

REQUEST FOR PROPOSALS:



FOR THE LONG-TERM OPERATIONS & MAINTENANCE OF THE PERMANENT LIGHTING INSTALLATION OF THE CONNECTING TERMINAL

**32 Fuhrmann Boulevard
Buffalo, New York 14203**

RFP RELEASE DATE: September 8, 2016
RFP DEADLINE: September 29, 2016

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I. INTRODUCTION & BACKGROUND

Erie Canal Harbor Development Corporation (“ECHDC”) a subsidiary of the New York State Urban Development Corporation d/b/a Empire State Development (“ESD”), the State of New York’s chief economic development agency, is pleased to issue this request for proposals (“RFP”) for the long-term (three years) operation and maintenance of the permanent lighting installation located at the Connecting Terminal, located at 32 Fuhrmann Boulevard, Buffalo, NY, 14203 and Kelly Island, 54 S. Michigan St., Buffalo, NY 14203 (“the Sites” - See ***Exhibit A***). Currently, ECHDC has an access agreement with the current property owner, New York Power Authority (NYPA), for operations and maintenance of the Connecting Terminal grain elevators. Additionally, ECHDC also has an access agreement with General Mills, Inc. for associated equipment (light towers and fixtures) located on Kelly Island.

In a creative effort to repurpose and revitalize Buffalo’s historical grain elevators, ECHDC hired Foit-Albert Associates, along with Ambiances Design Productions, to decorate an expansive concrete canvas, the aforementioned Connecting Terminal grain elevator, with a permanent lighting installation on the Buffalo River. Located directly across from the hugely popular public spaces of Canalside, the project provides a dynamic, artistic and vibrant cultural experience. The project was unveiled on November 4, 2015, and can be seen year round at dusk. The project has captured the attention and imagination of local, regional, national, and international audiences (<https://www.canalsidebuffalo.com/grainelevator/>).

This RFP represents a valuable opportunity to carefully inspect and maintain this regional beacon, as well as participate in the broader economic resurgence of the City of Buffalo (“the City”). Surrounding the site, there is an on-going investment by both public and private entities in a collective effort to extend the city’s waterfront resurgence onto the Outer Harbor.

Each party that submits a response (“Proposal”) to this RFP is referred to herein as a “Respondent,” and the Respondent that is selected through this RFP process is referred to herein as the “Contractor.” It is expected that the Contractor will enter into an agreement with an expected term of 3 years (the “Contract”) with an option, at the discretion of ECHDC, for an additional two years. The Contract will be subject to all applicable legal requirements, including those associated with payment of NYS prevailing wages.

Respondents to this RFP may submit Proposals that meet the terms and expectations of the RFP.

II. RFP TIMELINE

RFP release date:	September 8, 2016
Site tour(s):	September 21, 2016
Submission of Questions by:	September 24, 2016

Deadline to submit Proposals: September 29, 2:00 PM EDT
Interviews: October 4, 2016 (if invited)
Execution of Contract: November 15, 2016 (expected)

III. PROJECT DESCRIPTION

ECHDC completed Phase I of the Grain Elevators and Bridges Illumination project in November 2015 and achieved its objective of strategically re-utilizing existing structures along the Buffalo River through the implementation of light projection.

The Permanent Lighting Installation to the Connecting Terminal grain elevator project (the "Project") marks the completion of the initial construction project. The Project consisted of the construction of a permanent lighting installation to the Connecting Terminal grain elevator; the industrial icon chosen as a contemplative backdrop at the river's edge. The Connecting Terminal grain elevator, also chosen for its ideal location, is situated towards the northern end of the Outer Harbor, directly across the Buffalo River to Canalside. The Connecting Terminal grain elevator is identified by the 1915 north structure and the 1954 south structure, separated by a gap area in the middle.

The contemplative artistic narrative, or permanent lighting installation, is being displayed through kinetic lighting comprised of five specific light layers. Each proposed light layer involves a different kind of light fixture and system for attachment. Construction and installation of the light fixtures' infrastructure is situated in and around the Connecting Terminal grain elevator and site, which is located at the First Buffalo River Marina, as well as on Kelly Island, which is located across the river at General Mills. The infrastructure at these two sites accommodates five types of light fixtures, which have been commissioned and programmed to create a dynamic light display on the grain elevator facade.

IV. SCOPE OF SERVICES (See *Exhibit B* & *Exhibit C*)

The contract will be inclusive of all costs associated with the following:

Equipment, Staff, Permits & Reports

Equipment – All necessary tools, equipment and vehicles will be provided by Contractor to complete the scope of services, with special attention on the light fixtures (F01s- Upper: 93; F01s-Lower: 93; G01s: 10; M01s: 10; V01s: 330; W01s: 19). The Contractor shall produce all necessary certifications required for operation of any and all equipment. General equipment that may be needed:

1. Boom lift - access roof top
2. Upper F01(s) - harness with safety tie-offs
3. Lower F01(s)/W01(s) (1915) - from ladder on east side; use lift on west side
4. Lower F0-1(s) (1954) - from ground or ladder
5. G01(s)s - from ladder
6. M01(s) - 30' JLG lift (or bucket truck) to access Towers A, B, C

7. V01(s) - Swing stage (no commercial vehicles are permitted anywhere along the east side of the silos).

Staff/Certification –The following should be included, but not limited to, for consideration of the staffing plan:

1. *Contractor/Project Manager*: overall coordination, scheduling, ordering of equipment and/or supplies
2. *Licensed Electrical Technician*: wipe down & cleaning tasks on F01(s), G01(s), V01(s), W01(s) and cleaning of M01 Tempest enclosures
3. *Systems Integrator* will be a required staff (certified Phillips Varilite) with a minimum of 5 years of experience and knowledge of the following:
 - a) Outdoor theatrical and architectural lighting and control system
 - b) Lighting Control Wiring
 - c) DMX and Ethernet connections and testing procedure
 - d) DMX512, RDM (monitoring, control) and Ethernet (BACnet, Art-Net, KiNet, sACN) protocol based lighting system
 - e) Personality, protocol and addressing of lighting fixtures
 - f) Moving light and enclosure installation and monitoring
 - g) MA Lighting and Ionage Madrix control products and software configuration
 - h) Wireless DMX and Ethernet systems
 - i) Network monitoring

The following is an alphabetical list (not comprehensive) of Lighting System Integrators:

1. 4Wall
35 State St.
Moonachie, NJ 07074
(201) 329-9878
www.4wall.com
2. Barbizon
456 West 55th St.
New York, NY 10019
(212) 586-1620
www.barbizon.com
3. PRG
630 Ninth Avenue
Suite 610
New York, NY 10036
(212) 589-5400
www.prg.com

4. Solotech US
7465 Dean Martin Dr.
Suite 108
Las Vegas, NV 89139
(702) 614-8882
www.solotech.us

5. Westbury National
772 Warden Ave.
Toronto, ONT M1L4T7
(416) 752-1371
www.westbury.com

4. Consideration for staff experience (multiple years or projects) with *moving head luminaires and enclosures* will be paramount.

Permits/Access – Vehicular access is strictly prohibited on the entire eastern side of the Connecting Terminal grain elevator. In addition, access to Kelly Island will only be permitted on an “as needed” basis and will require all representatives of the Contractor entering the premises to complete a safety training class as provided by General Mills. All permits will be secured by the Contractor in accordance with any and all applicable codes/regulations.

**Please note that the western facade contains asbestos and all compliance and safety precautions need to be adhered to at all times. All equipment must be in compliance with all applicable local, state and national regulations for operations and safety.*

Report – Contractor shall issue a full maintenance report following each site visit, with owner sign-off, documenting maintenance task lists. If applicable, Contractor will include recommended maintenance and/or potential repairs. The full maintenance report (to be provided no later than one week following the work session) should include, but not be limited to, dates on site, individuals on site, description of work tasks, note of any issues encountered and/or resolved, note of any potential maintenance concerns or repairs.

*Insurance and Indemnification (See **Exhibit D**)*

Insurances - Contractor shall procure at its sole cost and expense insurance with limits not less than those described below or as required by law, whichever is greater and shall provide coverage to the Contractor, the People of the State of New York, ESD, ECHDC, NYPA, NYS Department of Transportation and General Mills, for claims of damage to property and personal injuries, including death, which may arise from the conduct of Contractor and/or the performance of the services authorized by the Contract. Limits may be provided through a combination of primary and umbrella/excess policies.

The People of the State of New York, ESD, ECHDC, NYPA, NYS Department of Transportation and General Mills, are to be included as additional insureds, on a primary & non-contributory basis, on ALL liability policies. All policies are to contain a full waiver of subrogation in favor of the People of the State of New York, ESD, and ECHDC. Final insurance requirements may vary based on the operating plan of the Contractor.

Indemnification - Contractor will assume all risks in the performance of all activities authorized by the contract and agree to defend, indemnify and hold harmless the People of the State of New York, ESD, ECHDC, NYPA, NYS Department of Transportation and General Mills (hereinafter, the “Indemnitees”) from and against any and all claims, suits, losses, damage or injury to persons or property of whatsoever kind and nature, whether direct or indirect, caused or contributed to by Contractor’s sub-contractors, vendors, materialmen, employees, agents, invitees and guests, and/or arising out of Designated Contractor’s conduct and/or Contractor’s performance pursuant to the Contract, provided however that Designated Contractor’s indemnity shall not extend to any claims, liabilities, losses, damages, expenses, accidents or occurrences arising out of, relating to, or in connection with: (i) the negligence of any Indemnitee; or (ii) the Indemnitees’ ordinary upkeep and maintenance of the Site and its grounds and facilities outside of the Site. Contractor shall defend at its sole cost and expense any action commenced for the purpose of asserting any claim of whatsoever character arising out of the Contract. Contractor’s responsibility under this section shall not be limited to the required or available insurance coverage.

Routine Maintenance/Inspection – The following tasks are to be performed by a certified Phillips Varilite technician. It is expected that the Contractor will be responsible for ALL costs associated with the following (See Exhibit C), on a pre-scheduled, yearly basis:

Grain Elevator Illumination Hours

Month	Days	Off (PM)	On (PM)	Daily Operating Hrs.	Total Hrs.
November	30	11	5	6	180
December	31	11	4.75	6.25	193.75
January	31	11	5	6	186
February	28	11	5.75	5.25	147
March	31	11	6.75	4.25	131.75
April	30	11	8	3	90
May	31	11	8.5	2.5	77.5
June	30	11	9	2	60
July	31	11	8.75	2.25	69.75
August	31	11	8.25	2.75	85.25
September	30	11	7.5	3.5	105
October	31	11	6.5	4.5	139.5
					1465.5

Task 1.) Re-lamp (Based on 600 hours of bulb-life – See chart above)

- M-01 luminaire fixtures (lamps are to be provided by the Contractor). Disposal of old bulbs and other associated refuse will be the sole responsibility of the Contractor. A minimum of two individuals is required to remove and reinstall the Tempest enclosure as part of re-lamping work.

Task 2.) Visually Inspect & Clean (Twice yearly)

- Entire M-01 system, including the entire luminaire (gobo, animation wheel and fixed color wheel), enclosure and bracket installations. The use of approved cleaning products (See Exhibit C) for Tempest enclosures is mandatory.
- Entire F-01, G-01, V-01 and W-01 systems, including both the luminaire and bracket installation for each.
- All light fixtures, including lenses, with particular attention to all fixtures pointed up. The following should be included, but not limited to, for cleaning the light fixtures: wipe down and clear debris.
- Control Booth, including all interior surfaces, equipment (computers, processors, thermostat), fixtures and control rack. The following should be included, but not limited to, for cleaning the control booth: wipe down all servers, panels, window, door, controls; clear outside light fixtures of spider-webs and dust; clear dust from thermostat (also ensure proper operation); clear dust from computers/processors, networks and the site cameras; and
- Reboot, as well as identify any failed hardware or operating components. Note: No software updates are to be enlisted without the express written consent of ECHDC and/or the design team.
- Contractor will provide a detailed report on any additional repairs outside the tasks identified herein.

Please note: At NO TIME during the cleaning process should any of the fixtures be moved or removed from current placement. Failure to adhere to this requirement will result in the repositioning and/or refocusing at the expense of the Contractor. In the event that the warranty is voided on any of the fixtures, lighting, products, etc., due to the negligence of the Contractor, the full replacement cost will be the sole responsibility of the Contractor.

Task 3.) Re-align (Annually in the Fall; coinciding with Re-Lamp, Clean and Inspect)

- M-01 fixtures and gobos under the direction of the design team.

Task 4.) Allowance (Annual)

- A \$50,000 Repair Allowance will be incorporated into the Contract and will be expressly dispersed at the direction and discretion of President of ECHDC to allow Contractor to complete necessary repairs as directed by ECHDC. ECHDC reserves the right to solicit and secure competitive bids based on the scope of repairs provided by the Contractor.

V. PROPOSAL REQUIREMENTS

Each Respondent is required to submit a narrative describing in detail their proposal for completion of the tasks outlined in Section IV. Proposals should be submitted in three-ring binders or similar format as outlined in greater detail in Section XII, Submissions. Each Proposal must contain the following:

1. A description of the entity that is submitting the Proposal including, but not limited to:
 - a. The intended form and structure of the owner or entity and any proposed partnership or joint venture must be clearly explained. A chart/diagram of the owner or entity, showing structure (percentages) of ownership must be included.
2. A description of relevant experience, staff biographies and required licenses/certifications to perform the aforementioned Tasks 1-3 (See IV. Scope of Services).
3. A detailed breakdown of the cost associated with all Tasks 1-3 (See IV. Scope of Services), including, but not limited to: management/staff; hours/rates; large tools/equipment; materials; travel; and all-inclusive overhead. (See Exhibit E).
4. Utilization of New York State certified minority and women owned businesses (See Section X.(4) Procurement Forms and Requirements) as either lead contractors or sub-contractors.

VI. SELECTION CRITERIA

Proposals will be reviewed by representatives from ECHDC and other State of New York officials. The Contract will be subject to approval, as required under applicable law and regulation, which include approval of the ECHDC Board of Directors.

Selection of the Contractor shall be based on a determination of the best value to ECHDC. When evaluating proposals, the following criteria will be considered in order of priority:

1. **Cost Proposal (50 Points):** The lowest and most responsible proposal will be selected and mainly based upon review of Exhibit E. Contractor shall be responsible for all work required pursuant to this RFP. All work shall be billed hourly on a monthly basis based upon work completed. In no event will Contractor be entitled to any compensation that exceeds the total contract amount. Any additional work, scope, purchases, or repairs shall be presented to ECHDC for review and approval.
2. **Relevant Project Experience (15 Points)** A detailed description of all (minimum of 5) projects similar in scope. The successful completion of projects that involved the installation, operation, maintenance or other technical work associated with the integrated systems and specific light fixtures set forth above will be preferred.
3. **Applicable Staff (15 Points)** A list of all proposed management and staff for

involvement on this project, as well as their past experience and qualifications. Strong preference will be given to Respondents that currently employ staff with recent experience with the integrated systems and specific light fixtures set forth above.

4. ***Required Certifications (15 Points)*** A complete list with attached copies of all necessary certifications showing relevant dates for applicable use and expiration.
5. ***Diversity Practices (5 Points)***: Respondents will be awarded points based on the contents of the Diversity Practices Questionnaire and Diversity Scoring Matrix (***See Exhibit F***).

Prior to selecting the Contractor, ECHDC reserves the right to remove Respondents from competitive consideration at one or more points throughout the solicitation by shortlisting the Respondents with the best Proposals based on these selection criteria and subsequently soliciting favorable modifications to original Proposals. In order to remain in competitive consideration, Respondents are encouraged to present their most competitive Proposal terms at each stage of the solicitation.

ECHDC also reserves the right to conduct interviews with or pose questions in writing to individual Respondents in order to clarify the content of their proposals and to ensure a full and complete understanding of each proposal. ECHDC shall undertake to pursue uniformity in the questions it asks to Respondents to the extent practicable, but ECHDC may ask different or additional questions to different Respondents in the context of any individual interview or in writing. ECHDC shall convene a committee of staff who shall be permissible contacts for the purpose of such interviews, and Respondents who are invited will receive additional instructions upon their invitation. Currently, ECHDC expects that interviews will be conducted on October 4, 2016.

VII. CONTRACT PROCESS

After a review of the Proposals, ECHDC intends to enter into a binding contract with one of the Respondents as the Contractor. The Contractor will enter into a Contract with ECHDC, a term limit of 3 years and an option for two additional years at ECHDC discretion, regarding all the tasks outlined in Section IV. In implementing the Contract, including the disposition process, ECHDC intends to:

1. Ensure Contractor's Proposal complies with all building, fire, and other applicable codes and regulations, as enforced by the City of Buffalo and State of New York;
2. Present to ECHDC Directors the essential transaction contract terms, any required Public Authorities Law findings, and any other applicable statutory or regulatory requirements;

VIII. SUBMISSIONS

Ten (10) hard copies and one (1) electronic copy (in the form of a flash drive or CD-ROM) of the Proposal identified by "Grain Elevator Illumination O&M's" must be received by ECHDC by 2:00 PM on September 29, 2016, at the following address:

Erie Canal Harbor Development Corporation
95 Perry St. Suite 500
Buffalo, NY 14203
Attn: Thomas P. Dee, President
RE: Grain Elevator Illumination O&M's RFP

The ECHDC reserves the right to reject a submittal if any document or item listed in this solicitation is incomplete, improperly executed, indefinite, ambiguous, and/or is missing. Additionally, factors such as, but not limited to the following may also disqualify a Respondent without further consideration:

- Evidence of collusion among Respondents;
- Any attempt to improperly influence any member of the evaluation panel or Committees;
- Discovery that a Respondent purposely misled or knowingly provided false or inaccurate information in a Proposal;
- A Respondent's default under any type of agreement, which resulted in the termination of that agreement;
- Existence of any unresolved litigation or legal dispute between the Respondents and ECHDC.

The ECHDC reserves the right to reject any and all submittals and to waive any informalities or irregularities in procedure.

RFP Inquiries

ECHDC will accept written questions via email from prospective Respondents regarding the RFP until September 24, 2016. Please submit questions to:

Christopher.Catanzaro@esd.ny.gov

Written questions must include the requestor's name, e-mail address and the Respondent represented. Responses to all timely and appropriate questions will be posted on ECHDC's website at:

<http://www.eriecanalharbor.com/rfprfq.asp>

No contact related to this solicitation with ECHDC Board members, staff or consultants, other than emails to the designated email account for the solicitation, Christopher.Catanzaro@esd.ny.gov, will be allowed by Respondents or employed representatives of Respondent team members during the procurement period of this RFP. Any such contact by a Proposer will be grounds for disqualification.

Site Tours

ECHDC expects to hold a formal Site tour on September 21, 2016. The Site tour will include a walkthrough of Site facilities and a Q&A session with ECHDC. Answers to questions posed during the Q&A session will be posted on ECHDC's website. Please email Christopher.Catanzaro@esd.ny.gov by close of business on September 19, 2016, with a list of your planned attendees if you plan on participating in the scheduled Site tour. ECHDC may choose to offer one or more additional tour(s) at its discretion.

ECHDC reserves the right to modify this RFP schedule at its discretion. Notification of changes in connection with this RFP will be made available to all interested parties by e-mail and via ECHDC's website: <http://www.eriecanalharbor.com/rfprfq.asp>.

IX. STATEMENT OF LIMITATIONS

1. This RFP, submissions from Respondents to this RFP, and any relationship between ECHDC and Respondents arising from or connected or related to this RFP, are subject to the specific limitations and representations expressed below, as well as the terms contained elsewhere in this RFP. By responding to this RFP, Respondents are deemed to accept and agree to this Statement of Limitations. By submitting a response to this RFP, the entity acknowledges and accepts ECHDC's rights as set forth in the RFP, including this Statement of Limitations.
2. The issuance of this RFP and the submission of a response by any firm or the acceptance of such response by ECHDC does not obligate ECHDC in any manner whatsoever. Legal obligations will only arise upon execution of a formal contract by ECHDC and the firm(s) selected by ECHDC.

ECHDC reserves the right: (i) to amend, modify, or withdraw this RFP; (ii) to revise any requirements of this RFP; (iii) to require supplemental statements or information from any responding party; (iv) to accept or reject any or all responses thereto; (v) to extend the deadline for submission of responses thereto; (vi) to negotiate or hold discussions with any respondent and to correct deficient responses which do not completely conform to the instructions contained herein; and (vii) to cancel, in whole or part, this RFP, for any reason or for no reason. ECHDC may exercise the foregoing rights at any time without notice and without liability to any Respondent or any other party for its expenses incurred in the preparation of responses hereto or otherwise. Responses hereto will be prepared at the sole cost and expense of each Respondent.

3. All information submitted in response to this RFP is subject to the Freedom of Information Law (FOIL), which generally mandates the disclosure of documents in the possession of ECHDC upon the request of any person, unless the content of the

document falls under a specific exemption to disclosure. If any Respondent wishes to claim that any information submitted in its response to this RFP constitutes a Trade Secret or is otherwise exempt from disclosure under FOIL, such claim must be made at the time of the response, and must be in writing supported by relevant and material arguments.

4. ECHDC reserves the right, in its sole discretion, without liability, to utilize any or all of the RFP responses, including late responses, in its planning efforts. ECHDC reserves the right to retain and use all the materials and information, and the ideas, suggestions therein, submitted in response to this RFP (collectively, the "Response Information"), and each Respondent must grant an unconditional and perpetual license without charge to ECHDC to use any copyright or other legally protected rights in and to the Response Information.
5. ECHDC shall be the sole judge of each Respondent's conformity with the requirements of this solicitation and the merits of the submittal. ECHDC reserves the right, in its sole discretion to: amend, modify or withdraw this solicitation; waive any requirements or conditions or modify any provisions of this solicitation with respect to one or more Respondents; require supplemental statements and information from any Respondents to this solicitation; to award a contract to as many or as few or none of the Respondents as ECHDC may select; award a contract to entities who have not responded to this solicitation; accept or reject any or all submittals received in response to this solicitation; extend the deadline for submission of submittals; negotiate or hold discussion with one or more of the respondents; correct deficient submittals that do not completely conform with this solicitation; reject any and all submittals and to cancel this solicitation, in whole or in part, for any reason or no reason. ECHDC may exercise any such rights at any time, without notice or liability to any respondent or other parties for their costs, expenses or other obligations incurred in the preparation of a submittal or otherwise.
6. This RFP shall not be construed in any manner to implement any of the actions contemplated herein, nor to serve as the basis for any claim whatsoever for reimbursement of costs for efforts expended in preparing a response to the RFP. ECHDC will not be responsible for any costs incurred by Respondents related to preparing and submitting a response to this RFP, attending oral presentations, or for any other associated costs.
7. To the best of ECHDC's knowledge, the information provided herein is accurate. Respondents should undertake appropriate investigation in preparation of responses.
8. News Release – Recipients of this solicitation shall make no news/press release pertaining to this solicitation or anything contained or referenced herein without prior written approval from ECHDC. Any news release pertaining to this solicitation

may only be made in coordination with ECHDC.

9. Prohibited Persons – No respondent to this solicitation will be selected if an individual who is an owner, shareholder, member, partner, officer or director, or otherwise a principal and/or its management team is determined, in ECHDC's and/or ECHDC's sole discretion, to have been convicted of a felony or a crime involving moral turpitude, to be an organized crime figure, to be under indictment or criminal investigation, to be in arrears or in default of any debt, contract or obligation to or with the City of Buffalo or State of New York, or any other of their instrumentalities or otherwise to be a prohibited person as defined by ECHDC. The selected Respondent and all principals thereof, if applicable, and/or owners, shareholders, members, partners, officers or directors of the Respondent's team are subject to investigation by ECHDC. The selection of a Respondent may be revoked in the event that any derogatory information is revealed by such investigations.
10. This solicitation and any contract or agreements resulting herein are subject to all applicable Federal, State and local laws, rules, regulations and executive orders.
11. ECHDC shall not be obligated to pay any fee, cost or expense for brokerage commissions or finder's fees with respect to the execution of the contract. It shall be a condition of any contract that the Respondent agree to pay the commission or other compensation due to any broker or finder in connection with the transaction, and to indemnify and hold harmless the State, the City and ECHDC from any obligation, liability, cost or expense incurred by it as a result of any claim for commission or compensation brought by any broker or finder by reason of the transaction.
12. ECHDC and ESD reserve the right to modify the requirements set forth herein and to expand, limit or otherwise alter the scope of the requested services.
13. By submission of a proposal, the Respondent agrees that it shall take no affirmative action to solicit from any Federal, State, local or other governmental regulatory agency any order, directive or other mandate to conduct any remedial action with respect to chemical or industrial wastes or other hazardous substances or petroleum substances, if any, on the Site.
14. The contract shall contain, among other terms, certain provisions required by law or policies of the City and State, including, without limitation, provisions providing that the Contractor:
 - a. is an independent contractor;
 - b. shall defend, indemnify and hold harmless the State, ECHDC, and their respective officers, directors, employees and agents from and against any claims or damages relating to the respondent's acts and omissions;

- c. shall maintain financial and other records relating to the contract and make such records available for inspection and audit;
- d. have no conflicts of interest with, or outstanding financial obligations owing to, the State or ECHDC;
- e. is qualified to do business in the State of New York and is in receipt of all licenses, if any, required by applicable governmental entities; and
- f. shall represent and warrant that neither it nor any of its directors, officers, members, or employees has any interest, nor shall they acquire any interest, directly or indirectly, which would conflict in any manner or degree with the performance of the services as set forth in the Contract. The successful respondent must further agree that in the performance of the services no person having such a conflict of interest shall be employed by it.

X. PROCUREMENT FORMS AND REQUIREMENTS

Additional requirements for this RFP are described below. Relevant forms, where required to be submitted, must be executed and included in the submission in the same order as listed below:

1. State Finance Law §§139-j and 139-k forms
2. New York State Vendor Responsibility Questionnaire For-Profit Business Entity
3. Iran Divestment Act Statement
4. Non-Discrimination and Contractor & Supplier Diversity Requirements
5. Encouraging the Use of NYS Businesses in Contract Performance Form
6. Certification Under State Tax Law Section 5-a
7. Schedule A (for review only—no separate form requirement)
8. Project Sunlight (for review only—no separate form requirement)

1. State Finance Law Sections 139-j and 139-k forms

State Finance Law Sections 139-j and 139-k (collectively, the “Procurement Requirements”) apply to this RFP. These Procurement Requirements: (1) govern permissible communications between potential respondents and ECHDC or other involved governmental entities with respect to this RFP; (2) provide for increased disclosure in the public procurement process through identification of persons or organizations whose function is to influence procurement contracts, public works agreements and real property transactions; and (3) establish sanctions for knowing and willful violations of the provisions of the Procurement Requirements, including disqualification from eligibility for an award of any contract pursuant to this RFP. Compliance with the Procurement Requirements requires that all communications regarding this RFP, from the time of its issuance through final award and execution of any resulting contract (the “Restricted Period”), be conducted only with the designated contact persons listed below; the completion by Respondents of the Offerer Disclosure of Prior Non-Responsibility Determinations, and the Offerer’s Affirmation of Understanding and Agreement pursuant to State Finance Law (each form is accessible at

the Required Forms for Vendors link at the ECHDC web site under “RFPs/RFQs”); and periodic updating of such forms during the term of any contract resulting from this RFP.

Respondents must submit the Offerer Disclosure of Prior Non-Responsibility Determinations, and the Offerer’s Affirmation of Understanding and Agreement pursuant to State Finance Law as part of their submittal. Copies of these forms are available at:

http://www.empire.state.ny.us/CorporateInformation/Data/RFPs/RequiredForms/SF_Law139_JK.pdf.

The Procurement Requirements also require ESD staff to obtain and report certain information when contacted by prospective respondents during the Restricted Period, make a determination of the responsibility of Respondents and make all such information publicly available in accordance with applicable law. If a prospective respondent is found to have knowingly and willfully violated the State Finance Law provisions, that prospective respondent and its subsidiaries, related or successor entities will be determined to be a non-responsible Respondent and will not be awarded any contract issued pursuant to this solicitation. In addition, two such findings of non-responsibility within a four-year period can result in debarment from obtaining any New York State governmental procurement contract. The designated contact account for this solicitation is: Christopher.Catanzaro@esd.ny.gov.

This is not a complete presentation of the provisions of the Procurement Requirements. A copy of State Finance Law Sections 139-j and 139-k can be found at:

<http://esd.ny.gov/CorporateInformation/RFPs.html>

(under “ESDC Policy Regarding Permissible Contacts under SFL 139”).

All potential Respondents are solely responsible for full compliance with the Procurement Requirements. Both the prime consultant and any sub-consultants complete the forms required above.

2. Vendor Responsibility

All Respondents to this RFP must be “responsible,” which in this context means that they must have the requisite financial ability, organizational capacity and legal authority to carry out its obligations under this RFP, and in addition must demonstrate that both the Respondent and its principals have and will maintain the level of integrity needed to contract with New York State entities such as ESD. Further, the Respondent must show satisfactory performance of all prior government contracts. Accordingly, the contract to be entered into between ECHDC and the Contractor, if any, shall include clauses providing that the Contractor remain “responsible” throughout the term of the contract, that ECHDC may suspend the contract if information is discovered that calls into question the responsibility of the contracting party, and that ECHDC may terminate the contract based on a determination that the contracting party is non-responsible. On request, model language to this effect will be provided to any Respondent to this RFP.

To assist in the determination of responsibility, ECHDC requires that all respondents to this RFP register in the State's Vendor Responsibility System ("VendRep System"). The VendRep System allows business entities to enter and maintain their Vendor Responsibility Questionnaire information in a secure, centralized database. New York State Procurement Law requires that state agencies award contracts only to responsible vendors. Respondents are to file the required Vendor Responsibility Questionnaire online via the VendRep System or may choose to complete and submit a paper questionnaire. Please include a copy of your VendRep submission receipt with your proposal. If you submit a paper questionnaire please submit it using certified mail and provide a copy of the return receipt.

To enroll in and use the VendRep System, see the System Instructions available at www.osc.state.ny.us/vendrep or go directly to the VendRep system online at <https://portal.osc.state.ny.us>. For direct VendRep System user assistance, the Office of the State Comptroller's Help Desk may be reached at 866-370-4672 or 518-408-4672 or by email at helpdesk@osc.state.ny.us.

Respondents opting to file a paper questionnaire can obtain the appropriate questionnaire from the VendRep website http://www.osc.state.ny.us/vendrep/forms_vendor.htm and execute accordingly pertaining to the company's trade industry. Per the website, respondents are to "Select the questionnaire which best matches the business type (either For-Profit or Not-For-Profit) and business activity (Construction or Other)." For ECHDC RFPs concerning the purchase and redevelopment of real estate, it is most common for a Respondent to complete the form as a "Non-Construction" company. Unless the Respondent is primarily a Construction firm, the Respondent should thus fill out the Vendor Responsibility Questionnaire as a "Non-Construction" entity, either as a For-Profit or Not-For-Profit entity, depending on the Respondent organization type.

3. Iran Divestment Act

Every Proposal made to ECHDC pursuant to a competitive solicitation must contain the following statement, signed by the Respondent on company letterhead and affirmed as true under penalty of perjury:

"By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the State Finance Law."

The list in question is maintained by the Office of General Services. No Response that fails to certify compliance with this requirement may be accepted as responsive.

4. Non-Discrimination and Contractor & Supplier Diversity Requirements

CONTRACTOR REQUIREMENTS AND PROCEDURES FOR BUSINESS PARTICIPATION OPPORTUNITIES FOR NEW YORK STATE CERTIFIED MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISES AND EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN

NEW YORK STATE LAW

Pursuant to New York State Executive Law Article 15-A and 5 NYCRR §§140-145 ESD recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified minority-and women-owned business enterprises and the employment of minority group members and women in the performance of ESD contracts.

In 2006, the State of New York commissioned a disparity study to evaluate whether minority and women-owned business enterprises had a full and fair opportunity to participate in State contracting. The findings of the study were published on April 29, 2010, under the title "The State of Minority and Women-Owned Business Enterprises: Evidence from New York" ("Disparity Study"). The report found evidence of statistically significant disparities between the level of participation of minority-and women-owned business enterprises in state procurement contracting versus the number of minority-and women-owned business enterprises ("MWBE") that were ready, willing and able to participate in state procurements. As a result of these findings, the Disparity Study made recommendations concerning the implementation and operation of the statewide certified MWBE program. The recommendations from the Disparity Study culminated in the enactment and the implementation of New York State Executive Law Article 15-A, which requires, among other things, that ESD establish goals for maximum feasible participation of New York State MWBEs and the employment of minority group members and women in the performance of New York State contracts.

Business Participation Opportunities for MWBEs

For purposes of this solicitation, ESD hereby establishes an overall goal of 30% for MWBE participation, 15% for New York State certified minority-owned business enterprises ("MBE") participation and 15% for New York State certified women-owned business enterprises ("WBE") participation (based on the current availability of qualified MBEs and WBEs). A contractor ("Contractor") on the subject contract ("Contract") must document its good faith efforts to provide meaningful participation by MWBEs as subcontractors or suppliers in the performance of the Contract and the Contractor agrees that ESD may withhold payment pending receipt of the required MWBE documentation. The directory of MWBEs can be viewed at: <https://ny.newnycontracts.com>. For guidance on how ESD will determine a Contractor's "good faith efforts," refer to 5 NYCRR §142.8.

In accordance with 5 NYCRR §142.13, the Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in the Contract, such finding constitutes a breach of Contract and ESD may withhold payment from the Contractor as liquidated damages.

Such liquidated damages shall be calculated as an amount equaling the difference between: (1) all sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and (2) all sums actually paid to MWBEs for work performed or materials supplied under the Contract.

By submitting a bid or proposal, a bidder on the Contract (“Bidder”) agrees to demonstrate its good faith efforts to achieve its goals for the utilization of MWBEs by submitting evidence thereof through the New York State Contract System (“NYSCS”), which can be viewed at <https://ny.newnycontracts.com>, provided, however, that a Bidder may arrange to provide such evidence via a non-electronic method by contacting ESD’s Office of Contractor and Supplier Diversity at OCSD@esd.ny.gov. Please note that the NYSCS is a one stop solution for all of your MWBE and Article 15-A contract requirements. For additional information on the use of the NYSCS to meet Bidder’s MWBE requirements please see the attached MWBE guidance, “Your MWBE Utilization and Reporting Responsibilities Under Article 15-A.”

Additionally, a Bidder will be required to submit the following documents and information as evidence of compliance with the foregoing:

1. An MWBE Utilization Plan, [Form OCSD-4](#), with their bid or proposal. Any modifications or changes to the MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to ESD.

ESD will review the submitted MWBE Utilization Plan and advise the Bidder of ESD’s acceptance or issue a notice of deficiency within 30 days of receipt.

2. If a notice of deficiency is issued, the Bidder will be required to respond to the notice of deficiency within seven (7) business days of receipt by submitting to Empire State Development, Office of Contractor and Supplier Diversity, 633 Third Avenue, New York, NY 10017, OCSD@esd.ny.gov, a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by ESD to be inadequate, ESD shall notify the Bidder and direct the Bidder to submit, within five (5) business days, a request for a partial or total waiver of MWBE participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

ESD may disqualify a Bidder as being non-responsive under the following circumstances:

- a) If a Bidder fails to submit a MWBE Utilization Plan;

- b) If a Bidder fails to submit a written remedy to a notice of deficiency;
- c) If a Bidder fails to submit a request for waiver; or
- d) If ESD determines that the Bidder has failed to document good faith efforts.

The Contractor will be required to attempt to utilize, in good faith, any MBE or WBE identified within its MWBE Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract Award may be made at any time during the term of the Contract to ESD, but must be made no later than prior to the submission of a request for final payment on the Contract.

The Contractor will be required to submit a Contractor's Quarterly MWBE Contractor Compliance & Payment Report to ESD, by the 10th day following each end of quarter over the term of the Contract documenting the progress made toward achievement of the MWBE goals of the Contract.

Equal Employment Opportunity Requirements

By submission of a bid or proposal in response to this solicitation, the Bidder/Contractor agrees with all of the terms and conditions of Appendix A – Standard Clauses for All New York State Contracts including Clause 12 - Equal Employment Opportunities for Minorities and Women. The Contractor is required to ensure that it and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work"), except where the Work is for the beneficial use of the Contractor, undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.

The Bidder will be required to submit a Minority and Women-Owned Business Enterprises and Equal Employment Opportunity Policy Statement, [Form OCSD-1](#), to OCSD with their bid or proposal.

To ensure compliance with this Section, the Bidder will be required to submit with the bid or proposal an Equal Employment Opportunity Staffing Plan, [Form OCSD-2](#), identifying the anticipated work force to be utilized on the Contract. If awarded a Contract, Bidder shall submit a Workforce Utilization Report and shall require each of its Subcontractors to submit a Workforce Utilization Report, [Form OCSD-3](#), in such format as shall be required by ESD on a quarterly basis during the term of the contract.

Further, pursuant to Article 15 of the Executive Law (the “Human Rights Law”), all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

Please Note: Failure to comply with the foregoing requirements may result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract, leading to the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract.

The required forms can be found at the following web addresses:

Form OCSD-

1: http://esd.ny.gov/CorporateInformation/Data/RFPs/OCSD_1MWBEEEOPolicyStatement.pdf

Form OCSD-

2: http://esd.ny.gov/CorporateInformation/Data/RFPs/OCSD_2StaffingPlan.pdf

Form OCSD-

3: http://esd.ny.gov/CorporateInformation/Data/RFPs/OCSD_WorkforceUtilizationReport.xlsx

Form OCSD-

4: http://esd.ny.gov/CorporateInformation/Data/RFPs/OCSD_4MWBEUtilizationPlan.pdf

In the event that the above links are unavailable or inactive, the forms may also be requested from OCSD at OCSD@esd.ny.gov.

Diversity Practices

ESD has determined, pursuant to New York State Executive Law Article 15-A, that the assessment of the diversity practices of Respondents is practical, feasible, and appropriate. Accordingly, respondents shall be required to include as part of their response to this procurement the Diversity Practices Questionnaire (See Exhibit F).

SERVICE-DISABLED VETERAN-OWNED BUSINESS (“SDVOB”) PARTICIPATION

Article 17-B of the Executive Law enacted in 2014 acknowledges that Service-Disabled Veteran-Owned Businesses (SDVOBs) strongly contribute to the economies of the State and the nation. As defenders of our nation and in recognition of their economic activity

in doing business in New York State, bidders/proposers for this contract for commodities, services or technology are strongly encouraged and expected to consider SDVOBs in the fulfillment of the requirements of the contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles. SDVOBs can be readily identified on the directory of certified businesses at:

http://ogs.ny.gov/Core/docs/CertifiedNYS_SDVOB.pdf

Bidders/Proposers need to be aware that all authorized users of this contract will be strongly encouraged to the maximum extent practical and consistent with legal requirements of the State Finance Law and the Executive Law to use responsible and responsive SDVOBs in purchasing and utilizing commodities, services and technology that are of equal quality and functionality to those that may be obtained from non-SDVOBs. Furthermore, bidders/proposers are reminded that they must continue to utilize small, minority and women-owned businesses consistent with current State law.

For purposes of this procurement, ESD hereby establishes a goal of 3% for SDVOBs, based on the current availability of qualified SDVOBs. The Contractor must document good faith efforts to provide meaningful participation by SDVOBs in the performance of the Contract.

A copy of each Bidders/Proposers SDVOB Contract Performance Use form proposing specific certified firms to be utilized or industries where SDVOB firms shall be sought is to be included as part of the response to this RFP.

A copy of the aforementioned form is available at:

<http://esd.ny.gov/CorporateInformation/Data/RFPs/SDVOBContractPerformanceUse.pdf>

General inquiries or questions relating to aforementioned policies, SDVOB participation and the goals specified herein may be addressed to OCSD at OCSD@ESD.NY.GOV.

5. Encouraging the Use of NYS Businesses in Contract Performance Form

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, Respondents for this ECHDC contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the contract. In order for ECHDC to assess the use of New York State businesses in each Proposal, ECHDC requests that each Respondent complete the Encouraging Use of New York State Businesses in Contract Performance form, included in the online shared folder described in Section XVI, Exhibits.

6. Certification Under State Tax Law Section 5-a

Any contract resulting from this solicitation is also subject to the requirements of State Tax Law Section 5-a ("STL 5-a"). STL 5-a prohibits ESD from approving any such contract with any entity if that entity or any of its affiliates, subcontractors or affiliates of any subcontractor makes sales within New York State of tangible personal property or taxable services having a value over \$300,000 and is not registered for sales and compensating use tax purposes. **To comply with STL 5-a, all Respondents to this solicitation must include in their Proposals a properly completed Form ST-220-CA, or an affidavit that the Respondent is not required to be registered with the State Department of Taxation and Finance. A copy of the ST-220-CA form and affidavit is accessible at the Required Forms for Vendors link at the ESD web site: labeled "Schedule A- Conditions Applicable to the Corporation's Agreements for Materials and Services (includes ST220 and all other required forms) at <http://esd.ny.gov/CorporateInformation/RFPs.html>**

Also in accordance with the requirements of STL 5-a, any contract resulting from this solicitation will require periodic updating of the certifications contained in Form ST-220-CA. Solicitation responses that do not include a properly completed ST-220-CA will be considered incomplete and non-responsive and will not be considered for contract award. Only the prime consultant completes Form ST 220-CA, but Schedule A to Form ST 220-CA requires detailed information from the sub-consultants, such as tax ID number, etc., if applicable. Moreover, if applicable, certificates of authority must be attached by the prime consultant and all the sub-consultants.

7. Schedule A

Following final selection of a Contractor, ECHDC will prepare a contract defining all project terms and conditions and the Contractor's responsibilities in conformance with "Schedule A," which can be found at:

http://esd.ny.gov/CorporateInformation/Data/ScheduleA_ConditionsApplicabletoCorporationAgreementsForMaterialServices_RevisedMay2014.pdf

Please note Respondents do not need to complete the entire Schedule A with the submission of their Proposal. However, Respondents should still review these terms, which are standard in all ECHDC contracts, and raise any concerns present prior to submission of their Proposal, as the Contractor will need to accept these terms prior to contract execution.

8. Project Sunlight

This procurement is subject to the Public Integrity Reform Act of 2011. Under the Public Integrity Reform Act of 2011, "appearances" (broadly defined and including any substantive interaction that is meant to have an impact on the decision-making process of a state entity) before a public benefit corporation such as ECHDC by a person (also broadly defined) for the purposes of procuring a state contract for real property (as contemplated in this RFP) must be reported by ECHDC to a database maintained by the State Office of General Services that is available to members of the public. If in doubt as to the applicability of Project Sunlight, Respondents and their advisors should consult the Laws of 2011, Ch. 399 for guidance.

XI. PROPOSAL CHECKLIST

I _____, a principal of the firm _____ certify that the following information has been submitted as part of the response to this Request for Proposals.

- Submitted all required information with respect to the Proposal, including but not limited to Respondent description, comparative projects, budget sheet, applicable certifications (i.e. Phillips Varilite) and Diversity Practices Questionnaire. (Section V)

- Completed and submitted State Finance Law Sections 139-j and 139-k forms (Section X)

- Completed and submitted ST-220-CA Form or affidavit (Section X)

- Submitted Copy of VendRep receipt (Section X)

- Completed and Equal Employment Opportunity Policy Statement (Form OCSD-1, Section X)

- Completed and submitted Iran Divestment Act Statement (Section X)

- Completed and submitted Use of NYS Business Form (Section X)

- Submitted 10 physical copies and one electronic copy of the Proposal to the listed address (Section VII)

Signed: _____

Name:

Date:

XII. EXHIBITS

Exhibit A – Site Plans

Exhibit B – Select As-Builts

Exhibit C – Lighting Specifications and Maintenance

Exhibit D – Comprehensive Insurance Coverage

Exhibit E – Sample Budget Sheet

Exhibit F - Diversity Practices Questionnaire & Diversity Practices Scoring Matrix

Certain forms and exhibits may also be posted on ECHDC's website at: <http://www.eriecanalharbor.com/rfprfq.asp>.

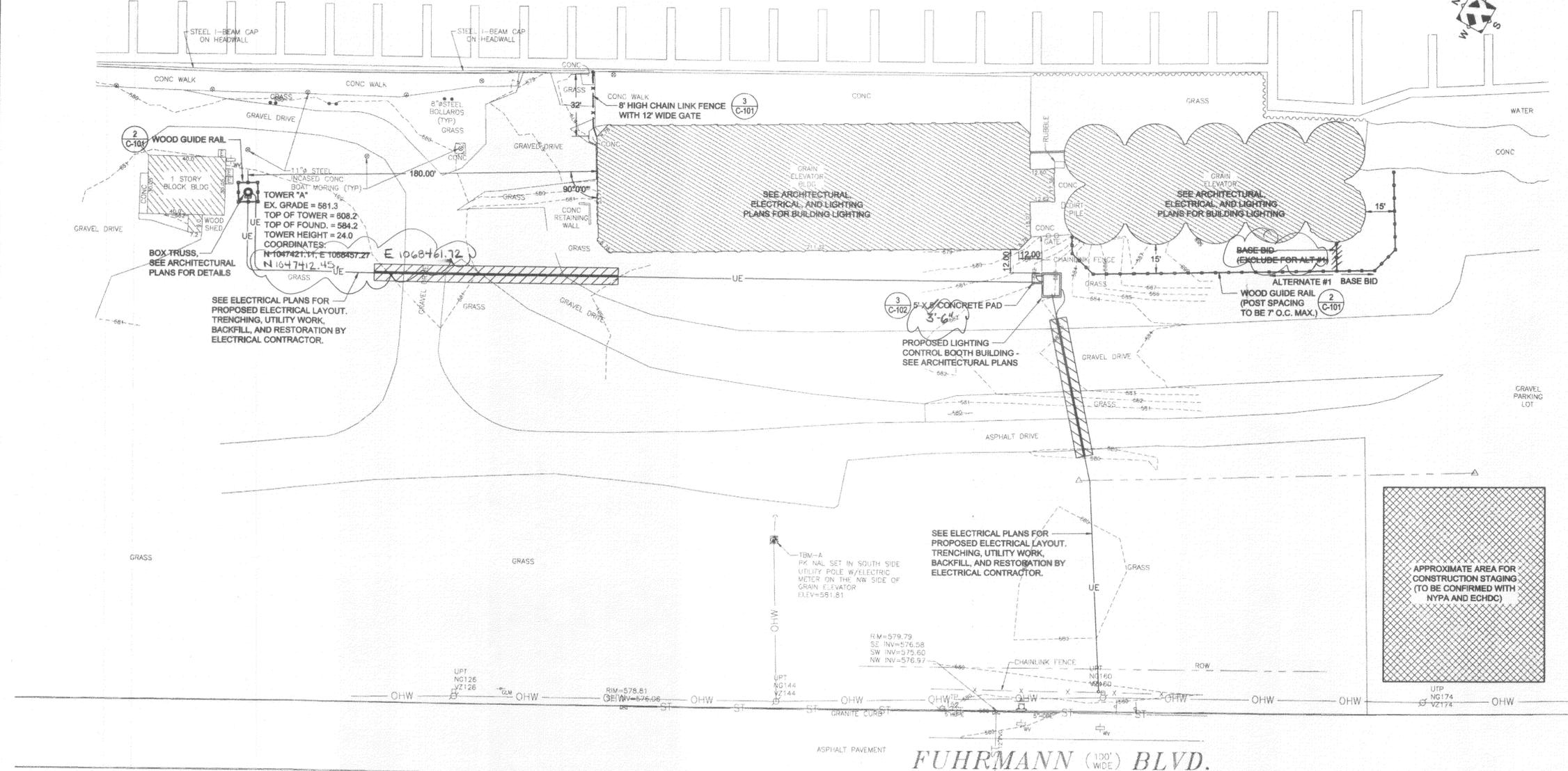
Exhibit A

Site Plans

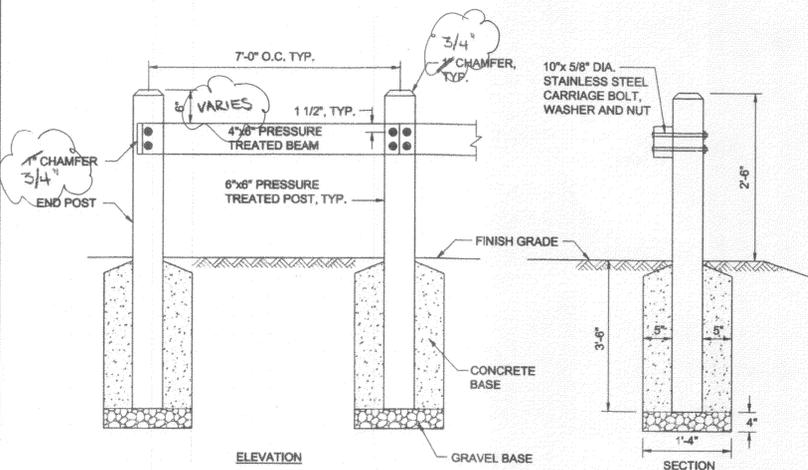
Map of location of Connecting Terminal Grain Elevator 32 Fuhrmann Boulevard, Buffalo, New York 14203



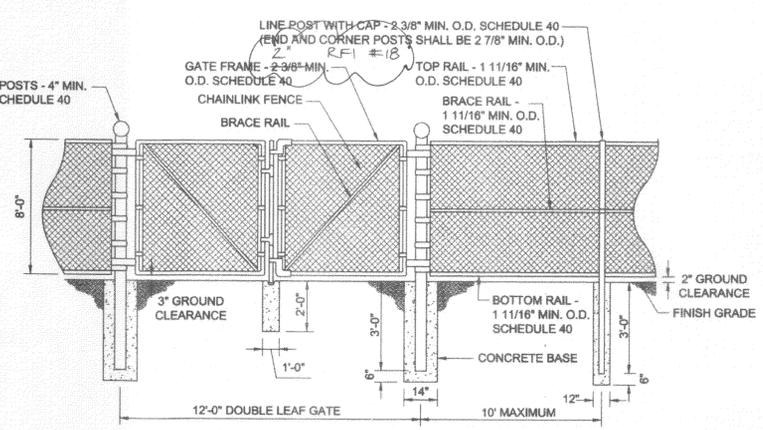
BUFFALO RIVER



1 SITE PLAN - CONNECTING TERMINAL
 C-101 SCALE: 1" = 30'



2 WOOD GUIDE RAIL DETAIL
 C-101 NOT TO SCALE



3 FENCE AND GATE DETAILS
 C-101 NOT TO SCALE

SITE NOTES

1. THE SURVEY INFORMATION IS COMPILED FROM MULTIPLE SOURCES AND SHOULD NOT BE RELIED UPON SOLELY FOR ACCURACY OR COMPLETENESS. IT IS INTENDED FOR GENERAL INFORMATIONAL PURPOSES ONLY. ALL INFORMATION SHOULD BE VERIFIED IN THE FIELD PRIOR TO UNDERTAKING ANY CONSTRUCTION.
2. THE CONTRACTOR SHALL CALL THE UNDERGROUND FACILITIES PROTECTION ORGANIZATION (UFO) AT LEAST (7) FULL WORKING DAYS PRIOR TO THE START OF THE DEMOLITION PHASE (800) 982-7962. THE CONTRACTOR SHALL ALSO NOTIFY ANY AND ALL UTILITY COMPANIES THAT ARE NOT MEMBERS OF THE "DIG SAFELY NEW YORK" PROGRAM. THE CONTRACTOR SHALL PAY FOR THE REPAIR OR REPLACEMENT OF ANY DAMAGED UTILITY LINES OR LOSS OF SERVICE.
3. CONTRACTOR SHALL INSTALL SILT FENCE OR OTHER EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT FROM RUNNING OFF THE SITE ONTO NEIGHBORING PROPERTIES OR INTO ADJACENT RIVER. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND BE MAINTAINED UNTIL AREA IS SURFACED OR SEEDING HAS BEEN ESTABLISHED. AFTER ACCEPTANCE OF RESTORATION BY THE OWNER OR ENGINEER, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FEATURES. SEE DETAIL 2 ON SHEET C-102.
4. ALL ADJACENT AREAS DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE RESTORED IN KIND TO THE SATISFACTION OF THE OWNER.
5. WHEN ADJACENT ASPHALT, CONCRETE OR PAVING STONE AREAS ARE DISTURBED AS PART OF THE CONSTRUCTION, THE CONTRACTOR SHALL REPLACE THE DAMAGED OR EXCAVATED AREA. THE PERIMETER OF THE DISTURBED AREA SHALL BE SAW CUT FULL DEPTH, SO THAT ALL LINES ARE STRAIGHT AND TRUE. ASPHALT SHALL BE COMPACTED TO A SMOOTH FINISH AND SHALL BE FLUSH WITH THE EXISTING ADJACENT AREA THAT IS TO REMAIN.

AS-BUILT

Architectural & Structural Engineering

FoitAlbert
 ASSOCIATES

Architecture, Engineering, Surveying.

753 Main Street
 Buffalo, New York 14203

Client

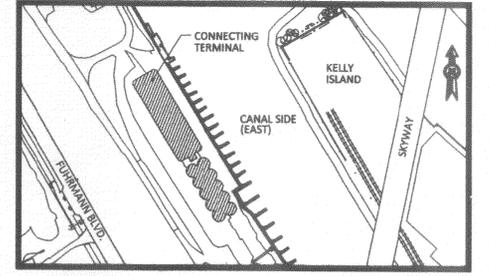
Erie Canal Development Corp.

Lighting Design

AMBIANCES
 DESIGN PRODUCTIONS

Electrical Engineering

RAM-TECH
 ENGINEERS



Issue		
Issue No.	Date of Issue (m-d-y)	Issued for
1	07/19/2013	SCHEMATIC DESIGN PHASE (100%)
2	12/18/2013	DESIGN DEVELOPMENT PHASE (100%)
3	03/07/2014	CONSTRUCTION DOCUMENT PHASE (90%)
4	03/26/2014	CONSTRUCTION DOCUMENT PHASE (95%) FOR NYPA PERMIT
5	04/21/2014	CONSTRUCTION DOCUMENT PHASE (100%)
6	06/06/2014	CONSTRUCTION DOCUMENTS - ISSUED FOR BID

Revision				
Rev. No.	Date of Revision (m-d-y)	Description	By	Ver.

Seal

Do not scale off drawings.
 All dimensions and conditions must be verified on site.

Project

CONNECTING TERMINAL

Sheet title

SITE PLAN - CONNECTING TERMINAL

Designed by	Foit-Albert Associates	Project no.	12021.01	Sheet no.	C-101
Drawn by	DLP	Date	06/06/2014	Revision	
Verified by	GRC	Scale (ARCH D)	As Noted		

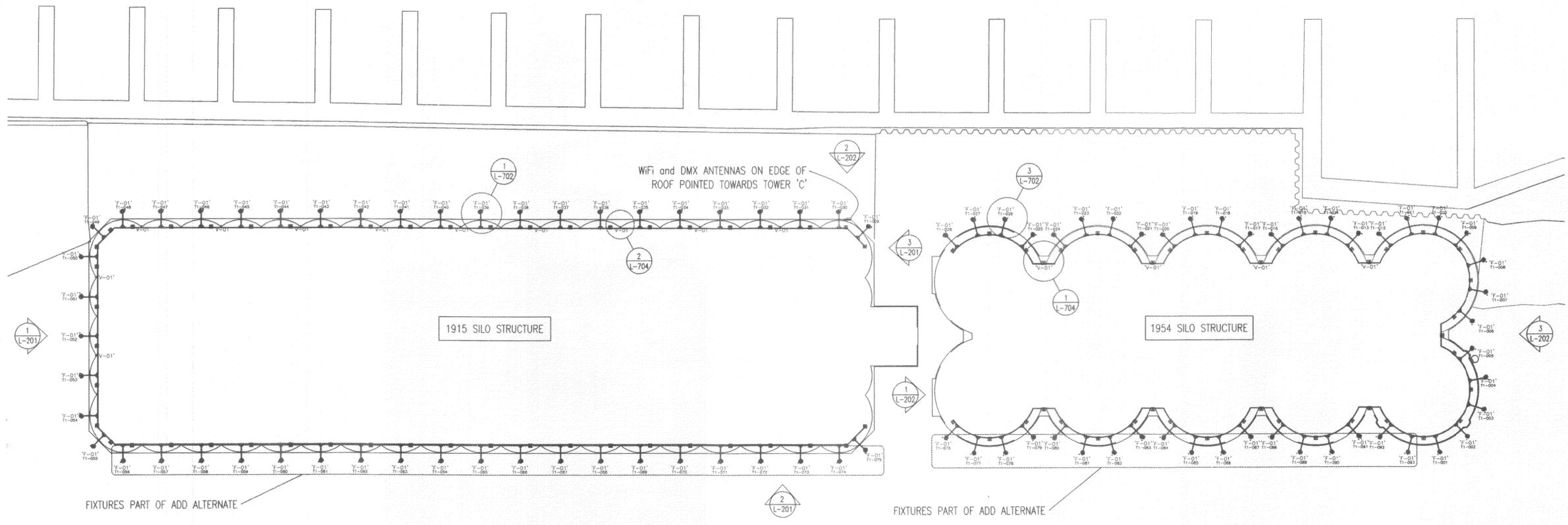
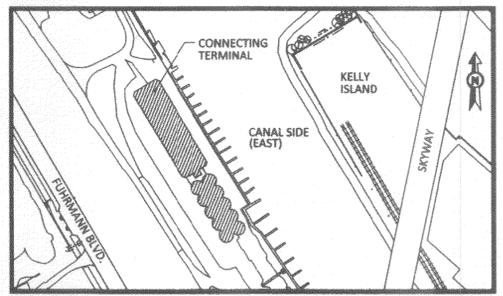
Exhibit B

Select As-Builts

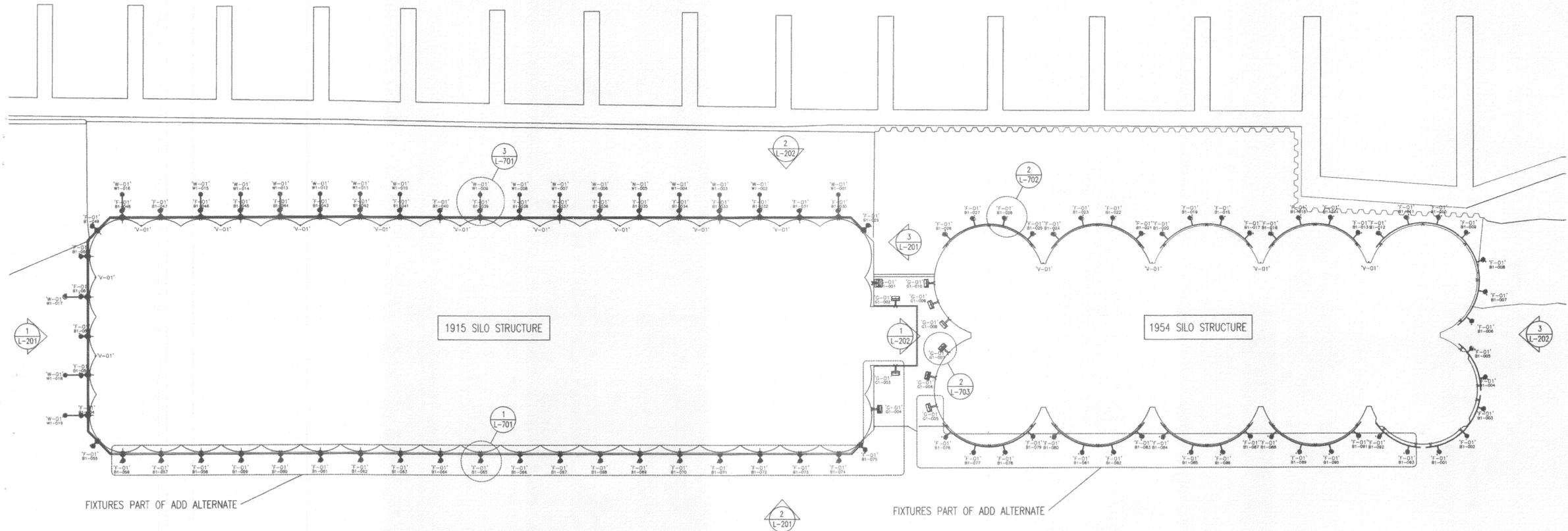
Lighting Design
AMBIANCES
 DESIGN PRODUCTIONS
 360-5524 SAINT-PATRICK, MONTREAL, QUEBEC, CANADA H4E 1A8
 +1.514.798.1624
 www.ambiancesdesign.com

Client
Erie Canal Harbor Development Corp.

Architecture + Structural Engineering
FoitAlbert
 ASSOCIATES
 Electrical Engineering
RAM-TECH
 ENGINEERS
 Syracuse, NY • Buffalo, NY • Philadelphia, PA



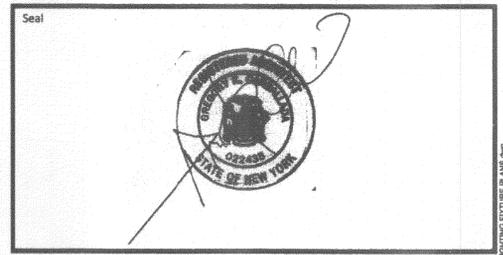
BUILDING ROOF / F-01 PLAN
 (ARCH D) N.T.S. **2**
 L-101



LOWER LEVEL / F-01, W-01 AND G-01 PLAN
 (ARCH D) N.T.S. **1**
 L-101

Issue		
Issue No.	Date of Issue (m-d-y)	Issued for
1	07/19/2013	SCHEMATIC DESIGN PHASE (100%)
2	12/18/2013	DESIGN DEVELOPMENT PHASE (100%)
3	03/07/2014	CONSTRUCTION DOCUMENT PHASE (90%)
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6	06/06/2014	CONSTRUCTION DOCUMENTS - ISSUED FOR BID

Rev No.	Date of revision (m-d-y)	Description	By	Ver.
Revision				



Do not scale off drawings.
 All dimensions and conditions must be verified on site.

Project
CONNECTING TERMINAL

AS-BUILT
 As per Holt

Sheet title			
LIGHTING FIXTURE PLANS			
Designed by	Ambiances Design Productions, inc.	Project no	131-13_1A
Drawn by	Phil Mondor	Date (d/m/y)	06/06/2014
Verified by	Martin Gagnon	Scale (ARCH D)	N.T.S.
Sheet no		Sheet no	L-101
Revision		Revision	N/A

Symbol	Qty	Type	Description	Manufacturer	Series	Part No.	Voltage	Classification	Finish	Optics	Temp. (°K)	Comments	Accessories #1	Accessories #2	Notes	Symbol	
F-01	180	F-01	LED RGBW PROJECTOR SPOT 11"	Anda	AuroSource Outdoor 48MC Integral	1008 2460 MC 11"	100-240 VAC	EXTERIOR IP68	Grey	23" Spread Lens with Bezel	LED	12	SPOT 11"	150W	J	60000K	Half App beam
G-01	10	G-01	LED RGB FLOOD 23" SPREAD LENS WITH BEZEL	Color Kinetics (Philips)	ColorKinetics Compact PowerCore	123-000278-01	120V (VIA DATA ENABLER PRO)	EXTERIOR IP68	Aluminum	23" Spread Lens with Bezel	LED	52		150W	J	Temped glass lens	Half App beam
M-01	10	M-01	SPOT LUMINAIRE MOVING LIGHT	Var-Lite (Philips)	VL3515	20-9679-0002	200-260VAC, 50/60HZ	INTERIOR	Black		Short Arc Lamp 1	1	5FC-104	150W	J	60000K	Metal halide / double-ended
L-01	150	L-01	LED ASMET LINEAR BEAM FLOOD 18" WBY	Color Kinetics (Philips)	Color Kinetics MC PowerCore	123-000218-01	120V (VIA DATA ENABLER PRO)	EXTERIOR IP68	Aluminum	Translucent plastic 220° viewing angle	LED	0.00		40W	J	40 Individually controllable nodes per fixture	Leaser cable (50ft)
W-01	19	W-01	LED RGBW PROJECTOR BEAM FLOOD 26"	Anda	AuroSource Outdoor 48MC Integral	1008 2432 MC 26"	100-240 VAC	EXTERIOR IP67	Grey	26"	LED	0.00	FLOOD 26"	150W	J		Custom digital length: 3m per unit

LIGHTING FIXTURE TYPES

3
L-600

ID	Symbol	Type	DMX Address	Control	General Notes
B1-001	F-01	2 001	DMX		
B1-002	F-01	2 005	DMX		
B1-003	F-01	2 009	DMX		
B1-004	F-01	2 013	DMX		
B1-005	F-01	2 017	DMX		
B1-006	F-01	2 021	DMX		
B1-007	F-01	2 025	DMX		
B1-008	F-01	2 029	DMX		
B1-009	F-01	2 033	DMX		
B1-010	F-01	2 037	DMX		
B1-011	F-01	2 041	DMX		
B1-012	F-01	2 045	DMX		
B1-013	F-01	2 049	DMX		
B1-014	F-01	2 053	DMX		
B1-015	F-01	2 057	DMX		
B1-016	F-01	2 061	DMX		
B1-017	F-01	2 065	DMX		
B1-018	F-01	2 069	DMX		
B1-019	F-01	2 073	DMX		
B1-020	F-01	2 077	DMX		
B1-021	F-01	2 081	DMX		
B1-022	F-01	2 085	DMX		
B1-023	F-01	2 089	DMX		
B1-024	F-01	2 093	DMX		
B1-025	F-01	2 097	DMX		
B1-026	F-01	2 101	DMX		
B1-027	F-01	2 105	DMX		
B1-028	F-01	2 109	DMX		
B1-029	F-01	2 113	DMX		
B1-030	F-01	2 117	DMX		
B1-031	F-01	2 121	DMX		
B1-032	F-01	2 125	DMX		
B1-033	F-01	2 129	DMX		
B1-034	F-01	2 133	DMX		
B1-035	F-01	2 137	DMX		
B1-036	F-01	2 141	DMX		
B1-037	F-01	2 145	DMX		
B1-038	F-01	2 149	DMX		
B1-039	F-01	2 153	DMX		
B1-040	F-01	2 157	DMX		
B1-041	F-01	2 161	DMX		
B1-042	F-01	2 165	DMX		
B1-043	F-01	2 169	DMX		
B1-044	F-01	2 173	DMX		
B1-045	F-01	2 177	DMX		
B1-046	F-01	2 181	DMX		
B1-047	F-01	2 185	DMX		
B1-048	F-01	2 189	DMX		
B1-049	F-01	2 193	DMX		
B1-050	F-01	2 197	DMX		
B1-051	F-01	2 201	DMX		
B1-052	F-01	2 205	DMX		
B1-053	F-01	2 209	DMX		
B1-054	F-01	2 213	DMX		
B1-055	F-01	2 217	DMX		
B1-056	F-01	2 221	DMX		
B1-057	F-01	2 225	DMX		
B1-058	F-01	2 229	DMX		
B1-059	F-01	2 233	DMX		
B1-060	F-01	2 237	DMX		
B1-061	F-01	2 241	DMX		
B1-062	F-01	2 245	DMX		
B1-063	F-01	2 249	DMX		
B1-064	F-01	2 253	DMX		
B1-065	F-01	2 257	DMX		
B1-066	F-01	2 261	DMX		
B1-067	F-01	2 265	DMX		
B1-068	F-01	2 269	DMX		
B1-069	F-01	2 273	DMX		
B1-070	F-01	2 277	DMX		
B1-071	F-01	2 281	DMX		
B1-072	F-01	2 285	DMX		
B1-073	F-01	2 289	DMX		

LIGHTING FIXTURE LISTING

2
L-600

ID	Enduse	DMX Address	Control	General Notes
CS-003	4 490		DMX	
CS-004	4 493		DMX	
CS-005	4 496		DMX	
CS-006	4 499		DMX	
CS-007	4 482		DMX	
CS-008	4 495		DMX	
CS-009	4 498		DMX	
CS-010	4 471		DMX	
NS-001	5 101		DMX	
NS-002	5 104		DMX	

MOVING LIGHT ENCLOSURE LISTING

1
L-600

NOTES:

- F-01 FIXTURES T1-056 TO T1-093 AND B1-056 TO B1-093 AND G-01 FIXTURES G1-003 TO G1-005 ARE PART OF THE ADD ALTERNATE.
- CHANNELS 3.401 TO 3.426 ARE RESERVED FOR THE MADRIX SOFTWARE CONTROLLING THE V-01 FIXTURES.

Lighting Design

AMBIANCES

DESIGN PRODUCTIONS

360-5524 SAINT-PATRICK, MONTREAL, QUEBEC, CANADA H4E 1A8
+1.514.798.1624
www.ambiancesdesign.com

Client

Erie Canal Development Corp.

Architecture + Structural Engineering

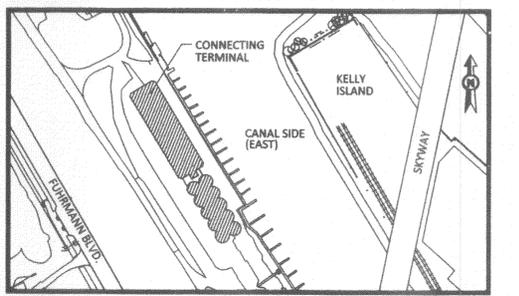
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ASSOCIATES

Electrical Engineering

RAM-TECH ENGINEERS

Syracuse, NY • Buffalo, NY • Philadelphia, PA



Issue No.	Date of Issue (m-d-y)	Issued for
1	07/19/2013	SCHEMATIC DESIGN PHASE (100%)
2	12/18/2013	DESIGN DEVELOPMENT PHASE (100%)
3	03/07/2014	CONSTRUCTION DOCUMENT PHASE (90%)
4	03/26/2014	CONSTRUCTION DOCUMENT PHASE (95%) FOR NYPA PERMIT
5	04/21/2014	CONSTRUCTION DOCUMENT PHASE (100%)
6	06/06/2014	CONSTRUCTION DOCUMENTS - ISSUED FOR BID

Seal

Do not scale off drawings.
All dimensions and conditions must be verified on site.

Project

CONNECTING TERMINAL

Sheet title	Project no	Sheet no
LIGHTING FIXTURE SCHEDULES	131-13_1A	L-600
Designed by	Drawn by	Verified by
Ambiances Design Productions, Inc.	Phil Mondor	Martin Gagnon
Date (d/m/y)	Scale (ARCH D)	Revision
06/06/2014	N.T.S.	N/A

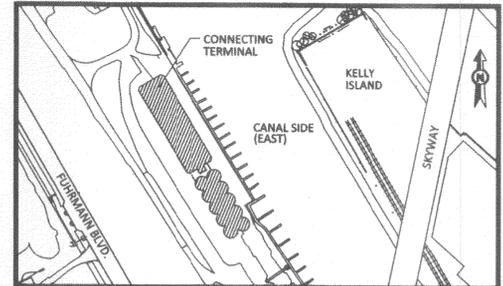
AS-BUILT
As PER Holt.

File name: \\102.108.0.102\Map_20140613_131-13_1A_Connecting_Terminal\Map_20140613_131-13_1A_Connecting_Terminal.dwg, Date: 06/06/2014, Time: 10:15:13 AM, User: philmondor

Lighting Design
AMBIANCES
 DESIGN PRODUCTIONS
 360-5524 SAINT-PATRICK, MONTREAL, QUEBEC, CANADA H4E 1A8
 +1.514.798.1624
 www.ambiancesdesign.com

Client
Erie Canal Harbor Development Corp.

Architecture + Structural Engineering
FoitAlbert
 ASSOCIATES
 Electrical Engineering
RAM-TECH
 ENGINEERS
 Syracuse, NY • Buffalo, NY • Philadelphia, PA



Issue No.	Date of Issue (m-d-y)	Issued for
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6	06/06/2014	CONSTRUCTION DOCUMENTS - ISSUED FOR BID

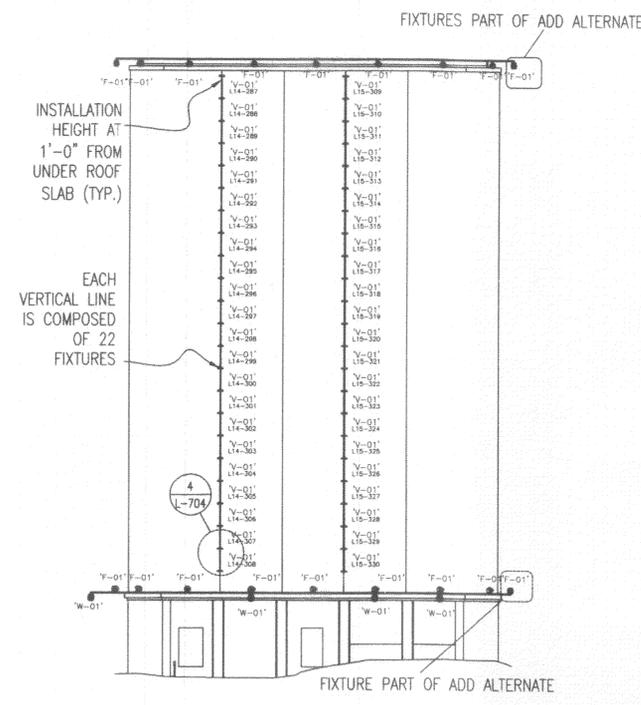
Rev No.	Date of revision (m-d-y)	Description	By	Ver.
		Revision		



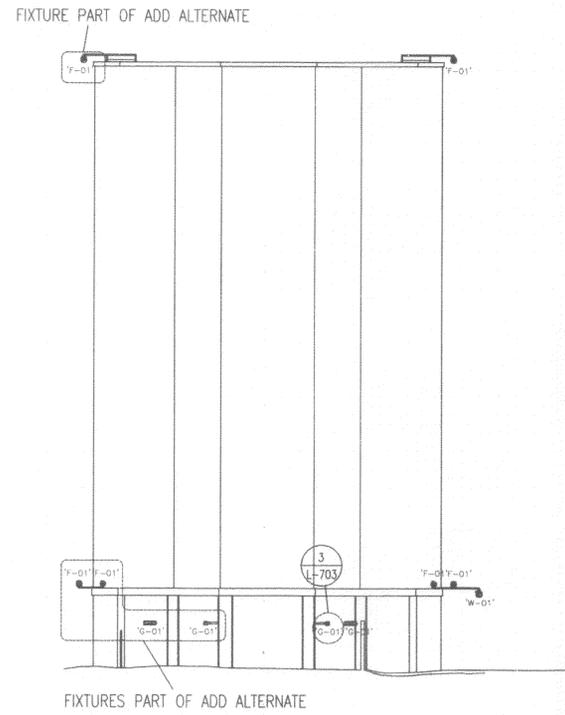
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Project
CONNECTING TERMINAL

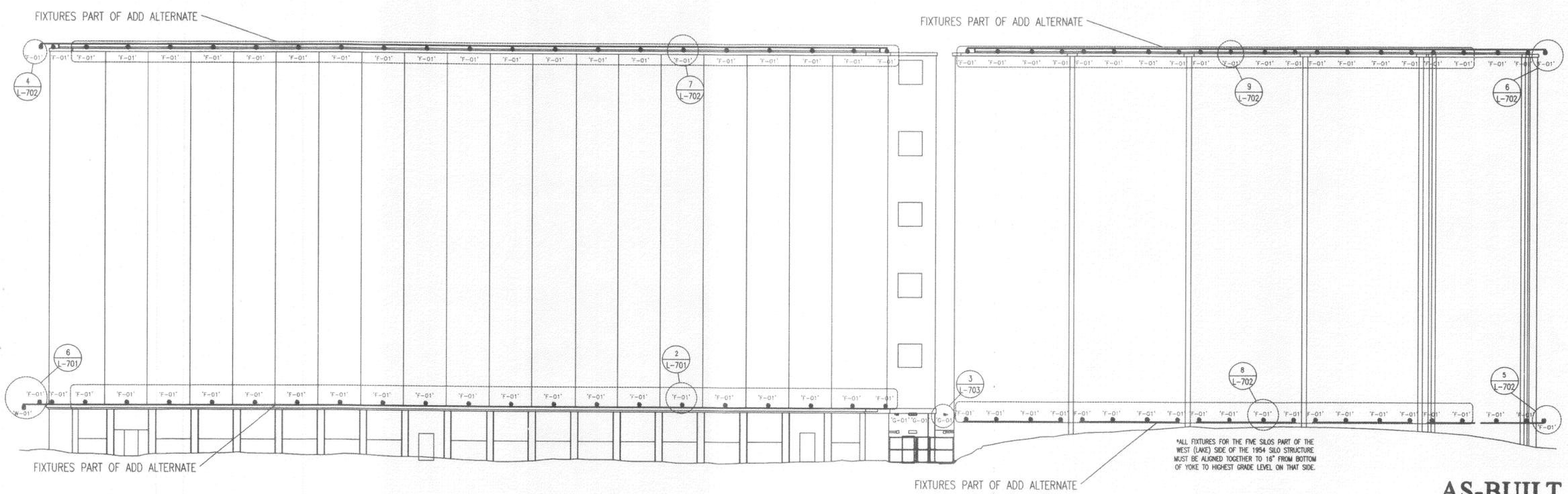
Sheet title		
LIGHTING FIXTURE ELEVATIONS		
Designed by Ambiances Design Productions, inc.	Project no 131-13_1A	Sheet no L-201
Drawn by Phil Mondor	Date (d/m/y) 06/06/2014	Revision N/A
Verified by Martin Gagnon	Scale (ARCH D) 1/16" = 1'-0"	



NORTH ELEVATION (1915 SILOS) / V-01
 (ARCH D) 1/16" = 1'-0" L-201



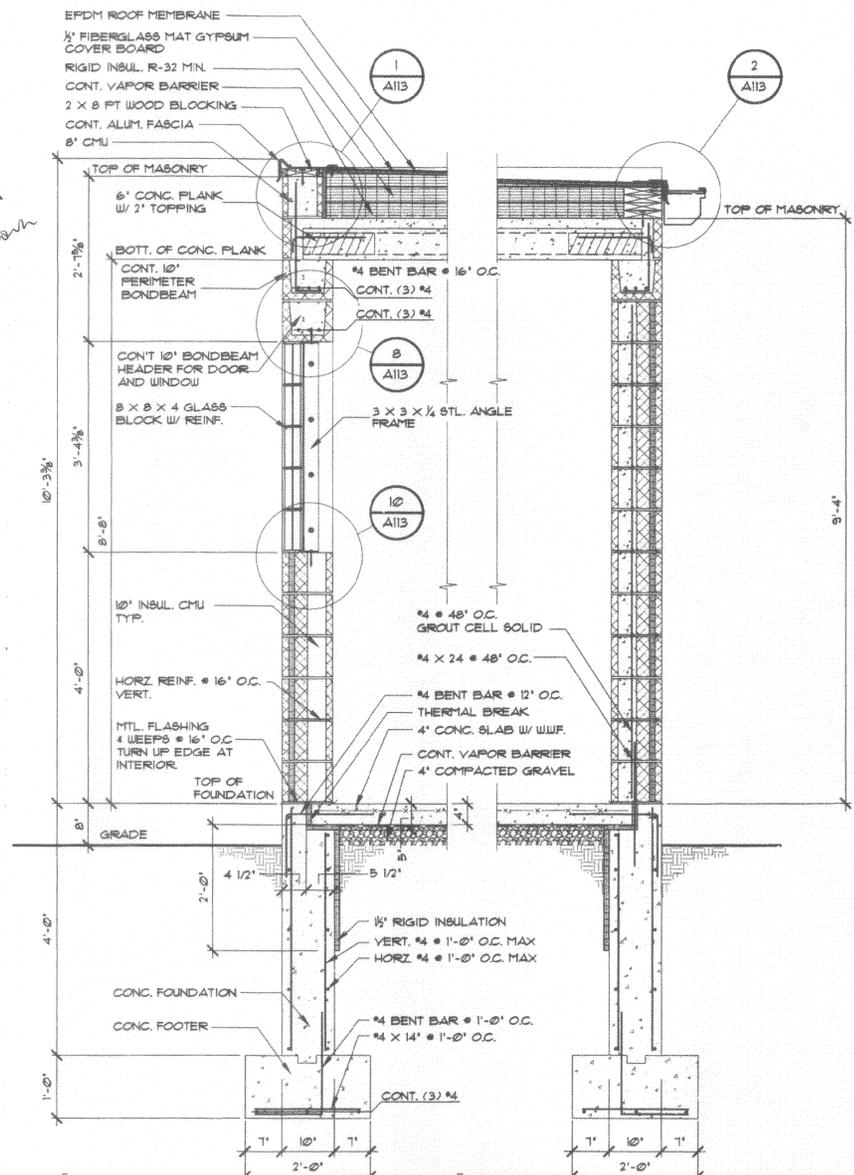
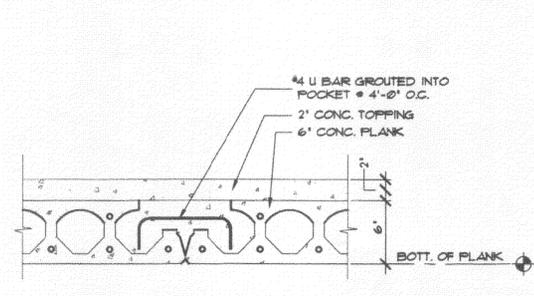
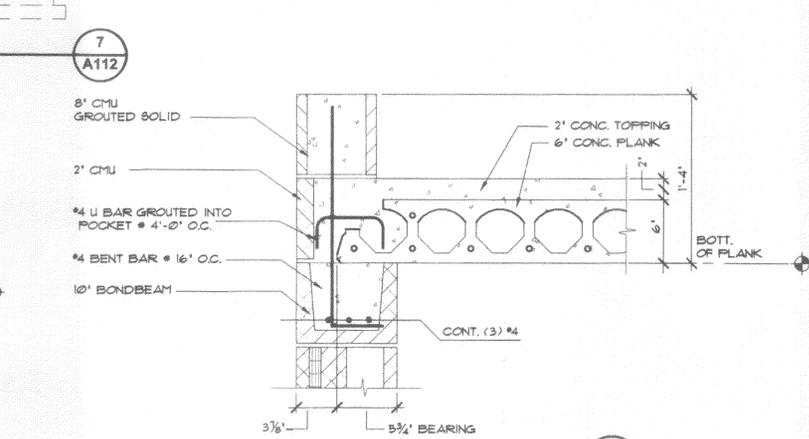
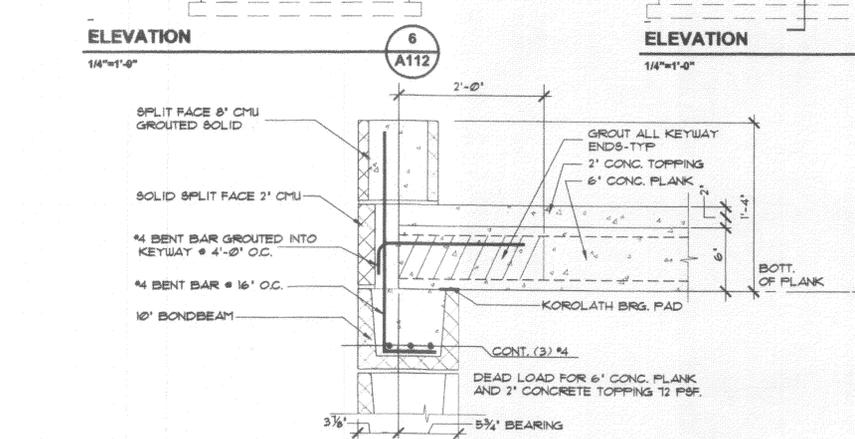
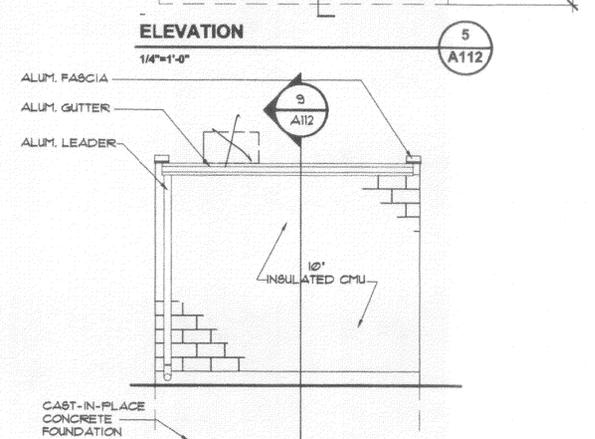
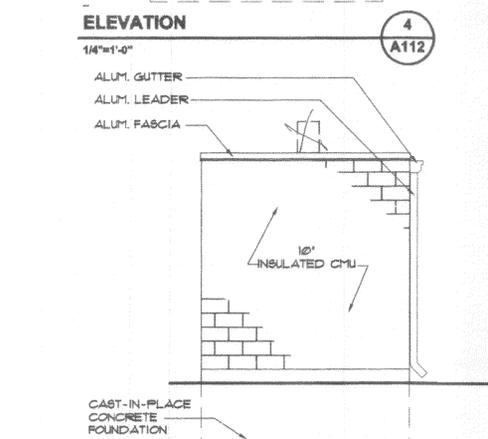
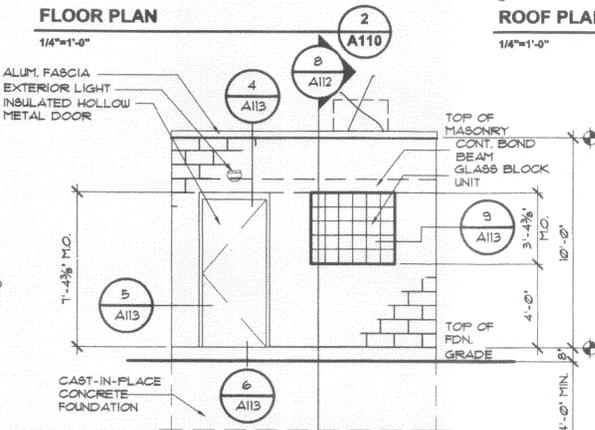
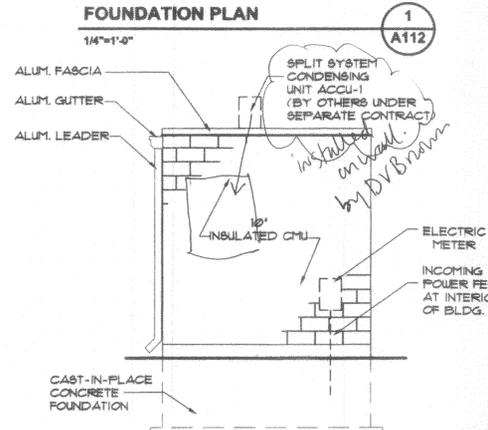
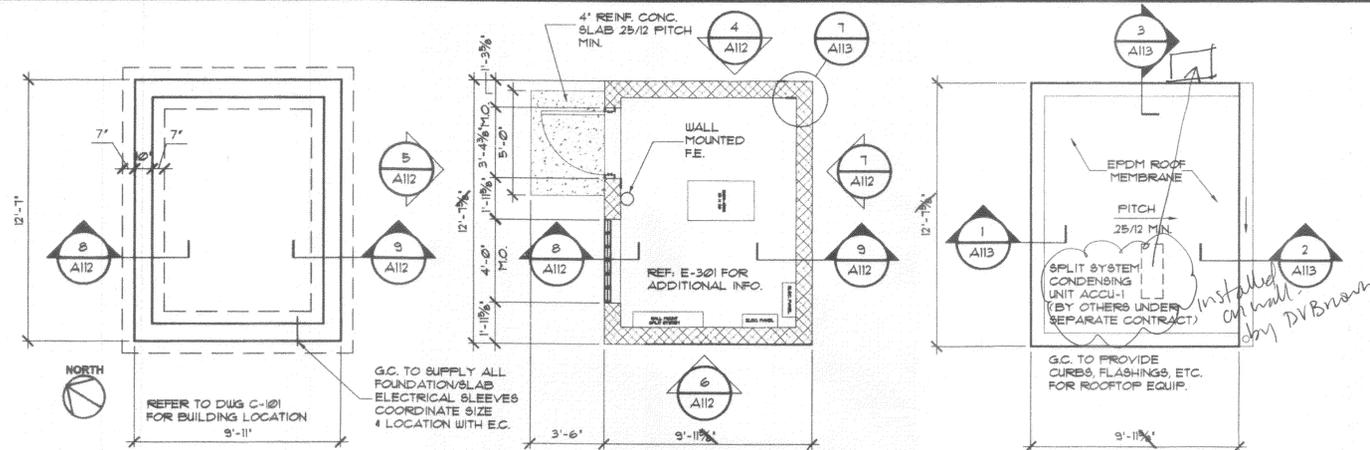
NORTH ELEVATION AT GAP (1915 SILOS) / G-01
 (ARCH D) 1/16" = 1'-0" L-201



WEST ELEVATION
 (ARCH D) 1/16" = 1'-0" L-201

AS-BUILT
 AS PER HOHL

131-13_1A_01.dwg - Connecting Terminal - 06/06/2014 - 10:11:11 AM
 8/21/2014 11:11:11 AM
 LIGHTING FIXTURE ELEVATIONS.dwg



Architectural & Structural Engineering

FoittAlbert ASSOCIATES

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703 Main Street Buffalo, New York 14203

Client

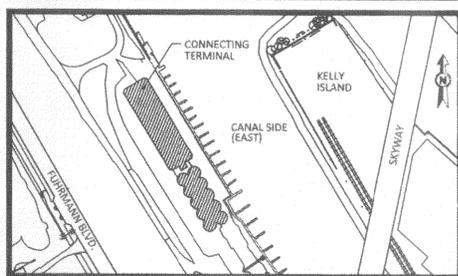
Erie Canal Harbor Development Corp.

Lighting Design

AMBIANCES DESIGN PRODUCTIONS

Electrical Engineering

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Issue			
Issue No.	Date of Issue (m-d-y)	Issued for	
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Rev. No.	Date of revision (m-d-y)	Description	By	Ver.



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All dimensions and conditions must be verified on site.

Project

CONNECTING TERMINAL

Sheet title

CONTROL BOOTH BUILDING PLANS, ELEVATIONS & DETAILS

Designed by	Foitt-Albert Associates	Project no.	12021.01	Sheet no.	A-112
Drawn by	MP	Date (m/d/y)	06/06/2014	Revision	
Verified by	GRC	Scale (ARCH D)	As Noted		

AS-BUILT

Exhibit C

Lighting Specifications and Maintenance

Exhibit C

Lighting Specifications and Maintenance

M-01

Tempest Tornado Moving Light
Enclosure & Phillips Varilite VL4000 Spot
Luminaire

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
TEMPEST 2400,USD

Notes:

Type:

M-01

BUF14-8462



TEMPEST



TORNADO Moving Light Enclosures

Any Moving Light. Anywhere.

*Tempest Tornado —
ultimate protection
for moving head
luminaires in hostile
environments.*

Tornado enclosures
comprise a clear UV-
resistant acrylic dome,
in which the luminaire
has complete freedom
of movement, and an
aluminum base, containing
Tempest's patented
Digital Enclosure Control
electronics, fans and
heating elements.

Tempest's new Goldilocks™
operating system (patents
pending) controls
temperature, humidity and
dew point, eliminating
deadly condensation,
24/7/365. Tornado features
Remote Device Management
protocol (RDM) to monitor
and control enclosures on
large installations.

There is a Tornado model
for just about every moving
head we know, from little
LED movers right up to
2,500 Watts of beam power.

Tornados have been
operating for more than ten
years in deserts, tropical
resorts, Northern winters,
and at sea, all around the
world.

Now it's your turn.

NEW!



Tornado 1850,
1900 and 1950
for those
smaller
(Sharper) lights...

NEW!



Salt Fog Filtering
for Cruise Ships
and Beach Resorts
beats salt corrosion

*Feature Shot:
78 Tornado 2300 enclosures protect
moving heads from a cascade of salt
water on the Big O at the 2012 World
Maritime Fair in Yeosu, South Korea.*

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:

GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
TEMPEST 2400.USD

Notes:

Type:

M-01

BUF14-8462

Tornado 2400

Tornado 2400 is the Big One, for moving heads up to 2,500W. With a handcrafted fiberglass base, Tornado 2400 is available as standard in white, black, gray and silver. Custom colors to order.

For Luminaires such as:

- High End Showgun
- High End Showbeam
- High End DL3
- PRG Bad Boy
- Vari-Lite 3515

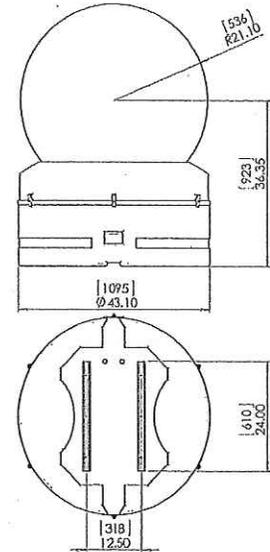
Part Number	Volts	Installation
2400.IND	230V	↑
2400.INV	230V	↓
2400.USD	208V	↑
2400.USV	208V	↓

Shipping Dimensions (crated)

48"x48"x69" (h), weight 260lb
122 x 122 x 175cm, 118kg



2400.xxD - Base Down



Weight: 105 lb/48kg



Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

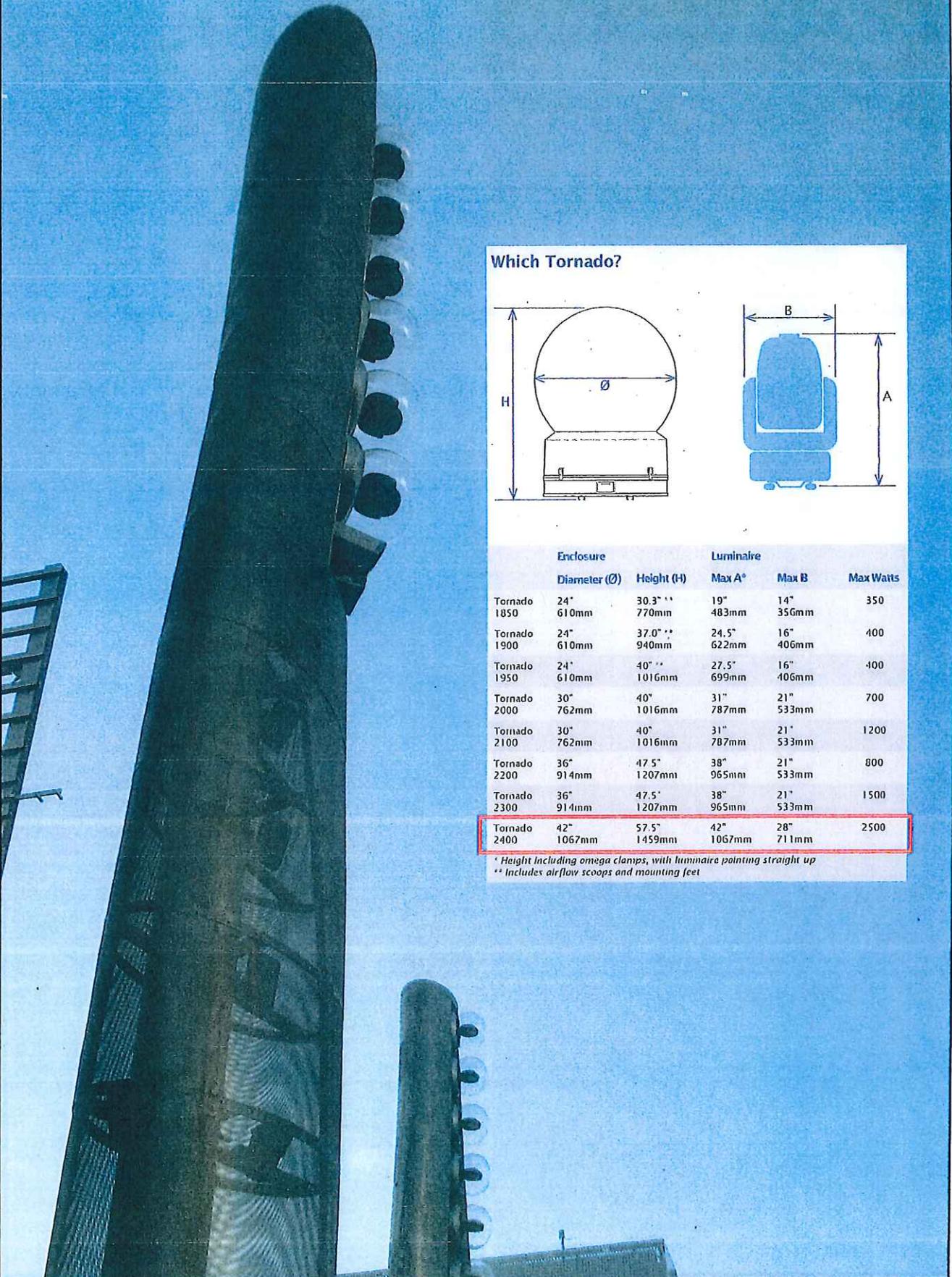
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TEMPEST 2400.USD

Notes:

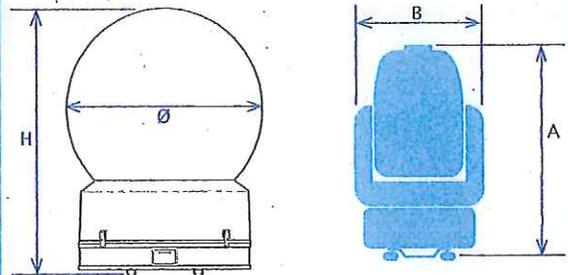
Type:

M-01

8UF14-8462



Which Tornado?



	Enclosure		Luminaire		
	Diameter (Ø)	Height (H)	Max A*	Max B	Max Watts
Tornado 1850	24" 610mm	30.3" ** 770mm	19" 483mm	14" 356mm	350
Tornado 1900	24" 610mm	37.0" ** 940mm	24.5" 622mm	16" 406mm	400
Tornado 1950	24" 610mm	40" ** 1016mm	27.5" 699mm	16" 406mm	400
Tornado 2000	30" 762mm	40" 1016mm	31" 787mm	21" 533mm	700
Tornado 2100	30" 762mm	40" 1016mm	31" 787mm	21" 533mm	1200
Tornado 2200	36" 914mm	47.5" 1207mm	38" 965mm	21" 533mm	800
Tornado 2300	36" 914mm	47.5" 1207mm	38" 965mm	21" 533mm	1500
Tornado 2400	42" 1067mm	57.5" 1459mm	42" 1067mm	28" 711mm	2500

* Height including omega clamps, with luminaire pointing straight up
** Includes airflow scoops and mounting feet

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

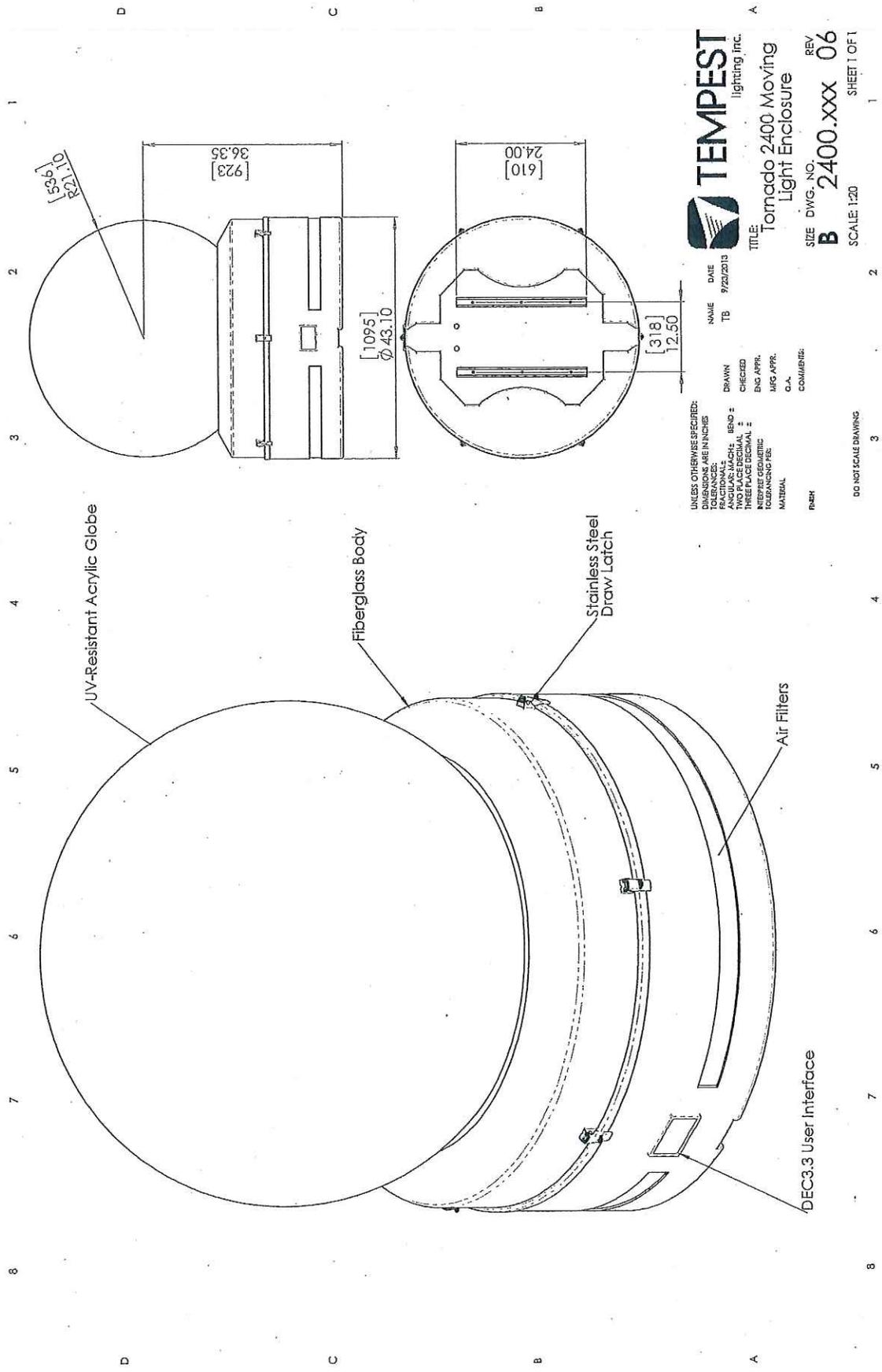
Catalog Number:
TEMPEST 2400.USD

Notes:

Type:

M-01

BUF14-8462



UV-Resistant Acrylic Globe

Fiberglass Body

Stainless Steel Draw Latch

Air Filters

DEC3.3 User Interface

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONS: ±0.005
ANGULAR: MACH ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
TOLERANCING PER:
MATERIAL

NAME: TB DATE: 9/27/2013
DRAWN: CHECKED:
ENG APPR: MFG APPR:
C.A. COMMENTS:

TEMPEST lighting, inc.
TITLE: Tomado 2400 Moving Light Enclosure
SIZE DWG. NO. **B** 2400.XXX 06 REV: 06
SCALE: 1:20 SHEET 1 OF 1

DO NOT SCALE DRAWING



JESE RDM-TRI Interface



This RDM interface has been developed by UK-based RDM technology leader JESE as a practical and affordable interface between a Windows PC and a DMX/RDM network.

RDM-TRI works with any compliant RDM device, and has been extensively tested with Tempest Digital Enclosure Control DEC3.2 and up.

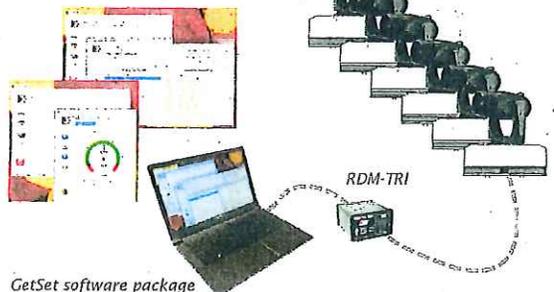
RDM-TRI is the simplest way to monitor your Tempest enclosure installation, or to perform DEC field firmware upgrades.

For Use with:

Any Tempest enclosure(s) featuring DEC 3.2 and up.
 Any RDM ANSI E1.20 compliant responder.

Part Number	Description
2000.190	JESE RDM-TRI Interface, with USB Cable, GetSet Software and Tempest Graphic User Interface

GetSet includes spreadsheet views and a graphic dashboard plug-in for Tempest controllers DEC3.2 and up.



GetSet software package discovers, configures and monitors all RDM devices on the network. In this example Tempest Tornado enclosures are monitored on the same DMX line as the luminaires inside.

Lighting Controller

DMX512 Transmitter

TRI generates DMX Universe frames asynchronously at rates configurable between 1 to 40 fps. Options are available to update the entire frame at once, a single slot within the frame or to insert a single frame into the transmission sequence.

RDM ANSI E1.20 Receiver

TRI provides synchronous and asynchronous modes for monitoring DMX Frames, giving the application the flexibility to react only when frame data changes.

Controller

Real time RDM protocol handling and checking means that the host application is free to make simple requests and issue instructions to all compliant devices. Onboard discovery routine discovers all compliant devices and compiles a list for the host application to query.

Responder

TRI will respond as a compliant RDM responder when interrogated in a network.

- RDM Protocol Aware
- On Board Discovery
- RDM Idle State Bias
- RDM Error Management
- DMX Input & Output
- 120 Ohm Termination
- DMX Socket 1kV Isolated
- Configurable Parameters
- 1 to 40 Frames/second
- Frame Break Time (BRK)
- Mark After Break (MAB)
- Triple Frame Buffers
- TX & RX Indicators
- Audio Error Indicator
- Two Command Sets
- Robust Firmware Upgrade
- Published Interface Spec

In the interest of continuous product improvement, specifications are subject to change without notice

Tempest Lighting, Inc

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 www.tempest.org info@tempestlighting.com
 t: +1 818 787 8984 f: +1 818 982 5510



Submitted by Lightspec

LIGHTSPEC

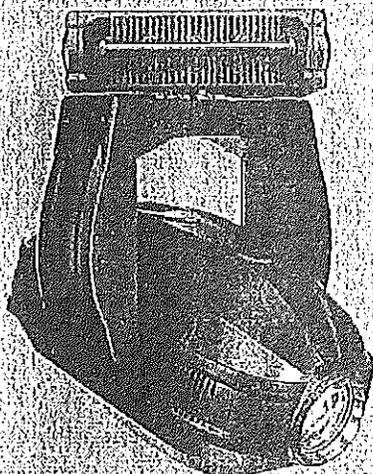
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1**Catalog Number:**
VL4000 20.9704.0001

Notes:

Type:
M01

BUF14-6065



The VL4000 Spot includes all the tools needed to create dynamic and useful lighting on any stage. Every aspect of the luminaire has been designed with performance in mind. The VL4000 Spot boasts 33,000 lumens and features a quiet Studio mode, outputting 25,000 lumens. High resolution optics ensure remarkable center-to-edge focusing and an unprecedented contrast ratio. A 5:1 zoom covers an amazing 9 to 47 degrees without sacrificing output or clarity.

Our engineers designed the entirely new Infinity color system that provides CYM color mixing, variable CTO color temperature correction, and dual five-position color wheels. As a result, the luminaire has incredibly smooth color mixing whether operating in a slow fade or instant snap. The dual opposing fixed color wheels achieve unique color effects, providing a multitude of multi-color combinations.

The VL4000 Spot luminaire features dual rotating gobo wheels with a remarkable new collection of optimized gobo patterns for both aerial and projected imagery. Dual animation wheels provide dynamic motion effects as well as the chromatically tuned Dichro Fusion effect. The beam can be further modified via the precise four blade shutter system and mechanical iris. An independent prism with divergence control and variable frost are also implemented into the luminaire.

Unbelievably smooth dimming flags combined with independent strobe blades deliver unmatched dimming and strobing abilities. New innovative electronics infrastructures and luminaire software enable the VL4000 Spot luminaire to outperform all other luminaires on multiple accounts. A battery-backed full color LCD display is designed to be intuitive and easy to use. New multi-point connections allow the luminaire to be hung at any angle, while a pocketed safety cable attachment trap effortlessly ensures added safety.

VL4000 Spot Luminaire

Programmable Functions

Color System:	A Dichro filter CYM cross fading system capable of extremely smooth movements at both slow and fast speeds, and a variable CTO color temperature correction system.
Fixed Color Wheels:	Two opposing fixed color wheels each with five interchangeable color filters are capable of producing multi-color effects and variable wheel rotations.
Zoom Optics:	A 12-element 5:1 zoom optics system, covering a range from 9° to 47°.
Beam Size Control:	A mechanical iris provides continuous beam size control for rapid and smooth timed beam angle changes.
Shutter Control:	A four blade shutter mechanism that allows the blades to be operated independently or in unison on two planes for a clear and crisp image. The entire mechanism can rotate 50° in either direction.
Rotating Gobo Wheels:	Two gobo wheels combine to offer seven rotatable, indexable gobo positions and one open position.
Animation Wheels:	Two animation wheels each offer uniquely rotatable, indexable patterns with variable motion control from horizontal to vertical. Unique Dichro Fusion pattern is chromatically tuned to provide endless color effects.
Rotating Prism:	Independent rotating and indexing 3-facet prism with variable divergence control.
Edge and Pattern Focus:	Variable beam focus to soften edges of gobos or spots. Remarkable depth of field capability allows overlapping effects between gobo and animation wheels.
Variable Frost:	Independent variable frost glass with adjustable softness control.
Intensity Control:	Full field dimming designed for smooth timed fades as well as quick dimming effects.
Strobe:	High performance dual blade strobe system capable of ultra-fast operation.
Pan and Tilt:	Smooth, time-controlled continuous motion by way of three-phase stepper motor systems.
Range:	Pan - 540°, Tilt - 270°.
Accuracy:	0.3° resolution.

Description

Source:	1200W Philips MSR Cold FastFit lamp (also for 800-1400W operation) running at 1400W in Standard mode or 1200W in Studio mode.
Color Temperature:	6000K
Fixture Output:	Standard Mode: 33,000 lumens Studio Mode: 25,000 lumens
Reflector:	Precision glass reflector system with dielectric cold mirror coating.
Power Requirements:	Standard AC power distribution from 200 - 240VAC, 50/60 Hz. The unit requires up to 11.0A depending on the AC supply voltage.
Menu System:	Full color LCD with battery powered control.
Operational Temperatures:	Standard Mode: -20° to 104°F (-29° to 40°C) Studio Mode: -20° to 122°F (-28° to 50°C)
Cooling:	Forced air cooling.
DMX Control:	Completely compatible with a wide variety of DMX12 consoles.
DMX Channels:	57 Channels (Enhanced 16-Bit Mode) / 52 Channels (16-Bit Mode)
RDM Control:	Completely compatible with a wide variety of RDM devices.
Mounting Position:	The VL4000 Spot luminaire can be mounted and operated in any orientation and includes multiple mounting bracket options.
Spacing:	Hangs on 25 in. (63.5 cm) centers
Weight:	83 lbs. (37.7 kg)

Ordering Information

Luminaires:	
20.9704.0001	VL4000 Spot Luminaire, Black, Includes 1200W Short Arc Lamp

Accessories:	
71.9704.1203	1200W Short Arc Lamp, Philips MSR Gold FastFit
22.9920.01E4	Safety Cable Assembly
PEGASUS	Luminaire Programming Kit
65.6840.0301	Truss Hook, Mega-Clamp (For round and square pipe)
65.6941.0901	Truss Hook, Mega-Clamp (For 2" round pipe)
PCT1BE	AC Input Cable, Neutrik® powerCON® True1 with Bare end (no connector), 1 Meter
PCT1BL298	AC Input Cable, Neutrik® powerCON® True1 with Twist Lock (Male), 250W, 1 Meter
PCT1EP	AC Input Cable, Neutrik® powerCON® True1 with Stage Pin (Male), 1 Meter

PHILIPS
VARI*Lite

Submitted by Lightspec		Catalog Number: VL4000 20.9704.0001	Type: M01
LIGHTSPEC Your Complete Light Source	Job Name: GRAIN ELEVATORS AND BRIDGES PHASE 1	Notes:	BUF14-6065

VL4000 Spot Luminaire

Specifications

The unit is an integrally designed, remote-controlled, motorized spot luminaire. The head, yoke and enclosure housings are constructed of aluminum alloy for light weight, strength and durability. Low-noise fans provide forced-air cooling for internal components. The rear cap provides easy access to the lamp for replacement. Oversized upper-enclosure handles allow for easier hanging and loading.

A single Neutrik® powerCON® True1 input connector along with two, five-pin DMX512 compatible connectors (in and through) are provided. The unit can be controlled from a wide variety of DMX512 consoles and also supports ROM. An integrated USB connector provides firmware update and diagnostic abilities.

Each unit is equipped with an on-board processor providing diagnostic and self-calibration functions as well as internal test routines and software update capabilities. A full color LCD menu system with battery operation provides luminaire feedback and manual options settings.

The unit includes integral pan and tilt locks.

The unit contains two independent three-phase stepper motors to provide movement of the head through 540° in the horizontal plane (pan) and 270° in the vertical plane (tilt). The pan and tilt mechanisms are belt-driven, providing positional resolution and repeatability of 0.3° on either axis.

A 5:1 zoom optics system adjusts the projected field angle over a range of 9° to 47°. Variable beam focus is provided to soften the edges of gobos or spots and to provide gobo morphing. The projected image remains in focus throughout the entire zoom range.

The unit contains a CYM color mixing system, as well as variable CTO color temperature correction.

Two color wheels capable of continuously spinning are also included. Each of the two wheels holds five interchangeable dichroic colors to allow for custom configurations. The unit comes equipped with a standard palette of dichroic color filters.

The fixture's shutter mechanism is comprised of four frame blades that move independently or in unison, on two planes for a crisp, sharp image. The entire assembly operates in a smooth, time-continuous motion using stepper motors (two per frame blade and one for the entire mechanism). The shutter mechanism can rotate 50° in either direction and the frame blades can tilt +/- 30°.

Unit has two, seven-position gobo wheels. Each contains individually rotating, indexable gobos and patterned glass effects. The rotating gobos are easily interchangeable to allow customization of the unit. The unit comes equipped with a standard set of gobos and effects. (A wide selection of colored and patterned gobos and effects is available from Vari-Lite.)

Dual rotating, indexing animation wheels provide variable horizontal and vertical movement effects. The Dichro*Fusion effect provides chromatically tuned multi-color effects.

The unit contains an independent rotating and indexing 3-facet prism with variable deviation control.

The unit offers frost capability with an independent, drop-in armature that includes an adjustable frost level.

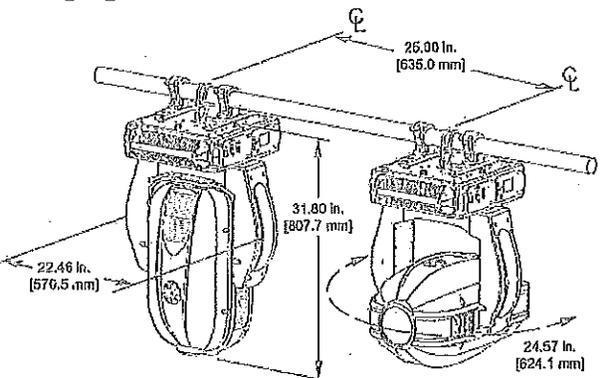
A mechanical iris provides continuous beam size control for rapid and smooth timed beam angle changes.

The unit contains a patterned glass dimmer system that provides full field dimming and allows for smooth timed fades and fast blackouts.

A dual blade strobe and dousing system provides variable strobe effects capable of rapid operation.

The unit shall be ETL and ETLc certified and CE-marked. Exterior finish is black.

Hanging Dimensions



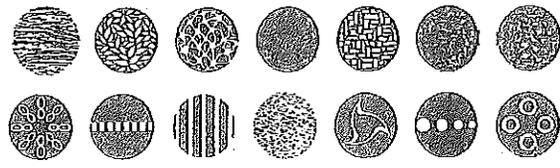
Note:
Shown with optional safety cables, clamps, etc.

VL4000 Spot Luminaire - Lumen Output

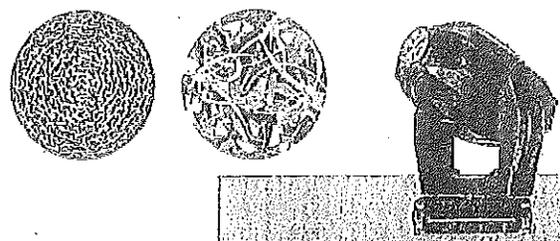
VL4000 Spot Luminaire (Standard Mode):	33,000 Lumens
VL4000 Spot Luminaire (Studio Mode):	25,000 Lumens

Notes:
 * Values shown are preliminary data and subject to change.
 ** All measurements are nominal and subject to manufacturing tolerances.

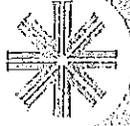
VL4000 Spot Luminaire - Gobos



VL4000 Spot Luminaire - Animation Wheels



PHILIPS
VARI*LITE

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 Dallas, TX 75230
 1-877-VARI-LITE
 972-214-6473
 www.vari-lite.com
 CE
 ETL
 Intertek
 VL4000 Spot - 072414 - IIA - E04

8 Routine Maintenance

It is very important to perform routine maintenance on both the enclosure and the luminaire within. Failure to do so may reduce lifetime for both the enclosure and the luminaire.

Note

Maintenance schedules depend on location and environment. The times given here are general guidelines for you to use. It is up to you to judge whether maintenance should be done more often. We do advise doing these tasks no less often than mentioned here.

Safety

- ⚠ Although maintenance can be performed while the enclosure is powered, it is safer to carry it out with the power disconnected with proper lockout and tag out procedures followed.
- ⚠ Be aware that once the enclosure has had power applied to it, the heater will get hot and the fans will start to turn. Make sure that your hands are clear of these areas before applying power to the enclosure.
- ⚠ Only authorized personnel should perform maintenance on the enclosure or luminaire
- ⚠ Do not service the unit in the rain or other adverse weather conditions (snow, sleet, high winds, etc.).
- ⚠ Be aware that the globe is a large object that can be awkward to handle, especially when standing on a ladder or scaffolding.

Inspection Checklist: - Every Three (3) Months

- All weep (drain) holes should be clear
- All vents should be free of debris
- Enclosure should be free of debris both inside and out
- Bolts should be tight
- All safety cable should be in good condition
- Lid seal should be in good condition, Check seal inside and out for gaps.
- Globe should not be cracked
- Fans should be moving (it will be necessary to have the power on to check this), with corresponding indicator status

Except for the last two items (concerning globe and fan), problems with any of these things can be easily remedied. Contact technical support for problems with the last two items.

Air Filters - Every Three (3) Months

The air filters all around the base should be removed and cleaned on a regular basis. To remove filters, pull them directly out of their grooves. The filters can be cleaned by running water from a hose and do not require any special solution.

To reinstall, push filter back into place between the top and bottom base covers.

Case and Globe - As Needed

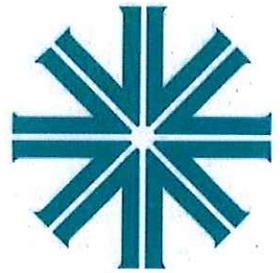
The outside of the case and globe should be cleaned as needed. Outside inspection should give you a good idea of when this is necessary. The case should be cleaned with a wet cloth and mild detergent (if necessary). Do not use a direct spray from a hose to clean the case. The globe can be

cleaned with any mild cleaner. It is also acceptable to treat globe with a product that keeps rain from adhering to its surface.

DO NOT USE hydrocarbon-based cleaners on the globe under any circumstances. They can severely damage the globe material.

Luminaire

Review the manufacturer's instructions for proper maintenance of your luminaire. Remember, the enclosure simply protects the luminaire and is not a substitute for regular maintenance.



APPENDIX A.

Maintenance

This appendix provides instructions for performing routine maintenance which may be necessary during the life of the luminaire.

- **Equipment Handling**
- **Troubleshooting**
- **Routine Maintenance**



WARNING: All maintenance procedures are to be performed with power completely removed from the luminaire. Also, allow at least of five minutes cooling time before opening covers. Never remove covers or lamp cover assembly while lamp is in operation.

Equipment Handling

Below are some basic tips and information on handling luminaires and their associated components.

Locations/Use



VARI*LITE luminaires are designed for dry locations only. Exposure to rain or moisture (including, but not limited to, fog machines, misters, etc.) may damage luminaire.

Lamps

Servicing

- When handling a lamp, hold it by the ceramic base while wearing cotton gloves or finger cots. Do not touch the glass envelope (bulb). If you touch the glass with bare fingers, immediately wipe off any fingerprints with isopropyl alcohol.
- Use care when removing and replacing covers of luminaire and cleaning reflectors. Any jarring can undo the optical alignment of the lamp.
- Hot Lamp. Luminaire must remain powered on for 5 minutes after dousing lamp. Do not open for 5 minutes after switching off. Lampe chaude. Le luminaire doit rester en marche pendant 5 minutes après avoir éteindre la lampe. Ne pas ouvrir pendant 5 minutes après la coupure.
- Risk of exposure to excessive ultraviolet radiation. Do not operate without complete lamp enclosure in place or when lens is damaged. Risque d'exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le boîtier complet de lampe mis en place ou lorsque l'objectif est endommagé.

Heat

When lamps are lit, the interior of the luminaires becomes very hot. To aid in the airflow circulation within the luminaires, after dousing the lamps, wait 5 minutes before removing power to the luminaires. This will provide enough time for the equipment fan to cool off the unit. Users should wait until the unit is cool to the touch before servicing or handling.

Lamp Life

- When operating arc lamps, allow luminaires to operate for at least 3 minutes. It takes about 3 minutes for the fill components (mercury and halogen-metal compounds) in the lamp tubes to vaporize completely. If the lamps are switched off earlier than 3 minutes, the fill components are partially vaporized. The inadequately vaporized fill components and the electrode material (tungsten) are deposited in the areas of the lamp tubes that have remained cool. As a result, the lamp tubes blacken prematurely and reduce the service life of the lamps.
- If the luminaire will be dimmed out for more than two hours, the lamp should be doused.

Solid State Electronics



Electrostatic Discharge (ESD)

Electrostatic discharge (ESD) presents a significant danger to solid state electronic components (semiconductor devices and PC board assemblies). Static electricity can build on a variety of common objects (including people) simply by handling or moving. ESD rarely results in immediate failure of a component, but shows up later as an intermittent problem or severely reduces the life of the component. All VARI*LITE equipment uses solid state electronics and appropriate precautions to protect them should be observed when servicing.

Printed Circuit Boards (PCBs)

All PC boards should be shipped in electrostatic shielding bags. When handling PC boards or components, devices such as conductive mats and conductive wrist straps should be used whenever possible. If these precautionary devices are not available, handling of PC boards and components should be avoided.



CAUTION: Black foam (used to package solid state electronics) should never be used for packing batteries or put in contact with PC boards which contain batteries.

Troubleshooting

Error Messages

If a problem occurs during luminaire calibration, at the end of the calibration sequence the Menu Display will cycle through any applicable error message(s), one at a time until the end of the list is reached. To review the error messages again, it will be necessary to access them using the Status function.

To access error messages:

- Step 1. Press [ESC].
- Step 2. Press [Up] / [Down] arrows until Fixture appears. Press [OK].
- Step 3. Press [Up]/ [Down] arrows to access Status. Press [OK]. (Display will now scroll through any error messages or display OK if no errors).

Table A-1: Error Messages

Display	Meaning
OK	No Errors Found - All Sensors Responded Properly
Pan Sensor	Pan Sensor (Encoder) Error
Tilt Sensor	Tilt Sensor (Encoder) Error
Dimmer Sensor	Dimmer Sensor Error
Cyan Sensor	Cyan Color Sensor Error
Yellow Sensor	Yellow Color Sensor Error
Magenta Sensor	Magenta Color Sensor Error
CTO Sensor	CTO Sensor Error
Color Whl1 Sensor	Color Wheel 1 Sensor Error
Color Whl2 Sensor	Color Wheel 2 Sensor Error
Gobo Whl1 Sensor	Rotating Gobo Wheel 1 Sensor Error
Gobo 1 Index Sensor	Rotating Gobo Wheel 1 Indexing Sensor Error
Gobo Whl2 Sensor	Rotating Gobo Wheel 2 Sensor Error
Gobo 2 Index Sensor	Rotating Gobo Wheel 2 Indexing Sensor Error
Animation Whl1 Sensor	Animation Wheel 1 Sensor Error
Animation 1 Index Sensor	Animation Wheel 1 Indexing Sensor Error
Animation Whl2 Sensor	Animation Wheel 2 Sensor Error
Animation 2 Index Sensor	Animation Wheel 2 Indexing Sensor Error
Prism Sensor	Prism Mechanism Sensor Error
Prism Rotate Sensor	Prism Rotating Sensor Error
Prism Diverge Sensor	Prism Diverge Sensor Error
Frost Sensor	Frost Mechanism Sensor Error
Frost Adjust Sensor	Frost Adjustment Sensor Error
Zoom Sensor	Zoom Assembly Sensor Error

Troubleshooting Guide

If a problem is suspected, first try recalibrating the luminaire to prompt an error message. The chart below provides possible causes and remedies for various error messages and/or symptoms.



CAUTION: Some troubleshooting is included for reference only. Performing remedies may void product warranty. Refer to the Vari-Lite Limited Warranty card included with the product.

Table A-2: Troubleshooting Guide

Message	Symptom	Description	Possible Cause/Remedy
Lamp Power Douse	Lamp does not strike upon start-up	Lamp Off option is configured	- Reconfigure lamp startup option in Lamp config menu.
n/a	Lamp douses frequently	Lamp Douse	Fan failure... - check head and enclosure fans for proper operation. Ballast overheating... - operating within the specified ambient temperature? - check enclosure vents for debris / dirt. - check fan settings in menu. - check enclosure fans for proper operation. NOTE: Upon initial power up, ballast fans will run for a few seconds and then operate as needed. Enclosure vents must be clear of debris and dirt to allow proper airflow.
n/a	Lamp will not strike	Lamp Strike Failure	Lamp cutout switch disengaged... - check lamp cutout switches at lamp box and fan ducts. Bad lamp... - replace lamp. Low input voltage... - check input power (must be 200 to 240 VAC).
n/a	Luminaire behaves oddly	DMX Map Not Matched	Console library not set correctly... - check console library matches DMX map of luminaire.
n/a	Luminaire does not power up	No power	Circuit not energized... - verify circuit breaker (at source) is turned on. Not plugged in... - ensure A/C cable is connected to power source.
n/a	Self tests will not run or software download does not work from luminaire.	DMX Data Input	Detecting DMX data... - disconnect DMX input cable.
n/a	No response to DMX data	DMX Failure	DMX connector disconnected... - check DMX DATA IN connection.
n/a	Erratic control of luminaire	DMX Termination	No DMX termination or termination not correct... - check for DMX terminator. - Luminaire DMX address does not match console patch.

Routine Maintenance

Lamp Removal and Installation



WARNING: Disconnect fixture before relamping. Déconnectez le projecteur avant que le changement de lampe.



CAUTIONS & WARNINGS

- Wear cotton gloves or other covering while installing lamp. Touching lamp glass with bare fingers will leave oil and may cause the lamp to explode or reduce lamp life. If touched, use isopropyl alcohol and cotton cloth to thoroughly clean glass portion of lamp.
- Hot Lamp. Luminaire must remain powered on for 5 minutes after dousing lamp. Do not open for 5 minutes after switching off. Lampe chaude. Le luminaire doit rester en marche pendant 5 minutes après avoir éteindre la lampe. Ne pas ouvrir pendant 5 minutes après la coupure.
- Risk of exposure to excessive ultraviolet radiation. Do not operate without complete lamp enclosure in place or when lens is damaged. Risque d'exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le boîtier complet de lampe mis en place ou lorsque l'objectif est endommagé.

To replace lamp:

- Step 1. Ensure power is completely removed from luminaire.
- Step 2. Set the luminaire head horizontally.
- Step 3. Engage tilt lock to secure luminaire head in position.
- Step 4. At back of luminaire, using #2 Phillips screwdriver, remove lamp socket cover by loosening the two quarter-turn captive screws. Note: lamp socket cover is connected with a safety tether.

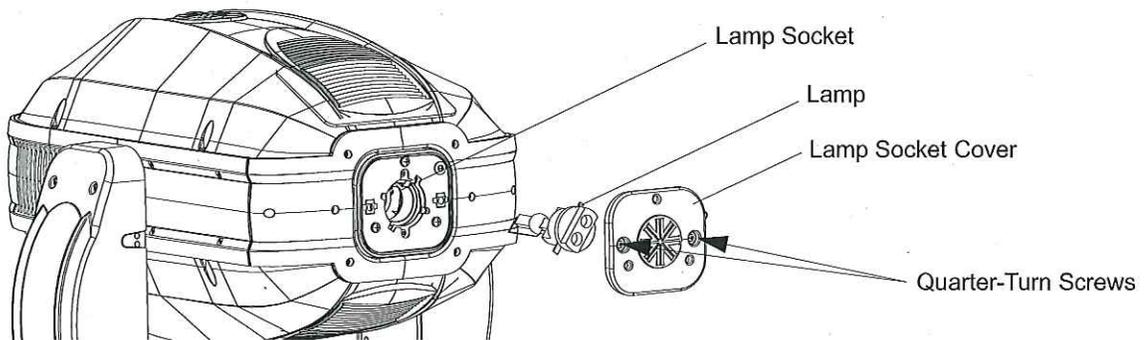


Figure A-1: Lamp Socket Cover Removal

- Step 5. To remove lamp, grasp lamp base by hand, twist lamp counter-clockwise until lamp's tabs align with slots in lamp socket (see [Figure A-2](#) on [page 77](#) for more information), and remove lamp by pulling it straight out of socket.

- Step 6. Remove replacement lamp from shipping box.
- Step 7. As shown in [Figure A-2](#), align replacement lamp tabs with lamp socket.

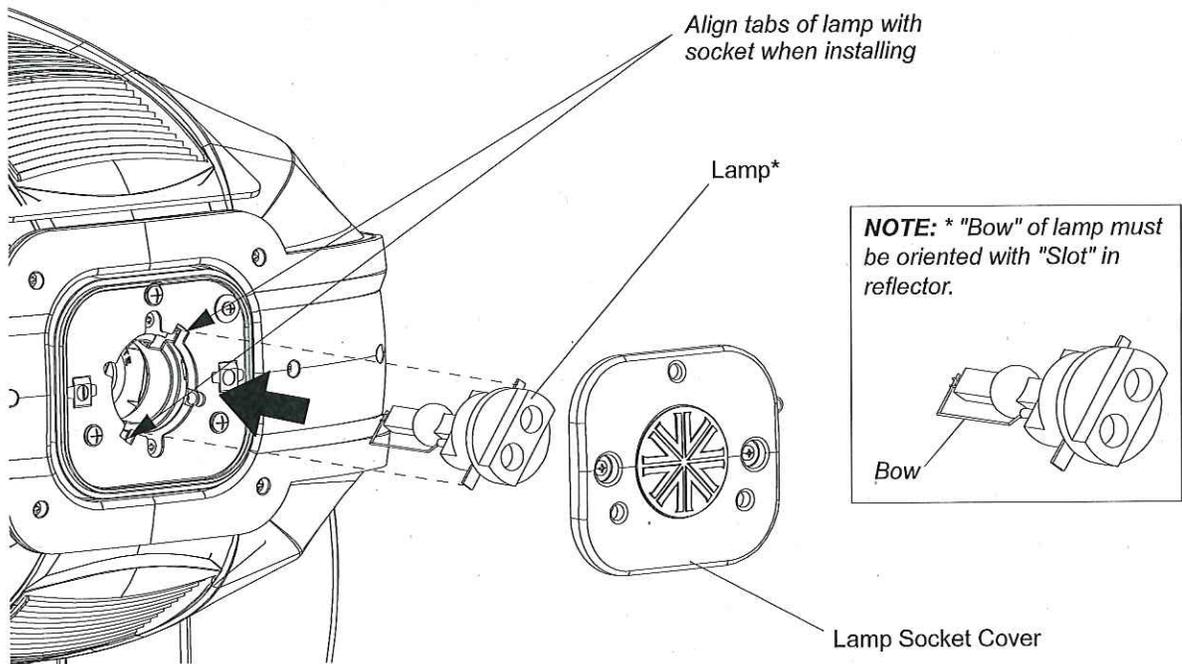


Figure A-2: Lamp Installation

- Step 8. Install lamp fully into lamp socket, taking care not to touch lamp glass.
- Step 9. Turn lamp clockwise to seat lamp into socket. Lamp base should be aligned as illustrated in [Figure A-3](#).

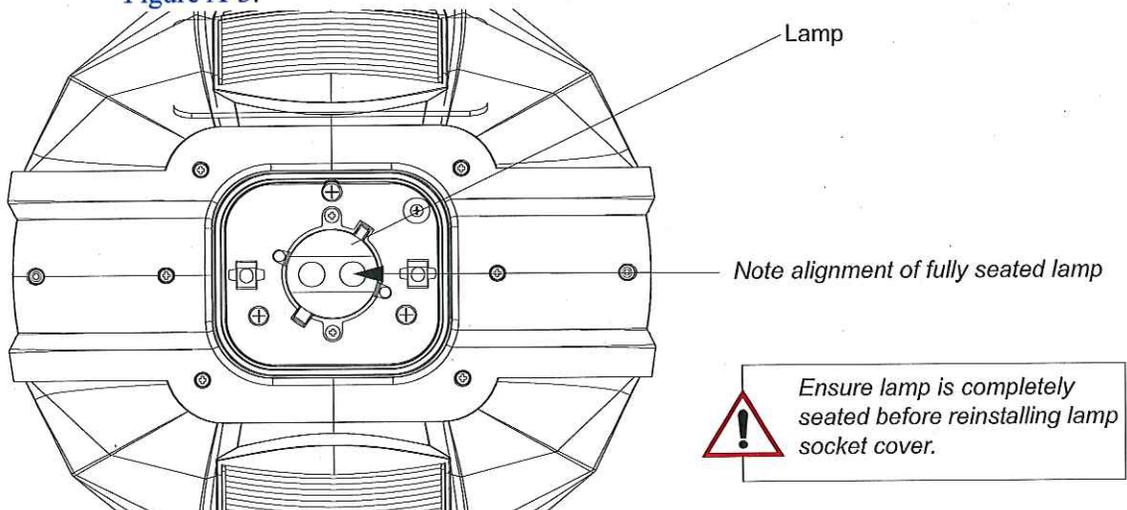


Figure A-3: Installed Lamp

- Step 10. Reinstall lamp socket cover. Make sure safety tether is completely encapsulated within lamp socket cover.
- Step 11. Disengage tilt lock to allow luminaire head to move freely.
- Step 12. Align lamp as described in [“Align Lamp For Maximum Beam Irradiance”](#) on page 19.

Fixed Color Wheel Filter Removal and Installation

To remove and replace fixed color filters:

Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

Step 2. Remove power from luminaire and allow luminaire to cool completely.

Step 3. Depending on which color filter wheel you need to access, do the following:

- a. For Fixed Color Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure A-4](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
- b. For Fixed Color Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure A-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

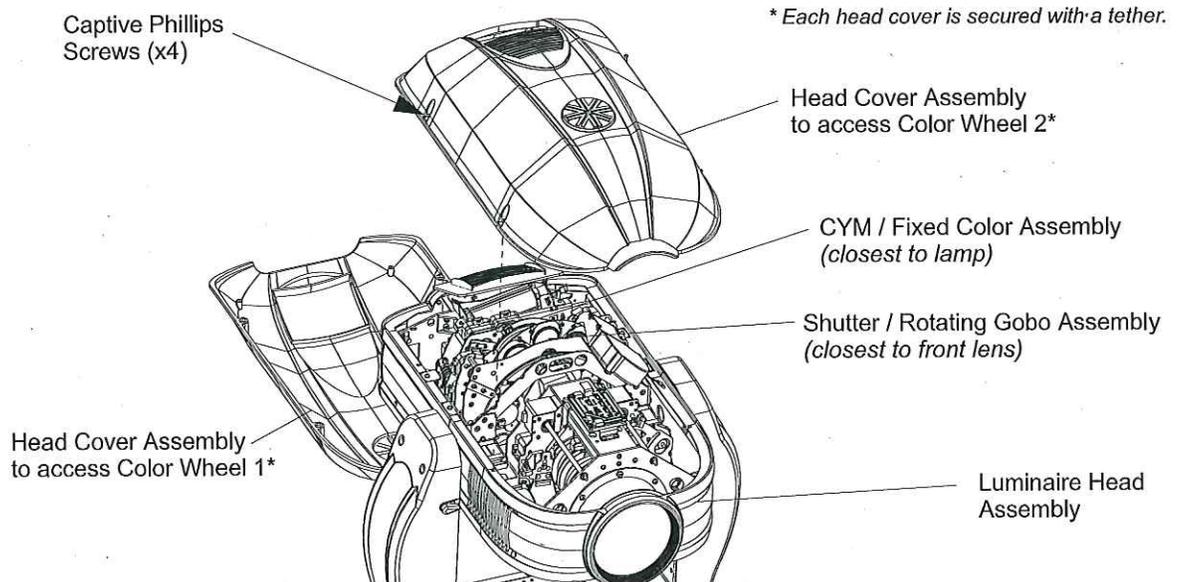


Figure A-4: Replacing Fixed Color Filters



CAUTION: Wear protective gloves or other protective covering while handling filters to avoid leaving fingerprints. Filters are extremely fragile and can break if not handled carefully. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

Note: For standard fixed color filters, refer to [“Fixed Color Wheel 1”](#) on page 28 or [“Fixed Color Wheel 2”](#) on page 29

- Step 4. At fixed color wheel, slowly rotate wheel by hand until filter to be removed is visible on assembly as shown in Figure A-5.
- Step 5. At filter to be removed, (1) press filter out of fixed color wheel with fingers and (2) guide filter up and away from fixed color wheel.

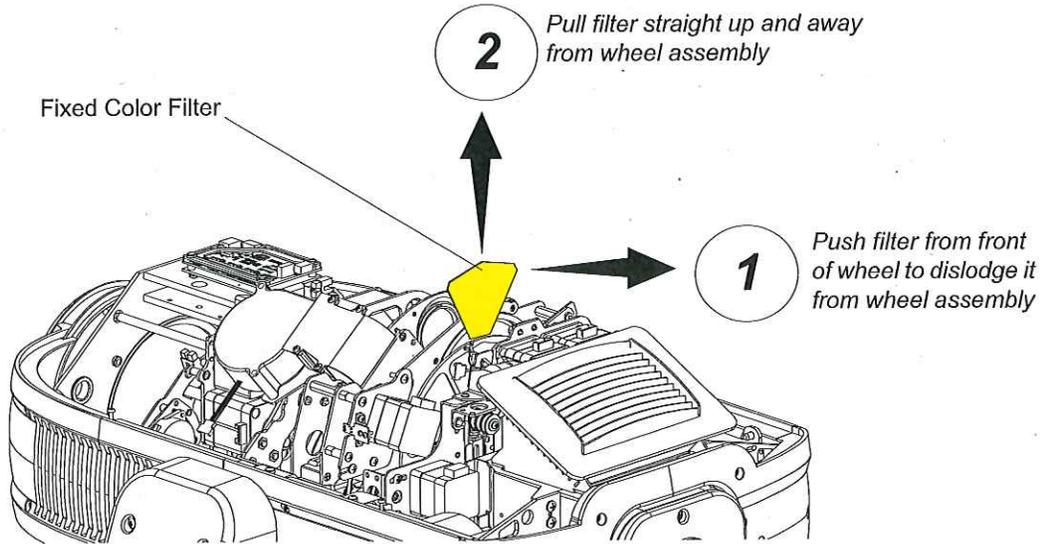


Figure A-5: Removing Fixed Color Filters

- Step 6. Install replacement filter into slot. Note orientation of fixed color filter as indicated in Figure A-6. Make sure filter is inserted and secured by fixed color wheel retaining clip as shown in Figure A-6.

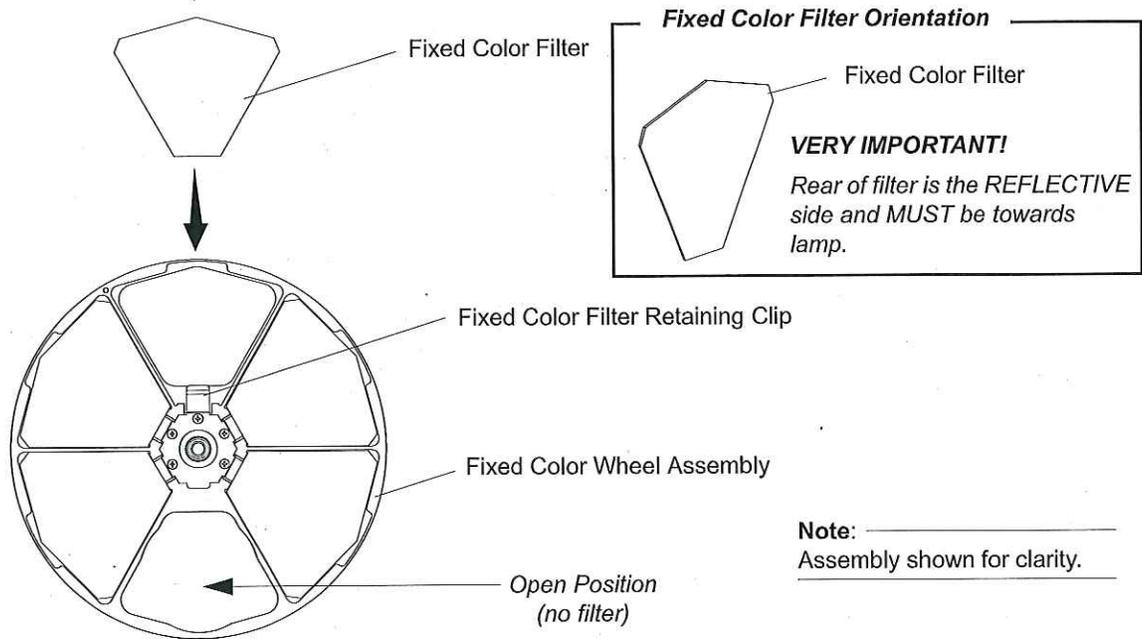


Figure A-6: Installing Fixed Color Filters

- Step 7. After filter is installed, reinstall head cover(s).

Rotating Gobo Removal and Installation



CAUTION: VL4000 spot luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty.

To remove and replace rotating gobos:

Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

Step 2. Remove power from luminaire and allow luminaire to cool completely.

Step 3. Depending on which rotating gobo wheel you need to access, do the following:

- a. For Rotating Gobo Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure A-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
- b. For Rotating Gobo Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure A-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

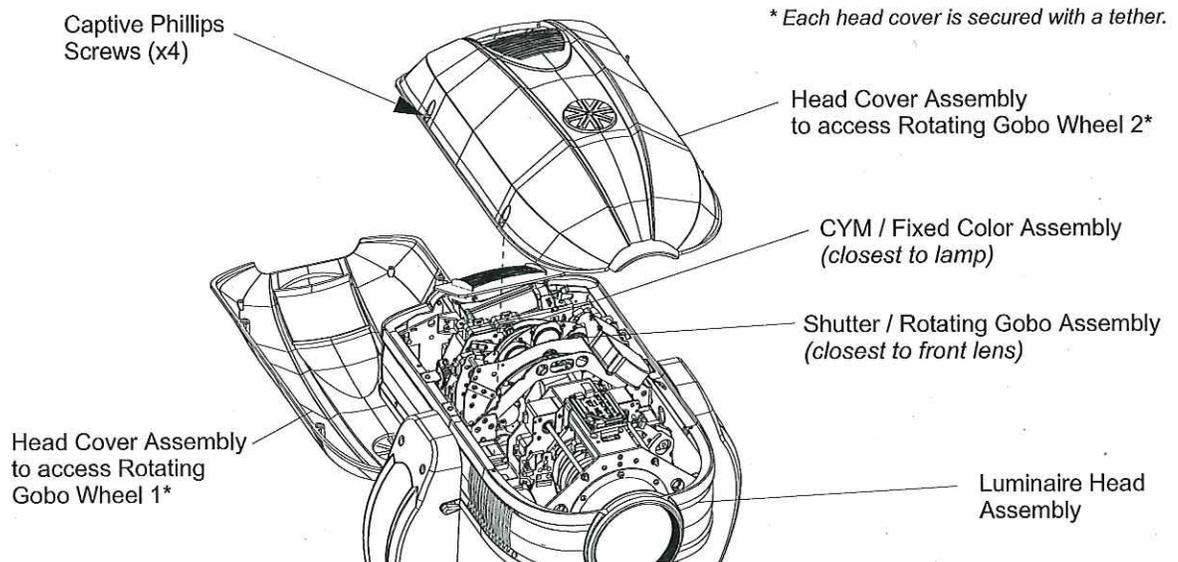


Figure A-7: Replacing Rotating Gobos



CAUTION: Wear protective gloves or other protective covering while handling gobos to avoid leaving fingerprints. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

Note: For the standard load of rotating gobos, refer to “Rotating Gobo Wheel 1” on page 30 or “Rotating Gobo Wheel 2” on page 31

- Step 4. At rotating gobo wheel, slowly rotate wheel by hand until gobo to be removed is visible on assembly.
- Step 5. Grip gobo assembly and pull up to remove from luminaire head.
- Step 6. **Before installing gobo assembly into rotating gobo wheel assembly**, make note of relationship between carrier and main gear slot as illustrated in **Figure A-8**.
- Align gobo assembly gear timing marks **WITH**...
 - Slot in main gear on gobo wheel assembly. You may have to rotating gear by hand for alignment.

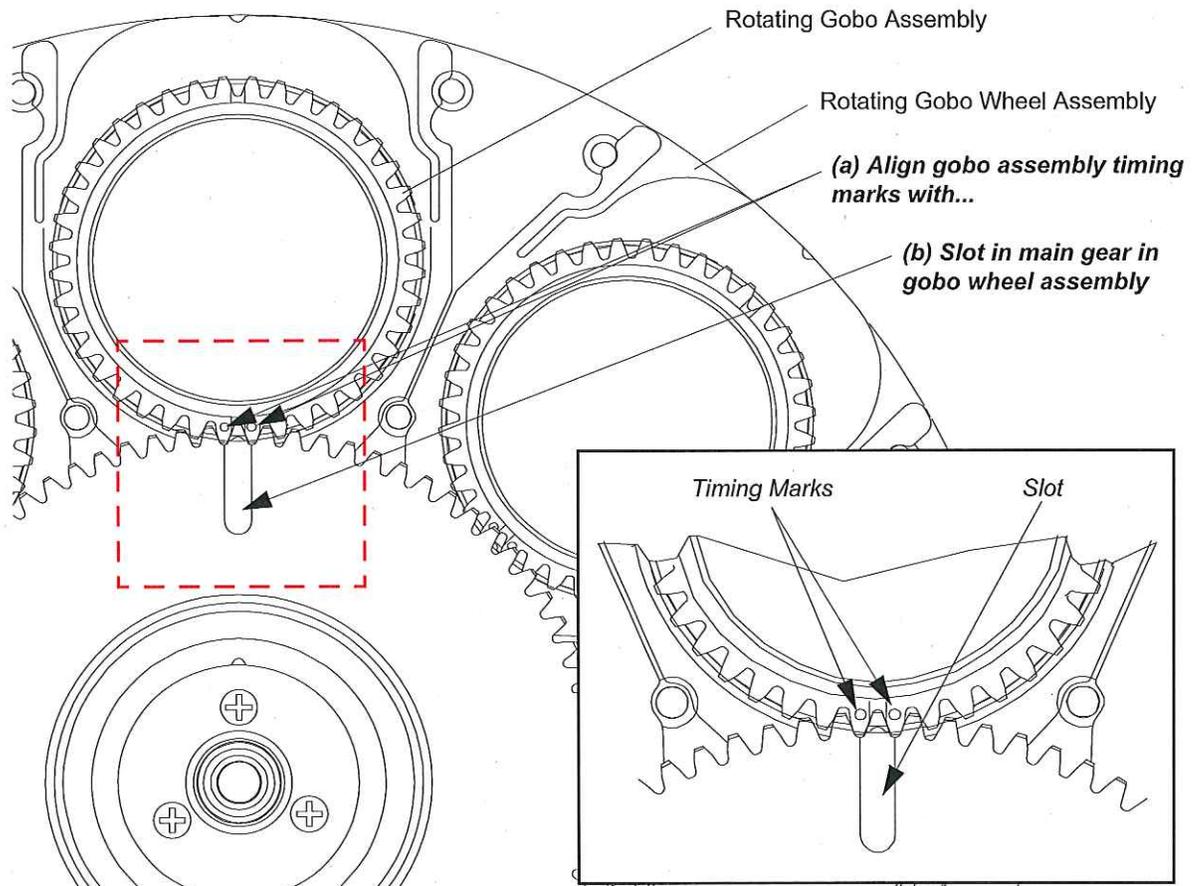
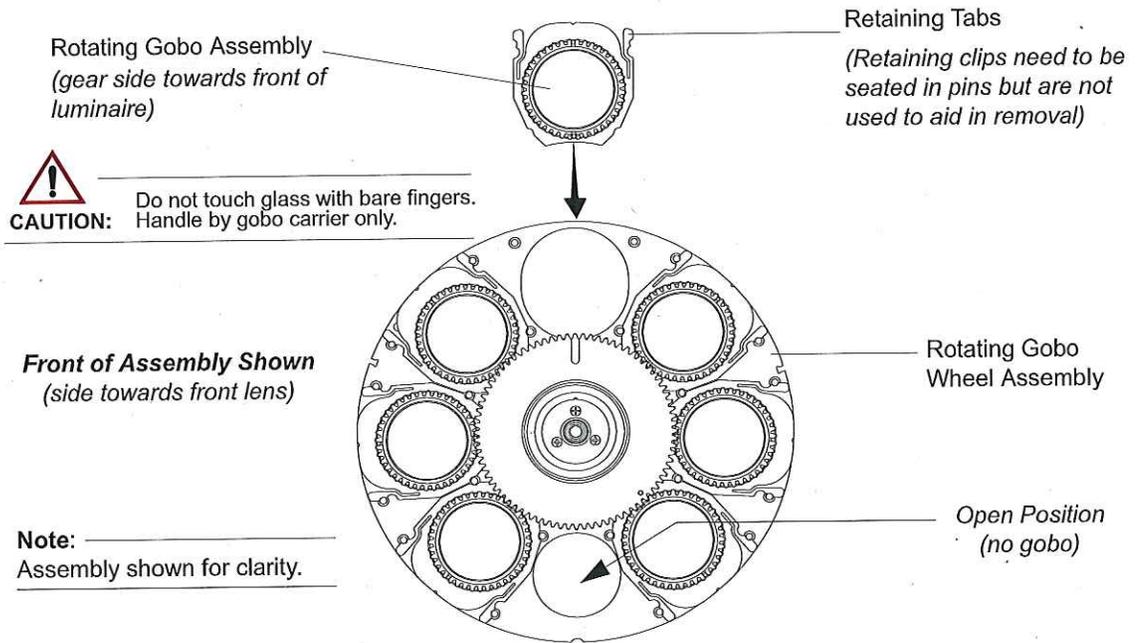


Figure A-8: Rotating Gobo Wheel - Gobo Clocking

- Continued Next Page -



Rotating Gobo Assembly Orientation

VERY IMPORTANT!
Side shown (to right) is non-reflective side. The non-reflective side must face the front lens.
Rear of gobo is the REFLECTIVE side and MUST be towards lamp.
VL4000 spot luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty.

Rotating Gobo Assembly

Figure A-9: Rotating Gobo Wheel - Gobo Installation

- Step 7. After ensuring main gear slot and gobo assembly timing marks are properly aligned (as described in Step 7), install replacement rotating gobo assembly into gobo position. Note orientation of rotating gobo assembly as indicated in [Figure A-9](#).
- Step 8. After rotating gobo assembly is installed, reinstall head cover(s).

Animation Wheels Removal and Installation

To remove and replace animation wheels:

- Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

- Step 2. Remove power from luminaire and allow luminaire to cool completely.

- Step 3. Depending on which animation wheel you need to access, do the following:
- For Animation Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure A-10](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
 - For Animation Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure A-10](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

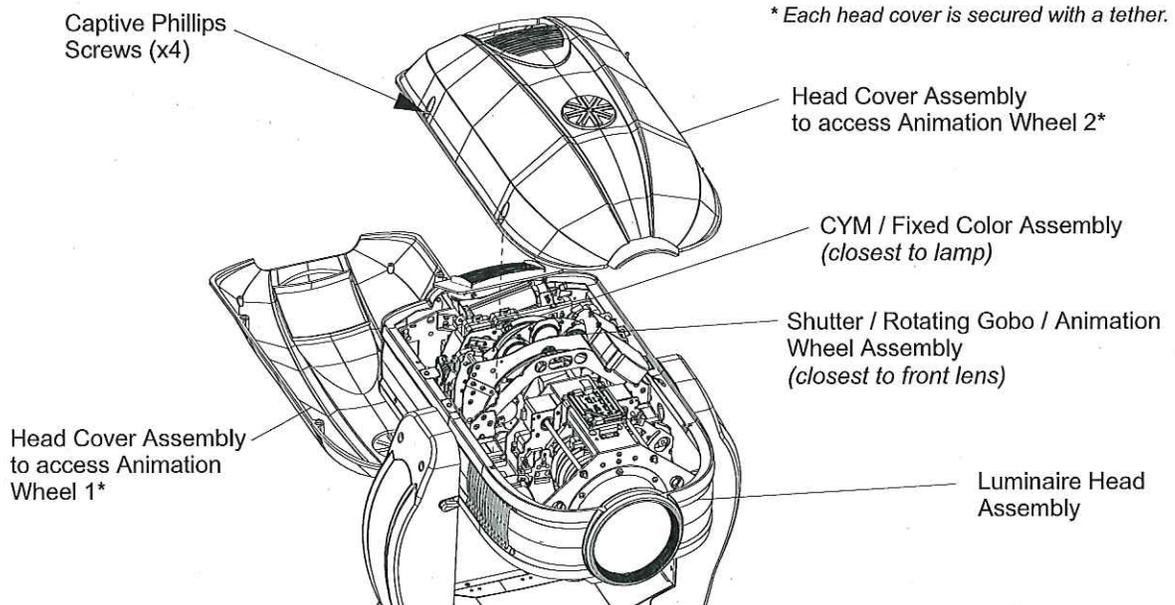


Figure A-10: Replacing Animation Wheels



CAUTION: Wear protective gloves or other protective covering while handling animation wheels to avoid leaving fingerprints. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

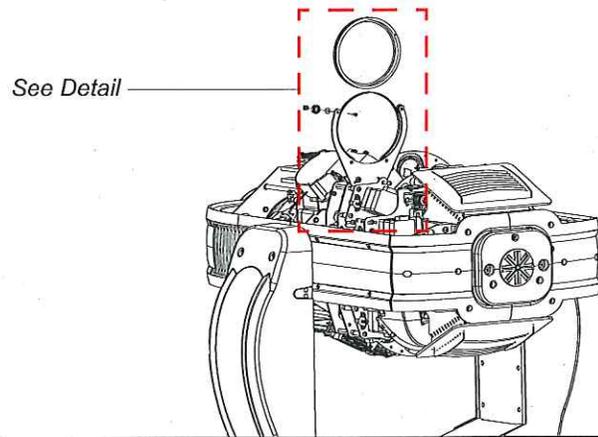
Note: For the standard load of animation wheels, refer to [“Animation Wheel 1 - Dichro*Fusion”](#) on page 32 or [“DMX Operation”](#) on page 33.

- Step 4. Loosen screw on bulkhead so animation arm can swing out
- Step 5. Remove one screw from animation frame.

CAUTION: Be careful not to lose belt bearing, washer, screw or post. These will be required for reassembly and installation.

- Step 6. Slip belt off of animation wheel. Remove wheel.

Note:
Animation wheel 2 shown.
Information same for both wheels.



Animation Wheel Assembly (Detail)

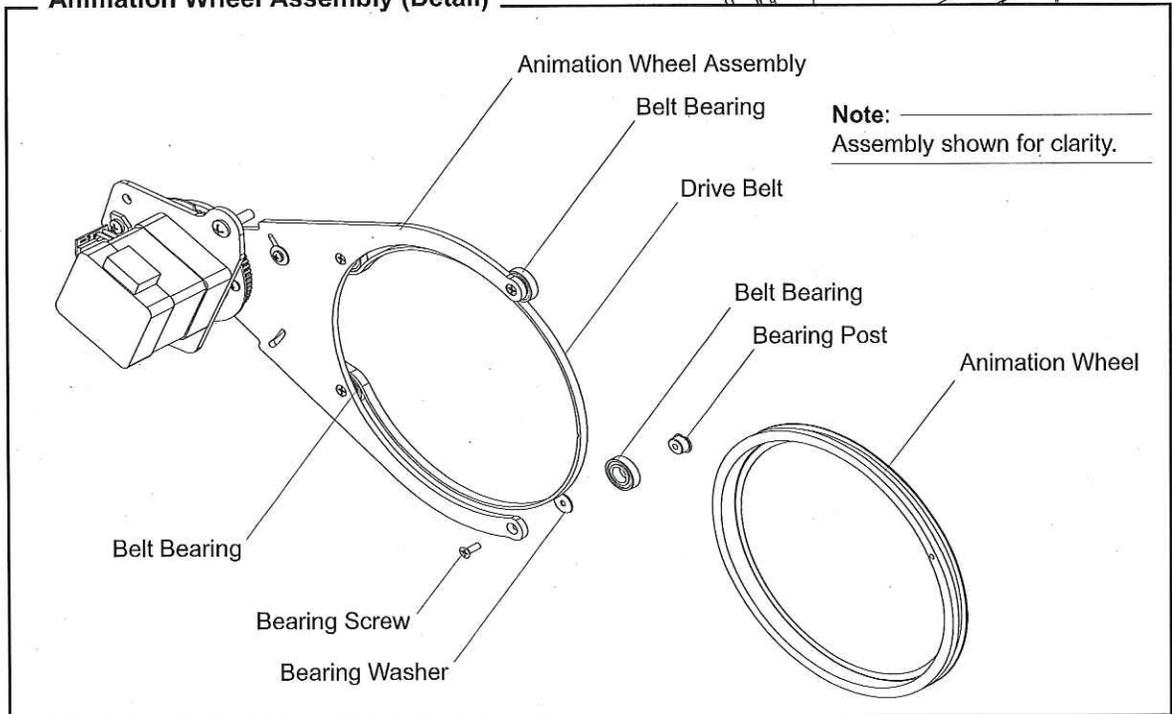


Figure A-11: Animation Wheel Removal & Installation

- Step 7. Slip belt around new wheel. Seat on all three bearings.
- Step 8. Reassemble post onto bearing and washer. Hand tighten down with screw.
- Step 9. Swing animation arm back into beam area and hand tighten down bulkhead screw.
- Step 10. After animation wheel is installed, reinstall head cover(s).

Cleaning Optical Lenses and Filters



WARNING: Remove power from luminaire before performing maintenance.



WARNING: Acetone is a harsh cleaning agent and solvent. Acetone is very flammable. Please handle acetone according to manufacturer's safety instructions and precautions.

The front lens, optics/color filters, and reflector may require cleaning after extended use.

- **FRONT LENS:** Use a isopropyl alcohol with a soft, lint-free cloth to clean the front lens.
- **OPTICS/COLOR FILTERS/ GOBOS/ANIMATION WHEELS:** Use Acetone or Isopropyl Alcohol along with a soft, lint-free cloth to clean the optics/color filters.
- **REFLECTOR:** Use Acetone or Isopropyl Alcohol along with a soft, lint-free cloth to clean the reflector.



CAUTION: Do not continuously rub color filters or reflector - it may damage or remove the optical coating.

V-01

Traxon Media Tube

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

Type:
V.01
BUF14-6065

traxon

Media Tube[®] RGB

Photometrics

SOURCE SPECIFICATIONS

Source: High Intensity power light emitting diodes 40 LEDs

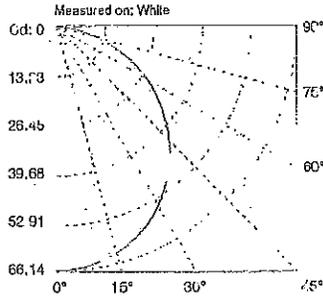
Optics: 120°

Cover Lens: None - Clear silicone potting (Direct View)

CCT: -

CANDELA DISTRIBUTION

MECHANICAL DATA



Color	Luminous Flux (lm)
White	189.37
Red	59.82
Green	114.88
Blue	18.74

ILLUMINANCE AND DISTANCE

	Center Beam LUX	Beam Width	
		V	H
1m	66	2.98m	3.00m
2m	17	5.95m	6.01m
3m	7	8.93m	9.01m
4m	4	11.87m	12.01m
5m	3	14.80m	15.00m

For foot candelas by 10.7

① Vert. Spread: 112.2°

② Horiz. Spread: 112.6°

For foot m multiply by 2.28

IES and LDT files for Direct View and Diffused are available for download from the Traxon website

WWW.TRAXONTECHNOLOGIES.COM

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Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

Type:
V-01
RUF 14-6085

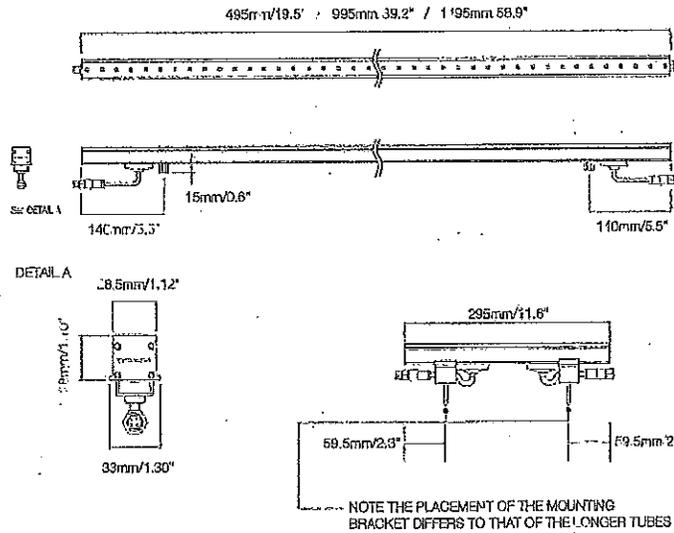
traxon

Media Tube® RGB

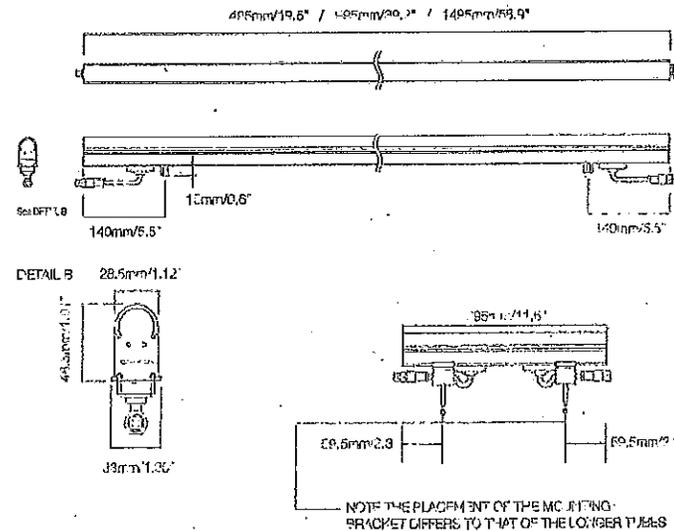
Dimensions

TECHNICAL DRAWING

Media Tube® RGB – Direct View



Media Tube® RGB – Diffused



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021 V2.2

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

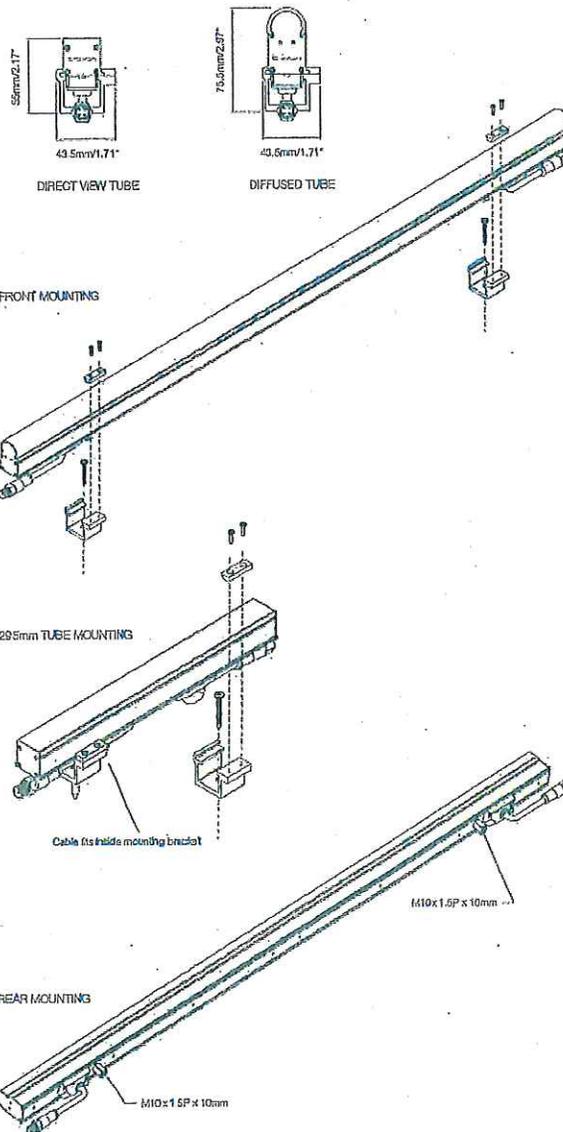
Type:
V601
BUF-14-6065

traxon

Media Tube® RGB

Mounting

TECHNICAL DRAWING



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02/16 V1.2

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

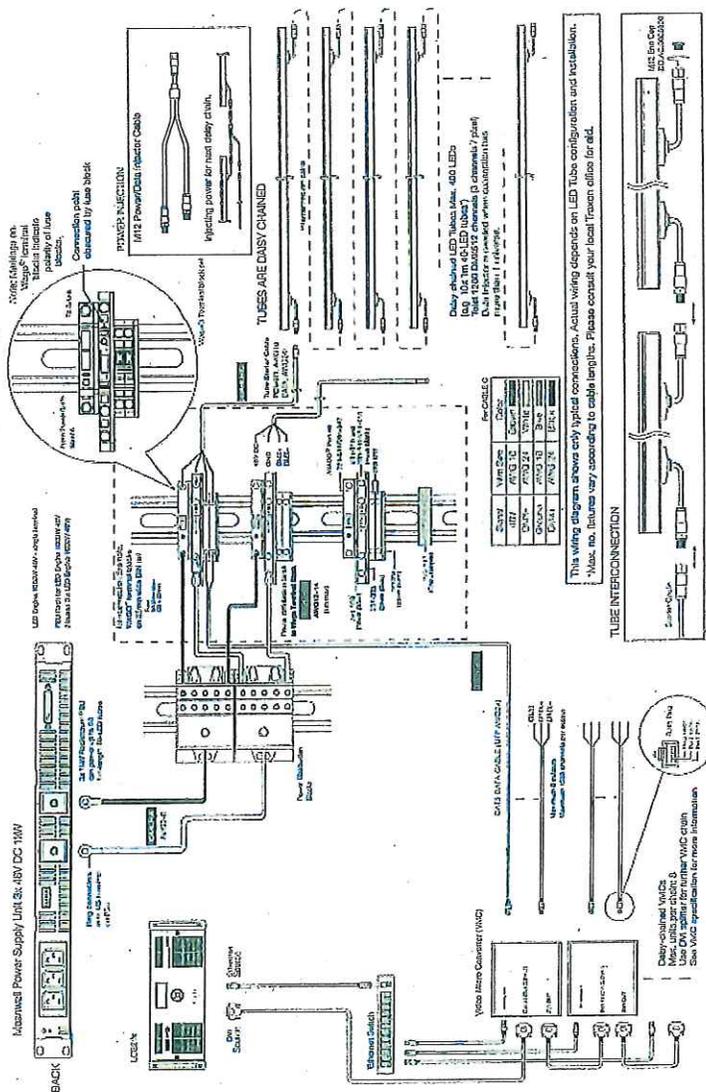
Type:
V-01
BUF14-6085

traxon

Media Tube® RGB

System Diagram

SYSTEM DIAGRAM



Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

Type:
V-01
8UF 14-6085

traxon

Media Tube® RGB

Ordering

FIXTURES

Model No.	Description	Item Code
TU.CR.0314002	Media Tube® Direct View 295 RGB 12PXL	AA558820155
TU.CR.0014001	Media Tube® Direct View 495 RGB 20PXL	AA558740055
TU.CR.0114001	Media Tube® Direct View 995 RGB 40PXL	AA558920155
TU.CR.0214001	Media Tube® Direct View 1495 RGB 60PXL	AA558790155
TU.DR.0314002	Media Tube® Diffused 295 RGB 12PXL	AA557930055
TU.DR.0014002	Media Tube® Diffused 495 RGB 20PXL	AA558860055
TU.DR.0114002	Media Tube® Diffused 995 RGB 40PXL	AA557220155
TU.DR.0214002	Media Tube® Diffused 1495 RGB 60PXL	AA558930055

STANDARD ACCESSORIES (included in price)

Model No.	Description	Item Code
N/A	2 x Tube Mounting Brackets & Mounting Plates and 4 x CSK Head Screw M3x12	N/A

OPTIONAL ACCESSORIES

Model No.	Description	Item Code
DO.AC.000800	Connector End Cap M12	AA438670055

EX-CONTROL

Model No.	Description	Item Code
160185	Video Micro Converter (DMX/pix)	AA438940131
160194	Video Micro Converter Garage (Optional)	AA623920031
EN.BX.0000001	Butler XT2	AA557270131
160174	Butler XT2 Garage (Optional)	AA556660031
EN.BU.0000001	Butler S2	AA624080072
AC.BG.0000001	Butler S2 Garage (Optional)	AA611900031
EN.LC.9400000	LCE2 fx	AA629460035

EX-CONNECT

Model No.	Description	Item Code
TU.AC.0001201	M12 Starter Cable (Open Wire), 5m (18AWG)	AA556480055
TU.AC.000501	M12 Starter Cable (Open Wire), 20m (18AWG)	AA438710055
TU.AC.0001111	M12 Starter Cable, 35m (18AWG)	AA556470055
DO.AC.1000001	M12 Interconnection Cable, 140mm	AA558450065
TU.AC.0200201	M12 Interconnection Cable, 1.5m (18AWG)	AA438680055
TU.AC.0200101	M12 Interconnection Cable, 4m (18AWG)	AA556510155
TU.AC.0000101	M12 Power/Data Injector Cable	AA556410055
TU.AC.090020*	WAGO Terminal Block Set	AA558430135
TU.AC.9900000	6A SB Fuse (100pcs)	AA612880055

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02/11/12

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
TU.DR.0214002 MEDIA TUBE
DIFFUSE 1495 RGB 60PXL
Notes:

Type:
V-01
BU-00-0035

traxon

Media Tube® RGB

Ordering

IXEPOWER

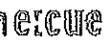
Model No.	Description	Item Code
PS.IE.0011100	LED Engine 1000W Indoor 48V	AA5571401HA
PS.AC.0500100	LED Engine Garage (for 3 pcs 1000W Indoor PSU)	AA6284800HA
PS.OB.0011002	LED Engine 240W Outdoor 48V	AA5572001HA

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2011VZ

Submitted by Lightspec	Job Name: GRAIN ELEVATORS AND BRIDGES PHASE 1	Catalog Number: 5 YEAR WARRANTY	Type: 
 Your Complete Light Source	Notes:	BUF14-6085	

traxon 
AN OSRAM BUSINESS

Traxon Technologies
20 Murray Hill Parkway, Suite 210
East Rutherford, NJ 07073
Telephone+1 (201) 508 1570
Fax+1 (201) 508 1589
Email info@traxon-usa.com
www.traxontechnologies.com

Warranty - Americas

Buyer agrees, when placing orders for and accepting the products listed below (each, the "Product"), to comply with the Traxon General Sales Terms and Conditions and the following terms and conditions of this Warranty Statement.

- a. Upon delivery, the Buyer shall conduct an incoming inspection as to the quantity and quality of the Product. If no objection to the quantity or apparent defect in quality is raised within fourteen (14) days after delivery, the Product shall be deemed to be in full compliance with specifications and quality standards, and to have been accepted by the Buyer.
- b. The Product is warranted to perform in accordance with Traxon's quality standards and published specifications during the warranty claim period (the "Claim Period"), as set forth below. The Claim Period for Standard Product, defined hereafter, is (i) five (5) years from the original delivery date or invoice date, whichever is earlier, or if such date is unknown, from the date of manufacture; or (ii) for such other period as set forth in the attached Annex, or if not in the Annex, in Traxon's published catalogue or website. Standard Product is product included in the product list in the attached Annex, or if not in the Annex, in Traxon's published catalogue or website. If a non-standard Product of Traxon is deemed to be defective, Buyer must raise a claim within the period agreed to by Traxon and Buyer and specified in the applicable order confirmations or corresponding invoices.
- c. Traxon reserves the right to (i) examine all Product to determine the cause of failure and patterns of usage and (ii) be the sole judge as to whether a Product is defective and covered under this Warranty Statement. Upon confirmation by Traxon that a defect exists, Traxon shall repair the Product and/or replace the Product with the same or similar product. This warranty does not include labor (e.g. removal, installation and/or transportation of Product and/or insurance thereon) of the Product. For replaced or repaired Products, the Claim Period shall start from the original delivery date or invoice date, whichever is earlier, or if such date is unknown, from the date of manufacture.
- d. For the avoidance of doubt, the warranty does not extend to:
 - (i) improper use or application of Product for purposes not in compliance with installation guidelines, user manuals, guidance, instructions, specifications or the like issued by Traxon;
 - (ii) damage to Product caused by installation not authorized by Traxon;
 - (iii) damage to Product caused by Buyer or a third party outside of the control of Traxon; or
 - (iv) damage to Product caused by use of Product in combination with other components or products not supplied by Traxon;
 - (v) Product where the original identification or marking information has been altered or removed; or
 - (vi) failure or defects caused by fire, fluctuations of electric voltage or current, or any natural disasters, force majeure, or temperatures beyond the scope provided in specifications or other instructions or guidelines.
- e. Return of defective Product for repair and replacement shall follow procedures set forth in Traxon's Return Policy.

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
5 YEAR WARRANTY

Notes:

Type:

BUF14-6085

V-01

traxon **technologies**
AN OSRAM BUSINESS

Traxon Technologies
20 Murray Hill Parkway, Suite 210
East Rutherford, NJ 07073
Telephone+1 (201) 508 1570
Fax+1 (201) 508 1589
Email info@traxon-usa.com
www.traxontechnologies.com

- f. Except as expressly provided for herein, no other warranty, whether express or implied, including the warranties of merchantability and of fitness for a particular purpose, is given by Traxon and all such warranties are hereby excluded to the extent possible. The warranties stipulated herein shall be the sole remedy of the Buyer and the sole liability of Traxon for the Product. IN NO EVENT SHALL TRAXON BE LIABLE FOR ANY OTHER COSTS OR DAMAGES, INCLUDING LOST PROFITS OR REVENUES, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES. some states OR JURISDICTIONS do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply. IN NO EVENT SHALL TRAXON'S TOTAL LIABILITY FOR ANY REASON ARISING HEREUNDER EXCEED THE PURCHASE PRICE PAID BY BUYER FOR PRODUCT.
- g. Traxon reserves the right to change or amend this Warranty Statement from time to time without further notice to Buyer.

Version: Dec 2013



5. CARE AND MAINTENANCE

Traxon™ products are of superior design and quality and should be treated with care. The recommendations below will help fulfill any warranty obligations and gain good use and longevity from the products.

- Do not attempt or use the product(s) until you read and understand the installation instructions. Failure to adhere to these instructions could result in serious injury or property damage.
- Do not use product(s) if cables are damaged.
- Do not connect cables and connectors when wet or in wet area. Moisture on bare connectors can cause electric shock and damage to product(s).
- Do not use product(s) in extreme heat environment. Ensure there is sufficient airflow and use cool air circulation if required.
- Do not drop, knock, or shake product(s). Rough handling can damage the electronics and void the warranty.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean products. Wipe with a damp cloth on housings and a dry cloth on electronics to remove dirt or dust.
- Do not attempt to service or repair the product(s) unless done by an authorized service personnel. Contact your local Traxon office or distributor for details.
- If the product is not working as specified, please contact your nearest authorized service center or Traxon Technologies office for assistance.

6. TROUBLESHOOTING



CAUTION: Ensure power supply is OFF when disconnecting / connecting cables.

Problem	Cause	Possible Solutions
Product does NOT light up after installation	Incorrect power connection	<ul style="list-style-type: none"> • Check Mains Power • Check power supply leads and wire connections • Ensure output wires are connected with proper polarity • Check Wago terminal block fuse. If Indicator Lamp is on, either the fuse is not present or it is blown. • Check if LED Engine's secondary output is working as specified.
Shadowing	Light source covered	<ul style="list-style-type: none"> • Check for cables, wires or unwanted debris covering LED light source
Modules are dim	Excess products connected	<ul style="list-style-type: none"> • Ensure the power supplies are not overloaded due to an excess of products connected
Flickering	Incorrect power input/ Excess products connected	<ul style="list-style-type: none"> • Ensure the input voltage is correct • Ensure the power supplies are not overloaded due to an excess of products connected

If problems persist or the product is not working as specified, please contact your nearest authorized service center or Traxon Technologies office for assistance.

F-01 & W-01

Illuminarc Illumipod 54g2IP Optic 15
RGBW & 30RGBW

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
01630939 ILUMIPOD 54 - OPTIC 15

Type:
F01

Notes:

ILUMINARC®

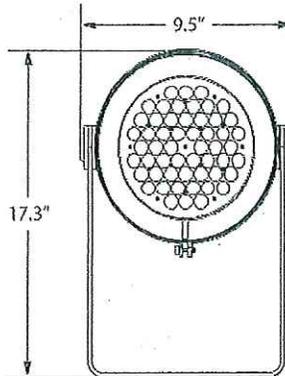
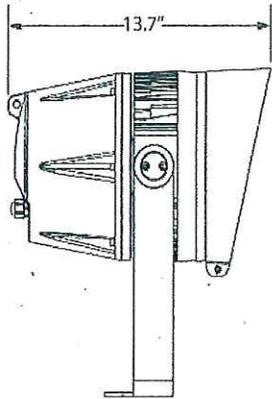
ILUMIPOD 54g2 IP OPTIC 15 RGBW

Item Number: 01630939

Client: _____

Project: _____

Date: _____ Type: _____



LIGHT SOURCE & OPTICAL SPECIFICATIONS

Light Source: 54 LEDs (15 red, 15 green, 15 blue, 9-white) 3 W (930 mA)
Light Source Lifespan: 50,000 hours based on LED manufacturer's specifications
Installed Optics: 15°

Beam Angle: 11°

Field Angle: 20°

Lumens: 4,586

Base Illuminance: 3,411 lux @ 5 m

Efficacy: 28.8 lm/W

Color Temperature Presets: N/A

Minimum Distance to Illuminated Surface: 4 in (92 mm)

CONSTRUCTION & PHYSICAL SPECIFICATIONS

Length: 13.7 in (349 mm)

Width: 9.5 in (242 mm)

Height: 17.3 in (439 mm)

Weight: 25 lb (11.3 kg)

Color: Off white

Ingress Protection Rating: IP67

Housing Material: Cast aluminum

Lens Cover: Impact resistant glass

Installation Orientation: Any

CONTROL SPECIFICATIONS

Control Protocol: USITT DMX-512a

Stand Alone Control: N/A

Remote Addresser: Ilumicode

Data Connection: 9.6 ft (2.92 m) Waterproof cable

ELECTRICAL SYSTEM SPECIFICATIONS

Input Voltage: 100 to 277 VAC, 50/60 Hz (auto ranging)

Power and Current: 168 W, 1.42 A @ 120 V

161 W, 0.74 A @ 230 V

158 W, 0.63 A @ 277 V

Power Supply: Electronic internal

Dimmer: Electronic

Power Linking: N/A

Power Connection: 9.6 ft (2.92 m) Waterproof cable

THERMAL SPECIFICATIONS

Cooling: Convection

Startup Temperature Range: -4 °F to 113 °F (-20 to 45) °C

Operating Temperature Range: -40 °F to 113 °F (-40 to 45) °C

Storage Temperature Range: -40 °F to 167 °F (-40 to 75) °C

REGULATORY & VOLUNTARY QUALIFICATION

Certification Listings: MET, CE

Environment: Wet location, IP67

Warranty: 48 month manufacturer's limited warranty (for covered regions only)

WWW.ILUMINARC.COM - INFO@ILUMINARC.COM

Ilumarc reserves the right to make improvements to this product and its specifications at anytime without notice.

ILUMINARC
5200 NW 108th Ave.
Sunrise, FL 33351
+1.954.923.3660

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
01630939 ILUMIPOD 54 - OPTIC 15

Type:
F01

Notes:

ILUMINARC®

ILUMIPOD 54g2 IP OPTIC 15 RGBW

Item Number: 01630939

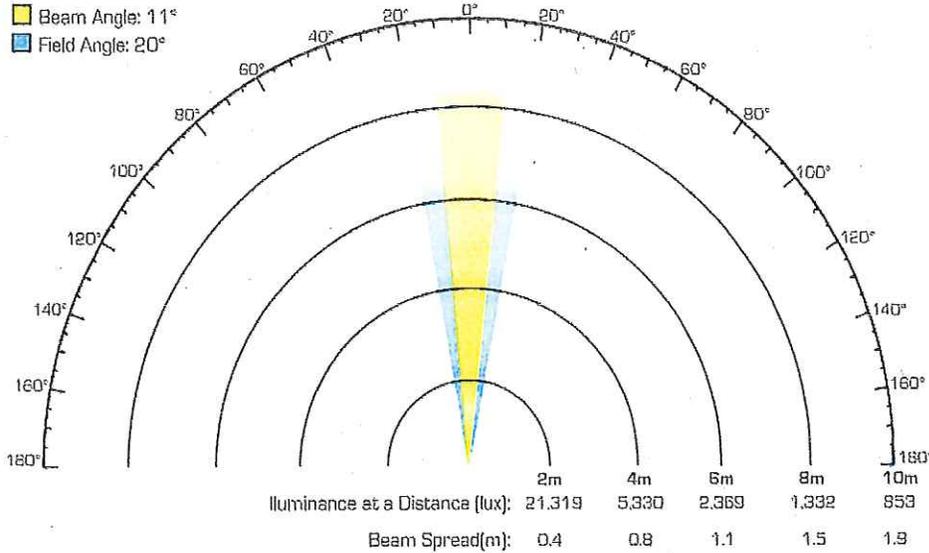
Client: _____

Project: _____

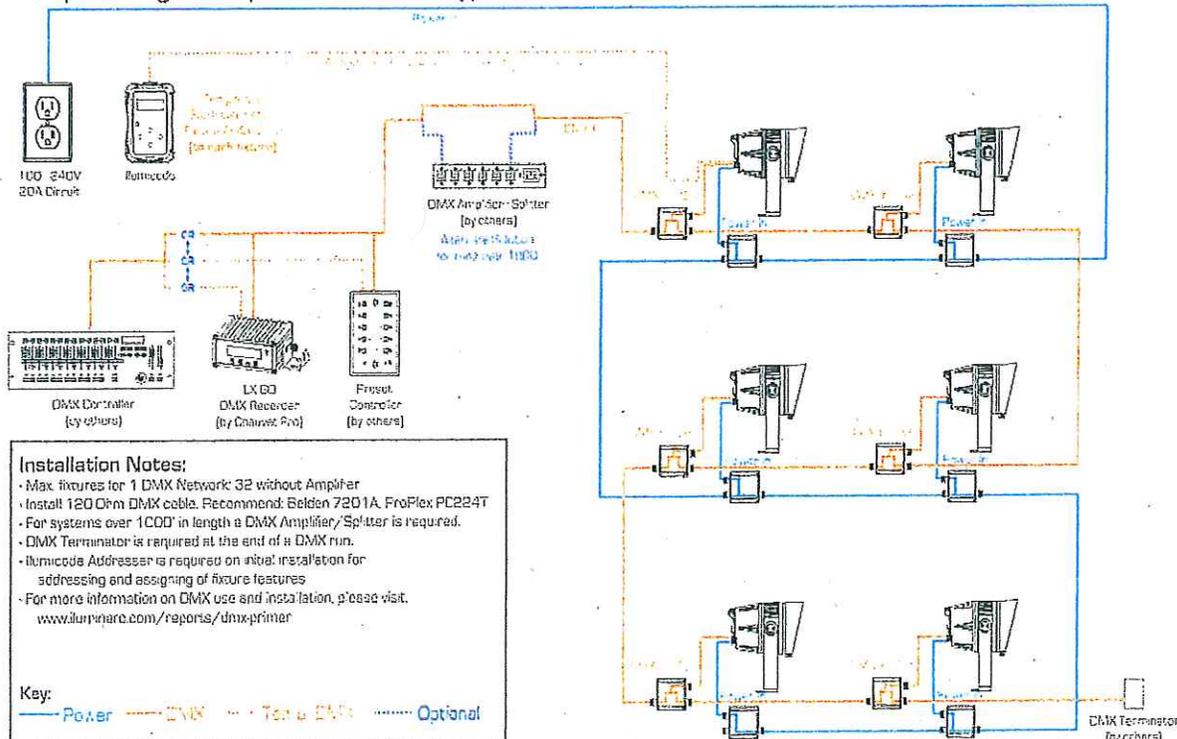
Date: _____ Type: _____

Ilumipod 54g2 IP Optic 15 RGBW

- Beam Angle: 11°
- Field Angle: 20°



Ilumipod 54g2 IP Optic 15 RGBW Typical Installation



WWW.ILUMINARC.COM - INFO@ILUMINARC.COM

Iluminarc reserves the right to make improvements to this product and its specifications at anytime without notice.

ILUMINARC
5200 NW 108th Ave.
Sunrise, FL 33351
+1.954.923.3690

Submitted by Lightspec  Your Complete Light Source	Job Name: GRAIN ELEVATORS AND BRIDGES PHASE 1	Catalog Number: 01630939 ILUMIPOD 54 - OPTIC 15 Notes:	Type: F01
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Thank you for purchasing a ILLUMINARC® product from an authorized ILLUMINARC® dealer. We take great pride in the quality, value, and performance of our products. Please follow the proper operation and maintenance procedures outlined in the accompanying technical documentation. Should you need further technical assistance, e-mail us at the address (on the reverse side) in your region.

LIMITED EXTENDED 4 YEAR WARRANTY FOR UNITED STATES

TERMS

ILLUMINARC® warrants your product for a period of four years (48 months) from the date of purchase, to be free from defects in material and workmanship and failure of the LED light source (see definitions below). This limited warranty is valid only for the original purchaser, is not transferable and is only applicable to products sold within the United States.

For purposes of this limited warranty, failure of the LED light source means that the product fails to emit 70% of the lumen output specified in the product specification prior to the earlier of (i) 50,000 hours of operation (based on L70 testing) or five years from the original date of purchase.

This warranty is limited solely to the above, applies only for the period set forth above, and is contingent upon ILLUMINARC® receiving written notice of the warranty claim within thirty (30) days after the initial discovery of the defect, but in no event later than the expiration of the four (4) year warranty period, along with a description of the defect and the date of its discovery.

No agent, employee or representative of ILLUMINARC® may bind ILLUMINARC® to any terms or conditions beyond the scope of this limited warranty. Any provisions contained in the purchaser's purchase order or any other purchaser document which conflict with the terms and conditions of this limited warranty or which are not expressly set forth in this limited warranty shall be of no force or effect.

The purchase of this ILLUMINARC® product constitutes your acceptance of the terms set forth in this limited warranty. This warranty gives the claimant specific legal rights. The claimant may also have other rights which vary from state to state.

EXCLUSIONS

This limited warranty excludes any defects caused by, resulting from or relating to the following:

- a) normal wear, misuse, abuse, improper handling, tampering or attempts to repair by or on behalf of the owner or any person not authorized by ILLUMINARC®;
- b) damage to the product resulting from acts of God;
- c) exposure to harsh or excessively corrosive environmental conditions (whether indoors or outdoors), including, but not limited to, extreme temperatures, humidity, atmospheric conditions (including salinity and pressure), radiation (UV, infrared, nuclear) and shock;
- d) use of the product in a manner which exceeds the applicable product specification, including, but not limited to, exposure to excessive, insufficient or other voltage conditions;
- e) installation or use of the product not in accordance with the user manual, ILLUMINARC's guidelines (or may be posted on its website at www.illuminarc.com from time to time or otherwise designated by ILLUMINARC®) or applicable building and electrical codes, regulations and standards;
- f) failure to maintain the product in accordance with the user manual;
- g) natural degradation and color shift of the LED source over the course of normal product use;
- h) slight deviations in the specified values of intensity and color that do not affect the functionality of the product; and
- i) use of the product not for its intended purpose.

This limited warranty shall be null and void if the original identification information on the product is missing or has been altered in any manner.

ILLUMINARC® offers no warranty for any products not bearing the name ILLUMINARC® or a ILLUMINARC® brand. Any warranty or other claims relating to any such third party products are the sole responsibility of the manufacturer of such third party products and the purchaser must communicate directly with such third party manufacturer regarding such claims.

LIMITATIONS

IN NO EVENT SHALL ILLUMINARC® BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT OR PUNITIVE LOSS OR DAMAGE OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE PRODUCT OR ANY OTHER GOODS OR ASSOCIATED EQUIPMENT, DAMAGE TO ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES, DOWN TIME COST, INSTALLATION OR LABOR COSTS, OR CLAIMS OF THE PURCHASER'S CUSTOMERS, WHETHER BASED ON WARRANTY, CONTRACT OR NEGLIGENCE, ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THE PRODUCT. CHAUVEY'S MAXIMUM LIABILITY SHALL NOT, IN ANY CASE, EXCEED THE PURCHASE PRICE OF THE PRODUCT THAT GIVES RISE TO THE CLAIM.

EXCEPT FOR THE LIMITED WARRANTY SET FORTH HEREIN, ALL PRODUCTS SOLD BY ILLUMINARC® ARE SOLD "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY AND SPECIFICALLY DISCLAIMED BY ILLUMINARC®.

COSTS

Costs of removal, shipping to ILLUMINARC® or its authorized representative and reinstallation are solely the responsibility of the purchaser. If ILLUMINARC® determines that the product is covered by this limited warranty, ILLUMINARC® will pay for the cost of shipping the repaired or replacement product or part to the purchaser at a location within the 48 contiguous United States through a method and timeline of its choosing. Costs of shipping repaired or replacement products or parts to any locations outside of the 48 contiguous United States is the sole responsibility of the purchaser. If ILLUMINARC® determines that the product is not covered by this limited warranty, the purchaser will have the option to pay for the repair (if the product can be repaired) and the purchaser shall be responsible for the cost of shipping the repaired product to the purchaser. ILLUMINARC® reserves the right, in its sole and absolute discretion, to decline any repair.

OTHER CONDITIONS

Proof of purchase containing the individual product serial number is necessary when making a warranty claim. Current and consistent maintenance records must be maintained for all products covered under this warranty and supplied to ILLUMINARC® upon request (proper maintenance guidelines are detailed in the product user manual). If a product fails within the warranty period and if, upon examination by ILLUMINARC® it is found to have failed for a covered cause, ILLUMINARC® will, at its sole discretion, repair or replace the defective part or product or reimburse the purchaser a pro-rated portion of the purchase price. Should a replacement part or product be discontinued or unavailable, ILLUMINARC® reserves the right, in its sole and absolute discretion, to substitute a comparable replacement product.

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
01630939 ILLUMIPOD 54 - OPTIC 15

Notes:

Type:

F01

BUF14-6085

SERVICE & REPAIRS

Covered Region:

United States
tech@chauvaillighting.com
1-800-762-1084, Option 4
5200 NW 108th Ave.
Sunrise, FL 33351

To secure the best possible service, please follow these simple steps:

Register your product online at <http://www.illumarc.com> as soon as possible.

Enail or call the ILLUMINARC® office in your region to request a return authorization number (RA#). For customers located outside of a ILLUMINARC® covered region, please contact your local distributor. Do not send a product without first securing an RA#. Do not write the RA# directly on the original ILLUMINARC® box. You must write it on a removable sticker, i.e., a shipping label. Please specify your RA# request as a the 5 Year Extended Warranty Plan and provide serial numbers for each RA# requested.

Units must be adequately packed. Double-box all returns and surround product with suitable packing materials, such as Styrofoam peanuts or foam. Any damage from inadequate packing or carrier mishandling is the sole responsibility of the sender.

All shipping charges must be prepaid by the sender. ILLUMINARC® will, at its own expense, return the repaired product to the sender provided that the return address is within the 48 contiguous United States and that the product is still under warranty (proof of purchase required). Please see warranty details at <http://www.illumarc.com>. We will ship the best way, at our discretion. ILLUMINARC® only provides return shipment within the 48 contiguous United States. Return shipment outside of these areas is the sole responsibility of the customer.

PRODUCTS NOT UNDER WARRANTY:

Please notify your ILLUMINARC® service advisor that your product is no longer under warranty when you request your authorization number. Once the unit has been received, you will be contacted and advised of the cost of carrying out any repair unless the cost does not exceed \$35.00 USD, in which case the repair will be performed without seeking your prior approval. Repaired unit(s) will be shipped back to you upon receipt of payment for all work performed and return freight charges.

Warranty on repairs: All repairs have a 60-day limited warranty, valid from the date the repaired unit is delivered to the shipping agent for return to the customer, on replaced parts and repair labor against defects in material and workmanship. The exclusions and limitations set forth in the original limited warranty apply to the repair warranty.

ILLUMINARC® is not responsible for any loss or damage to additional items or accessories that are sent with returned products. ILLUMINARC® cannot be held responsible for delays in shipping.

PLEASE NOTE that it is essential that defective products reach the address set out (above) by the last day of the relevant warranty period at the latest. Late claims will not be considered. This warranty does not confer any rights other than those expressly set out in this warranty and in particular no credit notes will be issued.

ILLUMINARC®

Revised 10.1.12

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
01630930 ILUMIPOD 54 - OPTIC 30

Type:

W01

Notes:

ILUMINARC®

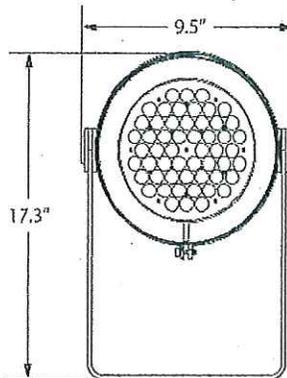
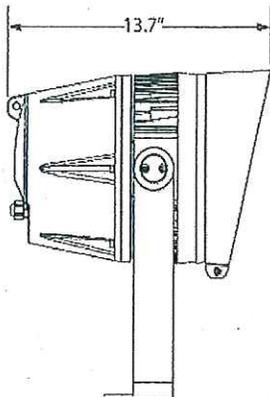
ILUMIPOD 54g2 IP OPTIC 30 RGBW

Item Number: 01630930

Client: _____

Project: _____

Date: _____ Type: _____



LIGHT SOURCE & OPTICAL SPECIFICATIONS

Light Source: 54 LEDs [15 red, 15 green, 15 blue, 9 white] 3 W (930 mA)
Light Source Lifespan: 50,000 hours based on LED manufacturer's specifications
Installed Optics: 30°

Beam Angle: 21°

Field Angle: 39°

Lumens: 4,570

Base Illuminance: 1,038 lux @ 5 m

Efficacy: 28.6 lm/W

Color Temperature Presets: N/A

Minimum Distance to Illuminated Surface: 4 in (92 mm)

CONSTRUCTION & PHYSICAL SPECIFICATIONS

Length: 13.7 in (349 mm)

Width: 9.5 in (242 mm)

Height: 17.3 in (439 mm)

Weight: 25 lb (11.3 kg)

Color: Off white

Ingress Protection Rating: IP67

Housing Material: Cast aluminum

Lens Cover: Impact resistant glass

Installation Orientation: Any

CONTROL SPECIFICATIONS

Control Protocol: USITT DMX-512a

Stand Alone Control: N/A

Remote Addresser: Ilumicode

Data Connection: 9.6 ft (2.92 m) Waterproof cable

ELECTRICAL SYSTEM SPECIFICATIONS

Input Voltage: 100 to 277 VAC, 50/60 Hz (auto-ranging)

Power and Current: 168 W, 1.42 A @ 120 V

161 W, 0.74 A @ 230 V

158 W, 0.63 A @ 277 V

Power Supply: Electronic internal

Dimmer: Electronic

Power Linking: N/A

Power Connection: 9.6 ft (2.92 m) Waterproof cable

THERMAL SPECIFICATIONS

Cooling: Convection

Startup Temperature Range: -4 °F to 113 °F (-20 to 45) °C

Operating Temperature Range: -40 °F to 113 °F (-40 to 45) °C

Storage Temperature Range: -40 °F to 167 °F (-40 to 75) °C

REGULATORY & VOLUNTARY QUALIFICATION

Certification Listings: MET, CE

Environment: Wet location IP67

Warranty: 48 month manufacturer's limited warranty (for covered regions only)

WWW.ILUMINARC.COM - INFO@ILUMINARC.COM

Iluminarc reserves the right to make improvements to this product and its specifications at anytime without notice.

ILUMINARC
5200 NW 108th Ave.
Sunrise, FL 33351
+1.954.923.3690

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
01630930 ILLUMIPOD 54 - OPTIC 30

Type:

W01

Notes:

ILLUMINARC®

Client: _____

Project: _____

ILLUMIPOD 54g2 IP OPTIC 30 RGBW

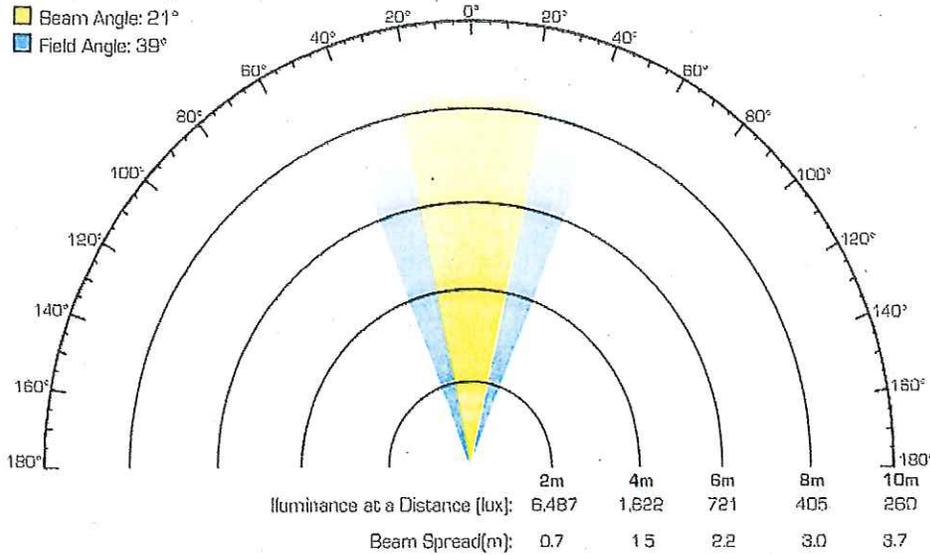
Item Number: 01630930

Date: _____ Type: _____

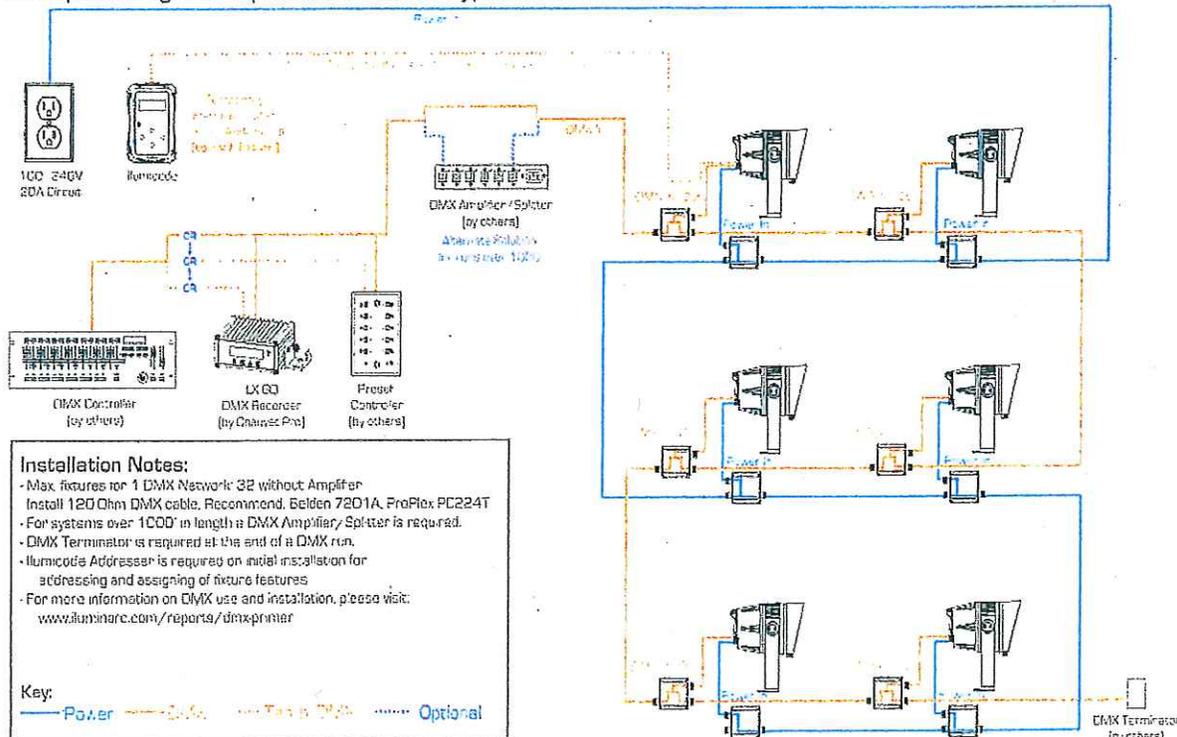
Ilumipod 54g2 IP Optic 30 RGBW

■ Beam Angle: 21°

■ Field Angle: 39°



Ilumipod 54g2 IP Optic 30 RGBW Typical Installation



WWW.ILLUMINARC.COM - INFO@ILLUMINARC.COM

Iluminarc reserves the right to make improvements to this product and its specifications at anytime without notice.

ILLUMINARC
8200 NW 108th Ave.
Sunrise, FL 33351
+1.954.923.3680

Submitted by Lightspec  Your Complete Light Source	Job Name: GRAIN ELEVATORS AND BRIDGES PHASE 1	Catalog Number: 01630930 ILUMIPOD 54 - OPTIC 30 Notes:	Type: W01
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Thank you for purchasing a ILUMINARC® product from an authorized ILUMINARC® dealer. We take great pride in the quality, value, and performance of our products. Please follow the proper operation and maintenance procedures outlined in the accompanying technical documentation. Should you need further technical assistance, e-mail us at the address (on the reverse side) in your region.

LIMITED EXTENDED 4 YEAR WARRANTY FOR UNITED STATES

TERMS

ILUMINARC® warrants your product for a period of four years (48 months) from the date of purchase, to be free from defects in material and workmanship and failure of the LED light source (see definitions below). This limited warranty is valid only for the original purchaser, is not transferable and is only applicable to products sold within the United States.

For purposes of this limited warranty, failure of the LED light source means that the product fails to emit 70% of the lumen output specified in the product specification prior to the earlier of (i) 50,000 hours of operation (based on L70 testing) or five years from the original date of purchase.

This warranty is limited solely to the above, applies only for the period set forth above, and is contingent upon ILUMINARC® receiving written notice of the warranty claim within thirty (30) days after the initial discovery of the defect, but in no event later than the expiration of the four (4) year warranty period, along with a description of the defect and the date of its discovery.

No agent, employee or representative of ILUMINARC® may bind ILUMINARC® to any terms or conditions beyond the scope of this limited warranty. Any provisions contained in the purchaser's purchase order or any other purchaser document which conflict with the terms and conditions of this limited warranty or which are not expressly set forth in this limited warranty shall be of no force or effect.

The purchase of this ILUMINARC® product constitutes your acceptance of the terms set forth in this limited warranty. This warranty gives the claimant specific legal rights. The claimant may also have other rights which vary from state to state.

EXCLUSIONS

This limited warranty excludes any defects caused by, resulting from or relating to the following:

- a) normal wear, misuse, abuse, improper handling, tampering or attempts to repair by or on behalf of the owner or any person not authorized by ILUMINARC®;
- b) damage to the product resulting from acts of God;
- c) exposure to harsh or excessively corrosive environmental conditions (whether indoors or outdoors), including, but not limited to, extreme temperatures, humidity, atmospheric conditions (including salinity and pressure), radiation (UV, infrared, nuclear) and shock;
- d) use of the product in a manner which exceeds the applicable product specification, including, but not limited to, exposure to excessive, insufficient or other voltage conditions;
- e) installation or use of the product not in accordance with the user manual, ILUMINARC's guidelines (as may be posted on its website at www.iluminarc.com from time to time or otherwise designated by ILUMINARC®) or applicable building and electrical codes, regulations and standards;
- f) failure to maintain the product in accordance with the user manual;
- g) natural degradation and color shift of the LED source over the course of normal product use;
- h) slight deviations in the specified values of intensity and color that do not affect the functionality of the product; and
- i) use of the product not for its intended purpose.

This limited warranty shall be null and void if the original identification information on the product is missing or has been altered in any manner.

ILUMINARC® offers no warranty for any products not bearing the name ILUMINARC® or a ILUMINARC® brand. Any warranty or other claims relating to any such third party products are the sole responsibility of the manufacturer of such third party products and the purchaser must communicate directly with such third party manufacturer regarding such claims.

LIMITATIONS

IN NO EVENT SHALL ILUMINARC® BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT OR PUNITIVE LOSS OR DAMAGE OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE PRODUCT OR ANY OTHER GOODS OR ASSOCIATED EQUIPMENT, DAMAGE TO ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES, DOWNTIME COST, INSTALLATION OR LABOR COSTS, OR CLAIMS OF THE PURCHASER'S CUSTOMERS, WHETHER BASED ON WARRANTY, CONTRACT OR NEGLIGENCE, ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THE PRODUCT. CHAUVEI'S MAXIMUM LIABILITY SHALL NOT, IN ANY CASE, EXCEED THE PURCHASE PRICE OF THE PRODUCT THAT GIVES RISE TO THE CLAIM.

EXCEPT FOR THE LIMITED WARRANTY SET FORTH HEREIN, ALL PRODUCTS SOLD BY ILUMINARC® ARE SOLD "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY AND SPECIFICALLY DISCLAIMED BY ILUMINARC®.

COSTS

Costs of removal, shipping to ILUMINARC® or its authorized representative and reinstallation are solely the responsibility of the purchaser. If ILUMINARC® determines that the product is covered by this limited warranty, ILUMINARC® will pay for the cost of shipping the repaired or replacement product or part to the purchaser at a location within the 48 contiguous United States through a method and timeline of its choosing. Costs of shipping repaired or replacement products or parts to any locations outside of the 48 contiguous United States is the sole responsibility of the purchaser. If ILUMINARC® determines that the product is not covered by this limited warranty, the purchaser will have the option to pay for the repair (if the product can be repaired) and the purchaser shall be responsible for the cost of shipping the repaired product to the purchaser. ILUMINARC® reserves the right, in its sole and absolute discretion, to decline any repair.

OTHER CONDITIONS

Proof of purchase containing the individual product serial number is necessary when making a warranty claim. Current and consistent maintenance records must be maintained for all products covered under this warranty and supplied to ILUMINARC® upon request (proper maintenance guidelines are detailed in the product user manual). If a product fails within the warranty period and if, upon examination by ILUMINARC® it is found to have failed for a covered cause, ILUMINARC® will, at its sole discretion, repair or replace the defective part or product or reimburse the purchaser a pro-rated portion of the purchase price. Should a replacement part or product be discontinued or unavailable, ILUMINARC® reserves the right, in its sole and absolute discretion, to substitute a comparable replacement product.

Submitted by Lightspec

LIGHTSPEC

Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
01630930 ILLUMIPOD 54 - OPTIC 30

Notes:

Type:

W01

SERVICE & REPAIRS

Covered Region:

United States

tech@chauvetlighting.com

1-800-762-1084, Option 4

5200 NW 108th Ave.

Sunrise, FL 33351

To secure the best possible service, please follow these simple steps:

Register your product online at <http://www.illumarc.com> as soon as possible.

E-mail or call the ILLUMINARC® office in your region to request a return authorization number (RA#). For customers located outside of a ILLUMINARC® covered region, please contact your local distributor. Do not send a product without first securing an RA#. Do not write the RA# directly on the original ILLUMINARC® box. You must write it on a removable sticker, i.e., a shipping label. Please specify your RA# request as a the 5 Year Extended Warranty Plan and provide serial numbers for each RA# requested.

Units must be adequately packed. Double-box all returns and surround product with suitable packing materials, such as Styrofoam peanuts or foam. Any damage from inadequate packing or carrier mishandling is the sole responsibility of the sender.

All shipping charges must be prepaid by the sender. ILLUMINARC® will, at its own expense, return the repaired product to the sender provided that the return address is within the 48 contiguous United States and that the product is still under warranty (proof of purchase required). Please see warranty details at <http://www.illumarc.com>. We will ship the best way, at our discretion. ILLUMINARC® only provides return shipment within the 48 contiguous United States. Return shipment outside of these areas is the sole responsibility of the customer.

PRODUCTS NOT UNDER WARRANTY:

Please notify your ILLUMINARC® service advisor that your product is no longer under warranty when you request your authorization number. Once the unit has been received, you will be contacted and advised of the cost of carrying out any repair unless the cost does not exceed \$35.00 USD, in which case the repair will be performed without seeking your prior approval. Repaired unit(s) will be shipped back to you upon receipt of payment for all work performed and return freight charges.

Warranty on repairs: All repairs have a 60-day limited warranty, valid from the date the repaired unit is delivered to the shipping agent for return to the customer, on replaced parts and repair labor against defects in material and workmanship. The exclusions and limitations set forth in the original limited warranty apply to the repair warranty.

ILLUMINARC® is not responsible for any loss or damage to additional items or accessories that are sent with returned products. ILLUMINARC® cannot be held responsible for delays in shipping.

PLEASE NOTE that it is essential that defective products reach the address set out (above) by the last day of the relevant warranty period at the latest. Late claims will not be considered. This warranty does not confer any rights other than those expressly set out in this warranty and in particular no credit notes will be issued.

ILLUMINARC®

5. Technical Information

Product Maintenance

To maintain optimum performance and minimize wear, clean the products frequently. Usage and environment are contributing factors in determining the cleaning frequency. As a general guideline, products should be cleaned at least twice a month. Dust build-up reduces light output, performance, and can cause overheating. This can lead to reduced light source life.

For products containing external optical lenses, clean them periodically to optimize light output. The cleaning frequency depends on the environment in which the product operates. Damp, smoky, or particularly dirty surrounding can cause greater accumulation of dirt on the product's optics, requiring more frequent cleaning.

To clean a product:

1. Unplug the product from power.
2. Wait until the product is at room temperature.
3. Use a vacuum (or dry compressed air) and a soft brush to remove dust collected on the external vents and reachable internal components.
4. Clean all external glass optics and glass surfaces with a mild solution of glass cleaner or isopropyl alcohol, and a soft, lint-free cotton cloth or lens-cleaning tissue.
5. Apply the solution directly to the cloth or tissue and wipe any dirt and grime to the outside edge of the lens.
6. Gently polish the external glass surfaces until they are free of haze and lint.



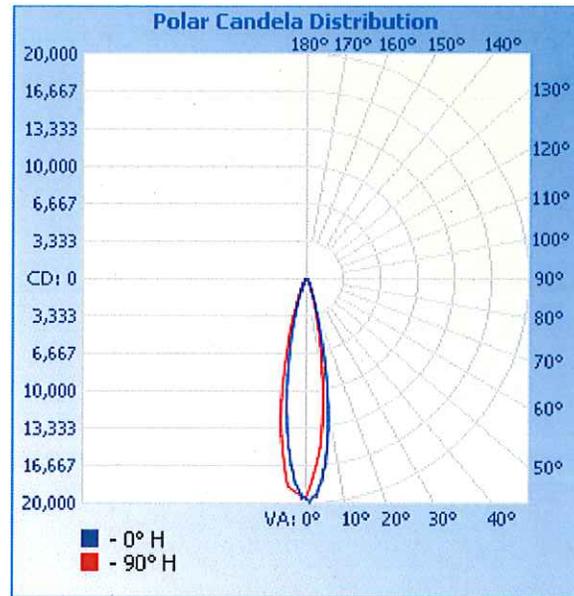
Always dry the external optics and glass surfaces carefully after cleaning them.

Product Repairs

ILUMINARC® strongly advises you against attempting any repairs to this product unless you are an authorized ILUMINARC® technician.

Photometrics

Filename: RGB 30 2014-7-4_IFSNA2002
Manufacturer: ILUMINARC
Luminaire: LED RGB*18
Lamp: ILUMIPOD 54 G2
Lamp Cat: ILUMIPOD 54 G2 OPTIC 30RGB
Lamp Output: 1 lamp, rated Lumens/lamp: 3780
Max Candela: 19,897.0 at Horizontal: 0°, Vertical: 1°
Input Wattage: 154.9
Luminous Opening: Circular (Dia: 0.1M)
Test: 2#
Test Date: 2014-07-03
Photometry : Type B
Cutoff Class: n/a
Nema Type: 3 X 3



Flood Summary			
	Efficiency	Lumens	Horizontal Spread Vertical Spread
Field (10%):	73.9%	2,791.6	39.7 40.2
Beam (50%):	38.6%	1,459.4	21.5 21.1
Total:	94.2%	3,560.1	

Illuminance at a Distance			
	Center Beam LUX	Beam Width	
1.67M	7,033 LUX	0.62 M	0.63 M
3.33M	1,758 LUX	1.24 M	1.26 M
5.00M	782 LUX	1.86 M	1.89 M
6.67M	440 LUX	2.49 M	2.53 M
8.33M	282 LUX	3.11 M	3.16 M
10.00M	195 LUX	3.73 M	3.79 M

■ Vert. Spread: 21.1°
■ Horiz. Spread: 21.5°

LED Disclaimer

LED Life

ILUMINARC® rates LED lifetime based on lumen depreciation of 70% of the original output, with data provided by the manufacturer of the LED. Data from the manufacturer of the LED are not independently verified or measured by ILUMINARC®. When the product is operating in optimal environmental conditions, the LED lifetime is rated to be 50,000 to 70,000 hours by the LED manufacturer.

LED Binning

LED manufacturers sort LEDs into “bins,” based on variances in color, output intensity, and the frequency at which the semiconductor operates. ILUMINARC® strives to hold its LED manufacturers to the highest standards of binning to optimize consistency in output from product to product. However, the availability of a single bin cannot be guaranteed. With that in mind, ILUMINARC® has developed a rigorous control system to seek the best-achievable consistency in color and output.

Color Rendering Index (CRI)

CRI is an industry standard method to compare properties of different types of light sources. There are known limitations and inconsistencies related to CRI. Results may vary depending on the environmental factors involved. For this reason, the U.S. Department of Energy (DOE) states that CRI should be considered as one point of reference among others in evaluating white LED products and systems.

The following is an excerpt of recommendations from the DOE:

1. Identify the visual tasks to be performed under the light source. If color fidelity under different light sources is critically important (for example, in a space where color or fabric comparisons are made under both daylight and electric lighting), CRI values may be a useful metric for rating LED products.
2. CRI may be compared only for light sources of equal correlated color temperature. This applies to all light sources, not only to LEDs. Also, differences in CRI values of less than five points are not significant, e.g., light sources with 80 and 84 CRI are essentially the same.
3. If color appearance is more important than color fidelity, do not exclude white light LEDs solely on the basis of relatively low CRI values. Some LED products with CRIs as low as 25 still produce visually pleasing white light.
4. Evaluate LED systems in person and, if possible, on-site when color fidelity or color appearance are important issues.

Source: DOE publication: PNNL-SA-56891, January 2008.

G-01

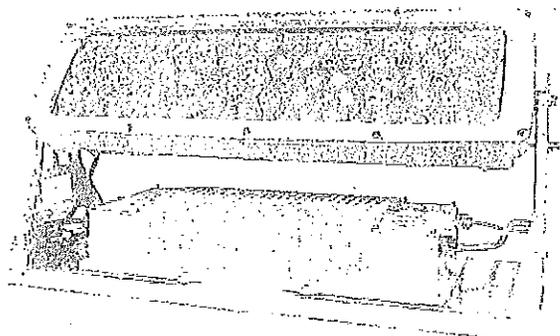
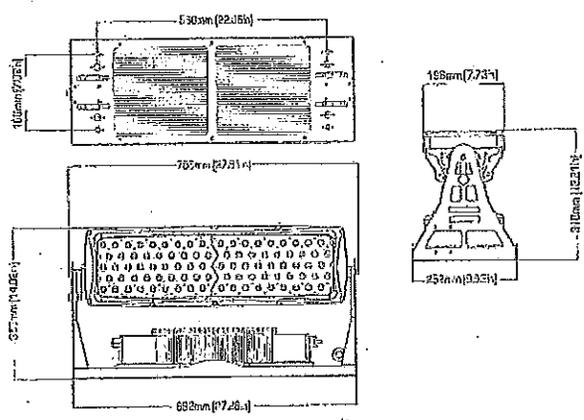
Illuminarc Illumipanel 90 IP Optic 30 RGB

Submitted by Lightspec	Job Name: GRAIN ELEVATORS AND BRIDGES PHASE 1	Catalog Number: ILLUMIPANEL 90 IP OPTIC RGB 01620631	Type: G01
LIGHTSPEC Your Complete Light Source		Notes:	BUF14-0185

ILUMINARC®

ILLUMIPANEL 90 IP OPTIC 30 RGB
Item Number: 01620631

Client: _____
Project: _____
Date: _____ Type: _____



LIGHT SOURCE & OPTICAL SPECIFICATIONS
 Light Source: 90 LEDs (30 red, 30 green, 30 blue) 5 W (700 to 1,000 mA)
 Light Source Lifespan: 50,000 hours based on LED manufacturer's specifications
 Installed Optics: 30°
 Beam Angle: 21°
 Field Angle: 39°
 Lumens: 5,806
 Base Illuminance: 1,418 lux @ 5 m
 Efficacy: 20.4 lm/W
 Color Temperature Presets: N/A
 Minimum Distance to Illuminated Surface: 4 in (92 mm)

ELECTRICAL SYSTEM SPECIFICATIONS
 Input Voltage: 100 to 240 VAC, 50/60 Hz (auto-ranging)
 Power and Current: 307 W, 2.5 A @ 120 V
 279 W, 1.3 A @ 230 V
 Power Supply: Electronic internal
 Dimmer: Electronic
 Power Linking: N/A
 Power Connection: 9.8 ft (3 m) Waterproof cable

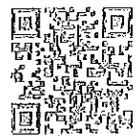
CONSTRUCTIONS & PHYSICAL SPECIFICATIONS
 Length: 27.8 in (706 mm)
 Width: 9.9 in (252 mm)
 Height: 12 in (310 mm)
 Weight: 51 lb (23.2 kg)
 Color: Off white
 Ingress Protection Rating: IP67
 Housing Material: Cast aluminum
 Lens Cover: Impact resistant glass
 Installation Orientation: Any

THERMAL SPECIFICATIONS
 Cooling: Convection
 Startup Temperature Range: -4 °F to 113 °F (-20 to 45) °C
 Operating Temperature Range: -40 °F to 113 °F (-40 to 45) °C
 Storage Temperature Range: -40 °F to 167 °F (-40 to 75) °C

CONTROL SPECIFICATIONS
 Control Protocol: USITT DMX-512a
 Control Channels: 1, 3, 4, 6 or 7
 Operating Modes: Selectable personalities
 Solid (1-channel): dimmer
 Arc 1 (3-channel): red, green, blue
 Arc 1+D (4-channel): dimmer, red, green, blue
 Arc Full (7-channel): dimmer, red, green, blue, color macros, strobs, dimming speed
 Stand Alone Control: N/A
 Remote Addresser: Ilumicode
 Data Connection: 9.8 ft (3 m) Waterproof cable

REGULATORY & VOLUNTARY QUALIFICATION
 Certification Listings: ETL, CE
 Environment: Wet location, IP67
 Warranty: 36 month manufacturer's limited warranty (for covered regions only)

Product Web Page



WWW.ILUMINARC.COM - INFO@ILUMINARC.COM
 Ilumarc reserves the right to make improvements to this product and its specifications at any time without notice.

ILUMINARC
 5200 NW 108th Ave.
 Sunrise, FL 33351
 +1.954.923.3580

Submitted by Lightspec:

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE 1

Catalog Number:
ILLUMIPANEL 90 IP OPTIC RGB
01620631

Type:
G01

Notes:

BUF14-6085

ILUMINARC®

Client: _____

Project: _____

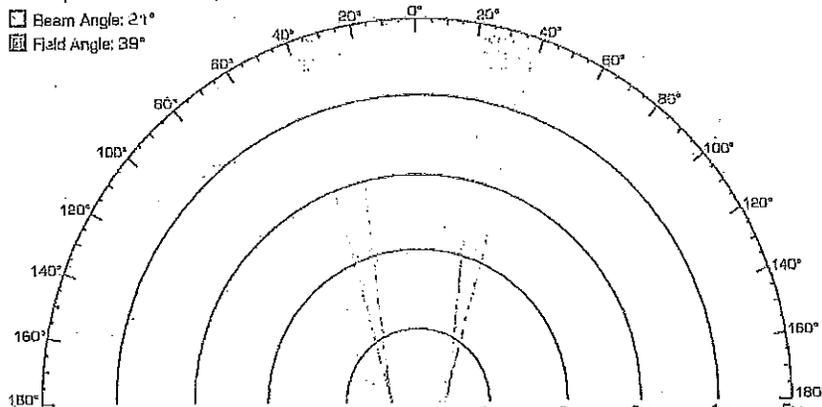
ILLUMIPANEL 90 IP OPTIC 30 RGB

Date: _____ Type: _____

Item Number: 01620631

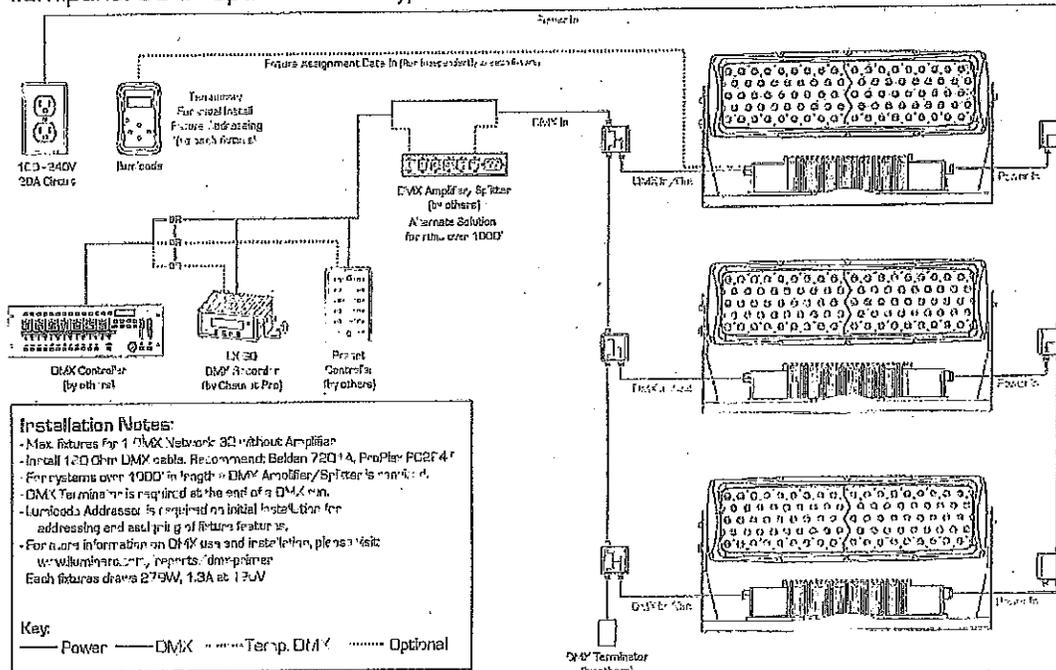
Illuminarc 90 IP Optic 30 RGB

- Beam Angle: 21°
- Field Angle: 39°



Illuminance at a Distance (lux):	1m	2m	3m	4m	5m
	35,454	8,863	3,939	2,216	1,418
Beam Spread: Horizontal(m):	0.4	0.7	1.1	1.5	1.9
Vertical(m):	0.4	0.8	1.1	1.5	1.9

Illuminarc 90 IP Optic 30 RGB Typical Installation



Installation Notes:

- Max fixtures for 1 DMX Network 30' without Amplifier
- Install 120 Ohm DMX cable. Recommend Belden 7201A, ProPlex PC2F4'
- For systems over 1000' in length - DMX Amplifier/Splitter is required.
- DMX Terminator is required at the end of a DMX run.
- Luminaire Addresser is required on initial installation for addressing and assignment of fixtures features.
- For more information on DMX use and installation, please visit www.illuminarc.com, reports, dmxpriener
- Each fixture draws 279W, 1.3A at 120V

Key:

— Power - - - - DMX ····· Temp. DMX - · - · - Optional

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Illuminarc reserves the right to make improvements to this product and its specifications at any time without notice.

ILUMINARC
5200 NW 106th Ave.
Sunrise, FL 33351
+1.954.523.3660

Submitted by Lightspec

LIGHTSPEC
Your Complete Light Source

Job Name:
GRAIN ELEVATORS AND BRIDGES PHASE
1

Catalog Number:
ILUMICODE

Notes:

Type:

G01

BUF14-6085

ILUMINARC®

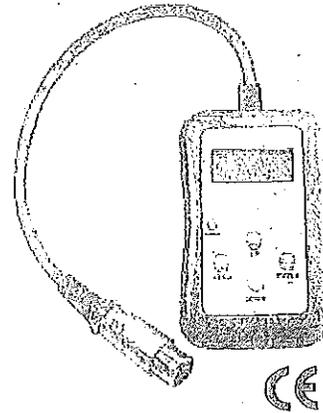
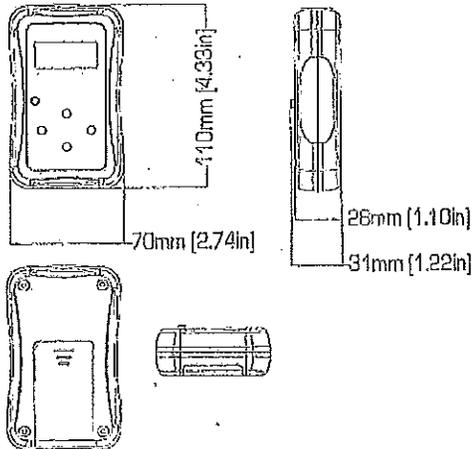
ILUMICODE

Item Number: 44444001

Client: _____

Project: _____

Date: _____ Type: _____



CONSTRUCTION & PHYSICAL SPECIFICATIONS

Length: 4.3 in (110 mm)
 Width: 2.75 in (70 mm)
 Height: 1 in (28 mm)
 Weight: 0.5 lb (0.2 kg)
 Color: Gray
 Ingress Protection Rating: IP20
 Housing Material: ABS plastic

ELECTRICAL SYSTEM SPECIFICATIONS

Battery: 2 (1.5 VDC) AA size

REGULATORY & VOLUNTARY QUALIFICATION

Certification Listings: CE, RoHS

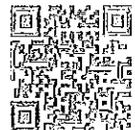
CONTROL SPECIFICATIONS

Signal Pin Out: 1=GND, 2=SIG (-), 3=SIG (+)
 Operating Modes: Selectable personalities

- PERS 1 : ARC1
- PERS 2 : ARC1+D
- PERS 3 : ARC2
- PERS 4 : ARC2+D
- PERS 5 : ARC3
- PERS 6 : ARC3+D
- PERS 7 : ARC FULL
- PERS 8 : REMOTE
- PERS 9 : SOLID
- PERS 10 : SPECIAL1
- PERS 11 : SPECIAL2
- PERS 12 : VW
- PERS 13 : VW+D

Stand Alone Control: Yes

Product
Web Page



WWW.ILUMINARC.COM - INFO@ILUMINARC.COM

Iluminarc reserves the right to make improvements to this product and its specifications at any time without notice.

ILUMINARC
 5800 NW 108th Ave.
 Sunrise, FL 33351
 +1.954.323.3560

5. Technical Information

Product Maintenance

To maintain optimum performance and minimize wear, clean the products frequently. Usage and environment are contributing factors in determining the cleaning frequency. As a general guideline, products should be cleaned at least twice a month. Dust build-up reduces light output, performance, and can cause overheating. This can lead to reduced light source life and increased mechanical wear.

The cleaning frequency depends on the environment in which the product operates. Damp, smoky, or particularly dirty surroundings can cause greater accumulation of dirt on the product's optics, requiring more frequent cleaning.

To clean a product:

- Unplug the product from power.
- Wait until the product has cooled.
- Use a vacuum (or dry compressed air) and a soft brush to remove dust collected on the external vents and reachable internal components.
- Clean all external glass surfaces with a mild solution of glass cleaner or isopropyl alcohol, and a soft, lint-free cotton cloth or lens-cleaning tissue.
- Apply the solution directly to the cloth or tissue and wipe any dirt and grime to the outside edge of the lens.
- Gently polish the external glass surfaces until they are free of haze and lint.

Product Repairs

ILUMINARC® strongly advises you against attempting any repairs to this product unless you are an authorized ILUMINARC® technician.

ILUMINARC® presents the information contained in the [Troubleshooting Guide](#) as potential solutions only. In most cases, opening the product's housing will invalidate its warranty, unless there is a written indication to the contrary.



Always dry the external optics and glass surfaces carefully after cleaning them.



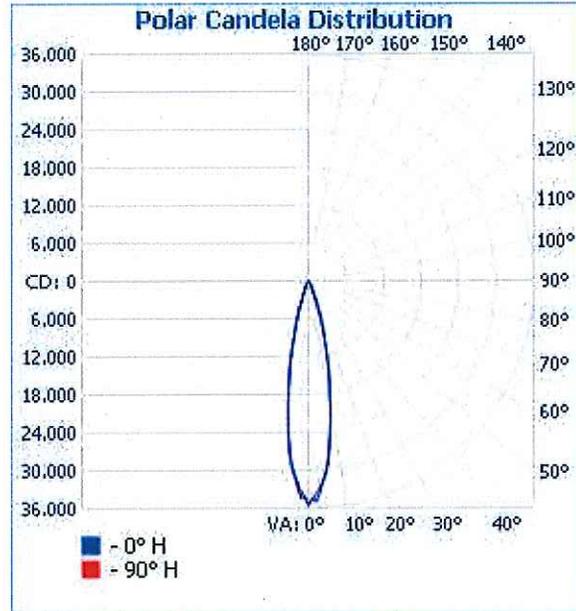
If you still experience technical problems after trying the solutions in the [Troubleshooting Guide](#), contact [ILUMINARC® Technical Support](#).

Troubleshooting Guide

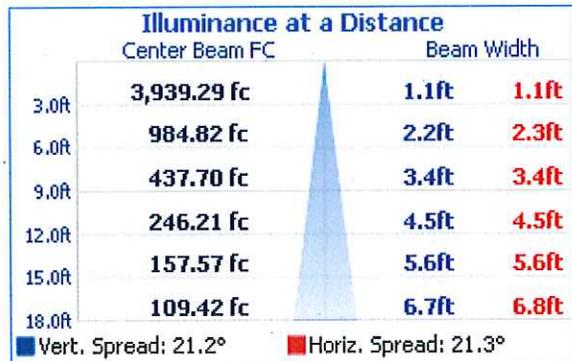
Symptom	Cause(s)	Action(s)
Low light intensity	Dirty lens assembly	Clean the product regularly
	Misaligned lens assembly	Return for service to Iluminarc®
Group of LEDs not illuminating	Faulty LED	Return for service to Iluminarc®
	Faulty LED driver	Return for service to Iluminarc®
One LED does not illuminate	Faulty LED	Return for service to Iluminarc®
	Faulty LED driver	Return for service to Iluminarc®
No LEDs illuminate	Faulty LED board	Return for service to Iluminarc®
	Faulty LED driver board	Return for service to Iluminarc®
Circuit breaker/fuse keeps tripping/blowing	Excessive circuit load	Check total load placed on the electrical circuit
	Short circuit along the power wires	Check for a short in the electrical wiring
Product does not power up	No power	Check for power on power outlet
	Loose or damaged power cord	Check power cord
	Faulty internal power supply	Return for service to ILUMINARC®
Product does not respond to DMX	Wrong DMX addressing	Check Control Panel and product addressing
	Damaged DMX cables	Check DMX cables
	Wrong polarity on the controller	Check polarity switch settings on the controller
	Loose DMX cables	Check cable connections
	Faulty DMX interface	Return for service to Iluminarc®
	Faulty Display/Main board	Return for service to Iluminarc®
DMX signal problems	Non-DMX cables	Use only DMX-compatible cables
	Bouncing signals	Install terminator as shown in the “DMX Primer” from the ILUMINARC® website at http://www.iluminarc.com/reports/dmx-primer
	Long cable/low level signal	Install an optically coupled DMX splitter right after the product with the strong signal
	Too many products	Install an optically coupled DMX splitter after product #32 or before
	Interference from AC wires	Keep DMX cables separated from power cables or fluorescent/black lights

Photometrics

Filename: Ilumipanel 90 IP Optic RGB
 30-degree single panel at full
 Manufacturer: ILUMINARC®
 Luminaire: Ilumipanel 90 IP Optic RGB
 single head 30 degrees
 Luminaire Cat: 01620437
 Lamp: 60 Red, 60 Green, 60 Blue
 Lamp Output: 1 lamp(s), rated Lumens/lamp 2000
 Max Candela: 35,453.7 at Horizontal: 0°, Vertical: 0°
 Input Wattage: 284
 Luminous Opening: Point
 Test: 2011 ALL
 Test Lab: Iluminarc R&D Optics Laboratory
 Photometry : Type B
 CIE Class: Direct
 Cutoff Class: n/a



	Efficiency	Lumens	Horizontal Spread	Vertical Spread
Field (10%):	2.8%	5,019.2	39.5	39.3
Beam (50%):	1.5%	2,659.8	21.3	21.2
Total:	3.2%	5,806.3		



Photometrics Pro 1.3.2 copyright 2003-2008 by jSolutions, Inc.
 Reported data calculated from manufacturer's data file, based on IES recommended methods.

LED Disclaimer

LED Life

ILUMINARC® rates LED lifetime based on lumen depreciation of 70% of the original output, with data provided by the manufacturer of the LED. Data from the manufacturer of the LED are not independently verified or measured by ILUMINARC®. When the product is operating in optimal environmental conditions, the LED lifetime is rated to be 50,000 to 70,000 hours by the LED manufacturer.

LED Binning

LED manufacturers sort LEDs into “bins,” based on variances in color, output intensity, and the frequency at which the semiconductor operates. ILUMINARC® strives to hold its LED manufacturers to the highest standards of binning to optimize consistency in output from product to product. However, the availability of a single bin cannot be guaranteed. With that in mind, ILUMINARC® has developed a rigorous control system to seek the best-achievable consistency in color and output.

Color Rendering Index (CRI)

CRI is an industry standard method to compare properties of different types of light sources. There are known limitations and inconsistencies related to CRI. Results may vary depending on the environmental factors involved. For this reason, the U.S. Department of Energy (DOE) states that CRI should be considered as one point of reference among others in evaluating white LED products and systems.

The following is an excerpt of recommendations from the DOE:

1. Identify the visual tasks to be performed under the light source. If color fidelity under different light sources is critically important (for example, in a space where color or fabric comparisons are made under both daylight and electric lighting), CRI values may be a useful metric for rating LED products.
2. CRI may be compared only for light sources of equal correlated color temperature. This applies to all light sources, not only to LEDs. Also, differences in CRI values of less than five points are not significant, e.g., light sources with 80 and 84 CRI are essentially the same.
3. If color appearance is more important than color fidelity, do not exclude white light LEDs solely on the basis of relatively low CRI values. Some LED products with CRIs as low as 25 still produce visually pleasing white light.
4. Evaluate LED systems in person and, if possible, on-site when color fidelity or color appearance are important issues.

Source: DOE publication: PNNL-SA-56891, January 2008

Exhibit D

Comprehensive Insurance
Coverage

INSURANCE

The Contractor shall carry, and shall require each of its Subcontractors to carry, Insurance of the following types and minimum amounts. Additional types and amounts of coverage may be required depending on the nature of the services to be performed under this Agreement or a subconsulting agreement.

Workers' Compensation Insurance

Workers' Compensation - Statutory Limits; Employer's Liability

Employer Liability Limits:

\$1,000,000	Bodily Injury each Accident
\$1,000,000	Bodily Injury by Disease – Policy Limit
\$1,000,000	Bodily Injury by Disease – Each Employee

Commercial General Liability Insurance

Limits of Liability

\$1,000,000	Each Occurrence
\$2,000,000	General Aggregate
\$2,000,000	Products/Completed Operations Aggregate
\$ 5,000	Medical Expense Limit (any one person)
\$ 100,000	Damage to Rented Premises (each occurrence)

Coverage shall be on an Occurrence form and apply to bodily injury (including death) and property damage.

These limits shall apply on a "per project" basis.

Policy shall be written on form CG 00 01 or its equivalent and shall not include any exclusions or limitations other than those incorporated in the standard form.

Contractual Liability and Additional Insured Coverage shall not include any limitations for injuries to your own employees.

Products and Completed Operations Liability shall be maintained for six (6) years beyond completion and acceptance of the Project.

There shall be no XCU exclusion (Explosion, Collapse or Underground),

There shall be no "Labor Law" or other gravity related injuries exclusion.

Shall include coverage for Independent Contractors

Shall include Contractual Liability for liability assumed under this Contract and all other Contracts relative to the Project

Delete contractual exclusion, or any other policy exclusions, for work done within 50 feet of a Railroad, Light Rail, Subway or similar tracked conveyance or provide endorsement CG 24 17 – Contractual Liability - Railroads

Commercial Automobile Liability Insurance

\$1,000,000 Combined Single Limit (Each Accident)

Commercial Automobile Liability Insurance covering “any” auto including owned, non-owned and hired.

Excess Liability

Limits of Liability: \$5,000,000

Coverage should be at least as broad as and follow form of Employer’s Liability, General Liability, and Auto Liability. Policy to include a drop down provision over primary policies.

The limits of liability shown for each type of insurance coverage to be provided by the Contractor and any subcontractors pursuant hereto shall not be deemed to constitute a limitation of the Contractor’s liability for claims hereunder or otherwise.

As respects General Liability, the additional insured endorsements shall be on a form at least as broad as ISO Forms CG 20 10 07 04 & CG 20 37 07 04 combined and shall not include any exclusions that limit the scope of coverage/policy limits beyond that provided to the named insured. This requirement applies to all policies under which the above parties are required to be named as Additional Insureds. The Additional Insured coverage shall include completed operations coverage for the Additional Insureds for a period of not less than 72 months after completion of the project. The Contractor shall require all subcontractors of any tier to include Additional Insured endorsement CG 20 38 04 13 and CG 20 37 07 04 with respect to General Liability.

The Contractor shall, by specific endorsement to its primary commercial general liability policy, pollution and automobile liability policy, cause the coverage afforded to the Additional Insureds thereunder to be primary to and non-contributory with any other valid and collectible insurance available to the Additional Insureds.

All policies shall contain a waiver of subrogation in favor of the People of the State of New York, ESD, ECHDC & State Parks and all others as required by contract.

All policies required under this Contract shall be provided by carriers licensed and authorized to do business in the State of New York carrying minimum A.M. Best ratings of A-, VII. Policies written on a surplus lines or non-admitted basis are subject to approval by the ESD and ECHDC.

Deductibles and Self-Insured Retentions Any deductibles or self-insured retentions must be declared to and approved by the ESD and ECHDC.

Certificates evidencing the foregoing insurance coverages must be furnished by the Contractor to, and be approved by ESD and ECHDC, before the Contractor will be permitted to do any work under this Subcontract. Certificates, Notices of Cancellation, or changes, etc., are to be sent by the Contractor, directly to ECHDC at 95 Perry Street Suite 500, Buffalo NY 14203. The Contractor, the Contractor's agent and the Contractor's insurance carrier(s) must reconcile all policy requirements to the satisfaction of ESD and ECHDC.

If the Contractor fails to purchase, or fails to continue in force until completion of the Work, insurance in the amounts indicated above, the ESD and ECHDC may purchase such insurance and the cost thereof shall be borne by the Contractor and may be deducted from any amounts owed by the ESD and ECHDC to that Contractor.

Additional Insured – The following shall be named as ADDITIONAL INSURED by the Contractor and all subcontractors and/or subconsultants on **Commercial General Liability Insurance, Automobile Liability, Excess Liability and Pollution Liability** policies:

Erie Canal Harbor Development Corporation
The New York State Urban Development Corporation d/b/a Empire State Development;
The People of the State of New York

Subcontractors and subconsultants

The Contractor shall require all subcontractors, subconsultants to comply with the requirements noted above and provide the following coverage limits stated below:

Workers' Compensation Insurance

Workers' Compensation and Disability Benefits - Statutory Limits;
Employer Liability Limits:
\$1,000,000 Bodily Injury each Accident
\$1,000,000 Bodily Injury by Disease – Policy Limit
\$1,000,000 Bodily Injury by Disease – Each Employee

Commercial General Liability Insurance

Limits of Liability
\$1,000,000 Each Occurrence

\$2,000,000	General Aggregate
\$2,000,000	Products/Completed Operations Aggregate
\$ 5,000	Damage to Rented Premises (each occurrence)
\$ 100,000	Fire Damage Legal Liability (any one fire)

Coverage shall be on an Occurrence form and apply to bodily injury and property damage.

These limits shall apply on a “per project” basis.

Policy shall be written on form CG 00 01 or its equivalent and shall not include any exclusions or limitations other than those incorporated in the standard form.

Contractual Liability and Additional Insured Coverage shall not include any limitations for injuries to your own employees.

Products and Completed Operations Liability shall be maintained for six (6) years beyond completion and acceptance of the Project.

There shall be no XCU exclusion (Explosion, Collapse or Underground),

There shall be no “Labor Law” or other gravity related injuries exclusion.

Shall include coverage for Independent Contractors

Shall include Contractual Liability for liability assumed under this Contract and all other Contracts relative to the Project

Delete contractual exclusion, or any other policy exclusions, for work done within 50 Feet of a Railroad, Light Rail, Subway or similar tracked conveyance or provide endorsement CG2417-Contractual Liability-Railroads.

Commercial Automobile Liability Insurance

Limits of Liability: \$1,000,000 Combined Single Limit (Each Accident)
 Commercial Automobile Liability Insurance covering “any” auto including owned, non-owned and hired.

If autos are used for transporting hazardous materials: Pollution liability broadened coverage for covered autos (endorsement CA 99 48) as well as proof of MCS 90

Excess Liability

Limits of Liability: \$5,000,000
 Coverage should be at least as broad as and follow form of Employer’s Liability, General Liability, and Auto Liability. Policy to include a drop down provision over primary policies.

Commercial Property

Coverage for the Site and ancillary structures, including piers, docks, wharves, bulkheads and seawalls, fixtures and equipment shall be provided for full replacement value on an all-risk "Special Causes of Loss" policy naming ESD and ECHDC as "loss payees."

Contractors Pollution Liability

Limits of Liability: \$ 5,000,000 per occurrence
\$ 5,000,000 annual aggregate

Coverage:

Coverage shall be on a Contractors Pollution Liability (CPL) form on an occurrence basis covering losses caused by pollution conditions that arise from the operations of the Contractor, or their sub-contractors, described under the scope of services in the contract.

Coverage Extensions:

Bodily injury, sickness, disease, mental anguish or shock sustained by any person, or death.

Property damage, including physical injury to or destruction or tangible property, including the resulting loss of use thereof, clean-up costs and the loss of use of tangible property that has not been physically damaged or destroyed.

Defence, including costs, charges and expenses incurred in the investigation, adjustment or defence of claims for damages.

Non-owned disposal site and transportation coverage must be included in the policy

Completed Operations Liability shall be maintained for six (6) years beyond completion and acceptance of the Project.

Contractual Liability and Additional Insured Coverage shall not include any limitations for injuries to your own employees.

Insured pollutants shall specifically include fungus, mold, bacteria and viruses.

Policy to include gradual and sudden and accidental pollution.

Policy to include Additional Insured in favor of ESD AND ECHDC, the People of the State of New York & State Parks.

The policy may not contain separate restrictions for;

damage to property that cannot be used or is less useful because of the operations of the insured (most Impaired Property exclusions are not acceptable;

work performed by subcontractors;

Chinese or other contaminated drywall;

Property damage to your work;

Impaired property;

Lead, asbestos or silica related losses;

Limitation for lead and asbestos abatement should be separately disclosed and the endorsement attached to the certificate of insurance.

If disposal of materials from the job site is undertaken: evidence of pollution legal liability insurance in the amount of \$5,000,000, maintained by the disposal site operator for losses arising from the disposal site accepting waste must be provided.

If any coverage required in this Contract is written on a claims-made coverage form:

1. The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.
2. Insurance must be maintained and evidence of insurance must be provided for at least six (6) years after completion of contract work.
3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective, or start of work date, the Contractor must purchase extended reporting period coverage for a minimum of six (6) years after completion of contract work.
4. A copy of the claims reporting requirements must be submitted to the ESD AND ECHDC for review

Certificates of Insurance - Certificates of insurance reasonably acceptable to the ESD and ECHDC shall be filed with the ESD and ECHDC within ten (10) days after award of the contract to the Contractor and prior to commencement of the Work. All required insurance shall be maintained without interruption from the date of commencement of the Work until the date of the final payment and for a minimum of six (6) years following for products / completed operations. These certificates and the insurance policies shall contain a provision that coverages afforded under the policies will not be materially modified, cancelled or allowed to expire until at least thirty (30) days' prior written notice has been given to the ESD and ECHDC. The provisions of this Section shall apply to all policies of insurance required to be maintained by the Contractor pursuant to the Contract Documents.

Other Insurance - Any type of insurance or any increase of limits of liability not described in this section which the Contractor requires for their own protection or on account of any statute shall be their own responsibility and at their own expense.

No party subject to the provisions of this contract shall violate or knowingly permit to be violated any of the provisions of the policies of insurance described herein.

All insurance required to be procured and maintained must be procured from insurance companies licensed to do business in the State of New York and rated at least A- VII by

A.M. Best and Company, or meet such other requirements as are acceptable to the ESD and ECHDC.

Should the Contractor fail to provide or maintain any insurance required by this contract, the ESD and ECHDC may, after providing written notice to the Contractor, purchase insurance complying with the requirements of this Article and charge back such purchase to the Contractor.

At any time that the coverage provisions and limits on the policies required herein do not meet the provisions and limits set forth above, the Contractor shall immediately cease work on the Project. The Contractor shall not resume work on the Project until authorized to do so by the ESD and ECHDC. Any delay or time lost as a result of the Contractor not having insurance required by this Article shall not give rise to a delay claim or any other claim against the ESD or ECHDC.

Notwithstanding any other provision in this Article, the ESD and ECHDC may require the Contractor to provide, at the expense of the ESD and ECHDC, any other form or limit of insurance necessary to secure the interests of the ESD and ECHDC.

Neither the procurement nor the maintenance of any type of insurance by the ESD and ECHDC or the Contractor shall in any way be construed or deemed to limit, discharge, waive or release the Contractor from any of the obligations or risks accepted by the Contractor or to be a limitation on the nature or extent of said obligations and risks of the Contractor.

The Contract may, at the sole option of the ESD and ECHDC, be declared void and of no effect if the Contractor fails to comply with the provisions of this Article.

The Contractor and its Trade Contractors shall not violate, or permit to be violated, any term or condition of their insurance policies, and shall at all times satisfy the safety requirements of the ESD and ECHDC and of the insurance companies issuing such policies.

Exhibit E

Sample Budget Sheet



Contractor _____						Date _____	
Grain Elevator Illumination - Budget Sheet							
Task 1	Staff	Rate	Hours	Equipment	Materials	Cost	
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						Total Cost	\$ -
Task 2	Staff	Rate	Hours			Cost	
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						Total Cost	\$ -
Task 3	Staff	Rate	Hours			Cost	
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						Total Cost	\$ -
Task 4	Staff	Rate	Hours			Cost	
Repair Allowance						\$	50,000.00
						Total Cost	\$ -
Overhead Costs	Staff	Rate	Hours			Cost	
						\$	-
						\$	-
						\$	-
						\$	-
						Total Cost	\$ -
Miscellaneous	Staff	Rate	Hours			Cost	
						\$	-
						\$	-
						\$	-
						\$	-
						Total Cost	\$ -
						Yearly Contractor Total	\$ -

Exhibit F

Diversity Practices
Questionnaire

&

Diversity Practices Scoring
Matrix



I, _____, as _____ (title) of _____ firm or company (hereafter referred to as the company), swear and/or affirm under penalty of perjury that the answers submitted to the following questions are complete and accurate to the best of my knowledge:

1. Does your company have a Chief Diversity Officer or other individual who is tasked with supplier diversity initiatives? Yes or No

If Yes, provide the name, title, description of duties, and evidence of initiatives performed by this individual or individuals.

2. What percentage of your company's gross revenues (from your prior fiscal year) was paid to New York State certified minority and/or women-owned business enterprises as subcontractors, suppliers, joint-venturers, partners or other similar arrangement for the provision of goods or services to your company's clients or customers?

3. What percentage of your company's overhead (i.e. those expenditures that are not directly related to the provision of goods or services to your company's clients or customers) or non-contract-related expenses (from your prior fiscal year) was paid to New York State certified minority- and women-owned business enterprises as suppliers/contractors?¹

¹ Do not include onsite project overhead.



4. Does your company provide technical training² to minority- and women-owned business enterprises? Yes or No

If Yes, provide a description of such training which should include, but not be limited to, the date the program was initiated, the names and the number of minority- and women-owned business enterprises participating in such training, the number of years such training has been offered and the number of hours per year for which such training occurs.

5. Is your company participating in a government approved minority- and women-owned business enterprise mentor-protégé program?

If Yes, identify the governmental mentoring program in which your company participates and provide evidence demonstrating the extent of your company's commitment to the governmental mentoring program.

6. Does your company include specific quantitative goals for the utilization of minority- and women-owned business enterprises in its non-government procurements? Yes or No

² Technical training is the process of teaching employees how to more accurately and thoroughly perform the technical components of their jobs. Training can include technology applications, products, sales and service tactics, and more. Technical skills are job-specific as opposed to soft skills, which are transferable.



If Yes, provide a description of such non-government procurements (including time period, goal, scope and dollar amount) and indicate the percentage of the goals that were attained.

7. Does your company have a formal minority- and women-owned business enterprise supplier diversity program? Yes or No

If Yes, provide documentation of program activities and a copy of policy or program materials.

8. Does your company plan to enter into partnering or subcontracting agreements with New York State certified minority- and women-owned business enterprises if selected as the successful respondent? Yes or No

If Yes, complete the attached Utilization Plan



All information provided in connection with the questionnaire is subject to audit and any fraudulent statements are subject to criminal prosecution and debarment.

Signature of
Owner/Official

Printed Name of
Signatory

Title

Name of Business

Address

City, State, Zip



STATE OF _____

COUNTY OF _____) ss:

On the ____ day of _____, 201_, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to this certification and said person executed this instrument.

Notary Public

New York State Diversity Practices Scoring Matrix

Questions

Q1 - CDO or other person tasked with function					Yes	No	Total
					5 pts	0 pts	
Q2 - Percentage of prior yr. revenues that involved M/WBEs as subs or JVs/partners	20%+	15-19%	10-14%	5-9%	1-4%	0%	
	20 pts	14 pts	10 pts	6 pts	2 pts	0pts	
Q3 - Percentage of overhead expenses paid to M/WBEs	20%+	15-19%	10-14%	5-9%	1-4%	0%	
	16 pts	10 pts	7 pts	4 pts	1 pts	0pts	
Q4 - M/WBE Training			Robust	Moderate	Minimum	None	
			16 pts	8 pts	4 pts	0 pts	
Q5 - M/WBE Mentoring			Robust	Moderate	Minimum	None	
			12 pts	8 pts	4 pts	0 pts	
Q6 - Written M/WBE goals included in the Company's procurements			Robust	Moderate	Minimum	No	
			20 pts	12 pts	6 pts	0 pts	
Q7 - Formal Supplier Diversity Program			Robust	Moderate	Minimum	No	
			6 pts	4 pts	2 pts	0 pts	

