



CITY OF MIAMI

Capital Improvements Program

Robert King High Park Soccer Field Restrooms, B-30229

ITB No. 08-09-055

ADDENDUM NO. 4

January 14, 2010

TO: ALL PROSPECTIVE BIDDERS:

The following changes, additions, clarifications, and deletions amend the above-captioned Bid/Contract documents, and shall become an integral part of the bid responses and the subsequent contract. Please note the contents herein and affix same to the documents you have on hand.

Requests For Information

- Q1) **Drawing A101 - Enlarged Bleachers Plan - By note on this plan they request bleachers for 148 regular occupants and 51 wheelchair H.C. - by plans it is only (2) sets of bleachers with a total of (24) and (22) regular occupants and (5) wheelchairs.**
 - A1) Bleachers are required to hold a total of 148 occupants and 5 H.C. locations for a cumulative total of 153 occupants – see Sheet A101 (**attached**) for breakdown per row.
- Q2) **Reflected Ceiling Plan - Screen ventilation it is shown by sections and a note asking for continued.**
 - A2) 4" x 72" screened ventilation will be provided as located on Reflected Ceiling Plan.
- Q3) **Division 10 - Specialties - By Specifications on this section showing a sub section "IDENTIFY DEVICES" can you identify in the drawings, size and Qtys.**
 - A3) A total of three (3) signs are required for the rooms shown on the floor plan. Identification of those rooms is required with room names, room numbers, symbols and braille as is specified in spec section 10400. Size of sign will be determined by information needed to identify room.

Please delete the Spec 16526 and replace with the attached revised Spec 16526.

THIS ADDENDUM IS AN ESSENTIAL PORTION OF THE CONTRACT DOCUMENTS AND SHALL BE MADE A PART THEREOF.



 Gary Fabrikant,
 Assistant Director
 Capital Improvements Program

This Addendum should be signed and dated by Bidder and submitted as proof of receipt with the submission of bids. The Bidder by identifying the Addendum number in their bid proposal and by the signing and submission of their bid shall serve as proof of receipt of this Addendum.

NAME OF FIRM: _____
 SIGNATURE: _____
 DATE: _____

SECTION 16526
SPORTS LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Furnish complete lighting system including poles, fixtures, ballast, lamps, etc. as set forth in the following specifications. These specifications are the minimum criteria by which all submitted equipment must meet or exceed.

1.2 SUMMARY

- A. This Section includes lighting for the following outdoor sports venues, specified primarily by illumination performance:
 - 1. Soccer fields.
- B. Related Sections include the following:
 - 1. Division 16 Section "Lighting Control Devices" for multipole lighting relays and contactors.
- C. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- D. The primary goals of this sports lighting project are:
 - 1. Life Cycle Cost: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated, and the field(s) should be proactively monitored to detect fixture outages over a 25 year life cycle. To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system.
 - 2. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore the lighting system shall be designed such that the light levels are guaranteed for a period of 25 years.

1.3 DEFINITIONS

- A. CV: Coefficient of variation; a statistical measure of the weighted average of all relevant illumination values for the playing area, expressed as the ratio of the standard deviation for all illuminance values to the mean illuminance value.
- B. Delegated-Design Submittals: Documents, including drawings, calculations, and material and product specifications prepared as a responsibility of Contractor to obtain acceptance by Owner and authorities having jurisdiction.
- C. Horizontal Illuminance: Measurement in foot-candles, on a horizontal surface 36 inches above ground, unless otherwise indicated.
- D. LLD: Lamp lumen depreciation.
- E. LLF: Light loss factor.
- F. Luminaire: Complete lighting fixture, including ballast housing if provided.
- G. Target Illuminance: Average maintained illuminance level, calculated by multiplying initial illuminance by LLF.
- H. UG: Uniformity gradient; the rate of change of illuminance on the playing field, expressed as a ratio between the illuminances of adjacent measuring points on a uniform grid.
- I. Vertical Illuminance: Measurement in foot-candles, in **two** directions on a vertical surface, at an elevation coinciding with plane height of horizontal measurements.

1.4 PERFORMANCE REQUIREMENTS

- A. Facility Type: Amateur league
- B. Illumination Calculations: Computer-analyzed point method complying with IESNA RP-6 to optimize selection, location, and aiming of luminaires.
 - 1. Grid Pattern Dimensions: For playing areas of each sport and areas of concern for spill-light control, correlate and reference calculated parameters to the grid areas and intersection points of the indicated grid pattern.
 - 2. Spill-Light Control: Minimize spill light for each playing area on adjacent and nearby areas.
 - a. Prevent light trespass on properties near Project as defined by authorities having jurisdiction.

3. Glare Control: Design illumination for each playing area to minimize direct glare in adjacent and nearby areas as defined by authorities having jurisdiction.
- C. Performance Requirements: Playing surfaces shall be lit to an average constant light level and uniformity as specified in the chart below. Light levels shall be held constant for 25 years. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Measured average illumination level shall be +/- 10% of predicted mean in accordance with IESNA RP-6-01, and measured at the first 100 hours of operation.

Area of Lighting	Average Constant Light Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Soccer Field	30 Footcandles	2.0:1.0	66	30' x 30'

- D. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, the pole mounting heights from the playing field surface shall be 70'.

1.5 LIFE CYCLE COSTS

- A. Energy Consumption: The average kWh consumption for the field lighting system shall be 41 or less.
- B. Complete Lamp Replacement: Manufacturer shall include all group lamp replacements required to provide 25 years of operation based upon 625 usage hours per year.
- C. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.
- D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (Manual or Auto) and contactor status (open or closed).
- E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or

email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields, to only having permission to execute "early off" commands by phone.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

- F. Management Tools: Manufacturer shall provide a web-based database of actual field usage and provide reports by facility and user group.
- G. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

1.6 SUBMITTALS

- A. Product Data: For each type of lighting product; include the following:
 - 1. Lamp life, output, and energy-efficiency data. Energy data shall comply with IESNA LM-47.
 - 2. Photometric data based on laboratory tests of each luminaire type, complete with lamps, ballasts, and accessories.
 - a. Photometric data shall be certified by a qualified independent testing agency.
- B. Delegated-Design Submittals: The following documents, signed and sealed by a qualified professional engineer:
 - 1. Drawings and specifications for construction of lighting system.
 - 2. Manufacturer's determination of LLF used in design calculations.
 - 3. Written manufacturer's warranty information including insurance carrier's name and address and all terms and conditions.
 - 4. Document showing each luminaire's aiming angle and the poles on which the luminaries are mounted. Each aiming point shall identify the type of luminaire.
 - 5. Structural analysis data and calculations used for pole selection.
 - a. Manufacturer Wind-Load Strength Certification: Submit certification that selected total support system, including poles, complies with AASHTO LTS-4 for location of Project and with FBC Building Code edition 2007. Luminaire, visor, and crossarm shall withstand 146

mph winds and maintain luminaire aiming alignment. Foundation design will be based on FBC-C-2007.

6. Design calculations for the following:
 - a. Target illuminance.
 - b. Point calculations of horizontal and vertical illuminance on playing surface, CV, and UG at minimum grid size and area.
 - c. Point calculations of horizontal and vertical illuminance in required areas of concern for spill light as defined by authorities having jurisdiction.
 - d. Calculations of source intensity of luminaires observed at eye level from required properties nearby the playing fields as defined by authorities having jurisdiction.
 - e. Short-circuit current calculations for rating of panelboards.
 - f. Total connected and estimated peak-demand electrical load, in kilowatts, of lighting system.
 - g. Written statement of initial and maintained average footcandle levels & uniformity ratio.
7. Capacity of service required to supply the lighting system.
8. Wiring requirements, including required conductors and cables and wiring methods.

- C. Manufacturer Certificates: Signed by manufacturers certifying that support structures, including brackets, arms, appurtenances, bases, anchorages, and foundations, comply with requirements.
- D. Qualification Data: For Installer, manufacturer, professional engineer, luminaire photometric data testing laboratory and field testing agency.
- E. Field quality-control test reports.
- F. Operation and Maintenance Data: For sports lighting system components to include in emergency, operation, and maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 100 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.

1. Manufacturer's responsibilities include fabricating sports lighting and providing professional engineering services needed to assume engineering responsibility.
 2. Engineering Responsibility: Preparation of delegated-design submittals and comprehensive engineering analysis by a qualified professional engineer.
- C. Luminaire Photometric Data Testing Laboratory: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7.
- D. Field Testing Agency Qualifications: An independent testing agency that is accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products, or an NRTL as defined by OSHA in 29 CFR 1910.7, with the experience and capability to conduct field testing according to IESNA LM-5.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.8 WARRANTY AND GUARANTEE

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

1.9 DELIVERY TIMING

- A. Equipment On-Site: The equipment must be on-site 4-6 weeks from receipt of approved submittals and receipt of complete order information.

1.10 PRE-BID SUBMITTAL REQUIREMENTS

- A. Basis of Design: Musco's Light-Structure Green™ System. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

- B. Design Approval: The owner / engineer will review pre-bid shop drawings from the manufacturers to ensure compliance to the specification. If the design meets the design requirements of the specifications, a letter will be issued to the manufacturer indicating approval for the specific design submitted.

1.11 ALTERNATE SYSTEM REQUIREMENTS

- A. Compliance to Specifications: Acceptance of a bid alternate does not negate the contractor and lighting manufacturer's responsibility to comply fully with the requirements of these specifications. Any exceptions to the specifications must be clearly stated in the prior approval submittal documents.
- B. Light Level Requirements: Manufacturer shall provide computer models guaranteeing light levels on the field over 25 years. If a constant light level cannot be provided, a maximum Recoverable Light Loss Factor of 0.70 shall be applied to the initial light level design to achieve the following Initial and target/maintained light levels: For alternate systems, scans for both initial and target/maintained light levels shall be submitted.

Area of Lighting	Average Initial Light Levels	Average Target/Maintained Light Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Soccer Field	43 Footcandles	30 Footcandles	2.0:1.0	66	10' x 10'

For alternate systems, scans for both initial and target/maintained light levels shall be submitted.

- C. Revised Electrical Distribution: Manufacturer shall provide revised electrical distribution plans to include changes to service entrance, panel, and wire sizing.

PART 2 - PRODUCTS

2.1 LIGHTING SYSTEM CONSTRUCTION

- A. System Description: Lighting system shall consist of the following:
 1. Galvanized steel poles and crossarm assembly
 2. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final

grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied.

3. All luminaires shall be constructed with a die-cast aluminum housing or external hail shroud to protect the luminaire reflector system.
 4. Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10' above grade. The enclosures shall include ballast, capacitor and fusing for each luminaire. Safety disconnect per circuit for each pole structure will be located in the enclosure.
 5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 6. Controls and Monitoring Cabinet to provide on-off control and monitoring of the lighting system, constructed of NEMA Type 4 aluminum. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual Off-On-Auto selector switches shall be provided.
- B. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
- C. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed steel shall be hot dip galvanized per ASTM A123. All exposed hardware and fasteners shall be stainless steel of at least 18-8 grade, passivated and polymer coated to prevent possible galvanic corrosion to adjoining metals. All exposed aluminum shall be powder coated with high performance polyester. All exterior reflective inserts shall be anodized, coated with a clear, high gloss, durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All wiring shall be enclosed within the crossarms, pole, or electrical components enclosure.
- D. Lightning Protection: All structures shall be equipped with lightning protection meeting NFPA 780 standards. Contractor shall supply and install a ground rod of not less than 5/8" in diameter and 8' in length, with a minimum of 10' embedment. Ground rod should be connected to the structure by a copper main down conductor with a minimum size of #2 for poles with less than 75' mounting height and 2/0 for poles with more than 75' mounting height.
- E. Safety: All system components shall be UL Listed for the appropriate application.
- F. Electric Power Requirements for the Sports Lighting Equipment:

1. Electric power: 480 Volt, 3 Phase
2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

2.2 STRUCTURAL PARAMETERS

- A. Support Structure Wind Load Strength: Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the 2007 edition of the Florida Building Code, wind speed of 146 MPH, exposure category C and High Velocity Hurricane Zone. Luminaire, visor, and crossarm shall withstand 150 mph winds and maintain luminaire aiming alignment. Foundation design will be based on 2007 FBC.
- B. Structural Design: The stress analysis and safety factor of the poles shall conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- C. Soil Conditions: The design criteria for these specifications are based on soil design parameters as outlined in the geotechnical report
- D. It shall be the contractor's responsibility to notify the owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the owner's approval / payment for additional costs associated with:
 - a. Providing engineered foundation embedment design by a registered engineer in the State of Florida.
 - b. Additional materials required to achieve alternate foundation.
 - c. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.
- E. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and

verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-01, Appendix B.

B. **Correcting Non-Conformance:** If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the Contractor shall be liable to any or all of the following:

1. Contractor shall at his expense provide and install any necessary additional fixtures to meet the minimum lighting standards. The Contractor shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
2. Contractor shall minimize the Owner's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the Owner the amount of \$1,000.00 (one thousand dollars) for each additional fixture required.
3. Contractor shall remove the entire unacceptable lighting system and install a new lighting system to meet the specifications.

C. **Light Level Accountability:**

1. Light levels shall be guaranteed not to fall below the target maintained light levels for the entire warrantee period.
2. If the owner feels that light levels have fallen below the target maintained value identified in the specification, the Owner may request Manufacturer to conduct a full grid light test to verify compliance to specification. If light levels do not meet specified values, Manufacturer shall provide immediate correction as described in Section 3.1.B to bring light levels to specified maintained values at no cost to the owner.

D. **Testing Agency:** Engage a qualified independent testing and inspecting agency to perform field quality-control tests, inspections, and analysis according to IESNA RP-6 and IESNA LM-5, where applicable, and prepare reports.

3.2 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sports lighting. Refer to Division 1 Section "Demonstration and Training."

3.3 POWER DISTRIBUTION

- A. Wiring Method for Feeders, Subfeeders, Branch Circuits, and Control Wiring: Underground nonmetallic raceway; No. 10 AWG minimum conductor size for power wiring.
- B. Electrical Enclosures Exposed to Weather: NEMA 250, Type 4X with hinged doors fitted with padlock hasps.

3.4 SURGE PROTECTION

- A. Surge Protection: Comply with requirements in Division 16 Section "Transient Voltage Suppression" and include surge suppressors with the following requirements:
 - 1. Panelboard type.
 - 2. Nonmodular, with LED indicator lights.

END OF SECTION