating (LER)	**78.2 lm/W**
Correlated Color Temperature (CCT)	**4000 K**
Color Rendering Index (CRI)	**> 80**
Max Ambient Temp	**110˚ F**
Universal Driver	**120-277 V**

LED System data above based on FMS-20WLED-UNIV-4000K
[1] LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25˚C ambient
[2] Specific Configurations Listed on DLC.

SUITABLE APPLICATIONS

- Parking lots
- Buildings
- General area lighting

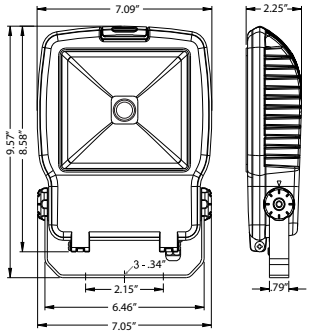
complies with **RoHS**

Ordering Guide

Part Number	Full Description	Options
☐ **FMS-20WLED-UNIV-4000K**	**Small Flood with Yoke - 20W, 120V-277V, 4000K Color Temp**	☐ **BMA** Box Mount Adapter (3' cord & bushing incl.) ☐ **CORDx** Cord (X = ft)

SMALL FLOOD - 20W LED

OUTDOOR LIGHTING



FMS-20WLED

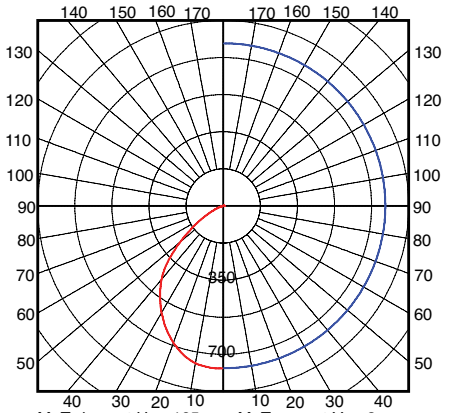
FMS-20WLED-UNIV-4000K

LUMINAIRE OUTPUT = 1475 LM
120.0V 0.1579A 18.87W PF= 0.996

SUMMARY DATA

HEMISPHERES TESTED:	LOWER
EFFICIENCY (Total):	100.0 %
EFFICIENCY (Street / House):	50.3 % / 49.7 %
ROADWAY CLASSIFICATION:	TYPE VS
CUTOFF CLASSIFICATION:	CUTOFF
LUMENS/LAMP:	1445.316
NO. OF LAMPS:	1
LUMINOUS OPENING: RECTANGULAR	
Width:	0.43 (Feet)
Length:	0.38
Height:	0.00
INPUT WATTS:	18.5

PLANE AND CONE DIAGRAM



Ma plane at H = 165 Ma cone at V = 2
MA CANDLEPOWER: 767.5

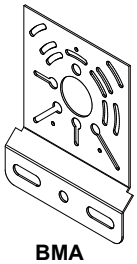
Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

MOUNTING OPTIONS

- Standard Yoke Included
  (EPA Rating: 0.50ft²)

Also Available:

- Box Mount Adapter (BMA)
  - Includes 3 ft cord and watertight bushing
  (EPA Rating: 0.51ft²)



BMA

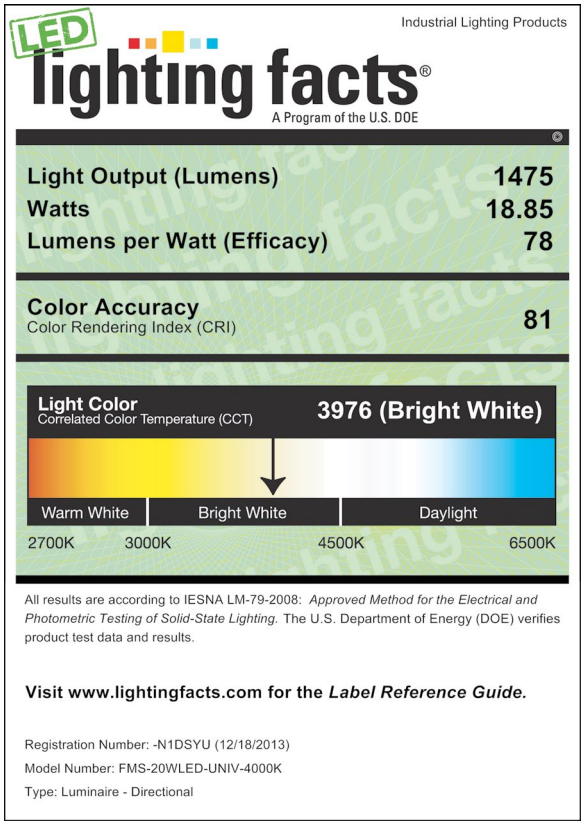


EXHIBIT G

LED Corn Cob Retrofit Lighting

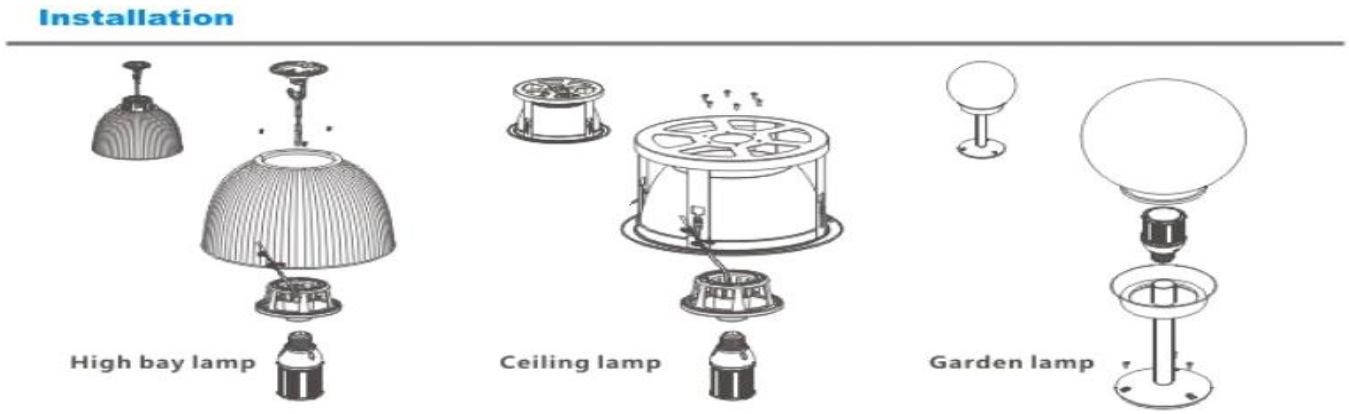
The Perfect LED Retrofit For….
Post Lights, Decorative, Acorn, Bollard,
High Bay and Many More.

Easy Retrofit Installation Only Takes Minutes To Install
Save Up To 80% In Energy Cost

Replaces 70W to 600W HID Systems 120/305V
Available In WW 2700-3300K, PW 3700-4300K, CW 5700-6300K
E26, E39 Base, UL, CL, Energy Star LM79, LM80
5 Year Warranty / 10 Year Life Span
Wattages: 8-10-14-18-22-27-36-45-54-80-100-120
Can Be Used In Sealed Fixture

Neu-Tech Energy Solutions
513-702-3533 / 513-325-1623 / 407-230-9096 / 262-707-7288
info@retrofitled.net www.retrofitled.net

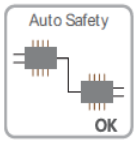
360 Degree Lamp 8-120 Watt



Neu-Tech Energy Solutions
513-702-3533 / 513-325-1623 / 407-230-9096 / 262-707-7288
info@retrofitled.net www.retrofitled.net

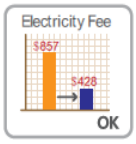
Long Lifespan of 10years

Reliability Test



Safety Protection Circuit

No Mercury
No UVLight



Big Saving(87%)
on Electricity Costs

Usable in Enclosed
Luminaires

Omni Wide Angle

LED Corn Bulb Series

5 Years Warranty

Samsung
LM561B

Rubycon

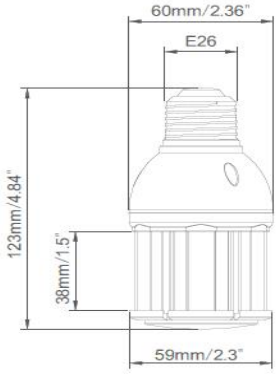
E26

JAE Connector

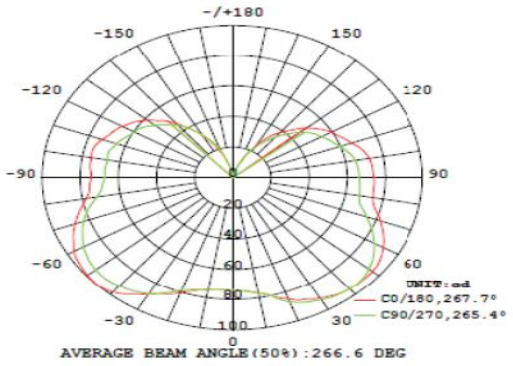
Specifications

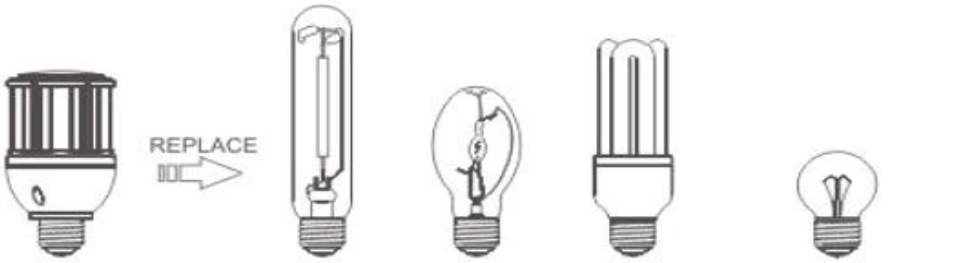
Model	IDO-801-08W
Rate Power	≤8W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	800±40lm
Brand	Samsung
LED Quantity	24LEDs 0.3W
LED LM80	Yes

Dimensions



Luminous emittance





Neu-Tech Energy Solutions
513-702-3533 / 513-325-1623 / 407-230-9096 / 262-707-7288
info@retrofitled.net www.retrofitled.net

LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-801-10W
Rate Power	≤10W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	1000±50lm
Brand	Samsung
LED Quantity	32LEDs 0.3W
LED LM80	Yes

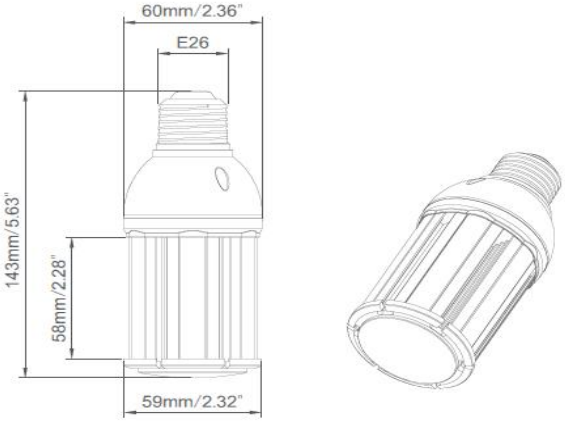
Samsung LM561B

Rubycon

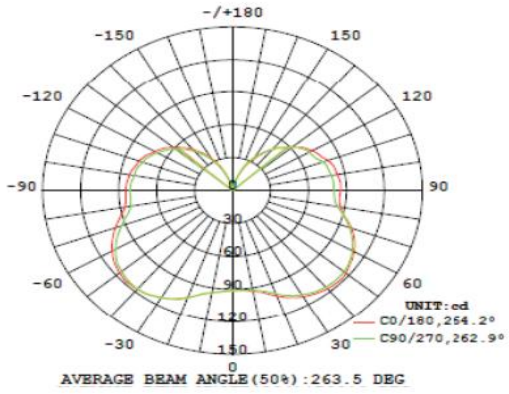
E26

JAE Connector

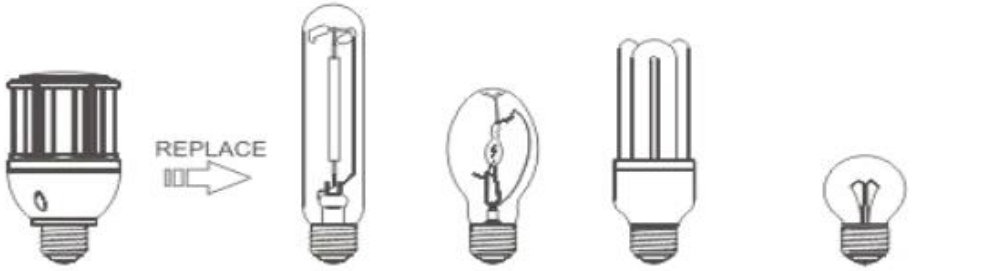
Dimensions



Luminous emittance



Neu-Tech Energy Solutions
513-702-3533 / 513-325-1623 / 407-230-9096 / 262-707-7288
info@retrofitled.net www.retrofitled.net



LED Corn Bulb Series

5 Years Warranty

Specifications

Model	IDO-801-14W
Rate Power	≤14W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	1400±70lm
Brand	Samsung
LED Quantity	42LEDs 0.3W
LED LM80	Yes

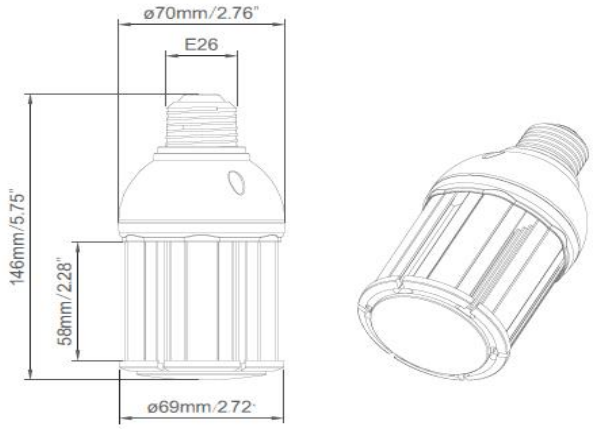

Samsung LM561B


Rubycon

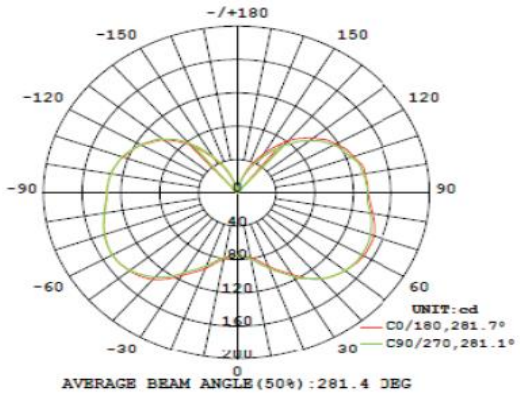

E26


JAE Connector

Dimensions



Luminous emittance



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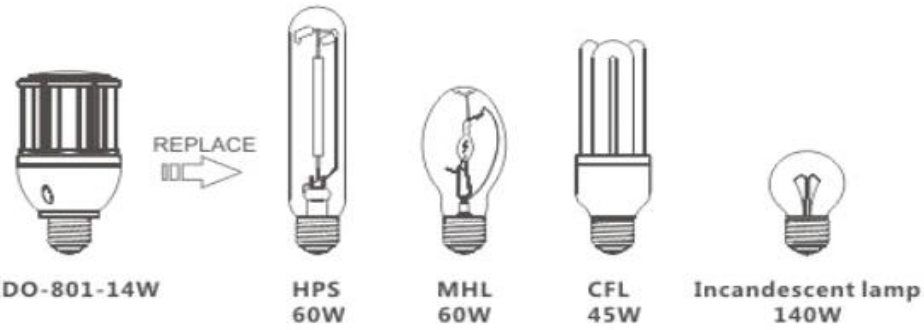

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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Samsung LM561B

Rubycon

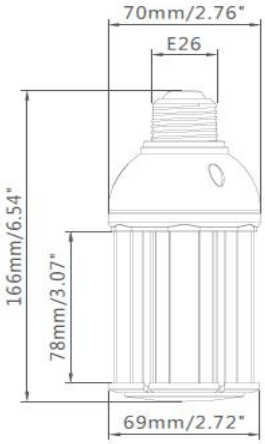
E26

JAE Connector

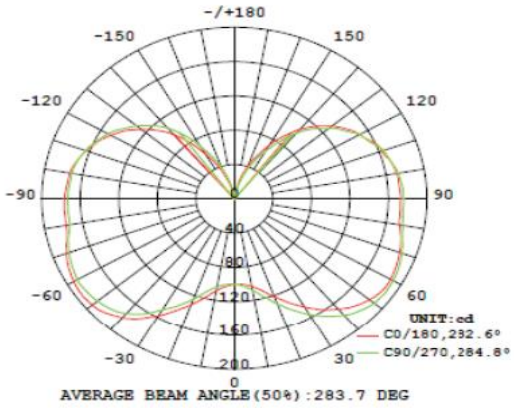
Specifications

Model	IDO-801-18W
Rate Power	≤18W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	1800±90lm
Brand	Samsung
LED Quantity	56LEDs 0.3W
LED LM80	Yes

Dimensions



Luminous emittance



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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Samsung LM561B

Rubycon

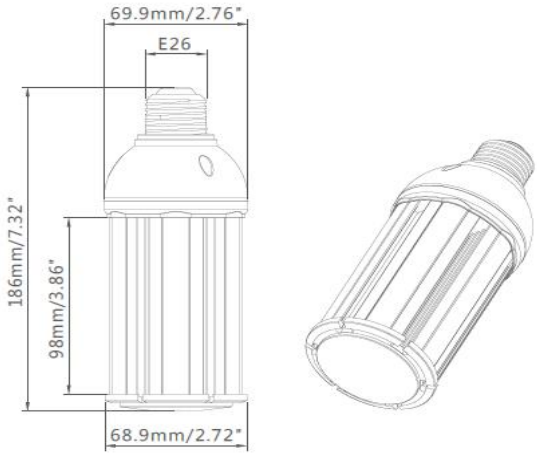
E26

JAE Connector

Specifications

Model	IDO-801-22W
Rate Power	≤22W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	2200±110lm
Brand	Samsung
LED Quantity	70LEDs 0.3W
LED LM80	Yes

Dimensions



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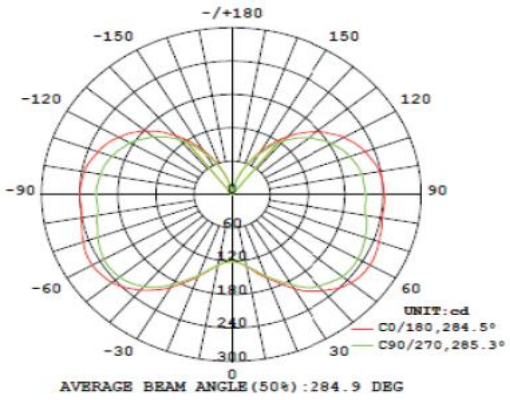

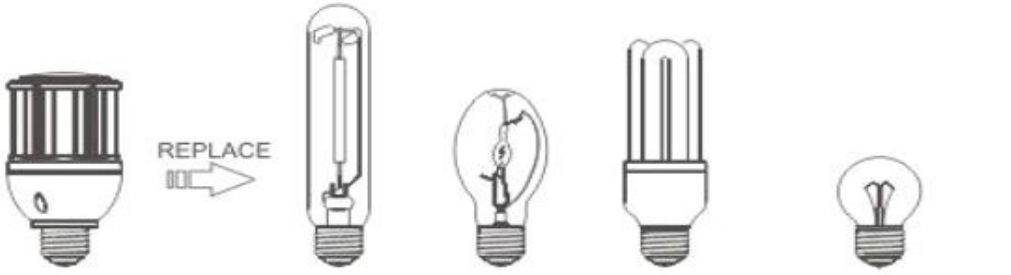

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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-802-27W
Rate Power	≤28W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	2800 140lm
Brand	Samsung
LED Quantity	81LEDs 0.3W
LED LM80	Yes

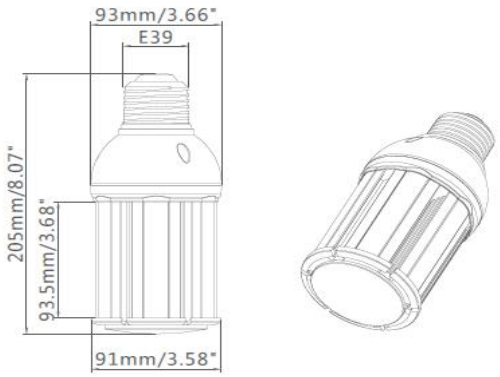
Samsung LM561B

Rubycon

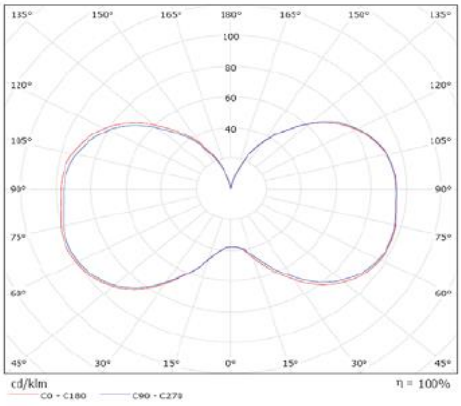
E26/E39

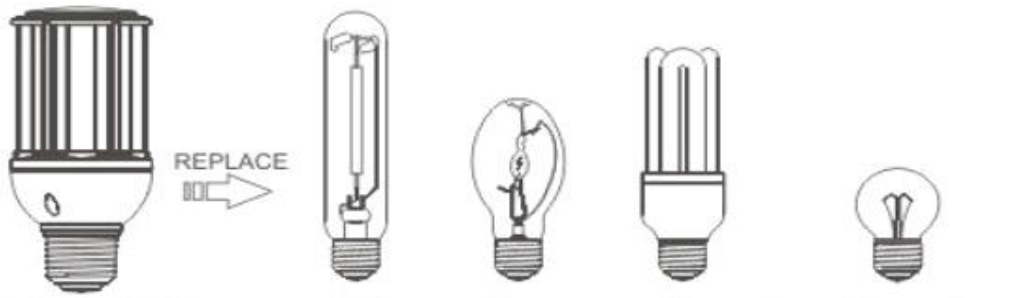
JAE Connector

Dimensions



Luminous emittance





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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Samsung LM561B

Rubycon

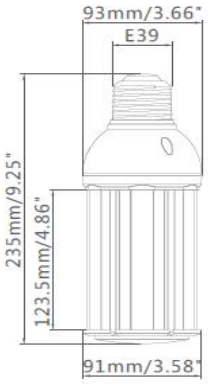
E26/E39

JAE Connector

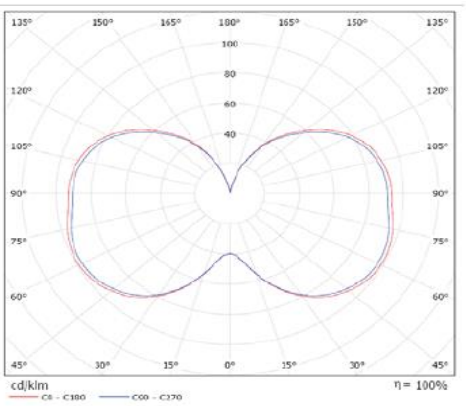
Specifications

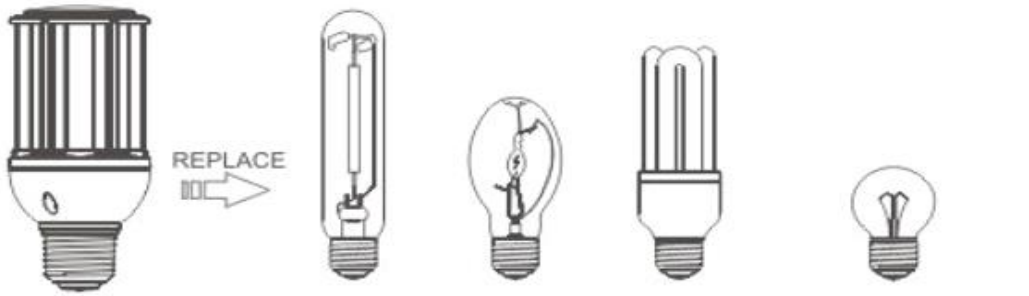
Model	IDO-802-36W
Rate Power	≤38W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	3800 190lm
Brand	Samsung
LED Quantity	108LEDs 0.3W
LED LM80	Yes

Dimensions



Luminous emittance





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LED Corn Bulb Lamp Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-802-45W
Rate Power	≤47.5W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	4700±240lm
Brand	Samsung
LED Quantity	135LEDs 0.3W
LED LM80	Yes

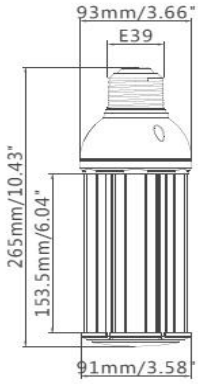
Samsung LM561B

Rubycon

E26/E39

JAE Connector

Dimensions



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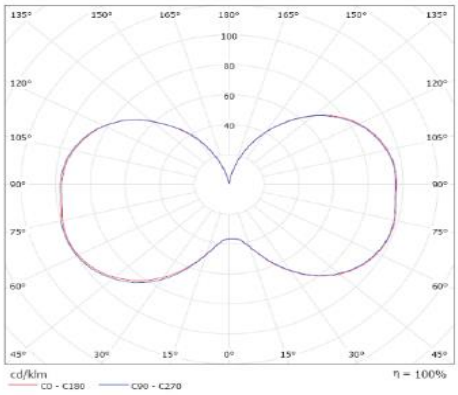

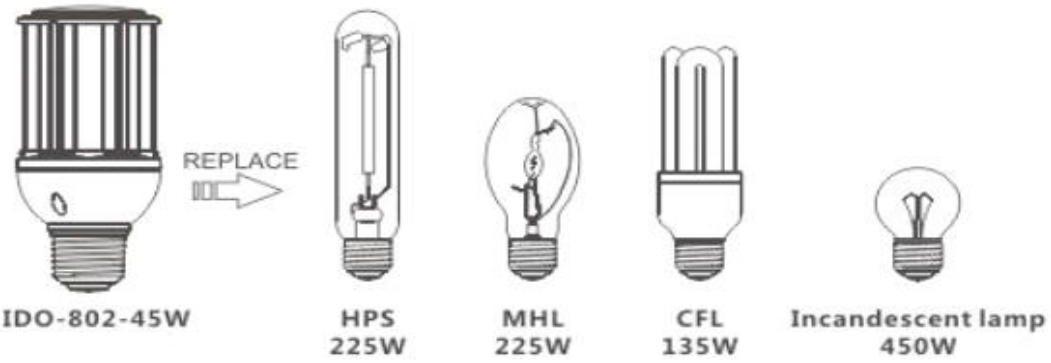

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LED Corn Bulb Lamp Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-802-54W
Rate Power	≤57.5W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	5700±280lm
Brand	Samsung
LED Quantity	162LEDs 0.3W
LED LM80	Yes

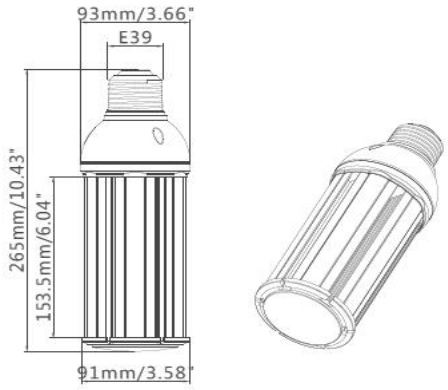
Samsung LM561B

Rubycon

E26/E39

JAE Connector

Dimensions



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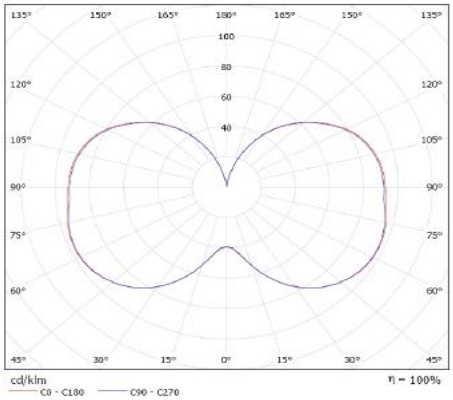

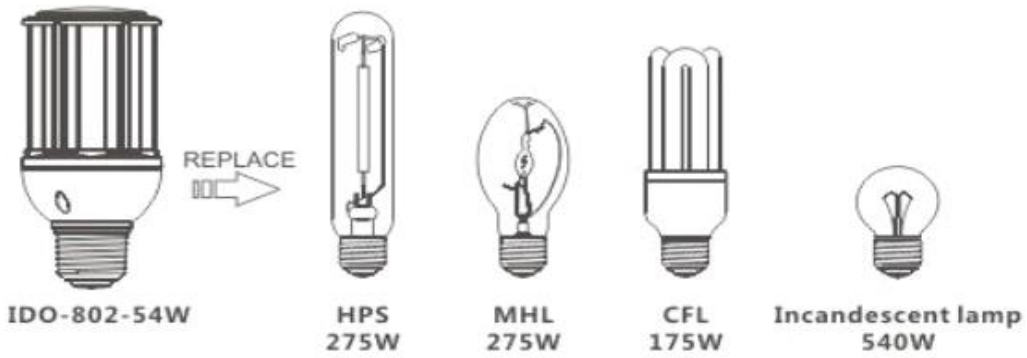

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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-803-80W
Rate Power	≤84W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	8400 420lm
Brand	Samsung
LED Quantity	234LEDs 0.3W
LED LM80	Yes

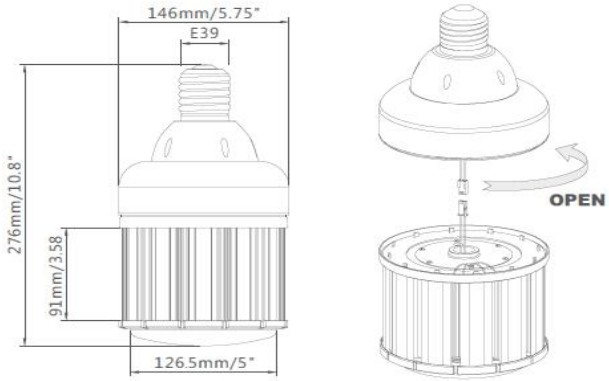
Samsung LM561B

Rubycon

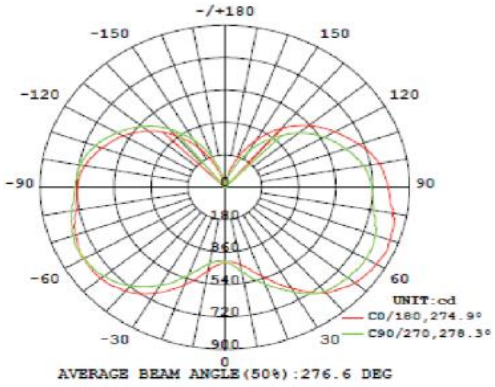
E39

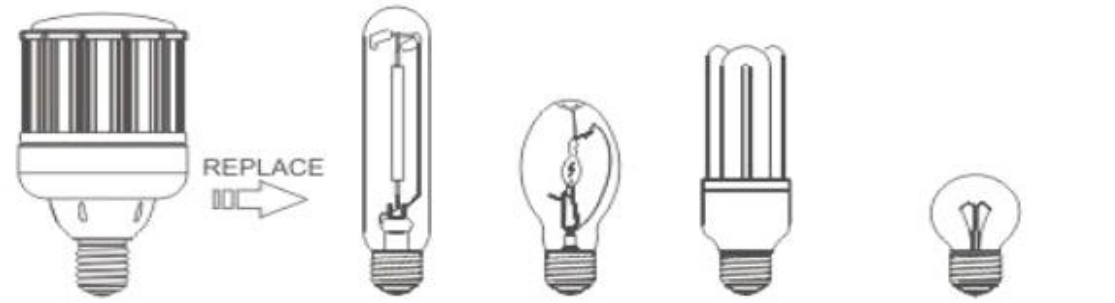
JAE Connector

Dimensions



Luminous emittance





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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Samsung LM561B

Rubycon

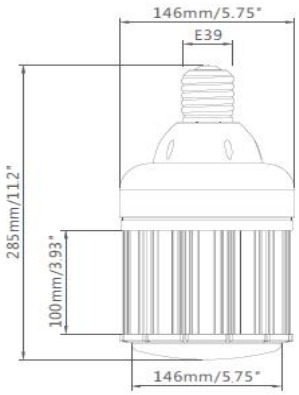
E39

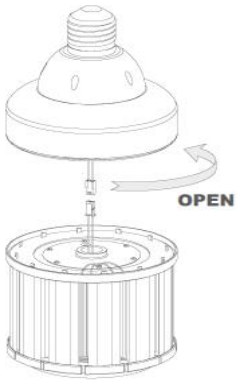
JAE Connector

Specifications

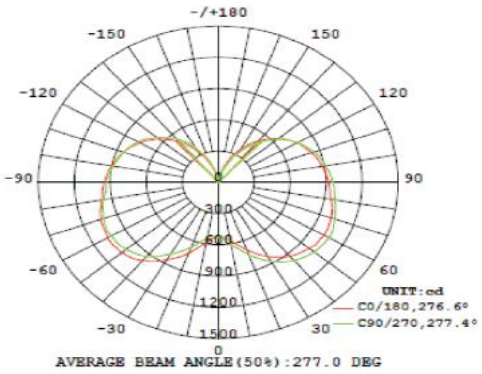
Model	IDO-803-100W
Rate Power	≤105W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	10500 525lm
Brand	Samsung
LED Quantity	280LEDs 0.3W
LED LM80	Yes

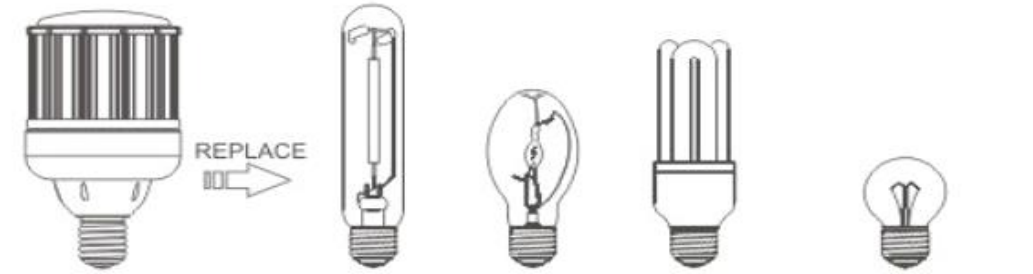
Dimensions





Luminous emittance





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LED Corn Bulb Series

Warranty 5 Years

5 Years Warranty

Specifications

Model	IDO-803-120W
Rate Power	≤126W
Input Voltage	AC100-277V 50-60Hz
CCT	2700-7000K
Power Factor	≥0.9
CRI	>80
Lumen	12600 630lm
Brand	Samsung
LED Quantity	336LEDs 0.3W
LED LM80	Yes

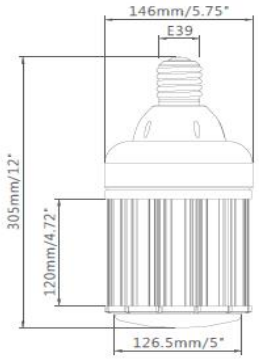
Samsung LM561B

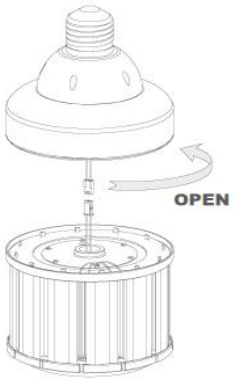
Rubycon

E39

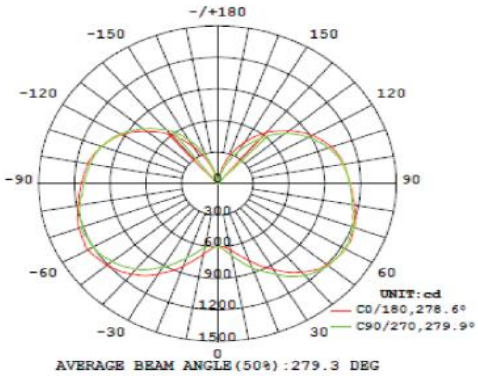
JAE Connector

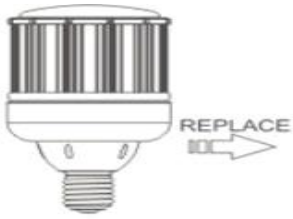
Dimensions





Luminous emittance





IDO-803-120W

HPS 600W

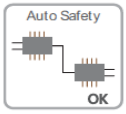
MHL 600W

CFL 350W

Incandescent lamp 1200W

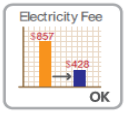
Long Lifespan of 10years

Reliability Test



Safety Protection Circuit

No Mercury
No UVLight



Big Saving(87%) on Electricity Costs

Usable in Enclosed Luminaires

Omni Wide Angle

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EXHIBIT H

PAR38 19W 277V TITANIUM LED SERIES 3.0

GREENCREATIVE

PRO

WET LOCATION

19W REPLACES

120W Hal.

80% Energy Savings

$335 Savings per lamp*

- Universal voltage 120-277V
- CoolSink technology optimizes thermal management
- MirOptic lens: maximizes distribution, minimizes glare
- Wet location rated for outdoor use
- High efficacy 66 LPW in Warm White
- NF / FL beam angles & Warm White / Natural White CCT

40,000 H

120-277V UNIVERSAL

66 LPW EFFICACY

5 YR WARRANTY

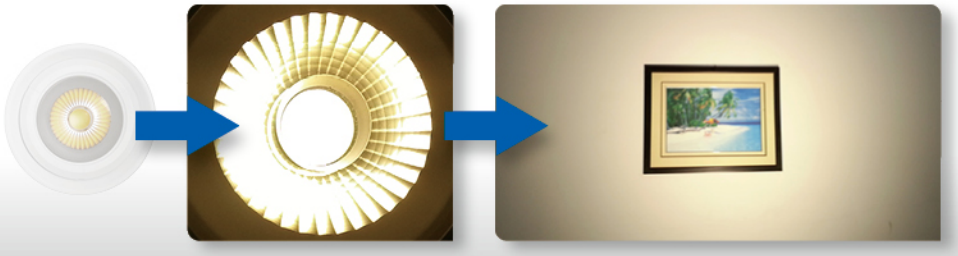
82 CRI (Ra)

LED CITIZEN

c UL us LISTED | FC | lighting facts LED Product Partner | LM 79 | LM 80 | TM 21 | IES

PAR PRODUCT FEATURES

MirOptic Lens



The innovative MirOptic design uses a lens with multiple integrated reflectors to optimize beam distribution and create a soft and pleasant light with low glare. With the MirOptic lens, all PAR lamps have high illuminance with an even beam pattern.

CoolSink Technology

The CoolSink passive cooling system allows air to flow freely through the lamp. This unique design uses an increased cooling surface area to reduce the operating temperature of the LED and power supply, thus resulting in longer lamp life and lumen maintenance.

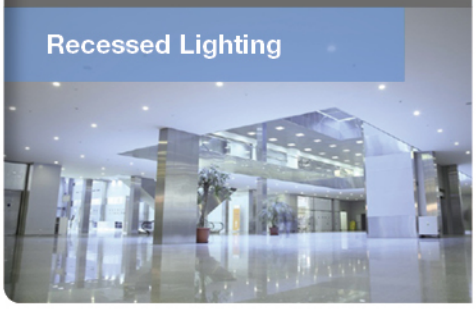
PAR38 19W 277V TITANIUM LED SERIES 3.0

GREENCREATIVE

APPLICATIONS

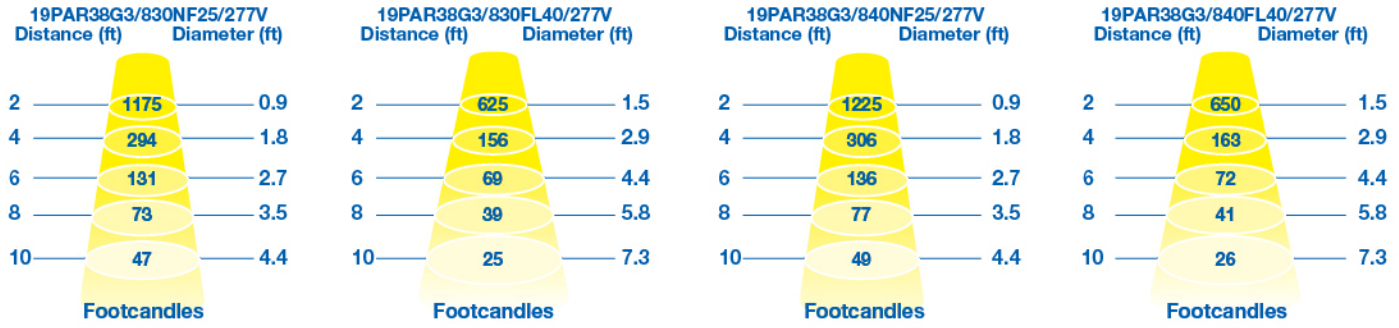
Track Lighting

Recessed Lighting



Security Lighting

ILLUMINANCE



SPECIFICATIONS**

Product Model	40702 19PAR38G3/830NF25/277V	40703 19PAR38G3/830FL40/277V	40704 19PAR38G3/840NF25/277V	40705 19PAR38G3/840FL40/277V
Type	PAR38	PAR38	PAR38	PAR38
Base	E26	E26	E26	E26
Power (W)	19	19	19	19
Voltage - Frequency	120-277V 60Hz	120-277V 60Hz	120-277V 60Hz	120-277V 60Hz
Color Temp. (ANSI)	Warm White 3000K	Warm White 3000K	Natural White 4000K	Natural White 4000K
CRI (Ra) (typ.)	82	82	82	82
Typical lumens (lm)	1260	1260	1320	1320
Efficacy (LPW)	66	66	69	69
Beam Angle	NF 25°	FL 40°	NF 25°	FL 40°
CBCP (cd)	4700	2500	4900	2600
Dimmable	No	No	No	No
Power Factor	0.9	0.9	0.9	0.9
Rated Lifetime - L70 (hrs.)	40,000	40,000	40,000	40,000
Dia. x MOL	4.72"x5.08" (120x129mm)	4.72"x5.08" (120x129mm)	4.72"x5.08" (120x129mm)	4.72"x5.08" (120x129mm)
Weight (lb. / g)	0.89lb. / 405g	0.89lb. / 405g	0.89lb. / 405g	0.89lb. / 405g

* Savings per lamp based on $0.11 / kw energy cost, 12 hrs / day lamp usage, $10 halogen with 1500 hr lifetime, $54 LED with 40,000 hr lifetime
** Specification data is preliminary and may be subject to change
*** Not intended for use in totally enclosed fixtures
**** Suitable for wet locations

EXHIBIT I

maxLED by MaxLite

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____FIXTURE SCHEDULE:_____

LED 6” COMMERCIAL RECESSED RETROFIT DOWNLIGHT

RR6 SERIES

ENERGY STAR

Intertek

RoHS COMPLIANT

Scan the QR code with a smartphone to view the installation video or visit the following link: http://bit.ly/ledcrdr

PRODUCT DESCRIPTION:

The commercial-grade LED Recessed Downlight Retrofit is supplied with a quick connect-case and conduit to make an easy connection to an existing recessed fixture frame junction box.

FEATURES:

- Universal voltage (120-277)
- Mounts into existing recessed frame
- Supplied with optional retaining clips if existing frame does not have adequate friction springs to secure reflector
- cETL listed for damp location use
- CRI: > 80
- PF: >.9
- A wide variety of CCTs available: 3000K and 4000K come standard; 2700K and 5000K by special order
- Five year limited warranty
- Dimmable to 5% (120v only)

CONSTRUCTION:

- Supplied with a heavy gauge anodized aluminum reflector in a haze finish
- External driver for easy retrofit and maintenance
- Power supply features integral thermal protection
- Optional extended trim rings available to conceal imperfections in drywall openings

MODEL SELECTION (Full list of order codes on pg. 3) | Typical order example: RR62330W

RR	6			W
FAMILY	**SIZE**	**WATTAGE (NOMINAL)**	**CCT**	**TRIM**
RR= Commercial Recessed Retrofit Downlight	**6=** 6”	**15=** 15W **23=** 23W **26=** 26W **30=** 30W **34=** 34W	**30=** 3000K **40=** 4000K	**W=** White

ACCESSORIES			
ORDER CODE	**MODEL NUMBER**	**DESCRIPTION**	**ACCESSORIES IMAGE**
72832	RR6-XWHTRING	6” White trim ring	
74087	RR6-BNRING	6” Brushed nickel trim ring	

COMPATIBLE DIMMERS:

MAKE	DIMMER MODEL
Lutron	CTCL-153PD*
Lutron	DVCL-153PL*
Lutron	CTELV-303P
Lutron	LGCL-153PL*
Leviton	IPI10

*** Dimming control should be adjusted to 5% minimum light output level in order to avoid flickering. Please consult dimming control Instruction manual for specific procedure.**

SPECIFICATIONS:

ITEM	SPECIFICATION	RR61530W	RR61540W	RR62330W	RR62340W	RR62630W	RR62640W
		DETAILS		DETAILS		DETAILS	
GENERAL PERFORMANCE	Power Consumption (W)	14.0	14.0	23.0	23.0	26.0	26.0
	Lumens Delivered (lm)	825	910	1725	1790	1400	1575
	Efficacy (lm/W)	59	65	75	78	54	61
	Color Temperature	3000K	4000K	3000K	4000K	3000K	4000K
	L70 Lifetime (hours)	50,000					
	CRI	> 80					
	Color Consistency	Proprietary binning for uniform color					
ELECTRICAL	Power Factor	.90					
	Input Voltage	120-277V standard					
	Compatible Dimmers	Lutron CTCL-153PD, DVCL-153PL, CTELV-303P, DVELV-303P, LGCL-153PL; Leviton IPI10					
PHYSICAL	Weight	2.4 lbs					
	Mounting	Mounts into existing recessed frame					
	Operating Temperature	0° – 104° F					
	Humidity	20% - 85% RH, non-condensing					
CERTIFICATION	Certification	FCC, LM-79, LM-80, ETL					
	Material Usage	RoHS compliant; no mercury					
	Environment	Indoor					
	Warranty	5 years					

SPECIFICATIONS:

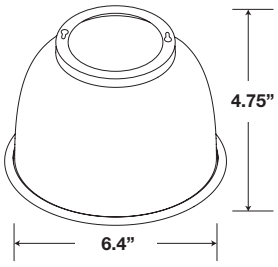
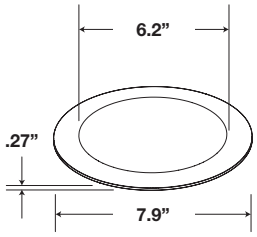
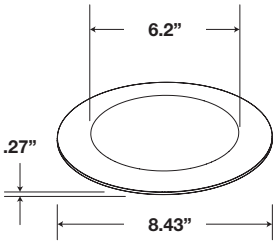
ITEM	SPECIFICATION	RR63030W	RR63040W	RR63430W	RR63440W
		DETAILS		DETAILS	
GENERAL PERFORMANCE	Power Consumption (W)	30.0	30.0	34.0	34.0
	Lumens Delivered (lm)	2250	2525	1995	2140
	Efficacy (lm/W)	75	84	59	63
	Color Temperature	3000K	4000K	3000K	4000K
	L70 Lifetime (hours)	50,000			
	CRI	> 80			
	Color Consistency	Proprietary binning for uniform color			
ELECTRICAL	Power Factor	.90			
	Input Voltage	120-277V standard			
	Compatible Dimmers	Lutron CTCL-153PD, DVCL-153PL, CTELV-303P, DVELV-303P, LGCL-153PL; Leviton IPI10			
PHYSICAL	Weight	2.4 lbs			
	Mounting	Mounts into existing recessed frame			
	Operating Temperature	0° – 104° F			
	Humidity	20% - 85% RH, non-condensing			
CERTIFICATION	Certification	FCC, LM-79, LM-80, ETL			
	Material Usage	RoHS compliant; no mercury			
	Environment	Indoor			
	Warranty	5 years			

ORDERING*:

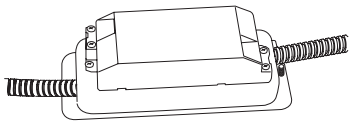
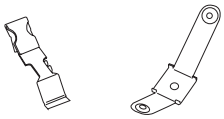
ORDER CODE	MODEL	WATTAGE	CCT	VOLTAGE
73569	RR61530W	15	3000K	120-277V
73570	RR61540W	15	4000K	
74039	RR62330W	23	3000K	
74040	RR62340W	23	4000K	
72607	RR62630W	26	3000K	
72608	RR62640W	26	4000K	
74041	RR63030W	30	3000K	
74042	RR63040W	30	4000K	
72609	RR63430W	34	3000K	
72610	RR63440W	34	4000K	

***Please contact your MaxLite representative to order products that don’t have order codes listed here.**

PRODUCT FEATURES:

REFLECTOR	STANDARD TRIM RING	OPTIONAL EXTENDED TRIM RING
		SOLD SEPARATELY 

PRODUCT FEATURES

EXTERNAL DRIVER	RETAINING CLIPS
	 Retaining clips are supplied for situations where the existing recessed frame does not have pre-installed clips to secure the reflector.

OVERALL DIMENSIONS

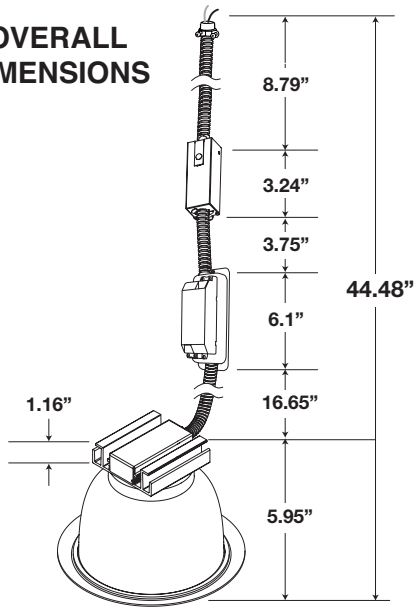


EXHIBIT J

TAMLITE LIGHTING

CATALOG #	DATE
PROJECT	TYPE
PREPARED BY	

IC206ATQ

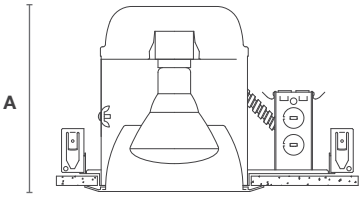
6" IC Air-Tight New Work Housing
Line Voltage - 90W BR40, 75W R/PAR30, 60W A19

FEATURES

- IC rated housing, thermally protected against misuse of insulation materials and improper lamping
- J-box is listed for through-branch circuit wiring with (6) 1/2", (1) 3/4" knockouts and (4) pry-outs Romex cable clamp
- Housing adjusts to accommodate various ceiling thicknesses
- Medium base porcelain socket on adjustable mounting bracket for proper lamp positioning
- Pre-installed hanger bars allow the housing to be positioned at any point within a 24" joist span
- Triangulated bar hangers with nails and leveling tab on the footprint
- Bar hangers are designed to fit T-bar spine without additional clamps for use in a drop ceiling
- 7 1/2" height allows use in 2" x 8" construction
- UL, C-UL listed for damp location, feed through wiring and direct contact with insulation

PRODUCT DIMENSIONS

NOMINAL SIZE	HEIGHT	
A	7 1/2"	**Ceiling Cut-Out:** 6 3/4"



ORDERING INFORMATION

Sample Product Code : IC206ATQ

PRODUCT CODE	DESCRIPTION
IC206AT	6" IC Air-Tight New Work Housing, Line Voltage - 90W BR40, 75W R/PAR30, 60W A19
IC206ATQ	6" IC Air-Tight New Work Housing with Quick-Connect, Line Voltage - 90W BR40, 75W R/PAR30, 60W A19

EXHIBIT K

Elite Designer PAR Series

TCPs award winning PARs have just got better. With over 500 options, TCP's new PAR series combines traditional beauty with top-notch technology.

Limitless options for the following applications:

- Track Lights
- Recessed Downlights
- Display Lights
- Outdoor Fixtures that Protect Lamps from the Elements

Great features and benefits:

- Energy Efficient: Up to 85% less energy than halogen replacements.
- Smooth, uniform dimming; also available as non-dimming.
- Long Life: 25,000 hours
- 120W, 90W, 75W, 60W and 50W replacements.
- NEW smooth outer housing.
- Excellent color consistency and high color rendering (CRI).
- Available in 2400K, 2700K, 3000K, 3500K and 4100K.

PAR38 PAR30LN PAR30SN PAR20

TCP, Inc.
325 Campus Dr. | Aurora, Ohio 44202 | P: 800-324-1496 | tcpi.com

ENERGY STAR AWARD 2013
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ELITE Designer Series — LED PAR Lamps

LED	25,000 Hours average rated life, 120 Volts

Catalog Number

Notes | Type

Applications

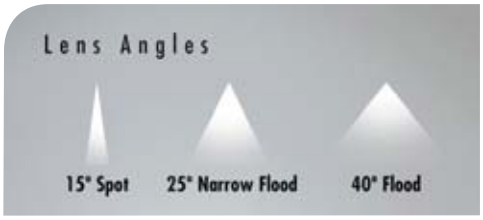
Ideal for PAR38, PAR30, and PAR20 flood and spot light applications.

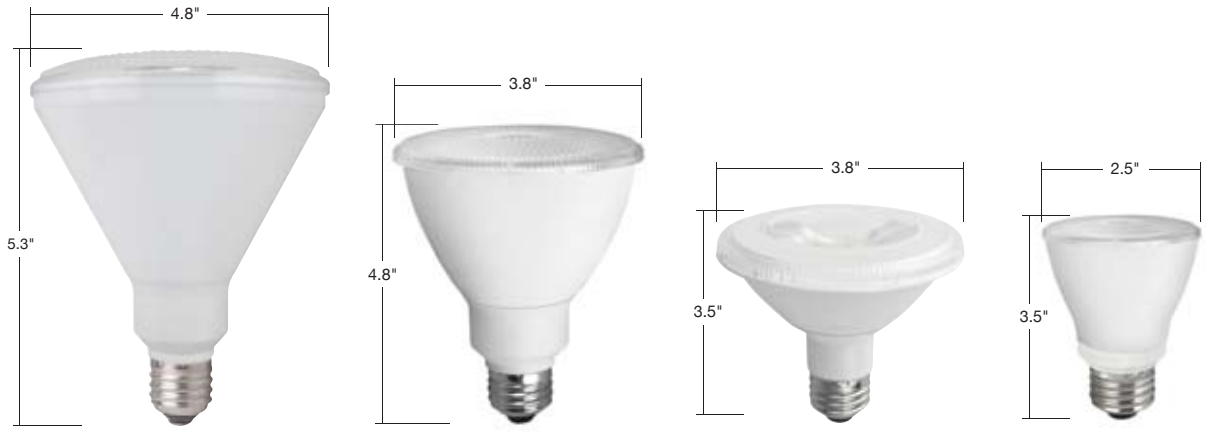
- Track Lights
- Recessed Downlights
- Display Lights
- Outdoor Fixtures that Protect Lamps from the Elements

Features	Benefits
Up to 85% less energy than halogen alternatives	Instant energy savings
Long life	Minimizes replacement and maintenance costs
Unique full face optic	Provides designer grade light quality with same look as halogen replacement.
Smooth, clean outside housing	Seemlessly blends into lighting applications
Very low heat generation	Perfect for sensistive display lighting such as art galleries.
Excellent Color Consistency and CRI	Enhances colors of focal point while maintaining uniformity throughout lighting installation from lamp to lamp.
Low weight	Track or down light installations are not strained by excess weight.
UL approved for damp location	Can be used outdoors when protected from elements. Withstands humidity indoors/outdoors.
Shatter resistant	Lower the risk of injury and breakage

Specifications

	PAR38	PAR30LN	PAR30SN	PAR20
Input Line Voltage:	120 VAC	120 VAC	120 VAC	120 VAC
Input Power	17 & 14 W	14 & 12 W	12 & 10 W	10 & 8 W
Input Line Frequency	50/60HZ	50/60HZ	50/60HZ	50/60HZ
Lamp Life (Rated)	25,000 hrs	25,000 hrs	25,000 hrs	25,000 hrs
Minimum Starting Temp	-30ºC	-30ºC	-30ºC	-30ºC
Maximum Operating Temp	40ºC	40ºC	40ºC	40ºC





PAR38 PAR30LN PAR30SN PAR20

c UL us 5 YEAR WARRANTY

For the most up-to-date specs, please visit www.tcpi.com

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ENERGY STAR AWARD 2013
PARTNER OF THE YEAR

ELITE Designer Series — LED Dimmable PAR Lamps

Smooth Uniform Dimming

Item #	Description	Voltage	Wattage	Incandescent Wattage Comparison	Lumens	LPW	CBCP	Beam Angle	CCT	CRI	M.O.L. (inches)	Diameter (inches)	Case Quantity	STK/MTO
PAR38														
LED17P38D24KFL	Dimmable 17W Smooth PAR38 - 2400K 40°	120	17	120	1200	70.6	2024	40	2400K	82	5.3	4.8	12	MTO
LED17P38D24KNFL	Dimmable 17W Smooth PAR38 - 2400K 25°	120	17	120	1200	70.6	5520	25	2400K	82	5.3	4.8	12	MTO
LED17P38D24KSP	Dimmable 17W Smooth PAR38 - 2400K 15°	120	17	120	1200	70.6	8832	15	2400K	82	5.3	4.8	12	MTO
LED17P38D27KFL	Dimmable 17W Smooth PAR38 - 2700K 40°	120	17	120	1200	70.6	2024	40	2700K	82	5.3	4.8	12	STK
LED17P38D27KNFL	Dimmable 17W Smooth PAR38 - 2700K 25°	120	17	120	1200	70.6	5520	25	2700K	82	5.3	4.8	12	STK
LED17P38D27KSP	Dimmable 17W Smooth PAR38 - 2700K 15°	120	17	120	1200	70.6	8832	15	2700K	82	5.3	4.8	12	MTO
LED17P38D30KFL	Dimmable 17W Smooth PAR38 - 3000K 40°	120	17	120	1250	73.5	2200	40	3000K	82	5.3	4.8	12	STK
LED17P38D30KNFL	Dimmable 17W Smooth PAR38 - 3000K 25°	120	17	120	1250	73.5	6000	25	3000K	82	5.3	4.8	12	STK
LED17P38D30KSP	Dimmable 17W Smooth PAR38 - 3000K 15°	120	17	120	1250	73.5	9600	15	3000K	82	5.3	4.8	12	MTO
LED17P38D35KFL	Dimmable 17W Smooth PAR38 - 3500K 40°	120	17	120	1275	75.0	2266	40	3500K	82	5.3	4.8	12	MTO
LED17P38D35KNFL	Dimmable 17W Smooth PAR38 - 3500K 25°	120	17	120	1275	75.0	6180	25	3500K	82	5.3	4.8	12	MTO
LED17P38D35KSP	Dimmable 17W Smooth PAR38 - 3500K 15°	120	17	120	1275	75.0	9888	15	3500K	82	5.3	4.8	12	MTO
LED17P38D41KFL	Dimmable 17W Smooth PAR38 - 4100K 40°	120	17	120	1300	76.5	2332	40	4100K	82	5.3	4.8	12	MTO
LED17P38D41KNFL	Dimmable 17W Smooth PAR38 - 4100K 25°	120	17	120	1300	76.5	6360	25	4100K	82	5.3	4.8	12	MTO
LED17P38D41KSP	Dimmable 17W Smooth PAR38 - 4100K 15°	120	17	120	1300	76.5	10176	15	4100K	82	5.3	4.8	12	MTO
LED14P38D24KFL	Dimmable 14W Smooth PAR38 - 2400K 40°	120	14	90	1050	75.0	1840	40	2400K	82	5.3	4.8	12	MTO
LED14P38D24KNFL	Dimmable 14W Smooth PAR38 - 2400K 25°	120	14	90	1050	75.0	4876	25	2400K	82	5.3	4.8	12	MTO
LED14P38D24KSP	Dimmable 14W Smooth PAR38 - 2400K 15°	120	14	90	1050	75.0	7802	15	2400K	82	5.3	4.8	12	MTO
LED14P38D27KFL	Dimmable 14W Smooth PAR38 - 2700K 40°	120	14	90	1050	75.0	1840	40	2700K	82	5.3	4.8	12	STK
LED14P38D27KNFL	Dimmable 14W Smooth PAR38 - 2700K 25°	120	14	90	1050	75.0	4876	25	2700K	82	5.3	4.8	12	STK
LED14P38D27KSP	Dimmable 14W Smooth PAR38 - 2700K 15°	120	14	90	1050	75.0	7802	15	2700K	82	5.3	4.8	12	MTO
LED14P38D30KFL	Dimmable 14W Smooth PAR38 - 3000K 40°	120	14	90	1100	78.6	2000	40	3000K	82	5.3	4.8	12	STK
LED14P38D30KNFL	Dimmable 14W Smooth PAR38 - 3000K 25°	120	14	90	1100	78.6	5300	25	3000K	82	5.3	4.8	12	STK
LED14P38D30KSP	Dimmable 14W Smooth PAR38 - 3000K 15°	120	14	90	1100	78.6	8480	15	3000K	82	5.3	4.8	12	MTO
LED14P38D35KFL	Dimmable 14W Smooth PAR38 - 3500K 40°	120	14	90	1125	80.4	2060	40	3500K	82	5.3	4.8	12	MTO
LED14P38D35KNFL	Dimmable 14W Smooth PAR38 - 3500K 25°	120	14	90	1125	80.4	5459	25	3500K	82	5.3	4.8	12	MTO
LED14P38D35KSP	Dimmable 14W Smooth PAR38 - 3500K 15°	120	14	90	1125	80.4	8734	15	3500K	82	5.3	4.8	12	MTO
LED14P38D41KFL	Dimmable 14W Smooth PAR38 - 4100K 40°	120	14	90	1150	82.1	2120	40	4100K	82	5.3	4.8	12	MTO
LED14P38D41KNFL	Dimmable 14W Smooth PAR38 - 4100K 25°	120	14	90	1150	82.1	5618	25	4100K	82	5.3	4.8	12	MTO
LED14P38D41KSP	Dimmable 14W Smooth PAR38 - 4100K 15°	120	14	90	1150	82.1	8989	15	4100K	82	5.3	4.8	12	MTO
PAR30														
LED14P30D24KFL	Dimmable 14W Smooth PAR30 - 2400K 40°	120	14	90	1050	75.0	1840	40	2400K	82	4.8	3.8	12	MTO
LED14P30D24KNFL	Dimmable 14W Smooth PAR30 - 2400K 25°	120	14	90	1050	75.0	4876	25	2400K	82	4.8	3.8	12	MTO
LED14P30D24KSP	Dimmable 14W Smooth PAR30 - 2400K 15°	120	14	90	1050	75.0	7802	15	2400K	82	4.8	3.8	12	MTO
LED14P30D27KFL	Dimmable 14W Smooth PAR30 - 2700K 40°	120	14	90	1050	75.0	1840	40	2700K	82	4.8	3.8	12	STK
LED14P30D27KNFL	Dimmable 14W Smooth PAR30 - 2700K 25°	120	14	90	1050	75.0	4876	25	2700K	82	4.8	3.8	12	STK
LED14P30D27KSP	Dimmable 14W Smooth PAR30 - 2700K 15°	120	14	90	1050	75.0	7802	15	2700K	82	4.8	3.8	12	MTO
LED14P30D30KFL	Dimmable 14W Smooth PAR30 - 3000K 40°	120	14	90	1100	78.6	2000	40	3000K	82	4.8	3.8	12	STK
LED14P30D30KNFL	Dimmable 14W Smooth PAR30 - 3000K 25°	120	14	90	1100	78.6	5300	25	3000K	82	4.8	3.8	12	STK
LED14P30D30KSP	Dimmable 14W Smooth PAR30 - 3000K 15°	120	14	90	1100	78.6	8480	15	3000K	82	4.8	3.8	12	MTO
LED14P30D35KFL	Dimmable 14W Smooth PAR30 - 3500K 40°	120	14	90	1125	80.4	2060	40	3500K	82	4.8	3.8	12	MTO
LED14P30D35KNFL	Dimmable 14W Smooth PAR30 - 3500K 25°	120	14	90	1125	80.4	5459	25	3500K	82	4.8	3.8	12	MTO
LED14P30D35KSP	Dimmable 14W Smooth PAR30 - 3500K 15°	120	14	90	1125	80.4	8734	15	3500K	82	4.8	3.8	12	MTO
LED14P30D41KFL	Dimmable 14W Smooth PAR30 - 4100K 40°	120	14	90	1150	82.1	2120	40	4100K	82	4.8	3.8	12	MTO
LED14P30D41KNFL	Dimmable 14W Smooth PAR30 - 4100K 25°	120	14	90	1150	82.1	5618	25	4100K	82	4.8	3.8	12	MTO
LED14P30D41KSP	Dimmable 14W Smooth PAR30 - 4100K 15°	120	14	90	1150	82.1	8989	15	4100K	82	4.8	3.8	12	MTO
LED12P30D24KFL	Dimmable 12W Smooth PAR30 - 2400K 40°	120	12	75	800	66.7	1288	40	2400K	82	4.8	3.8	12	MTO
LED12P30D24KNFL	Dimmable 12W Smooth PAR30 - 2400K 25°	120	12	75	800	66.7	3450	25	2400K	82	4.8	3.8	12	MTO
LED12P30D24KSP	Dimmable 12W Smooth PAR30 - 2400K 15°	120	12	75	800	66.7	5520	15	2400K	82	4.8	3.8	12	MTO
LED12P30D27KFL	Dimmable 12W Smooth PAR30 - 2700K 40°	120	12	75	800	66.7	1288	40	2700K	82	4.8	3.8	12	STK
LED12P30D27KNFL	Dimmable 12W Smooth PAR30 - 2700K 25°	120	12	75	800	66.7	3450	25	2700K	82	4.8	3.8	12	STK
LED12P30D27KSP	Dimmable 12W Smooth PAR30 - 2700K 15°	120	12	75	800	66.7	5520	15	2700K	82	4.8	3.8	12	MTO
LED12P30D30KFL	Dimmable 12W Smooth PAR30 - 3000K 40°	120	12	75	825	68.8	1400	40	3000K	82	4.8	3.8	12	STK
LED12P30D30KNFL	Dimmable 12W Smooth PAR30 - 3000K 25°	120	12	75	825	68.8	3750	25	3000K	82	4.8	3.8	12	STK
LED12P30D30KSP	Dimmable 12W Smooth PAR30 - 3000K 15°	120	12	75	825	68.8	6000	15	3000K	82	4.8	3.8	12	MTO
LED12P30D35KFL	Dimmable 12W Smooth PAR30 - 3500K 40°	120	12	75	850	70.8	1442	40	3500K	82	4.8	3.8	12	MTO
LED12P30D35KNFL	Dimmable 12W Smooth PAR30 - 3500K 25°	120	12	75	850	70.8	3863	25	3500K	82	4.8	3.8	12	MTO
LED12P30D35KSP	Dimmable 12W Smooth PAR30 - 3500K 15°	120	12	75	850	70.8	6180	15	3500K	82	4.8	3.8	12	MTO
LED12P30D41KFL	Dimmable 12W Smooth PAR30 - 4100K 40°	120	12	75	875	72.9	1484	40	4100K	82	4.8	3.8	12	MTO
LED12P30D41KNFL	Dimmable 12W Smooth PAR30 - 4100K 25°	120	12	75	875	72.9	3975	25	4100K	82	4.8	3.8	12	MTO
LED12P30D41KSP	Dimmable 12W Smooth PAR30 - 4100K 15°	120	12	75	875	72.9	6360	15	4100K	82	4.8	3.8	12	MTO

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ELITE Designer Series — LED Dimmable PAR Lamps

Smooth Uniform Dimming

Item #	Description	Voltage	Wattage	Incandescent Wattage Comparison	Lumens	LPW	CBCP	Beam Angle	CCT	CRI	M.O.L. (inches)	Diameter (inches)	Case Quantity	STK/MTO
PAR30SN														
LED12P30SD24KFL	Dimmable 12W Smooth PAR30 Short Neck - 2400K 40°	120	12	75	800	66.7	1288	40	2400K	82	3.5	3.8	12	MTO
LED12P30SD24KNFL	Dimmable 12W Smooth PAR30 Short Neck - 2400K 25°	120	12	75	800	66.7	3450	25	2400K	82	3.5	3.8	12	MTO
LED12P30SD24KSP	Dimmable 12W Smooth PAR30 Short Neck - 2400K 15°	120	12	75	800	66.7	5520	15	2400K	82	3.5	3.8	12	MTO
LED12P30SD27KFL	Dimmable 12W Smooth PAR30 Short Neck - 2700K 40°	120	12	75	800	66.7	1288	40	2700K	82	3.5	3.8	12	STK
LED12P30SD27KNFL	Dimmable 12W Smooth PAR30 Short Neck - 2700K 25°	120	12	75	800	66.7	3450	25	2700K	82	3.5	3.8	12	STK
LED12P30SD27KSP	Dimmable 12W Smooth PAR30 Short Neck - 2700K 15°	120	12	75	800	66.7	5520	15	2700K	82	3.5	3.8	12	MTO
LED12P30SD30KFL	Dimmable 12W Smooth PAR30 Short Neck - 3000K 40°	120	12	75	825	68.8	1400	40	3000K	82	3.5	3.8	12	STK
LED12P30SD30KNFL	Dimmable 12W Smooth PAR30 Short Neck - 3000K 25°	120	12	75	825	68.8	3750	25	3000K	82	3.5	3.8	12	STK
LED12P30SD30KSP	Dimmable 12W Smooth PAR30 Short Neck - 3000K 15°	120	12	75	825	68.8	6000	15	3000K	82	3.5	3.8	12	MTO
LED12P30SD35KFL	Dimmable 12W Smooth PAR30 Short Neck - 3500K 40°	120	12	75	850	70.8	1442	40	3500K	82	3.5	3.8	12	MTO
LED12P30SD35KNFL	Dimmable 12W Smooth PAR30 Short Neck - 3500K 25°	120	12	75	850	70.8	3863	25	3500K	82	3.5	3.8	12	MTO
LED12P30SD35KSP	Dimmable 12W Smooth PAR30 Short Neck - 3500K 15°	120	12	75	850	70.8	6180	15	3500K	82	3.5	3.8	12	MTO
LED12P30SD41KFL	Dimmable 12W Smooth PAR30 Short Neck - 4100K 40°	120	12	75	875	72.9	1484	40	4100K	82	3.5	3.8	12	MTO
LED12P30SD41KNFL	Dimmable 12W Smooth PAR30 Short Neck - 4100K 25°	120	12	75	875	72.9	3975	25	4100K	82	3.5	3.8	12	MTO
LED12P30SD41KSP	Dimmable 12W Smooth PAR30 Short Neck - 4100K 15°	120	12	75	875	72.9	6360	15	4100K	82	3.5	3.8	12	MTO
LED10P30SD24KFL	Dimmable 10W Smooth PAR30 Short Neck - 2400K 40°	120	10	60	600	60.0	985	40	2400K	82	3.5	3.8	12	MTO
LED10P30SD24KNFL	Dimmable 10W Smooth PAR30 Short Neck - 2400K 25°	120	10	60	600	60.0	2639	25	2400K	82	3.5	3.8	12	MTO
LED10P30SD24KSP	Dimmable 10W Smooth PAR30 Short Neck - 2400K 15°	120	10	60	600	60.0	4221	15	2400K	82	3.5	3.8	12	MTO
LED10P30SD27KFL	Dimmable 10W Smooth PAR30 Short Neck - 2700K 40°	120	10	60	600	60.0	985	40	2700K	82	3.5	3.8	12	STK
LED10P30SD27KNFL	Dimmable 10W Smooth PAR30 Short Neck - 2700K 25°	120	10	60	600	60.0	2639	25	2700K	82	3.5	3.8	12	STK
LED10P30SD27KSP	Dimmable 10W Smooth PAR30 Short Neck - 2700K 15°	120	10	60	600	60.0	4221	15	2700K	82	3.5	3.8	12	MTO
LED10P30SD30KFL	Dimmable 10W Smooth PAR30 Short Neck - 3000K 40°	120	10	60	650	65.0	1071	40	3000K	82	3.5	3.8	12	STK
LED10P30SD30KNFL	Dimmable 10W Smooth PAR30 Short Neck - 3000K 25°	120	10	60	650	65.0	2868	25	3000K	82	3.5	3.8	12	STK
LED10P30SD30KSP	Dimmable 10W Smooth PAR30 Short Neck - 3000K 15°	120	10	60	650	65.0	4588	15	3000K	82	3.5	3.8	12	MTO
LED10P30SD35KFL	Dimmable 10W Smooth PAR30 Short Neck - 3500K 40°	120	10	60	675	67.5	1103	40	3500K	82	3.5	3.8	12	MTO
LED10P30SD35KNFL	Dimmable 10W Smooth PAR30 Short Neck - 3500K 25°	120	10	60	675	67.5	2954	25	3500K	82	3.5	3.8	12	MTO
LED10P30SD35KSP	Dimmable 10W Smooth PAR30 Short Neck - 3500K 15°	120	10	60	675	67.5	4726	15	3500K	82	3.5	3.8	12	MTO
LED10P30SD41KFL	Dimmable 10W Smooth PAR30 Short Neck - 4100K 40°	120	10	60	700	70.0	1135	40	4100K	82	3.5	3.8	12	MTO
LED10P30SD41KNFL	Dimmable 10W Smooth PAR30 Short Neck - 4100K 25°	120	10	60	700	70.0	3040	25	4100K	82	3.5	3.8	12	MTO
LED10P30SD41KSP	Dimmable 10W Smooth PAR30 Short Neck - 4100K 15°	120	10	60	700	70.0	4863	15	4100K	82	3.5	3.8	12	MTO
PAR20														
LED10P20D24KFL	Dimmable 10W Smooth PAR20 - 2400K 40°	120	10	60	600	60.0	TBD	40	2400K	82	3.5	2.5	12	MTO
LED10P20D24KNFL	Dimmable 10W Smooth PAR20 - 2400K 25°	120	10	60	600	60.0	TBD	25	2400K	82	3.5	2.5	12	MTO
LED10P20D27KFL	Dimmable 10W Smooth PAR20 - 2700K 40°	120	10	60	600	60.0	TBD	40	2700K	82	3.5	2.5	12	STK
LED10P20D27KNFL	Dimmable 10W Smooth PAR20 - 2700K 25°	120	10	60	600	60.0	TBD	25	2700K	82	3.5	2.5	12	STK
LED10P20D30KFL	Dimmable 10W Smooth PAR20 - 3000K 40°	120	10	60	650	65.0	TBD	40	3000K	82	3.5	2.5	12	STK
LED10P20D30KNFL	Dimmable 10W Smooth PAR20 - 3000K 25°	120	10	60	650	65.0	TBD	25	3000K	82	3.5	2.5	12	STK
LED10P20D35KFL	Dimmable 10W Smooth PAR20 - 3500K 40°	120	10	60	675	67.5	TBD	40	3500K	82	3.5	2.5	12	MTO
LED10P20D35KNFL	Dimmable 10W Smooth PAR20 - 3500K 25°	120	10	60	675	67.5	TBD	25	3500K	82	3.5	2.5	12	MTO
LED10P20D41KFL	Dimmable 10W Smooth PAR20 - 4100K 40°	120	10	60	700	70.0	TBD	40	4100K	82	3.5	2.5	12	MTO
LED10P20D41KNFL	Dimmable 10W Smooth PAR20 - 4100K 25°	120	10	60	700	70.0	TBD	25	4100K	82	3.5	2.5	12	MTO
LED8P20D24KFL	Dimmable 8W Smooth PAR20 - 2400K 40°	120	8	50	500	62.5	754	40	2400K	82	3.5	2.5	12	MTO
LED8P20D24KNFL	Dimmable 8W Smooth PAR20 - 2400K 25°	120	8	50	500	62.5	2070	25	2400K	82	3.5	2.5	12	MTO
LED8P20D27KFL	Dimmable 8W Smooth PAR20 - 2700K 40°	120	8	50	500	62.5	754	40	2700K	82	3.5	2.5	12	STK
LED8P20D27KNFL	Dimmable 8W Smooth PAR20 - 2700K 25°	120	8	50	500	62.5	2070	25	2700K	82	3.5	2.5	12	STK
LED8P20D30KFL	Dimmable 8W Smooth PAR20 - 3000K 40°	120	8	50	515	64.4	820	40	3000K	82	3.5	2.5	12	STK
LED8P20D30KNFL	Dimmable 8W Smooth PAR20 - 3000K 25°	120	8	50	515	64.4	2250	25	3000K	82	3.5	2.5	12	STK
LED8P20D35KFL	Dimmable 8W Smooth PAR20 - 3500K 40°	120	8	50	525	65.6	845	40	3500K	82	3.5	2.5	12	MTO
LED8P20D35KNFL	Dimmable 8W Smooth PAR20 - 3500K 25°	120	8	50	525	65.6	2318	25	3500K	82	3.5	2.5	12	MTO
LED8P20D41KFL	Dimmable 8W Smooth PAR20 - 4100K 40°	120	8	50	530	66.3	869	40	4100K	82	3.5	2.5	12	MTO
LED8P20D41KNFL	Dimmable 8W Smooth PAR20 - 4100K 25°	120	8	50	530	66.3	2385	25	4100K	82	3.5	2.5	12	MTO

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Item #	Description	Voltage	Wattage	Incandescent Wattage Comparison	Lumens	LPW	CBCP	Beam Angle	CCT	CRI	M.O.L. (inches)	Diameter (inches)	Case Quantity	STK/MTO
PAR38														
LED17P3824KFL	Non-Dimmable 17W Smooth PAR38 - 2400K 40°	120	17	120	1200	70.6	2024	40	2400K	82	5.3	4.8	12	MTO
LED17P3824KNFL	Non-Dimmable 17W Smooth PAR38 - 2400K 25°	120	17	120	1200	70.6	5520	25	2400K	82	5.3	4.8	12	MTO
LED17P3824KSP	Non-Dimmable 17W Smooth PAR38 - 2400K 15°	120	17	120	1200	70.6	8832	15	2400K	82	5.3	4.8	12	MTO
LED17P3827KFL	Non-Dimmable 17W Smooth PAR38 - 2700K 40°	120	17	120	1200	70.6	2024	40	2700K	82	5.3	4.8	12	STK
LED17P3827KNFL	Non-Dimmable 17W Smooth PAR38 - 2700K 25°	120	17	120	1200	70.6	5520	25	2700K	82	5.3	4.8	12	STK
LED17P3827KSP	Non-Dimmable 17W Smooth PAR38 - 2700K 15°	120	17	120	1200	70.6	8832	15	2700K	82	5.3	4.8	12	MTO
LED17P3830KFL	Non-Dimmable 17W Smooth PAR38 - 3000K 40°	120	17	120	1250	73.5	2200	40	3000K	82	5.3	4.8	12	STK
LED17P3830KNFL	Non-Dimmable 17W Smooth PAR38 - 3000K 25°	120	17	120	1250	73.5	6000	25	3000K	82	5.3	4.8	12	STK
LED17P3830KSP	Non-Dimmable 17W Smooth PAR38 - 3000K 15°	120	17	120	1250	73.5	9600	15	3000K	82	5.3	4.8	12	MTO
LED17P3835KFL	Non-Dimmable 17W Smooth PAR38 - 3500K 40°	120	17	120	1275	75.0	2266	40	3500K	82	5.3	4.8	12	MTO
LED17P3835KNFL	Non-Dimmable 17W Smooth PAR38 - 3500K 25°	120	17	120	1275	75.0	6180	25	3500K	82	5.3	4.8	12	MTO
LED17P3835KSP	Non-Dimmable 17W Smooth PAR38 - 3500K 15°	120	17	120	1275	75.0	9888	15	3500K	82	5.3	4.8	12	MTO
LED17P3841KFL	Non-Dimmable 17W Smooth PAR38 - 4100K 40°	120	17	120	1300	76.5	2332	40	4100K	82	5.3	4.8	12	MTO
LED17P3841KNFL	Non-Dimmable 17W Smooth PAR38 - 4100K 25°	120	17	120	1300	76.5	6360	25	4100K	82	5.3	4.8	12	MTO
LED17P3841KSP	Non-Dimmable 17W Smooth PAR38 - 4100K 15°	120	17	120	1300	76.5	10176	15	4100K	82	5.3	4.8	12	MTO
LED14P3824KFL	Non-Dimmable 14W Smooth PAR38 - 2400K 40°	120	14	90	1050	75.0	1840	40	2400K	82	5.3	4.8	12	MTO
LED14P3824KNFL	Non-Dimmable 14W Smooth PAR38 - 2400K 25°	120	14	90	1050	75.0	4876	25	2400K	82	5.3	4.8	12	MTO
LED14P3824KSP	Non-Dimmable 14W Smooth PAR38 - 2400K 15°	120	14	90	1050	75.0	7802	15	2400K	82	5.3	4.8	12	MTO
LED14P3827KFL	Non-Dimmable 14W Smooth PAR38 - 2700K 40°	120	14	90	1050	75.0	1840	40	2700K	82	5.3	4.8	12	STK
LED14P3827KNFL	Non-Dimmable 14W Smooth PAR38 - 2700K 25°	120	14	90	1050	75.0	4876	25	2700K	82	5.3	4.8	12	STK
LED14P3827KSP	Non-Dimmable 14W Smooth PAR38 - 2700K 15°	120	14	90	1050	75.0	7802	15	2700K	82	5.3	4.8	12	MTO
LED14P3830KFL	Non-Dimmable 14W Smooth PAR38 - 3000K 40°	120	14	90	1100	78.6	2000	40	3000K	82	5.3	4.8	12	STK
LED14P3830KNFL	Non-Dimmable 14W Smooth PAR38 - 3000K 25°	120	14	90	1100	78.6	5300	25	3000K	82	5.3	4.8	12	STK
LED14P3830KSP	Non-Dimmable 14W Smooth PAR38 - 3000K 15°	120	14	90	1100	78.6	8480	15	3000K	82	5.3	4.8	12	MTO
LED14P3835KFL	Non-Dimmable 14W Smooth PAR38 - 3500K 40°	120	14	90	1125	80.4	2060	40	3500K	82	5.3	4.8	12	MTO
LED14P3835KNFL	Non-Dimmable 14W Smooth PAR38 - 3500K 25°	120	14	90	1125	80.4	5459	25	3500K	82	5.3	4.8	12	MTO
LED14P3835KSP	Non-Dimmable 14W Smooth PAR38 - 3500K 15°	120	14	90	1125	80.4	8734	15	3500K	82	5.3	4.8	12	MTO
LED14P3841KFL	Non-Dimmable 14W Smooth PAR38 - 4100K 40°	120	14	90	1150	82.1	2120	40	4100K	82	5.3	4.8	12	MTO
LED14P3841KNFL	Non-Dimmable 14W Smooth PAR38 - 4100K 25°	120	14	90	1150	82.1	5618	25	4100K	82	5.3	4.8	12	MTO
LED14P3841KSP	Non-Dimmable 14W Smooth PAR38 - 4100K 15°	120	14	90	1150	82.1	8989	15	4100K	82	5.3	4.8	12	MTO
PAR30														
LED14P3024KFL	Non-Dimmable 14W Smooth PAR30 - 2400K 40°	120	14	90	1050	75.0	1840	40	2400K	82	4.8	3.8	12	MTO
LED14P3024KNFL	Non-Dimmable 14W Smooth PAR30 - 2400K 25°	120	14	90	1050	75.0	4876	25	2400K	82	4.8	3.8	12	MTO
LED14P3024KSP	Non-Dimmable 14W Smooth PAR30 - 2400K 15°	120	14	90	1050	75.0	7802	15	2400K	82	4.8	3.8	12	MTO
LED14P3027KFL	Non-Dimmable 14W Smooth PAR30 - 2700K 40°	120	14	90	1050	75.0	1840	40	2700K	82	4.8	3.8	12	STK
LED14P3027KNFL	Non-Dimmable 14W Smooth PAR30 - 2700K 25°	120	14	90	1050	75.0	4876	25	2700K	82	4.8	3.8	12	STK
LED14P3027KSP	Non-Dimmable 14W Smooth PAR30 - 2700K 15°	120	14	90	1050	75.0	7802	15	2700K	82	4.8	3.8	12	MTO
LED14P3030KFL	Non-Dimmable 14W Smooth PAR30 - 3000K 40°	120	14	90	1100	78.6	2000	40	3000K	82	4.8	3.8	12	STK
LED14P3030KNFL	Non-Dimmable 14W Smooth PAR30 - 3000K 25°	120	14	90	1100	78.6	5300	25	3000K	82	4.8	3.8	12	STK
LED14P3030KSP	Non-Dimmable 14W Smooth PAR30 - 3000K 15°	120	14	90	1100	78.6	8480	15	3000K	82	4.8	3.8	12	MTO
LED14P3035KFL	Non-Dimmable 14W Smooth PAR30 - 3500K 40°	120	14	90	1125	80.4	2060	40	3500K	82	4.8	3.8	12	MTO
LED14P3035KNFL	Non-Dimmable 14W Smooth PAR30 - 3500K 25°	120	14	90	1125	80.4	5459	25	3500K	82	4.8	3.8	12	MTO
LED14P3035KSP	Non-Dimmable 14W Smooth PAR30 - 3500K 15°	120	14	90	1125	80.4	8734	15	3500K	82	4.8	3.8	12	MTO
LED14P3041KFL	Non-Dimmable 14W Smooth PAR30 - 4100K 40°	120	14	90	1150	82.1	2120	40	4100K	82	4.8	3.8	12	MTO
LED14P3041KNFL	Non-Dimmable 14W Smooth PAR30 - 4100K 25°	120	14	90	1150	82.1	5618	25	4100K	82	4.8	3.8	12	MTO
LED14P3041KSP	Non-Dimmable 14W Smooth PAR30 - 4100K 15°	120	14	90	1150	82.1	8989	15	4100K	82	4.8	3.8	12	MTO
LED12P3024KFL	Non-Dimmable 12W Smooth PAR30 - 2400K 40°	120	12	75	800	66.7	1288	40	2400K	82	4.8	3.8	12	MTO
LED12P3024KNFL	Non-Dimmable 12W Smooth PAR30 - 2400K 25°	120	12	75	800	66.7	3450	25	2400K	82	4.8	3.8	12	MTO
LED12P3024KSP	Non-Dimmable 12W Smooth PAR30 - 2400K 15°	120	12	75	800	66.7	5520	15	2400K	82	4.8	3.8	12	MTO
LED12P3027KFL	Non-Dimmable 12W Smooth PAR30 - 2700K 40°	120	12	75	800	66.7	1288	40	2700K	82	4.8	3.8	12	STK
LED12P3027KNFL	Non-Dimmable 12W Smooth PAR30 - 2700K 25°	120	12	75	800	66.7	3450	25	2700K	82	4.8	3.8	12	STK
LED12P3027KSP	Non-Dimmable 12W Smooth PAR30 - 2700K 15°	120	12	75	800	66.7	5520	15	2700K	82	4.8	3.8	12	MTO
LED12P3030KFL	Non-Dimmable 12W Smooth PAR30 - 3000K 40°	120	12	75	825	68.8	1400	40	3000K	82	4.8	3.8	12	STK
LED12P3030KNFL	Non-Dimmable 12W Smooth PAR30 - 3000K 25°	120	12	75	825	68.8	3750	25	3000K	82	4.8	3.8	12	STK
LED12P3030KSP	Non-Dimmable 12W Smooth PAR30 - 3000K 15°	120	12	75	825	68.8	6000	15	3000K	82	4.8	3.8	12	MTO
LED12P3035KFL	Non-Dimmable 12W Smooth PAR30 - 3500K 40°	120	12	75	850	70.8	1442	40	3500K	82	4.8	3.8	12	MTO
LED12P3035KNFL	Non-Dimmable 12W Smooth PAR30 - 3500K 25°	120	12	75	850	70.8	3863	25	3500K	82	4.8	3.8	12	MTO
LED12P3035KSP	Non-Dimmable 12W Smooth PAR30 - 3500K 15°	120	12	75	850	70.8	6180	15	3500K	82	4.8	3.8	12	MTO
LED12P3041KFL	Non-Dimmable 12W Smooth PAR30 - 4100K 40°	120	12	75	875	72.9	1484	40	4100K	82	4.8	3.8	12	MTO
LED12P3041KNFL	Non-Dimmable 12W Smooth PAR30 - 4100K 25°	120	12	75	875	72.9	3975	25	4100K	82	4.8	3.8	12	MTO
LED12P3041KSP	Non-Dimmable 12W Smooth PAR30 - 4100K 15°	120	12	75	875	72.9	6360	15	4100K	82	4.8	3.8	12	MTO

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TCP ELITE Designer Series — LED Non-Dimmable PAR Lamps

Item #	Description	Voltage	Wattage	Incandescent Wattage Comparison	Lumens	LPW	CBCP	Beam Angle	CCT	CRI	M.O.L. (inches)	Diameter (inches)	Case Quantity	STK/MTO
PAR30SN														
LED12P30S24KFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 2400K 40°	120	12	75	800	66.7	1288	40	2400K	82	3.5	3.8	12	MTO
LED12P30S24KNFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 2400K 25°	120	12	75	800	66.7	3450	25	2400K	82	3.5	3.8	12	MTO
LED12P30S24KSP	Non-Dimmable 12W Smooth PAR30 Short Neck - 2400K 15°	120	12	75	800	66.7	5520	15	2400K	82	3.5	3.8	12	MTO
LED12P30S27KFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 2700K 40°	120	12	75	800	66.7	1288	40	2700K	82	3.5	3.8	12	STK
LED12P30S27KNFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 2700K 25°	120	12	75	800	66.7	3450	25	2700K	82	3.5	3.8	12	STK
LED12P30S27KSP	Non-Dimmable 12W Smooth PAR30 Short Neck - 2700K 15°	120	12	75	800	66.7	5520	15	2700K	82	3.5	3.8	12	MTO
LED12P30S30KFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 3000K 40°	120	12	75	825	68.8	1400	40	3000K	82	3.5	3.8	12	STK
LED12P30S30KNFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 3000K 25°	120	12	75	825	68.8	3750	25	3000K	82	3.5	3.8	12	STK
LED12P30S30KSP	Non-Dimmable 12W Smooth PAR30 Short Neck - 3000K 15°	120	12	75	825	68.8	6000	15	3000K	82	3.5	3.8	12	MTO
LED12P30S35KFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 3500K 40°	120	12	75	850	70.8	1442	40	3500K	82	3.5	3.8	12	MTO
LED12P30S35KNFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 3500K 25°	120	12	75	850	70.8	3863	25	3500K	82	3.5	3.8	12	MTO
LED12P30S35KSP	Non-Dimmable 12W Smooth PAR30 Short Neck - 3500K 15°	120	12	75	850	70.8	6180	15	3500K	82	3.5	3.8	12	MTO
LED12P30S41KFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 4100K 40°	120	12	75	875	72.9	1484	40	4100K	82	3.5	3.8	12	MTO
LED12P30S41KNFL	Non-Dimmable 12W Smooth PAR30 Short Neck - 4100K 25°	120	12	75	875	72.9	3975	25	4100K	82	3.5	3.8	12	MTO
LED12P30S41KSP	Non-Dimmable 12W Smooth PAR30 Short Neck - 4100K 15°	120	12	75	875	72.9	6360	15	4100K	82	3.5	3.8	12	MTO
LED10P30S24KFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 2400K 40°	120	10	60	600	60.0	985	40	2400K	82	3.5	3.8	12	MTO
LED10P30S24KNFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 2400K 25°	120	10	60	600	60.0	2639	25	2400K	82	3.5	3.8	12	MTO
LED10P30S24KSP	Non-Dimmable 10W Smooth PAR30 Short Neck - 2400K 15°	120	10	60	600	60.0	4221	15	2400K	82	3.5	3.8	12	MTO
LED10P30S27KFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 2700K 40°	120	10	60	600	60.0	985	40	2700K	82	3.5	3.8	12	STK
LED10P30S27KNFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 2700K 25°	120	10	60	600	60.0	2639	25	2700K	82	3.5	3.8	12	STK
LED10P30S27KSP	Non-Dimmable 10W Smooth PAR30 Short Neck - 2700K 15°	120	10	60	600	60.0	4221	15	2700K	82	3.5	3.8	12	MTO
LED10P30S30KFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 3000K 40°	120	10	60	650	65.0	1071	40	3000K	82	3.5	3.8	12	STK
LED10P30S30KNFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 3000K 25°	120	10	60	650	65.0	2868	25	3000K	82	3.5	3.8	12	STK
LED10P30S30KSP	Non-Dimmable 10W Smooth PAR30 Short Neck - 3000K 15°	120	10	60	650	65.0	4588	15	3000K	82	3.5	3.8	12	MTO
LED10P30S35KFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 3500K 40°	120	10	60	675	67.5	1103	40	3500K	82	3.5	3.8	12	MTO
LED10P30S35KNFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 3500K 25°	120	10	60	675	67.5	2954	25	3500K	82	3.5	3.8	12	MTO
LED10P30S35KSP	Non-Dimmable 10W Smooth PAR30 Short Neck - 3500K 15°	120	10	60	675	67.5	4726	15	3500K	82	3.5	3.8	12	MTO
LED10P30S41KFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 4100K 40°	120	10	60	700	70.0	1135	40	4100K	82	3.5	3.8	12	MTO
LED10P30S41KNFL	Non-Dimmable 10W Smooth PAR30 Short Neck - 4100K 25°	120	10	60	700	70.0	3040	25	4100K	82	3.5	3.8	12	MTO
LED10P30S41KSP	Non-Dimmable 10W Smooth PAR30 Short Neck - 4100K 15°	120	10	60	700	70.0	4863	15	4100K	82	3.5	3.8	12	MTO
PAR20														
LED10P2024KFL	Non-Dimmable 10W Smooth PAR20 - 2400K 40°	120	10	60	600	60.0	TBD	40	2400K	82	3.5	2.5	12	MTO
LED10P2024KNFL	Non-Dimmable 10W Smooth PAR20 - 2400K 25°	120	10	60	600	60.0	TBD	25	2400K	82	3.5	2.5	12	MTO
LED10P2027KFL	Non-Dimmable 10W Smooth PAR20 - 2700K 40°	120	10	60	600	60.0	TBD	40	2700K	82	3.5	2.5	12	STK
LED10P2027KNFL	Non-Dimmable 10W Smooth PAR20 - 2700K 25°	120	10	60	600	60.0	TBD	25	2700K	82	3.5	2.5	12	STK
LED10P2030KFL	Non-Dimmable 10W Smooth PAR20 - 3000K 40°	120	10	60	650	65.0	TBD	40	3000K	82	3.5	2.5	12	STK
LED10P2030KNFL	Non-Dimmable 10W Smooth PAR20 - 3000K 25°	120	10	60	650	65.0	TBD	25	3000K	82	3.5	2.5	12	STK
LED10P2035KFL	Non-Dimmable 10W Smooth PAR20 - 3500K 40°	120	10	60	675	67.5	TBD	40	3500K	82	3.5	2.5	12	MTO
LED10P2035KNFL	Non-Dimmable 10W Smooth PAR20 - 3500K 25°	120	10	60	675	67.5	TBD	25	3500K	82	3.5	2.5	12	MTO
LED10P2041KFL	Non-Dimmable 10W Smooth PAR20 - 4100K 40°	120	10	60	700	70.0	TBD	40	4100K	82	3.5	2.5	12	MTO
LED10P2041KNFL	Non-Dimmable 10W Smooth PAR20 - 4100K 25°	120	10	60	700	70.0	TBD	25	4100K	82	3.5	2.5	12	MTO
LED8P2024KFL	Non-Dimmable 8W Smooth PAR20 - 2400K 40°	120	8	50	500	62.5	754	40	2400K	82	3.5	2.5	12	MTO
LED8P2024KNFL	Non-Dimmable 8W Smooth PAR20 - 2400K 25°	120	8	50	500	62.5	2070	25	2400K	82	3.5	2.5	12	MTO
LED8P2027KFL	Non-Dimmable 8W Smooth PAR20 - 2700K 40°	120	8	50	500	62.5	754	40	2700K	82	3.5	2.5	12	STK
LED8P2027KNFL	Non-Dimmable 8W Smooth PAR20 - 2700K 25°	120	8	50	500	62.5	2070	25	2700K	82	3.5	2.5	12	STK
LED8P2030KFL	Non-Dimmable 8W Smooth PAR20 - 3000K 40°	120	8	50	515	64.4	820	40	3000K	82	3.5	2.5	12	STK
LED8P2030KNFL	Non-Dimmable 8W Smooth PAR20 - 3000K 25°	120	8	50	515	64.4	2250	25	3000K	82	3.5	2.5	12	STK
LED8P2035KFL	Non-Dimmable 8W Smooth PAR20 - 3500K 40°	120	8	50	525	65.6	845	40	3500K	82	3.5	2.5	12	MTO
LED8P2035KNFL	Non-Dimmable 8W Smooth PAR20 - 3500K 25°	120	8	50	525	65.6	2318	25	3500K	82	3.5	2.5	12	MTO
LED8P2041KFL	Non-Dimmable 8W Smooth PAR20 - 4100K 40°	120	8	50	530	66.3	869	40	4100K	82	3.5	2.5	12	MTO
LED8P2041KNFL	Non-Dimmable 8W Smooth PAR20 - 4100K 25°	120	8	50	530	66.3	2385	25	4100K	82	3.5	2.5	12	MTO

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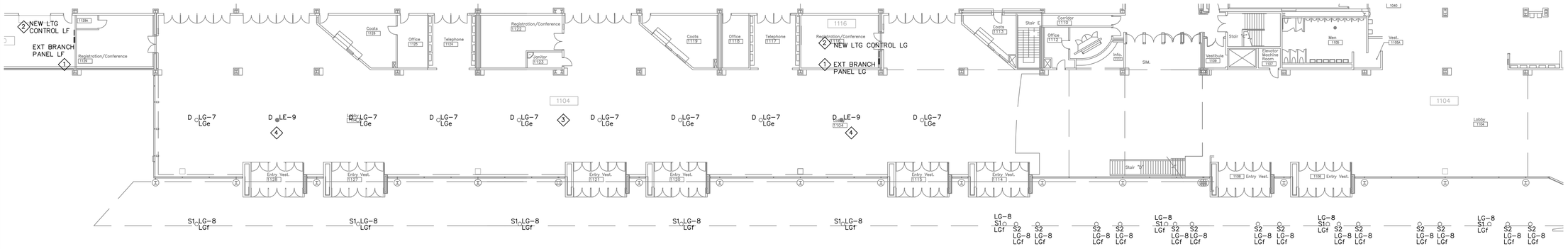

PLAN NOTES

1. EXISTING BRANCH PANEL HAS NUMEROUS CIRCUITS TO REUSE TO SERVE NEW LIGHTING. MARK ALL UNUSED BREAKERS AS SPARE.
2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.
3. LOCATE TYPE "D" FIXTURES IN HALF OF 2 X 4 CEILING TILE NEXT TO 2 X 2 SPEAKER ENCLOSURE
4. WIRE TYPE "D" FIXTURES ON EMERGENCY TO CIRCUIT LE-9 WHICH FEEDS SKYLIGHT EMERGENCY FIXTURES.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF EXISTING LIGHTING CONTROL PANELS.
2. LIGHTING CIRCUITS AND LAYOUT FOR RETROFIT LIGHTING WILL REMAIN AS IS. RETROFIT OF LIGHT SOURCES WILL BE PER RETROFIT DOCUMENTS.
3. PROVIDE DEMOLITION OF 55 HID FIXTURES MOUNTED ON CANOPY BEAM. MAINTAIN CIRCUIT FOR REUSE FOR NEW CANOPY BEAM LIGHTING TYPE S1. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

LIGHTING CONTROL LG (MID CONCOURSE)

ZONE	RELAY MODULE				CIRCUIT		AREA CONTROLLED	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#		
LGa	ON/OFF	1	16A	MASTER ONLY	277	LG3	LOBBY 1104 DN LT	ON/OFF
LGb	ON/OFF	1	16A	MASTER ONLY	277	LG4	LOBBY 1104 DN LT	ON/OFF
LGc	ON/OFF	1	16A	MASTER ONLY	277	LG5	VESTIBULES	ON/OFF
LGd	ON/OFF	1	16A	MASTER ONLY	277	LG6	LOBBY 1104 TORCHIER	ON/OFF
NOTE 1					277	LG7	LOBBY 1104 TORCHIER	
LGe	ON/OFF	1	16A	MASTER ONLY	277	LG7	LOBBY 2x2 LTG	ON/OFF
LGf	ON/OFF	1	16A	MASTER ONLY	277	LG8	EXTERIOR CANOPY (NEW)	ON/OFF
NOTE 1					277	LG9	EXTERIOR CANOPY (HID)	
LGg	ON/OFF	1	16A	MASTER ONLY	277	LG12	LOBBY 1104 FLOUR	ON/OFF
LGh	ON/OFF	1	16A	MASTER ONLY	277	LG13	LOBBY 1104 FLOUR	ON/OFF
LGi	ON/OFF	1	16A	MASTER ONLY	277	LG14	NEON	ON/OFF
LGj	ON/OFF	1	16A	MASTER ONLY	277	LG16	EXTERIOR STEP LTG	ON/OFF
LGk	ON/OFF	1	16A	MASTER ONLY	277	LG17	EXTERIOR STEP LTG	ON/OFF
NOTE 1						LG20	EXTERIOR CANOPY (HID)	

NOTES: 1. DUE TO REDUCED CIRCUIT LOAD SOME LTG HAS BEEN COMBINED WITH LIKE LTG.

LIGHTING CONTROL LF (SOUTH CONCOURSE)

ZONE	RELAY MODULE				CIRCUIT		AREA CONTROLLED	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#		
LFa	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
LFb	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
LFc	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
LFd	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
LFe	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
LFf	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF

NOTES: 1. VERIFY CIRCUITS AND AREAS SERVED.

0 20 40 60

SCALE : 1" = 20' (22 X 34)
1" = 40' (11 X 17)

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LIGHTING UPGRADE
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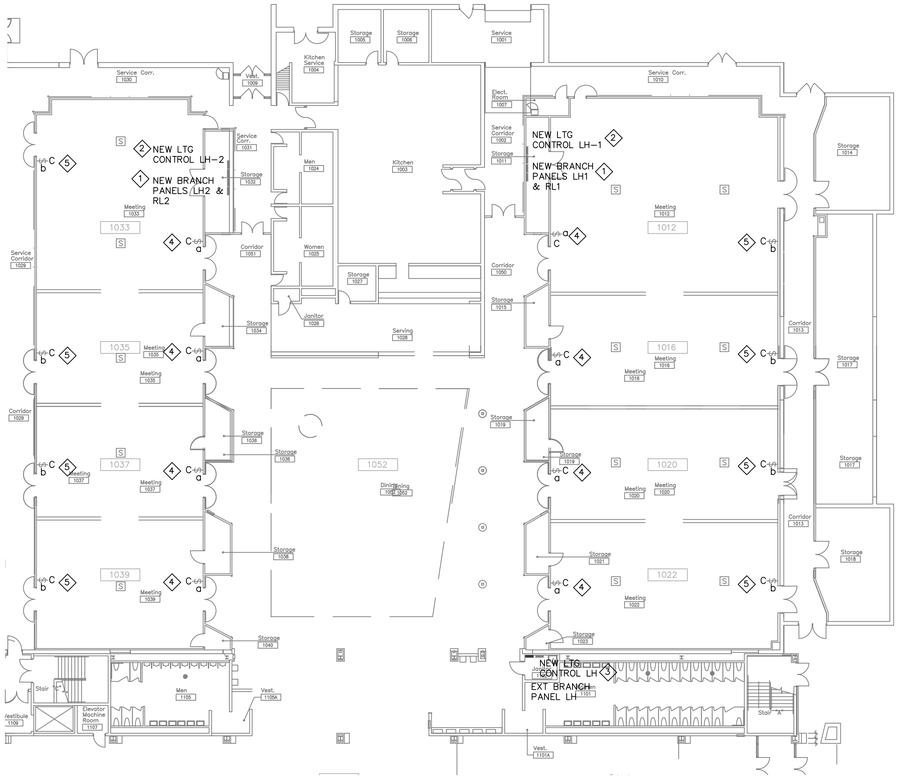
Sheet Title: PARTIAL PLAN – SOUTH LOBBY & EXTERIOR SOFFIT

Revisions:

No.	Date:	Description:

Graphic Scale	SEE DRAWING
Project Number	15007
Set Type	BD
Date Issued	02/23/16
Sheet Number	E2.01



PLAN NOTES

1. REUSE EXISTING 100A 208/120V 4W AND 40A 480/277V 4W FEEDER TO SERVE NEW BRANCH PANELS.
2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURES. NEW ENCLOSURES ARE SHOWN IN LOCATION OF EXISTING RELAY AND DIMMER PANELS. REMOVE EXISTING RELAY AND DIMMER PANELS.
3. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.
4. LOCAL TOUCH PAD CONTROLLER TO REPLACE EXISTING ROOM CONTROL. IF NEEDED PROVIDE COVER PLATE TO COVER EXISTING OPENING.
5. LOCAL PUSH BUTTON CONTROLLER TO REPLACE EXISTING ROOM PUSH BUTTON CONTROL. IF NEEDED PROVIDE COVER PLATE TO COVER EXISTING OPENING.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF EXISTING LIGHTING CONTROL PANELS ONLY. LIGHTING CIRCUITS AND LAYOUT WILL REMAIN AS IS. RETROFIT OF LIGHT SOURCES WILL BE PER RETROFIT DOCUMENTS.

LIGHTING CONTROL LH

ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
Hc	ON/OFF	1	16A	MASTER ONLY	277	LH1	ELEV & STAIR	ON/OFF
Ha	ON/OFF	1	16A	MASTER ONLY	277	LH2	CORRIDOR 1402	ON/OFF
NOTE 1						LH3	CORRIDOR 1402	
Hb	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LH4	CORRIDOR 1402	ON/OFF/10%-100% DIM
NOTE 1						LH5	CORRIDOR 1402	
Hd	ON/OFF	1	16A	MASTER ONLY	277	LH6	LOBBY	ON/OFF
He	ON/OFF	1	16A	MASTER ONLY	277	LH7	LOBBY	ON/OFF
Hf	ON/OFF	1	16A	MASTER ONLY	277	LH8	LOBBY	ON/OFF
Hg	ON/OFF	1	16A	MASTER ONLY	277	LH9	TORCHIERE LTS	ON/OFF
NOTE 1						LH10	TORCHIERE LTS	
Hh	ON/OFF	1	16A	MASTER ONLY	277	LH11	DINING COVE LTS	ON/OFF
Hi	ON/OFF	1	16A	MASTER ONLY	277	LH12	DINING COVE LTS	ON/OFF
Hj	ON/OFF	1	16A	MASTER ONLY	277	LH13	EXT WALL LTG	ON/OFF
Hk	ON/OFF	1	16A	MASTER ONLY	277	LH14	DINING LTS	ON/OFF
Hl	ON/OFF	1	16A	MASTER ONLY	277	LH15	DINING LTS	ON/OFF
Hm	ON/OFF	1	16A	MASTER ONLY	277	LH16	VEST & DINING LTS	ON/OFF
Hn	ON/OFF	1	16A	MASTER ONLY	277	LH17	VEST & DINING LTS	ON/OFF
Ho	ON/OFF	1	16A	MASTER ONLY	277	LH18	BATHROOM LTS	ON/OFF
Hp	ON/OFF	1	16A	MASTER ONLY	277	LH19	NORTH ENTRY LTS	ON/OFF
Hq	ON/OFF	1	16A	MASTER ONLY	277	LH20	CONCESSION LTS	ON/OFF
Hr	ON/OFF	1	16A	MASTER ONLY	277	LH21	MEZZ LOUNGE LTS	ON/OFF
Hs	ON/OFF	1	16A	MASTER ONLY	277	LH22	MEZZ EAST CORR LTS	ON/OFF
Ht	ON/OFF	1	16A	MASTER ONLY	277	LH23	MEZZ LOUNGE LTS	ON/OFF
Hu	ON/OFF	1	16A	MASTER ONLY	277	LH24	MEZZ BATHROOM LTS	ON/OFF
Hv	ON/OFF	1	16A	MASTER ONLY	277	LH25	CHANDELIER LOBBY	ON/OFF
Hw	ON/OFF	1	16A	MASTER ONLY	277	LH26	CHANDELIER LOBBY	ON/OFF
Hx	ON/OFF	1	16A	MASTER ONLY	277	LH27	NORTH CORR LTS	ON/OFF
Hy	ON/OFF	1	16A	MASTER ONLY	277	LH28	CHANDELIER LOBBY	ON/OFF
Hz	ON/OFF	1	16A	MASTER ONLY	277	LH29	NORTH STORAGE ROOM LTS	ON/OFF
Haa	ON/OFF	1	16A	MASTER ONLY	277	LH30	CHANDELIER LOBBY	ON/OFF
Hbb	ON/OFF	1	16A	MASTER ONLY	277	LH31	NORTH POLE LT	ON/OFF
Hcc	ON/OFF	1	16A	MASTER ONLY	277	LH33	BYPASS EM COIL CONT MEZZ	ON/OFF
Hdd	ON/OFF	1	16A	MASTER ONLY	277	LH35	LTG CONTROL PRJG LOT #2	ON/OFF

NOTES: 1 DUE TO REDUCED CIRCUIT LOAD SOME LTG HAS BEEN COMBINED WITH LIKE LTG.

LIGHTING CONTROL LH-1 (NORTH MEETING ROOMS)

ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
H1a	ON/OFF	1	16A	LOCAL & GROUPED	277	LH1-1	MEETING 1012	ON/OFF
H1b	ON/OFF	1	16A	LOCAL & GROUPED	277	LH1-2	MEETING 1012	ON/OFF
H1c	ON/OFF	1	16A	LOCAL & GROUPED	277	LH1-3	MEETING 1016	ON/OFF
H1d	ON/OFF	1	16A	LOCAL & GROUPED	277	LH1-4	MEETING 1020	ON/OFF
H1e	ON/OFF	1	16A	LOCAL & GROUPED	277	LH1-5	MEETING 1022	ON/OFF
H1f	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-1	MEETING 1012	ON/OFF/10%-100% DIM
H1g	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-2	MEETING 1012	ON/OFF/10%-100% DIM
H1h	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-3	MEETING 1012	ON/OFF/10%-100% DIM
H1i	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-4	MEETING 1012	ON/OFF/10%-100% DIM
H1j	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-5	MEETING 1012	ON/OFF/10%-100% DIM
H1k	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-6	MEETING 1012	ON/OFF/10%-100% DIM
H1l	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-7	MEETING 1016	ON/OFF/10%-100% DIM
H1m	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-8	MEETING 1016	ON/OFF/10%-100% DIM
H1n	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-9	MEETING 1016	ON/OFF/10%-100% DIM
H1o	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-10	MEETING 1016	ON/OFF/10%-100% DIM
H1p	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-11	MEETING 1020	ON/OFF/10%-100% DIM
H1q	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-12	MEETING 1020	ON/OFF/10%-100% DIM
H1r	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-13	MEETING 1020	ON/OFF/10%-100% DIM
H1s	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-14	MEETING 1020	ON/OFF/10%-100% DIM
H1t	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-15	MEETING 1022	ON/OFF/10%-100% DIM
H1u	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-16	MEETING 1022	ON/OFF/10%-100% DIM
H1v	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-17	MEETING 1022	ON/OFF/10%-100% DIM
H1w	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL1-18	MEETING 1022	ON/OFF/10%-100% DIM

NOTES: 1. 277V CCTS ARE FLOURESCENT, 120V ARE LED LAMP RETROFIT IN INCANDESCENT FIXTURE.
2, GROUPED CONTROL MUST ALLOW FOR ANY GROUPING OF 4 ADJACENT ROOMS

LIGHTING CONTROL LH-2 (SOUTH MEETING ROOMS)

ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
H2a	ON/OFF	1	16A	LOCAL & GROUPED	277	LH2-1	MEETING 1033	ON/OFF
H2b	ON/OFF	1	16A	LOCAL & GROUPED	277	LH2-2	MEETING 1033	ON/OFF
H2c	ON/OFF	1	16A	LOCAL & GROUPED	277	LH2-3	MEETING 1035	ON/OFF
H2d	ON/OFF	1	16A	LOCAL & GROUPED	277	LH2-4	MEETING 1037	ON/OFF
H2e	ON/OFF	1	16A	LOCAL & GROUPED	277	LH2-5	MEETING 1039	ON/OFF
H2f	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-1	MEETING 1033	ON/OFF/10%-100% DIM
H2g	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-2	MEETING 1033	ON/OFF/10%-100% DIM
H2h	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-3	MEETING 1033	ON/OFF/10%-100% DIM
H2i	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-4	MEETING 1033	ON/OFF/10%-100% DIM
H2j	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-5	MEETING 1033	ON/OFF/10%-100% DIM
H2k	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-6	MEETING 1033	ON/OFF/10%-100% DIM
H2l	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-7	MEETING 1035	ON/OFF/10%-100% DIM
H2m	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-8	MEETING 1035	ON/OFF/10%-100% DIM
H2n	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-9	MEETING 1035	ON/OFF/10%-100% DIM
H2o	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-10	MEETING 1035	ON/OFF/10%-100% DIM
H2p	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-11	MEETING 1037	ON/OFF/10%-100% DIM
H2q	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-12	MEETING 1037	ON/OFF/10%-100% DIM
H2r	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-13	MEETING 1037	ON/OFF/10%-100% DIM
H2s	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-14	MEETING 1037	ON/OFF/10%-100% DIM
H2t	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-15	MEETING 1039	ON/OFF/10%-100% DIM
H2u	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-16	MEETING 1039	ON/OFF/10%-100% DIM
H2v	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-17	MEETING 1039	ON/OFF/10%-100% DIM
H2w	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RL2-18	MEETING 1039	ON/OFF/10%-100% DIM

NOTES: 1. 277V CCTS ARE FLOURESCENT, 120V ARE LED LAMP RETROFIT IN INCANDESCENT FIXTURE.
2, GROUPED CONTROL MUST ALLOW FOR ANY GROUPING OF 4 ADJACENT ROOMS

0 20 40 60

SCALE : 1" = 20' (22 X 34)
1" = 40' (11 X 17)

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Sheet Title: PARTIAL PLAN – ATRIUM MEETING ROOMS

Revisions:

No.	Date:	Description:

Graphic Scale	SEE DRAWING
Project Number	15007
Set Type	BD
Date Issued	02/23/16
Sheet Number	E2.02

LIGHTING CONTROL LE-M (MEZZ EMERGENCY LTG)

ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
EMa	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMb	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMc	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMd	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMe	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMf	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMg	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMh	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMi	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMj	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF
EMk	ON/OFF	1	16A	MASTER ONLY	277	NOTE 1	NOTE 1	ON/OFF

NOTES:
1. FEILD VERIFY CIRCUITS AND AREAS SERVED. PANEL MAY SERVE A MIX OF EMERGENCY AND NORMAL CIRCUITS AND REQUIRE SEPARATION OF WIRING.
2. MAINTAIN USE OF EMERGENCY BYPASS CONTACTORS FOR OVERRIDE OF LIGHTING UPON POWER LOSS

LIGHTING CONTROL LM (MEZZ BOARD ROOM)

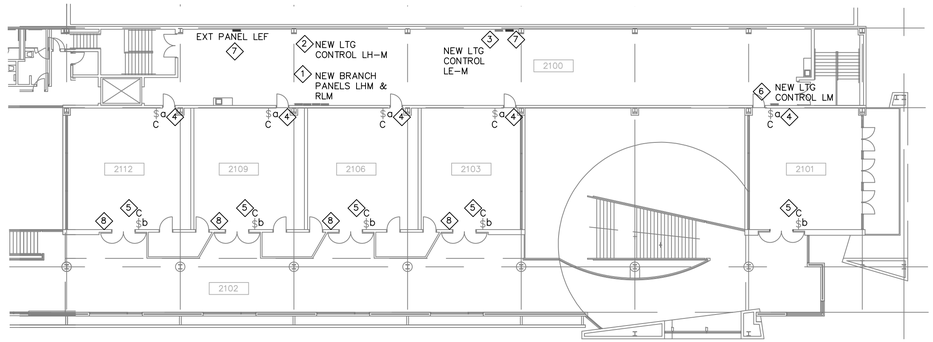
ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
LMa	ON/OFF/INCAN DIM	1	16A	MASTER ONLY	120	J 56	2101	ON/OFF/10%-100% DIM
LMb	ON/OFF/INCAN DIM	1	16A	MASTER ONLY	120	J 56	2101	ON/OFF/10%-100% DIM
LMc	ON/OFF/INCAN DIM	1	16A	MASTER ONLY	120	J 57	2101	ON/OFF/10%-100% DIM

NOTES:

LIGHTING CONTROL LH-M (MEZZ MEETING ROOMS)

ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
HMa	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-1	MEETING 2103	ON/OFF
HMb	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-2	MEETING 2106	ON/OFF
HMc	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-3	MEETING 2109	ON/OFF
HMd	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-4	MEETING 2112	ON/OFF
HMe	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-5	MEETING 2103	ON/OFF
HMf	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-6	MEETING 2106	ON/OFF
HMg	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-7	MEETING 2106	ON/OFF
HMh	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-8	MEETING 2109	ON/OFF
Hmi	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-9	MEETING 2109	ON/OFF
HMj	ON/OFF	1	16A	LOCAL & GROUPED	277	LHM-10	MEETING 2112	ON/OFF
HMk	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-1	MEETING 2103	ON/OFF/10%-100% DIM
HMl	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-2	MEETING 2103	ON/OFF/10%-100% DIM
HMm	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-3	MEETING 2103	ON/OFF/10%-100% DIM
HMn	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-4	MEETING 2106	ON/OFF/10%-100% DIM
HMo	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-5	MEETING 2106	ON/OFF/10%-100% DIM
HMp	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-6	MEETING 2106	ON/OFF/10%-100% DIM
HMq	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-7	MEETING 2109	ON/OFF/10%-100% DIM
HMr	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-8	MEETING 2109	ON/OFF/10%-100% DIM
HMs	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-9	MEETING 2109	ON/OFF/10%-100% DIM
HMt	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-10	MEETING 2112	ON/OFF/10%-100% DIM
HMu	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-11	MEETING 2112	ON/OFF/10%-100% DIM
HMv	ON/OFF/INCAN DIM	1	16A	LOCAL & GROUPED	120	RLM-12	MEETING 2112	ON/OFF/10%-100% DIM

NOTES:
1. 277V CCTS ARE FLOURESCENT, 120V ARE LED LAMP RETROFIT IN INCANDESCENT FIXTURE.
2. GROUPED CONTROL MUST ALLOW FOR ANY GROUPING OF 4 ADJACENT ROOMS



PLAN NOTES

1. REUSE EXISTING 100A 208/120V 4W AND 40A 480/277V 4W FEEDER TO SERVE NEW BRANCH PANELS.
2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURES. NEW ENCLOSURES ARE SHOWN IN LOCATION OF EXISTING RELAY AND DIMMER PANELS. REMOVE EXISTING RELAY AND DIMMER PANELS.
3. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.
4. LOCAL TOUCH PAD CONTROLLER TO REPLACE EXISTING ROOM CONTROL. IF NEEDED PROVIDE COVER PLATE TO COVER EXISTING OPENING.
5. LOCAL PUSH BUTTON CONTROLLER TO REPLACE EXISTING ROOM PUSH BUTTON CONTROL. IF NEEDED PROVIDE COVER PLATE TO COVER EXISTING OPENING.
6. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURES.
7. EXISTING EMERGENCY LIGHTING CIRCUIT TRANSFER SWITCHES. MAINTAIN ALL EMERGENCY CIRCUIT WIRING FOR EMERGENCY "ON" FUNCTION OF LIGHTING. SEVERAL NORMAL CIRCUITS IN LIGHTING CONTROL LE-M (BELIEVED TO BE 4 TO 7 CIRCUITS) MUST BE REWIRED VIA THESE TRANSFER SWITCHES TO MAINTAIN CONTINUITY WITH LIGHTING CONTROLS.
8. SOME EXISTING WALL MOUNTED LINEAR FLUORESCENT FIXTURES ON ENTRY WALL OF ROOM ARE INTENDED TO BE ON EMERGENCY POWER. REFERENCE EXISTING LIGHTING DRAWINGS. VERIFY WHICH ARE INTENDED TO BE WIRED TO EMERGENCY AND INSURE FIXTURES ARE WIRED TO EMERGENCY CIRCUITS.
9. PANEL LEF SERVE EMERGENCY LIGHT ON MEZZ. AND MEETING ROOMS BELOW VIA TRANSFER SWITCH AT LIGHTING CONTROL LEM.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF EXISTING LIGHTING CONTROL PANELS ONLY. LIGHTING CIRCUITS AND LAYOUT WILL REMAIN AS IS. RETROFIT OF LIGHT SOURCES WILL BE PER RETROFIT DOCUMENTS.

0 20 40 60

SCALE : 1" = 20' (22 X 34)

1" = 40' (11 X 17)

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Sheet Title:
PARTIAL PLAN – MEZZ MEETING ROOMS

Revisions:

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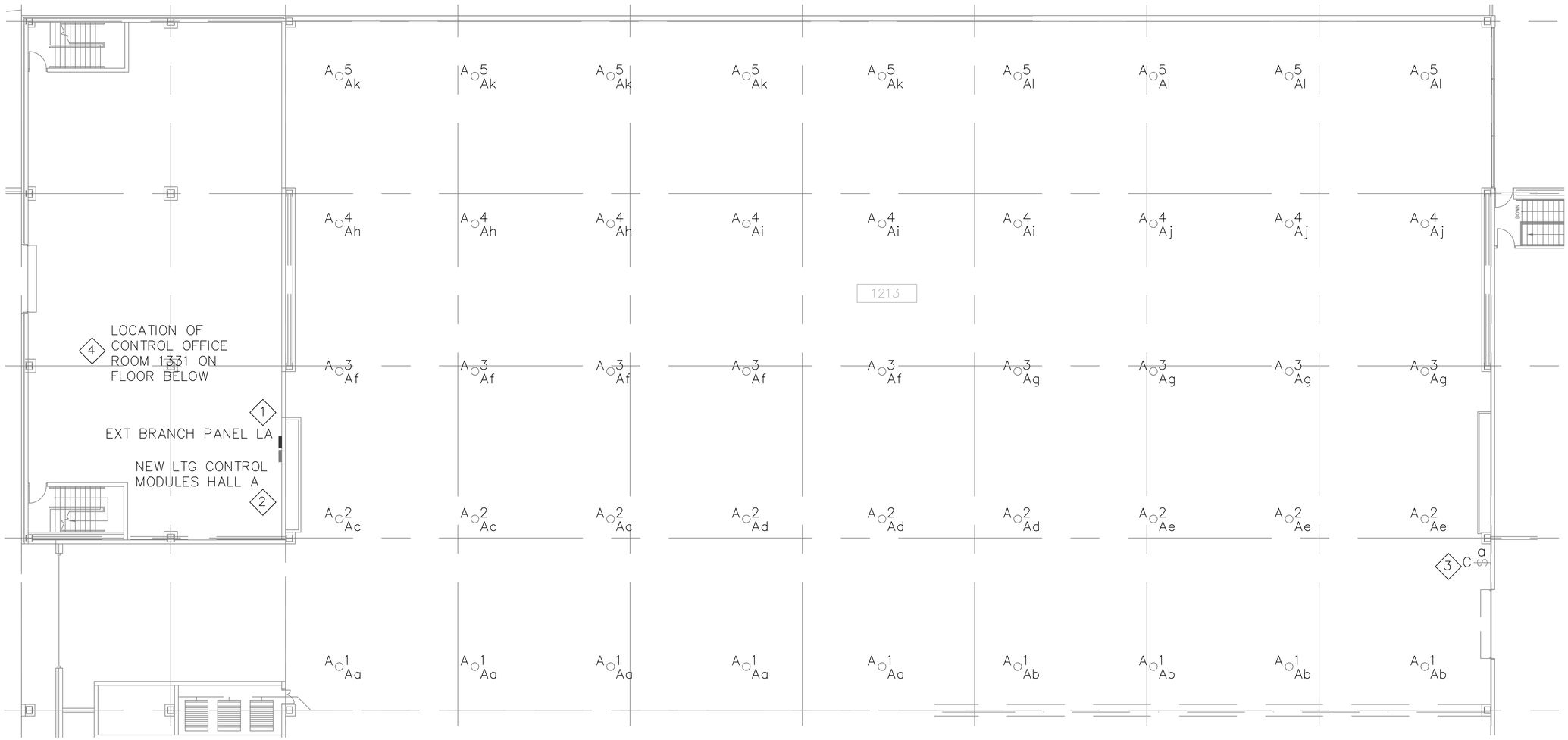

LIGHTING CONTROL HALL A							
ZONE	RELAY MODULE				CIRCUIT	AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
Aa	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA1	HALL A	ON/OFF/1%-100% DIM
Ab	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA1	HALL A	ON/OFF/1%-100% DIM
Ac	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA2	HALL A	ON/OFF/1%-100% DIM
Ad	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA2	HALL A	ON/OFF/1%-100% DIM
Ae	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA2	HALL A	ON/OFF/1%-100% DIM
Af	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA3	HALL A	ON/OFF/1%-100% DIM
Ag	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA3	HALL A	ON/OFF/1%-100% DIM
Ah	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA4	HALL A	ON/OFF/1%-100% DIM
Ai	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA4	HALL A	ON/OFF/1%-100% DIM
Aj	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA4	HALL A	ON/OFF/1%-100% DIM
Ak	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA5	HALL A	ON/OFF/1%-100% DIM
Al	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LA5	HALL A	ON/OFF/1%-100% DIM

GENERAL NOTES

1. EXHIBIT HALL LIGHTING IS A ONE FOR ONE REPLACEMENT OF EXISTING INDUSTRIAL HID FIXTURES.

2. WIRING TO EACH ROW OF LIGHTING APPEARS TO BE RUN IN ONE CONTINUOUS CONDUIT RUNNING EAST TO WEST. EXISTING WIRING MAY BE REUSED TO SERVE NEW LIGHTING TO MINIMIZE REWIRING. FIELD VERIFY ALL WIRING FOR REUSE.

3. ALTERNATE BID "A" – PROVIDE TYPE "A" FIXTURE WITH SEPARATE DIMMING DRIVER FOR UP AND DOWN LIGHT. PROVIDE ADDITIONAL CONTROL MODULES AND WIRING TO ACCOMMODATE SEPARATE DIMMING CONTROL.

PLAN NOTES

1. EXISTING BRANCH PANEL HAS NUMEROUS CIRCUITS TO REUSE TO SERVE NEW LIGHTING. MARK ALL UNUSED BREAKERS AS SPARE.

2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.

3. SURFACE MOUNTED LOCAL TOUCH PAD CONTROLLER AT EXPO HALL LEVEL.

4. LOCATION OF LARGE MANUAL SWITCH STATION FOR MANUAL CONTROL OF EXPO BUILDING LIGHTING. REMOVE ALL DEVICES AND WIRING. PROVIDE BLANK COVER PLATES FOR ALL MULTI–GANG OUTLET BOXES.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF 68 INDUSTRIAL FLUORESCENT FIXTURES. REMOVE ALL WIRING TO PANEL LD. MARK ABANDONED BREAKERS SPARE. FIXTURES USED FOR EMERGENCY LIGHTING SHALL REMAIN IN USE. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

2. PROVIDE DEMOLITION OF EXISTING LIGHTING RELAY PANEL.

3. PROVIDE DEMOLITION OF MANUAL LIGHTING CONTROL STATION IN ROOM 1331 PER PLAN NOTE #4. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

0 10 20 30

SCALE : 1" = 10' (22 X 34)

1" = 20' (11 X 17)

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LIGHTING UPGRADE
ALLIANT ENERGY CENTER

Sheet Title: PARTIAL PLAN – UPPER LEVEL EXHIBIT HALL A

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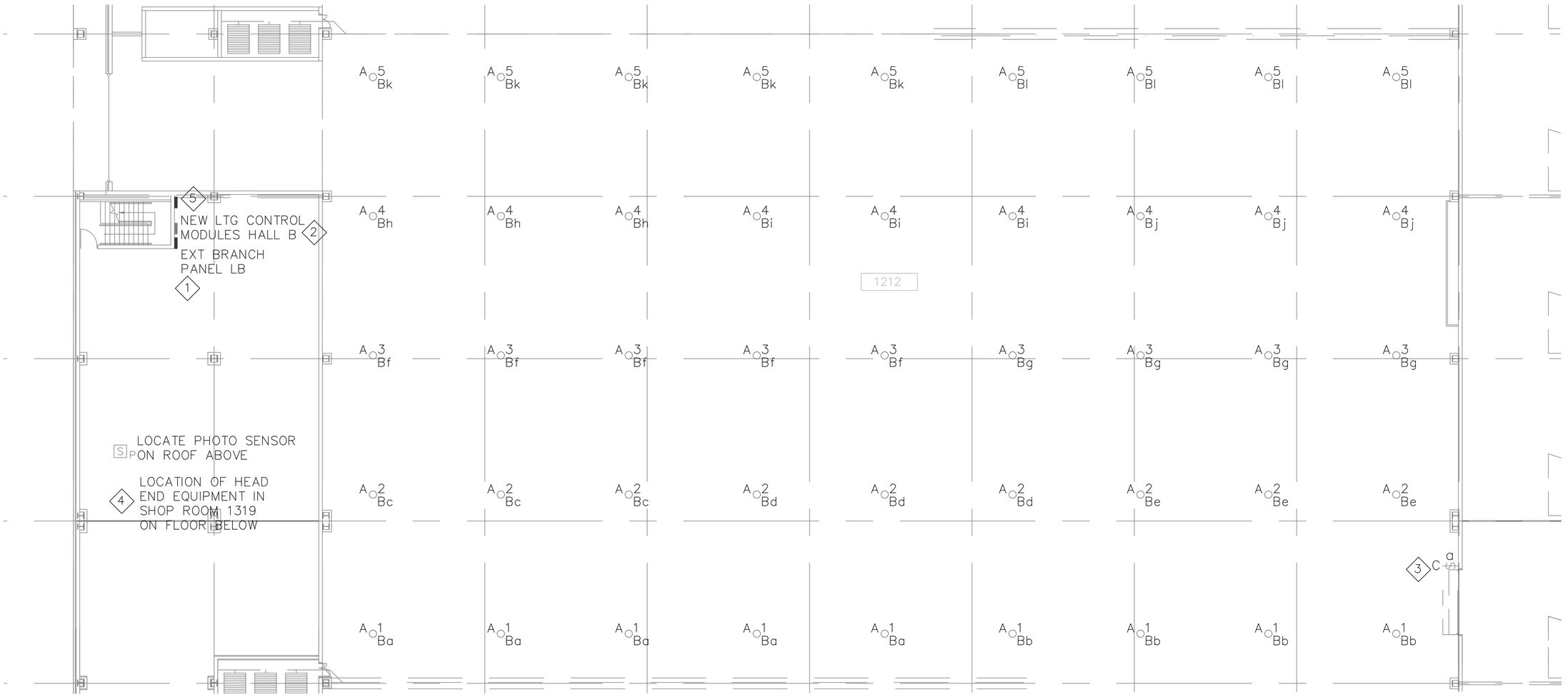

LIGHTING CONTROL HALL B								
ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
Ba	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB1	HALL B	ON/OFF/1%-100% DIM
Bb	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB1	HALL B	ON/OFF/1%-100% DIM
Bc	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB2	HALL B	ON/OFF/1%-100% DIM
Bd	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB2	HALL B	ON/OFF/1%-100% DIM
Be	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB2	HALL B	ON/OFF/1%-100% DIM
Bf	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB3	HALL B	ON/OFF/1%-100% DIM
Bg	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB3	HALL B	ON/OFF/1%-100% DIM
Bh	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB4	HALL B	ON/OFF/1%-100% DIM
Bi	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB4	HALL B	ON/OFF/1%-100% DIM
Bj	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB4	HALL B	ON/OFF/1%-100% DIM
Bk	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB5	HALL B	ON/OFF/1%-100% DIM
Bl	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LB5	HALL B	ON/OFF/1%-100% DIM

GENERAL NOTES

1. EXHIBIT HALL LIGHTING IS A ONE FOR ONE REPLACEMENT OF EXISTING INDUSTRIAL HID FIXTURES.

2. WIRING TO EACH ROW OF LIGHTING APPEARS TO BE RUN IN ONE CONTINUOUS CONDUIT RUNNING EAST TO WEST. EXISTING WIRING MAY BE REUSED TO SERVE NEW LIGHTING TO MINIMIZE REWIRING. FIELD VERIFY ALL WIRING FOR REUSE.

3. ALTERNATE BID "A" – PROVIDE TYPE "A" FIXTURE WITH SEPARATE DIMMING DRIVER FOR UP AND DOWN LIGHT. PROVIDE ADDITIONAL CONTROL MODULES AND WIRING TO ACCOMMODATE SEPARATE DIMMING CONTROL.

PLAN NOTES

1. EXISTING BRANCH PANEL HAS NUMEROUS CIRCUITS TO REUSE TO SERVE NEW LIGHTING. MARK ALL UNUSED BREAKERS AS SPARE.

2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.

3. SURFACE MOUNTED LOCAL TOUCH PAD CONTROLLER AT EXPO HALL LEVEL.

4. LOCATE NEW HEAD END PC AND INTERFACES FOR LAN AND BAS IN ROOM 1319 ON FLOOR BELOW. ROOM CONTAINS EXISTING HEAD END AND IT NETWORK EQUIPMENT. LOCATE PHOTO SENSOR FOR EXTERIOR LIGHTING ON ROOF ABOVE FACING NORTH. COORDINATE REMOVAL OF EXISTING EQUIPMENT AND LOCATION OF NEW EQUIPMENT WITH OWNER.

5. EXISTING EMERGENCY LIGHTING CIRCUIT TRANSFER SWITCHES. MAINTAIN ALL EMERGENCY CIRCUIT WIRING FOR EMERGENCY "ON" FUNCTION OF LIGHTING.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF 65 INDUSTRIAL FLUORESCENT FIXTURES. REMOVE ALL WIRING TO PANEL LB. MARK ABANDONED BREAKERS SPARE. FIXTURES USED FOR EMERGENCY LIGHTING SHALL REMAIN IN USE. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

2. PROVIDE DEMOLITION OF EXISTING LIGHTING RELAY PANEL.

3. PROVIDE DEMOLITION OF EXISTING LIGHTING CONTROL HEAD END PC AND INTERFACES IN ROOM 1319.

0 10 20 30

SCALE : 1" = 10' (22 X 34)

1" = 20' (11 X 17)

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LIGHTING UPGRADE
ALLIANT ENERGY CENTER

Sheet Title: PARTIAL PLAN – UPPER LEVEL EXHIBIT HALL B

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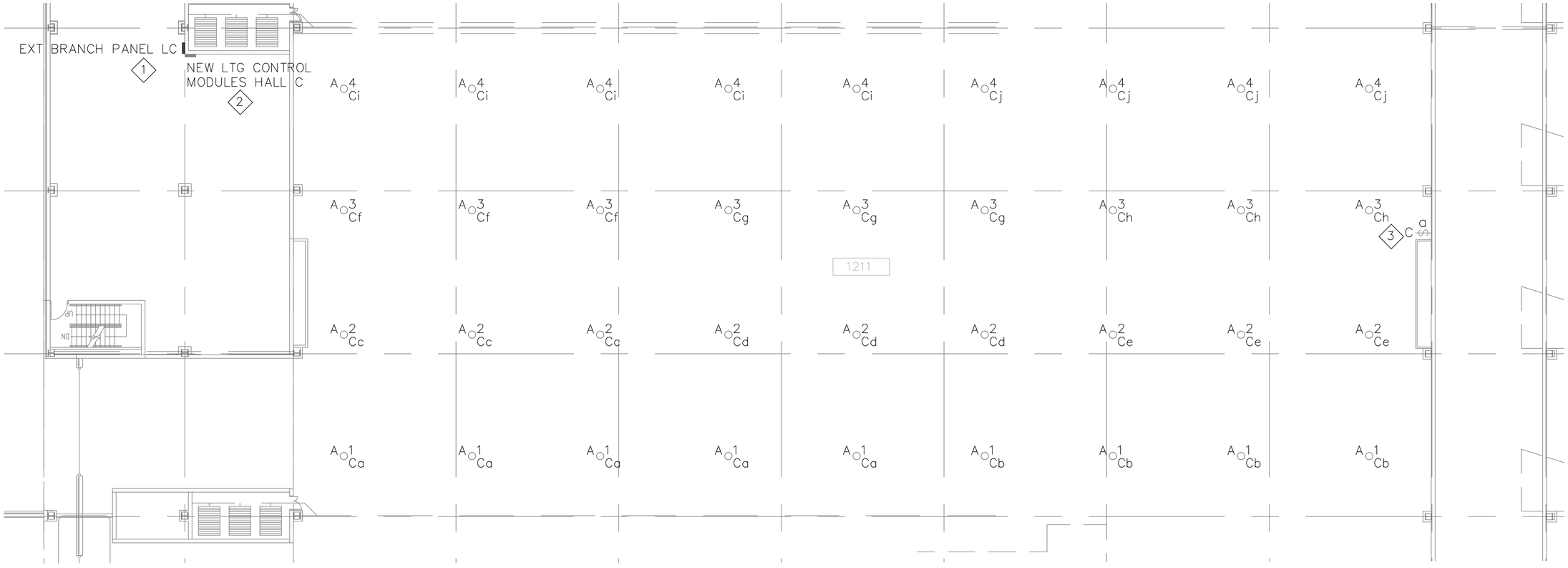

LIGHTING CONTROL HALL C								
ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
Ca	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC1	HALL C	ON/OFF/1%-100% DIM
Cb	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC1	HALL C	ON/OFF/1%-100% DIM
Cc	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC2	HALL C	ON/OFF/1%-100% DIM
Cd	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC2	HALL C	ON/OFF/1%-100% DIM
Ce	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC2	HALL C	ON/OFF/1%-100% DIM
Cf	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC3	HALL C	ON/OFF/1%-100% DIM
Cg	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC3	HALL C	ON/OFF/1%-100% DIM
Ch	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC3	HALL C	ON/OFF/1%-100% DIM
Ci	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC4	HALL C	ON/OFF/1%-100% DIM
Cj	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LC4	HALL C	ON/OFF/1%-100% DIM

GENERAL NOTES

1. EXHIBIT HALL LIGHTING IS A ONE FOR ONE REPLACEMENT OF EXISTING INDUSTRIAL HID FIXTURES.

2. WIRING TO EACH ROW OF LIGHTING APPEARS TO BE RUN IN ONE CONTINUOUS CONDUIT RUNNING EAST TO WEST. EXISTING WIRING MAY BE REUSED TO SERVE NEW LIGHTING TO MINIMIZE REWIRING. FIELD VERIFY ALL WIRING FOR REUSE.

3. ALTERNATE BID "A" – PROVIDE TYPE "A" FIXTURE WITH SEPARATE DIMMING DRIVER FOR UP AND DOWN LIGHT. PROVIDE ADDITIONAL CONTROL MODULES AND WIRING TO ACCOMMODATE SEPARATE DIMMING CONTROL.

PLAN NOTES

1. EXISTING BRANCH PANEL HAS NUMEROUS CIRCUITS TO REUSE TO SERVE NEW LIGHTING. MARK ALL UNUSED BREAKERS AS SPARE.

2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.

3. SURFACE MOUNTED LOCAL TOUCH PAD CONTROLLER AT EXPO HALL LEVEL.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF 50 INDUSTRIAL FLUORESCENT FIXTURES. REMOVE ALL WIRING TO PANEL LC. MARK ABANDONED BREAKERS SPARE. FIXTURES USED FOR EMERGENCY LIGHTING SHALL REMAIN IN USE. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

2. PROVIDE DEMOLITION OF EXISTING LIGHTING RELAY PANEL.

0 10 20 30

SCALE : 1" = 10' (22 X 34)

1" = 20' (11 X 17)

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Sheet Title: PARTIAL PLAN – UPPER LEVEL EXHIBIT HALL c

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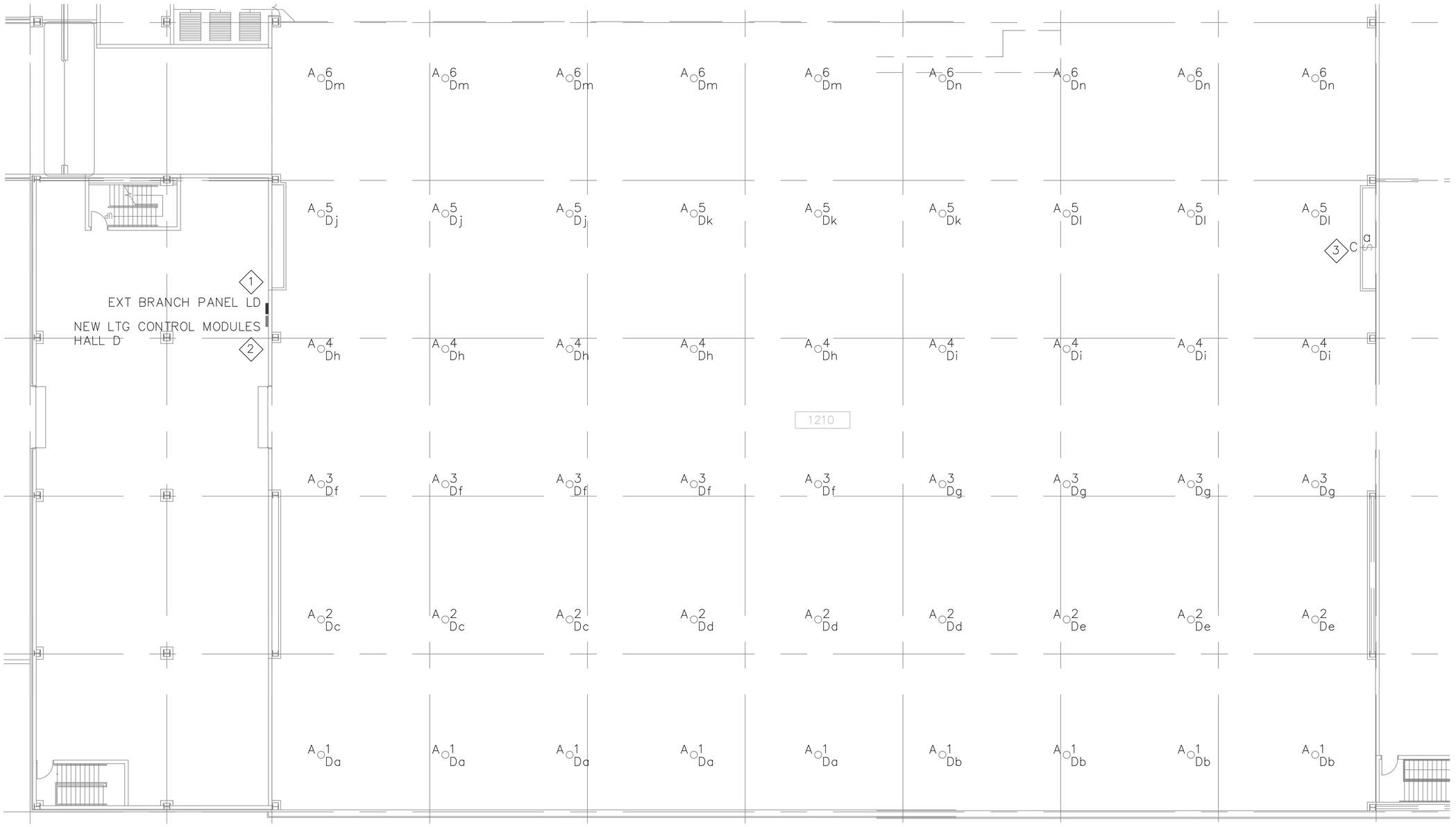
Sheet Number	E3.03



LIGHTING CONTROL HALL D								
ZONE	RELAY MODULE				CIRCUIT		AREA	FUNCTION
	TYPE	POLE	MAX LOAD	CONTROL	VOLT	PANEL CCT#	CONTROLLED	
Da	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD1	HALL D	ON/OFF/1%-100% DIM
Db	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD1	HALL D	ON/OFF/1%-100% DIM
Dc	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD2	HALL D	ON/OFF/1%-100% DIM
Dd	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD2	HALL D	ON/OFF/1%-100% DIM
De	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD2	HALL D	ON/OFF/1%-100% DIM
Df	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD3	HALL D	ON/OFF/1%-100% DIM
Dg	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD3	HALL D	ON/OFF/1%-100% DIM
Dh	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD4	HALL D	ON/OFF/1%-100% DIM
Di	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD4	HALL D	ON/OFF/1%-100% DIM
Dj	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD5	HALL D	ON/OFF/1%-100% DIM
Dk	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD5	HALL D	ON/OFF/1%-100% DIM
Dl	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD5	HALL D	ON/OFF/1%-100% DIM
Dm	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD6	HALL D	ON/OFF/1%-100% DIM
Dn	ON/OFF/0-10V DIM	1	16A	MASTER ONLY	277	LD6	HALL D	ON/OFF/1%-100% DIM

GENERAL NOTES

1. EXHIBIT HALL LIGHTING IS A ONE FOR ONE REPLACEMENT OF EXISTING INDUSTRIAL HID FIXTURES.

2. WIRING TO EACH ROW OF LIGHTING APPEARS TO BE RUN IN ONE CONTINUOUS CONDUIT RUNNING EAST TO WEST. EXISTING WIRING MAY BE REUSED TO SERVE NEW LIGHTING TO MINIMIZE REWIRING. FIELD VERIFY ALL WIRING FOR REUSE.

3. ALTERNATE BID "A" – PROVIDE TYPE "A" FIXTURE WITH SEPARATE DIMMING DRIVER FOR UP AND DOWN LIGHT. PROVIDE ADDITIONAL CONTROL MODULES AND WIRING TO ACCOMMODATE SEPARATE DIMMING CONTROL.

PLAN NOTES

1. EXISTING BRANCH PANEL HAS NUMEROUS CIRCUITS TO REUSE TO SERVE NEW LIGHTING. MARK ALL UNUSED BREAKERS AS SPARE.

2. PROVIDE NEW LIGHTING CONTROL MODULES IN COMMON ENCLOSURE. NEW ENCLOSURE IS SHOWN IN LOCATION OF EXISTING RELAY PANEL. REMOVE EXISTING RELAY PANEL.

3. SURFACE MOUNTED LOCAL TOUCH PAD CONTROLLER AT EXPO HALL LEVEL.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF 83 INDUSTRIAL FLUORESCENT FIXTURES. REMOVE ALL WIRING TO PANEL LD. MARK ABANDONED BREAKERS SPARE. FIXTURES USED FOR EMERGENCY LIGHTING SHALL REMAIN IN USE. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

2. PROVIDE DEMOLITION OF EXISTING LIGHTING RELAY PANEL.

0 10 20 30

SCALE : 1" = 10' (22 X 34)

1" = 20' (11 X 17)

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LIGHTING UPGRADE
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Sheet Title: PARTIAL PLAN – UPPER LEVEL EXHIBIT HALL D

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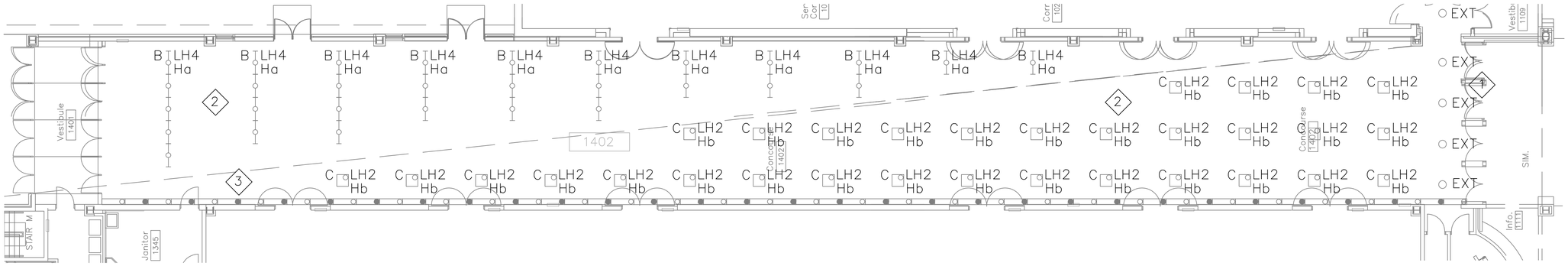

GENERAL NOTES

1. RACEWAY FOR TYPE "B" LIGHTING SHALL BE RUN EXPOSED ON UNDERSIDE OF STRUCTURE. PAINT WHITE TO MATCH EXISTING EXPOSED RACEWAY.

2. TYPE "C" FIXTURES ARE LOCATED IN EXISTING LAY-IN CEILING.

PLAN NOTES

1. EXISTING VESTIBULE LIGHTING FIXTURES WILL BE RETROFIT. SEE RETROFIT DOCUMENTS. MAINTAIN CIRCUIT.

2. PROVIDE NEW LIGHTING CONTROL PER SCHEDULE "LIGHTING CONTROL LH" DRAWING E2.02

3. COVE TO REMAIN. MAINTAIN EMERGENCY LIGHTING AS IS.

DEMOLITION NOTES

1. PROVIDE DEMOLITION OF 14 PENDENT HID FIXTURES ALONG NORTH WALL. MAINTAIN CIRCUITS TO ROOM FOR REUSE WITH NEW LIGHTING. REMOVE ALL WIRING AND CONDUIT NOT REQUIRED FOR WIRING OF NEW LIGHTING. THIS DEMOLITION IS PART OF DEMOLITION ALTERNATE BID.

LIGHTING FIXTURES

MARK	FIXTURE		VOLT.	LAMP		MOUNTING		MANUFACTURER		REMARKS
	TYPE	DIFFUSER		# -WATTS	TYPE	TYPE	HT.	NAME	CAT. NO.	
A	85% DN/15% UP NOTE 2	GLASS/WIDE DIST	277	240	LED	PEND	35'	HOLOPHANE	PHZ	NOM 24,000 LUMENS, 4k, 80CRI, DIMMABLE, STEM MTD AT BOTTOM OF STRUCTURE
B	WRAPAROUND	PRIZ	277	27W/4'	LED	SURF	15'	LITHONIA	STL	NOM 2000LUENS/4' section, 4k, 80CRI, 2' OR 4' PER FLOOR PLAN, RUN IN CONTINUOUS ROWS
C	2x2	PERF	277	24W	LED	REC	10'	LITHONIA	2AVL2	NOM 3000 LUMENS, 4k, 80CRI. WHITE FINISH, PERF METAL DIFFUSER
D	2x2	OPEN	277	140W	LED	REC	30'	ILP	GH22	NOM 17,000 LUMENS, 4k, WHITE FINISH, W/FROSTED LENS
S1	CANOPY	SYMETRIC DIST	277	60W	LED	SURF	NOTE 1	ILP	CP	SYMETRICAL DISTRIBUTION, 4k, PROVIDE BRACKET TO MOUNT ON EXISTING WIDE FLANGE
S2	FAÇADE UP LIGHT	SYMETRIC DIST	277	20W	LED	SURF	NOTE 3	ILP	FMS	FLOOD LIGHT, 4k, PROVIDE BRACKET TO MOUNT ON EXISTING WIDE FLANGE BEAM

NOTES:
1. MOUNT AT APPROX 13'-6" IN SPACE BETWEEN CANOPY BEAM AND SOFFIT, ABOVE BOTTOM OF BEAM. ADJUST HEIGHT SO SHADOW OF SOFFIT LANDS AT BASE OF WALL. PROVIDE MOCK UP FOR APPROVAL BY OWNER.
2. ALTERNATE BID "A" - PROVIDE TYPE "A" FIXTURE WITH SEPARATE UP AND DOWN LIGHT DIMMING DRIVER(S).
3. MOUNT AT APPROX 13'-6" IN SPACE BETWEEN CANOPY BEAM AND SOFFIT, ABOVE BOTTOM OF BEAM. AIM TO LIGHT FAÇADE ABOVE. PROVIDE MOCK UP FOR APPROVAL BY OWNER.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
A 23 a	FIXTURE TYPE; CIRCUIT FOR REFERNCE ONLY, VERIFY ACTUAL IN FIELD; CONTROL
	RECESSED MOUNTED TROFFER, NORMAL POWER
	RECESSED MOUNTED TROFFER, EMERGENCY POWER
	SURFACE/SUSPENDED STRIP OR LINEAR, NORMAL POWER
	SURFACE/SUSPENDED STRIP OR LINEAR, EMERGENCY POWER
	SURFACE MOUNTED, NORMAL POWER
	SURFACE MOUNTED, EMERGENCY POWER
R	RECESSED MOUNTED, NORMAL POWER
	RECESSED MOUNTED, EMERGENCY POWER
	EXIT SIGN – FACES AND ARROWS AS SHOWN
	BATTERY PACK EMERGENCY LIGHTING
	TRACK LIGHTING – HEADS AS SHOWN
⊥	DENOTES WALL MOUNTING
	BRANCH PANEL WITH DESIGNATION
C	CONTROL STATION TYPE AS NOTED

ABBREVIATIONS

MARK	MEANING	MARK	MEANING
AFF	Above finished floor	LTS	Lights
AFG	Above final grade	LTG	Lighting
AL	Aluminum	LTNG	Lightning
ALT	Alternate	PH	Phase
ARCH	Architect/Architectural	PNL	Panel
ATS	Automatic Transfer Switch	MAG	Magnetic
AWG	American wire gage	MAN	Manual
BFG	Below final grade	MC	Mechanical contractor
BLDG	Building	MIN	Minimum
C	Conduit	MFG	Manufacturer
CB	Cicuit Breaker	MT	Mount
CAT	Catalog	MTD	Mounted
CCT	Circuit	N	Nuetral
CLG	Ceiling	NC	Normally Closed
COM	Common	NO	Normally Open
DISC	Disconnect	OFCI	Owner Furnished Contractor Installed
DN	Down	PARA	Parabolic
DWG	Drawing	PVC	Polyvinylcloride Conduit
EC	Electrical contractor	REC	Recessed
EGS	Emergency Generation System	RECEP	Receptacle
ER	Existing to Remain	REL	Relocate
EX	Existing to Remove	SPEC	Specifcation
EXT	Existing	SQ	Square
FIX	Fixture	SURF	Surface
FVNR	Full voltage non-reversing	SW	Switch
GC	General contractor	TRANS	Transformer
GND	Ground	TYP	Typical
GRC	Galvanized Rigid Conduit	UC	Under Cabinet
HOA	Hand (manual on) Off Automatic	V	Volt(s)
HT	Height	VFD	Variable frequency motor drive
LED	Light emitting diode	W	Wire
LT	Light	W/	With

0 10 20 30

SCALE : 1" = 10' (22 X 34)

1" = 20' (11 X 17)

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LIGHTING UPGRADE
ALLIANT ENERGY CENTER

Sheet Title: PARTIAL PLAN – NORTH CORRIDOR

Revisions:

No.	Date:	Description:

Graphic Scale	SEE DRAWING
Project Number	15007
Set Type	BD
Date Issued	02/23/16
Sheet Number	E3.05

LIGHTING FIXTURE SCHEDULE- RETROFITS						
LOCATION	DESCRIPTION	MANUFACTURER	ITEM	QUANTITY	MOUNTING	NOTES
1104 FRONT LOBBY/ATRIUM	RETROFIT EXISTING TORCHEIRE LAMP WITH NEW PRODUCT	NEU-TECH ENERGY SOLUTIONS	IDO-802-45W	20	IN FIXTURE	SCREW INTO EXISTING SOCKET
1104 FRONT LOBBY/ATRIUM	RETROFIT EXISTING RECESSED HIGH BAY LAMPS WITH NEW PRODUCT	GREEN CREATIVE	19PAR38G3/840NF25/277V	25	CEILING	REMOVE BALLAST REUSE EXISTING LAMP HOLDER
1052 DINNING/LOBBY	REPLACE EXISTING RECESSED CAN FIXTURES WITH NEW PRODUCT	MAX LITE	RR62330W	155	CEILING	REPLACES ALL EXISTING TYPE HS AND HJ FIXTURES
2101-2112 UPPER MEETING ROOMS	REPLACE EXISTING RECESSED CAN FIXTURES WITH NEW FIXTURE	TAMLITE LIGHTING	IC206AT	71	CEILING	REFFER TO M18-2 FOR NEW LAMPS
2101-2112 UPPER MEETING ROOMS	REPLACE EXISTING RECESSED LAMPS WITH NEW PRODUCT	TCP	LED17PAR3830KFL	71	CEILING	TO BE USED IN NEW FIXTURES FOR M18-1
2101-2112 UPPER MEETING ROOMS	REPLACE EXISTING TRACK LAMPS WITH NEW PRODUCT	TCP	LED17PAR3830KFL	20	TRACK	EXISTING TRACK FIXTURES TO BE USED

GENERAL NOTES

1. SEE ELECTRICAL LIGHTING PLANS E2.01 THROUGH E3.05 FOR LOCATION OF ALL RETROFIT WORK INDICATED IN "LIGHTING FIXTURE SCHEDULE – RETROFITS".

2. "LIGHTING FIXTURE" SCHEDULE ON E3.05 INDICATES APPROXIMATE MOUNTING HEIGHTS IN AREAS BEING RETROFIT.

3. REFER TO EXISTING LIGHTING DRAWINGS FOR REFERENCE.

DEMOLITION NOTES

1. ALL RETROFIT WORK REQUIRES REMOVAL OF EXISTING LAMP, FIXTURE, ETC, WHICH IS BEING REPLACED WITH A RETROFIT PRODUCT.

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LIGHTING UPGRADE
ALLIANT ENERGY CENTER

Sheet Title:
LIGHTING RETROFIT

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